A digital coffeehouse? Exploring the longitudinal Twitter discussion surrounding the United

Kingdom's withdrawal from the European Union


Thomas S. Wellings



Submitted in accordance with the requirements for the degree of Doctor of Philosophy



University of Leeds

School of Media and Communication



July 2022

The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

The right of Thomas Samuel Wellings to be identified as the author of this work has been asserted by him in accordance with the Copyright, Designs and Patents Act 1988.

## Acknowledgements

First and foremost, I would like to thank my primary supervisor, Dr Giles Moss. Giles has offered his expertise, advice, and support throughout this project. I would not have been able to complete this without him and I will be forever grateful. I would also like to thank my secondary supervisor, Dr Christopher Birchall. Chris has been extremely supportive and helpful throughout the project, especially in the computational elements. I want to acknowledge the help of Professor Katrin Voltmer during the application stages of this PhD, Professor Christopher Anderson for his advice during the COVID-19 pandemic and Dr Heather Ford for her help and advice during her time as my secondary supervisor. My friends and family have been hugely supportive, as have those I have met during this PhD journey. For that, I thank them. Finally, I would like to dedicate this thesis to my friends Jessie Ferrentino and Tyler James Clark, as well as my Grandfather Kenneth Rigby - you will all be missed greatly.

## Abstract

This thesis seeks to longitudinally assess the quality of public debate within the Twitter discussion of Brexit, undertaken through a mixed-method approach that combines quantitative and qualitative measures, as well as human coded and computational elements. To undertake this research, a corpus of N=450,000 tweets have been retrospectively gathered across four years, from February 2016 until February 2020, allowing my research to draw conclusions based upon trends across time. The theoretical framework is predominantly informed by Habermas's public sphere theory, which establishes the basis for my empirical research. Specifically, I argue that quality public debate should be free from polarisation and distortions in power relations, being an accessible space that promotes rational discussion that aids in the formation of informed public opinion.

Within the literature review, I demonstrate that the EU referendum suffered from a deliberative deficit, which may have negatively impacted discussion on the platform and challenged the legitimacy of the 2016 referendum result. Through the empirical findings, I then highlight several issues that constrain Twitter's ability to facilitate healthy public debate within the context of the UK-EU discussion, with several measures pointing to a long-term decrease in the quality of the conversation. However, a number of the empirical findings are highly nuanced, which may reflect the complex nature of political discussion on the platform Twitter. In presenting the empirical findings, this thesis challenges previously held assumptions about the UK-EU discussion on Twitter, as well as contributes to new understandings regarding the quality of contentious political debate on the platform.

Preface

*Digital communication represents the third great innovation on the media plane. With their introduction, these three media forms have enabled an ever-growing number of people to access an ever-growing mass of information. These are made to be increasingly lasting, more easily. With the last step represented by the Internet, we are confronted with a sort of "activation" in which readers themselves become authors. Yet, this in itself does not automatically result in progress on the level of the public sphere.* – Jürgen Habermas, 2014*.*

## Table of Contents

# List of Figures

# List of Tables

## List of Abbreviations

| | |
|---|---|
| API | Application Programme Interface |
| CEE | Central Eastern European |
| DUP | Democratic Unionist Party |
| EU | European Union |
| GE | General Election |
| GOT3 | Get Old Tweets 3 (code) |
| JSON | JavaScript Object Notation |
| MP | Member of Parliament |
| MSM | Mainstream Media |
| Pearson's r | Pearson's Correlation |
| PM | Prime Minister |
| RQ | Research Question |
| SNA | Social Network Analysis |
| SPSS | Statistical Package for the Social Sciences (software) |
| UK | United Kingdom |
| US | United States of America |
| WTO | World Trade Organisation |

# Chapter 1: Introduction

## 1.1.  Overview of Chapter

In many Western liberal democracies, there has been a crisis in public-political communication. Concerns have been raised regarding the way politics is communicated to the public, and in turn, how the public discuss politics. While this crisis is not necessarily contemporary (see, for example, Blumler and Gurevitch, 1995), it has accelerated in recent years, reflecting the increasing salience of digital media (Sunstein, 2018). While digital media was initially treated with a degree of optimism, several questionable political outcomes have raised doubt in relation to the impact of digital media on democratic processes. Twitter, a popular platform of civic debate, has been at the forefront of many of these concerns, reflecting fears that the platform facilitates simplistic, polarising, and emotional discussion (Sunstein, 2017; Oz et al., 2018; Bouvier and Rosenbaum, 2020; Cinelli et al., 2021). This is significant, with research suggesting that the discussion on Twitter is likely to have played a role in a number of real-world political events - such as the Arab Spring (Eltantawy and Wiest, 2011; Bruns et al., 2013), the 2016 United States (US) election of Donald Trump (Hall et al., 2018; Zheng and Shahin, 2020) and the 2016 European Union (EU) referendum (Tong and Zuo, 2021).

Within the Twitter discussion of Brexit, research has demonstrated a number of challenging characteristics (Bouko and Garcia, 2020; North et al., 2020; Tong and Zuo, 2021), raising questions regarding the quality of the Twitter debate surrounding the United Kingdom's (UK) withdrawal from the EU. However, there is a need to expand upon previous understandings, with further research required to comprehensively assess the Twitter discussion, considering

the dynamic four-year debate. As I will come to demonstrate, the issue of Brexit underwent significant developments throughout the time in which it was one of the most prominent issues in the UK. However, the current corpus of literature offers a fragmented picture of the discussion on Twitter. This thesis seeks to build upon existing literature, adopting elements of Habermas's public sphere theory to assess the quality of the Twitter debate across time. In doing so, this thesis contributes to an understanding of the UK-EU discussion on Twitter, as well as the quality of long-term political discussion on the platform more generally. To undertake this research, this thesis adopts a mixed-methods approach, combining both qualitative and quantitative elements, as well as human-coded and computational analysis. I explore a corpus of N=450,000 tweets gathered from February 2016 until February 2020.

This chapter will introduce the thesis by first highlighting the background of the study before addressing the research rationale, research contribution and the research questions. Finally, this chapter outlines the structure of the thesis, offering an overview of the main arguments found within the literature review, the approach within the methodology, the content of the four empirical chapters, and the main arguments within the concluding chapter.

## 1.2.    Background of Study

### 1.2.1.   Public Sphere Theory

Within this thesis, I have operationalised elements of Habermas's public sphere theory (Habermas, 1991), taking the view that Habermas's theory is the most suitable theoretical framework to aid in assessing the quality of public debate on online social media platforms (Dahlgren, 2005; Papacharissi, 2010; Datts, 2020). There are, however, a number of revisions, critiques and expansions that I address within the literature review - with the literature

review also including a more detailed overview of Habermas's theory and the elements

adopted within the empirical measurements of this thesis. At this stage, though, I would like

to take a moment to introduce the foundation of Habermas's theory, as well as the premise

of its inclusion within this thesis.

Habermas's public sphere theory emphasises a discussion that should inform public opinion,

expressed through rational critical debate in which issues of public good are discussed

through reasoned argumentation (Habermas, 1974). Informed public opinion is essential, as

it adds legitimacy to political outcomes. To reach the stage in which a degree of public

opinion can be formed, the public and private spheres should be separated. By that,

Habermas places importance on the autonomy of the private sphere, particularly its

separation from the state. The public sphere, therefore, could act as an intermediary

between state and private actors. However, Habermas argues that this was challenged due to

the proliferation of mainstream media (MSM) and the public relations industries, which

merged the public and private spheres (Habermas, 1991). This drew public debate away from

egalitarianism and its public issue focus, with top-down discussion only granting the illusion

of informed public debate.

While Habermas has only sparingly discussed the public sphere in relation to social media (for

example, Habermas 2006; 2018), Habermas's theories have often been applied to the study

of debate on social media. As I will highlight within the literature review, elements of the

public sphere theory translate well to assessments of online public discussion. Moreover, this

approach allows research to consider contemporary media within the context of broader

public debate, allowing analysis to reflect upon evaluations of social media deliberation in

contrast with the traditional media landscape. While it is accepted that there are other normative indicators of quality public debate (for example, Lyotard, 1979 and Mouffe, 2013), Habermas's conception of the public sphere arguably offers the most robust theoretical framework to meet my research objective.

In addition, Twitter data offers the ability to quantitatively measure network interactions, which may provide empirical evidence of inter-ideological engagement (Habermas, 1984) and aid in analysing the characteristics of information providers (Habermas, 1991; 2006). To address such areas, I adopt a social network analysis, which tracks network interactions and identifies users within a position of influence through network centrality. In relation to network centrality, I use the measurements of in-degree and eigenvector centrality as a basis to explore the type of user likely to impact the agenda of discussion (the specifics of such measurements are elaborated on in Chapter 3 Section 3.3.).

Finally, I take the view, in agreement with Bruns and Highfield (2016, p98), that Habermas's public sphere theory is one of the most important building blocks in addressing questions of quality public debate. However, I differ with Bruns and Highfield (ibid) in their assertation that a significant theoretical revision is needed to apply Habermas's theory to online discussion. The applicability of Habermas's theory within online discussion has been demonstrated through a number of papers that have shared his notion of quality public debate (for example, Freelon, 2010; Dagoula, 2019; Furman and Tunç, 2020). I do accept, though, that elements of Habermas's theory may not translate as clearly to online discussion. For this reason, the literature review outlines the characteristics that I will focus on for the purpose of my analysis. I make the argument that, in order to be viewed as a functioning

online public sphere, such a space should be accessible, free from distortion and polarisation, and should promote rational critical debate. In doing so, I link these characteristics to the empirical aspects of my research, which should offer the reader a basis for the approach I have undertaken.

### 1.2.2.  Twitter as a Platform of Public Debate

Twitter is often considered to have a particular association with political communication and civic debate. Initially, this association was cemented through the platform's role in several democratising social movements, such as the Arab Spring, the Movement of the Squares and #MeToo (Howard et al., 2011; Gerbaudo, 2017; Manikonda et al., 2018). However, as Bouvier and Rosenbaum (2020b, p195) highlight, the platform has now become a staple in contemporary political discussion, presenting 'new challenges to how we might traditionally think about political communication, and indeed, politics itself'. In this sense, the platform's significance goes far beyond a handful of social movements. Twitter acts as a platform where its users can discuss their understanding of political issues, as well as a novel space for politicians, media organisations and public figures to disseminate information.

There have been attempts to categorise social media users (see Dijk and Hacker, 2018, Chapter 3), as well as the way social media may serve democratic discussion (e.g., Dahlgren, 2009; Sunstein, 2018); however, discussion on social media is highly complex and context-specific (Bouvier and Rosenbaum, 2020, p195), posing a challenge for a ubiquitous understanding of social media's impact. Within the context of Twitter, this may reflect the scale of its userbase. For example, as of 2017, Twitter was used by an estimated 16 million UK citizens (LSE, 2018), representing a significant portion of the population. Moreover, it may

also reflect the dynamic nature of debate on the platform, with evidence suggesting that users' attitudes develop as discussion progresses (Yardi and Boyd, 2010).

With that said, there is some general understanding of Twitter's ability to facilitate civic debate. There is a degree of understanding regarding the impact of the platform level affordances (see Chapter 2, Section 2.4.), which may pose a challenge to the quality of discussion on Twitter. For example, Oz et al. (2018) present evidence to suggest that Twitter's open network structure may encourage incivility and impoliteness, and Sunstein (2018) argues that the hashtag, which is synonymous with Twitter, may act as a filtering tool in instances where it outlines a clear position on an issue (e.g., #StopBrexit). Moreover, there is evidence to suggest elite users have a disproportionate influence on the trajectory of discussion (Wu et al., 2011; Stier et al., 2018b Dagoula, 2019), which may limit egalitarian debate; as well as evidence that associates homogeneity with discussion on Twitter (Yardi and Boyd, 2010; Colleoni et al., 2014; Sasahara et al., 2019; Guo et al., 2020; Yarchi et al., 2021), which may have implications for opinion formation (Conover et al.,2018, p2) and tribalism (North et al., 2020).

Despite concerns, Twitter has maintained its position as an important platform for public debate, with Bouvier and Rosenbaum (2020) arguing that both detractors and supporters of Twitter concede it has a significant impact on public debate.  As such, several studies have opted to conduct empirical analysis focusing solely on the platform (e.g., Michailidou, 2017; Bouvier and Rosenbaum, 2020; Guo et al, 2020; Tong and Zuo, 2021). However, understandings of debate on the platform are far from unequivocal (Bouvier and Rosenbaum, 2020), with further research needed to understand public-political debate on

Twitter. It should be noted that the platform's importance has been demonstrated within the context of Brexit, providing a space for citizens to discuss their understandings of the UK-EU relationship (Tong and Zuo, 2021), facilitating discussion across the time of the UK-EU debate (Del Gobbo et al., 2020). As I will come to argue, though, there are gaps in the current understanding of the UK-EU discussion on Twitter, gaps that this research will aim to address.

### 1.2.3.   *The EU Referendum*

As should be clear at this point, this thesis seeks to explore the quality of Twitter discourse surrounding the UK's withdrawal from the EU. The UK–EU relationship has received a degree of public-political scrutiny since the UK's inclusion into the European Economic Community in 1973. However, it would not be until the 2015 general election (GE) that the prospect of the UK withdrawing from the EU entered mainstream political debate. In response to the growing Eurosceptic movement within the UK, during the 2015 election, all major parties offered some form of an in-out referendum on the UK's EU membership (although it was expected that a hung parliament would see the promise of a referendum dropped). At 10 pm on the 7th of May 2015, UK broadcasters presented exit polling that suggested that the Conservative Party would fall short of a parliamentary majority. However, the forecasts underestimated Conservative support, with the Conservative Party, under the leadership of David Cameron, winning a slim parliamentary majority at the 2015 GE.

In line with the Conservative Parties' 2015 manifesto, in February of 2016, Cameron announced the date of the in-out referendum on the UK's EU membership – the 23rd of June 2016, marking the start of the 2016 referendum campaign. The Leave campaign, which was

primarily represented by 'Vote Leave' (the official campaign group affiliated with a handful of prominent Conservative Party politicians) and Leave.EU (affiliated with several UKIP politicians), received heavy criticism for their communication strategy. For example, Starkey et al. (2021, p30) highlight how both campaign groups exposed 'all the negatives they could find or create, to denigrate the role of the EU' using emotional, xenophobic, and populist argumentation. In contrast, the Remain campaign was praised for its rational and polite argumentation (ibid). However, its strategy of focusing on the economic benefits of the status quo failed to resonate with large portions of the working class - many of whom favoured restrictive immigration policies and a shift away from the type of economic liberalism associated with the UK's EU membership (Goodwin and Milazzo, 2017; Carreras, 2019).

Twitter played an important role during the EU referendum campaign, providing a platform for both campaigns to present their argument to a significant portion of society in a relatively unrestricted and direct manner. It also incorporated the views of Twitter users, many of whom would not typically have the opportunity to share their viewpoints through the legacy media. In doing so, the Leave campaign, and its supporters, were generally considered more effective on the platform; both in terms of their understanding of online political communication (Tong and Zuo, 2021, p12), their Twitter reach (Hänska and Bauchowitz, 2017) and their united messaging that cut across partisan affiliation (McLoughlin et al. 2020, p14-15). The effectiveness of the Leave campaign's social media strategy amplified many of the negative characteristics that it had become associated with. This, combined with both campaigns' emphasis on 'claim and counterclaim of hyperbolic proportions' (Barber, 2017,

p226), raised questions regarding the quality of civic debate on the platform. Before this point, social media platforms (particularly Twitter) were often pointed to as having democratising effects (Gerbaudo, 2017). However, consensus would shift, partially reflecting the social media discourse surrounding the 2016 referendum campaign.

On the 23rd of June 2016, the UK voted to leave the EU by a margin of 51.9% to 48.1%. The outcome of the vote differed within each of the UK's four constituent countries; England and Wales voted to leave by a margin of 53.4%-46.6% and 52.5%-47.5% (respectively). However, Scotland and Northern Ireland voted to remain by a margin of 62%-38% and 55.8%-44.2% (respectively), posing a political challenge regarding the implementation of the result. Moreover, in the aftermath of the vote, it became clear that the UK-EU relationship and the logistics of separating from the EU were highly complex and contentious. The government, as well as the broader political class, lacked consensus. To add to these issues, there was a feeling amongst those who supported leaving that any post-referendum debate that brought into question the UK's ability to leave the EU lacked legitimacy (Brändle et al., 2020), likely fuelled by the discourse of prominent advocates of Leave (Breeze, 2020). There was growing discontent among those who supported remaining, reflecting the feeling that such a significant change to the status quo cannot and should not be brought about by a hastily called referendum that lacked quality civic debate (Petrie, 2020).

As the discussion progressed, the Brexit identities of 'Leaver' and 'Remainer' became synonymous with the EU referendum. This posed challenges for democratic debate, mainly as it limited the willingness to engage across the political divide, with Hobolt et al. (2020, p24) finding that 'polarisation along the Brexit divide was as large, or larger, than partisan

affective polarisation, and its effects cross-cut partisan identities'. The growing Brexit identities were also observed in the Twitter discussion surrounding the UK-EU relationship. Bouko and Garcia (2020) demonstrate that the debate involved highly emotional themes, limiting the platform's ability to function as a public sphere, acting more as a public space, one characterised by the polarising identities of Leaver and Remainer. Bouka and Garcia's (ibid) arguments are supported by Vrikki (2020) and North et al. (2020), who both demonstrate that the post-referendum Twitter discussion became characterised by collective identities, displaying several characteristics of affective polarisation.

During the latter stages of the Brexit discussion, negotiations between the UK government and the EU stalled. Parliament could not agree on a path forward, forcing PM Theresa May to extend the deadline by which the UK should have formally left the EU. This deadline extension meant that the UK would participate in the 2019 EU elections, with the results seeing a surge in support for the Liberal Democrats, who adopted a clear stance on revoking Brexit, and the Brexit Party, who promised to deliver a 'No-Deal' Brexit (referring to a trade relationship based on World Trade Organisation (WTO) terms). The collapse in support for the Conservative government led to the resignation of May, who was replaced by Boris Johnson (a key figure in the official Leave campaign). The Conservative government and the Labour Party (the main opposition party) both hardened their position in relation to the referendum result. Labour advocated for a second EU referendum (Woodcock, 2019), marking a shift from the previous stance of implementing an exit that would offer a relatively close alignment (Labour Party, 2017). On the other hand, the Conservative Party took several controversial steps to meet a somewhat arbitrary deadline of leaving the EU by the 31st of October 2019. In doing so, they flirted with the idea of leaving the EU on 'No-Deal' terms.

Arguably, the increasingly distinct position of both camps reflected the growing polarisation and disillusionment within UK politics during this time (Brunner, 2019, p2).

Despite the Conservative Party having the capability to pass legislation, facilitated due to a supply and demand agreement with the Democratic Unionist Party (DUP), it became apparent that due to vastly divergent views within parliament, neither vision for Brexit could be facilitated without a general election (GE). Parliament was dissolved on the 6th of November 2019, with a GE called for the 12th of December 2019. The intention of the GE was clear - it would either offer legitimacy to the 2016 referendum or provide a basis for the UK to remain a member of the EU. If Labour were to win, there would be a second referendum on the UK's membership with the option to remain. If the Conservatives were to retain their position as the government of the UK, then the UK would formally leave the EU by the 31st of January 2020, preferably with a deal, but with the option of leaving without a deal should the EU seek a further extension.

The 2019 GE would see the Conservative Party secure a solid parliamentary majority. PM Johnson would fulfil his manifesto pledge, formally leaving the EU on the 31st of January 2020 with a transitional deal that his predecessor had negotiated. In doing so, questions regarding the UK-EU relationship had been sealed - the UK had formally left the EU after 47 years of being a member. During this time, on Twitter, tentative evidence has suggested that the quality of political discussion may have improved, with Marchal et al. (2020) finding that reputable news sources played a significant role in the conversation, decreasing the potential for polarisation.  Yet, this lacks thorough investigation, and questions remain unanswered regarding the Twitter discussion surrounding the UK's withdrawal from the EU across time.

As I demonstrate within this section, and elaborate on within the literature review, the issue of Brexit underwent several developments. While this thesis is not the first attempt to analyse the Twitter discussion of Brexit, existing studies generally neglect to consider the discussion across time. This is important, as the current understanding of the Twitter discussion is somewhat fragmented and lacks a cohesive understanding of its development. This thesis, to my knowledge, is the most comprehensive analysis of the Twitter discussion of Brexit accounting for change across time.

### 1.2.4.  *Populism*

Within this thesis, I have taken the stance that populism should be considered an important area when analysing the quality of the Twitter discussion of Brexit. I made this decision due to research identifying populism as a salient aspect of the platform Twitter (Gerbaudo, 2018; Spiering, 2018; Gil de Zúñiga et al., 2020), its association with Brexit (Hobolt, 2016; Goodwin and Milazzo, 2017; Bennett, 2019; Tong and Zuo, 2021) and its challenge to rational public debate (Waisbord, 2018; Privitera; Gil de Zúñiga et al., 2020). While I will further elaborate on the specifics of these associations within the literature review and in Chapter 6, I would like, here, to briefly outline the central arguments I am going to make and offer the reader an introduction to the basis behind populism's inclusion within this thesis.

Populism is generally considered to be a contested concept, which is most apparent in debates surrounding whether to view populism as a communication style (e.g., Block and Negrine, 2017) or an ideology (e.g. Mudde, 2004). Despite this, academic literature points to a number of common characteristics associated with populism. Specifically, this centres

around out-group hostility (Jagers and Walgrave, 2007; Block and Negrine, 2017; De Vreese et al., 2018), the reclamation of popular sovereignty (Jagers and Walgrave, 2007; Block and Negrine, 2017; Mudde, 2004; Cleen, 2017; Kallis, 2018) and attacks against an the elite (Mudde and Kaltwasser, 2012; Aslanidis, 2017). As I will come to argue in Chapter 2, this presents the opportunity to view populism on the basis of such characteristics, rather than in terms of ideology or communication style.

There has long been an association between social media platforms, specifically Twitter, and populism. As Ernst et al., (2017) argue, this reflects the fact that communication on Twitter bypasses traditional media gatekeepers and is a relatively direct form of communication that rewards populist and sensationalist content. Such an association has been documented within the context of UK-EU discussion. For example, Tong and Zuo (2021) demonstrate that Twitter offered a platform to amplify and mainstream populist claims. In many senses, this reflects wider associations between the Leave campaign and populism (Hobolt, 2016; Goodwin and Milazzo, 2017; Bennett, 2019). However, questions remain unanswered regarding populism within the context of the UK-EU discussion on Twitter. Primarily, such questions centre around how Twitter users adopt and disseminate populist claims, with Datts (2020) highlighting the significance of user-level populism.

### 1.3. Rationale and Research Problem

It is hoped that, through an exploration of the Twitter discussion of the UK's withdrawal from the EU, that this thesis can aid in understanding an element of the debate surrounding one of the most consequential political outcomes in recent years. The UK's exit from the EU posed a significant challenge to the established Western liberal order, the first indicator of an inward

turn that would spread to several other liberal democracies. The vote's implications within the UK led to a substantial political realignment, one that challenged well-established partisan affiliations and reignited calls for Scotland's secession. It also challenged a period of relative political cohesion, sparking a crisis that would seemingly polarise the country along the Brexit divide.

As I have touched upon in the previous section, Twitter played an important, albeit contentious, role in the discussion of the UK-EU relationship. In many senses, this reflects the mainstreaming of Twitter within political communication. As Bouvier and Rosenbaum (2020, p1) argue, Twitter has moved from a banal and self-involved space to a 'space where politicians, activists and regular citizens voice their opinions, seek out like-minded others, and spar with those on the other side of the aisle'. Twitter is now considered an important tool for politicians to disperse their message and connect with the citizenry (Graham et al., 2013; Verdegem and D'heer, 2018), as well as a space that offers the citizenry the ability to express their perspective on political and social events (Gil de Zúñiga et al., 2014).

Yet, questions are raised regarding the quality of the discussion on Twitter. For example, numerous studies have suggested that users often discuss issues on the basis of homophily (Himelboim et al., 2013; Colleoni et al., 2014; Furman and Tunç, 2020), that politicians (and other influential users) disseminate information on the platform in a top-down manner (Sorensen et al., 2019) and that discussion, more often than not, goes against many of the deliberative ideals outlined by Habermas (Sunstein, 2018; Oz et al., 2018). In relation to the discussion of Brexit, there have been a number of challenging findings that seem to correspond with wider critiques of political discussion on the platform (e.g., Tong and Zuo

2020; North et al., 2020). Yet, there is a need to go beyond previous understandings, paying particular attention to the long-term characteristics of the discussion and its developing nature.

Therefore, the rationale for this project centres around two main areas. Firstly, Brexit is one of the most significant political issues in modern UK politics, with opinion polling suggesting that it was the most important issue for the electorate from 2016 until 2019 (Westbrook, 2019). Twitter is an important element of that discussion, with the UK-EU relationship receiving sustained attention on the platform (Calisir and Brambilla, 2020). This makes the Twitter discussion of the UK-EU relationship a suitable case study for this thesis to explore. Secondly, contributing to the understanding of this important issue, through the longitudinal analysis undertaken within this thesis, will allow my research to systematically investigate several of the previously held assumptions regarding the Twitter discussion of Brexit (e.g., that the discussion became more polarised as it progressed). Currently, much of the understanding of change across time lacks systematic empirical investigation. This generally reflects the fragmented corpus of literature. My research seeks to offer a detailed analysis of the change across time, which may clarify presumptions and offer a novel perspective regarding the developing nature of the discussion.

I also have a personal motivation to research this topic. During the referendum campaign and ensuing debate, several close individuals began to articulate their concerns that social media, particularly Twitter, negatively impacted their political understandings. It seemed, anecdotally, that Twitter may be a factor in their decline in cross-ideological understandings.

This sparked my initial interest in researching this topic and motivated me to understand an issue that potentially has real-world effects.

## 1.4. Research Questions

The principal objective of this thesis is to explore Twitter's role as a platform of public debate during the discussion of the UK's withdrawal from the EU. To address this research objective, I proposed the following research questions (RQ), which were informed by elements of the public sphere theory (with a detailed justification presented in Chapter 2):

RQ1 – *To what extent does the discussion function deliberatively?*

RQ2 – *To what extent do characteristics of populism permeate the discussion at a user level?*

RQ3 – *How does polarisation manifest within the discussion across time?*

RQ4 – *What are the characteristics of users in a position of network centrality?*

## 1.5. Structure of Thesis

### 1.5.1. Chapter 2: Literature Review

Chapter 2 presents the theoretical framework that underpins much of this thesis. Specifically, this focuses on Habermas's conception of the public sphere, highlighting its literary development, key elements, and post-social media transformation. In doing so, I offer a rationale for the empirical aspects of this thesis, presenting an overview of literature addressing such areas. In the latter half of the chapter, I explore the specifics regarding deliberative quality in relation to the discussion of Brexit, arguing that the EU referendum suffered from a deliberative deficit. Finally, this chapter addresses literature that has

explored the discussion of Brexit on Twitter, highlighting areas of consensus that offer a valuable discussion point within the empirical chapters.

### 1.5.2.   *Chapter 3: Methodology*

In Chapter 3, I outline the research approach, offering a justification for the longitudinal mixed-methods undertaken within this thesis, as well as demonstrating why Twitter has been chosen as the platform of study. In the latter half of the chapter, I outline the specifics of each of the methods, which is centred around a social network analysis (SNA), quantitative content analysis, and a supplementary thematic analysis.

### 1.5.3.   *Chapter 4: Polarisation*

Chapter 4 is the first empirical chapter of this thesis, which primarily addresses debates surrounding polarisation. The most significant element of this chapter looks to explore the degree of homogeneity within the discussion, which is undertaken through a SNA exploring the community structure at nine-time points. The homogeneity analysis aims to offer empirical evidence regarding the level of inter-ideological discussion. In the latter half of this chapter, I present an analysis of out-group labelling, which seeks to measure the degree of affective polarisation. The out-group labelling analysis is undertaken through a quantitative thematic analysis, exploring the discourse surrounding the most frequent themes observed. Finally, this chapter considers the degree of expressed support for moderate and extreme opinions, a key indicator of attitude polarisation.

### 1.5.4. Chapter 5: Central Users

Chapter 5 is the second empirical chapter within this thesis, exploring the characteristics of the central users highlighted within the SNA, with the premise of this chapter arguing that network centrality is a key indicator of a user's agenda-setting capacity. This chapter begins by outlining the most frequent opinion leaders, which considers the findings from Chapter 4. This chapter then explores the network position of media accounts, political figures and the personal Twitter accounts of non-notable users (hereon referred to as 'everyday' users), which I relate to notions of power relations within the public sphere.

### 1.5.5. Chapter 6: Populism

Chapter 6 is the third empirical chapter within this thesis, exploring the role of populism at a user level. The premise of this chapter argues that populism runs contrary to normative functions of a public sphere, challenging discursive rationality and distorting communication. Within this chapter, I explore three commonly accepted indicators of populism: 1) the construction of an out-group, 2) claims regarding popular sovereignty, and 3) attacks against the elite. The findings are generated through the quantitative content analysis, with a supplementary thematic analysis undertaken to explore the quantitative results.

### 1.5.6. Chapter 7: Deliberative Quality

Chapter 7 is the final empirical chapter within this thesis, exploring indicators of deliberative quality. The premise of this chapter argues that deliberation is an essential prerequisite for democratic decision-making and a key indicator of Twitter's ability to facilitate healthy political discussion. Within this chapter, the findings are presented from the quantitative

content analysis, addressing question asking, incivility, justification, and the use of the

hashtag.

### 1.5.7.   Chapter 8: Conclusion

The final chapter summarises the key findings, offers an overview of the thesis, and considers

the specific empirical findings in relation to the four RQs. In the latter half of the chapter, I

discuss the implications of this research, its contribution to new knowledge (both in terms of

findings and methodology), its broader limitations, and offer a concluding statement.

# Chapter 2: Literature Review

## 2.1.    Chapter Overview

This chapter begins by offering an overview of the public sphere, considering its development through a review of Habermas's most significant literature, before considering its relationship with social media and highlighting the elements of the public sphere addressed within this thesis. This chapter then explores debates surrounding deliberative democracy and the EU referendum, before outlining the affordances approach adopted within this thesis and offering an overview of previous research that has examined the EU referendum on Twitter.

## 2.2.    The Public Sphere

### *2.2.1.   Habermas and the Public Sphere*

As I outline in the introduction, Habermas's public sphere theory underpins much of the theoretical framework of this thesis. In exploring Habermas's conception of the public sphere, an essential first step is to clarify what he means when he refers to the 'public sphere'. I find that Habermas's (1974) work, *The Public Sphere: An Encyclopaedia Article,* offers the most succinct overview. Habermas (ibid, p49) highlights how his notion of the public sphere refers to 'a realm of our social life in which something approaching public opinion can be formed', with access guaranteed to all citizens, enabling deliberation in an unrestricted manner free from state authority. It is because of this, Habermas argues, that political control becomes subordinate to democratic demand.

With that understood, when considering the literary development of the public sphere, Habermas's initial work, *The Structural Transformation of the Public Sphere* (Habermas,

1991), offers a logical starting point. His initial work describes the normative ideals and structural understanding of the European bourgeois public sphere from the 17th to early 18th century. In general, Habermas outlines how such spaces were a location for participatory democracy, challenging the censorship of the state and market, as well as promoting rational critical debate and egalitarianism through a focus on the strength of argumentation rather than the status of individuals. In addition, Habermas places great emphasis on common agreement and deliberation, informed by practical reasoning, reflecting the 'zone of mediation between the state and the private individual' shaped by the emergence of a 'philosophical concept of consciousness of "publics" and their importance' (Roberts and Crossley, 2004, p2).

An essential aspect of Habermas's initial work outlined the weakening of the public sphere, particularly concerning the developing mass media. The mass media, for Habermas, 'transmogrified' the public sphere into a 'sphere of cultural consumption' (Habermas, 1991, p177). In this sense, Habermas (1991, p185) argued that the 'world fashioned by the mass media is a public sphere in appearance only', reflecting a secondary realm of intimacy in which media can be consumed with far greater immediacy than the written word (Calhoun, 1992, p24). This shift towards immediacy also impacted the personalisation of politics (ibid), which feeds into the decline of the rational criticism of public authority.

> The sentimentality toward persons and corresponding cynicism toward institutions which with social-psychological inevitability result naturally curtail the subjective capacity for rational criticism of public authority, even where it might objectively still be possible. (Habermas 1991, p186).

In addition, within this mass media dominated sphere, Habermas argues that publicity is generated from above, which serves to manufacture consent rather than encourage rational-critical debate. This, as Susen (2011, p51) highlights, led to the mass media legitimising the colonisation of the public sphere by functionalist rationality inherent of the state and economy, posing a significant challenge to the organisation of modern public spheres.

> For the "culture" propagated by the mass media is a culture of integration. It not only integrates information with critical debate and the journalistic format with the literary forms of the psychological novel into a combination of entertainment and "advice" governed by the principle of "human interest"; at the same time, it is flexible enough to assimilate elements of advertising, indeed, to serve itself as a kind of super slogan that, if it did not already exist, could have been invented for the purpose of public relations serving the cause of the status quo. The public sphere assumes advertising functions. The more it can be deployed as a vehicle for political and economic propaganda, the more it becomes unpolitical as a whole and pseudo-privatized. (Habermas, 1991, p190).

It should be noted that Habermas's initial work drew criticism concerning his normative notion of the public sphere, with Habermas responding in his chapter *Further Reflections on the Public Sphere* (Habermas, 1992), offering several significant revisions to his earlier work, clarifying:

> My diagnosis of a unilinear development from a politically active public to one withdrawn into a bad privacy, from a "culture-debating to a culture-consuming public," is too simplistic. At the time, I was too pessimistic about the resisting power and above all the critical potential of a pluralistic, internally much differentiated mass public whose cultural usages have begun to shake off the constraints of class. In

conjunction with the ambivalent relaxation of the distinction between high and low

culture, and the no less ambiguous "new intimacy between culture and politics,"

which is more complex than a mere assimilation of information to entertainment, the

standards of evaluation themselves have also changed. (Habermas, 1992, p438).

In addition, Habermas also reasserted his confidence in his previous argument regarding

structural power relations facilitated through the advent of mass media. However, he did

concede that his assessment of public behaviours in the face of such a power shift should be

revisited.

While on the whole, I would stick to my description of the changed infrastructure of a

public sphere infiltrated by power, its analysis needs to be revised, especially

measurements of the changes in public behaviour (Habermas, 1992, p437-438).

Habermas clarifies much of his argument in his 1996 book *Between Facts and Norms*, offering

a conception of deliberative democracy and linking his theory of communicative action[1] to

the notion of the public sphere. Within this work, as highlighted by Rehg and Bohman (1996,

p89), Habermas highlights realisable functional requirements for a democratic public sphere,

deducing that:

1) The public sphere must be receptive to broadly relevant problems as citizens

perceive them in their everyday life 2) To be receptive, the public sphere must be

rooted in robust civil society and in an open, pluralist culture. 3) The various informal

publics generated by these different associations must be at least partly open to one

another so that an exchange of arguments and viewpoints can occur in the public

sphere. 4) Finally, the public sphere must be relatively free of distortions and

---

[1] Habermas's theory of communicative action seeks to outline normative functions of discursive rationality, the basis of which is addressed within his book *The Theory of Communicative Action. Volume 1.* (1984)

blockages in communications. At the very least, this means that in critical moments it must be possible for the public sphere to mobilise itself and place issues on the agenda.

Finally, Habermas offered his most up-to-date revision within his article *Political Communication in Media Society: Does Democracy Still Enjoy an Epistemic Dimension?* (Habermas, 2006). In his revision, Habermas (ibid, p411) primarily suggested the following two critical conditions for the communicative model of deliberative politics: 1) mediated political communication in the public sphere can facilitate deliberative legitimation processes in complex societies only if a self-regulating media system can gain independence from its social environments 2) anonymous audiences should grant feedback between an informed elite discourse and a responsive civil society.


### *2.2.2.   The Further Transformation of the Public Sphere*

With the advent of the internet, elements of Habermas's conception of the public sphere required updating, which primarily reflected the transformation from a relatively unified public sphere dominated by a mass media, towards a fragmented 'networked' public sphere which allowed greater levels of engagement amongst broader demographics (Benkler, 2006; Santos et al., 2019).

> The processes of *Strukturwandel,* which Habermas identified in the transition from the coffee houses to mass media, did not stop there but continued further beyond the mass media age…  While some of this shift away from traditional broadcast and print and towards online content constitutes a simple change of technologies, with viewers remaining loyal to established media organisations, many other users also end up exploring the wider variety of content options now available to them. This

necessarily reduces the dominance that leading media organisations enjoyed in a pre-digital era, when receiving broadcast or print content from outside of one's own geographical area was often prohibitively difficult. Such changes have been driven to a significant degree by the emergence of the Internet and the World Wide Web as leading channels for the dissemination of news, amongst their many other functions. (Bruns and Highfield, 2016, p57).

Dijk and Hacker (2019, p103-104) highlight how this transformation altered the public sphere into a 'multitude of global, national and local public spaces integrated by both online and offline communication', with Santos et al. (2019) suggesting that in the post-internet environment, there is the coexistence of multiple public spheres. Benkler (2006) argued that the distinction between public spheres might be technologically driven, implying a degree of separation depending on the type of platform facilitating the discussion. In line with such arguments, Twitter is often considered to have affordances that may distinguish the space from other platforms (such as its open network structure, character limit and association with political communication), with the 'Twittersphere' a somewhat distinct space of discussion.

If we do take seriously the various public spaces which now emerge as successors to 'the' public sphere, then rather than as a unified, mass-mediated space through which public debate is conducted, the public sphere is thus revealed as a complex combination of multiple interlocking elements that sometimes counteract, sometimes amplify each other, and that each possess their own specific dynamics; the contemporary public sphere is comprised of a vast array of interactional constellations, some relatively more permanent, others more fleeting. (Bruns and Highfield, 2016, p63).

Notably, Habermas has not offered a great deal of attention to the relationship between the public sphere and the internet, having only briefly considered the internet's role within the public sphere a handful of times, with the most notable example being in his 2006 article *Political Communication in Media Society: Does Democracy Still Enjoy an Epistemic Dimension?* In this article, Habermas asserted:

> Computer-mediated communication on the web can claim unequivocal *democratic* merits only for a special context: It can undermine the censorship of authoritarian regimes that try to control and repress public opinion. In the context of liberal regimes, the rise of millions of fragmented chat rooms across the world tends instead to lead to the fragmentation of large but politically focused mass audiences into a huge number of isolated issue publics. Within established national public spheres, the online debates of web users only promote political communication, when newsgroups crystallise around the focal points of the quality press, for example, national newspapers and political magazines (Habermas, 2006, p423).

With this, Habermas 'places no hope for macro deliberation in freewheeling online discourse and is prepared to grant democratic benefits only to organization-bound mobilisation' (Wessler, 2018, p46). This intervention from Habermas is relatively surprising, mainly due to Habermas asserting that the 20th century 'public sphere had atrophied in a society where the high barriers to entry associated with radio, television, and print media, had led to political discourse being monopolised by a handful of monolithic mass media institutions' (Geiger, 2009, p2). With that said, Habermas's (2006) brief intervention touches upon a particularly relevant distinction between his initial conception and the post-social media public sphere. That is, the proliferation of new media arguably encouraged discussion to fragment into 'issue publics', with Bruns and Highfield (2006, p61) asserting that issue publics generally

focus on 'specific debates between stakeholders' that are 'rehearsed amongst a smaller, self-selecting company of interested actors', resulting in topics and events that are more temporary and dynamic.

### 2.2.3.   *Critiques of Habermas*

Habermas's initial concept of the public sphere, as outlined in *The Structural Transformation of the Public Sphere* (Habermas, 1991), has been subject to several critiques. I find that Goode (2005) offers a relatively comprehensive consideration of such critiques, as do Roberts and Crossley (2004). Here, I seek to outline the most relevant critiques as they relate to online discussion, focusing on issues surrounding inclusion, the role of the mass media, deliberation and critiques surrounding idealism. In doing so, I seek to highlight how such critiques may not apply to social media in the same terms as Habermas's conception of the public sphere, as well as strengthen the rationale for the approach undertaken within this thesis.

As Goode (2005, p38) highlights, there has been concern that Habermas's concept does not accurately account for issues of 'material inequality whilst engaging with and remaining sufficiently attentive to problems of autonomy, cultural difference and pluralism'. The bourgeois public sphere, as envisioned by Habermas, set aside characteristics of difference. However, as Fraser (1990, p63) argues, the public sphere was governed by markers of style and decorum that were themselves 'correlates and markers of status inequality'. In this sense, she argues, women and plebian classes were informally marginalised, forming counterpublics separate from the dominant discussion. Habermas (1992, p430) would revise his position in relation to such critiques, admitting he underestimated the significance of

counterpublics, asserting that 'from the beginning, a dominant bourgeois public collides with a plebeian one'.

As Jackson and Foucault Welles (2015) find, digital platforms (such as Twitter) may allow for an 'improved permeability between the dominant public sphere and counterpublics'. This increased permeability has been demonstrated in a number of papers (e.g., Harlow and Johnson, 2011; Barker-Plummer and Barker-Plummer, 2017; Hill, 2018). In this sense, critiques of Habermas's initial conception of the public sphere may be mitigated somewhat in the digital environment. In relation to Twitter, its material affordances (the specifics are outlined in Section 2.4.) grant the ability for counterpublics to organise and incorporate their message into the dominant discussion. For example, Barker-Plummer and Barker-Plummer (2017, p34) highlight how the use of the hashtag allowed counterpublics to 'collate individual messages together', with the architecture of Twitter mirroring and reinforcing a central rhetorical dynamic that 'links everyday events with a larger structural framework'. Such an argument relates closely to Castells' (2015, p9) notion of 'counterpower' – i.e., 'the deliberate attempt to change power relations, enacted by reprogramming networks around alternative interests and values'. In this sense, 'counterpower' can be thought of as nondominant narratives that subvert dominant forms of knowledge that are present within the mainstream debate (Trott, 2021, p1131).

It should be understood, though, that the formation of counterpublics within social media is generally associated with a number of negative characteristics. The type of community often described as 'counterpublics' within digital networks often display polarised characteristics that may lead to the formation of extreme opinion (which I elaborate on in Section 2.3.3. of

this chapter). In outlining such an argument, I find that Salikov (2019. P89) offers a concise overview, stating that on social media:

> Groups can become marginalised from the large-scale public sphere themselves, forming echo chambers with very similar views and interests of their users. All this can ultimately lead to the even stronger homogenisation of views within such groups, to the filtering out of news and information coming in from the outside which does not fit into the world picture of these groups' members, to declaring something false to be true, to the creation of fake news, and to the radicalisation of their agenda in order to make themselves heard in the society. However, this does not allow marginalised groups to better understand or reach a consensus with other societal groups, but only leads to their further marginalisation. Consequently, users with radical views consolidate into separate groups and tend to isolate themselves from other parts of society.

Therefore, Fraser's (1990) notion of counterpublics may not directly translate to the social media environment. In addition, the democratic benefits associated with the formation of such groups may be more complex within the digital environment. Within this thesis, I have primarily explored the negative characteristics surrounding network fragmentation due to a degree of academic consensus pointing to the negative effects of community homogeneity within social networks (Paicheler, 1979; Verbrugge, 1977; Huckfeldt and Sprague, 1995; McPherson et al., 2001; Yardi and Boyd, 2010; Hannan, 2016; PytlikZillig et al., 2018; Bouvier and Rosenbaum, 2020). However, as a specific exploration of counterpublics is outside the scope of this project, future research may wish to expand upon the findings from this thesis through an exploration of the way in which such communities challenge dominant narratives.

Habermas emphasises the norms of public deliberation within much of his work. Perhaps most notably, in his theory of communicative action, Habermas outlines the basis of rationality and argumentation, which is 'oriented to achieve, sustain and review consensus – and indeed a consensus that rests on the intersubjective recognition of criticisable validity claims' (Habermas, 1984, p17). In outlining the standards by which deliberation should be conducted, Habermas again opens himself up to critiques regarding exclusion. For example, Kohn (2000, p413) argues that discourse should be considered in relation to broader contextual political groupings and hierarchies, mainly as types of speech may be interpreted differently depending on the type of community, challenging Habermas's assumption that participants in discussion use the same linguistic expression in the same way. As Kohn (ibid, p411-412) highlights, this may result in the marginalisation of certain speakers 'independently of the intentions or goodwill of the other participants in the conversation'. Kohn's (ibid) argument relates to those made by Dahlberg (2007 p131-132), who suggests that certain forms of deliberation may be designated as the ideal, resulting in the exclusion of certain groups. In this sense, speech may constrain groups, impairing their ability to engage in political debate. Broader issues surrounding exclusion are also outlined by Sanders (1997), who asserts that by designating the perquisites for deliberative norms, there runs the risk of undermining deliberations democratic claims, suggesting that deliberative theory can discredit 'the views of those who are less likely to present their arguments in ways that we recognise as characteristically deliberative' (p349).

Empirical evidence may support such concerns, with research pointing to a disparity in deliberative skills amongst socio-economic groups. For example, research has suggested that

those from working-class backgrounds (Gerber et al., 2018; Schradie, 2018), and those who are older (Himmelroos, 2020) are less likely to contribute to high standards of deliberation. In addition, as Moy and Gastil (2006, p443) demonstrates, deliberative quality has a 'complex relationship with common predictors of other political communication behaviour' (e.g., political cognitions and media use). This disparity is likely greater in the social media environment, reflecting challenges surrounding accessibility (which is discussed in Section 2.3.1. of this chapter).

Despite such critiques, I have taken the stance that rational deliberation should still be considered a normative ideal of public debate. While I accept the premise of the argument surrounding the exclusion of those who may not communicate in accordance with deliberative norms, as this thesis is interested in exploring debate within a highly contentious and polarising political issue, deliberation may act to limit antagonism and encourage inter-ideological discussion. Moreover, it may allow users to assess the validity of claims, which is an important element of reaching consensus.

As Roberts and Crossley (2004, p11-12) argue, Habermas has been critiqued due to his simplistic view of media practices. In doing so, they present the following three points to outline why Habermas's view of the media may be misplaced:

1) They suggest that media practices have always been inscribed with a manipulated bias.

2) They suggest that Habermas places too great of an emphasis on the passive nature of media consumers.

3)  They suggest that the infiltration of the market into media systems may not

    necessarily damage public debate (due to the fact that the market may actually

    curtail, to some degree, the amount of state interference).

As Wessler (2018, p42) demonstrates, Habermas would revise his position to acknowledge

'the latitude that active audiences possess in interpreting media content in subversive ways';

with Habermas (1996, p377) conceding that it is unclear as to how the mass media 'diffuse

circuits of communication in the political public sphere'. Moreover, Habermas would become

less pessimistic regarding the role of the mass media within the public sphere, asserting that,

under certain conditions, media systems could facilitate democratic debate (Habermas,

2006).

As Amiradakis (2019) highlights, though, there are theoretical gaps in Habermas's conception

of the public sphere as it relates to the role of the mass media within the digital environment.

In this sense, Amiradakis (ibid, p163) argues that Habermas's theories may need 'updating

and contextualisation if they are to be of contemporary use'. Perhaps the most relevant

consideration is the role of new media. As Bruns and Highfield (2016, p108) highlight, 'where

the conventional public sphere model is largely predicated on the hegemonic role of

dominant mass media institutions, the lower-order publics are likely to be increasingly more

reliant on specialist and niche media, in keeping with their own much more narrowly defined

interests'. To be clear, the mass media still play an important role on digital platforms,

although their significance is decreasing (Sunstein, 2018, p17). For this reason, as I will

outline within the proceeding section, I have opted to consider the role of the mass media

whilst also considering additional forms of media (e.g., alternative media) and actors (e.g., journalists and 'everyday' users).

Finally, there have been those who critique Habermas on the basis that his theory is utopian and idealistic (Imafidon, 2015). For example, Flyvbjerg (1998, p215) argues that the 'basic weakness of Habermas's project is its lack of agreement between ideal and reality, lacking a suitable understanding of power relations and their impact on communicative rationality'. As Foss et al. (2014, p252) highlight:

> Many critics fault Habermas's tendency toward utopianism, which downplays the particulars of political life in favour of abstract and generalised notions of rationality and emancipation. For example, Habermas is critiqued for his notion of the ideal speech situation—the foundation of his notion of rationality. The very idea of the ideal is problematic for many scholars because it suggests perfection is possible in language.

Such critiques have also been outlined in research that utilises Habermas's conception of the public sphere to assess the quality of debate on social media. For example, Fuchs (2014) argues against an idealistic interpretation of Habermas's public sphere, instead advocating a cultural-materialist understanding. In addition, Salikov (2019. P89) highlights how the networked public sphere is 'something different compared to Habermas idealised public sphere of coffee shops or salons, because the networked public sphere is far from being merely a place of rational deliberative discourse'. As I will demonstrate in the proceeding section, there are some inconsistencies when applying Habermas's notion of the public

sphere to the digital environment. Therefore, I seek to outline the characteristics of the public sphere that relate to debate on Twitter within the context of the UK-EU withdrawal. In doing so, I expand upon Habermas's understanding of a public sphere, considering material (e.g., the platform affordances) and contextual (e.g., social understandings of the discussion of Brexit) elements.

## 2.3.    The Online Public Sphere

During the internet's infancy, academics began to consider the relationship between the internet and the public sphere (e.g., Poster, 1995; Ward, 1997; Calhoun, 1998). The majority of early work was theoretical in nature, typically putting forward firm hopes or fears regarding the role of the internet (Schäfer, 2016). Net-optimists pointed to the internet's low barriers of entry, its egalitarian nature, and the potential for new communication flows (which may challenge mass media dominance). On the other hand, net-pessimists were typically sceptical about the level of participation, the diversity of online debates and the formation of identity on the internet. As research progressed, the net-optimist/pessimist dichotomy would become less distinct. In the early advent of Web 2.0, as highlighted by Fuchs (2014, p57), academic literature generally pointed to the transformative power of social media concerning the public sphere. For example, Benkler (2006, p213) highlighted how social media 'allows individuals to reorient themselves from passive readers and listeners to potential speakers and participants in a conversation'; with Papacharissi (2002) highlighting how the internet and its surrounding technologies held 'the promise of reviving the public sphere'.

In recent years, it would be fair to say that scholarly opinion is somewhat mixed on the impact of social media. For example, Datts (2020, p73) found that the 'social web widens the public sphere, including those actors who do not communicate in accordance with the Habermasian conceptualisation of it'; Kruse et al. (2018) found that social media users do not engage in political discourse typical of the public sphere, due to fears of harassment, instead engaging with those who are of a similar opinion; and Liu and Weber (2014) suggest that social media may promote selective exposure, which may lead to more extreme positions. It should be noted that there are still those that highlight the potential for the internet, such as Gerhards and Schäfer (2010), who highlight how social media platforms may give voices to marginalised actors, challenging the gatekeeping role of the mass media; and De Blasio et al. (2020, p1), who highlight how the internet has led to greater transparency, 'inducing decision-makers to be more responsive and accountable'.

Despite the lack of focus from Habermas, he has provided a popular framework for literature analysing communication on social media platforms, with Papacharissi (2010, p53) asserting that 'Habermas's public sphere presents a theoretical model that allows us to discuss the civic gravitas of the internet, contextualise it within the contemporary socio-economic setting, and compare it to that of other media'. Papacharissi's (ibid) assertation is supported by Dahlgren (2005), who highlights how Habermas's work should be considered central to debates surrounding the public sphere and social media, demonstrating the applicability of Habermas's conception in relation to social media research; with Datts (2020, p74) highlighting how 'social media is credited with free access and a non-hierarchical structure of debate', which 'seems to match those key features of the Habermas's public sphere'. In line with such arguments, I found that elements of Habermas's conception of the public sphere

offer a suitable basis to guide my analysis. As such, I would like to provide an outline of the

elements of the public sphere that I find to be most relatable to arguments within this thesis,

which should offer the reader a justification for the approach I have undertaken.


### 2.3.1. Accessible

The first characteristic I would like to highlight is the need for online platforms to be

accessible and encourage participation. The basis of accessibility is a recurring characteristic

of Habermas's public sphere, with Habermas highlighting how the public sphere should

ideally be accessible to all (Habermas et al., 1974, p49) and stressing the relationship

between accessibility and the formation of public opinion (Habermas, 1991, p16).


With the advent of the internet, Brundidge (2010, p67) argues that 'at first glance, the

contemporary public sphere would seem more accessible than ever before', reflecting the

lowered entry barriers afforded by technological advances. However, as Papacharissi (2002,

p14) highlights, while there are advantages to online spaces, they do not 'instantaneously

guarantee a fair, representative, and egalitarian public sphere'. For Papacharissi (ibid), the

fact that 'online technologies are only accessible to, and used by, a small fraction of the

population contributes to an electronic public sphere that is exclusive, elitist, and far from

ideal – not terribly different from the bourgeois public sphere of the 17th and 18th

centuries'. Papacharissi's argument emphasised accessibility in terms of the physical

limitations associated with cost, which she asserts may favour financially advantaged groups.

In the years since Papacharissi's research, the cost associated with accessing such spaces has

decreased, which has resulted in a considerable percentage of those in advanced

democracies (such as the UK) having the means of access. This shift in accessibility can be

highlighted by Office of National Statistics data, suggesting that in 2020, 96% of UK households had the means to access the internet (up from 73% in 2010 and 25% in 2000) (ONS, 2020; Statista, 2020).

As such, accessibility should be considered in line with the digital skills needed to effectively communicate in online spaces, with evidence suggesting that digital skills may play an important role in engagement within online discussions[2] (Hargittai and Shaw, 2013). Building upon this argument, Dijk and Hacker (2018, p70) highlight how digital participation is often related to operational, formal and communicative skills. The basis of which suggests users should ideally possess a similar ability to operate the software and hardware needed to access the platform, understand the formal characteristics of the platform (such as the use of the hashtag, being able to follow users etc.) and possess the communicative skills to effectively engage in discussion. In many senses, these skills are often unequally distributed within society, generally favouring those from a higher social class and those who are younger (ibid).

### 2.3.2.   A Space for Rational Debate

The second characteristic I would like to highlight is the need for such a space to promote rational debate. For Habermas, rational debate is a normative characteristic of discussion in the public sphere, with an informed citizenry deliberating upon issues of public concern. Habermas offers his most detailed account of rationality in *The Theory of Communicative Action* (Habermas, 1984). According to Habermas (ibid), actors should satisfy the conditions

---

[2] In the context of political participation in relation to the 2008 US presidential election, Hargittai and Shaw (2013) find an association between internet skills, social network site usage, and greater levels of political engagement.

necessary to reach understanding with other discussants. An important element of such understanding is highlighted through the notion of 'speech acts' - the basis of which suggests that participants should take up an affirmative position that would be criticisable or open to justification. In addition, discussants should present claims that are intersubjectively valid, i.e., in response to criticism, a valid reason for such a claim could be presented. In effect, as Bhoman and Rehg (2017, Para. 38) highlight, this would mean that 'discussants should ideally assess all the relevant information and arguments (for a given level of knowledge and inquiry) as reasonably as possible, weighing arguments purely on the merits in a disinterested pursuit of truth'. Habermas would go on to clarify the democratic implications of deliberation in his book *Between Facts and Norms* (1996). Importantly, Habermas (1996) outlines the notion of communicative power – the notion that political power is legitimated through civic discourse. Communicative power is intrinsically linked to a key element of *The Theory of Communicative Action,* namely 'that a rationally motivated agreement generates a binding force – the force of the better argument' (Flynn, 2019, p53). Meaning, that when citizens discuss political issues with one another, 'they have the potential not only to produce reasons and arguments, but to produce a motiving force that goes along with their discursively produced and intersubjectively shared beliefs' (ibid).

Within this thesis, I have taken the stance that the quality of deliberation can impact the legitimacy of political outcomes. Brexit, as I will come to argue, has been associated with a deliberative deficit. The deliberative deficit may have posed challenges, particularly surrounding the legitimacy and implementation of the 2016 referendum result. In this sense, the quality of deliberation should be considered an important indicator of Twitter's ability to facilitate public debate within the context of Brexit. To explore such debates, I seek to

measure four deliberative indicators across the time of the discussion. In addition, I seek to explore populist discourse at a user level, primarily reflecting populism's challenge to rationality. In doing so, I have proposed RQ1: *to what extent does the discussion function deliberatively?* And RQ2: *to what extent do characteristics of populism permeate the discussion at a user level?*

*Deliberative Quality*

In many senses, the internet offers the ability for citizens to reengage in civic debate, with Dahlberg (2007b, p49) arguing that the 'internet's two-way, relatively low cost, semi-decentralized and global communications, combined with evolving interactive software and moderation techniques, offer the ideal basis (particularly when compared to the mass media) for rational deliberation'. Twitter has gained a particular reputation for the discussion of issues that are relevant to society at large, with Bouvier and Rosenbaum (2020, p4) asserting that the platform has 'levelled the playing field by allowing citizens to hold politicians more accountable and offering a potential for ongoing dialogue and open communication'; with Tromble (2018, p683) arguing that the 'very fact that politicians and citizens may interact, share ideas, and express concerns with one another directly does suggest the democratic potential of this medium'.

Despite Twitter's association with political discussion, empirical measurements of deliberative quality have often demonstrated the deliberative shortcomings of the platform. For example, Oz et al. (2018) demonstrate that tweets were significantly more uncivil, more impolite and less deliberative than Facebook posts; Nishi (2021) indicates that exposure to non-like-minded information on Twitter may foster incivility, and Bouko and Garcia (2020)

found that Twitter is a public space that does not allow for genuine dialogue. Moreover, the general association with Twitter and homogeneity may lead to 'enclave deliberation', with Sunstein (2018, p96) defining enclave deliberation as a form of deliberation that 'occurs within more or less insulated groups, in which like-minded people speak mostly to one another'. While this may have some benefit in terms of marginalised groups, it is likely to have broader negative implications, fostering extreme opinion and bolstering associations with partisan identity.

That's not to say that previous research has been exclusively negative in its assessment of Twitter's deliberative qualities, with Shepard (2014, p1) finding that Twitter has 'some deliberative characteristics and may provide a useful complementary service to other media channels covering political issues of the day'; and Del Valle et al. (2020) finding evidence to suggest a degree of positive empathy and cross-ideological interaction on the platform. This raises the question as to the deliberative function of Twitter within my research (particularly as the discussion surrounding Brexit has often been associated with antagonistic discourse).

Here, I find it important to briefly consider debates surrounding deliberative theory, as this underpins much of my approach when addressing RQ1. As highlighted by Carpini et al. (2004, p316), the 'concept of public deliberation emerges from democratic deliberative theory'. Chambers (2003, p308) offers a succinct overview, suggesting deliberative theory can be best understood as a turn away from a liberal individualist or economic understandings of democracy, towards a view anchored in 'conceptions of accountability and discussion' in which emphasis is placed on deliberation and opinion formation.

For Chambers (2003, p308-309), deliberative democracy expands representative democracy, defining deliberation as 'debate and discussion aimed at producing reasonable, well-informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants'. As highlighted by Bächtiger and Parkinson (2019), deliberative democracy emphasises public argument and reasoning, through persuasion rather than manipulation and coercion - often associated with epistemic goals such as argumentation and understanding, as well as ethical goals such as respect and civility. In general, it can be thought of as a process through which 'deliberative democracy occurs', a 'communicative practice of reason-giving between citizens, civil society organisations, government officials, and mass media concerning disputed issues in the public sphere' (Esau et al., 2021, p87). Its importance in participatory democracies and representative government has long been acknowledged, forming the basis for many of the normative functions of the public sphere outlined by Habermas in *the Structural Transformation of the Public Sphere* (1991), as well as underpinning democratic legitimacy as outlined in *Between Facts and Norms* (1996).

*Populism*

Twitter has widely been associated with populist discourse, with Gil de Zúñiga et al. (2020, p587) asserting that 'social media has inflicted and sustained a pivotal playing role in the way populists' campaigns are carried out and the ways political actors communicate and directly engage with the electorate'. The basis of which centres around the low barriers of entry and the potential for the rapid dissemination of information on such platforms, allowing populists to build a direct affinity with users. This argument is summarised by Gil de Zúñiga et al (ibid), who assert:

The more direct, unmediated, outrageous, polarising, shocking, and emotional the message is, the more chances of becoming viral and *populistically* effective. It is a victory for populist politicians at the expense of debilitating a civil, constructive, and rational public sphere. Informative public affair facts and the pursuit of a common goal in society may thus become irrelevant.

It should be noted that populist discourse has a strong association with the EU referendum campaign and the ensuing debate on Twitter, with Tong and Zuo (2021, p2) finding:

Twitter showed its capacity to facilitate political manipulation and spread the ideology of populism through articulating and mainstreaming populist claims into the political debate about the referendum. The social media strategies of populist politicians and Brexit-supporters demonstrated their well-developed understanding of how Twitter works in shaping political discourse…The influence of populist politicians, who fluently, tactically and actively used the social site to promulgate their populist ideas, was amplified.

Their findings reflect a consensus amongst academic literature that has associated elements of the Leave campaign with populist discourse (Hobolt, 2016; Goodwin and Milazzo, 2017; Bennett, 2019). In many senses, such discourse is likely to pose challenges to the quality of discussion on Twitter. For example, both Waisbord (2018, p30) and Privitera (2018, p56-57) demonstrate that populist discourse has challenged the quality of democratic discussion, disregarding outsider opinion and emphasising popular sentiment. Moreover, Privitera (2018, p57) highlights how populists' approach to deliberation 'is not aimed at discussing political proposals together with other citizens who have differed ideas or opinions' (as is typical

within the public sphere), but instead 'lays claim to indisputable and self-evident slogans'. In addition, it has been argued that populism has exerted a negative impact on democratic values, typically seeking for an authoritarian system (Pasquino, 2008, p28; Mudde and Kaltwasser, 2012, p16), as well as impacting the policies of mainstream political parties, particularly surrounding immigration (Schlesinger, 2020, p1551).

It should be noted that literature is often split on whether to view populism as an ideology (e.g. Mudde, 2004) or a political communication style (e.g., Block and Negrine, 2017). The basis of this debate centres around what populism *is* and what it *does* (Wellings and Sorensen, 2022, p2). While I acknowledge the significance of this debate, as my research is interested in exploring how Twitter users incorporate populist messaging into their discourse, I do not feel the need to define populism in these terms. Instead, I have opted to define populism based on the core characteristics shared amongst both schools of thought. As such, I have understood populism through the following terms:

- It constructs an out-group as a threat to the citizenry's cultural way of life and sovereignty (Jagers and Walgrave, 2007; Block and Negrine, 2017; De Vreese et al., 2018).
- It presents the people in majoritarian terms, seeking to implement popular sovereignty that reflects the will of the unified heartland (Jagers and Walgrave, 2007; Block and Negrine, 2017; Mudde, 2004; Cleen, 2017; Kallis, 2018).
- It portrays the elite as immoral and threatening to the wishes of the people (Mudde and Kaltwasser, 2012; Aslanidis, 2017).

For clarity, I have opted to focus on the aforementioned characteristics as I believe they are the most applicable to bottom-up measurements of populism. Admittedly, additional characteristics may have been considered (such as the populist leaders' disruptive nature and presentation of themselves as one of the people). However, I believe that the additional characteristics may be challenging to measure in a bottom-up manner and may shift the focus of my analysis towards measurements of top-down populism.

The reason for not focusing on top-down populism within this thesis reflects a relatively well-established corpus of literature (within the context of Brexit). This likely reflects populism's association with notable Brexit-supporting political figures. However, in a context unrelated to Brexit, Datts (2020, p73) found that 'ordinary citizens play an important role in the creation and dissemination of populist content' on Twitter, with Hameleers and Schmuck (2017) highlighting how ordinary users may use populist communication to influence others. For this reason, further research is needed to explore the permeations of populism amongst users within the discussion of Brexit, which will aid in understanding populism's resonance and its impact on Twitter's ability to facilitate rational discussion.

### 2.3.3.   *Free from Polarisation*

The third characteristic that I would like to highlight is the need for such a space to be relatively free from polarisation. As previously mentioned, Habermas referenced the potential for fragmentation on the internet in his 2006 article, as well as in a 2010 interview with the Financial Times, in which he stated that social media 'releases an anarchic wave of highly fragmented circuits of communication that infrequently overlap', with its 'structure not suited to focusing the attention of a dispersed public of citizens who form opinions

simultaneously on the same topics' (Jeffries, 2010, para. 12). While both Habermas's

interventions are relatively brief, Hannan (2016, p28-32) offers a more detailed consideration

of fragmentation and polarisation in relation to the public sphere, suggesting such

phenomena are likely to negatively impact deliberative discussion and truth claims. To

explore such debates, I proposed RQ3: *how does polarisation manifest within the discussion*

*across time?* In answering RQ3, I have taken the stance that there are three key indicators of

a polarised debate on social media 1) the presence of homogenous communities, 2) hostility

towards the out-group (affective polarisation), 3) expressed support for extreme opinion.


*Homogeneity*

There is concern that social media platforms, such as Twitter, are spaces that foster

discussion amongst 'like-minded' users, with Bouvier and Rosenbaum (2020, p5-6)

demonstrating that critiques of deliberation on social media platforms typically centre

around a lack of inter-ideological discussion, with evidence suggesting that users on the

platform 'associate mainly with like-minded individuals, seeking encouragement rather than

reaching out for cross-ideological conversations or even engagement'. Generally, this

concern centres around the argument that such spaces encourage homophily, with

homophily referring to the notion that like-minded individuals are more likely to associate

with one another, with such an association common amongst individuals with a similar

political opinion (Verbrugge, 1977; Huckfeldt and Sprague, 1995; McPherson et al., 2001;

Hannan, 2016). On Twitter, homophily is likely aggravated due to the ability for users to self-

select their follower network and the platforms algorithm, which suggests users to follow

based upon similar interests and preferences (Gupta et al., 2013) - resulting in network links

tailored to the wishes of a particular user. As a result, the notion of homophily would suggest

that users are more likely to seek information that conforms to their pre-existing opinion, diminishing their cognitive dissonance through forming homogenous communities (Tong and Zuo, 2021, p49).

Homogeneity can have several negative implications for political discussions, potentially leading to polarisation, inequality and extremism (Paicheler, 1979; Yardi and Boyd, 2010; PytlikZillig et al., 2018). In addition, homogeneity may also challenge the ability for a discussion to be conducted in a rational critical manner. This is important as Sunstein (2007, p4-6) highlights that a key characteristic of deliberative discussion is the exposure to a range of opinions, a lack of which may lessen the impact of such discussion, raising questions as to whether online interaction involves 'problematisation and contestation of positions and practice' (Zamith and Lewis, 2014, p560). As previously highlighted, such concerns have been raised by Habermas, who referenced the possible 'splintering effect' of the internet and how it can lead to 'millions of fragmented discussions across the world', promoting 'fragmentation of audiences into isolated publics' (Habermas, 2006, p432). In many senses, this pulls communication away from the possibility of deliberation and informed choices.

Previous research has found that clusters of like-minded users are a somewhat regular occurrence on Twitter (Himelboim et al., 2013; Colleoni et al., 2014; Guo et al., 2020), but the findings are generally nuanced and context-specific. It should be noted, though, that homogeneity and polarisation have been addressed within the discussion of Brexit on Twitter, with research usually pointing to a degree of polarisation (Mora-Cantallops et al., 2019; North et al., 2020; Tong and Zuo, 2021). In the pre-referendum period, homogeneity was generally associated with Leave-supporting communities (Grčar et al., 2017). However,

most research focused on specific timeframes, with further analysis needed to explore the changes across time, particularly within the post-referendum period - a time in which Leave support on Twitter decreased, which may challenge the formation of homogenous Leave-supporting communities (Calisir and Brambilla, 2020). Moreover, in the run-up to the 2016 EU referendum, the electorate was presented with just two options: either remain a member of the EU or leave the EU. Arguably, this binary choice likely had a polarising effect on the discussion. In the aftermath of the vote, there were a number of nuanced positions, which may have impacted the level of polarisation. My research explores homogeneity longitudinally to address such debates, analysing the network structure at nine points throughout the discussion to examine the degree of consensus on Brexit within modular communities.

*Affective Polarisation*

When addressing debates around polarisation, I find it essential to clarify a distinction between agonistic discussion and antagonistic hostility, with the latter arguably damaging the quality of debate. To explain such an argument, I would point to the work of Mouffe (2013, p7), who asserts that conflict in liberal democratic societies cannot and should not be eradicated', instead politics requires others not to be 'seen as enemies to be destroyed', but adversaries 'whose ideas might be fought, even fiercely, but who's right to defend those ideas is not to be questioned'. In addressing such debates, my research seeks to adapt measurements of affective polarisation, as this offers the ability to empirically measure the degree of antagonistic tribalism within the discussion. In general, affective polarisation can be understood as a strong attachment towards an in-group and hostility to an out-group

(Iyengar and Westwood, 2015; Hobolt et al., 2020), with affective polarisation associated with an apprehension towards engagement across ideological divides.

In relation to Brexit, previous research has demonstrated a degree of affective polarisation that cuts across 'traditional party lines', meaning that 'affective polarisation is neither restricted to partisanship, nor a mere proxy for partisan affect' (Hobolt et al., 2020, p3). Hobolt et al. (2020) and North et al. (2020) both highlight the role of identity in offline and online contexts (respectively) concerning Brexit, suggesting a degree of affective polarisation amongst both Leave- and Remain-supporters. Specifically, North et al. (ibid, p199) found 'substantial evidence of out-group derogatory tribal behaviour around the Brexit keywords, characterised by the use of insulting language that demonstrated a sense of "othering," that is, assigning certain negative characteristics to an out-group as a whole'. Within my thesis, I seek to build upon the findings of North et al. (2020) and Hobolt et al. (2020), exploring a key indicator of affective polarisation, out-group labelling.

*Extreme Opinion*

A shift towards extreme and diverging opinion is often considered to be a constitutive element of polarisation, with McCarty (2019, p2) defining polarisation 'as the increasing support for extreme political views relative to the support for centrist or moderate views' and Carothers and O'Donahue (2019, p5) defining polarisation as 'the extent that competing political forces diverge in their ideas and actions and lack any significant common ground'. In relation to my research, an increasing divergence of opinion challenges a critical element of deliberative democracy - reflection and exchange amongst competing views, which may negatively impact the discussant's ability to reach consensus (Sunstein, 1999).

As previously alluded to, extreme opinion formation is likely impacted by the other two elements of polarisation explored within this thesis (homogeneity and affective polarisation), with North et al. (2020, p187) asserting that homogeneity and affective polarisation can 'limit discussants social worlds and make opinions more extreme'. To address such debates, my research explores the degree of divergence in expressed support for moderate and extreme positions within the Twitter discussion of Brexit.

### 2.3.4.   *Free from Serious Distortions*

The final characteristic I would like to highlight is the need for such a space to be free from serious distortions. By serious distortions, I am referring to distortions in power relations, with Habermas (2006, p418) highlighting how this may 'distort the dynamics of mass communications and interfere with the normative requirement that relevant issues, required information and appropriate contributions to be mobilised', with this forming the basis for much of Habermas's argument surrounding the weakening of the public sphere (Habermas, 1991). For Habermas (ibid, p175), the 'public sphere in the world of letters was replaced by the pseudo-public or sham-private world of culture consumption', which reflected the 'advent of mass media, public relations, advertising, party-political management, an enlarged public bureaucracy, and a social-welfare state that both managed its population and had an increased role in the economy' (Schlesinger, 2020, p1555).

Social media has allowed for bottom-up communication flows, presenting an opportunity for discussion centred around issues salient to the public. In some sense, this may have mitigated Habermas's concern surrounding power within the public sphere, particularly the

ability to select, present and manipulate topics. To support such an argument, evidence has

pointed to the various bottom-up social movements 'facilitated' through social media, such

as the 'movements of the squares' and the 2011 Arab Spring (Bruns et al., 2013; Gerbaudo,

2017). However, it is widely documented that social media platforms typically do not

eliminate offline privileges, with several research papers demonstrating a link between

offline influence and favourable network positions (Blank, 2017; Dagoula, 2019; Bravo and

Valle, 2017). In this sense, I would argue that many of the limitations highlighted by

Habermas translate to the online environment, with the agenda of discussion potentially

guided by the same actors he holds responsible for weakening the public sphere. To address

such debates, I proposed RQ4: *what are the characteristics of users in a position of network

centrality?*

*Network Centrality*

Within social networks such as Twitter, network centrality offers the ability to identify actors

who are well connected and can exert more significant levels of influence on flows of

information, which forms the basis of network centrality's inclusion within this thesis. In

many senses, centrality measurements have allowed researchers to identify important actors

within online political discussions, with Vicari (2017) demonstrating how measurements can

relate closely to an individual's agenda-setting capacity. Within the discussion of Brexit on

Twitter, there have been several attempts to identify influence through centrality

measurements. For example, Grčar et al. (2017) use the centrality measurement of degree to

demonstrate the most central nodes during the pre-referendum discussion, highlighting the

presence of both notable and 'everyday' users within prominent network positions. This is

challenged somewhat by the findings of Mora-Cantallops et al. (2019). They use in-degree to

demonstrate that most central users within the discussion are almost exclusively notable

public figures. However, both papers are limited in their threshold of influence, which may

have impacted the reliability of their results. In agreement with Guo et al. (2020), my

research takes the view that in large networks, the most central 1% of users should be

identified as influential. This threshold is manageable whilst also detecting a wide range of

actors, which may expand upon the findings of previous research. My research uses the

centrality measurements of in-degree and eigenvector centrality to determine the highest

scoring 1% of users across the discussion. In doing so, my research can make conclusions

regarding the agenda-setting capacity of users, relating closely to notions of influence within

the public sphere.

Habermas (1989, p36) asserts that the public sphere 'disregards status altogether', limiting

such spaces' ability to separate power from public discourse. Ideally, 'social standing, political

influence and economic power should be dismissed from the historical public sphere as

irrelevances' (Laurier and Philo, 2007, p267).  This is also argued by Sennett (1977), who

highlights that the distinction of rank is dismissed within the public sphere of discussion. On

Twitter, 'verification' (a blue tick next to the username) is used to authenticate and verify

that accounts of important actors are authored by the user they are claiming to represent. As

Barsaiyan and Sijoria (2021) highlight, verification is often thought of as a status symbol that

can indicate 'elite' users, which may have implications for perceived legitimacy (Morris et al.,

2012; Flanagin and Metzger, 2007; Vaidya et al., 2019; Edgerly and Vraga, 2019). To explore

the role of verification, I have undertaken a manual analysis of the accounts present in the

most central 1%, seeking to identify the percentage of such users that have received

verification. In doing so, I aim to relate the platform level affordance of verification to debates surrounding status amongst the most central users.

## 2.4.    Twitter and Affordances

Within this thesis, I have understood the relationship between technology and its users through the notion of affordances: the material properties of the technology and how individuals perceive and use those properties. This approach to understanding technology is beneficial as it takes a median position between technological determinism and radical constructivism (Willems, 2021, p1679). The concept of affordances, which was initially conceived by Gibson (1979) and adopted to factor the design of an object by Norman (1988), is generally used to describe what artifacts (media technologies) allow people to do. As Butcher and Helmond (2018, 12-13) highlight, affordances tend to be conceptualised in high-level abstract terms (e.g., the engagement of users in their environment) and low-level concrete terms (e.g., the materiality of the medium). I have taken the view that both high-level and low-level affordances should be factored in when considering the impact of technology. In this sense, my approach shares similarities to that of Boyd (2010), Postigo (2014) and Koroleva and Kane (2017). This approach, as Knappett (2005, p46) highlights, allows researchers to understand the affordance of an object 'neither solely as an independent property of the object itself' nor as an 'intentional state within the mind of the person engaging with it', but as a 'relational property shared between object and agent'.

As previously noted, affordances tend to place emphasis on materiality. While materiality is open to interpretation, I have viewed material properties as the physical characteristics that

may impact communication on the platform, or as Lievrouw (2014, p25) articulates, the 'physical character and existence of objects and artifacts that makes them useful and usable for certain purposes under particular conditions'. On Twitter, for example, materiality may consider the platform's character limit or ability to share a link (Butcher and Helmond, 2018, p13). As Leonardi et al. (2012, p9) highlight, though, what matters not with materiality is the 'intrinsic functional identity of technological objects', but 'whatever consequences these objects help bring into being (i.e., materialise) with the intentional or unintentional complicity of humans, purposeful engagement, or chance'. In this sense, materiality should form only a part of the understanding of the platform's affordances, with a need to go beyond the technical characteristics of the platform to consider the platform's social affordances, i.e., the 'social structures that take shape in association with a given technical structure' (Postigo, 2014, p5).

As Boyd (2010) argues, the social structures of a platform are not just defined by its architecture, but should also factor the interactions present within the network. In a similar vein, Schrock (2015) outlines how the social structures of technology can be understood through the type of communicative practices that they enable. While this can sound somewhat deterministic, Postigo (2014, p5) highlights that 'social and historical contingencies shape how we (users and designers) understand and socially construct technological and social affordances'. Suggesting that 'so as much as the telephone, antibiotics and YouTube made possible certain social arrangements, those social arrangements shaped those technologies further, reproducing the affordance structure or in some case rejecting them' (ibid). The premise of this argument suggests that social,

contextual and historical factors shape how users use the technology and their view on how it is supposed to be used.

When considering the affordances of Twitter, Yarchi et al (2021, p104) highlights how Twitter is defined by its 'unrestricted publicness', in which 'anyone, even non-users, can read any tweet, and any user can respond to any contribution'. In addition, users 'can follow others without a need for permission, enabling asymmetric, non-reciprocated ties' (ibid). In theory, this should mean that Twitter is a space where individuals debate with opposing viewpoints in a relatively unrestricted manner – a virtual town square. However, the platform has become synonymous with homogenous discussion amongst like-minded users. One such explanation for the degree of homogeneity may be the platform's algorithm, which may determine what users see on Twitter (Bouvier and Rousenbaum, 2020, p13). Twitter's algorithm is problematic due to the fact that it is personalized in response to the user's interests and views (Yarchi et al., 2021, p104), recommending follower networks based upon a user's preference (Gupta et al, 2013). While it would be misleading to suggest that inter-ideological discussion does not exist on the platform (see, for example, the findings of Colleoni et al., 2014), the quality of such discussion is likely questionable. For example, the sense of presence and immediacy may encourage emotional and hateful discourse (Papacharissi, 2014, p4; Shepard et al., 2015; Bouvier and Rousenbaum, 2020, p16), and the restrictive character limit is likely to encourage simplistic discussion (Nahon, 2015, p6).

Twitter has taken steps to alter its platform architecture to improve the quality of discussion. For example, in 2018, Twitter doubled its character limit from 140 to 280 characters. However, evidence has suggested that this has done little to improve the quality of

discussion on the platform. On the contrary, research has indicated that the length increase

has constrained tweet quality (Gligorić et alet al., 2018) and may have led to an increase in

incivility (Jaidka et al., 2019). In addition, research has been relatively pessimistic when

considering the affordances of Twitter in contrast to competitor platforms (Oz et al., 2018;

Yarchi, 2021). At the time of writing, Twitter's prospective new owner, Elon Musk, has

proposed a number of changes to the platform's architecture to increase the quality of

discussion (e.g., verifying users and altering the platform's algorithm) (Gilbert, 2022).

However, the impact of such changes are likely to be influenced by the way in which users

interpret and utilise them within the discussion, regardless of their intended purpose.


## 2.5.    Case Study: The UK Withdrawal from the EU

In this section, I consider how the EU referendum relates to notions of deliberative

democracy. In doing so, I argue that the referendum and ensuing debate suffered from a

deliberative deficit, one that may challenge the legitimacy of the 2016 referendum result.

Moreover, I highlight the need for further research to explore the role of Twitter as a public

sphere within the Brexit discussion, paying particular attention to literature that has studied

elements of the Brexit debate on Twitter.


### 2.5.1.   *Deliberative Democracy and the EU Referendum*

Deliberative democracy stresses the importance of the citizenry making informed choices,

resulting from extensive political debate surrounding the implication of such decisions.

However, LeDuc (2015, p139), highlights how referendums typically only involve the citizenry

at the very end of the process, stating a 'deliberative democratic process is less interested in

resolving an issue than in discussing it, while a referendum often takes place solely for the

purpose of settling a particular question'. I would suggest that LeDuc's (ibid) assertion is particularly relevant when considering the context of the 2016 EU referendum and the broader UK-EU relationship. Historically, several EU referendum commitments have been entered into by mainstream UK parties and their leaders, with Westlake (2017, p10) asserting that previous referendum issues 'illustrate the varying commitments entered into by mainstream parties and their leaders were as much about tactics and party management as anything else'. For example, one may look to the 2004 U-turn of Tony Blair in offering a referendum on the proposed EU Constitution and the 1997 GE promise of a referendum on the UK's adoption of the Euro by both major parties as examples of the tactical use of referendum within the context of the UK-EU relationship (Qvortrup, 2006; Bulmer, 2008 Westlake, 2017).

When considering the implications for deliberation, Parkinson (2020) argues, in agreement with Leduc (2015), that a distinction should be made between government-initiated referenda, which generally allow citizens to participate rather than promote, and citizen-initiated referenda, which would enable citizens to propose changes to law and are likely to display the characteristics of involvement associated with a deliberative democratic process. Arguably, the decision to call the 2016 referendum shared characteristics with previous promises to hold a referendum, facilitated due to government-initiated responsibility shifting due to internal disputes within the Conservative Party and a fear of losing votes to UKIP (Parkinson, 2020). To elaborate upon such arguments, I would like to briefly consider the circumstances surrounding PM Cameron calling the 2016 EU referendum.

With the ratification of the Lisbon treaty, the position of the leading British political parties became more distinct. The Conservative Party, under David Cameron, began to use discourse that challenged the Lisbon treaty in terms of democracy and trust (Lynch and Whitaker, 2013, p300). Cameron also removed Conservative MEPs from the European People's Party, forming the 'European Conservatives and Reformists' (ibid). After becoming PM, Cameron attempted to quell concerns about further erosion of sovereignty by passing the 2011 'European Union Act', which re-stated parliament's sovereignty and promised any further transfer of power would be put to a popular referendum (Wellings and Vines, 2016). During this time, opinion polling suggested the lowest levels of support for UK membership to the EU in a decade (Miller and Barclay, 2012), as well as overwhelming support for an EU referendum (Ipsos Mori, 2011). Politicians also had to pay attention to the growing threat of outsider political parties, such as UKIP and the BNP (Hayton, 2010).

While support for the BNP would collapse, UKIP would receive the highest share of votes during the 2014 European Elections, putting Cameron on notice (Treib, 2014). When voters were asked why they voted for UKIP, 77% stated it was in opposition to the EU rather than the government or the party's domestic policies (ibid, p1549). To placate the growing Eurosceptic mood, in the run-up to the 2015 GE, all major parties offered some form of in/out referendum on the UK's membership to the EU. While Labour and the Liberal Democrats were slightly vague in the circumstances in which they would enact such a referendum, Cameron was clear, if the Conservatives were to be elected with a parliamentary majority, then he would renegotiate the UK's EU membership and offer an in/out referendum by the year of 2017. It was expected that Cameron did not intend to follow through with the commitment to hold an in/out referendum by 2017, likely dropping it

as part of a deal to form a second coalition government with the Liberal Democrats (which pollsters suggested was the most likely outcome of the 2015 GE). However, to the surprise of pollsters, Cameron would win a parliamentary majority in 2015. On the 22nd of February 2016, the date for the in/out referendum was announced - it would be held on the 23rd of June 2016.

In many senses, the circumstances in which the referendum arose posed issues concerning the quality of discussion. In making such a claim, I would again point to the argument of LeDuc (2015, p140), who asserts that when a 'governing party opts for a referendum strategy, it generally does so in the expectation that it will win, by definition emphasising votes rather than voice'. In the context of Brexit, this argument is supported by Barber (2017, p226), who asserts that the referendum 'made virtually no attempt at civic engagement or education relying instead on claim and counterclaim of hyperbolic proportions'. Additionally, much of the Brexit referendum lacked the clarity needed to promote an informed debate, exacerbated by a great deal of misinformation aimed towards Leave-supporters (Chambers, 2018), the exaggerated nature of the economic models that undermined the Remain campaigns' primary argument (Blake, 2016), and the populist, simplistic and emotive communication of the Leave campaign that set a low tone for the quality of debate (Barber, 2017).

As would become apparent in the aftermath of the vote, there was a lack of clarity regarding how the UK would depart the EU should the UK vote to leave. Moreover, should the UK vote to remain a member of the EU, the future relationship inside the Union was somewhat speculative. For example, would the UK's political class embrace further EU integration, or

would it have approached the EU with the same level of ambivalence as previous attempts at further integration? This lack of clarity created challenges, and by proxy, the referendum became a de facto discussion of a range of issues unrelated to the UK's relationship with the EU. To mitigate concerns around clarity, the British government attempted to communicate with the citizenry regarding the implications of a vote to leave, doing so under the guise of persuasion rather than seeking to provide balanced information. An example of this can be highlighted through the leaflet delivered to every British household, entitled 'why the government believes that voting to remain in the EU is the best decision for the UK'. In doing so, the government undermined the issue focus, risking the vote becoming a 'second-order effect' – a referendum plebiscite on the national government's performance rather than the merits of remaining within the EU (Garry et al., 2005).

The referendum saw a high turnout, with the result offering a mandate for the UK to leave the EU. However, 'the UK's EU membership plebiscite received heavy criticism, particularly regarding the quality of information, level of debate and how well-informed voters were' (Organ, 2019, p268). As a result, the legitimacy of such a mandate was undermined, leading to a confusing period in British politics that reflected the vastly divergent understanding surrounding the EU referendum vote.

The post-referendum period would mark a time of extreme turbulence for the British public and political class, with the country seemingly still divided on whether the UK should leave the EU. On the one hand, Leave-supporters felt that they had delivered a clear mandate for an exit from the EU, a task that the new PM, Theresa May, had the responsibility to deliver; with Allen (2018, p106) highlighting:

While the referendum's outcome may have been advisory in a strictly legal sense, it was politically binding on the new prime minister. The 2015 Conservative manifesto had committed the party to respect the result. The campaign had been fought in that spirit, and Cameron's government, of which May had been part, had promptly accepted the electorate's decision.

For a portion of Leave-supporters, the 'possibility of not implementing the result meant that, all of a sudden, democratic principles do not count', with a general feeling that democratic debate is illegitimate post-referendum (Brändle et al., 2020, p14). On the other hand, many Remain-supporters argued that the shortcomings in the referendum process nullified the result, with Petrie (2020, p1) summarising this attitude quite succinctly:

> 'Brexit' is described by politicians as 'the will of the people.' It would, politicians argue, undermine democracy not to deliver this decision. Do we really know the will of the people, however, when the public is subject to hugely expensive campaigns of persuasion which promote false information and are funded by individuals who have an interest in the outcome of the vote; when they are denied access to robustly-researched, accurate information; and when a fully representative public have not properly deliberated the reasons for and against the competing alternatives in conditions which ensure everyone's views can be meaningfully expressed and equally counted?

The post-referendum period is typically associated with several political challenges, suffering from the same questionable quality of deliberation as the referendum campaign. To support this argument, I would point to the research of Hobolt et al. (2018, p26), who found that, in the aftermath of the referendum, there was the 'emergence of intensely felt identities that

cross-cut partisan divisions'; arguing that the UK public displayed characteristics of affective polarisation, finding up to 70% of the public held opinion-based identities. This divide is also highlighted by Ford and Goodwin (2017, p27), who argue that the 'vote for Brexit has accelerated the polarisation of values, outlooks, and political priorities that increasingly divides university-educated cosmopolitans from poorly qualified nationalists'. When considered in relation to deliberation, evidence suggests that identity formation may negatively impact attitudes towards the out-group (Billig and Tajfel, 1973), which may have challenged the willingness to engage across the Brexit divide.

As a result of the Brexit group identity, Hobolt et al. (2018) argued that there would likely be a 'fundamental change in the UK party system', with the 'major political parties possibly aligning their positions firmly with one of the two opposing positions on future UK-EU relations, leading voters to discard old party attachments in favour of new patterns of support'. This also reflected the electorate becoming more extreme in their views (about Brexit), with opinion polling suggesting that in early 2019, 38% would support a new party promising a hard Brexit, whilst 33% would support a new party that offered no Brexit at all (Gamble, 2019, p178). Hobolt's (2018) prediction was relatively accurate, with the major British political parties responding by hardening their stances in relation to Brexit, culminating in a shift away from traditional political partisan support. This would see the Conservatives win the 2019 GE, with the UK formally leaving the EU on January the 31st, 2020.

As may be clear at this point, the case study of Brexit has been typically associated with characteristics that run contrary to the notion of deliberative democracy. Which, as a result,

may have challenged normative aspects of the public sphere and the legitimacy of the 2016 referendum result. As Habermas (2018, p7) argues

> The agonistic character of election campaigns, conflicts between opposing political parties, and confrontations between protest movements and the establishment must be located correctly within the matrix of various arenas and levels of political communication. But that is possible only if one recognises, for example, that the functional contribution of political mass communication to an, on the whole, deliberative process of opinion- and will-formation consists only in generating competing public opinions on topics relevant for decision-making and in providing sufficient information for evaluating competing platforms. Only on this basis are informed and considered decisions in the voting booth possible.

Reflecting upon the deliberative shortcomings of the 2016 referendum and ensuing debate, Habermas's argument would suggest that voters may not have received the information required to generate the competing public opinion that would have allowed informed and considered decision making. In this sense, the outcome of the referendum result and the UK's departure from the EU arguably lacked the legitimacy that would have been granted had the public sphere served its democratic function.

### 2.5.2. *Twitter and the EU Referendum*

Within the context of Brexit, Twitter was used as a prominent platform of discussion, supplementing the traditional media's role in political communication, as well as representing a platform for users to 'voice their understandings of the UK-EU relations and

the UK's EU membership' (Tong and Zuo, 2021, p64). A range of literature has addressed the discussion of Brexit on Twitter, with a degree of consensus surrounding several characteristics associated with the discussion.  As I will suggest within this section, several characteristics reflect the wider deliberative deficit outlined in the previous section.

When considering previous literature, I find that Tong and Zuo (2021) currently offer the most detailed account of the discussion of Brexit on Twitter. Moreover, their research approach and methodology share a number of similarities to this thesis. While their research was not used when formulating my approach, due to their work being published during the latter stages of my PhD, I found their research offered support for my approach, particularly in relation to devoting a chapter of this thesis to polarisation and populist discourse (both of which they argue, convincingly, are normative elements of the Brexit discussion on Twitter). Specifically, Tong and Zuo (ibid) demonstrate that Twitter acted as an important platform for its users to express their understandings of the UK's EU membership, incorporating elements of the users' everyday lives, giving the EU membership concrete meaning for both Leave-supporters and Remain-supporters. At the same time, they highlight a number of challenges, such as how the tweeting practices of certain politicians and news media sought to legitimise controversy and mainstream populist claims into legitimate political debate, as well as demonstrate instances of homophily - particularly amongst Leave-supporting Twitter users. The crux of their argument offers an indication of Twitter's ability to function as a public sphere during the discussion of Brexit, with their findings painting a generally negative picture of Twitter's role in democracy and its ability to facilitate a healthy discussion; to quote - 'the hope that social media can serve democracy well is, thus, dim' (ibid, p63).

Tong and Zuo (ibid) are not the only academics to demonstrate pessimistic findings about the discussion of Brexit on Twitter. For example, Bennet (2019) emphasises the impact of UKIP and associated Twitter accounts, suggesting their discourse may have impacted negativity towards migrants and encouraged political hostility; Bouko and Garcia (2020) demonstrate that, in relation to the aftermath of the Brexit vote, Twitter was not used as a platform of true dialogue, instead being used as a platform in which users can vent emotional tweets; and North et al. (2020) demonstrate increasing levels of tribalism within the discussion, which often encourages stereotypical assumptions and promotes 'othering'. While previous literature may indicate some of the shortcomings surrounding the Twitter discussion of Brexit, I would like to highlight why I believe further research is needed to meet my research objective.

While there is a degree of consensus regarding elements of the Twitter discussion of Brexit, previous research is somewhat limited in terms of either timeframe or methodology. Some undertake a comprehensive methodology but focus on a select timepoint (e.g., Bouko and Garcia, 2020; Tong and Zuo, 2021), while some offer an expanded timeframe but rely on computational methods that would benefit from further exploration (e.g., Calisir and Brambilla, 2020; Del Gobbo et al., 2020; North et al., 2020; Rajabi et al., 2021). My analysis seeks to offer an expanded timeframe, combining both human coded and computational elements, which may mitigate the shortcomings of previous research. This is important, as previous understandings of the Brexit discussion on Twitter may not accurately account for the change across time. This may mean that certain understandings (e.g., Leave-supporters association with polarisation) are based upon select timeframes that may not accurately reflect the developing conversation. Despite the need for further analysis, previous research

should indicate some of the expected findings within this thesis. For this reason, I would like to briefly consider findings that relate to the four research questions I have proposed.

RQ1 addresses debates surrounding deliberative quality. Previous research has explored elements of the discussion that may offer some indication of the expected findings within this thesis. For example, Bouku and Garcia (2020) demonstrate the overwhelming presence of emotional discourse within tweets that may challenge the quality of discussion, Fan et al. (2021) demonstrate the existence of insulting and toxic discourse within the discussion and Tong and Zuo (2021) highlight several challenges to democratic deliberation. Moreover, the degree of polarisation and populist discourse would suggest a challenge to Twitter's ability to promote healthy deliberation within the context of Brexit. To address such debates, I have used a quantitative content analysis to measure several indicators of deliberative quality across time.

RQ2 addresses debates surrounding populist discourse at a user level. As previously mentioned, populist discourse has been associated with the discussion of Brexit on Twitter. For example, Tong and Zuo (2021) highlight how populist discourse was able to spread within the Brexit discussion on Twitter through top-down political communication and through a lack of challenge amongst Remain-supporters; with their finding supported by Breeze (2020, p550), who explores the communicative style of prominent Leave-supporting politician Nigel Farage, finding his emotive and simplistic communicative style 'resonate with popular audiences and claim the status of 'common sense''. While the top-down communication of populist politicians is reasonably well documented (within the context of Brexit), there is a lack of exploration regarding permeations of populist discourse at a user level, with this

thesis seeking to address such debates through a quantitative content analysis and thematic analysis.

RQ3 primarily addresses debates surrounding polarisation, with several research papers highlighting a degree of polarisation within the Brexit discussion on Twitter. During the pre-referendum period, this has generally been associated with pro-Leave Twitter users (Grčar et al., 2017; Mora-Cantallops et al., 2019; Tong and Zuo, 2021). However, in the post-referendum discussion, North et al. (2020) challenge this association, presenting evidence suggesting a degree of tribalism (which is often considered a constitutive element of affective polarisation) amongst both Leave- and Remain-supporting tweets, raising questions regarding how polarisation manifests within the discussion across time, particularly in the post-referendum period. As I will demonstrate in the methodology chapter, I have sought to address this gap through a mixture of a SNA, quantitative content analysis and thematic analysis conducted longitudinally.

Finally, RQ4 addresses debates surrounding network centrality, with several research papers highlighting the negative role of prominent Twitter users within the discussion of Brexit. Specifically, emphasis has been placed upon the role of the MSM, with North et al. (2020, p199) finding that 'certain U.K. MSM sources, such as the *Daily Mail* or *Daily Express*, have been instrumental in promoting a negative narrative that targets Remain voters on Twitter', with Tong and Zuo (2021) demonstrating that the MSM play a role in the mainstreaming of populist politicians' discourse which aids in the legitimisation of controversy. As previously argued, debates surrounding influence relate closely to topic selection and agenda-setting, which can impact the public issue focus of the public sphere. For this reason, I find it essential to build upon the current understandings of influence within the discussion of Brexit on

Twitter, addressing such debates with a specific focus on the type of actor within prominent network positions, which I have undertaken through a longitudinal centrality analysis.

## 2.6.     Conclusion

In this chapter, I have highlighted the theoretical framework that underpins much of this thesis. In doing so, I make the argument that elements of Habermas's public sphere theory grants my research the ability to analyse the quality of public debate on the platform Twitter. While I acknowledge some of Habermas's shortcomings, I take the stance that an online public sphere should be relatively free from polarisation, accessible, rational and free from serious distortions. In presenting these characteristics, I am able to offer a rationale for the approach undertaken within the empirical elements of my research. In addition, I highlight my understanding of the impact of technology, taking an affordances approach, factoring the technologies material and social properties.

During the latter half of this chapter, I discussed the deliberative shortcomings of the 2016 EU referendum and ensuing debate. In doing so, I make the argument that the legitimacy of the referendum result and the UK's departure from the EU may have been challenged due to a lack of quality public debate. I then explored previous research that has addressed the Twitter discussion surrounding the UK-EU relationship. This allowed me to highlight areas of consensus, as well as why I believe further research is needed in this area to meet my research objective.

# Chapter 3: Methodology

## 3.1.     Chapter Overview

Within this chapter, I seek to outline the methods used to conduct the empirical research within this thesis and illustrate my overall research approach. In doing so, I aim to demonstrate how the combination of methods I have adopted are the most suitable manner to assess the quality of the Twitter discussion surrounding the UK's withdrawal from the EU across time. This methodology builds on existing mixed-methods research (such as Tong and Zuo, 2021) and longitudinal studies (such as North et al., 2020 and Del Gobbo et al., 2020) that have addressed the Twitter discussion of Brexit. In general, this methodology proposes a novel approach to assess long-term online political debate, one that may be beneficial for future research interested in conducting a similar analysis. It also offers clarity for the reader regarding the specifics of the analysis conducted within this thesis, which may be beneficial in understanding the results presented within the empirical chapters.

As previously noted, this thesis takes a mixed-methods approach, conducted longitudinally. I predominantly focus on computational and manual quantitative measurements, using qualitative methods to supplement the quantitative findings. The two main methods employed within this thesis are a SNA (to primarily answer questions surrounding polarisation and influence) and a quantitative content analysis (to primarily answer questions surrounding deliberative quality and populist communication). The supplementary analysis employs a qualitative and quantitative thematic analysis.

## 3.2.    Research Approach

### *3.2.1.   Case Selection*

This thesis focuses on the platform Twitter, exploring the quality of discussion within the context of the UK-EU withdrawal. Twitter is a platform that is widely associated with political discussion, offering an alternative platform for channelling and reflecting public opinion (Tong and Zuo, 2021, p5). While the platform grants citizens a space to discuss issues of public concern, it also represents a space where influential users can disseminate information. Twitter offers a relatively direct connection between its users and information providers. In this sense, it grants actors the ability to challenge the gatekeeping role of the legacy media and allows for the proliferation of alternative viewpoints.

As I highlight in the introduction and literature review, Twitter has played a significant role in the discussion of Brexit; this may partially reflect the platform's affordances, particularly its open network structure, and the high proportion of users within the UK, with an estimated 16 million users as of 2017 (LSE, 2017). However, Twitter is far from representative of the wider population, with research suggesting that 'British Twitter users are younger, wealthier, and better educated than other Internet users' (Blank, 2017, p679). As I outline within the literature review, this lack of representation is likely a reflection of the public sphere transforming from a relatively unified space into a landscape that incorporates multiple public spheres. For this reason, I do not seek to argue that Twitter alone should be viewed as *the* public sphere. Instead, the platform should be considered an important part of an ecosystem that contributes to a broader public discussion.

As such, I would like to clarify why I have opted to focus solely on Twitter rather than conduct a cross-platform comparative approach [3]. As Tong and Zuo (2021, p7) highlight, Twitter has 'become one of the primary venues through which information is produced, consumed and disseminated'. Therefore, understanding debate on the platform should be considered a pertinent topic of research (ibid). As I highlight in the introduction, this thesis is not the first research to conduct analysis focusing solely on the platform Twitter - there have been countless papers that have done so. However, there is a need to go beyond current understanding, particularly within the context of Brexit. As Del Gobbo et al (2020) demonstrate, the issue of Brexit was salient on the platform across the time of the event. However, current understandings are somewhat fragmented and unclear, particularly as it relates to change across time. I, therefore, took the stance that I would offer the strongest contribution by focusing solely on Twitter - as this would allow for a more detailed and focused analysis than would be possible if I had adopted a cross-platform analysis. I do concede though, that Twitter is likely part of a hybrid media system. As such, further research may wish to build on the findings from this thesis by incorporating additional social media platforms.

It should be noted that issues of accessibility did factor into the decision to focus solely on Twitter. Notably, the accessible nature of Twitter allowed my research to adopt a more suitable approach to answer broader questions than would be possible had the study adopted a cross-platform comparative approach[4]. Twitter is somewhat unique in granting

---

[3] In this instance, a cross-platform comparative approach refers to research that draw conclusions through a comparative analysis of two or more social network platforms. The basis of which can be highlighted within the methodology of Oz et al (2018).

[4] For an overview of the limitations surrounding data gathering from competitor platforms, see Catanese et al, (2011).

researchers the ability to gather and analyse data, with other popular social media platforms typically being more restrictive in terms of data acquisition and problematic in terms of data analysis (Mancosu and Vegetti, 2020; Baumgartner et al., 2020).

### 3.2.2.  Mixed-Methods Approach

I took the stance that a longitudinal analysis would allow my research to present a robust set of conclusions and address changes across time that may have been overlooked in previous research. In doing so, I am able to make conclusions centred around observations of growth, change, and development across time. Liu (2016, p4) offers a succinct overview of this type of analysis, stating that:

> Methodologically, longitudinal data can be regarded as a special case of the classical repeated measurements data of individuals collected and applied in experimental studies… with longitudinal data generally composed of observations for the same subject ordered by a limited number of time points with equally or unequally spaced intervals. Therefore, longitudinal data can be defined as the data with repeated measurements at a limited number of time points with predetermined designs on the time scale, time interval and other related conditions.

For my research, predetermined categories of analysis (the specifics of which are outlined in the latter sections of this chapter) have been applied across the time of the discussion at fixed intervals of time.

As this thesis is engaged in the analysis of 'big data' (Ward and Barker, 2013), I decided to undertake a mixed-methods approach that combines quantitative and qualitative research and combines computational and human coded elements. As highlighted by Lewis et al. (2013, p3), 'algorithmic analyses of content remain limited in their capacity to understand latent meaning or the subtleties of human language', with 'traditional forms of manual content analysis not designed to handle huge datasets of media texts'. In this instance, they argue that blending computational and manual methods may offer a solution to the respective shortcomings of a singular approach (ibid), with the feasibility of such research being demonstrated within Twitter analysis (e.g., Tong and Zuo, 2021; Sjøvaag et al., 2012). Specifically, my thesis used computational methods to analyse the network structure and gather the overall corpus of tweets, with manual techniques used for the quantitative content analysis and the supplementary analysis.

Finally, I would like to clarify why I opted to undertake this research incorporating qualitative and quantitative approaches. It has been widely demonstrated that such an approach presents more robust findings, with qualitative research beneficial in explaining the quantitative findings (Creamer, 2017). A qualitative analysis was conducted to supplement the quantitative findings within this thesis. The specifics of the quantitative analysis are highlighted in Section 3.3. and Section 3.4. within this chapter, with the specifics of the supplementary analysis highlighted in Section 3.5. of this chapter.

### 3.2.3.  Structure of Research

*Phase 1 – Pilot Study*

The first phase of the analysis was conducted as a pilot study to test the proposed approach.
In general, it centred around testing the centrality measurements, data collection, coding,
SNA and qualitative aspects of this research. A detailed overview of the pilot study can be
found in Appendix A.

*Phase 2 – Gather Overall Corpus*

While I had initially anticipated using NodeXL to gather and analyse the data, I found the 7-
day limitation imposed through Twitters API to be highly restrictive. As such, I sought to
bypass this limitation by gathering the data using an overlay to flatten Twitter's JavaScript
Object Notation (JSON) and collect tweets as they appear on Twitter's 'advanced search'
function. I found that this was possible using the publicly available code 'GetOldTweets3'
(GOT3) (Mottl, 2019), the specifics are highlighted in Appendix B. Minor adaptations to the
code were required to meet the needs of my research, which generally centred around
formatting and adapting some of the information gathered.

Using the keyword 'Brexit', I used GOT3 to gather data on the 1$^{st}$ of every other month, from
February 2016 until February 2020, representing the time in which the referendum was
announced until the time in which the UK had formally left the EU. The overall corpus
contained roughly N=450,000 tweets, consisting of 25 datasets containing roughly n=18,000
tweets. While there is no agreed-upon definition of sample size for Twitter analysis, n=18,000
tweets per dataset exceed previous research that has looked at Twitter networks (e.g., Yardi
and Boyd, 2010; Macskassy, 2012; Gruzd and Roy, 2014). Moreover, the sample size was

determined as an amount that would be manageable whilst also offering results that could

be inferred to the broader Twitter population. Out of the sample of n=18,000, I determined

that n=385 per dataset could be used for the purpose of the quantitative content analysis

(the specifics are highlighted in section 3.4.1.).

*Phase 3 – Computational Analysis*

Once the data had been gathered, it was cleaned and prepared for the computational

analysis (Section 3.3.2.). The computational analysis was undertaken using the software

Gephi, which contains several inbuilt SNA tools. Specifically, within this analysis, I sought to

identify the most central 1% of users across all datasets (Section 3.3.3.) and partition a

smaller sample of the networks into modular communities for the homogeneity analysis

(Section 3.3.4).

*Phase 4 – Quantitative Manual Analysis*

Once the computational methods had concluded, I undertook the manual quantitative

analysis (Section 3.4.). The quantitative techniques generally centred around a quantitative

content analysis, which sought to measure nine variables within a representative sample of

tweets taken from each dataset.

During the pilot study, I had hypothesised that it would be possible to attach the findings

from Variable 1 (the tweets stance on Brexit) to the corresponding tweets within the

homogeneity analysis, thus indicating the community consensus in relation to Brexit without

the need for further analysis. However, it became apparent that n=385 tweets would not be

sufficient in predicting the level of consensus within each community. To mitigate this

concern, I sought to undertake additional quantitative analysis to identify the stance on Brexit amongst a representative sample of tweets from each of the modular communities (Section 3.3.4.).

*Phase 5 – Exploration of Quantitative Results*

I found it necessary to explore the quantitative results before engaging in the supplementary analysis, offering guidance on which specific aspects of this research would benefit from further research. Specifically, this exploration sought to identify which results could not be explained through current literature, with further iterations required to understand the results. For example, my research demonstrated that Remain-supporting tweets consistently referenced 'the elite', with further research needed to explore the specifics of this finding.

In some instances, I found that further quantitative analysis was necessary, which was conducted through a Pearson's Correlation Analysis (Pearson's r). The Pearson's r was conducted in instances where the strength of the linear relationship between two variables required testing. In conducting the Pearson's r, I was able to test the statistical significance of the correlation. In addition, I also sought to strengthen the findings from the centrality analysis, categorising influential users by type and verification levels (Section 3.3.3.).

*Phase 6 – Supplementary Analysis*

The final phase of the analysis sought to undertake a supplementary analysis to understand the quantitative findings through a sequential explanatory design (Section 3.5.). As Ivankova et al. (2006, p5) highlight, such an analysis is undertaken to help explain or elaborate on the

initial quantitative phase of the research. This was primarily conducted through a qualitative and quantitative thematic analysis.

### 3.2.4.   Considerations

I believe that the mixture of methods that are undertaken within this thesis offers the most suitable approach to address my overall research objective. However, I do acknowledge that there are certain limitations. Here, I would like to outline the main limitations, as well as the steps taken to mitigate such limitations.

Firstly, while exploring big data offers the ability to understand behaviours to a degree not possible through traditional methods, it runs the risk of encouraging apophenia, i.e., 'seeing patterns where none actually exist, simply because massive quantities of data can offer connections that radiate in all directions' (Boyd and Crawford, 2011, p2). The validity of this type of analysis is often associated with the analytical assumptions that prompt the study and the methodological framework that guides the analysis. For this reason, I have attempted to offer a theoretical basis for study, approach, and analysis. In addition, I undertook manual analysis to limit the reliance on computational methods. However, I do believe that big data analysis is beneficial as it allows researchers the capability to analyse communication dynamics and social interaction in a manner not possible through smaller sample sizes (González-Bailón, 2013; Burrows and Savage, 2014). The basis of the argument suggests that findings are more robust, particularly when analysing social networks, when there are a greater number of participants.

Secondly, Bruns and Burgess (2012) assert that Twitter research often risks being non-repeatable and non-verifiable. This shortcoming is also highlighted by Ekbia et al. (2015, p1531), who assert that gathering data from Twitter provides a 'high degree of variability, randomness, and specificity, making the data prone to sampling and selection biases and replication nigh impossible'. As I highlight in Section 3.2.3., the sampling frame was made up of a number of datasets containing n=18,000 tweets. The sampling frame was gathered on the basis of users that mentioned the keyword 'Brexit', gathered using the code GOT3, which scrapes tweets from Twitter's 'advanced search' function. While the 'advanced search' function is somewhat opaque, tests were taken to ensure a degree of replicability. At points, I repeatedly gathered the same n=18,000 dataset, running testing to ensure replicability. This testing undertook centrality scoring on the datasets from the same time point, with the results indicating limited variability and randomness. In addition, to further mitigate this issue, where possible, I have used a random sampling technique; with Liang and Fu (2015, p11) (in their study addressing replicability within Twitter research) asserting that a 'random sampling approach is more appropriate to study social science problems because it satisfies the basic requirement of most statistical models for generalising claims at the population level'.

Ekbia et al. (2015, p1531) highlight that when conducting Twitter research, the findings are limited in context, posing issues when researchers generalise their findings beyond tweets or Twitter users. However, I feel it is appropriate to consider the results in line with broader contextual events, reflecting my stance that Twitter, as part of the public sphere, is likely interconnected with other spheres of discussion. In addition, Twitter is an important platform of public discussion in its own right, particularly within the context of Brexit. As such, adding

to the current understanding of the discussion on Twitter should be considered an important area of research for those interested in political communication and civic debate.

Thirdly, 'bot' accounts and spam accounts are often present on the platform Twitter, which may have a malicious impact on the conversation. There is a relatively well-developed methodology to detect and remove such accounts (e.g., Yardi et al, 2010; Chu et al, 2012). However, I made the decision not to remove such accounts or their associated tweets due to the fact their exclusion may present a misleading picture of the conversation. If such accounts were present during the discussion, then I took the stance that they should be included within my analysis, to offer a clearer picture of the type of conversation being undertaken. As I will highlight at a later stage of this thesis though, I didn't find that such accounts (or duplicate tweets) were a common feature of the conversation. I surmise that this may either be a reflection of Twitter removing such accounts and deleting their associated data (retrospectively) or the salience of such accounts being overstated.

Finally, it should be acknowledged that this dissertation was researched and written up during the Covid-19 pandemic. Consequently, this project took longer than anticipated to complete. Towards the end of the project, Twitter changed its policy regarding access to data, the result being that Twitter would grant academic access to its full archive search. While I acknowledge that the use of GOT3 might be perceived as a limitation in light of the academic access option, I have confidence that the data gathered through the code GOT3 has allowed me to meet the research aims. Therefore, re-analysing the data would have been unnecessary and unfeasible. While I would recommend that future research utilise the access options now granted by Twitter, if Twitter withdraws academic access to its full archive, then

the data collection undertaken within this thesis will become a relevant option for those looking to analyse historical Twitter data.

### 3.3.    Method 1: Social Network Analysis

To explore debates surrounding centrality and polarisation, I undertook a SNA, which primarily sought to address RQ3: *how does polarisation manifest within the discussion across time?* And RQ4: *what are the characteristics of users in a position of network centrality?*

In general, SNA reflects patterns of information flows within the network of communication (Himelboim et al., 2017), allowing researchers to add value to the massive amounts of data present through social media research (Ediger et al., 2010). Primarily, SNA makes assumptions regarding the 'importance of relationships among interacting units' (Wasserman and Faust, 1994, p4), with studies showing how 'seemingly autonomous individuals are embedded in social relations and that their interactions may have consequences for individual and collective behaviours' (Moukarzel et al., 2020, p3). For example, within the context of the Twitter discussion of Brexit, Mora-Cantallops et al. (2019) seeks to explore the relationship between central nodes and user interaction, suggesting that there is an increase in such interaction before a notable event, which may partially account for an increase in polarisation.

### *3.3.1.   Key Terms*

Table 1 presents a definition of the key terms related to the SNA.

| Term | Definition |
|---|---|
| Node | A 'node' is a representation of a Twitter user within the social network. |
| Centrality | Centrality measurements identify the nodes that are in the greatest position to influence flows of information within the network, assigning a score to each user depending on their level of centrality. |
| Communities | Communities refer to groups of nodes that are more likely to communicate with each other, with communities typically identified through a measurement of the strength of division in a network. |
| Edges | An 'edge' represents a connection between two nodes. This typically comes in the form of a tweet, retweet, mention, comment or reply. The edges within my network are 'directed', in the sense that the network has identified the 'source' and 'target' node. |
| Giant Component | The most well-connected point of the network. |
| Heterogenous | Heterogenous communities are identified as communities that have a mixture of opinion on Brexit. |
| Homogenous | Homogenous communities are identified as communities which the majority of users share the same opinion on Brexit. |
| Isolate | An 'isolate' can be understood as a user or group of users that are not connected to the giant component, with 'giant component' referring to the maximum connected conversation. |

| | |
|---|---|
| Source Node | A 'source node' can be understood as the user that initiated the contact towards the 'target node'. For example, 'User A' (the source node) replied to 'User B' (the target node). |
| Target Node | A 'target node' is understood as the user that was the recipient of contact from the 'source node'. For example, 'User A' (the source node) retweeted '(User B)' the target node. |

### 3.3.2.   Data Formatting

Using R, I wrote code to clean and format the data from the overall corpus. As Twitter networks are directed (in which the direction of a connection determines the flow of information), the code acted to extract the username of the source and target node(s) within each tweet gathered within the overall corpus. This also assigned information to each node and target node, such as the usernames and the content of the tweet.

```
Setwd("User")
Tdata <- read.csv("CSV", row.names =NULL, col.names =,1)
sampledata <- read.csv("sample_data.csv", row.names =NULL, col.names =,1)
library(data.table)
library(stringr)
x <- setDT(Tdata)[, .(tweets=unlist(str_extract_all(tweets,
"(?<=@)\\w+"))), by=.(sender, tweets)]
x <- x[,c(1,3,2)]
colnames(x) <- c('sender', 'receiver', 'tweet')
mergeddata <- merge(x, sampledata, by = "sender", all = TRUE)
df <- as.matrix(mergeddata)
na.positions <- which(is.na(df)==TRUE)
df[na.positions] <- ""
write.csv(df, file ="dataset")
```

Once the data had been cleaned and formatted, it was then analysed using the social network software 'Gephi' (version 0.9.2). Gephi is beneficial as it was designed specifically for social science research, without the need for an advanced understanding of network graph theory; with Gephi intended to mitigate some of the existing issues with similar software

such as Pajek, GUESS and Touchpad (Jacomy et al., 2014). In using Gephi, there are several

inbuilt measurements and visualisation options that make the platform suitable for Twitter

analysis (Angus, 2016).

### 3.3.3.   Measurements of Centrality

As I argue within the literature review, Habermas outlined the weakening of the public

sphere (primarily) due to distortions in power relations resulting from the merging of the

public and private spheres, impacting the transmission of information and public issue focus

of discussion. However, the advent of social media presented the ability for a broader range

of actors to move into positions of influence, potentially revitalising the public sphere. As

such, RQ4 asks: *what are the characteristics of users in a position of network centrality?*

To address this research question, I have taken steps, through centrality measurements, to

identify prominent users within the discussion of Brexit. Using the measures of in-degree and

eigenvector centrality, I determine which users have a more significant influence on flows of

information, which relate closely to the user's agenda-setting capacity.

#### Network Centrality

In SNA, analysts often describe how an 'actor is embedded in a relational network as

imposing constraints on the actor and as offering the actor opportunities' (Hanneman and

Riddle, 2014, p45). In this sense, actors with fewer constraints and more significant

opportunities are often considered to be in a favoured network position. The most

prominent measurement to determine the structural advantages of individuals in relation to

their neighbours is that of centrality, with the basis of this concept suggesting that central

actors are more likely to be influential or powerful (ibid). Specifically, Wasserman and Faust (1994, p172) highlight how central actors are those whose ties make the actors particularly visible to other actors within the network, with Ibarra and Andrews (1993) highlighting how central actors within the network may be able to exert greater levels of influence.

Network centrality offers measurements of influence calculated through network relations, rather than measurement based upon subjective feelings that are often expressed in terms of positive or negative sentiment. As such, centrality offers the ability to measure influence quantitatively and objectively in large-scale networks such as those explored within this thesis, granting the ability to link such findings to notions of influence within the public sphere.

It should be noted, though, that there are several approaches when seeking to determine centrality, generally centring around measurements that consider an actor's indirect ties and those that measure prominence, determined through the number of direct ties (Hanneman and Riddle, 2014). To address the limitations associated with each type of measurement, this thesis determined a combination of both measurements to be most suitable, with my analysis considering both direct and indirect ties. This analysis has been conducted through measures of in-degree (the number of direct connections pointing inwards towards a node) and eigenvector centrality (a measurement of a node's importance that considers the extent of its neighbour's centrality score). The two measurements of centrality are typically used in accordance with one another when looking to measure network influence (Maharani et al., 2014; Shulman et al., 2015, Dubois and Gaffney, 2014), being beneficial since eigenvector

centrality accounts for some of the discrepancies found with in-degree (Shulman et al., 2015, p180-181).

Specifically, in-degree measures 'the total number of incoming edges the node has from other nodes' (Tidke et al., 2019, p5), which in terms of Twitter research is used 'to measure how often a user is retweeted, mentioned, or replied to by others' (Vicari, 2017, p5). As Hansen et al. (2011, p40) point out though, degree centrality is often thought of as a crude measurement of network centrality because it does not recognise the difference between quality and quantity, asserting that it does not recognise the difference between 'the president of the United States and a high school dropout'. Furthermore, degree-based centrality measurements 'gives only local information of a vertex in the network', lacking consideration for the global structure (Das et al., 2018, p13). To address such limitations, in-degree was used in combination with eigenvector centrality.

In contrast to in-degree, eigenvector centrality 'weights contacts according to their centralities' (Bonacich, 2007, p555). Bonacich (ibid) asserts that 'eigenvector centrality can also be seen as a weighted sum of not only direct connections but indirect connections of every length', thus 'it considers the entire pattern in the network'. In other words, it considers the centrality scores of the adjacent nodes. Howlader and Sudeep (2016, p678) assert that the rationale behind eigenvector centrality can be thought of as 'a student's popularity increases if he is voted as popular by other popular students'. In using both measurements in conjunction with one another, I can assess the gatekeeping prominence of users, considering the local and global network structure.

I should note that, when deciding which measurements to include that account for the entire network structure, I had considered including the measurement of betweenness centrality. Betweenness centrality 'determines the nodes that mediate between nodes', often understood as a measurement of a node's brokerage capacity (Kweon et al., 2019, p12). However, it became apparent that the type of influence captured through betweenness centrality was not as suitable (as in-degree and eigenvector centrality) for the purpose of this thesis. Primarily, I made this decision on the basis that the degree of attention a user receives (which is the basis of eigenvector and in-degree centrality) would offer a stronger measurement of a user's agenda-setting capacity than the shortest paths within the network structure (which is the basis of betweenness centrality). In addition, after running the measurements of in-degree and eigenvector centrality, I did not feel the need to include the additional measurement of betweenness centrality as I felt the existing measurements provided ample data to address my research questions. I should note though that betweenness may offer some interesting findings and may be considered for future research. If future research includes betweenness, using a similar dataset to that of this thesis, then it should be aware of some of the limitations surrounding node deletion (Barthélemy, 2004) and the measurement limiting flow from one group to another (Newmanm 2005, p42; Bozzo and Franceschet, 2013, p460).

*Influence Analysis Timeframe and Threshold*

The centrality analysis was undertaken across all datasets, corresponding to the same timeframe as the quantitative content analysis. The basis for this decision partially reflected

the feasibility of conducting the centrality analysis across every dataset, but also reflected the logic that the centrality analysis may aid in interpreting some of the content analysis results.

The analysis was conducted using the software Gephi, with users who scored within the highest 1% for either in-degree or eigenvector centrality being selected for further analysis. In terms of setting a 1% threshold of influence, it must be understood that there is not a 'single measure of importance that is paramount in understanding a social network' (Riddell et al., 2017, p281). Studies have used different measurements to identify centrality and different thresholds to define what may constitute influence. For example, Valente and Pumpuang (2007) suggest that in smaller networks, the highest scoring 10% of users, from the centrality measurements used, may be chosen for analysis. However, the highest-scoring 1% of users in more extensive networks have been identified as suitable, which allows a manageable sample size that can suitably identify the most central nodes (Guo et al., 2020). Using a 1% threshold of influence, my analysis identified n=1392 nodes (out of 25 datasets consisting of roughly n=18,000 tweets per dataset).

*Categorisation*

Due to notions of influence within the public sphere relating to the type of user within influential positions, my research categorised central users based on particular characteristics. Notably, I sought to identify which accounts represented politicians, political parties, MSM organisations, alternative media organisations, journalists, and 'everyday' users. These categories and a description of each are outlined in Appendix C. In categorising such users, it is possible to indicate each group's prominence within central network positions, with the results being important when addressing RQ4.

### 3.3.4.   Homogeneity Analysis

As I argue within the literature review, an online public sphere should be a space free from polarisation. As such, I proposed RQ3, which asks: *how does polarisation manifest within the discussion across time?* The basis of this question is addressed through an analysis of homogeneity. As highlighted within the literature review, homogeneity refers to the degree of agreement in relation to a particular issue, with Conover et al. (2011, p2) succinctly articulating the theoretical assumptions that underpin the inclusion of homogeneity within this thesis:

> The concern is that when politically active individuals can avoid people and information they would not have chosen in advance, their opinions are likely to become increasingly extreme due to being exposed to more homogeneous viewpoints and fewer credible opposing opinions. The implications for the political process, in this case, are clear. A deliberative democracy relies on a broadly informed public and a healthy ecosystem of competing ideas. If individuals are exposed exclusively to people or facts that reinforce their pre-existing beliefs, democracy suffers.

To address RQ3, I sought to operationalise the SNA to measure the degree of homogeneity within modular communities, with the feasibility of such an approach demonstrated through previous research (e.g., Conover et al., 2011; Gruzd and Roy, 2014; Recuero et al., 2019). In general, this type of analysis is made possible through SNAs ability to identify communities in large datasets, allowing researchers to determine levels of homogeneity in relation to the

network structure (e.g., McPherson et al., 2001; Iyengar and Westwood, 2015; Colleoni et al., 2014).

I should note, though, that in answering RQ3, I have also explored two additional indicators of polarisation (expressed support for extreme opinion and out-group hostility) through Variable nine of the quantitative content analyses and the quantitative thematic analysis (respectively). In exploring these additional characteristics of polarisation, I can address some of the theoretical assumptions underpinning the homogeneity measurements (i.e., its association with extreme opinion). As such, my research can make conclusions regarding how polarisation manifests within the Twitter discussion of Brexit across time, relating such arguments to Twitter's ability to function as a public sphere.

*Homogeneity Analysis Timeframe*

For the homogeneity analysis, I analysed a sub-sample of nine datasets. The nine datasets were selected from the following periods: three from February-June 2016 (the pre-referendum period), three from October 2017-June 2018 (the period in which PM May was engaged in negotiations with the EU) and three from February-October 2019 (the final stages of the Brexit discussion). I determined that the sub-sample of nine datasets, grouped into three distinct time-periods, would offer a suitable indication of change in the network structure across time. I also determined that this scaled down timeframe would allow my research to adopt a more rigorous approach than if I had conducted the homogeneity analysis across all timepoints. As I will come to demonstrate, there is often a tendency to rely on automated methods to conduct stance detection of nodes. While automated methods are beneficial in terms of an expanded sample size, there is often a decrease in the reliability of

such data. For this reason, I took the stance that this scaled down timeframe would allow me to conduct this analysis with a degree of reliability not possible through automated methods.

*Community Detection*

In conducting this analysis, the first step was to partition the network into sub-graphs, with this being undertaken through a modularity analysis. Modularity analysis offers researchers the ability to highlight groups in structural terms, partitioning the network based on the number of edges falling within groups minus the expected number in an equivalent network with edges placed at random (Newman, 2006, p8578). In other words, modularity reflects the 'extent, relative to a null model network, to which edges are formed within modules instead of between modules' (Barber, 2007, p1). Choosing this method was beneficial as it 'returns results of a demonstrably higher quality than competing methods in shorter running times' (Newman, 2006, p8577). However, modularity suffers an issue with its resolution, with my research taking steps to optimise the resolution limit.

The resolution can be thought of as a 'threshold that a community of the size below it will not be detected even if it is a complete subgraph connected to the rest of the graph with a single edge' (Chen et al., 2014, p8). This presents a challenge for research using modularity, as there is 'the tendency to merge small subgraphs', which dominates when the resolution is low' and 'the tendency to split large subgraphs, which dominates when the resolution is high' (Lancichinetti and Fortunato, 2011, p1); with Lancichinetti and Fortunato asserting that it is 'usually very difficult to tune the resolution such to avoid both biases simultaneously' (ibid, p7). It must be pointed out that there have been studies undertaken that look to mitigate this

issue, with Arenas et al. (2008) proposing a method of multiple resolution screening, analysing the modularity within the same network repeatedly at different resolution levels.



CLUSTER BY RESOLUTION

*Figure 1: Resolution optimisation.*

As I highlight in Figure 1, I undertook multiple screenings, partitioning several networks to identify the number of clusters present at different resolution limits. I adopted the 'elbow method' to determine the point of optimality. Specifically, the elbow method 'determines the near-optimal/optimal number of clusters based on the percentage of unexplained variance, defined as a function of the number of clusters' (Chikumbo and Granville, 2019, p9). As Cui (2020, p7) highlights, as the 'k value increases, the position where the improvement effect of the distortion degree decreases the most is the k value corresponding to the elbow'. In layperson's terms, the elbow of the curve marks the point where the diminishing returns of increasing the resolution limit, and further partitioning the network, would not give much better modelling to the data. I determined that the elbow of the curve was present at around resolution level 3 for most datasets, therefore the resolution limit should be considered optimal at 3. In addition, I took the stance that setting a fixed resolution limit would offer the most consistent set of findings when undertaking the

comparative analysis. Had I measured each graph at a different resolution limit, the results may have been inconsistent. It should be noted that this does not mean the issue of incorrect partitioning has been fully mitigated, with Fortunato and Barthélemy (2007, p39) highlighting that even in instances where optimisation has been undertaken, the possibility of incorrect portioning persists. However, the optimised resolution limit should increase the confidence in the modularity results.

*Consensus Analysis*

Once the network had been partitioned, I undertook the consensus analysis to identify the degree of homogeneity across time in relation to the stance on Brexit. To conduct this analysis, I sought to use Variable 1 (Section 3.4.2.) to code a representative sample of tweets from each modular community, with the tweets selected at random to minimise bias. Using a sample size calculator with a 95% confidence level and a 5% margin of error, the sample was generated, which stood at N=25,013 tweets (an average of n=2,779 per dataset). Only tweets that displayed a clear stance on Brexit were included in this analysis. I should note though my approach does differ slightly from similar research, with Lai et al. (2019, p6) including those who are in favour of Brexit, those who are against Brexit and those whom the coder could 'infer from the tweet that the tweeter has a neutral stance or there is no clue'. However, I would argue that due to the ambiguous category consisting of neutral and incoherent tweets, it is likely to be limited in its ability to challenge the overall community consensus. As the homogeneity analysis is interested in exploring the degree of community consensus, I decided to exclude ambiguous tweets from this portion of the analysis. Furthermore, as my research explored the interconnected conversation within the giant component, isolate

nodes (the group that does not contribute to the overall discussion through interactive

participation) were excluded.

In taking this approach, I sought to address several shortcomings present in previous analysis.

Primarily, SNA conducted to explore polarisation often runs the risk of overgeneralisation.

For example, Mora-Cantallops et al. (2019) highlight communities in relation to their stance

on Brexit based upon the stance of central nodes; however, their research fails to consider

nuances within the network structure.
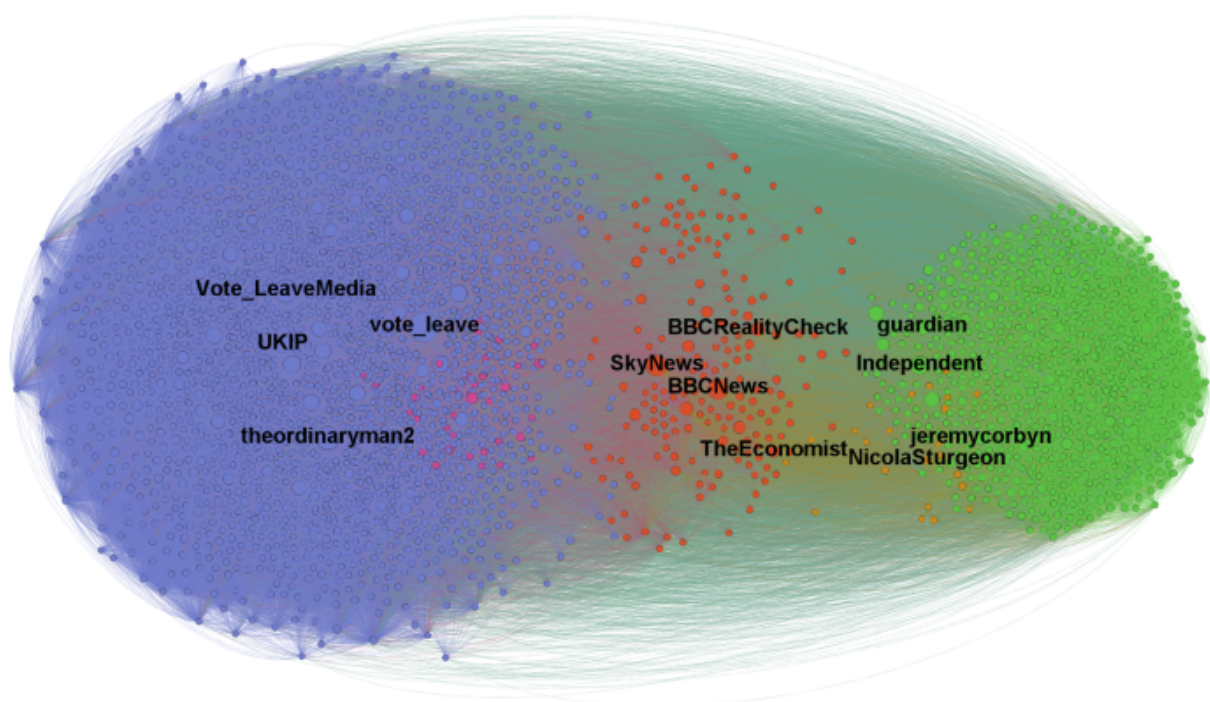


*Figure 2: Social Network (Mora-Cantallops et al., 2019, p4369).*

In structuring their network in this manner, as is relatively common within this type of

research[5], the network may appear highly polarised, with each community displaying a high

---

[5] For example, Guerra et al. (2013) and Matuszewski and Szabó (2019) make similar conclusions.

degree of homogeneity. However, it is doubtful that such agreement is present, with Lai et al. (2017) demonstrating the range of homogeneity within sub-graphs. The approach of Lai et al. (ibid) is much more suitable as it accounts for the degree of agreement within the network, which is important when claims are made regarding the link between homogeneity and polarisation. In this sense, I undertake a similar approach, which may allow my research to account for nuances within the network. While this may pose challenges when seeking to identify overall trends, due to the complex nature of the findings, any findings will likely be presented with greater confidence than if I were to present the network based solely on the stance amongst influential nodes.

*Network Visualisations*

I would like to clarify that I based the findings upon the quantitative results (Appendix D), as the quantitative results indicate the percentage of agreement within each of the modular communities, offering an objective account of community consensus. However, I found that visually presenting the results may aid the reader in understanding their significance, so I opted to produce several network visualisations. In doing so, I included a figure that highlights the community size and percentage of agreement within a given community, which may aid in the interpretation of the visualisations.

The visualisations were produced in Gephi, using the measurement 'OpenOrd' to visualise the network structure. OpenOrd is a force-directed layout algorithm chosen as it is suitable for visualising large-scale real-world graphs (Martin et al., 2011; Cherven, 2013; Jacomy, 2014). OpenOrd was designed to mitigate some of the issues with other measurements, such as the accuracy of the network structure decreasing with the size of the graph and the clarity

of the layout (Martin et al., 2011). Once the OpenOrd visualisations were run, the modular

communities were colourised based on opinion on Brexit and the degree of homogeneity.

Within the visualisations, purple represents Leave-supporting communities, and green

represents Remain-supporting communities, with the darker the colour representing the

greater the level of agreement.

*Considerations*

Marshall and Staeheli (2015) demonstrate a degree of scepticism surrounding the use of SNA

within social science research, highlighting how scholars have argued that SNA offers

'presentist accounts of assemblages without attention to their historical development into a

broader field of power relations', with networks often taken to be 'self-evidently explanatory'

(p58); suggesting that SNA tends to present complex, messy and subtle relationships in a

flattened and oversimplified manner. With that said, I believe that the approach I have

undertaken takes steps to further understand the complex and messy nature of the SNA. The

categorisation of tweets and the analysis undertaken to identify central users should mitigate

some of the concerns surrounding the use of SNA within this thesis.

### 3.4.    Method 2: Quantitative Content Analysis

The second quantitative method adopted within this thesis is a human coded quantitative

content analysis, with this method addressing RQ1: *to what extent does the discussion*

*function deliberatively?* RQ2: *to what extent do characteristics of populism permeate the*

*discussion at a user level?* And RQ3: *how does polarisation manifest within the discussion*

*across time?*

For a basic understanding of a content analysis, I would point to Downe-Wambolt's (1992, p314) definition: 'content analysis is a research method that provides a systematic and objective means to make valid inferences from verbal, visual, or written data in order to describe and quantify specific phenomena'. The basis of my approach was guided by Neuendorf (2017), who outlines the steps necessary in undertaking such an analysis. Primarily, my research sought to identify manifest content within a tweet, although there were instances where latent content was analysed[6]. For example, a degree of interpretation was required within Variable eight (which sought to explore the intention of tweets referencing immigration). In any instance, the content analysis was guided through the coding manual (coding scheme), which aided in transparency and replicability, with the specifics outlined in Appendix E. The coding manual outlines the predetermined categories of analysis within the nine variables, with the unit of analysis differing per variable, either analysing the tweet's textual data alone or the tweets textual data and any content attached to a tweet[7]. The analysis was conducted using the software IBM Statistical Package for the Social Sciences (SPSS) (version 27).

### 3.4.1.   Sample Size

Neuendorf (2017, Chapter 3) highlights no universally accepted criteria in determining sample size for content analysis. However, a commonly accepted method is to calculate the sample size using standard error and confidence level calculations. As I explain in Section 3.2.3, I had determined N=18,000 tweets to be a suitable sample size for each of the datasets. However, the overall population was not known (i.e., the overall number of tweets

---

[6] For further context, Potter and Levine-Donnerstein (1999) offer a comprehensive overview of the latent-manifest dichotomy.

[7] Appendix E offers a detailed overview of the unit of analysis and its relation to the specific variables analysed.

published on a given date). As such, I used the following calculation to determine the sub-sample size for the content analysis (with a 95% confidence level and 5% margin of error), with the feasibility of using such a calculation being well-demonstrated (Lwanga and Lemeshow, 1991; Israel, 1992; Daniel 1999):

$$n = z^2 \times p \times (p-1)/e^2$$

N is the minimum sample size to represent the total pupation. Z is the *z-score* associated with a level of confidence (*z*=1.96 when confidence is 95%). *P* represents the population proportion where the worst case (*p*=0.5) is assumed and used. *E* is the margin error and indicates the extent to which the outputs of the sample population are reflective of the overall population. As such, the calculation determined that *n*=385 tweets per dataset would be an optimal sub-sample size.

As previously noted, the only time that the quantitative content analysis sampling procedure differed was in the homogeneity analysis, which required expanded coding within the modular communities identified. In this instance, the community's population was known, meaning that the sample size varied depending on the size of the community (although the same 95% confidence and 5% margin of error was used).

For each dataset, a random sample of n=385 tweets was chosen from the corpus of N=18,000 tweets; with random sampling being used to limit any potential bias within the sub-sample selection. I used the following code in R to generate the random sample:

```
Setwd ("file location")
mydata <- read.csv ("CSV title)")
x <- floor(sample(1 18000,180, replace=F))
randomdata <- mydata[x,]
write.csv (randomdata, "Random Title" Sample)
```

A coding manual was produced containing a detailed dictionary highlighting the definitions and guidance in relation to the specific variables. When conducting the analysis, I referred to the coding manual when deciding how to categorise data. In addition, I also produced a codebook, which is a less detailed document that contained the variables and categories of analysis used when coding the data.

*Variables*

Within the content analysis, I sought to analyse nine variables. Variables two - five address deliberative quality, six - eight address populist communication and variable nine addresses polarisation. While a detailed coding manual can be found within Appendix E of this thesis, the basis of the variables are as follows:

*Variable 1) Stance on Brexit*

As highlighted by Grčar et al. (2016, p6), stance detection typically seeks to determine whether the text in question is in favour or opposed to a particular issue, with previous research highlighting the possibility of such an analysis in relation to stance on Brexit (e.g. Grčar et al., 2016, Howard and Kollanyi, 2016; Bouko et al., 2019). As such, this variable looks to code for four positions: 1) Supports Leave 2) Supports Remain 3) Ambiguous 4) Excluded.

*Variable 2) Incivility*

Variable 2 is the first measurement that addresses RQ1, seeking to identify the level of incivility within the discussion across time. As Mitchell (2018, p222) highlights, deliberative theorists generally promote civility is an important element of individuals participation in

deliberative processes, with incivility posing a challenge for deliberative encounters (Habermas, 1984). Primarily, a healthy debate would expect to see either low levels of incivility or a decrease in incivility across time because incivility can reduce the informativeness of the discussion, reducing the credibility of communicators and producing hostile evaluations of participants.

Specifically, incivility has been defined as any instance in which a tweet contains one of the following: profanity (Maia and Rezende, 2016; Chen, 2017; Kwon and Gruzd, 2017; Oz et al., 2018), online shouting (Shephard, 2014; Quinlan et al., 2015; D'Errico and Paciello, 2018) or ad-hominem attack (Maia and Rezende, 2016; Lawrence et al., 2017; Freelon, 2015). This variable looks to code for three positions: 1) Incivility present, 2) No incivility present 3) Excluded. Here, I would like to take a moment to explain the basis of inclusion for each category.

### Ad-hominem attack

The Habermasian notion of the public sphere emphasises reasonable and rational exchanges, with rational discourse being of logical coherence and somewhat dispassionate (Dahlberg, 2005, p112). An essential aspect of rational exchanges includes responding to opposing viewpoints, offering a rebuttal to the points raised. Ad-hominem argumentation, on the other hand, is typically flawed, with Russell (2019, p16) asserting that to 'impugn the character or motives of a person who makes a claim does not per se give a reason to reject the claim itself', with it often being 'fallacious to think that you have refuted a claim by showing up some deficiency in the person who makes the claim'. It should be noted that there has been some argument in support of ad-hominem responses, with Leibowitz (2016,

p1) asserting that 'biographical facts about the person advancing an argument can constitute indirect evidence for the soundness/unsoundness of the argument'. However, this is often highly limited in context and assumes that an argument's merits can be determined through the moral indignation of a handful of its proponents. Therefore, I have taken the view that ad-hominem arguments can harm the quality of discussion.

Ad-hominem attacks have been used as a category to identify incivility in several research papers (Freelon, 2015; Maia and Rezende, 2016; Lawrence et al., 2017), with a general understanding being that ad-hominem attacks refer to instances in which an individual points to the shortcomings of the person making an argument, rather than the merits of the argument itself. While Freelon (2015) implies that this behaviour is mitigated when used in conjunction with deliberative norms such as reason-giving, I would suggest that in the process of using an ad-hominem attack, an individual foregoes the benefit associated with deliberative models due to its likely lack of resonance with the outside opinion – only being positively received by those who already share the view of the individual engaging in such an attack.

## Profanity

Evidence has suggested that profanity has a positive relationship with emotional arousal (Stephens and Zile, 2017), which is relevant when considering Brexit is an issue that has been associated with highly emotional discourse, likely to the detriment of substantive argumentation. For this reason, profanity has been included as a measurement of incivility, a possible indicator of 'aggressive emotional exchanges' which may 'deteriorate the quality of discursive interactions', as well as encourage closed-mindedness and group conformity (Kwon and Gruzd, 2017, p2166). While it is accepted that profanity in personal contexts may

signal informality, as Twitter is a platform that generally lacks interpersonal connection, such positive benefits are likely to be limited.

Profanity has been used as a metric of analysis in exploring incivility within online debates in several articles (Maia and Rezende, 2016; Chen, 2017; Kwon and Gruzd, 2017; Oz et al., 2018), with research generally finding an association with such discourse and online political discussions. In exploring profanity, I have looked to identify the instance of 'hard' and 'soft' swear words following the list provided by Ofcom (2016).

## Online Shouting

Within written communication, general etiquette can impact how a message is received (Extejt, 1998). While this can differ depending on the type of communicative space, in relation to Twitter, a commonly identified metric to determine a lack of etiquette can be measured through the use of capitalisation and excessive punction (identified through the use of multiple exclamation marks, question marks and the interrobang '!?'). This communicative behaviour is often considered to indicate the written equivalent of screaming, challenging the idea that the validity of an argument is judged based on its content, instead placing undue emphasis on the argument put forward by the certain voices willing to engage in this behaviour. Furthermore, engaging in such conduct may have a destructive impact on the quality of discussion, intimidate discussants and likely negatively impact reciprocity. Capitalisation and punctuation *can* be used to emphasise certain words and convey emotion; however, in instances a user uses multiple concurrent capitalised words and excessive punctuation, I would argue that it is more likely to be perceived as shouting.

Capitalisation and excessive punctuation have been used to indicate incivility in several research papers (Shephard, 2014; Quinlan et al., 2015; D'Errico and Paciello, 2018). In general, previous research has identified some use of capitalisation and excessive punctuation in online political discussions; however, this generally only accounts for a small percentage of tweets. One such reason for this lack of resonance could be due to the apparent limitation in using such a measurement. That is, the use of the 'emoji' is likely a much more salient indicator of online shouting. While I had initially anticipated incorporating 'emojis' into this analysis, it was not possible due to formatting issues when gathering the data, with the code struggling to process the emoji. This may mean that the data may underrepresent the level of incivility in some sense.

*Variable 3) Evidenced Claim*

Variable 3 is the second measurement that addresses RQ1, seeking to identify the level of evidence provided to justify a claim made about Brexit. A healthy discussion would expect to see high levels of justification, which is due to justification being an important element of rationality and granting participants the ability to assess the validity of argumentation. By providing evidence, there is a greater chance that argumentation may lay claim to rightness and sincerity. Therefore, speech acts are more likely to be understood and accepted by the hearer (Habermas, 1984; Niemi, 2005).

While previous research has explored nuanced understandings of justification (such as Steenbergen et al., 2003), there is a degree of consensus surrounding justification on Twitter, with most literature suggesting that (on Twitter) justification is typically provided through

external link or content attached to a tweet (Procter et al., 2013; Addawood and Bashir, 2016; Wessler 2018). Therefore, I sought to measure instances in which a tweet provides an accompanying piece of evidence that acts to justify a claim, provides written evidence to justify a claim or clearly states a justification for holding a position, with this variable looking to code for four positions: 1) Evidenced claim present 2) Non-evidenced claim present 3) No claim present 4) Excluded.

*Variable 4) Question Asking*

Variable 4 is the third measurement that addresses RQ1, seeking to identify the level of genuine and rhetorical question asking within the discussion. In a healthy discussion, a degree of question asking would be expected, with Stromer-Galley (2007, p12) highlighting how genuine questioning 'indicates engagement with the topic or with fellow participants', attempting to 'elicit information from others, and hence as a process invite engagement'. This contrasts with rhetorical questioning, which generally has a limiting effect on reciprocity and engagement.

To address such debates, this variable looks to code for four positions: 1) Genuine question present 2) Rhetorical question present 3) No question present 4) Excluded.

*Variable 5) Status of Hashtag Used*

Variable 5 is the final measurement that addresses RQ1, seeking to explore the use of the hashtag within the discussion. Specifically, I have taken the view that when a tweet uses a neutral hashtag, it exposes users to broader viewpoints, which may benefit exploratory serendipity and deliberation. Such an argument is supported by Yardi and Boyd (2010),

Conover et al. (2011) and Sunstein (2018), who all highlight the potential benefit of the neutral hashtag. However, the use of a non-neutral 'partisan' hashtag (one in which the user's perspective is clear surrounding a topic) may act as a filtering tool (Sunstein, 2018), which often leads to individuals presented with similar viewpoints, which in turn may limit the exposure to broader perspectives and increase the potential for attitude polarisation. As such, greater use of neutral (rather than partisan) hashtags is expected within a healthy discussion.

To address the use of the hashtag, this variable looks to code for five positions: 1) Tweet includes neutral hashtag only 2) Tweet includes partisan hashtag only 3) Tweet includes both neutral and partisan hashtag 4) No hashtag 5) Excluded.

*Variable 6) The Elite*

Variable 6 is the first measurement that addresses RQ2, seeking to explore the degree to which tweets reference 'the elite' in relation to the discussion of Brexit. As Datts (2020, p75) highlights, almost all conceptualisations of populism contain anti-elitism as a criterion. Generally, the 'elite' is constructed as a vague minority of powerful individuals, which can differ depending on the ideological stance. Waisbord (2018) asserts that this conflict-centred view of politics runs contrary to the deliberative rationality expected within the public sphere.

For this variable, the 'elite' is to be identified when the user specifically uses the term 'the elite' pejoratively (or variations of) in relation to an issue surrounding Brexit. Variations of the elite have been determined as phrases that would allude to a vague powerful group of

individuals such as 'the establishment', 'the political class', 'the upper class', 'the 1%', 'the ruling class', 'the bureaucrats', 'the rich', 'political class', 'business leaders', 'MSM' etc. Within this variable, I looked to code three positions: 1) User references the elite in relation to an issue surrounding Brexit 2) No mention of the elite in relation to an issue surrounding Brexit 3) Excluded.

*Variable 7) People's Will*

Variable 7 is the second measurement that addresses RQ2, seeking to explore reference to the 'people's will' in relation to Brexit. Specifically, several authors have highlighted how populists seek to build closeness and represent 'the people' (e.g., Taggart, 2000; Mudde, 2004; Jagers and Walgrave, 2007; Deiwiks, 2009). In explaining what is meant by 'the people', Deiwiks (2009, p2) highlights that it may refer to the entirety of a population or a particular nationality or culture, with populist rhetoric often claiming to represent the popular sovereignty of 'the people'.

Within the content analysis, I have looked for instances where the tweet references the people's will. I have defined the people's will in line with Deiwiks (2009), in the sense that the tweet must reference a national, cultural, or regional homogenous will. Within this variable, I looked to code for three positions: 1) Reference to people's will 2) No reference to people's will 3) Excluded.

*Variable 8) Out-Group (Immigration)*

Variable 8 is the final measurement that addresses RQ2, seeking to explore the construction of an out-group through attitudes towards immigration within the discussion of Brexit. Jagers

and Walgrave (2007, p3) and Zaslove (2008) highlight that right-wing populist rhetoric is often associated with anti-immigrant sentiment due to populists constructing immigrants as a threat to the common person. In relation to the discussion of Brexit, the various Leave campaigns featured immigration heavily (Gietel-Basten, 2016), with emphasis on immigration likely persisting throughout the post-referendum discussion. For this reason, immigration was used to illustrate populist out-group labelling within this thesis.

Within this variable, I looked to code for four positions: 1) Tweet negatively references immigration 2) Tweet positively references immigration 3) No mention of immigration 4) Excluded.

*Variable 9) Expressed Support for Position*

Variable 9 aids in answering RQ3, exploring expressed support for both moderate and extreme positions. At a basic level, polarisation can be understood as the support for extreme positions in place of moderate positions (McCarty, 2019, p2), with Conover et al. (2011) arguing that extremism may result from homogeneity within social networks.

In relation to Brexit, there were four major positions that were advocated by the public and political class: leave with 'No Deal', leave with a deal, unilaterally stopping Brexit and a second referendum. Out of these positions, leaving with a deal and a second referendum included a degree of compromise, therefore, these positions can be thought of as more moderate. On the other hand, leaving with a 'No Deal' and unilaterally stopping Brexit were void of consideration for opposing views. Therefore, they could be thought of as more extreme. As such, this variable looks to code for six positions: 1) Expresses support for a 'No

Deal' Brexit 2) Expresses support for a Brexit deal 3) Expresses support for stopping Brexit 4) Expresses support for a second referendum 5) No mention 6) Excluded.

### 3.4.3. Reliability

Within this thesis, I have implemented a process of reliability testing. Reliability can be distinguished by the degree to which a method of analysis yields identical results when applied to the same data at different points in time (Krippendorff, 1980, p72; Neuendorf, 2017, p19). This was tested through a different coder coding the same piece of data and using the same coding manual, with the aim of testing if the coder produces identical results (intercoder reliability).

A coder was trained over three days to undertake the intercoder reliability. Before the intercoder reliability was undertaken, the coder practised using non-study content, which allowed the coder to become familiar with the coding manual and indicated any adjustments necessary. Once the coder felt confident, they were then given a probability sample from the overall population, with checks undertaken to ensure the variables were present within the sample. The sample consisted of 500 tweets (representing 5.5% of the overall sample). As highlighted by Kaid and Wadsworth (1989, p208), a sample size of 5.5% is suitable to determine reliability in instances where there is a significant overall population. The results of the reliability testing are as follows:

*Table 2: Intercoder reliability scores.*

|  | Percent Agreement | Cohen's Kappa | Krippendorff's Alpha |
|---|---|---|---|
| **Stance on Brexit** | 96.6% | 0.950 | 0.950 |
| **Incivility** | 99.8% | 0.996 | 0.996 |

| | | | |
|---|---|---|---|
| Evidenced Claim | 94.0% | 0.904 | 0.904 |
| Question Asking | 96.6% | 0.942 | 0.943 |
| Status of Hashtag | 97.6% | 0.931 | 0.931 |
| Blame Elite | 97.0% | 0.859 | 0.859 |
| People's Will | 97.8% | 0.889 | 0.890 |
| Sovereignty | 98.6% | 0.871 | 0.871 |
| Immigration | 99% | 0.863 | 0.863 |
| Expressed Position | 97.1% | 0.877 | 0.877 |

It is typically agreed that a Cohen's Kappa scoring of 0.81-1.00 indicates almost perfect agreement (Landis and Koch, 1977), and Alpha scoring of above 0.800 can draw reliable conclusions (Krippendorff, 2013, p325). My variables scored near perfect on Kappa and high enough to draw reliable conclusions on Krippendorff's Alpha.

### 3.4.4.   Correlation Analysis

There are points within this research where further statistical analysis was required to test whether a linear relationship exists in bivariate associations, which was primarily used when the strength of correlation between two linear variables needed testing. To undertake such a test, a Pearson's r was used, with previous research demonstrating the feasibility of such a measurement for quantitative data on the platform Twitter (e.g., Santos and Matos, 2014; Nolte et al., 2021; Lansiaux et al., 2022). As Allen (2017b) highlighted, Pearson's r is a suitable method to test the strength and direction of the relationship between two variables. Specifically, the Pearson's r measures the 'strength and direction (decreasing or increasing,

depending on the sign) of a linear relationship between two variables *X* and *Y'* and can be

understood with the following formula:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

(Ahlgren et al., 2003, p551)

With r = the correlation coefficient, highlighting the strength of the positive or negative

correlation. When considering the findings from Pearson's r, the following scores represent

the following strengths of correlation:

*Table 3: Pearson's r strength.*

| 0.00-0.29 | Weak Positive Correlation |
|---|---|
| 0.30-0.69 | Moderate Positive Correlation |
| 0.70-1.00 | Strong Positive Correlation |
| -0.00-0.29 | Weak Negative Correlation |
| -0.30-0.69 | Moderate Negative Correlation |
| -0.70-1.00 | Strong Negative Correlation |

I determined the significance of the statistical relationship through the two-tailed critical

value table outlined in Appendix F (with two-tailed used due to the direction of association

not being known in advance), adopting a 95% confidence level with a 5% margin of error.


### 3.4.5. Considerations

There are some considerations when undertaking a quantitative content analysis. Firstly, as

Allen (2017) highlights, content analysis is predominantly a descriptive tool, exploring the

manifest and latent content within data. While the method is well developed and can offer

interesting findings, it is sometimes necessary to undertake additional research to explore the meaning behind the quantitative findings, with my research exploring many of the quantitative results through the supplementary methods outlined within the proceeding section of this chapter.

Secondly, while an inter-coder reliability test was undertaken to ensure validity, the data was selected through a probability sample, which poses challenges when the incidence of a particular variable is low. While I did ensure the inclusion of all variables within the probability sample, it is accepted that less common variables may have demonstrated misleadingly high levels of agreement. Upon reflection, I would advise that further research undertakes a 'rich range' subsample (Nueundorf, 2017), which would likely benefit the accuracy of the reliability testing and mitigate the limitations associated with a probability sample.

Finally, in instances that a degree of interpretation was required, I often used the 'thread' (a series of interconnected tweets) to identify the tweet's context. As the corpus was gathered historically, there were many instances in which the thread was unavailable due to deletion. In such a circumstance, the tweet in question had to be excluded. Further guidance can be found in the 'analysis of a tweets thread' within Appendix E.

## 3.5.    Method 3: Supplementary Analysis

Within this thesis, supplementary methods (predominantly qualitative) have been adopted to interpret the quantitative findings, undertaken through a sequential explanatory design. This

section of the analysis was guided by Creswell and Plano Clark (2011, p81-86), who highlight the basis of the sequential two-step approach common with a sequential explanatory design. The basis of this approach starts with a quantitative phase, with a qualitative phase undertaken to explain the quantitative results. The sequential explanatory approach is beneficial as it grants the ability to explain some of the results that may be challenging to interpret quantitatively and can provide a clear delineation for the reader (ibid). The sequential analysis was conducted during the final phase of this research, employing a thematic analysis.

### 3.5.1.   Sampling Procedure

When determining a suitable sampling procedure for the qualitative elements of this thesis, I followed the guidance of Curtis et al. (2000) and Miles and Huberman (1994). In general, they highlight how the procedure for sample selection in qualitative analysis is often reflexive (evolving with the analysis), smaller (than quantitative analysis) and purposive.

Because the qualitative elements of this research had been undertaken during the final phase of the analysis, I did not feel the need to determine prespecified categories of selection prior to the commencement of the research. Instead, the selection was sequential, with Miles and Huberman (1994, p27) outlining the basis of this sampling method as one that develops with the researcher's understanding. Specifically, to conduct this analysis, detailed notes were taken during the quantitative phases, offering guidance in selecting samples for the qualitative elements of this research. I should note that the quantitative element of the thematic analysis differed in their sample selection. For the out-group labelling analysis, I used the same sampling technique as the quantitative content analysis, reflecting the sample

frame containing the same n=18,000 tweets as the quantitative content analysis. For the

'elite' analysis, I analysed every tweet identified as referencing the elite within the

quantitative content analysis due to the smaller sample frame.

### 3.5.2. Thematic Analysis

The primary method of qualitative analysis used within this thesis is a thematic analysis. To

understand what thematic analysis means, I would point to Terry and Hayfield (2021, p3),

who assert that thematic analysis is a 'flexible analytical method that enables the researcher

to construct themes—meaning-based patterns— to report their interpretation of a

qualitative data sets'. As highlighted by Clarke et al. (2014, p96), there are generally two

approaches to thematic analysis: 'small q' (versions of thematic analysis that retain a

foothold in quantitative research) and 'Big Q' (versions of thematic analysis that operate

within a qualitative paradigm), with this thesis using elements from both approaches. For the

quantitative elements, I followed the guidance of Boyatzis (1998), undertaking a structured

analysis that shared similarities to the quantitative content analysis. For the qualitative

elements, I follow the guidance of Braun and Clarke (2006, 2019, 2020) and Clarke et al.,

(2014), undertaking a reflexive thematic analysis.

*Reflexive Thematic Analysis*

Braun and Clarke (2016; 2019; 2020) and Clarke et al. (2014) outline the basis of a reflexive

thematic analysis, which is a theoretically flexible version of a thematic analysis. This

flexibility of such an approach is highlighted by Clarke et al. (2014, p96), who assert that

reflexive thematic analysis is a method void of a theoretically informed framework for

collecting and analysing data, and as such, 'only specifies analytical procedures, centred on coding and theme development'. For this reason, a reflexive thematic analysis is suitable to address a diverse range of research questions and has been used throughout this thesis.

In undertaking this analysis, Braun and Clarke (2019, p549) assert that 'quality reflexive thematic analysis is not about following procedures 'correctly' (or about 'accurate' and 'reliable' coding, or achieving consensus between coders), but about the researcher's reflective and thoughtful engagement with their data and their reflexive and thoughtful engagement with the analytic process' (ibid, 2019, p594). While they warn against 'proceduralism' when undertaking thematic analysis (ibid, 2019), they offer some guidance on how to undertake the analysis. Specifically, they highlight how such an approach can contain both semantic (descriptive interpretations of the data) and latent (assumptions that may underpin the data) elements, as well as the possibility to be conducted inductively and deductively.

Generally, I have undertaken a subjectivist inductive approach, which derives themes from the data to explain a particular phenomenon (Varpio et al., 2020). In undertaking this analysis, I followed the guide of Clarke et al. (2014, p99-107), who outline several phases in which the thematic analysis may be conducted. Specifically, this centres around a phase in which the researcher becomes familiar with the data and codes the data, a phase in which themes are identified and reviewed and a final phase in which the themes are defined and incorporated into the research.

*Quantitative Thematic Analysis*

For the quantitative elements of the thematic analysis, I followed the outline of Boyatzis (1998), with this approach sharing several similarities to the quantitative content analysis. As highlighted by Boyatzis (ibid), thematic analysis is a process for encoding and exploring qualitative information, granting the researcher the ability to identify and interpret patterns that allow for the translation of qualitative information into quantitative data.

I used a simple scaling technique to undertake this analysis, with Boyatzis (1998, p134-136) outlining the basis for this type of analysis. Specifically, it sorts the codes identified into aggregate themes that can be presented in a quantitative manner, with this type of analysis relying heavily on the theoretical framework underpinning the research. Within my thesis, there were two points in which this analysis was undertaken, the 'elite' analysis within the Populism chapter (Section 6.5.) and the out-group analysis within the Polarisation chapter (Section 4.4.). I opted to undertake both of these sections through a quantitative thematic analysis due to the relatively well-developed theoretical framework surrounding affective polarisation and left- and right-wing manifestations of the elite. To be clear, this allowed my research to formulate the aggregate categories on a basis supported by affective polarisation and populist literature, as well as my own interpretation of the data.

### 3.6.    Ethical Considerations

The research received ethical approval on 05/06/2019 (Appendix G). The ethics application approved the gathering and analysis of an estimated 18,000 publicly available tweets every other month for the period of four years. The basis of the ethics approval is highlighted within this section, which addresses informed consent, data storage, anonymity, and the age

of participants.

### 3.6.1. *Informed Consent*

Due to the scale and type of the data within this project, it would not be feasible to gather

informed consent. However, Twitter data presents less of an issue due to its public nature.

There are several reasons for this; firstly, Twitter accounts are set to 'public visibility' by

default – meaning anyone with an internet connection can view the account and content.

Secondly, Twitter states in its terms of usage (found within section 2.0. of Twitter's privacy

policy) that 'Twitter is public' and highlights that 'tweets are immediately viewable and

searchable by anyone around the world'. For those who want to protect their data, Twitter's

privacy policy also highlights several 'non-public' ways of communicating, such as 'protected

tweets' and 'direct messages' – while also asserting that those who are concerned about

privacy can use a pseudonym if they prefer not to use their name. In this sense, it may be

argued that my data was 'publicly available', which may negate the need for informed

consent. However, it is accepted that many users publish tweets without a firm

understanding of Twitter's privacy policy. In addition, due to the scale of data, gathering

informed consent was not feasible. I, therefore, took steps to mitigate ethical concerns,

which primarily centre around anonymising tweets and usernames, aggregating data where

possible, and securely storing any data held that contained identifiable information.

### 3.6.2. *Anonymity*

Due to individuals discussing sensitive political topics within the data gathered for this thesis,

it is essential to ensure user anonymity. To do so, I paraphrased any textual information to be

published and adjusted usernames where appropriate. This is except for well-known public

figures, as it was deemed unnecessary to paraphrase or seek to protect such users' content.

It should also be pointed out that the majority of data published within this thesis is aggregated, which protects users and their content.

### 3.6.3. *Data Storage*

The data gathered within this thesis was encrypted using the university-recommended 'Sophos SafeGuard Enterprise Suite'. Once encrypted, the data was stored on the University of Leeds 'M Drive', which is password protected. Furthermore, due to the advent of COVID-19, a considerable amount of this thesis was undertaken remotely. When working remotely, I followed the guidance of the University of Leeds 'Information Protection Policy' and the 'Mobile and Remote Working Policy and Policy on Safeguarding Data'.

### 3.6.4. *Participant's Age*

Because I am using Twitter, it is assumed that the data can come from any age and may include those under the age of 18. While it may not be possible to identify the age of users, the steps taken through my anonymisation process should negate any risk posed by holding data on such users.

### 3.7.    Conclusion

Within this chapter, I have outlined the research approach and methodology that has guided the empirical elements of this research. Through a mixed-methods approach, I demonstrate how my research aims to explore the quality of the Twitter discussion surrounding the UK's withdrawal from the EU over time. I outline the specifics of the SNA, which seeks to identify network centrality and community homogeneity, to answer RQ4 and RQ3. I then outline the basis of the quantitative content analysis, which primarily seeks to address RQ1 and RQ2.

Finally, this chapter outlined the supplementary analysis, which adopts a sequential

explanatory design, intended to elaborate on and explain some of the quantitative results.

# Chapter 4: Polarisation

## 4.1.    Chapter Overview

Within the literature review, I highlight the concern that social media may encourage

homophily, potentially leading to the formation of homogenous communities, impacting

opinion formation, and challenging inter-ideological discussion. I also highlight that the issue

of Brexit is closely associated with the identity of 'Leaver' and 'Remainer', which may have

led to a degree of 'affective polarisation' (Hobolt et al., 2018; North et al., 2020).

To address RQ3, *how does polarisation manifest within the discussion across time?,* this

chapter focuses on three indicators of polarisation: 1) homogeneity, 2) affective polarisation

and 3) expressed support for extreme and moderate positions. This chapter finds that Leave-

supporters are more likely to communicate within homogenous communities during the pre-

referendum period. However, in the post-referendum period, Remain-supporters are more

likely to communicate in homogenous communities. In addition, it also demonstrates an

increase in affective polarisation across time and a degree of expressed support for both

extreme and moderate positions.

## 4.2.    An Overview of Polarisation

Despite polarisation being a relatively scarce occurrence in offline settings (Baldassarri and

Bearman, 2007, p1), academics have been quick to point to social media as spaces that

encourage polarised political discourse and its associated negative consequences. In general,

McCarty (2019, p2) defines polarisation 'as the increasing support for extreme political views

relative to the support for centrist or moderate views', with Carothers and O'Donahue (2019, p5) adding that this may factor 'the extent that competing political forces diverge in their ideas and actions and lack any significant common ground'. However, polarisation on Twitter generally centres around the notion of homophily, the idea that users are more likely to communicate with those of a shared political opinion, encouraged through Twitter's affordances (Conover et al., 2011; Du and Gregory, 2017; Sunstein, 2018; Tong and Zuo, 2021).

It should be noted that some degree of polarisation is expected within political discussions due to politics generally involving competition between differing views. For example, a lack of polarisation would entail unanimity, with such a state being unlikely in liberal democracies. While on the other hand, total polarisation would assume two equally sized divided positions that were as far apart as possible, without a centre-ground, which is also unlikely. As a result, 'there is no bright-line over which normal political differences become polarised political differences', with 'no established benchmarks for determining whether various measurements indicate polarisation' (Campbell, 2016, p34-35). For this reason, measurements can make the most robust conclusions when exploring the change in levels of polarisation across time.

### 4.2.1.  *Brexit and Polarisation*

In general, Brexit is an issue that has been closely associated with group polarisation, which is likely impacted by the attachment to the opinion-based group identities of 'Leaver' and 'Remainer'. In many senses, an attachment to group identity is likely to encourage negative attitudes towards out-group members and positive attitudes towards in-group members,

which may have broader implications surrounding homophily and lack of cross-ideological engagement (North et al., 2020).

It should be noted that the attachment to the identities of 'Leaver' and 'Remainer' is somewhat distinct due to its ability to cut across traditional partisan affiliations. This is highlighted when considering that in 2016, British political parties overwhelmingly supported the UK remaining within the EU, with 58% of Conservative, 96% of Labour and all the Lib Dem MPs backing remaining within the EU (BBC News, 2016). Despite this, British citizens voted in a way that cut across self-identified political allegiances, with data suggesting that 56% of Conservative, 36% of Labour, 26% of Liberal Democrat and 21% of Green Party voters supported leaving the EU (Swales, 2016, p20). As a result, the Brexit referendum would see a shift away from individuals identifying with a political party and towards the identities of 'Leaver' and 'Remainer', which Hobolt et al. (2018, p8; p12-13) suggests has 'come to take on considerable meaning for large shares of British voters', bypassing the traditional left-right divide. This has presented the ability for my research to identify metrics of polarisation based on such identity.

This does raise the question, though, has research indicated a polarised discussion of Brexit on Twitter? For the most part, previous research has added some credence to the notion that the Twitter discussion of Brexit demonstrates polarised characteristics. For example, North et al. (2020) highlight an increase in tribalism as the debate progresses, Tong and Zuo (2021) highlight a degree of intra-ideological agreement, and Bouko and Garcia (2020) suggest that Twitter does not promote authentic dialogue and instead seeks to reflect and augment political polarisation. This chapter builds on previous research, exploring three key

indicators of polarisation: homogeneity, affective polarisation and the advocation of extreme opinion.

### 4.2.2. *Polarisation and the Public Sphere*

Before engaging in my findings, it is essential to reiterate the negative relationship between polarisation and public debate. As highlighted in the literature review, polarisation is generally considered to harm engagement and inter-ideological debate due to homogenous communities fostering discussion amongst those who are ideologically similar. In many senses, this contradicts the discursive nature of the public sphere, limiting the heterogenous exposure needed for discussants to deliberate on issues of common good. As a result, there is an association between polarisation and ideologic fragmentation, one in which extreme opinion is propagated at the expense of rationality.

### 4.3. Homogeneity

The first analysis presented within this chapter seeks to explore homogeneity to address debates surrounding polarisation within the discussion of Brexit on Twitter. In general, homogeneity may derive from selective exposure and homophily, with the theory of homophily suggesting that politically and socially similar individuals are more likely to interact than those with distinct differences, which can be summarised by the proverbial notion that 'birds of a feather flock together'. As demonstrated by McPherson et al. (2001), homogenous social networks may result in limited social interactions and information exchange, as well as impact attitude formation, with Bienenstock et al. (1990) finding that homogeneity is likely to advance pre-existing attitudes or beliefs; and Laumann (1973, p98) finding that

homogeneous groups 'foster and sustain more extreme, clear cut, and consistent attitudes than heterogenous groups'.

From a network perspective, homogeneity can be best observed when exploring communities within an extensive network, granting the opportunity for research to measure the level of homogeneity concerning a particular topic empirically. This is facilitated through the ability to highlight the social network structure, which allows researchers to identify clusters of users. As highlighted by Himelboim et al. (2013, p156), when 'clusters reflect homogeneous viewpoints, regardless of the range of opinions that might exist outside their clusters on Twitter, then this is an indication of exposure to like-minded people'.

As previously noted, the identities of 'Leaver' and 'Remainer' have likely encouraged homophily within modular communities, with this notion supported by a range of previous research. For example, Colleoni et al. (2014) explored homophily in relation to support for political parties in the US, finding that Democratic supporters are more likely to engage with other Democratic supporters; with Lai et al. (2017) exploring the Twitter discussion of Brexit on the day before and after the referendum vote, finding a relationship between stance on Brexit and belonging to the same community. However, these findings are challenged by Matuszewski and Szabó (2019). They did not find partisan homophily within the Twitter discussion of Polish and Hungarian politics, suggesting that homophily may be somewhat context-specific (ibid).

### 4.3.1. Overview of Methods

As highlighted in Chapter 3, Section 3.3., my analysis sought to use SNA to highlight the levels of homogeneity within modular communities across time. To undertake this analysis, I partitioned the networks into subgraphs using modularity analysis. Once the network was partitioned, I coded a representative sample of tweets within each modular community, identifying the stance on Brexit. This allowed me to highlight the degree of consensus (in relation to Brexit) within each modular community. It should be noted that it is unclear what degree of consensus should constitute homogeneity, with Lawrence and Shah (2017, p2) highlighting a lack of scholarly agreement. For this reason, I opted to present the data transparently, allowing for a greater level of interpretation and clarity for the reader. In general, though, I have taken the view that anything more significant than >80% agreement is likely an indicator of a homogenous community, as this would demonstrate overwhelming consensus.

### 4.3.2. Timeframe

Nine points were chosen for the SNA, representing three periods within the Brexit discussion. The first period represented the 'pre-referendum' stage of the discussion (February, April and June 2016), the second period represented the mid-point of the Brexit discussion (October 2017, February 2018 and June 2018), and the third period represented the final phase of the Brexit discussion (February, June and October of 2019). The timeframe was chosen as represents three distinct periods of the discussion and offers an indication of the change in network structure across time.

### 4.3.3.   Definitions

To aid the reader in understanding the terminology used within this section, a list of key terms can be found in Chapter 3, Section 3.3.1.

### 4.3.4.   Findings

To begin this section, I would like to consider the degree of homogeneity across time, outlined in Figure 3; with Figure 3 demonstrating the percentage of the giant component that belongs to modular communities that display a greater than 80% consensus on Brexit.
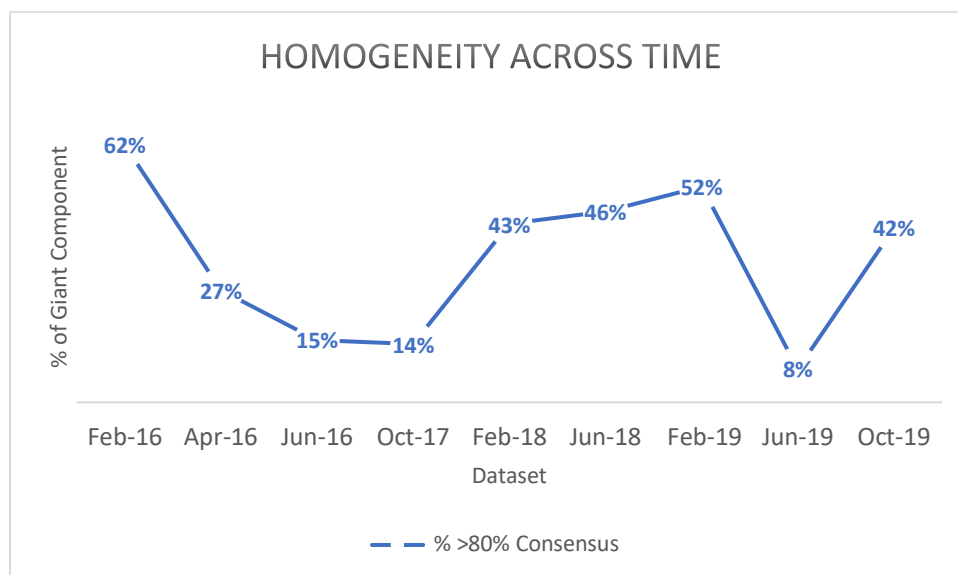


*Figure 3: Homogeneity (>80% consensus within a modular community) across time.*

As I highlight in Figure 3, communities identified as homogenous (greater than 80% consensus) are consistently present throughout the discussion. However, the degree of homogeneity seems to fluctuate across time, with such communities accounting for 8% - 62% of the giant component (the connected component of the network). While these findings are

somewhat challenging to interpret in isolation, they become clearer when the network is

divided by stance on Brexit (Figure 4).
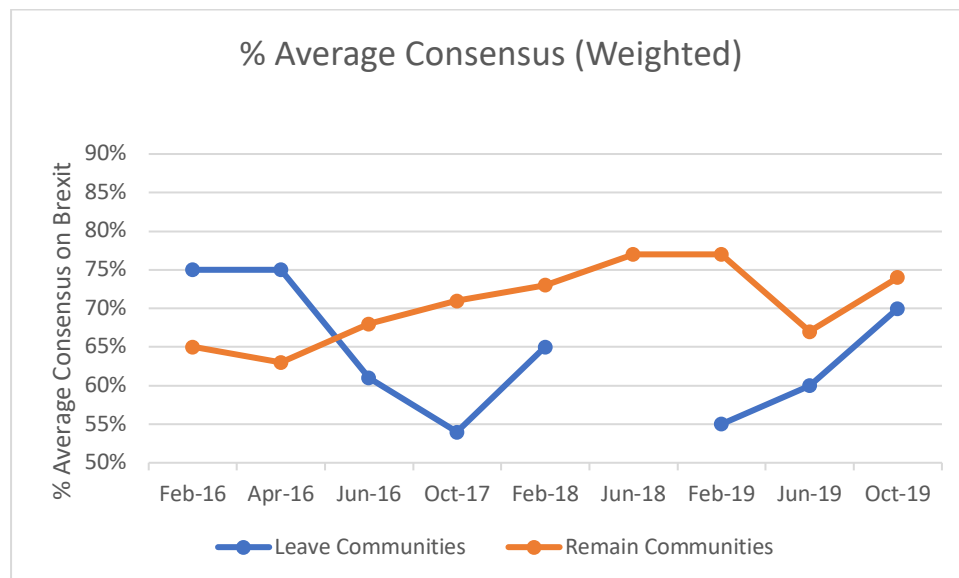


*Figure 4: Weighted consensus (that factors in community size) displayed as average % agreement amongst communities identified as Leave-supporting (blue) and Remain-supporting (orange).*

In line with previous research, Figure 4 suggests that in February 2016 and April 2016,

communities that display a Leave consensus are more likely to show greater levels of

homogeneity than communities with a Remain consensus (Grčar et al., 2017). However, this

is challenged from June of 2016 onwards, with my research suggesting that communities

with a Remain consensus in every dataset past this point are more likely to display more

significant levels of homogeneity. This runs contrary to the previously held association

between Leave-support and homogeneity and the association with right-wing political

movements and homophily (Boutyline and Willer, 2017).

To further explore the findings, I looked to undertake a thematic analysis of the most

homogenous communities within each dataset and highlight the network visualisations based

upon the community analysis. Within the visualisations, purple represents communities

identified as displaying a Leave consensus, and green represents communities identified as

displaying a Remain consensus. The darker the colour represents greater levels of

homogeneity. In addition, each visualisation contains a key that indicates the level of

agreement and size of a particular community, with the community class number

corresponding to the number placed within the visualisation (for reference, a detailed

overview of the data underpinning these visualisations can be found within Appendix D).

*February 2016*

The 1st of February of 2016 is the earliest dataset analysed within this section, representing

the period in which David Cameron sought to renegotiate the UK's EU membership. As

highlighted by Hobolt (2016, p1261), this renegotiated settlement was met with hostility

from the British press and sections of the public, culminating in a support boost for Brexit.

This support boost is reflected in Figure 5 with most of the network identified as displaying a

consensus toward Leave.

February 2016

| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 1% | Remain 78% |
| Community 1 | 10% | Remain 54% |
| Community 2 | 57% | Leave 80% |
| Community 3 | 4% | Remain 85% |
| Community 4 | 7% | Leave 58% |
| Community 5 | 1% | Remain 81% |
| Community 6 | 4% | Leave 56% |
| Community 7 | 3% | Remain 70% |
| Community 8 | 2% | Remain 71% |
| Community 9 | 1% | Remain 62% |
| Community 10 | 5% | Leave 64% |
| Community 11 | 4% | Remain 75% |
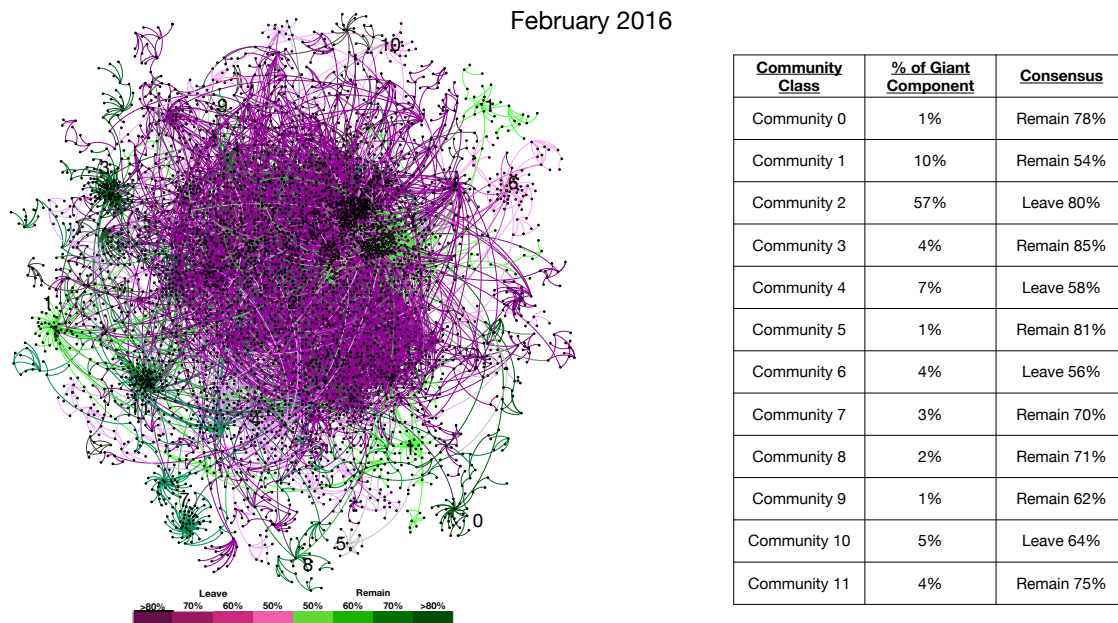
*Figure 5:February 2016 network visualisation.*

As highlighted in Figure 5, this network contained 12 modular communities (the least of any analysed within this thesis). It also contained the lowest level of isolate nodes, representing 28% of the overall conversation. Notably, Bienenstock et al. (1990) found a relationship between network density and opinion formation, suggesting that pre-existing opinions are likely to harden in denser network settings. In this sense, it may be argued that this network represented the most significant potential for opinion hardening, a key indicator of polarisation. At this point, communities representing a Leave consensus account for 73% of the giant component, the highest of any dataset. In contrast, communities representing a Remain consensus account for 27% of the giant component, the lowest of any dataset. As highlighted in Figure 4, Leave-leaning communities are more likely to be homogenous, averaging a 75% consensus toward Leave. In comparison, Remain-supporting communities average a 65% consensus, suggesting Remain-supporters are more likely to engage with opposing viewpoints at this point within the discussion.

Community 2 is the most homogenous Leave-supporting community, with 80% consensus towards Leave. Community 2 also represents the largest single community within any dataset, containing 57% of the giant component. Within community 2, many central users are associated with the various Leave campaigns, such as Nigel Farage, UKIP, Vote Leave, and Leave.EU. In addition, several 'everyday' users have been identified as central within this community, many of whom interact directly with David Cameron, displaying the type of hostility observed by Tong and Zuo (2021). Much of this hostility centred around David Cameron's renegotiated settlement with the EU, with Farage perhaps the most vocal critic of Cameron, predominantly seeking to challenge Cameron on the issue of migration (an example of which is highlighted within Figure 6).

*Figure 6: Tweet from Nigel Farage published on the 1st of February 2016.*

Community 3 is the most homogenous Remain-supporting community, with 85% consensus

towards Remain, representing 4% of the giant component. *Bloomberg Brexit* has been

identified as the most central user within this community. The large degree of consensus

towards Remain typically centres around news articles produced by *Bloomberg Brexit*, the

majority of which highlight the economic negatives of leaving the EU. The economic news

articles highlight the risk Brexit poses to London as the economic centre of Europe and to

climate funding and steps individuals can take to mitigate financial uncertainties caused by

Brexit. In addition to economic news, some articles demonstrate political concerns

surrounding Brexit, particularly news articles highlighting the negative impact on the Republic of Ireland if the UK votes to leave the EU.

*April 2016*

The 1st of April 2016 represents the second pre-referendum dataset analysed within this section. Since the previous dataset, there have been two significant developments. Firstly, David Cameron had announced the date of the referendum, which would take place on the 23rd of June 2016. Secondly, Boris Johnson had publicly announced support for leaving the EU, joining the (soon to be) official Leave campaign group 'Vote Leave' – which offered a degree of needed credibility to the Leave campaign. Prior to this point, the Leave campaign had been associated with fringe political figures, which contrasted with the Remain campaign, which had been endorsed by a number of well-known public and political figures.



| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 13% | Leave 66% |
| Community 1 | 7% | Leave 77% |
| Community 2 | 12% | Remain 61% |
| Community 3 | 9% | Leave 78% |
| Community 4 | 3% | Leave 55% |
| Community 5 | 7% | Remain 51% |
| Community 6 | 2% | Remain 66% |
| Community 7 | 27% | Leave 83% |
| Community 8 | 4% | Remain 75% |
| Community 9 | 7% | Remain 78% |
| Community 10 | 5% | Remain 51% |
| Community 11 | 5% | Leave 60% |
| Community 12 | 1% | Remain 60% |
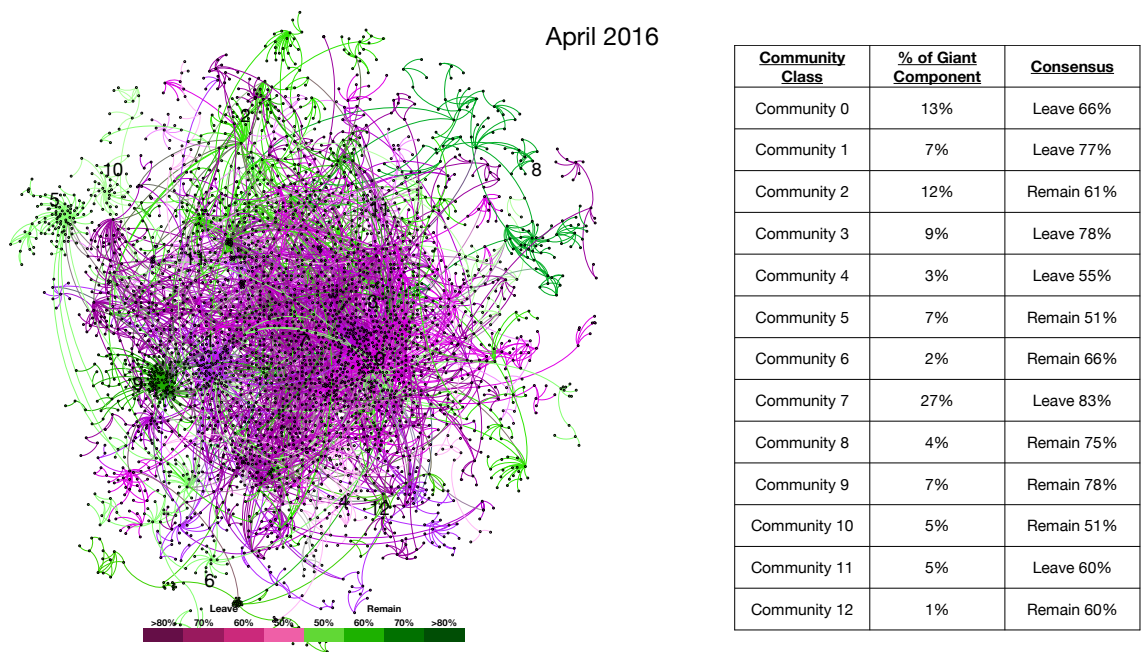
*Figure 7: April 2016 network visualisation.*

As highlighted in Figure 7, the number of modular communities in April of 2016 increased to 13, and the level of isolate nodes increased to 40% (of the overall population), indicating an increase in network fragmentation. As with February 2016, April 2016 saw a similar average in relation to the percentage of agreement within Leave-supporting communities, standing at 75% (highlighted in Figure 4). Figure 4 also demonstrates that the average level of like-minded tweets within Remain-supporting communities dropped slightly, standing at 63%.

As highlighted in Figure 7, Community 7 is the most homogenous Leave-supporting community, with 83% consensus towards Leave. Community 7 also represents the most significant community within this dataset, representing 27% of the giant component. Within this community, Leave.EU, Nigel Farage and Vote Leave have been identified as central - the second time such users were found in the most homogenous Leave-supporting community (up until this point). Furthermore, the user DavidJo52951945, allegedly linked to Russian disinformation (Siapera, 2019), was identified as central. Sadly, DavidJo52951945's account and all associated tweets were deleted, so his role at this point can only be speculated. However, based upon the response to DavidJo52951945, it may be surmised that the user sought to amplify emotive and divisive rhetoric, particularly concerning immigration.

*"@DavidJo52951945 Your right… Trump and Brexit happen we might finally save western civilisation."*

(Tweet within community 7)

*"@DavidJo52951945 Anyone unsure of how to vote, just go to London and see the influx of zombified EU low-skilled migrants ;) We are TOO FAR gone, vote Brexit."*

(Tweet within community 7)

As highlighted above, amongst the tweets responding to DavidJo52951945, there was an emphasis on the threat posed by both EU and non-EU migration.

Another user identified as central within this community is *Breitbart London*, a partisan news organisation with links to Cambridge Analytica (a UK consulting firm that illegally harvested data to target voters). As with the tweets responding to DavidJo52951945, a common theme within *Breitbart London's* tweets during this time is migration, with several tweets seeking to link issues surrounding non-EU migration to EU membership.



*Figure 8: Tweet from Breitbart London published on April the 1s, 2016.*

The example news story in Figure 8 is one of many *Breitbart London* published during this time. Notably, in presenting an image that contains several posters stating 'Open the Border' and 'Pakistan', *Breitbart London* sought to link the migrant crisis to broader Middle Eastern migration, which reflected a common theme contained in tweets within this community (an example of which highlighted below).

*"Let's have more Muslim migrants and terrorists coming to the UK, great plan. Brexit now"*

(Tweet within community 7).

Community 9 is the most homogenous Remain-supporting community, with 78% consensus towards Remain, representing 7% of the giant component. *The Independent* and *The Guardian* have been highlighted as central within this community, both of which endorsed remaining within the EU. A range of news articles are shared within this community, the most common of which is *The Guardian's* news article asserting the Royal Family are considering intervening in Brexit. This article was an April Fools parody, with most users pointing this out. However, many users still reference this article when articulating their discontent towards Brexit, with a few questioning whether it is a parody or a reflection of reality. Several articles highlight the political ramifications of leaving, with *The Independent* suggesting that Wales and Scotland may seek to form their own country in the event England votes to leave the EU.

*June 2016*

The 1st of June 2016 was the final pre-referendum dataset analysed within this section, with the referendum taking place later that month (23rd of June 2016). Around this time, the Remain campaign focused on economic issues, which reflected worrying forecasting from the

treasury, an intervention from the head of the Bank of England and an intervention from US President Barack Obama, who asserted that the UK would be at the 'back of the queue' (in terms of trade) should it vote to leave the EU. In contrast, the Leave campaign primarily focused on immigration, associating freedom of movement with several negative implications for the UK. During this time, opinion polling varied regarding voters' preference (Financial Times, 2016), making it challenging to assess which campaign was more effective in its messaging.



| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 26% | Leave 77% |
| Community 1 | 20% | Leave 66% |
| Community 2 | 7% | Remain 56% |
| Community 3 | 6% | Leave 68% |
| Community 4 | 4% | Leave 70% |
| Community 5 | 5% | Remain 88% |
| Community 6 | 7% | Leave 86% |
| Community 7 | 3% | Leave 86% |
| Community 8 | 5% | Leave 69% |
| Community 9 | 3% | Leave 65% |
| Community 10 | 4% | Remain 68% |
| Community 11 | 3% | Leave 56% |
| Community 12 | 4% | Remain 64% |
| Community 13 | 1% | Remain 64% |
| Community 14 | 2% | Remain 62% |

*Figure 9: June 2016 network visualisation.*

Figure 9 demonstrates that on the 1st of June 2016, the number of modular communities increased to 15, and the level of isolate nodes stood at 40% (the same as the previous dataset). As highlighted in Figure 4, June of 2016 saw a decrease in the average level of homogeneity within Leave-supporting communities, standing at 61% agreement. Notably, Figure 4 points to an increase in homogeneity amongst Remain-supporting communities, standing at 68%.

137

As highlighted in Figure 9, communities 6 and 7 are the most homogenous Leave-supporting communities, both standing at an 86% agreement. Community 6 represents 7% of the giant component, and community 7 represents 3% of the giant component. Within community 6, partisan news organisations *Breitbart News* and *Prison Planet* have been identified as central. Several users share a video from *Prison Planet* featuring the far-right YouTube personality Stefan Molyneux. While the content of the video is unclear (due to it being removed from YouTube), based on users' responses, it may be surmised that it addressed sovereignty, immigration, and economic scaremongering in relation to Brexit.

In community 7, the *Daily Mail* and *The Telegraph* have been identified as central, with the majority of tweets engaging in discussion of articles published by these news organisations. The *Daily Mail* articles point to several concerns surrounding immigration, suggesting that 500,000 refugees could move to the UK under EU rules and that the UK needs a new home every six minutes due to EU migration. In many senses, this reflects the findings of Tong and Zuo (2021), who argue that these media organisations often legitimise controversy in relation to Brexit, particularly when discussing migration; as well as the findings of Moore and Ramsay (2017, p73), who assert that during this period certain titles 'went further than the campaign leaders in their reporting on immigration', with 'many of the negative news articles not prompted by the claims of the campaigns but from the initiatives of newspapers'.

Community 5 is the most homogenous Remain-supporting community, with 88% consensus towards Remain and representing 5% of the giant component. The most central user is Donald Trump within this community, but it also includes the *New York Time*s and the news

platform *ThinkProgress*. Within this community, most tweets attack Donald Trump in response to several news articles from the *New York Times* and *ThinkProgress* suggesting that Trump does not know what Brexit is. As a result, several Remain-supporting tweets capitalise on this to argue that, due to the fact Trump is advocating something he does not understand, his argument surrounding Brexit should be discredited (with two examples highlighted below).

*"@RealDonaldTrump You don't even know the term #Brexit, so it is very unlikely you could form something considered enough to be called a 'position'…."*

(Tweet from community 5)

*"@RealDonaldTrump Brexit. Great Choice. By the way… what is it?"*

(Tweet from community 5)

*October 2017*

The 1st of October 2017 represents the first post-referendum dataset analysed, being just over a year after the UK voted to leave the EU, six months after the UK triggered Article 50 (the legal mechanism by which a member state can leave the EU) and four months after the 2017 GE (where Theresa May lost her parliamentary majority). Around this time, the UK-EU negotiations were underway, with PM Theresa May outlining the UK's position in her 'Florence Speech'. Notably, the speech highlighted the need for a transition period, although it lacked clarity regarding other elements of the UK-EU relationship post-transition period.

October 2017

| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 4% | Remain 71% |
| Community 1 | 8% | Remain 79% |
| Community 2 | 2% | Remain 53% |
| Community 3 | 7% | Remain 68% |
| Community 4 | 23% | Remain 67% |
| Community 5 | 5% | Remain 65% |
| Community 6 | 6% | Remain 60% |
| Community 7 | 4% | Remain 67% |
| Community 8 | 7% | Remain 65% |
| Community 9 | 8% | Remain 61% |
| Community 10 | 5% | Remain 54% |
| Community 11 | 4% | Remain 86% |
| Community 12 | 4% | Remain 80% |
| Community 13 | 6% | Remain 78% |
| Community 14 | 9% | Leave 54% |

*Figure 10: October 2017 network visualisation.*

As highlighted in Figure 10, there is a significant decrease in communities that display a consensus to Leave, with Figure 10 containing only one community showing a Leave consensus. As highlighted by Figure 4, October 2017 saw a significant increase in the average level of homogeneity within Remain-supporting communities, standing at 71%. There is a slight increase in the number of isolate nodes, standing at 42% of the overall dataset, with the number of communities remaining at 15.

The most homogenous community within this dataset is community class 11, displaying an 86% consensus towards Remain, representing 4% of the giant component. Within this community, the most central user has been identified as Tim Montgomery, a Brexit-supporting conservative commentator. In addition, community 11 also contains prominent Brexit-supporting economist Andrew Lilico, the Remain-supporting activist 'Brexit_Sham' and the Labour Party. Within this community, there is considerable pushback against Tim

Montgomerie and Andrew Lilico for suggesting issues related to Brexit have been caused by the failures of Theresa May, with a general feeling that Brexit is going to be a failure regardless of who is in charge.

*"@Andrew_lilico No, it is too late to say that Brexit failed because of how it was pursued. We won't let you use this argument."*

(Tweet from community 11)

*"@Montie Brexit will destroy Boris, as it has destroyed May. It's not about the person, it's about the choices. Brexit is undoable."*

(Tweet from community 11)

As highlighted above, pushback against Theresa May's stalling negotiations seemed to be a common theme within this community. However, it also seemed that several users took issue with May personally, highlighting her inability as a leader to justify remaining within the EU.

*February 2018*

The 1st of February 2018 represents the second post-referendum dataset. During this time, Theresa May had concluded a draft agreement with the EU; while the specifics of such an agreement were yet to be finalised, some of the details were known. The agreement was acceptable to moderate Leave-supporters. Still, it received significant backlash from hard-line Brexit-supporters (such as Nigel Farage), who believed the deal offered too much compromise. Moreover, at a grassroots and political level, Remain-supporters began to call

for a referendum on the deal with an option to remain, with Chuka Umunna forming a cross-parliamentary group.



February 2018

| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 6% | Remain 82% |
| Community 1 | 6% | Remain 87% |
| Community 2 | 11% | Remain 68% |
| Community 3 | 4% | Remain 69% |
| Community 4 | 5% | Remain 55% |
| Community 5 | 15% | Remain 92% |
| Community 6 | 21% | Remain 64% |
| Community 7 | 3% | Remain 81% |
| Community 8 | 3% | Leave 57% |
| Community 9 | 6% | Remain 77% |
| Community 10 | 2% | Remain 83% |
| Community 11 | 8% | Remain 89% |
| Community 12 | 4% | Remain 70% |
| Community 13 | 2% | Leave 54% |
| Community 14 | 3% | Leave 82% |

*Figure 11: February 2018 network visualisation.*

Figure 11 highlights how in February of 2018, there were only two communities with a Leave consensus, representing 5% of the giant component. As highlighted in Figure 4, there was a slight increase in the average level of homogeneity within Remain-supporting communities, standing at 73%. There is a slight decrease in the number of isolate nodes, standing at 40% of the overall dataset, with the number of communities remaining at 15.

The most homogenous community within this dataset is community class 11, displaying an 89% consensus towards Remain (the highest recorded until this point), representing 8% of the giant component. A former negotiator turned Pro-EU activist Steve Bullock has been identified as the most central user within this community. The community also contains

142

Garvan Walshe, a Remain-supporting conservative advisor, Ian Dunt, the 'Remaniacs' podcast host, Sam Coates, deputy political editor for *Sky News*, and Chris Giles, the economics editor for *The Times*. Many issues are discussed within this community, such as the implications surrounding freedom of movement, the similarities between Trump and Brexit and economic concerns regarding the UK leaving the EU. In addition, this is the first community (of those explored within this section) that included the hashtag #FBPE. As I will suggest within the Deliberative Quality chapter, #FBPE has an association with community homogeneity[8], which may partially account for the level of homogeneity observed within community class 11.

*June 2018*

The 1st of June 2018 was the first dataset after the specifics of Theresa May's agreement with the EU had been published. While this represented a significant advance in the future UK-EU relationship, questions were raised regarding the border between the UK and the Republic of Ireland. Moreover, there was a growing discontent towards May's stance on Brexit within her party, culminating in the resignation of several Brexit-supporting cabinet ministers. Perhaps most notably, on the 9th of July 2018, Boris Johnson resigned as foreign secretary due to May's agreement. To add to the challenges for May, the 'People's Vote' campaign group had been launched during this time, which sought to advance calls for a second referendum.

---

[8] See Chapter 7, Section 7.3.4. for an overview of #FBPE. For further reference, see Appendix H, which offers an overview of community consensus in relation to the percentage of tweets that use #FBPE.
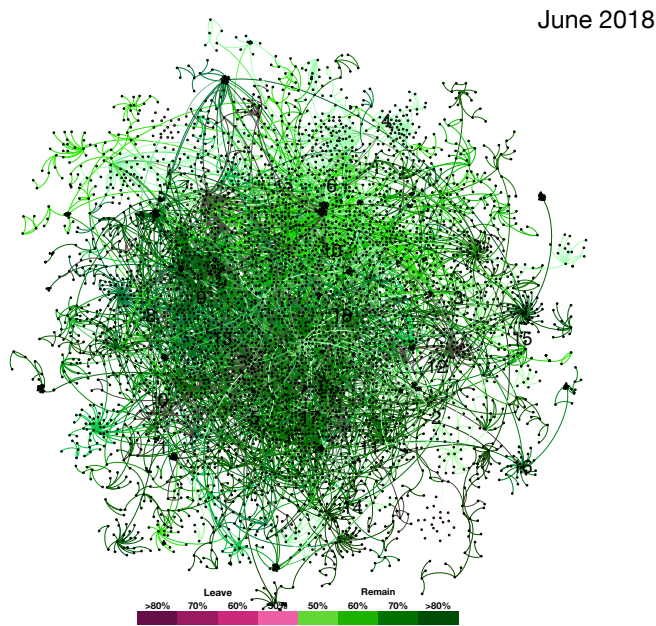
| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 3% | Remain 86% |
| Community 1 | 4% | Remain 83% |
| Community 2 | 1% | Remain 84% |
| Community 3 | 3% | Remain 64% |
| Community 4 | 10% | Remain 51% |
| Community 5 | 10% | Remain 79% |
| Community 6 | 13% | Remain 67% |
| Community 7 | 1% | Ambiguous |
| Community 8 | 3% | Remain 77% |
| Community 9 | 9% | Remain 87% |
| Community 10 | 4% | Remain 72% |
| Community 11 | 11% | Remain 94% |
| Community 12 | 4% | Remain 52% |
| Community 13 | 8% | Remain 82% |
| Community 14 | 4% | Remain 83% |
| Community 15 | 2% | Remain 93% |
| Community 16 | 2% | Remain 71% |
| Community 17 | 4% | Remain 83% |
| Community 18 | 4% | Remain 74% |

*Figure 12: June 2018 network visualisation.*

As highlighted in Figure 12, June 2018 represents the only dataset without any Leave consensus communities, with every community containing consensus for Remain. As highlighted in Figure 4, there was a slight increase in the average consensus within Remain-supporting communities, standing at 77%. The June 2018 dataset marked the fourth consecutive increase in the average level of Remain consensus. The number of isolate nodes stood at 40% of the overall dataset, with the number of communities increasing to 19.

The most homogenous community within this dataset is community class 15, displaying a 93% consensus towards Remain (the joint highest recorded), representing 2% of the giant component. Within this community, the most central user is an 'everyday' user, who works as an academic and supports Remain (User A). Specifically, most of the users within this community discuss a Mirror Politics article shared by User A, which highlights how a 'Tory Brexit campaign chairman' applied for French residency.

144

*Figure 13: Link shared by 'User A' (present within community 15) published on the 31st of May 2018.*

The majority of tweets respond with anger and shock, using the article to demonstrate Lord

Lawson's perceived hypocrisy and the hypocrisy of Brexit campaigners more generally.

*"This is Brexit to a tee. It's a shame that 51.9% of people are too stupid to wise up the Brexit*

*shambles."*

(Tweet within community 15)

*"Sounds about right. Wealthy embrace Brexit because they are immune to the consequences."*

(Tweet within community 15)

In addition, several tweets also include the hashtag #FBPE, although, within community 15, this stood at lower levels than other (less homogenous) communities analysed within the same dataset.

*February 2019*

The 1$^{st}$ of February 2019 dataset represents a time of severe political turbulence within the UK. Theresa May had just lost a parliamentary vote on her Brexit deal, defeated by historic margins. This resulted in the opposition tabling a motion of no confidence in May's government (although this was defeated). To try and seek clarity regarding the future UK-EU relationship, MPs voted on several amendments. However, the only two amendments that passed were to avoid a 'No Deal' Brexit and renegotiate the Irish border. It became apparent

that the UK may have to extend article 50, which would mean participating in the 2019 EU

elections.



| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 3% | Remain 73% |
| Community 1 | 4% | Leave 51% |
| Community 2 | 4% | Leave 52% |
| Community 3 | 10% | Remain 88% |
| Community 4 | 4% | Remain 93% |
| Community 5 | 18% | Remain 82% |
| Community 6 | 7% | Remain 58% |
| Community 7 | 6% | Remain 80% |
| Community 8 | 4% | Remain 70% |
| Community 9 | 10% | Remain 70% |
| Community 10 | 4% | Leave 60% |
| Community 11 | 4% | Remain 85% |
| Community 12 | 3% | Leave 55% |
| Community 13 | 2% | Remain 70% |
| Community 14 | 2% | Remain 86% |
| Community 15 | 1% | Leave 71% |
| Community 16 | 4% | Remain 69% |
| Community 17 | 1% | Remain 93% |
| Community 18 | 4% | Remain 57% |
| Community 19 | 7% | Remain 83% |

*Figure 14: February 2019 network visualisation.*

As highlighted in Figure 14, most communities within this dataset contain a Remain

consensus. Only 5 of the 20 communities display a consensus towards Leave (representing

16% of the giant component). As highlighted in Figure 4, the consensus amongst Remain-

supporting communities averaged 77%, the same as the previous dataset. The consensus

within Leave communities averaged at 55%. The number of isolate nodes stood at 48% of the

overall dataset, with the number of communities increasing to 20.

The most homogenous community within this dataset is community class 4, displaying a 93%

consensus towards Remain (the joint highest recorded), representing 4% of the giant

147

component. Within this community, the author Edwin Hayward, the news organisation *The Economist* and the satirist 'Cold War Steve' have been highlighted as the most central users. Several users discuss tweets from Edwin Hayward that address Brexit's economic concerns. In addition, several users react to a satirical image published by 'Cold War Steve' depicting Leave-supporting politicians in a dilapidated caravan (Figure 15).



*Figure 15: Image published by user 'Cold War Steve' on the 1st of February 2019.*

In presenting the politicians in this manner, Cold War Steve arguably seeks to juxtapose Brexit-supporting figures from the working-class communities they claim to represent. Within

the image, Theresa May is longingly smelling a 'Frey Bentos' pie, a cheap tinned food

associated with the working class. In addition, Nigel Farage and Reese-Mogg are sitting on a

1970's style caravan sofa, presenting such politicians in a manner akin to children. Users

reacted to this imagery light-heartedly, although jokingly asserting this may be the reality

after Brexit.

*June 2019*

The 1st of June 2019 represents the first dataset since the resignation of Theresa May. In the

run-up to her resignation, the UK had participated in the EU elections, with the Brexit Party

winning the largest vote share, putting pressure on the Conservative Party, who only

received 8.8% of the national vote. Labour's position was also challenged, coming behind the

Liberal Democrats, who had taken a clear stance on revoking Brexit. At this point, the UK

lacked clarity regarding the future relationship with the EU, with polling suggesting that the

electorate became more extreme, vacating the middle ground (Dickson, 2019).

June 2019

| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 3% | Leave 56% |
| Community 1 | 4% | Remain 74% |
| Community 2 | 13% | Leave 63% |
| Community 3 | 6% | Remain 66% |
| Community 4 | 11% | Remain 56% |
| Community 5 | 6% | Remain 80% |
| Community 6 | 7% | Leave 52% |
| Community 7 | 11% | Remain 69% |
| Community 8 | 14% | Leave 62% |
| Community 9 | 5% | Remain 59% |
| Community 10 | 2% | Leave 53% |
| Community 11 | 5% | Leave 75% |
| Community 12 | 4% | Leave 56% |
| Community 13 | 2% | Remain 88% |
| Community 14 | 2% | Leave 64% |
| Community 15 | 4% | Leave 62% |
| Community 16 | 2% | Remain 69% |

*Figure 16: June 2019 network visualisation.*

As highlighted in Figure 16, June 2019 saw an increase in Leave consensus communities, with eight communities identified as displaying a consensus towards Leave (representing 54% of the giant component). Nine communities contain a Remain consensus (representing 46% of the giant component). As highlighted in Figure 4, there is also an increase in the average level of homogeneity within Leave-supporting communities, standing at 60%. There is a slight decrease in the level of homogeneity within Remain-supporting communities, with the average standing at 67%. The number of isolate nodes decreased to 38%, and the number of communities decreased to 17.

The most homogenous Leave-supporting community within this dataset is community class 11, displaying a 75% consensus towards Leave, representing 5% of the giant component. Brexit-supporting politician Daniel Hannan is highlighted as the most central user within this community. Several users engaged with Daniel Hannan's post, highlighting his concerns that

the Brexit Party will split the vote amongst Brexit-supporters, leading to a Labour-Liberal Democrat coalition. The general response from Brexit-supporting users is that they are willing to support the Brexit Party regardless of the outcome. Remain-supporters engage in this discussion, marking a shift from previous homogenous communities, with a number stating they hope the vote is split in the manner predicted by Daniel Hannan so that Brexit can be scrapped. In addition, an 'everyday' user was also highlighted as central due to a viral Tweet. The tweet asserts how it is ironic that many Brexit-supporters go on holiday to Benidorm despite wanting to leave the EU. This received overwhelming criticism from Brexit-supporters, with a number feeling that this assertation is a harmful stereotype.

*"This Brexit supporter is half German; I have travelled across Europe extensively. I have never been to Benidorm, although I have driven past it. I am not a snob like you."*

(Tweet from community 11).

The most homogenous Remain-supporting community within this dataset is community class 13, displaying an 88% consensus towards Remain, representing 2% of the giant component. The most central user within this community is an 'everyday' user who supports Remain. Within this community, several users respond to a tweet from this central user, which critiques Len McCluskey and Labour for not adopting a stance to revoke Brexit. While most users agree that Labour should come out against Brexit, some are sceptical about the electoral ability of the Liberal Democrats, warning Labour should maintain their own identity.

The 1st of October 2019 is the final dataset analysed within this section. Since the previous

dataset, Boris Johnson had won the Conservative Party leadership election, becoming the

UK's PM. During the leadership contest, Johnson had made leaving the EU on October the

31st 2019 and renegotiating May's Withdrawal Agreement his key pledges. However, the EU

indicated that they were unwilling to renegotiate the agreement. The majority of parliament

sought to extend the October 31st deadline (to ensure 'No Deal' was taken off the table). To

put pressure on the EU and to limit parliaments' capability to extend the deadline, Johnson

controversially prorogued parliament on the 28th of August 2019. However, on the 24th of

September 2019, the UK supreme court ruled that Johnson's prorogation of parliament was

illegal. Parliament commenced shortly thereafter, which allowed the passage of controversial

legalisation, legally compelling Johnson to rule out a 'no-deal' and forcing him to seek an

extension to the October 31st deadline.
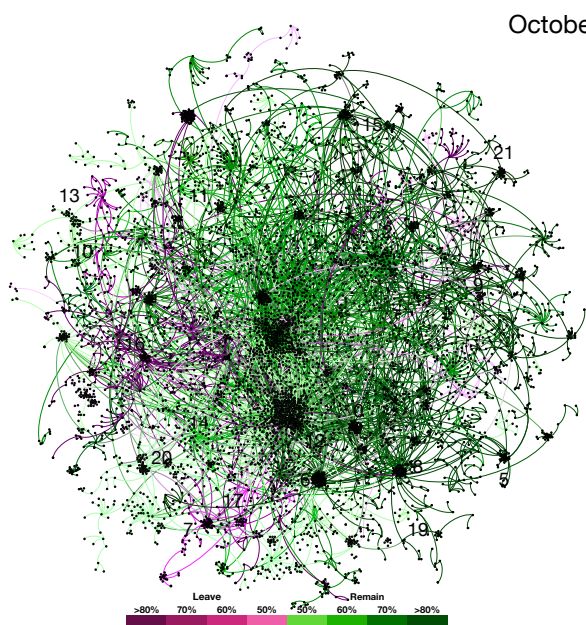


| Community Class | % of Giant Component | Consensus |
|---|---|---|
| Community 0 | 7% | Remain 80% |
| Community 1 | 3% | Leave 51% |
| Community 2 | 7% | Remain 79% |
| Community 3 | 13% | Remain 79% |
| Community 4 | 13% | Remain 54% |
| Community 5 | 1% | Leave 58% |
| Community 6 | 5% | Remain 84% |
| Community 7 | 2% | Leave 81% |
| Community 8 | 5% | Remain 91% |
| Community 9 | 3% | Leave 51% |
| Community 10 | 1% | Ambiguous |
| Community 11 | 2% | Remain 77% |
| Community 12 | 8% | Remain 84% |
| Community 13 | 2% | Remain 59% |
| Community 14 | 5% | Remain 61% |
| Community 15 | 4% | Remain 81% |
| Community 16 | 9% | Leave 81% |
| Community 17 | 1% | Leave 67% |
| Community 18 | 2% | Remain 77% |
| Community 19 | 2% | Remain 58% |
| Community 20 | 5% | Remain 56% |
| Community 21 | 2% | Remain 88% |

*Figure 17: October 2019 network visualisation.*

As highlighted in Figure 17, there are only 4 Leave-supporting communities (accounting for 15% of the giant component), with most communities being identified as Remain-supporting. In addition, this is the most fragmented network, with 47% of the overall population being isolate nodes and containing 22 communities. As demonstrated in Figure 4, the average level of consensus with Leave-supporting communities stood at 70%, and Remain-supporting communities stood at 74% - an increase amongst both groups.

As highlighted in Figure 17, the most homogenous Leave-supporting community within this dataset is community class 16, displaying an 81% consensus towards Leave, representing 9% of the giant component. Within this community, Nigel Farage, the Brexit Party and Cllr. Will Elliott (not to be confused with Will Elliott from the Vote Leave campaign) have been identified as central. Within this community, several users are arguing the case for the UK to leave the EU on WTO terms. Several users reacted to Will Elliott's poll, which suggested that Twitter users would support the Conservative party if they were to leave the EU on WTO terms on the 31st of October 2019.

The most homogenous Remain-supporting community within this dataset is community class 8, displaying a 91% consensus towards Remain, representing 5% of the giant component. Brexit_Sham (a Remain-supporting activist) and Nick Eardley (a BBC correspondent) have been highlighted as central within this community. During this point, Brexit_Sham posted several tweets personally attacking notable Brexit-supporting politicians, eliciting a strong reaction from users, with a number also engaging in personal attacks. In addition, Nick Eardley tweeted a link regarding an interview with PM Johnson, which generally was received negatively within the community.

*4.3.5. Summary*

As highlighted by Dahlberg (2007c, p828), it is often argued that online interactions involve a 'meeting of like-minded individuals, leading to a fragmented public sphere of insulated 'deliberative enclaves' where group positions and practices are reinforced rather than openly critiqued'. In such circumstances, deliberation and consensus-building are limited, with like-minded discussion potentially leading to confirmation bias and extreme opinion formation, challenging the quality of communicative interaction (Dahlgren, 2005).

As highlighted in Figure 3, this section did not point to an overall increase in homogeneity across time. However, as highlighted in Figure 4, when the findings were split by stance on Brexit, they suggest an increase in the level of homogeneity within communities identified as Remain-supporting across time and a decrease in the level of homogeneity within communities identified as Leave-supporting across time. The primary implications are twofold. Firstly, my findings challenge the association between Leave-support and homogeneity, with such observations typically contained to the pre-referendum period. In the post-referendum period, my research suggests that communities displaying consensus towards Leave generally become more heterogenous and more likely to engage with differing viewpoints. Secondly, the increase in homogeneity within Remain-supporting communities may suggest a decrease in engagement with opposing views, likely having implications for opinion polarisation and group identity amongst Remain-supporting Twitter users.

My research has highlighted an increase in the percentage of isolate nodes across time, with isolate nodes negatively impacting the information flow within the network (Himelboim et al., 2017). In a network with a high degree of isolate nodes, nodes are less likely to be exposed to broad information, which may fragment the discussion. Whilst this does not necessarily indicate polarisation, which is often associated with denser networks, it does raise concern due to the percentage of the conversation occurring within relative isolation - with my research suggesting that the range of isolate nodes stands at 38-48%. This means 38-48% were excluded from the giant component, typically in contact with a few or no other users at any given time. For this reason, it should be considered that the decrease in homogeneity within Leave-supporting communities may reflect a disengagement from the giant component. However, further research would be needed to validate this hypothesis.

When considering the specifics of the most homogenous communities, there are a number of central actors, ranging from partisan political commentators, activists, 'everyday' users, politicians, and media organisations. There does seem to be a relationship between central users who display strong opinions (such as Nigel Farage, Breitbart, Brexit_Sham etc.) and homogeneity. It may be argued that influential partisan discourse may promote homogeneity. However, it should be considered that there are several instances in which central users display a differing opinion on Brexit within the most homogenous communities. In this sense, even within communities that display agreement on Brexit, there is often some degree of engagement with differing viewpoints. However, it is questionable whether this engagement is conducted rationally and constructively.

Finally, I have highlighted several themes present within the most homogenous communities within this analysis. During the pre-referendum period, there were several exclusionary, and anti-migrant topics addressed, likely fuelled by the influential users within the given communities (with migration discussed in Chapter 6 of this thesis); in the post-referendum period, it is possible that Remain homogeneity was bolstered through the hashtag #FBPE (with this being addressed in Chapter 7); and in the final period, there does seem to be a shift towards issues relating to politicians and political parties, which may conform to the findings from Chapter 5 - which will come to suggest an increasing prevalence of politicians within influential network positions. As I will come to argue, this may reflect the increased significance of Parliament in deciding the Brexit outcome during the latter stages of the discussion.

## 4.4.    Affective Polarisation

Even in controversial circumstances, listening to others and engaging respectfully are essential aspects of public deliberation. It is through a willingness to engage that compromise and understanding can be reached, resulting in a rational public opinion that may guide political systems (Dahlberg, 2005, p111). However, affective polarisation may challenge the willingness to engage and impact rational discourse, with affective polarisation generally being understood as a positive attachment towards the in-group whilst holding hostility towards the out-group (Iyengar and Westwood, 2015; Hobolt et al., 2020).

Affective polarisation has been regularly demonstrated amongst Republican and Democratic political supporters in the United States, accelerating in recent years (Iyengar et al., 2019; Abramowitz and McCoy, 2019). While this was initially thought to be an issue associated with

political partisans, Hobolt et al. (2018) and North et al. (2020) highlight how this may be extended to political events such as Brexit. North et al. (2020) find substantive evidence to suggest an increase in out-group labelling within the discussion of Brexit on Twitter across time. They find the presence of unique terminologies such as 'gammon', 'fibdem' and 'remaniac', as well as language that reflected stereotypical assumptions amongst the opposite group, such as Leave-supporters being labelled 'racist' and Remain-supporters being labelled 'elitist' (ibid). Affective polarisation's association with Brexit is also demonstrated by Hobolt et al. (2018), who find that polarisation along the Brexit divide is more significant than partisan polarisation, demonstrating negative perceptions towards the respective Brexit out-group and positive perceptions towards the respective Brexit in-group.

Despite the topic being addressed on Twitter, there is a need for further research to expand upon previous findings. Primarily, this centres around limitations within the methodology of North et al. (2020), who make conclusions based upon a bigram analysis to identify associated words. To undertake their research, they identify tweets that have used the predetermined keywords 'Brexiteer, Remainer, Brextremist and Remoaner', exploring the related words attached to those keywords. While no doubt valuable, the keyword analysis they use is a relatively crude method, likely limited in its ability to identify and understand more complex and nuanced terminology. As outlined within my methodology, my analysis has undertaken a subjectivist inductive approach to analysing out-group labelling, which is likely to mitigate the limitations associated with the approach undertaken by North et al. (ibid).

### 4.4.1. Overview of Methods

Building on the analysis of North et al. (2020), my research explored the frequency and characteristics of negative labels aimed toward the out-group within the discussion of Brexit on Twitter. As highlighted within the methodology, I undertook a quantitative thematic analysis, a method that presents thematic codes in a quantitative manner.

Specifically, I looked to identify negative labels associated with Leave-supporters or Remain-supporters (as a homogenous group) and instances in which a user attacked another user based on a perceived affiliation with such a group. Negative labels aimed at individual users were excluded; only labels that may be applied to Remain-supporters or Leave-supporters were analysed. In addition, checks were undertaken on the user's account to ensure the user had some partisan affiliation to Brexit. These checks sought to identify a clear level of support for either Leave or Remain. In instances where this could not be determined, the user and tweet were excluded from this analysis.

The analysis looked at the same nine datasets as the homogeneity analysis, representing the discussion's beginning, middle, and endpoint. A random sample of 385 tweets per dataset had been extracted for the purpose of this analysis.
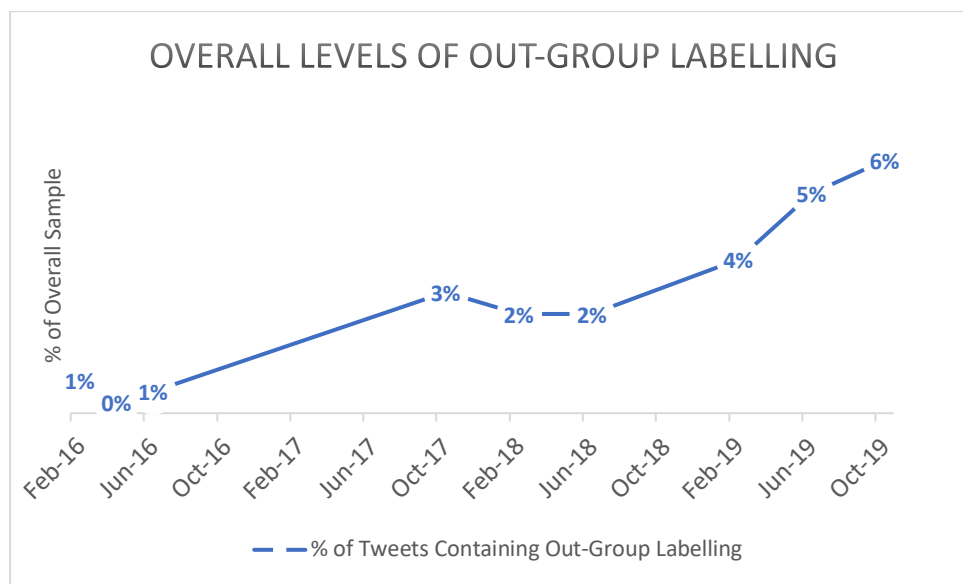
*Figure 18: Overall levels of out-group labelling.*

Figure 18 demonstrates the levels of out-group labelling as a percentage of the overall

sample. It suggests that out-group labelling was relatively uncommon during the initial stage

(February – June 2016). Out of the general sample of n=1,155 tweets for this period, there

were only six instances of out-group labelling, representing 0-1% of the sample on each given

day. In some sense, this is expected, as this was early in the discussion and the identity of

Leaver and Remainer may not have been as well developed. Out-group labelling became

more common during the middle stage of the debate (October 2017 - June 2018). Out of the

overall sample of n=1,155 tweets for this period, there were 29 instances of out-group

labelling, representing 2-3% of the sample on each given day. During the final stage of the

discussion (February – October 2019), my findings demonstrate the highest level of out-

group labelling, with 57 instances (out of a sample of n=1,155 tweets). This represented 4-6%

of tweets on each given day during this period, demonstrating the most significant increase

at any point. In general, the findings validate that of North et al. (2020), who point to an overall increase in the level of tribalism within the Brexit discussion on Twitter across time.
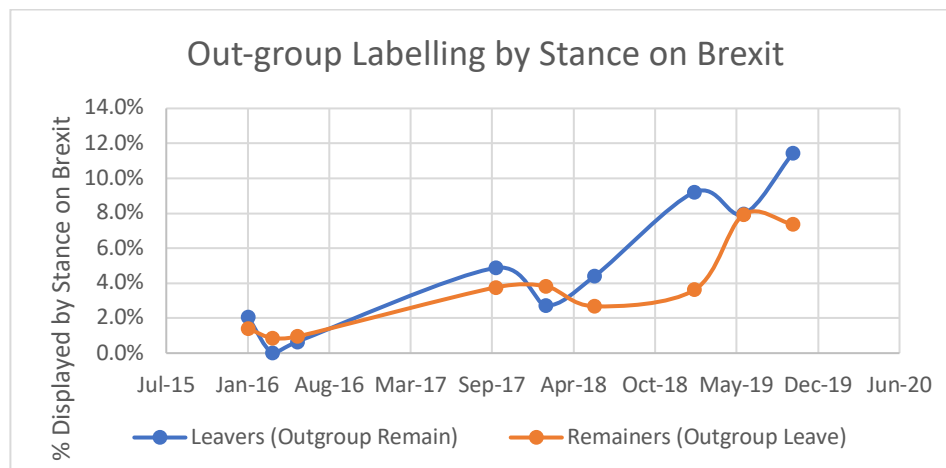


*Figure 19: Out-group labelling by stance on Brexit.*

Figure 19 breaks down the levels of out-group labelling by stance on Brexit, with blue representing Leave-supporting tweets and orange representing Remain-supporting tweets, measured as a percentage of each stance on Brexit, with ambiguous and non-English speaking tweets excluded. It suggests that during the middle phase (October 2017-June 2018) and final stage (February 2019-October 2019), Leave-supporting tweets are generally more likely to express negative attitudes towards the out-group than Remain-supporting tweets. It also suggests that both Leave- and Remain-supporting tweets display an increased likelihood of negative out-group labelling as the discussion progresses.

To build upon this analysis, I looked to categorise the overall themes of the negative labels in a quantitative manner.
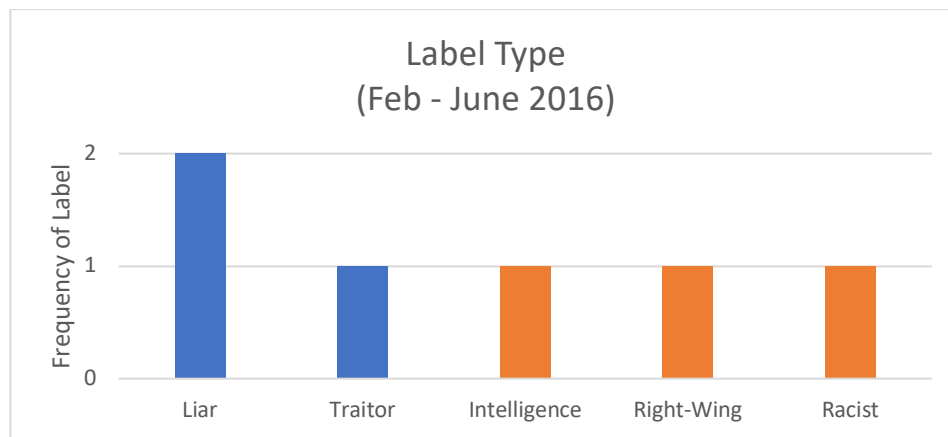
*Figure 20: Label type, February 2016 - June 2016.*

*Note: Orange represents tweets posted by Remain-supporters (Leave is the out-group), and blue represents tweets posted by Leave-supporters (Remain is the out-group). The y-axis represents the frequency of the respective label, and the x-axis represents the type of label.*

Figure 20 represents the most common labels during the first stage of the debate (February – June 2016). This period represented the lowest frequency of out-group labelling, with most of the labels expressed as singular examples. There were two examples of Leave-supporters labelling Remain-supporters 'liars', and one instance of a Leave supporter labelling Remain-supporters 'traitors'. Amongst Remain-supporters, there are singular examples of brandishing Leave-supporters as 'right-wing', 'racist' and 'lacking intelligence'. Notably, these are all themes that continue throughout much of the discussion.
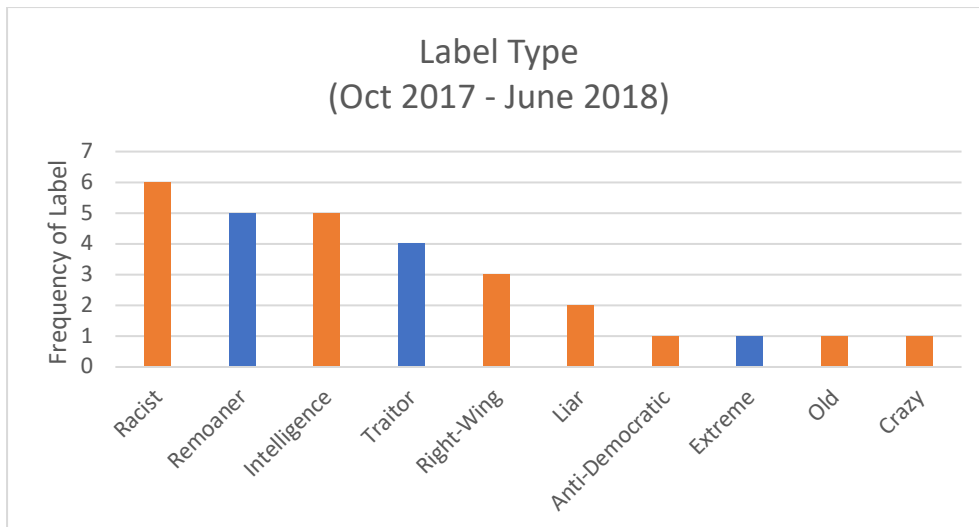
*Figure 21: Label type, October 2017 – June 2018.*

*Note: Orange represents tweets posted by Remain-supporters (Leave is the out-group), and blue represents tweets posted by Leave-supporters (Remain is the out-group). The y-axis represents the frequency of the respective label, and the x-axis represents the type of label.*

Figure 21 represents the theme and frequency of the out-group labelling during the middle phase of the discussion (October 2017 - June 2018). At this point, the most common out-group labelling amongst Remainers is that Leave-supporters are 'racist', 'lack intelligence', are 'right-wing' and are 'liars'. While the most common out-group labelling amongst Leavers being that Remain-supporters are 'Remoaners' and 'traitors'.
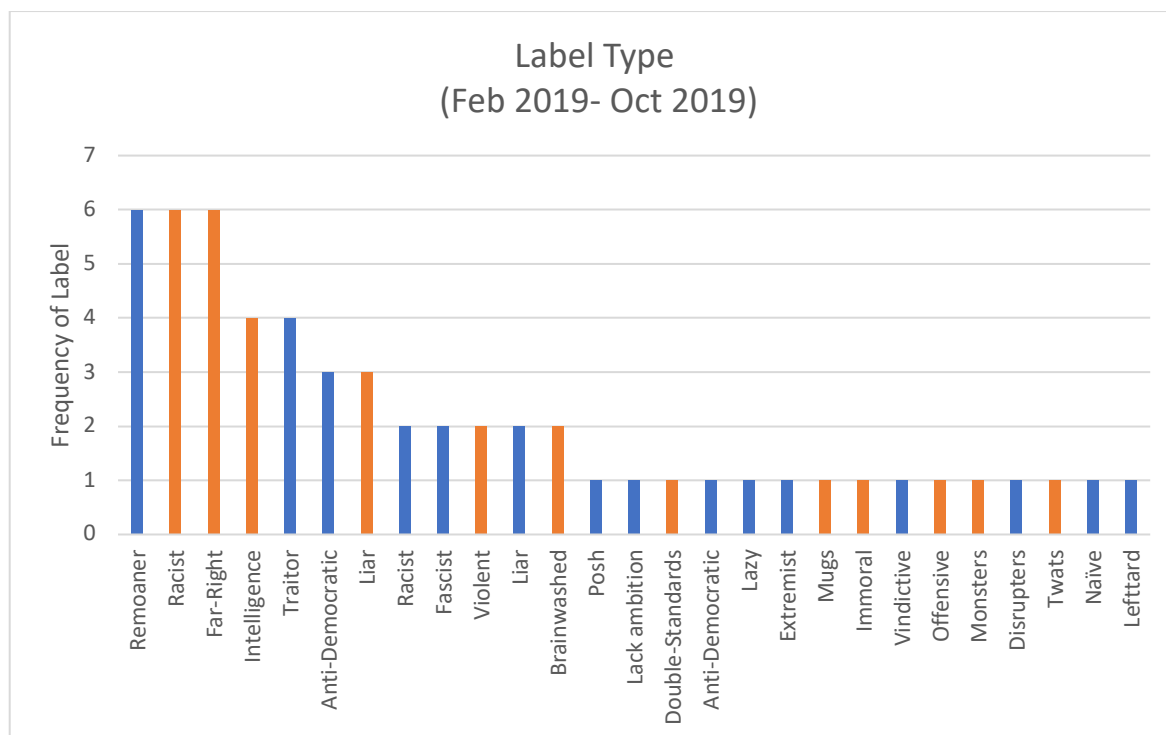
*Figure 22: Label type, February 2019 – October 2019.*

*Note: Orange represents tweets posted by Remain-supporters (Leave is the out-group), and blue represents tweets posted by Leave-supporters (Remain is the out-group). The y-axis represents the frequency of the respective label, and the x-axis represents the type of label.*

Figure 22 represents the out-group labelling from a sample of tweets during the final phase of the discussion (February – October 2019). As with previous points in the debate, Leave-supporters are labelled as 'racist' and 'lacking intelligence'. Moreover, Leave-supporters being labelled as 'right wing' has increased in prominence at this point. 'Remoaner' and 'traitor' have remained frequently used amongst Leave-supporters to describe Remain-supporters. There has also been the increased use of the label of 'anti-democratic' to describe Remain-supporters. Interestingly, several Leave-supporters seem to reappropriate stereotypical labels, highlighted through the use of 'racist' and 'fascist' aimed toward

Remain-supporters. In addition, this dataset also had the most extensive variety of labels, with 15 identified labels being used singularly.

The findings from this section differed somewhat from North et al. (2020), particularly when considering the most common label aimed toward Leave-supporters. North et al. (2020) point to 'Brextremist' as the most common label associated with Leave-supporters. My research suggests that 'racist' and 'lacking intelligence' are the most common labels aimed at Leave-supporters. The difference in findings may be due to the methodological approach undertaken, with my analysis exploring the textual information with a level of depth not possible through the computational methods of North et al. (2020). While North et al. (ibid) classify their labelling on the basis of associated keywords, I found that my out-group labelling was often identified through relatively complex and nuanced expression. For example, a Remain-supporting tweet stated, 'I am sick of Leavers and their hatred towards people who don't look like them, they don't care about immigrant families like mine'. Here, the example tweet is implying that Leave-supporters are racist, without explicitly stating the term 'racist'. As such, a degree of interpretation is required to categorise this tweet. A bigram analysis, as undertaken by North et al. (ibid), may associate the term 'Leaver' with 'hatred' or 'foreigner', without identifying the implied labelling. Nevertheless, some of the results confirm those of North et al. (2020), such as the 'Remoaner' being the most common out-group label aimed at Remain-supporters and how out-group labels tend to perpetuate stereotypical associations.

### 4.4.3. _Exploration of Most Common Labels_

Throughout this section, I highlighted the consistent use of the labels 'traitor' and 'Remoaner' to describe Remain-supporters, as well as 'racist' and 'lacking-Intelligence' to describe Leave supports. I found it essential to explore such themes, highlighting the type of discourse used and the basis for such labelling.

_Traitor_

Amongst Leave-supporters, there is an attitude that by supporting the UK's continued membership within the EU, individuals are going against British interests. With Leave-supporters often describing those who support remaining as 'traitors'.

In a discussion referring to Remain-supporters - _"They're just traitors, let June the 23rd be our Independence Day. It's our only chance to correct years of mistakes."_

In response to David Cameron - _"Remainers are synonymous with traitor. Everybody knows."_

In response to a tweet published by a prominent remain campaign group - _"You won't fool us with your made-up shit. I AM A PROUD BRITISH, YOU BUNCH OF FUCKING TRAITORS. GET A LIFE"_

Responding to Anna Soubry - _"What is #Discraceful is that you and the rest of the remainers betraying 17.4m voters. You will face a reckoning at the next general election."_

In response to a news article - *"The glue that held the traitor remainers together is*

*loosening… and I love it hahaha!!"*


Chernobrov (2018, p13) asserts that 'unresolved popular concerns' and a 'shift of the political

spectrum in some Western democracies towards the 'us' versus 'them' perspectives' has led

to 'the normalisation of label 'traitor''; with Chernobrov (ibid, p12) pointing to the discourse

during the 2016 EU referendum as evidence, which constructed the 'disloyal political other'

through 'culturally symbolic language of socially and morally unacceptable behaviour'.

Moreover, Manners (2018, p1218) points to the use of emotional language in the news

reporting to demonstrate how Brexit-supporters promoted the language of 'heroism,

treason, traitor, patriots, enemies, and saboteurs to shape the collective narcissism of

national uniqueness through the discourse of right-wing authoritarianism'. Perhaps the most

notable example of such language is the *Daily Mail's* 'Enemies of the People' headline

(O'Brien, 2017), which was in reaction to three judges ruling that parliament would need to

consent to any Brexit deal.


*Remoaner*

Throughout the discussion, some Leavers held the attitude that Remainers were 'Remoaners'

– a group unwilling to accept and unhappy at the outcome of the 2016 referendum. This

label was often used as an 'out-group derogation aimed at pro-EU voters' (North et al., 2020,

p3), which may have been used to discredit the concerns of Remain-supporters. Binns et al.

(2018) pointed to how Gina Miller was labelled the 'Remoaner queen', highlighting the

underlying abuse she received based on her court cases regarding Brexit.

In response to a discussion about Remainer's attitudes towards Leavers - *"Stay strong, because the closer we get to Brexit the nastier Remoaners will get"*.

In response to a Remain-supporters concerns about leaving – *"Look, I am sick and tired of Remoaners WHINING. We had a vote. We won. We are leaving. Your opinion on Brexit is just that… Your opinion"*.

In response to a Remain supporter – *"Get over it, you lost. You big bunch of Remoaners"*.

In response to a discussion of Brexit-supporters – *"Remoaners are hoping they (leavers) will pop their clogs. They can overturn our referendum then!"*.

Copus (2018) points to the term 'Remoaner' as a reaction to some Remain-supporters campaigning to continue the UK's membership within the EU, despite the 2016 outcome. While others such as Kemmer et al. (2019, p29) have suggested that the term 'Remoaner' functions as a way of 'attaching blame and delegitimising dissent or disagreement', which they assert was done with 'strikingly affective terms – Remoaners have the wrong tone and the wrong relation to futurity'.

*Racist*

Throughout the discussion, there is the consistent theme that Leave-supporters are racist, one of the most frequently observed labels within this thesis. This association likely stems from pre-referendum discourse, which focused heavily on the negative impacts of immigration. However, as I will demonstrate in the Populism chapter of this thesis,

immigration is a salient issue amongst Leave-supporters post-referendum, which may offer a basis for Remain-supporters' consistent use of the label.

In response to Plaid Cymru – *"It's the racists voting for Brexit who want to stop Africans and Asians coming in"*.

In response to a discussion about the Brexit campaign – *"It's making me feel queasy. There's certainly something slightly racist about the Brexit campaign"*.

In response to a thread about racism in the Brexit campaign – *"It's also a shame that islamophobia and other bigoted arguments are leading the reason to vote leave for many"*.

Tweeted without context – *"It would be hilarious if the xenophobic Brexit voters voted to secure the borders and in doing so destroyed our great country"*.

As previously noted, during the referendum campaign, the various Leave groups have been critiqued for being overtly racist (Durrheim et al., 2018), with several influential Leave-supporters making 'controversially racist statements' to mobilise support (ibid, p386), as well as stoking fears over migration from the Middle East (Ahonen, 2018). Virdee and McGeever (2018) assert that the Brexit campaign was successful by bringing together two visions: the longing to restore the UK's place in the world and to retreat from globalisation, in doing so restoring a notion of "Britishness". Furthermore, they argue that elements of the Leave campaign managed to 'obey the formal rules of post-racial thinking' while 'at the same time signalling to your intended public that the Brexit project was precisely about keeping the

nation Christian and white' (ibid, p1807). In addition, the issue of immigration resonated amongst voters, being a central motivation for those who voted to leave (Goodwin and Milazzo, 2017). This has often been attributed to racist motivations (Flemmen and Savage, 2017), which may offer a basis for Remain-supporters when labelling Leave-supporters as 'racist'.

*Lack of Intelligence*

Amongst some Remain-supporters, there has been a generalisation that Brexit-supporters lack intelligence and do not understand the implications of their actions. In a similar manner to how the label 'Remoaner' sought to de-legitimize the opinions of Remain-supporters, claiming that Leave-supporters lack intelligence may seek to limit the strength of their argument and ability to engage in meaningful discussion.

In response to a discussion about a Brexit deal – "*Brexit voting idiots voted for No Deal, did they? There was no mention of that during the campaign whatsoever*".

Tweet without context – "*Why are the elderly allowed an opinion? We all have to live through Brexit, and the idiots that voted for it are mostly elderly. Why should they be allowed to screw up our future with their stupid opinions*".

Commenting to somebody who said they had just taken foreign residency because of Brexit - "*I can't say I blame you. TORIES and BREXIT are so myopic and stupid! Good luck*".

In a discussion amongst Remain-supporters – *"These gammon-faced morons who voted for Brexit should suffer the consequences of the stupidity. It was obviously going to be a bad idea"*.

Antonucci (2017, p18) asserts, 'there have been repeated attempts to clarify who Leave voters actually were', with 'initial interpretations of the Brexit vote' depicting Leave voters as 'marginalised segments – in educational and economic terms'. There have been studies that link higher levels of education with higher levels of Remain support, such as Weinberg (2017), who suggests that Brexit voters were typically 'non-university educated'. However, Antonucci (ibid) found that those with intermediate levels of education are more likely to support Brexit, challenging the validity of this label. In addition, data would suggest that Leave voters were much more heterogeneous than first anticipated (Antonucci, 2017; Swales, 2016). However, this did not stop the attitude, amongst some Remain-supporters, that Leave-supporters lack intelligence.

### 4.4.4. *Summary*

My research has highlighted an increase in out-group labelling across time. This may be one of the most apparent indicators of polarisation within this thesis. Specifically, this section highlighted how out-group labels perpetuate stereotypical associations with Leave- and Remain-supporters, with the most commonly used labels being that Leave-supporters are racist and that Remain-supporters are moaning about a referendum result that did not go in their favour.

While research addressing affective polarisation has often linked such a phenomenon with a decrease in engagement with the out-group (e.g., Iyengar et al., 2019), the homogeneity analysis undertaken within this thesis has not identified such a decrease. This is surprising, as a correlation between affective polarisation and homogeneity was expected. However, it is likely that the increase in out-group hostility impacted the quality of deliberation, challenging the degree of respectful and constructive deliberation within the discussion (which is addressed in more detail in Chapter 7).

It should be considered that the increase in out-group labelling may have impacted how users understand the platform's affordances. In the post-referendum period, my findings and North et al. (2020) both identify an increase in indicators of tribalism. In this sense, it may be argued that, for some Twitter users, the platform began to represent a space to articulate the shortcomings of the out-group rather than engage in substantive political discussion. This may have been encouraged by the platform's material affordances, with Yarchi et al. (2021) providing evidence to suggest that the material affordances of Twitter likely impact the degree of affective polarisation (which they find is lower on competitor platforms). They primarily argue that this reflects Twitter's public nature but may also factor Twitter's algorithm favouring emotional content and Twitter's character limit muting argumentation. In addition, the Twitter user's 'name' may, which can indicate a user's interest, political views or affiliation, may encourage a 'values led' discussion (Treen et al., 2022, p3).

Admittedly, further research is needed to explore the causal factors leading to increased out-group labelling across time. One possible avenue of research may consider the content of tweets, as Wojcieszak and Kim (2016) found that messages based on narratives and personal

stories influenced positive attitudes toward disliked groups. In addition, research may also seek to explore out-group labelling within news stories, as Tucker et al. (2018, p43) find that media coverage of out-groups can positively affect how attitudes are formed.

## 4.5.   Expressed Support for Positions

The final section within this chapter highlights the degree to which tweets express support for extreme positions in place of moderate positions, which I argue within the literature review is a constitutive element of polarisation. In many senses, the advocation of extreme positions can have a damaging impact on discussion due to limiting common ground, values by which political opposites can relate, with Abts and Rummens (2010, p654) highlighting how this 'often results in antagonistic stalemate situations in which the fundamental values defended on opposite sides remain incompatible'. When considering Brexit, the most significant divergence between positions seems to be between stopping Brexit without a referendum and leaving the EU without a deal. Within this section, I have looked to measure expressed support for such positions, compared to the degree of expressed support for the more moderate positions of leaving the EU with a deal and a second referendum.

### 4.5.1.   Overview of Methods

This analysis presents the findings from variable nine from the quantitative content analysis. It looked to measure four positions. Two moderate positions that both contain an element of compromise 1) support for a 'deal' 2) support for a second referendum; and two positions that contain limited elements of compromise 1) support for a 'No Deal' Brexit 2) support for unilaterally stopping Brexit, with the specifics outlined in Appendix E.

The research measured 25 datasets from February 2016 – February 2020. A random sample of n=385 tweets per dataset was selected for the purpose of the content analysis.

### 4.5.2.   Considerations

There are two primary considerations that I would like to clarify before presenting the results. Firstly, it should be noted that this section seeks to highlight expressed support for extreme and moderate positions. However, conclusions should not be made regarding actual levels of support, as this is a much more complex question requiring additional analysis. Secondly, it is possible that a tweet could call for a second referendum and to stop Brexit. In such instances, my coding manual clarifies that due to a degree of compromise and consideration for opposing viewpoints, this should be coded as the more moderate option (support for a second referendum) rather than the more extreme option (stopping Brexit).

### 4.5.3.   Findings

*Deal or No Deal*

Amongst those who supported Brexit, there were two common positions, leaving the EU with a deal or leaving the EU without a deal on WTO terms - colloquially referred to as a 'No Deal' Brexit. As Keohane (2020, p1) highlights, leaving the EU with a 'No-Deal' was the most extreme Brexit option available, which would have entailed a total departure from EU regulation. While this would have granted the UK the ability to pursue a domestic and international agenda without hindrance to EU rules, it would have caused significant economic and political disruption (Owen et al., 2019), with perhaps the most contentious element being a hard border between the Republic of Ireland and Northern-Ireland (Ryan, 2020, p19).

Amongst the electorate, the expectations surrounding a Brexit deal were far less clearly defined than that of a 'No-Deal' Brexit (see, for example, Vasilopoulou and Talving, 2019). This likely reflected a lack of clarity at a political level, with several potential deals on the table that contained varying degrees of alignment to EU rules (Hix, 2018 offers an overview of such options). Admittedly, there were more extreme and less extreme variations of a Brexit deal. However, each contained a degree of compromise and could be thought of as a more moderate position than a 'No-Deal' exit.

Leaving with a deal was the preferred choice for moderate MPs, particularly those who supported Remain during the referendum. It was the consistent position of the Conservative government, although Boris Johnson and Theresa May flirted with the idea of a 'No Deal' exit. Leaving with a deal was also the position of the Labour Party during the 2017 GE, although this would switch to a second referendum during the 2019 GE. Supporters of a 'No Deal' were typically more hard-line in their support for Brexit, being advocated by politicians such as Nigel Farage and Jacob Rees-Mogg, as well as being the position of UKIP and The Brexit Party. Amongst those who voted to leave, opinion polls pointed to 'No Deal' as the preferred choice, while at the same time suggesting an open mind towards leaving with a deal (Curtis, 2019).
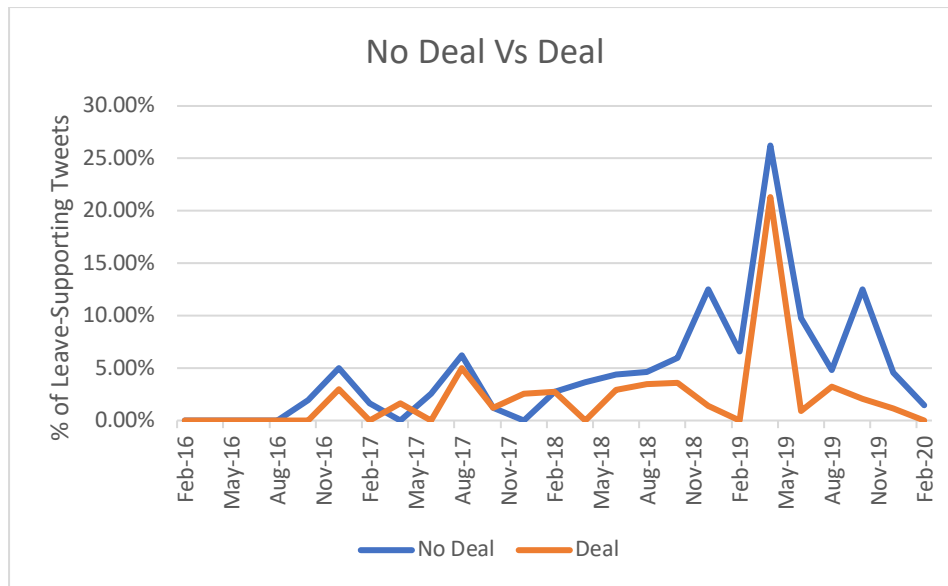
*Figure 23: Expressed support for a Brexit deal and a No Deal.*

*Note: the blue line represents the percentage of Leave-supporting tweets that express support for a 'No Deal'.*

*The orange line represents the percentage of Leave-supporters who express support for a deal, which is*

*displayed as a percentage of Leave-supporting tweets.*

Figure 23 highlights how a 'No Deal' Brexit received more significant levels of support

amongst Leave-supporting tweets than leaving with a deal for most of the discussion. As I

highlight within the literature review, a constitutive element of polarisation is the advocation

of extreme opinion in place of support for moderate opinion. Therefore, it would be

expected that in polarised discussions, there would be a negative correlation between

moderate and extreme opinions. However, based on Figure 23, there appears to be a

positive correlation between expressed support for a 'No-Deal' and a Brexit deal. To test this

observation, I conducted a Pearson's r, hypothesising that there would be a positive

correlation between expressed support for 'No Deal' and expressed support for a Brexit deal.

The hypothesis was accepted, with the Pearson's r scoring 0.537, suggesting a statistically

significant moderate positive correlation between the degree of expressed support for a 'No

Deal' Brexit and a Brexit deal. In other words, amongst Leave-supporting tweets, as expressed support for a 'No Deal' increased, so did expressed support for a deal. This challenges the notion that this analysis indicates polarisation due to the fact that there was not a decrease in expressed support for the moderate position (a Brexit deal) as expressed support for the more extreme position (a 'No-Deal') increased. Instead, it suggests that Leave-supporters were more likely to consider the options of leaving, generally, as time increased.

Interestingly though, there are three points in which support for a 'No Deal' Brexit is greater than 10%, which is on the 1$^{st}$ of December 2018, the 1$^{st}$ of April 2019 and the 1$^{st}$ of October 2019, all of which reflect notable points in relation to Brexit. December 1$^{st}$, 2018 (in which support for No Deal was at 12.5% and support for a deal was at 1.4%) represented the period in which PM May announced parliament would vote on her agreed deal with the EU. Her deal was very unpopular amongst Leave-supporting politicians within the Conservative Party, with pushback likely encouraged by President Trump, who went on record to state that the agreement favours the EU and may hinder UK-US trade (Sabbagh et al., 2018). Opinion polling also suggested that her deal was unpopular amongst Leave-supporters, with Curtis and Smith (2018) highlighting how the majority backed a 'No Deal' exit at this point. In response to pushback against the vote, disgruntled MPs within the Conservative Party triggered a vote of no confidence in May, pushing the vote on the Withdrawal Agreement back to January 2019 – in which the government was defeated by historic margins.

April 1$^{st}$, 2019 (in which support for No Deal was at 26% and support for a deal was at 21%) was the date the UK should have originally left the EU. However, the deadline was extended

as parliament could not agree on how (or even if) the UK should leave the EU. At this point, polling suggested a lack of faith in May and parliament due to not delivering Brexit (Savanta: ComRes, 2019), with pressure growing amongst Leave-supporters for May to either negotiate a more suitable deal or pursue a 'No Deal'. The final dataset, October 1$^{st}$, 2019 (in which support for No Deal was at 13% and support for an agreement was at 2%) represented the time in which PM Johnson's prorogation of parliament was deemed illegal, which (for all intents and purposes) significantly decreased the chance of the UK leaving the EU on WTO terms by October 31$^{st}$ 2019 (the date outlined by Johnson during his leadership campaign).

*Stop Brexit or Second Referendum*

There were two common positions among those who did not support leaving the EU: a second referendum and unilaterally stopping Brexit. Generally, those who advocate both positions did so with the intention of stopping the Brexit process (Bellamy, 2019). However, I have taken the stance that a second referendum is a more moderate position due it considering the wishes of the opposing viewpoint (i.e., the option to leave), and it also has a relatively straightforward set of justifications. The justification for holding a second referendum generally centred around either the electorate not being presented with the specifics of the Brexit deal during the 2016 Referendum, or the slim margin of the 2016 referendum result (ibid). In contrast, those who advocated unilaterally stopping Brexit typically did so without consideration for the opposing viewpoint, with the position having a weaker set of justifications.

In the aftermath of the vote to leave the EU, nearly 5 million people signed a petition for a second referendum, citing the close result as a justification. While the majority of political

parties initially favoured a deal, a second referendum was advocated by the Liberal

Democrats during the 2017 GE and Labour during the 2019 GE. In many senses, a second

referendum became plausible due to the uncertain nature of the UK's future relationship

with the EU, it also offered somewhat of a compromise to Leave voters, with the possibility of

the second referendum acting to confirm the 2016 result. For much of the discussion,

stopping Brexit was often considered a fringe opinion. However, this changed in 2019, with

the Liberal Democrats advocating the revocation of Article 50 within their GE election

manifesto, reflecting opinion polling that showed growing support for revoking Article 50 as a

means for the UK to remain a member of the EU (Read, 2019).
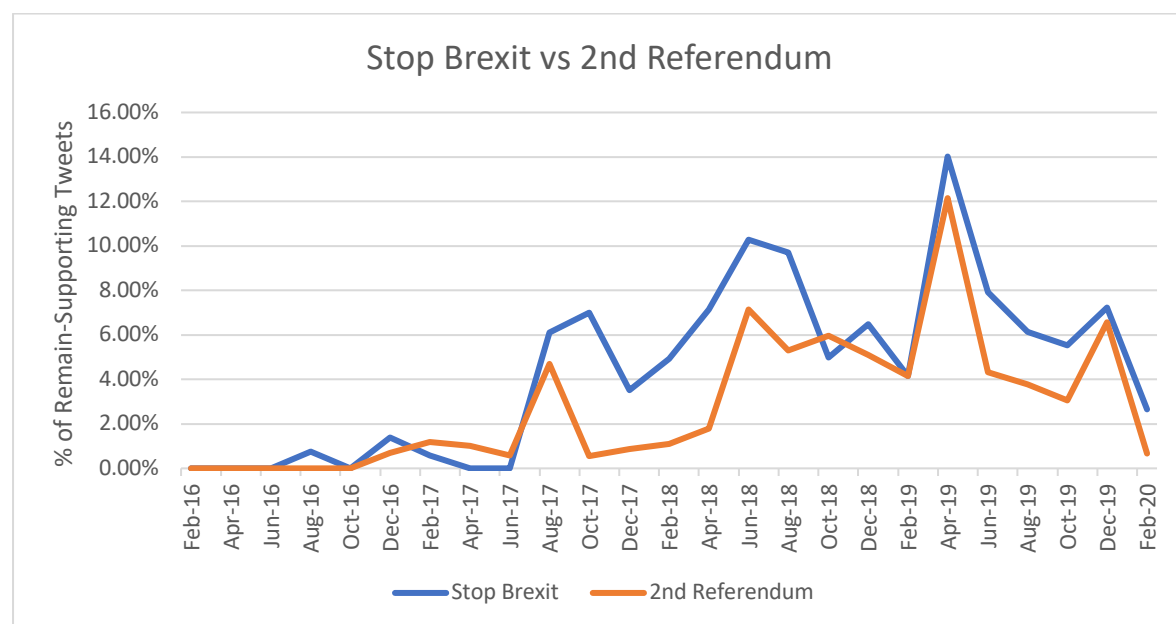


*Figure 24: Expressed support for a second referendum and stopping Brexit.*

*Note: the blue line represents the percentage of Remain-supporting tweets that express support for stopping*

*Brexit. The orange line represents the percentage of Remain-supporting tweets that express support for a second*

*referendum, displayed as a percentage of Remain-supporting tweets.*

As with the previous section, Figure 24 seems to highlight a correlation between expressed support for stopping Brexit and expressed support for a second referendum, which goes against the argument made in the literature review, which suggests polarisation would see a decrease in support for a moderate position with the increase in support for an extreme position. To test the strength of correlation, I conducted a Pearson's r, hypothesising a positive correlation between expressed support for a second referendum and expressed support for stopping Brexit. The hypothesis was accepted, with the analysis scoring 0.818, suggesting a statistically significant strong positive correlation between the degree of expressed support for a second-referendum and for stopping Brexit. In other words, as expressed support for stopping Brexit increased, so did expressed support for a second referendum. As with the 'No Deal'/Brexit deal analysis, the findings from this section run contrary to the type of shift in support expected within a polarised discussion.

In Figure 24, there are three points in which expressed support for stopping Brexit is higher than 10%: the 1st of June 2018, the 1st of August 2018 and the 1st of April 2019. The period surrounding June 2018 (in which support for stopping Brexit stood at 10% and support for a second referendum stood at 7%) and August of 2018 (in which support for stopping Brexit stood at 10% and support for a second referendum stood at 5%) represented a time in which opposition to Brexit began to organise surrounding the People's Vote Movement (Popham, 2021). Moreover, this period saw several Remain-supporting protests, with Brändle et al. (2018, p825) asserting that Brexit was generally viewed as democratically illegitimate by anti-Brexit protesters during this time. On Twitter, this period represented the point in which Remain-supporting tweets were the most homogenous (as outlined within Section 4.3.0.), which may have also impacted the degree of expressed support for stopping Brexit. Finally,

the 1st of April 2019 (in which support for stopping Brexit stood at 14% and support for a second referendum stood at 12%) represented the date on which the UK should have left the EU, with parliament unable to agree upon the UK's position going forward, likely encouraging Twitter users to discuss their preferred option.

### 4.5.4.   Summary

Generally, the findings suggest that Twitter users are more likely to express support for extreme (rather than moderate) positions on Brexit. This is present on both sides of the Brexit divide. Brexit-supporters are seemingly more likely to express support for a 'No Deal' exit than a Brexit deal. Remain-supporters are more likely to express support for stopping Brexit than a second referendum. However, in polarised networks, moderate positions typically decrease in place of extreme positions (McCarty, 2019; Campbell, 2016). Within both instances, I demonstrate a positive correlation between expressed support for moderate and extreme positions. This may challenge the idea that my findings demonstrate polarisation. Instead, I would suggest that the results reflect events outside of Twitter. This section highlights several contextual political events that may have impacted expressed support for the positions on Twitter. For much of the Brexit process, parliament was unclear how or if they would implement the 2016 Referendum result, consistently discussing the various options surrounding the UK's future relationship with the EU. It would be fair to assume that this may have impacted the discussion on the platform. This would also align with the findings of North et al. (2020, p194) and Del Gobbo et al. (2020, p680), who both find that events outside of Twitter can impact the discussion on the platform.

4.6.    Conclusion

As I highlight in the literature review, Twitter has often been associated with polarised discourse (as has Brexit). The literature review argues that an online public sphere should ideally be free from the characteristics of polarisation. For this reason, I proposed RQ3, which asks how polarisation manifests within the discussion across time. To address RQ3, I undertook a homogeneity analysis, an analysis of affective polarisation, and explored the degree of expressed support for extreme and moderate opinions across time.

Before undertaking this analysis, I was somewhat conflicted about the anticipated findings. While literature often pointed to an association between Leave-support and characteristics of polarisation, I had a feeling that this was overstated, which perhaps reflected my anecdotal observations during the data collection stages of this PhD. Yet, before this thesis, there was sparse evidence to challenge the association between Leave-support and polarisation, with perhaps the most compelling evidence being put forward by North et al. (2020), who demonstrate tribalism amongst both Leave- and Remain-supporting tweets during the post-referendum period.

I would note that the findings from the homogeneity analysis offer some rationale for the association between Leave-support and polarisation, particularly in the pre-referendum period. In this period, Leave-supporters were much more likely to be partitioned within homogenous modular communities. Simply put, this suggests that during the pre-referendum discussion, Leave-supporting Twitter users were more likely to engage with other Leave-supporters on the platform, limiting exposure to broader opinions. However, the

other two indicators of polarisation analysed within this thesis (extreme opinion and out-group analysis) were somewhat void of indicators of polarisation during this time.

There was a stark increase in out-group labelling during the post-referendum period and expressed support for extreme and moderate opinion amongst Leave- and Remain-supporting tweets. My research did not observe an overall trend in relation to the levels of homogeneity, although it did identify a change in the network structure. During this time, my study found that Remain-supporters were more likely to be partitioned into homogenous communities, marking a shift from the pre-referendum period. Leave-supporters were more likely to communicate within heterogeneous communities, challenging the previous understanding of polarisation within the Twitter discussion of Brexit. While I would like to think this represented Brexit-supporters becoming more willing to engage with the opposing viewpoint, there is a possibility that this reflected an increase in support for Remain on the platform Twitter (as highlighted by Calisir and Brambilla, 2020, p851). It should also be considered that this increase in Leave-supporting heterogeneity could actually reflect Remain-supporter's willingness to engage with Leave-supporters. Either way, it does not negate the fact that Leave-supporters are more likely to encounter opposing viewpoints during the post-referendum period, with this finding presenting an interesting avenue for future research.

I would also argue that this shift in network homogeneity may be a reflection of broader political disorganisation amongst Leave-supporters during the post-referendum period. During this time, Nigel Farage (whom I highlight within Chapter 5 as the most consistently central user) took a break from British politics. In addition, Leave-supporters within the

Conservative Party were somewhat fragmented, conflicted over Theresa May's stance on Brexit. It would not be until 2019 that Leave-supporters would begin to mobilise again, reflecting the formation of the Brexit Party and the selection of Boris Johnson as PM. As such, 2019 would see a slight resurgence in Leave-supporting homogenous communities. In contrast, Remain-supporters began to mobilise in the aftermath of the vote, at both an elite and grassroots level, which may reflect the degree of homogeneity amongst Remain-supporters observed within this chapter.

### 4.6.1. *Polarisation and the Online Public Sphere*

The primary objective of this chapter was to explore polarisation within the context of the Brexit discussion on Twitter to ascertain the degree to which polarisation is limiting Twitter's ability to act as an online public sphere. In determining the degree of polarisation, I had initially anticipated emphasising longitudinal indicators, basing my conclusions upon the change across time. Although in retrospect, I found this to be relatively challenging, mainly due to only one indicator (out-group labelling) offering a clear shift across time. Campbell (2016, p34-36) provides some advice in such a situation, pointing to a hypothetical example to illustrate how the degree of polarisation may be determined:

> Suppose a poll reported that only 15% of Americans loved their country. Most would conclude that this was a dangerously low number. On the other hand, suppose a poll reported that 15% of Americans advocated the violent overthrow of the government. Still 15%, but most would probably conclude that this was a dangerously high number. In both cases, we would have some basis for expectations and the observed percentage would have been lower or higher than those expectations. It is not self-

evident what our expectations should be for a normal level of polarisation, so some

benchmark is needed to make sense of the data.

I found this example helpful, as I did have some indication of what a polarised/non-polarized

discussion may look like within the context of my research. In the worst-case scenario, in

which polarisation would have severely impacted the quality of debate, I would have

expected a significant degree of homogeneity on both sides of the divide, an increase in out-

group labelling across time, and extreme opinion advocated with the absence of moderate

opinion. In the best-case scenario, in which polarisation would not impact the quality of

discussion, I would have expected a heterogeneous network, limited out-group labelling and

the presence of moderate opinion with the absence of extreme opinion. With this in mind,

what do my findings suggest? Despite the conclusions being somewhat mixed, they have left

me feeling pessimistic, and I would like to explain why.

Firstly, my research highlights the consistent nature of homogeneity (albeit generally one-

sided). As I demonstrate in Figure 3, when the benchmark of homogeneity is set at >80%, my

research found that (across time) a significant percentage of the giant component can be

considered homogenous. While the impact of such homogeneity may be limited due to users

interreacting with central nodes who hold a differing viewpoint, the quality of such

interaction is unclear, particularly in instances where there is an overall consensus within the

community – which may offer an interesting avenue for further exploration. In addition,

Rogers and Bhowmik (1970, p529) suggest that communication is less effective when the

sender and receiver differ significantly in their opinion (ibid). As such, the presence of central

users who hold a different viewpoint to the majority of the community is unlikely to

challenge community consensus, although they may have been able to impact the topic of discussion (which I will elaborate on in the following chapter).

Secondly, out-group labelling (a metric often considered a constitutive element of affective polarisation) offers the clearest indicator of an increase in polarisation across time. The findings suggest that as the discussion progressed, so did negative attitudes towards the out-group. This has implications for the willingness to engage across the political divide, with affective polarisation likely encouraging antagonism (Wagner, 2021), leading to a decrease in meaningful engagement. This argument is supported when considering the themes present within the out-group labelling analysis. The themes perpetuate several stereotypical assumptions that are likely to limit the willingness to engage with opposing viewpoints.

Finally, the 'Expressed Support for Opinion' section findings are somewhat challenging to interpret. On the one hand, the results do not find that the increase in extreme opinion was at the expense of moderate opinion, as expected in polarised discussions. On the other hand, this does not change the fact that expressed support for extreme opinion, amongst both Leave- and Remain-supporting Twitter users, consistently outweighed moderate opinion. In this sense, I would argue that while not necessarily an indicator of polarisation as understood by theorists such as McCarty (2019), it is still likely to pose a challenge to democratic debate.

# Chapter 5: Central Users

## 5.1.    Chapter Overview

As I highlight in the literature review, in the pre-social media public sphere, the mass media were in a dominant position, able to 'disseminate elite, critical opinion', as well as influence the 'formation, expression and consumption of public opinion' (Livingstone and Lunt, 1994, p9). Habermas (1991) argued that this reflected a merging of the public and private sphere, weakening the public sphere's ability to reflect genuine public opinion. During the initial advent of social media, there had been hopes that platforms would challenge the power relations that weakened the public sphere. Despite the initial optimism, platforms such as Twitter became associated with elite discourse, bringing into question the ability for such a space to reflect issues salient to the public. To address such debates, this chapter seeks to operationalise network centrality to explore notions of influence within the public sphere. In doing so, this chapter analyses the role of different actors in shaping public debate within the Twitter discussion of Brexit.

While the previous chapter touched upon network centrality, it did so within the context of exploring themes within modular communities. As such, further analysis is needed to address RQ4, *what are the characteristics of users in a position of network centrality?* In addressing RQ4, I argue that network centrality is a suitable indicator of influence within the context of my research. Using network centrality measurements, I explore the most frequent 'opinion leaders' within the discussion before engaging in broader debates surrounding the prominence of the media (highlighting the role of MSM, alternative media and journalists); the prominence of politicians; and the prominence of 'everyday' users. This chapter finds

that notable public figures typically hold central network positions, although there is a consistent representation amongst 'everyday' users, potentially to the benefit of public debate.

## 5.2.    Network Centrality

As I highlight within the methodology, centrality measurements 'make implicit assumptions about the manner in which traffic flows through a network' (Borgatti, 2005, p55-56), suggesting that central users have a more significant impact on the flow of information (Dubois and Gaffney, 2014) and have a greater ability to 'influence the group by withholding or distorting information in transmission' (Freeman, 1978, p221). The basis of using network centrality to determine influence within this thesis partially reflects the applicability of such measurements on a platform such as Twitter. However, it also demonstrates the type of influence this thesis is interested in exploring, centring around the ability for particular users to distort flows of information and impact the agenda of discussion.

As I argue within the literature review, while social media platforms (such as Twitter) grant the ability for discussion to be guided in a bottom-up manner, this is often challenged through the disproportionate influence of influential 'elite' users, bringing into question the public issue focus of online discussions. This thesis uses the measurements of in-degree and eigenvector centrality to address such debates. These measurements are closely related to a user's gatekeeping prominence (Vicari, 2017), indicating users who can influence the agenda of discussion. Specifically, in-degree centrality emphasises the degree of attention a user receives, and eigenvector centrality considers engagement within the wider network structure. As I highlight within the methodology, these two measurements are often used in

conjunction with one another, particularly as eigenvector centrality mitigates some of the limitations associated with in-degree.

Finally, I find it essential to clarify a common misconception regarding centrality. As I highlight in the previous chapter (and as I will demonstrate in the proceeding section), centrality measurements do not necessarily indicate influence in terms of the effectiveness of a user's communication. For example, in the previous chapter, I highlight how several modular communities engage with central actors who hold views contrary to the community. In such an example, the central user may not be thought of as influential in terms of their ability to persuade the group. Still, I would argue that they are likely effective in impacting the agenda of discussion, with this being observed at several points within the homogeneity analysis within the previous chapter. For example, in community class 11 (October 2017), which had an 86% consensus towards Remain, Tim Montgomerie and Adam Lilico were identified as central. Both users supported Brexit and outlined how the failures of Brexit lie with Theresa May. As such, the theme of the discussion centred around this argument, although a one-sided debate would occur. Although Tim Montgomerie and Adam Lilico were unable to persuade those within the community or facilitate inter-ideological discussion, they could impact the agenda of discussion, with this example highlighting the basis of inclusion for the centrality measurements within this chapter.

## 5.3.    The Opinion Leaders

Rogers (2003, p27) asserts that opinion leadership refers to the 'degree to which an individual can influence other individuals' attitudes or overt behaviour informally in a desired way with relative frequency'. The notion of opinion leadership separates communication

flows into two groups: information providers (who usually have higher socioeconomic status) and followers (whose opinions are guided and shaped by the opinion leaders) (Li et al., 2013). As highlighted by Park and Kaye (2017, p175), opinion leadership can be thought of as a pyramid, with a 'few highly influential individuals occupying the top layer with the masses below it'. For this thesis, an opinion leader has been defined as a consistently present user within the top 1% for the centrality measurement of in-degree and eigenvector centrality. Centrality has been used in numerous studies to identify opinion leadership (Maharani et al., 2014; Shulman et al., 2015, Dubois and Gaffney, 2014), the basis of which emphasises the ability to impact the attitudes and opinions of social media users due to being in a privileged position in the network.

One limitation of using centrality to determine opinion leadership is its neglect to consider the type of attention a user receives. For example, Tong and Zuo (2021) demonstrate that, within the discussion of Brexit on Twitter, David Cameron and Nigel Farage both received a great degree of attention. Yet, Cameron was the victim of overwhelming hostility and Farage overwhelming support. In this instance, it would be limiting to determine the position of both users by using centrality measurements alone. For this reason, I opted to factor the community homogeneity analysis identified within the Polarisation chapter. The basis for this inclusion centres around the logic that if an opinion leader is communicating in a community that agrees with their stance on Brexit, they are more likely to be received in a positive manner. There is also additional logic behind this inclusion, as Rogers and Bhowmik (1970, p529) assert that 'more effective communication occurs when the source and receiver are homophilous', suggesting that when 'the source(s) and receiver(s) share common meanings, attitudes, and beliefs, and a mutual code, communication between them is likely to be more

effective'. That is not to say persuasion is impossible in heterogeneous environments. However, it is more likely to cause 'message distortion, delayed transmission, restriction of communication channels, and may cause cognitive dissonance, an uncomfortable psychological state', due to the receiver being confronted with information or messages 'that may be inconsistent with his existing beliefs and attitudes' (ibid).

### 5.3.1.   Findings

The following table highlights the 20 most frequently central users within the discussion of Brexit on Twitter. Column one represents the user; column two represents the number of samples the user is present amongst the highest scoring 1% for in-degree or eigenvector centrality, and the three columns showing '% consensus in agreement with user' highlight the percentage of modular communities that the user has been identified in that conforms to their stance on Brexit (relating to the respective dates stated). It should be noted that some users have not publicly stated an opinion on Brexit. Therefore, they have been identified as ambiguous. In addition, some users' positions on Brexit have changed over time. For example, Theresa May supported Remain before the 2016 referendum and then, following the result, supported Leave. As a result, the '% consensus agreement' reflects the user's stance at the stated time.

*Table 4: Most frequently influential users.*

| User | Number of samples present in top 1% | Feb-June 2016 % consensus in agreement with user | Oct 2017 – June 2018 consensus in agreement with user | Feb-Oct 2019 consensus in agreement with user |
|------|------|------|------|------|
| Nigel Farage | 24/24 | 100% | 0% | 66% |
| Leave.EU | 23/24 | 100% | 0% | 33% |
| Sky News | 23/24 | Ambiguous | Ambiguous | Ambiguous |

| | | | | |
|---|---|---|---|---|
| BBC News | 23/24 | Ambiguous | Ambiguous | Ambiguous |
| Jeremy Corbyn | 23/24 | 0% | 0% | Ambiguous |
| Labour Party | 23/24 | 0% | 0% | Ambiguous |
| LBC | 22/24 | Ambiguous | Ambiguous | Ambiguous |
| Telegraph | 20/24 | 100% | 0% | 66% |
| Guardian | 19/24 | 66% | 100% | 66% |
| Theresa May | 19/24 | 0% | 0% | 66% |
| Bloomberg Brexit | 18/24 | 0% | 100% | 100% |
| Boris Johnson | 18/24 | 100% | 0% | 33% |
| Financial Times | 17/24 | 100% | 100% | 100% |
| Conservatives | 16/24 | 0% | 0% | 66% |
| The Independent | 15/24 | 33% | 100% | 100% |
| Faisal Islam | 15/24 | Ambiguous | Ambiguous | Ambiguous |
| Ian Dunt | 15/24 | 0% | 100% | 100% |
| Liberal Democrats | 14/24 | 0% | 100% | 100% |
| Daily Mail | 13/24 | 100% | 0% | 33% |
| Robert Peston | 12/24 | Ambiguous | Ambiguous | Ambiguous |
| Laura Kuenssberg | 12/24 | Ambiguous | Ambiguous | Ambiguous |
| Andrew Neil | 11/24 | Ambiguous | Ambiguous | Ambiguous |
| Owen Jones | 11/24 | 0% | 100% | 100% |
| James O'Brien | 11/24 | 0% | 100% | 66% |
| Brexit_Sham | 11/24 | Not Present | 100% | 100% |
| Bloomberg Business | 11/24 | 66% | 100% | 0% |
| Peoples Vote UK | 10/24 | 0 | 100% | 100% |
| Iain Dale | 10/24 | 66% | 0% | 0% |
| Jacob Rees-Mogg | 10/24 | 100% | 0% | 33% |

In general, the users highlighted in Table 4 are somewhat expected, containing several political figures, news organisations and activist organisations. The only obscure user is 'Brexit_sham', whose network position is somewhat of an outlier. 'Brexit_sham' is a non-verified user with only 70,000 followers. It is unclear who runs this account, with the associated website pointing to a 'team of activists'. The account was highly active, publishing 85k tweets between its inception in January of 2017 until February of 2020 (an average of 78 per day). While the specific role of this account is somewhat unclear, it has been identified within several highly homogenous Remain-supporting communities within the Polarisation chapter, which may reflect the frequently published emotive and highly partisan discourse of this user.

Considering the findings from the February – June of 2016 '% consensus in agreement with user' column in Table 4, influential Leave-supporters were more likely to be effective opinion leaders during this period, with Nigel Farage, Leave.EU, Boris Johnson, Daily Mail and Jacob Rees-Mogg identified as communicating in a like-minded community within each dataset. As their discourse was often associated with emotional, xenophobic, Islamophobic and populist themes (Sogelola, 2018; Starkey et al., 2021, p30; Tong and Zuo, 2021, p37), it is likely to be damaging to the diversity of opinion and discussion in these groups.

When considering the findings from the October 2017 – June of 2018 '% consensus in agreement with user' column in Table 4, it would suggest that Remain-supporters were more effective opinion leaders during this time, with this group predominantly made up of media organisations and journalists. Influential Leave-supporters, who were identified within like-minded modular communities during the pre-referendum period, saw their position shift to

predominantly Remain-supporting modular communities, suggesting that they may not have been received as positively during this period. As I highlight in the Polarisation chapter, this reflects the majority of modular communities during this period displaying a consensus towards Remain. In some sense, this may mitigate a number of the negative qualities that influential Leave-supporting users were associated with. I make this argument since their views are likely challenged by those with an opposing viewpoint, rather than accepted as they may have been during the pre-referendum period.

When considering the findings from the February – October of 2019 '% consensus in agreement with user' column in Table 4, it would suggest a resurgence in Leave-supporting opinion leaders, with a number identified within like-minded modular communities. In some sense, this may signify a decrease in the overall quality of discussion and may also reflect the observed reduction in indicators of deliberative quality (highlighted in Chapter 7), as well as a resurgence of anti-immigrant rhetoric amongst Leave-supporting tweets (highlighted within Chapter 6).

## 5.4.    The Media

The news media play an essential role in disseminating information within the public sphere, which, under favourable conditions, can 'contribute to the deliberative quality of the political process' (Habermas, 2009, p167). However, Habermas has regularly critiqued the role of the mass media within the public sphere, particularly concerning its ability to manipulate publicity and its susceptibility to commercialisation (Habermas, 1991). Concerns were compounded by the media's relative control of communication flows, granting the ability to 'select and process politically relevant content' and thus 'intervene in both the formation of

public opinions and the distribution of influential interests' (Habermas, 2006, p419). However, in the social media era, normative understandings of the role of mass media have been challenged.

As Sunstein (2018, p19-20) highlights, mass media play an important role on social media platforms. However, their significance has been falling over time, with mass media's broad intermediary position being replaced by 'the special interest intermediary'. With that, Sunstein refers to the proliferation of alternative media, with many providing niche information sources. The proliferation of alternative media reflects the lowered barriers of entry on social media (Fenton and Barassi, 2011), as well as a decrease in trust amongst legacy media organisations (Müller and Schulz, 2021, p277). While this may limit some of Habermas's concerns, particularly mass media's ability to manufacture opinion, alternative media raises its own issues. For example, by being 'niche', alternative media has the potential to 'diminish the likelihood of shared experiences' and produce 'echo chambers' (Sunstein, 2018, p20).

Concerning the discussion of Brexit on Twitter, previous research has highlighted the partisan nature of media coverage (Moore and Ramsay, 2017), with North et al. (2020) asserting this may have facilitated tribalism within the discussion of Brexit. Concerns were particularly prevalent amongst Leave-supporting media, who regularly sought to legitimise controversy and normalise populist themes (Tong and Zuo, 2021). However, this issue was not just present amongst MSM, with Bastos and Mercea (2019, p51-52) asserting that provocateur and bot accounts sought to push alternative news that was 'mostly short, shareable,

accessible with mobile devices, and that accentuates polarised identities and balkanises readerships into like-minded groups'.

### 5.4.1. Findings

Within this section, I seek to highlight the network position of MSM, alternative media and journalists, identifying representation amongst the top 1% of central users. In doing so, I offer an indication of each group's overall levels of attention and ability to influence communication flows within the network.

*Mainstream Media*

As previously highlighted, MSM organisations have been associated with several negative characteristics within their coverage of Brexit. For this reason, it is perhaps unsurprising to find that the network position of such organisations declined over time – as highlighted in Figure 25.



*Figure 25: % of most influential that represent mainstream media organisations.*

Figure 25 highlights the percentage of MSM organisations amongst the most central 1% of users, showing a consistent decrease across time. In April of 2016, MSM organisations accounted for 40% of the most central users discussing Brexit, representing its highest point, dropping to 6% in June of 2019, which represented the lowest point.

*Table 5: Mainstream media by type.*

| Media Type | 2016 % of Media | 2017 % of Media | 2018 % of Media | 2019 % of Media |
|---|---|---|---|---|
| Tabloid (e.g., *The Sun)* | 13% | 10% | 8% | 2% |
| Broadsheet (e.g., *The Telegraph)* | 22% | 30% | 26% | 18% |
| Television (e.g., *Sky News)* | 8% | 8% | 16% | 20% |
| Public Service (e.g., *BBC News)* | 13% | 16% | 26% | 36% |
| International *(e.g., CNN)* | 9% | 9% | 2% | 0% |
| Radio (e.g., *Capital Radio)* | 8% | 9% | 10% | 7% |
| Online (e.g., *Huffington Post)* | 26% | 19% | 11% | 18% |

Table 5 represents the type of media as a percentage of the overall MSM identified as central (see Appendix C for a definition of each group ). Notably, tabloid media, which received a great deal of critique due to its partisan coverage of Brexit, decreased in prominence each year. This contrasts with public service media (generally made up of accounts affiliated with *the BBC*), which increased in prominence over time. This may suggest an increase in the quality of coverage as the discussion progressed. However, accounts representing broadsheet media do not see the same level of decline. Broadsheet media, while likely to be of a higher standard than tabloid media, have been associated with several negative characteristics in their coverage of Brexit (Moore and Ramsay, 2017; Tong and Zuo, 2021). Accounts related to television-based media organisations (such as Sky News and Channel 4) increased in prominence across time. While it has been argued that the television coverage of Brexit gave voice to populist discourse (Tolson, 2019), it did not receive the same degree of critique as tabloid media and some broadsheet media – perhaps a reflection of their legal obligations as broadcasters. Finally, MSM organisations predominantly associated with online news (such as *the Huffington Post*) generally maintain a consistent presence across time.

It should be noted that these findings do not consider the links shared by users, which may offer a different set of results. While it is likely that there would be a relationship between the links shared and the network position of media organisations, further research may seek to validate the findings from this thesis through an exploration of hyperlinks shared by actors.
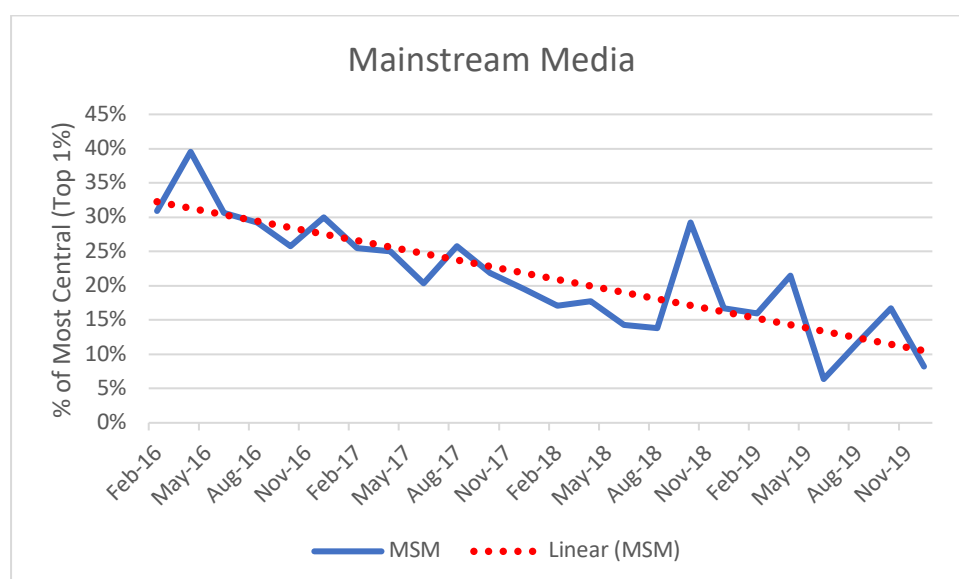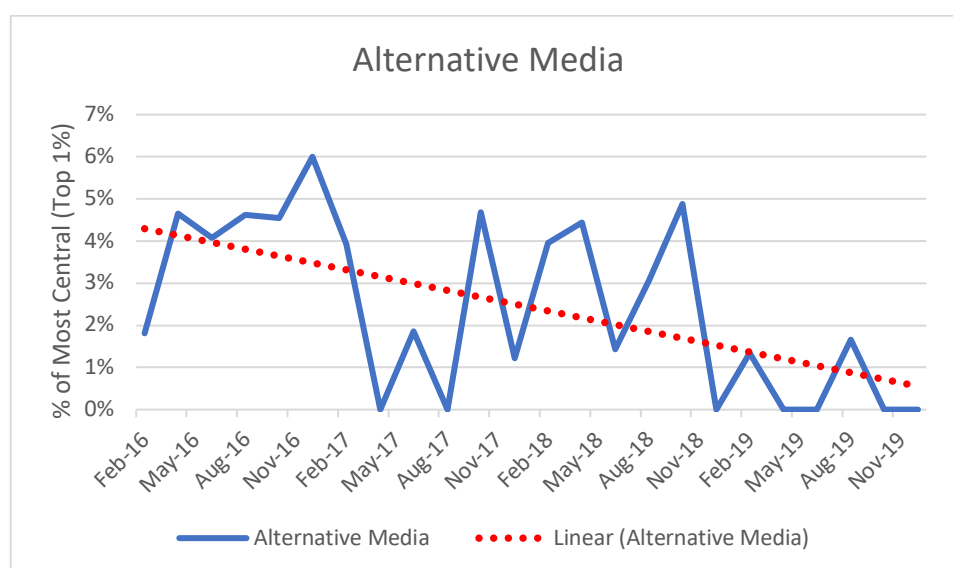
*Figure 26: % of most influential that represent 'alternative' media organisations.*

Figure 26 highlights the alternative media organisations among the top 1% of central users.

Within Figure 26, it can be observed that alternative media make up a significantly lower

proportion than MSM. Moreover, alternative media representations in the top 1% of central

users are quite inconsistent. However, there are two consistent periods: February of 2016

until February of 2017 and August of 2018 until October of 2018.

February of 2016 until February of 2017 saw the highest degree of centrality amongst

alternative media. The most frequent of which is the partisan Leave-supporting *Breitbart*

*News* and *Prison Planet*, an offshoot of alt-right '*Infowars'*, fronted by British commentator

Paul Joseph Watson. Both users posted sensationalist content during this period, stoking

fears surrounding race, law and order, and immigration. In addition, the selection and

presentation of news, particularly during the pre-referendum period, generally related (both

directly and indirectly) to issues salient to the Leave campaign.

August of 2018 until October of 2018 saw the Leave-supporting alternative news

organisation *'Brexit Central'* consistently identified as central. In many senses, Brexit Central

represents the type of niche alternative media referred to by Sunstein (2018). In contrast to

*Breitbart* and *Prison Planet*, *Brexit Central* strikes a much more conciliatory tone, generally

avoiding sensationalist material. This shift in discourse may also reflect the shift towards

heterogeneity amongst Leave-supporting Twitter users during this period, observed within

the Polarisation chapter of this thesis.

In addition, the user *'Skwawk Box'* has been identified as influential during this period, with

this account representing a partisan Labour-supporting alternative news website, the aim of

which states:

*'The SKWAWKBOX is written to try to present information and analysis that will rarely make it into the*

*MSM because it doesn't fit their agenda and the narrative they want to present.'* (Skwawkbox, 2021).

Interestingly, *Skwawk Box* focused on supporting Jeremy Corbyn and Labour, generally

avoiding direct reference to the subject of Brexit, which may reflect Labour's unclear position

on Brexit during this time. The discourse used by *Skwawk Box* was highly emotive and

presented in a manner more closely akin to a blog - lacking the editorial polish of the user

*Brexit News.*

Finally, the user @C0nvey has been identified as influential at most periods of the discussion.

@C0nvey is not a typical example of 'alternative media' due to its automated news

aggregation service. It provides a service 'maintaining' users accounts when they are 'too

busy to maintain them themselves' (Convey, 2021). Using algorithms to identify which previous tweets have engaged well with the user's respective audience, @C0nvey publishes tweets containing news and content to a user's profile. The algorithm suggests the type of news likely to receive attention based on the audience's preference. In layperson terms, it identifies the type of news a particular Twitter user's audience likes and gives them more of it. The service is fully automated, publishing up to 50 tweets daily at the algorithm's choosing. In many senses, this is damaging and is likely to promote echo chambers, with Cinelli et al. (2021, p5) suggesting that such algorithmic choices can affect the 'construction of social perceptions and the framing of narratives; it may influence policymaking, political communication, and the evolution of public debate, especially on polarising topics'.

In general, my analysis found that 'alternative media' was much less prominent than MSM, which is in line with previous research (Gorrell et al., 2018). Moreover, the representation of alternative media amongst the most central 1% of users significantly dropped by 2019, having little to no representation. It may be possible that this decrease in representation came about through Twitter removing some (previously) central alternative media accounts, such as the aforementioned @C0nvey. It may also reflect the shift towards 'trustworthy' news sources (as highlighted in Table 5). Interestingly, journalists seem to be the only media-affiliated group that maintained their network position.
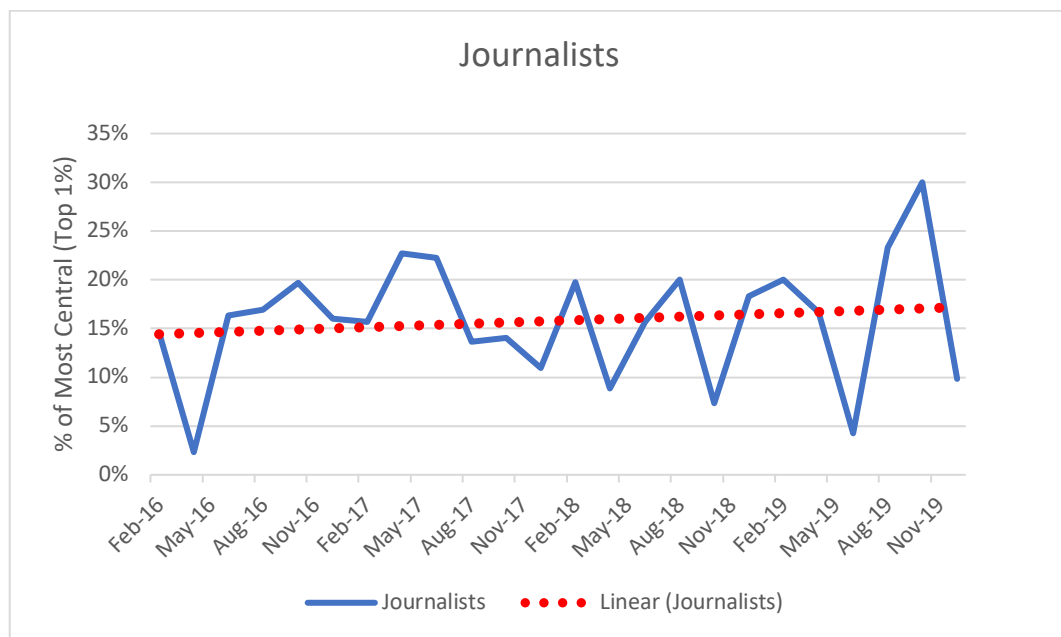
*Figure 27: % of most influential that represent journalists.*

Figure 27 highlights the frequency of journalists amongst the most central users, which remains relatively consistent - at around 15% (although there are some month-by-month variations). This is interesting, as journalists have not seen the same decline in network position observed amongst MSM organisations or the same fluctuation as alternative media. As highlighted by Hänska and Bauchowitz (2017, p28) and Jukes (2019), journalists build personal news brands and are more likely to engage with the audience, cutting out intermediaries and reaching their audience directly. In doing so, journalists can build trust with the audience and display a style of discourse more suited to the personal setting of Twitter. In addition, Jukes (2019, p255) highlights how Twitter gave some journalists the 'freedom to distance themselves from highly partisan and extreme editorial stances over Brexit', granting the ability to distance themselves from critiques associated with such coverage.

*5.4.2.* <u>*Summary*</u>

My research finds a decline in MSM within positions of network centrality across time. This may be to the benefit of discussion, as literature has pointed toward MSM in facilitating emotive and populist discourse, which may have led to an increase in tribalism (Moore and Ramsay, 2017; North et al., 2020; Tong and Zuo, 2021). Moreover, as I will come to suggest within the Populism chapter, both Leave- and Remain-supporting tweets demonstrate a hostility towards the MSM, which may have impacted their declining network position.

While a great deal of emphasis has been placed on the negative characteristics of Brexit coverage, Twitter accounts associated with the BBC increased in prominence across time. This may indicate an increase in the overall quality of the coverage; however, at least in the context of the pre-referendum news coverage, Moore and Ramsay (2017) highlight how frames associated with tabloid media (hostility towards immigration, populist discourse, emotive discourse etc.) were present within the BBC's coverage of Brexit. As a result, further analysis should be conducted to explore the quality of coverage within the BBC and its various affiliated accounts, which will aid in validating the conclusions within this thesis.

This section highlights two periods in which alternative media organisations were in consistent positions of network centrality—finding that during the pre-referendum period, alternative news typically shared partisan and emotive Leave-supporting discourse. In addition, the news aggregating account '@C0nvey', present for much of the discussion, may have impacted the levels of network homogeneity due to its algorithmic determination of which news content to publish. Finally, this section highlights the consistent presence of journalists amongst the most central users, which may result from the platform's

personalised nature and its ability to grant journalists a degree of independence from partisan and extreme editorial stances of their employer organisation.

## 5.5.    Politicians

Habermas (2006) emphasises the role of the mass media in selecting and shaping information put forward by politicians. Habermas asserts that politicians, while important sources of information, have little control over how the media interpret and present their message (ibid). However, politicians' ability to disseminate information has been altered with the advent of social media, with platforms granting politicians the ability to bypass mass media and present their message directly, challenging established media logic (Klinger and Svensson, 2015).

Importantly, social media platforms allow politicians to disseminate information to their network of followers, spreading content and information that can be validated through quantifiable measurements of engagement. Emphasis is generally placed on top-down information flows, mitigating the need for responsiveness and listening, with little requirement for two-way communication flows. This can be highlighted by Jungherr (2014, p8), who asserts that politicians rarely interact with normal users on Twitter, suggesting that 'Twitter is not used by politicians for deliberative discourses'; which is supported by Sorensen et al. (2019), who find that listening exercises conducted by the South African government were little more than a token gesture. Additionally, emphasis is placed on the virality of politicians' posts, which may foster emotive, simplistic and populist discourse - something likely to be compounded by Twitter's character limit.

The following figure highlights the percentage of politicians amongst the most central 1% of users across time.
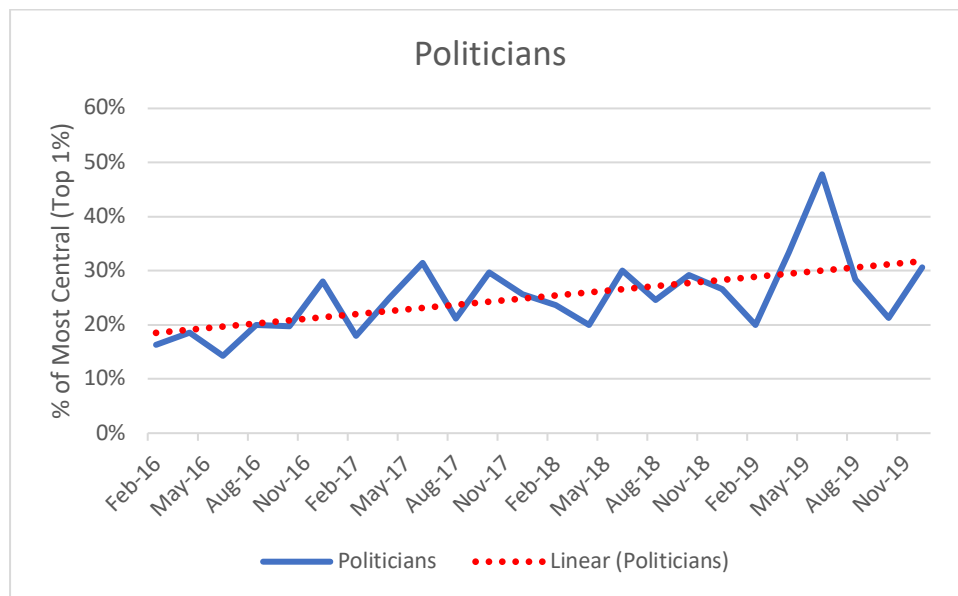


*Figure 28: % of most central that represent politicians.*

Figure 28 highlights an increase in the percentage of the most central users identified as politicians across the time of the discussion. Initially, politicians made up under 20% of the most influential users, which increased to an average of 30% by the end of 2019. While there is some month-by-month variation, the increase has been relatively consistent. Consequently, the ability for politicians to impact the agenda of discussion increased across time, with their importance likely compounded by a decrease in the network position of MSM, adding weight to the claim that politicians may use social media platforms to bypass MSM's gatekeeping function, limiting the ability for MSM to select and manipulate political opinion. Moreover, this finding may also reflect the fact that, post-referendum, it became apparent that the issue of Brexit is likely to be resolved by parliament. This is supported by the findings within the Polarisation chapter (Section 4.5.), suggesting that in the post-

referendum period, the Twitter discussion seemed to reflect notable events within parliament.

As I highlight in Section 5.3. of this chapter, Nigel Farage has been highlighted as the most consistently central politician. Literature has regularly explored the Twitter discourse of Farage in relation to the discussion of Brexit (e.g., Breeze, 2020; Tong and Zuo, 2021; Höller, 2021), reflecting his notable and influential position within the discussion. While there have been attempts to explore the Twitter discourse of Farage across time, such as Breeze (2020), such attempts have generally focused on rhetorical style and neglected to consider wider indicators of quality public debate (e.g., engagement with opposing viewpoints). My research, therefore, aims to aid in this understanding, considering the Twitter postings of Farage as it relates to the quality of public debate.

As Partington et al. (2013, p12) highlight, it is beneficial to consider the particular features of discourse through a comparative analysis. For this reason, I decided to compare the Twitter postings of Farage to Jeremy Corbyn (the second most consistently central politician). Corbyn, a politician who has been associated with left-wing populist discourse (Bartley, 2019), generally avoided the same degree of scrutiny as Farage (as it relates to the discussion of Brexit). This is despite both Corbyn and Farage's Twitter accounts having a regular presence in the discussion of Brexit (Rosa and Ruiz, 2020).

The timeframe for this analysis looked at three points: 20th – 27th February of 2016 (the week the referendum date was announced), 10th – 17th July of 2018 (the date the Chequers agreement was announced) and 28th November – 4th December 2019 (the date prior to the

2019 GE). In doing so, it is hoped that I can demonstrate how the Twitter communication of both actors developed across time, exploring three of the most important periods within the discussion as a case study.

*20th – 27th February of 2016*

There are several notable observations during the first period (20th – 27th February 2016). It was found that both users publish video excerpts from some of their interviews with MSM, with the excerpts edited to highlight a particular point. In doing so, both users exclude broader contextual debates and rebuttals. This is particularly prevalent with Nigel Farage, which is observed in his *Channel 4* interview with Anna Soubry (a prominent Remain-supporting politician), where both politicians debate David Cameron's renegotiated settlement. Farage makes his point in the exert, and as Soubry is about to offer a response, the video ends – limiting his audiences' exposure to counterarguments. This limited exposure is also present in the type of news articles Farage shares, regularly sharing news from a range of Brexit-supporting organisations and alternative news platforms (such as *Breitbart News*), all of which support his position towards the EU. During this period, Corbyn is less likely to share news from MSM. However, he does engage with Leave- and Remain-supporting media organisations, sharing his op-ed from the *Guardian* and a story from the *Daily Mail* (which is unrelated to the EU).

Finally, Nigel Farage's communication style was significantly more emotive than Jeremy Corbyn's during this period. This emotional appeal sought to create a dichotomy between the British people and Brussels, framing the referendum as a once in a lifetime chance to 'take the country back'. In addition, Farage is consistent and precise in his messaging during this

time, using Twitter to focus on immigration, discrediting prominent Remain-supporters, and addressing sovereignty issues. In contrast, Jeremy Corbyn lacked the emotional appeal and clarity of Farage, regularly making vague claims that made users question his sincerity (an example of which is highlighted below).



*Figure 29: Jeremy Corbyn tweet, February 22nd, 2016.*

While making a case for Remain, Corbyn focused on workers' rights, an issue that lacked salience during the Brexit debate. Moreover, Corbyn generally addressed broader debates, perhaps seeking to distance himself from the referendum.

*10th – 17th July of 2018*

During this period (10th – 17th of July 2018), Farage and Corbyn continue to share several news articles supporting their narrative and publishing selective excerpts from interviews. However, there are some notable changes to the previous period. Firstly, Corbyn began to share content (videos and news articles) published by the Labour Party and associated Trade Unions. Thus, Corbyn could bypass the MSM's gatekeeping function and manage the type of information that his audience would encounter. Such videos' content was highly partisan, with one of the video's published by the Labour Party and shared by Corbyn seeking to personally discredit the (then) Brexit Secretary Dominic Raab.

*Figure 30: Jeremy Corbyn tweet July 10th, 2016.*

Despite Farage continuing to share information that supported his narrative on Brexit, there

is one instance in which he encouraged his Twitter audience to engage in active discussion,

asking them to call into his radio show on LBC to question Steve Bannon (a controversial

American political advisor who supported Brexit). In publishing this tweet, it is unclear

whether he intended to promote cross-ideological discussion, with the partisan nature of his

other content during this period leading me to believe he did not. Yet, I have previously

demonstrated that tweets engaging with Farage at this time displayed a consensus towards

Remain (Table 4), which may have exposed his LBC phone-in tweet to a broader audience.

Interestingly, several callers hold opposing viewpoints to Bannon within the radio show, although they generally focus on other issues rather than Brexit (LBC, 2018).



*Figure 31: Nigel Farage tweet July 15th, 2018.*

*28th November – 4th December 2019*

During the final period (29th November – 4th December 2019), Jeremy Corbyn was much more active on Twitter than Nigel Farage, which is likely a response to the impending GE (with Farage's Brexit Party not contesting 317 Conservative seats due to fears of splitting the vote). As with the previous two periods, both users published selective excerpts from interviews and generally shared partisan news articles. A noticeable difference from prior periods was that Jeremy Corbyn began to share several screenshots of newspaper headlines

without including the link to the story. This is likely to have limited the engagement with the specifics of the story and wider contextual understandings of the headline, which may have several effects on the reader: impacting their inferential reasoning, behavioural intentions and presenting challenges in instances the headline is misleading without being entirely false (Ecker et al., 2014), as is highlighted below:



*Figure 32: Jeremy Corbyn tweet December 3rd, 2019.*

In the example highlighted in Figure 32, it may be argued that the tweet emphasises the

article's secondary content (Labour putting £6,716 in your pocket), implying that this amount

is universally applicable. On the contrary, the report's content highlights how this figure

relates to an estimate calculation based on Labour raising the minimum wage, lowering utility

costs and lowering childcare costs – with the saving applying to the specific portions of

society impacted by these policy choices (Bartlett, 2019).

Interestingly, there is one instance in which Nigel Farage shared a Guardian article that

supported Jeremy Corbyn and his stance on Brexit. In doing so, Farage sought to offer a

rebuttal to the report, highlighting how Corbyn could not be trusted on Brexit due to his

support for a second referendum and 'open borders' (Figure 33).

*Figure 33: Nigel Farage tweet November 28th, 2019.*

In terms of communication style, Jeremy Corbyn had become noticeably more emotive,

regularly seeking to create a dichotomy between the citizens and a financial elite (which

could have impacted Remain-supporters referencing a 'financial elite' within the Populism

chapter of this thesis).

*Figure 34: Jeremy Corbyn tweet December 4th, 2019.*

Corbyn became much more focused on Brexit, emphasising his plan to renegotiate a deal and offer a second referendum on the deal with the option to Remain. In contrast, Farage became much more subdued in his rhetoric compared to the previous periods, which could reflect the consensus that the Conservatives offered the greatest chance to leave the EU.

*5.5.2.   Summary*

In general, this section has highlighted the increasing network position of politicians within the discussion of Brexit across time. When considered in relation to the declining network position of MSM, it could suggest that Twitter has offered politicians the ability to challenge the MSM's gatekeeping role. This, in relation to Twitter's functioning as a public sphere, may allow for politicians to engage in debates that are unlikely to receive media attention, broadening the scope of discussion. However, based upon the analysis of Corbyn's and

Farage's tweets, I would argue that politicians are likely to present their audience with selective information, which could negatively impact the overall quality of discussion and may have implications for homogeneity.

Several themes have been highlighted when considering the findings from the exploration of Farage and Jeremy Corbyn's Twitter discourse. As mentioned, both users sought to selectively expose their audience to excerpts from interviews, limiting the exposure to any rebuttal. Moreover, most news articles shared are supportive of their position and narrative. Although limited, I did observe some positive aspects. During the pre-referendum period, much of Corbyn's discourse on Twitter referenced opposing viewpoints, particularly considering workers' rights (although workers' rights were not necessarily salient amongst Leave-supporters during this period). Furthermore, Farage sought to engage his audience in discussion through the promotion of his radio show.

When considering the role of politicians, other areas could be considered, with one such area being social media's ability to facilitate listening and engagement. While previous research (from different contexts) suggests that politicians rarely listen in a meaningful manner (Sorensen et al., 2019), it may offer an interesting avenue of research in relation to the discussion of Brexit on Twitter, particularly considering Farage encouraging his audience to engage in dialogue through his radio show. If such research is undertaken, it should also consider politicians in a junior position, as senior politicians such as Nigel Farage and Jeremy Corbyn are likely to carefully manage their interaction on social media due to their increased level of scrutiny.

## 5.6. Everyday Users

Habermas (2006, p421) asserts that 'the political public sphere needs input from citizens who voice society's problems and respond to the issues articulated in elite discourse'. However, in the pre-social media public sphere, opportunities for diffusion of knowledge were generally limited for non-elite actors, resulting in an 'unequal distribution of information and expertise' (Habermas,1996, p325), with non-elite citizens generally confined to passive consumers of information. Twitter has offered opportunities for the involvement of 'average citizens' in political discussions (Dubois and Gaffney, 2014, p1261), engaging demographics that are typically disengaged offline, such as younger citizens (Holt et al., 2013). Aside from engaging broader demographics in political discussion, studies have suggested that Twitter's 'bottom-up networked structure' may allow 'each user to become a supplier of political information' (Ceron et al., 2016, p159), presenting the opportunity to move to a position of influence within the network, which if attained, could be 'challenging traditional media hierarchies' (Murthy, 2013, p31).

To some degree, there is evidence to suggest that 'everyday' users can move to a position of influence within the political discussion on Twitter (Zheng and Shahin, 2020; Segesten and Bossetta, 2017; Dubois and Gaffney, 2014; Roese, 2018). Yet, the majority of studies suggest that there is 'no apparent elimination of privileges' on Twitter, with elites maintaining 'their elite status within its borders' (Dagoula, 2019, p225) and the network appearing to be an 'emerging channel for transmission of elite influence' (Blank, 2017, p691); with studies pointing towards a relationship between offline influence and influence on Twitter (Blank, 2017; Dagoula, 2019; Bravo and Valle, 2017). It must also be pointed out that some studies have suggested a co-existence of influential 'everyday' users and influential elite users (Zheng

and Shahin; 2020; Dubois and Gaffney, 2014), raising questions as to the status of 'everyday' users within the discussion of Brexit on Twitter.

In addressing this concern, an efficient method of identifying 'everyday' Twitter users can be undertaken through assessing levels of verification, with Twitter typically offering verification for accounts deemed to be of public interest (Twitter, 2020). While this process is relatively opaque (Indraneil et al., 2019), verification is typically given to well-known public figures or organisations. Such accounts are colloquially known as 'verified users' and demonstrate that the account is being authored by the user or organisation it is claiming to represent, with verification being demonstrated through a small blue tick next to the user's username. Aside from representing 'elite' users, studies have suggested that users who display a verification tick are typically viewed as more credible (than those without) and receive higher levels of attention (Morris et al., 2012; Flanagin and Metzger, 2007; Vaidya et al., 2019); with Indraneil et al. (2019) highlighting how users may resort to heuristics in determining which tweets may be viewed as credible, suggesting users may assume credibility is conferred through the verification process. To explore such debates, I have looked to highlight the levels of verification amongst the most central users within the discussion of Brexit.

### 5.6.1. Findings

The following figure represents the levels of verification, amongst the most central 1% of users, across time.
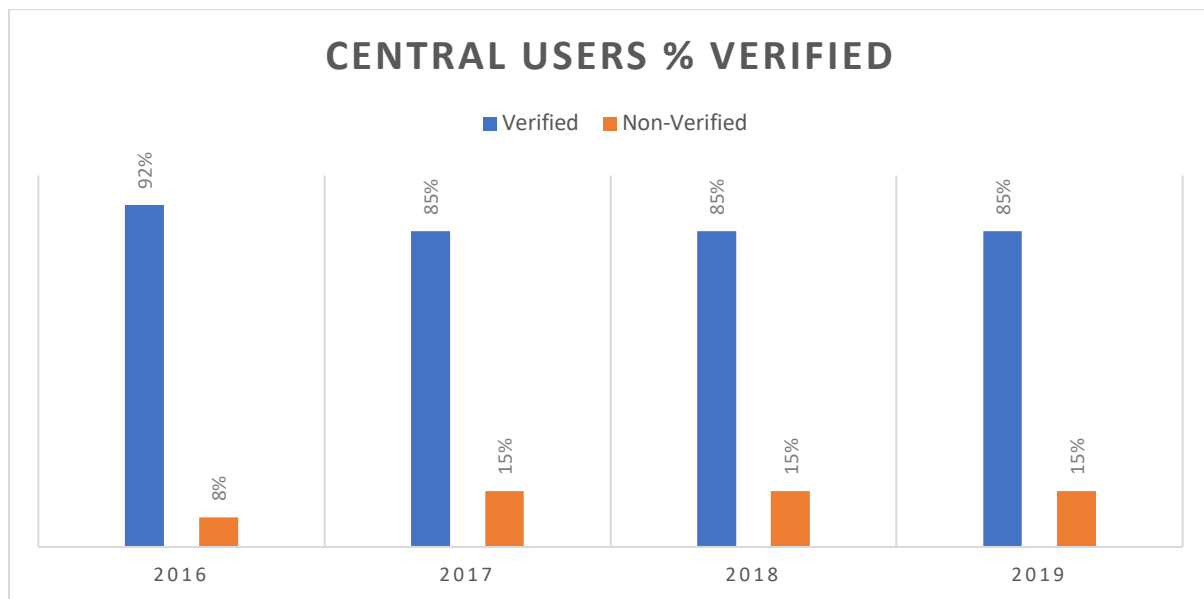
*Figure 35: Influential users by verification.*

Figure 35 highlights the percentage of verified (blue) and non-verified (orange) users amongst the top 1% highest scoring for in-degree and eigenvector centrality, at 6 points per year over the time of the discussion. Notably, every dataset has identified a significantly higher percentage of verified central users than non-verified users in a position of network centrality. Taken at face value, this would suggest, in line with previous research, that there is a relationship between 'elitism' and online influence (Blank, 2017; Dagoula, 2019; Bravo and Valle, 2017). Interestingly, non-verified users are present amongst the most central 1% throughout the discussion. In 2016, non-verified users represented 8%, increasing to an average of 15% after that. The increase in representation of 'non-verified' users, post-referendum, may suggest that the Twitter discussion of Brexit became more inclusive to bottom-up communication flows, with non-verified users potentially having some impact on the agenda of discussion.

To add further context to these findings, I explored the degree to which verified and non-verified users are repeatedly present within a position of centrality within the network.
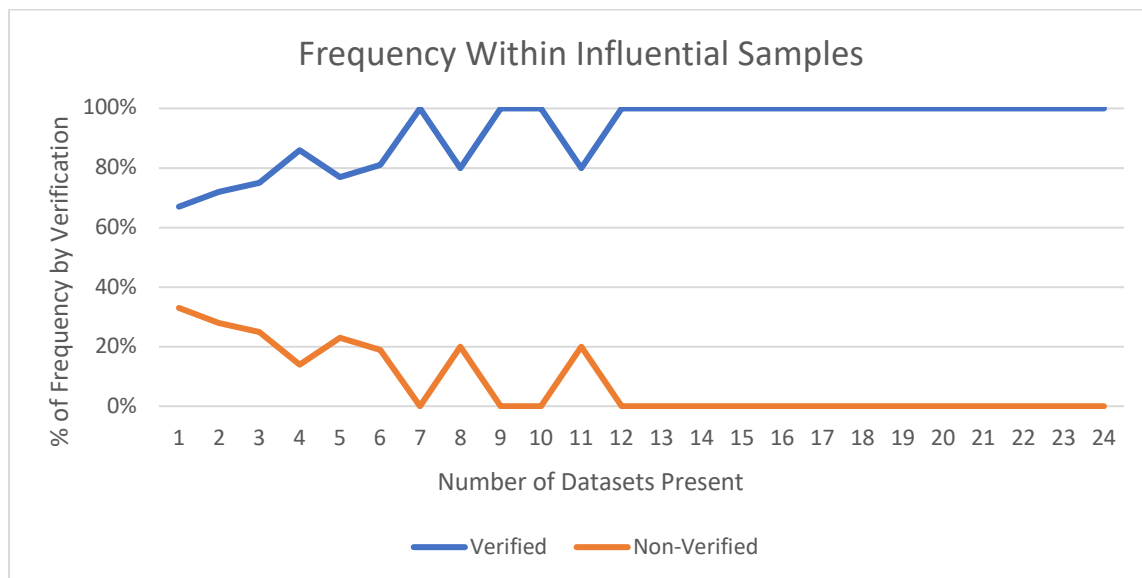


*Figure 36: Frequency by % verification.*

*Note: The x-axis represents the number of samples a user was present amongst the most influential. The y-axis represents the percentage of the respective frequency by levels of verification.*

Figure 36 suggests that non-verified users are less likely to be consistently influential within the discussion, with a noticeable decline in the levels of non-verification amongst repeatedly influential users, limiting their ability to set the long-term agenda of discussion. I would argue that the lack of consistent influential non-verified users may reflect the association between verification and perceived credibility (Morris et al., 2012; Flanagin and Metzger, 2007; Vaidya et al., 2019). However, it should be considered that there may be a relationship between consistent centrality and gaining verification, although this is somewhat challenged when considering 'Brexit_Sham' was highlighted as consistently influential within Section 5.3. yet did not gain verification.

To supplement the verification analysis, I sought to identify the prominence of 'everyday' users within central positions within the network (although it was expected, for a range of aforementioned reasons, that verification should indicate such levels). For clarity, an 'everyday' user was defined as a user who is not a well-known public figure and predominately uses Twitter for personal purposes. While 'personal purposes' are relatively subjective, I defined this as a user who did not use Twitter to represent a major political party, media organisation, business or campaign organisation (although loose affiliations were allowed).
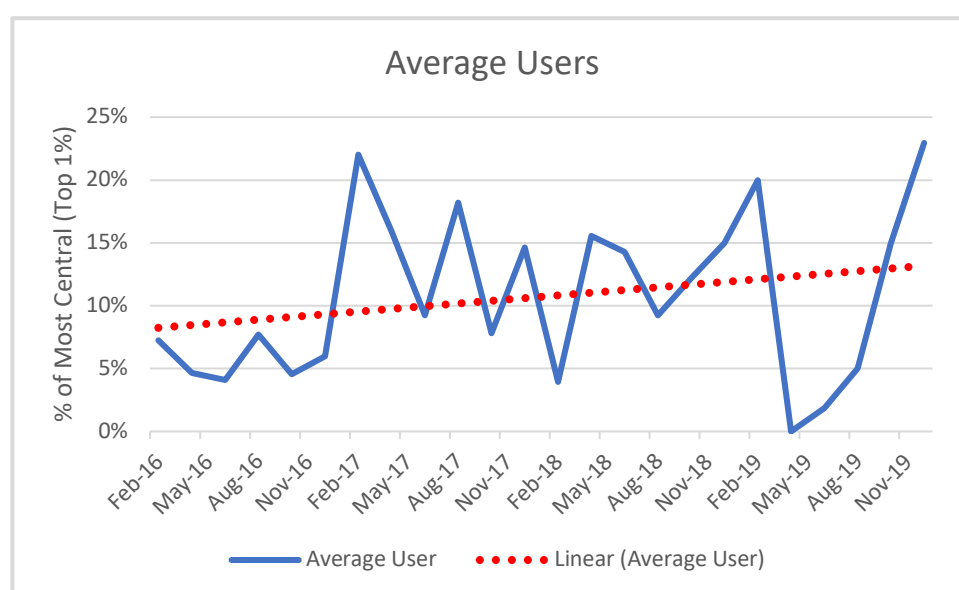


*Figure 37: % of most central that represent 'everyday' users.*

Figure 37 highlights the percentage of the most central users that represent the profiles of 'everyday' users, pointing to a slight increase across time. However, there are strong month by month variations. Generally, there is some form of representation amongst central 'everyday' users at most points of the discussion. December 2019 saw the most significant

percentage of 'everyday' users in a position of centrality, standing at 23%, which is surprising when considering this is the dataset closest to the 2019 GE.

When representations of 'everyday' users are compared with other groups (i.e., MSM, politicians, journalists etc.), the role of 'everyday' users within a position of centrality becomes more distinct. There are several instances where representations of 'everyday' central users outweigh media organisations, politicians, and journalists. The degree of representation amongst 'everyday' central users is surprising, particularly when considering the centrality measurements I have used typically favour elite users (Dubious and Gaffney, 2014), which may suggest that 'everyday' users play a greater role in the discussion than my data would suggest.

### 5.6.2. Summary

This section has sought to explore 'everyday' users within a position of centrality, with the findings being somewhat mixed. The results indicate that non-verified users are less likely to be in a position of centrality than verified users and less likely to be frequently central. However, the findings point to the consistent presence of central non-verified users, which generally stood at 15% (of the most central 1% of users). When considering the position of 'everyday' users in relation to the other groups identified within this chapter, the findings highlight how 'everyday' users account for a significant proportion of the most central 1%, suggesting that the impact of this group should not be discounted. This, in relation to debates surrounding Twitter's function as a public sphere, suggests that bottom-up communication flows may offer some challenge to established elite discourse on Twitter, which is likely to strengthen the representation of minority opinion. Of course, I do accept

the fact that classifying 'everyday' users as a homogenous group is challenging – as there are

likely a number of additional characteristics that may distinguish users within this group (such

as gender or race). However, in presenting these findings, I am able to ascertain the network

position of non-notable users, which may have implications for the agenda-setting capacity of

notable figures and the public issue focus of the debate.

Finally, future research may include additional metrics of influence, particularly those that

may mitigate elitist bias. For example, Dubois and Gaffney (2014) suggest that when

including qualitative metrics of influence, through the measurement of engagement within

political argument and content, a higher proportion of 'everyday' users are identified as

influential. In addition, Twitter also has its inbuilt metrics of influence, such as the retweet

and like count, with such measurements likely to incorporate a broader range of actors than

centrality measurements alone. While such measures were out of the scope of this project,

further research should consider incorporating additional indicators of influence to

strengthen the findings within this thesis.

## 5.7. Conclusion

Within this chapter, I primarily sought to address RQ4, which asks: *what are the*

*characteristics of users in a position of network centrality?* As I highlight within the literature

review, the pre-social media public sphere was arguably weakened due to the advent of the

mass media and the public relations industry, impacting topic selection and limiting its public

issue focus. While social media platforms were initially thought of as having egalitarian

characteristics that may reinvigorate the public sphere, concern grew regarding influence on

such spaces, with a degree of consensus highlighting the disproportionate impact of elite

actors. In this sense, influence on social media platforms may present the same challenges

associated with the offline public sphere. To address such debates, this chapter sought to use

network centrality measurements to identify the characteristics of central users. Specifically, I

operationalised in-degree and eigenvector centrality, reflecting their association with a user's

agenda-setting capacity.

This chapter found that notable public figures, politicians and media organisations are

disproportionately able to impact the agenda of discussion. This contrasts with 'everyday'

users, who generally only make up a lesser percentage of those identified as central

(although their position should not be discounted). In some sense, this may indicate that the

Twitter discussion of Brexit shares characteristics akin to Habermas's weakened public

sphere. Yet, the findings from this chapter have left me feeling less pessimistic than the

preceding chapter, with several potentially positive results that I would like to discuss.

Firstly, in-degree and eigenvector centrality measurements are elitist by nature, which is

highlighted by Dubois and Gaffney (2014), who found that qualitative measurements offered

a more suitable approach to determine non-elite users within positions of influence. While

the scale of the data analysed within my thesis did not allow me to undertake the qualitative

measurements of Dubois and Gaffney (ibid), it did make me aware that my findings may

underemphasise the role of non-elite users. With that said, even with the potential bias

within the in-degree and eigenvector centrality measurements, 'everyday' users have

consistently been identified as central within the discussion. As Figure 37 highlights, there are

points within the discussion where 'everyday' users account for over 20% of the most central

(the highest scoring 1%). Figure 35 highlights how non-verified users generally account for

15% of the most central (the highest scoring 1%). As I highlight in Section 5.6., there are several instances in which 'everyday' users account for a more significant proportion of the most central users than politicians, journalists, and public figures. For this reason, my findings suggest that 'everyday' users are likely to impact the agenda of discussion.

Secondly, there have been a number of negative characteristics associated with tabloid and broadsheet media during the discussion of Brexit on Twitter. During the pre-referendum period, my findings demonstrate that accounts representing tabloid and broadsheet media account for a considerable proportion of the most central users. However, in the post-referendum period, the network position of such accounts declined, with accounts representing various elements of the public service broadcaster '*the BBC*' accounting for the most significant proportion of MSM accounts. In this sense, I would argue that the quality of coverage increased in the post-referendum period (although, as I will demonstrate in the Populism chapter and Deliberative Quality chapter, the impact of such accounts may be negligible).

Finally, when analysing the discourse of Nigel Farage and Jeremy Corbyn, I found some instances of both politicians engaging with news organisations that run contrary to their views and an example of Nigel Farage seeking participation from Twitter users. With that said, there are also several negative findings within this chapter, highlighting some challenges to the public issue focus of the discussion.

While I found a decline in the representation of accounts associated with tabloid and broadsheet media, there are a number of alternative media accounts that are likely to

challenge the quality of discussion. During the pre-referendum period, this was typically

associated with right-wing alternative media organisations that are likely to have propagated

misinformation and hostility towards migrants. Moreover, I noticed the consistent presence

of the news aggregating account '@C0nvey', which may have encouraged echo chambers

within the discussion. My findings also suggest that verified users are more likely to be

consistently central, as highlighted in Section 5.6. and Section 5.3. In this sense, I would argue

that verified users (who are more likely to be 'elite') are more likely to be seen as opinion

leaders and more likely to impact the long-term agenda of discussion. Finally, my findings

highlight how both Nigel Farage and Jeremy Corbyn typically present one-sided information,

limiting their audience's exposure to rebuttal arguments.


### 5.7.1.   Further Research

It must be pointed out that some aspects of this research may be strengthened through

additional analysis. Firstly, it may be possible that the categories identified within this chapter

(i.e., politicians, 'everyday' users etc.) may be further broken down to offer more

comprehensive results. This is particularly relevant within the 'everyday' users section, which

I would advise future research to consider age, gender or ethnicity. As representations of

such groups likely are likely to impact the salience of minority opinion.


Finally, literature has emphasised the role of 'bots' and 'provocateur' accounts within the

pre-referendum discussion of Brexit on Twitter. Within the Polarisation chapter, the user

'DavidJo52951945' had been highlighted as influential within a highly homogenous

community. However, I did not find further evidence to suggest that 'bots' played a

significant role in the discussion, particularly within positions of network centrality. This leads

me to hypothesise that either a) previous research has overstated the impact of such users or

b) Twitter sought to limit the impact of such accounts retrospectively. To address this

research area, I would advise future research to adopt metrics of influence that may be

suited to the identification of bot accounts (i.e., out-degree).

# Chapter 6: Populism

## 6.1.    Chapter Overview

Populist discourse is often characterised by antagonistic and emotive language, seeking to

divide society between the wishes of the righteous citizens, the elite and the threat of the

out-group (Block and Negrine, 2017; De Vreese et al., 2018), resulting in 'political discourse

being dominated by questions about who does or does not belong to the nation, and on

what grounds this might be decided, and by whom', leading to today's 'hard-edged

xenophobic categorisations of insiders and 'outsiders' (Schlesinger, 2020, p1554). As such,

the literature review argues that populist discourse often runs contrary to normative

characteristics of the public sphere, distorting communication away from rational

deliberation and informed choices.

Within the context of Brexit, the Leave campaign has been associated with right-wing

populist discourse, which was propagated by Leave-supporting media organisations (Tong

and Zuo, 2021). Moreover, there is also an association between populist discourse and

Twitter, with several academics noting that populism has an affinity with social media. For

example, Gerbaudo (2018, p745) argues that the mass networking capabilities of social

media provides 'a suitable channel for the mass politics and the appeals to the people typical

of populism', with Jacobs and Spierings (2018, p4-5) asserting that Twitter offers advantages

to populists as it is a 'cheap and easy-to-use tool allowing unmediated communication that

can quickly reach many people', with populists having 'characteristics that may motivate

them to adopt Twitter'. Within the Twitter discussion of Brexit, there has been an

overwhelming focus on populism during the pre-referendum period, as well as top-down

measurements of populism, with further research needed to explore permeations of populism within the general conversation across the time of the event. As such, this chapter seeks to address RQ2, which asks *to what extent do characteristics of populism permeate the discussion at a user level?*

To address RQ2, this chapter deviates from the overwhelming 'top-down' focus of previous research, and in doing so, seeks to consider the role of populism at a user level. This analysis has primarily been conducted through a quantitative content analysis, explored through the following indicators of populist discourse: the construction of an out-group, calls to reclaim popular sovereignty and pejorative references to the elite. Where further analysis was required, a thematic analysis was undertaken. Generally, this chapter finds that populist discourse is present at most points within the discussion; while this is typically more common amongst Leave-supporting tweets, characteristics are present amongst tweets identified as Remain-supporting, challenging previous understandings of populism in relation to Brexit and highlighting a challenge towards the quality of discussion. Moreover, this chapter highlights an association between Leave-supporting tweets and right-wing populist discourse, and Remain-supporting tweets and left-wing populist discourse.

## 6.2.    Definition of Populism

As I highlight in the literature review, I defined populism on the basis of its core characteristics. Specifically, I have taken the stance that the following three characteristics should act as indicators of populism: 1) the identification of an out-group, 2) a battle against the 'corrupt' elite, and 3) its appeal to a righteous 'people'. To address such debates, this

chapter explores the construction of migrants as an out-group, pejorative mentions of the elite in relation to Brexit and the degree to which users lay claim to popular sovereignty.

<u>6.3.    Overview of Methods</u>

To explore permeations of populism at a user level, I measured several populist indicators through a quantitative content analysis, analysing 25 datasets (n=385 per dataset) from February 2016 until February 2020 (total sample size N=9,625). Where further research was required, I undertook a thematic analysis, with the results presented qualitatively, except for Section 6.5., which presents the findings quantitatively.

<u>6.4.    Construction of an Out-Group</u>

As highlighted by De Vreese (2018) and Block and Negrine (2018), populist communication often plays on the anxieties of 'the people' through the identification and demonisation of an out-group. In doing so, those who advocate populist communication can strengthen the social identities of the in-group through antagonistic rhetoric aimed at an 'other'. While the specifics can differ depending on the left-right political affiliation of the actor in question, it is generally accepted that right-wing populist rhetoric constructs the out-group amongst migrant groups (De Vreese, 2018), which relates closely to the type of discourse associated with influential Leave-supporting figures on Twitter (Tong and Zuo, 2021).

Research has highlighted a focus on immigration during the referendum campaign amongst actors advocating populist communication. For example, Tong and Zuo (2021) demonstrate how the issue of immigration is salient amongst the tweeting practices of Nigel Farage and Boris Johnson. Moreover, they highlight how populist claims surrounding immigration were

mainstreamed by MSM, constructing a 'sphere of legitimate controversy allowing populist arguments to become part of the political debates' (ibid, p44). Such discourse resonated amongst Leave-supporters, with Hobolt (2016) arguing that Leave voters were motivated by anti-immigration sentiment.

To be clear, the decision to include an exploration of immigration goes beyond just the salience of the topic (within the context of Brexit). Arguably, the focus on immigration challenges the Habermasian ideal of 'communicative rationality and thus is a challenge for the public sphere' (Datts, 2020, p73). Freeden (2017, p4) highlights that this can be attributed to a 'visceral fear' of imported change in 'law customs and people'. Going on to clarify, right-wing populists seek to appropriate the trajectory of 'we were here first; hence we are the ultimate deciders', with the true citizens' views taking 'precedence over immigrants' (ibid), which may disregard the status of migrants within the public debate.

### 6.4.1. Findings

*Leave-Supporting Migration*

To explore debates surrounding migrants as an out-group, I sought to explore the frequency in which users discussed migration and highlight the distinction between positive and negative attitudes. The following figure represents the level of expressed negative (blue) and positive (orange) sentiment toward migration amongst tweets that have been identified as Leave-supporting.
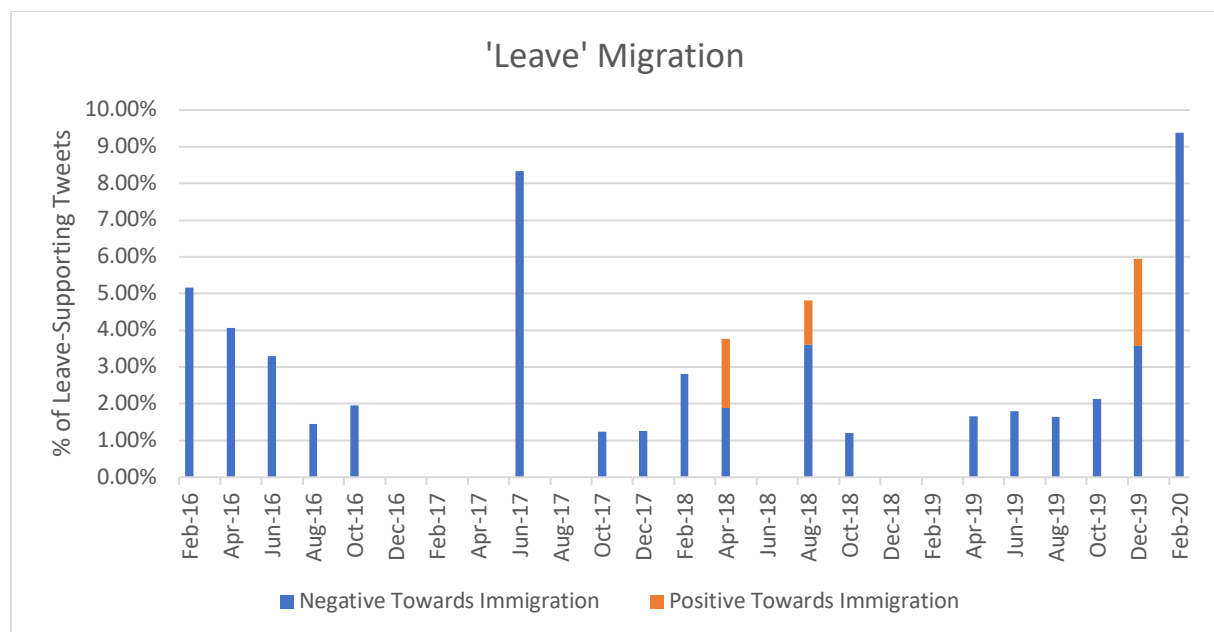
*Figure 38: Leave Reference to migration.*

Figure 38 highlights that tweets identified as Leave-supporting frequently express negative attitudes towards migration, with such attitudes present in 17 of the 25 samples. Only 3 out of the 25 samples include positive sentiment towards migration. In many senses, these findings reflect the type of top-down discourse associated with populist Leave-supporting political figures and MSM (Tong and Zuo, 2021). Moreover, they also support the conclusions of Menon and Wager (2020, p282), who demonstrate that 90% of Leave-supporters were hostile towards immigration, with only 10% being supportive of immigration.

To explore the specifics of such tweets, I sought to undertake a thematic analysis. Finding that during the pre-referendum period, Leave-supporting tweets consistently associate EU membership with uncontrolled mass migration, regularly highlighting the UK's inability to reduce migration whilst inside the EU. For several users, Brexit represented an opportunity to reduce levels of migration. However, much of the discourse neglects to discuss issues

surrounding intra-EU migration, instead, focusing on Middle Eastern migration, consistent with the idea that the 2014-2016 migrant crisis was framed as a 'European problem'.

*Leave-supporting tweet from June 2016 - "We have been besieged by the Muslim masses. This is why Brexit must happen."*

At this point in the discussion, there is a clear distinction between 'us' and 'them', with a narrative that British cultural norms are being eroded through Middle Eastern migration. This may reflect the discourse from Nigel Farage and Leave.EU, both of which were highlighted as 'opinion leaders' within the Central Users chapter within this thesis during this time. In much of their discourse surrounding migration, there is an emphasis on non-EU migrants being given asylum within the EU, as is highlighted in Figure 39.



*Figure 39: Leave.EU Tweet 11th May 2016.*

Significant emphasis is placed on the potential for non-EU migrants to exploit avenues to enter the UK legally in the event the UK remains a member of the EU. Most tweets by both users do not use language that explicitly points to Middle Eastern migration, instead using

veiled language and imagery. This agrees with the findings of Kreis (2017), who highlighted

how right-wing political figures often establish a socially acceptable discourse of racism.



*Figure 40: Nigel Farage tweet February 25th 2016.*

In the example highlighted in Figure 40, Nigel Farage shares a *Daily Mail* article that seeks to

associate EU membership with Middle Eastern migration. As can be observed, the news

article contains imagery showing a line of (what appear to be) Middle Eastern migrants, with

only the only faces visible being that of three children. It also contains a smaller image of

several migrants on a boat, with a female visibly crying. Using such imagery would typically

be associated with arguments supporting migration, particularly considering it demonstrates

the themes of vulnerability and emotion. Surprisingly, the context of the article and Farage's

tweet are devoid of consideration for the migrants, instead seeking to emphasise the impact

of migration in relation to the host country. Moreover, the image shares some similarities to

Farage's infamous 'breaking point' poster, with Joppke (2020, p8) highlighting how the poster

shows 'hordes of Middle-Eastern asylum seekers in Slovenia heading toward the Austrian

border, "we must break free of the EU and take back control of our borders", can be read at

the bottom. This was populism, pure and simple, spreading false information and demagogic'.

In addition, several tweets express the out of touch nature of 'elites' concerning migration. Several imply that 'ordinary' citizens (which can generally be inferred as referring to the white working-class) are bearing the brunt of migration.

*"Walk around the towns in the UK, every other person is speaking a foreign language. I want my country back. Cameron will never have to experience this."*

This, in some ways, sought to rationalise why elite political figures were campaigning to remain a member of the EU. It also addresses social identity, ethnocentrism and the UK's national history. As Starkey et al. (2021, p28) highlight, Brexit was, in part, 'driven by a fantasy of liberation from fusion, linked to xenophobic displacement activity which found a convenient scapegoat in the EU and, in particular, its open borders for undermining the history, identity and purity of the UK'.

During the post-referendum period (June 2017 - October 2018), amongst Leave-supporting tweets, there is a strong emphasis on the inaction of politicians. Demonstrating a growing impatience, several tweets during this period attack Theresa May for perceived backtracking on post-Brexit immigration controls. Interestingly, Theresa May avoided discussing immigration within her Twitter account, instead focusing on more general aspects of her post-Brexit deal. This contrasts with the Conservative Party's official Twitter account, which sought to portray the party, and Theresa May, as strong on immigration, adopting a

communication style similar to populist actors such as Nigel Farage and Leave.EU (an example of which is highlighted in Figure 41).



*Figure 41: Conservative Party tweet May 31st 2017.*

During this time, Farage and Leave.EU regularly attacked Theresa May and the Conservative Party for their perceived inability to tackle migration. This is reflected within the general conversation, with several tweets attacking May.

*Leave-supporting tweet from October 2017 - "I didn't vote for Brexit for fucking nothing. Why is Mrs May not getting the fuckers out? Costing the police time, costing the NHS time and more importantly… costing MY fucking time."*

There is also considerable animosity towards Corbyn and his perceived stance toward migration. Corbyn and the Labour Party's Twitter accounts avoid hostile rhetoric towards immigrants, generally framing migration in a positive light and seeking to defend the rights of EU citizens. This led to strong resentment from Leave-supporting tweets, with a number

attacking Corbyn and Labour's views on migration, particularly prevalent in June of 2017 as a reaction to the Leaders Debate.

*Leave-supporting tweet from June 2017 - "Labour/Corbyn will not deliver Brexit. Instead, they will give us higher immigration, payments to the EU and the EU Court. Not for me thanks."*

During the final stage of the Brexit discussion, in the months before Johnson became leader of the Conservative Party, several tweets critical of immigration expressed support for the Brexit Party. After Johnson became the PM, Leave-supporters seemed to support Johnson and his policy toward immigration reform.

*Leave-supporting tweet from October 2019 - "I love the idea of an Australian points-based system of immigration. It is something that the county has needed for many years. It's unbelievable that the EU control who we can and cannot deport. Get Brexit done and we have jurisdiction again."*

At this point, some Leave-supporters still seem to be concerned that Boris Johnson and the Conservative Party are soft on immigration, with some pledging to continue supporting the Brexit party.

In contrast to the Twitter account of Theresa May during the 2017 GE, Boris Johnson consistently references his proposed 'Australian style points-based immigration system'. When addressing such a policy, Johnson adopts a relatively tame rhetorical style. However, in late 2019, the campaign group Leave.EU switched support from the Brexit Party to endorse

the Conservative Party, generally advocating emotive and openly populist discourse concerning migration.



*Figure 42: Leave.EU tweet from 2nd December 2019.*

In the example highlighted in Figure 42, Leave.EU shared a link to a *Sun News* article highlighting how several migrants (who have moved to the UK) have been identified as having criminal records in their home country. Within the tweet, Leave.EU present some statistics pasted over a backdrop of UKIP's infamous 'Breaking Point' poster - a poster that had faced fierce backlash due to its 'othering', with some going as far as to make comparisons to propaganda published in Nazi Germany (Looney, 2017). Consequently,

Leave.EU sought to associate such crimes with Middle Eastern migration, despite the news article stating that the statistics referred to intra-EU migration.

> In the past three years, checks showed that 482 suspects quizzed by UK cops over separate crimes had been convicted of paedophile offences at home. Most were from Romania (91), then the Czech Republic (64), Poland (60), Slovakia (42) and Lithuania (30). (Hamilton, 2019).

In presenting the tweet in this manner, Leave.EU is arguably misleading their audience through the distortion of information, further constructing Middle Eastern migrants as the out-group.

Finally, evidence has suggested a post-Brexit change of attitude on immigration, with Schwartz et al. (2020) finding that anti-immigrant sentiment softened after the Brexit vote. This is further Backed up by Migration Observatory (2020), which suggests that immigration was the most critical issue for 48% of respondents in June of 2016, falling to 13% by November of 2019. My findings suggest, at least in terms of expressed negative sentiment towards immigration on Twitter, that there is no significant decrease across time. Furthermore, my results indicate that for much of the conversation, there was a disproportionate focus on Middle Eastern migration, with such a group constructed as an 'out-group' perceived as threatening the cultural norms of the 'everyday' citizen within several Leave-supporting tweets.

*Remain Supporting Migration*

While Leave-supporting tweets demonstrate an overwhelming hostility towards migration, perhaps a reflection of the discourse present amongst influential Leave-supporting Twitter users, my research finds that Remain-supporting tweets, although less salient, typically express a positive sentiment toward migration. The findings are presented in Figure 43, highlighting the level of expressed negative (blue) and positive (orange) sentiment towards migration within tweets identified as Remain-supporting.
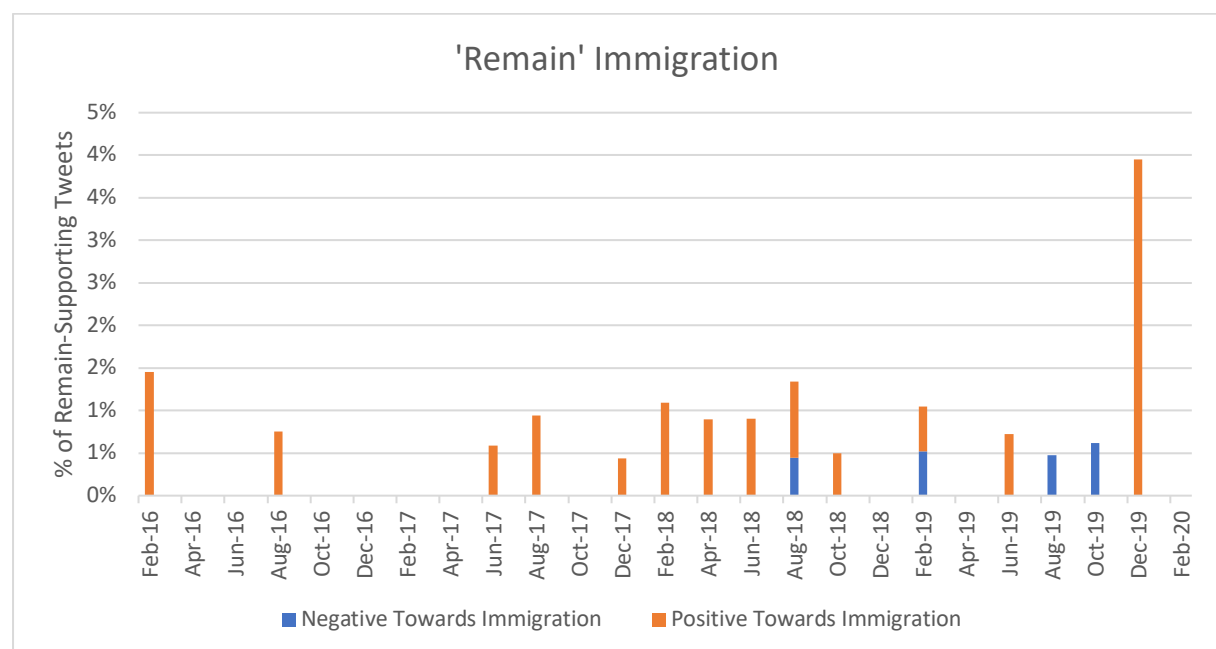


*Figure 43: Remain reference to migration.*

In general, Figure 43 highlights how Remain-supporting tweets are more likely to display a positive sentiment towards migration, with positive references present in 14 of 25 samples, only 4 of 25 samples including negative sentiment towards migration. These findings are somewhat expected, as previous research has suggested that Remain-supporters view immigration more favourably than Leave-supporters (Goodwin and Milazzo, 2017; Arnorsson

and Zoega, 2018; Blinder and Richards, 2020). Figure 43 also suggests that Remain-supporting tweets are less likely to reference immigration than those identified as Leave-supporting, which is to be expected when considering the lack of focus from the Remain campaign. To further explore the results from Figure 43, I undertook a thematic analysis of the Remain-supporting tweets that discuss migration. As I did not observe the same shift in themes as Leave-supporting tweets, the findings are presented as an overall analysis (rather than divided into different timepoints).

I observed that most Remain-supporting tweets do not offer a rebuttal to Leave-supporting tweet's hostility towards Middle Eastern migration, which may allow for the normalisation of xenophobic attitudes towards Middle Eastern migration. Instead, the tweets generally reference the economic benefits associated with EU migration. There is a consistent emphasis on what immigration can do for the country economically. It may reflect the top-down tweeting practices of politicians, with Tong and Zuo (2021, p44) highlighting how the 'articulation of populist arguments by Leave politicians, received no criticism from Remain politicians (on Twitter), placing them on one side of the debates about the referendum, with Remain politicians' arguments on the other'.

Remain-supporting tweet from February 2017- *"Reducing migration for the sake of it would be wrong. We are going to need migrants to work in our public and private sector to limit the damage caused by Brexit."*

Remain-supporting tweet from June 2018 - *"Clearly, we need immigration, but it has to be the right kind of immigration; we can get that from inside of the EU."*

There are several instances in which Remain-supporting tweets are critical of immigration, particularly in relation to low-skilled migrant workers coming from outside of the EU. This was observed when Remain-supporting tweets distinguish between the 'right' and 'wrong' type of migration, typically emphasising the 'quality' of EU migration. In doing so, some Remain-supporting tweets could inadvertently perpetuate hostility towards non-EU migrants and further strengthen the notion that Middle Eastern migrants are an 'out-group'.

Remain-supporting tweet from December 2018 - "*I think you will find the people who are running this Brexit are the elite. They object to the workers' rights offered by the EU. They want to swap EU immigration for cheaper third world immigration.*"

Interestingly, I did observe several examples of influential Twitter users seeking to contest negative associations surrounding migration. This was particularly prevalent within the discourse of James O'Brien (a prominent Remain-supporting journalist), who regularly challenged how Leave-supporters framed migration (both EU and non-EU) and Jeremy Corbyn, who sought to defend EU citizens' rights and position within society. It is unclear why such discourse did not resonate within the discussion of Brexit on Twitter, although it may reflect the dominant narrative surrounding immigration being negative in nature.

*6.4.2.   Summary*

In general, this section has highlighted an association between Leave-supporting tweets and hostility towards migration and Remain-supports tweets and a more favourable stance towards migration. Through the thematic analysis conducted within this section, my research

has pointed to instances of Middle Eastern groups being referenced within anti-migrant sentiment – present amongst influential and non-influential Twitter users. In addition, my research did not point to a substantive challenge to hostile sentiment towards Middle Eastern migration amongst non-influential Remain-supporting Twitter users, although I did find some challenge amongst influential Twitter users. In some sense, the findings from this section also suggest that xenophobic discourse surrounding migration has been normalised within the discussion of Brexit on Twitter.

The findings of this section are of relevance when considering Twitter's ability to function as an online public sphere, with Starkey et al. (2021, p27) highlighting how 'xenophobia is at odds with the concept of a public sphere that enables groups to transcend difference and come together in a shared sense of common humanity'. The implications of such discourse may lead to the exclusion of certain groups from the discussion, exacerbating participatory challenges of minority groups and creating an 'us' vs 'them' dichotomy. Furthermore, such attitudes risk inflaming any cultural bias present within the dominant discussion of Brexit, limiting participation, and repressing certain voices through the designation of a 'particular form of communication as the rational and democratically legitimate norm' (Dahlberg, 2007c, p131-132).

## 6.5.    The Elite

Mudde and Kaltwasser (2012, p25) highlight how the conflict between a unified people and a corrupt elite is typical of populism, with the elite often being constructed through 'powerful minorities', which 'in one way or another are obstructing the will of the common people'. As

a result, populist movements tend to perpetuate popular sentiment, which may lead to a lack of tolerance for outside opinion, with such opinion being viewed as not 'respectable like others inside the only public sphere in society, but the position of an enemy of the people to be fought and not refuted' (Privitera, 2018, p57). While both left- and right-wing populism generally separate society into two antagonistic groups: the people and the elite, their motivations for doing so differ. Left-wing populism typically constructs the elite along socio-economic lines, emphasising economic inequality and austerity. In contrast, right-wing populism generally constructs the elite in response to cultural issues, highlighting how elites have favoured ethnic, religious or sexual out-groups at the expense of the native population.

Due to populism's articulation of popular demands against hegemonic interests, public communication is challenged, being overcome by the expression of confrontation driven by social interest and power dynamics, with Waisbord (2018, p24) asserting:

> For a conception of politics as pure agonism, the notion of the "communicative commons" has no value. It is antithetical to its belligerent, conflict-centred view of politics. With its zeal for confrontation, populism has nothing but contempt for the public sphere as envisioned by progressive theorists of democratic communication as spaces for expression, consultation, deliberation, and compromise. Who needs reasoned deliberation across difference when politics is about enacting conflict and decisionism to cause systemic ruptures by political leaders? A common space is not only superfluous; it is also impossible when politics is nothing but agonistic dynamics and actors engaged in permanent battles.

As Goodwin and Heath (2016) highlight, support for Brexit was highest amongst socially 'left behind' groups, who felt side-lined by the values that have come to dominate a more socially liberal media and political class. In this sense, Brexit became a conflict between 'left-behind' groups and beneficiaries of the elite's support for further EU integration, likely encouraged by the tweeting patterns of populist politicians and the MSM. For example, Tong and Zuo (2021, p38) demonstrate that several of Nigel Farage's tweets 'aimed to mobilise local populations and promulgate the nationalist-populist arguments of the Leave campaign, speaking on behalf of the people against the elites, (Farage) took the people's side'. Farage wasn't the only actor to encourage conflict between 'left-behind' groups and the elite, with Tong and Zuo (ibid) highlighting how specific media organisations and politicians promoted and normalised such discourse, arguably at the behest of reasoned discussion.

### 6.5.1.   Findings

To explore such debates, I looked to code references to the 'elite' within the discussion of Brexit on Twitter (see Appendix E for a detailed definition), with the results highlighted in the following Figure.
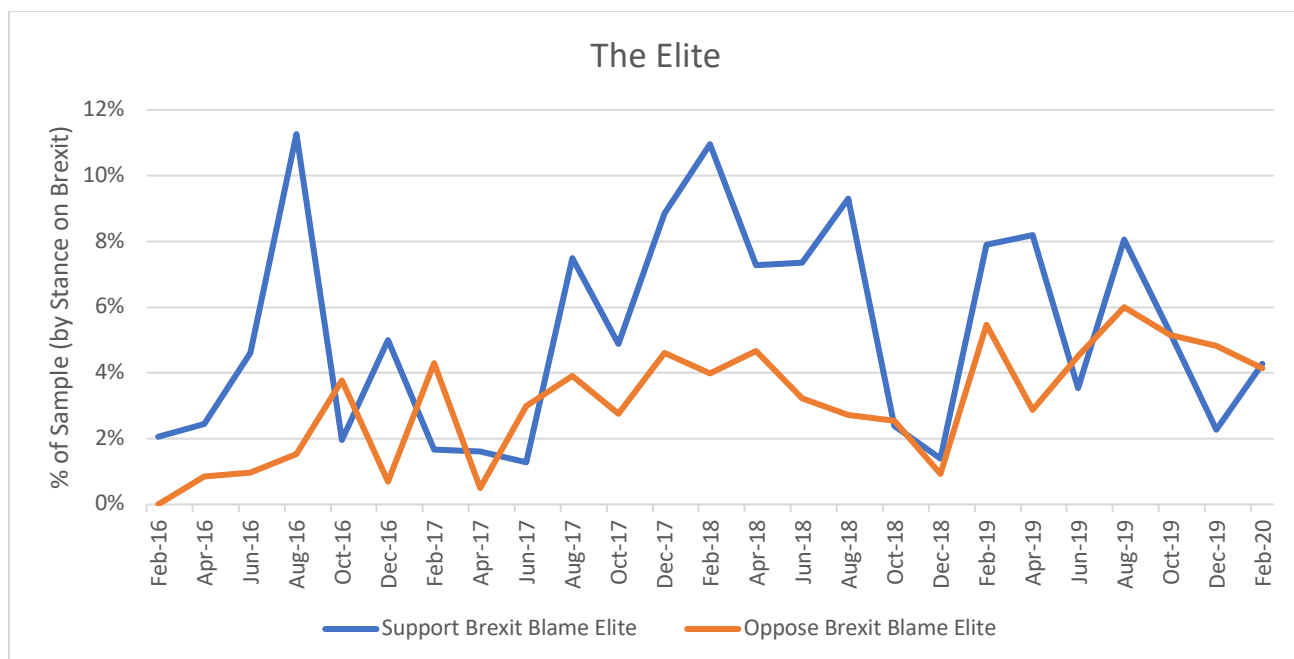
*Figure 44: References to the elite.*

As Figure 44 highlights, every dataset within my analysis contains Leave-supporting references to the 'elite'. Surprisingly, 24 out of 25 datasets contains Remain-supporting references to 'the elite'. While my findings demonstrate a higher likelihood of Leave-supporting tweets referencing the elite, the consistent nature in which Remain-supporting tweets reference the elite challenges previous understandings of such discourse within the context of Brexit, perhaps a reflection of such assumptions overwhelmingly based upon top-down populist measurements. To address such findings, I undertook a quantitative thematic analysis to identify how the elite is constructed amongst Leave- and Remain-supporting tweets, with the results presented in the following figure.

The Elite Discourse
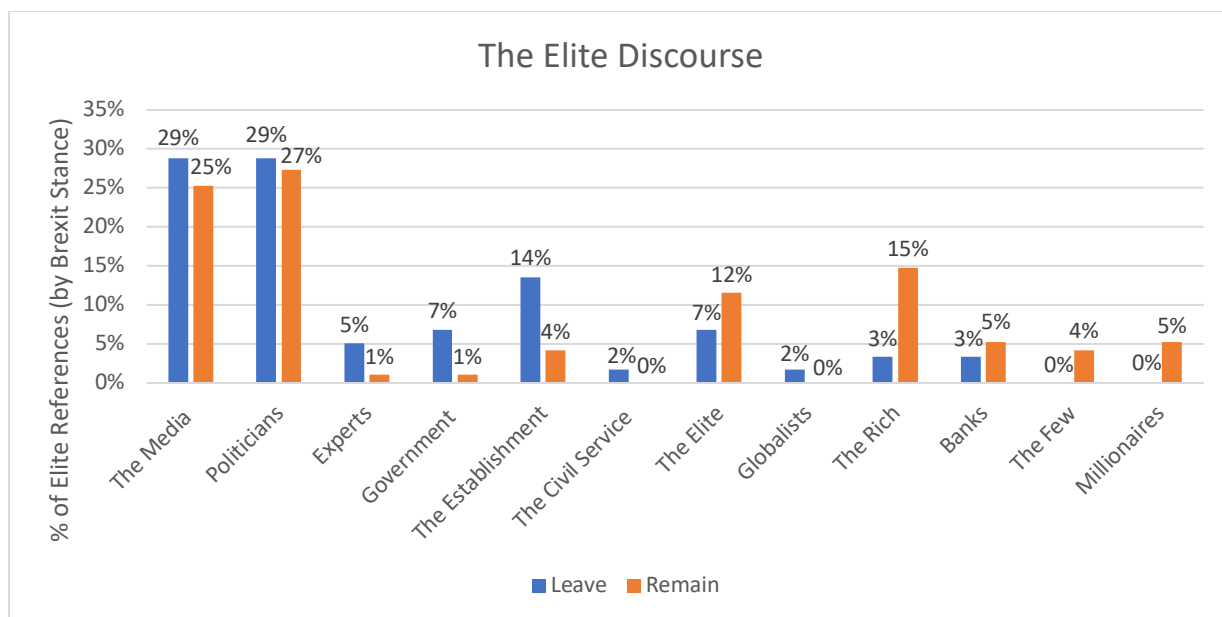
*Figure 45: Construction of the elite.*

While Brexit is an issue that has cut across partisan affiliations, evidence has suggested that there is a relationship between those who identify as 'right-wing' and support for leaving the EU and those who identify as 'left-wing' and support for remaining within the EU (Schumacher et al., 2019). My findings suggest that this may be reflected in Figure 45, finding that Remain-supporting tweets are much more likely to construct the elite focusing on economics, which is more akin to left-wing populist discourse. This can be highlighted by the frequency in which Remain-supporting tweets reference 'The Rich', 'Millionnaires' and 'The Few' (alluding to a financially powerful minority).

Remain-supporting tweet from June 2017 - *"Never written such a dangerous cliche online before, but hard #Brexit is fascism. National superiority, regaining power for the moneyed classes & no longer restrained racism. The role of the #BBC must be questioned, because if the popular tipping point is reached."*

In addition, Figure 45 highlights how Leave-supporting tweets are much more likely to attack institutions, which is typically associated with right-wing populist discourse. This can be highlighted through Leave-supporting tweets reference to 'The Establishment', 'Government', 'Experts' and 'The Civil Service'.

Leave-supporting tweet from April 2016 – "*That's the anti-Brexit BBC for you and why I never listen to their brainwashing #Fakenews. The sooner they lose the right to steal our money via TV licensing, the better. The UK establishment sold the UK and its people to the EU, and the BBC helped pave the way for our slavery.*"

The most common construction of 'the elite' amongst Remain- and Leave-supporting tweets are aimed at the 'the media' and 'politicians'. Salmela and Von Scheve (2018) highlight that attacks against political figures is typical of both left- and right-wing populism, with the critical difference being the intention behind such an attack. For right-wing populism, there is an emphasis on how such figures favour an out-group over the citizenry's interests, promoting anger and resentment towards such groups (ibid). While for left-wing populism, the emphasis typically falls on how politicians have facilitated economic issues such as austerity (ibid) – with such a phenomenon observed within my findings.

Leave-supporting tweet from August 2016 - *"No more corrupt politicians. Brexit is just the start. We reject open borders. We reject TTIP. PERIOD."*

In relation to the media, both left- and right-wing manifestations of populism demonstrate a suspicion towards the intention of the mass media. For left-wing populist movements, there

is a feeling that the mass media represent the views of the economic establishment. For example, García Agustín (2020) points to the rhetoric associated with Jeremy Corbyn's 2017 GE campaign, with Corbyn regularly highlighting how the media 'don't want us to win'; with Gerbuado (2017, 146) pointing to activists during the 2011 movement of the squares, whom typically sought to bypass traditional media, seeing traditional media as being 'in thrall to the establishment'. This accusation of establishment bias is also present within right-wing populist discourse (Moffitt, 2016), the main distinction being that right-wing populist discourse typically seeks to attack the media's liberal bias, representing the wishes of the liberal establishment with broader connotations surrounding migration and globalism.

Leave-supporting Tweet From June 2017 - *"The elite media don't broadcast France's migrant issue. It is a good job we voted for Brexit."*

### 6.5.2. *Summary*

The findings from this section point to the consistent presence of the hostility towards 'the elite' amongst both Leave- and Remain-supporting tweets. Within the context of Brexit, Tong and Zuo (2021, p61) highlight how this dichotomy can create 'deep and strong' non-negotiable differences between groups, making it 'massively difficult to have a democratic dialogue between them'. In many senses, when claims are made that highlight a conflict between the citizenry and the illicit wishes of an elite group, the ability for debate diminishes due to a marginalised common ground. As a result, such discourse likely has a relationship with levels of affective polarisation, bolstering in-group identity and promoting out-group hostility. It should also be noted that the salience of the media within the 'elite' analysis may highlight a growing distrust of media organisations, posing challenges as such organisations

serve a prominent role in the dissemination of information within political discussion; such assumptions are supported when considering the declining position of the MSM highlighted within the Central Users chapter of this thesis. I will also come to suggest, in Chapter 7, that this may have negatively impacted the frequency in which evidence is provided for a claim.

## 6.6.    Popular Sovereignty

As previously argued, populist discourse, particularly in its right-wing manifestation, often seeks to reinstate the sovereignty of 'we', promoting antagonistic views towards the out-group and arguing that the out-group hold views that contrast with the citizens' wishes. For this reason, a typical characteristic of populist discourse is the claim that they represent popular sovereignty, with Cleen (2017, p14) highlighting how, within right-wing populist movements, popular sovereignty is often mobilised 'around the defence of the popular-national against multiculturalist and globalist policies imposed "from above" that threaten the identity, culture, and economic interests of the nation'. In such instances, the reclamation of sovereignty is often cast as a 'call to action' projected as a warning of an 'extreme version of the present' and by 'offering an alternative path to a better future' (Kallis, 2018, p286).

Habermas addresses popular sovereignty in the book *Between Facts and Norms* (1996), stating that the 'people from whom all governmental authority is supposed to derive does not comprise a subject with will and consciousness. It only appears in the plural, and as a people, it is capable of neither decision nor action as a whole' (ibid, p469). For Habermas (ibid), popular sovereignty is located between institutional and non-institutional bodies, with Eriksen (2004, p7) going on to clarify that the principle of popular sovereignty 'can only be

realised under the guarantee of a free public sphere and competition between political parties, together with representative bodies for deliberation and decision-making'. Habermas does illustrate the potential for referenda to legitimate political outcomes in his book *Time of Transition* (Habermas, 2006b, p101). While referenda may offer a basis for claims regarding popular sovereignty, emphasis should be placed on the deliberation that precedes the vote. In the context of Brexit, I would argue that claims to represent popular sovereignty are challenged, reflecting the deliberative shortcomings of the referendum campaign (as outlined within the literature review).

During their analysis of the post-referendum Brexit discussion on Facebook, Brändle et al. (2020, p14) highlight how pro-Brexit comments 'understand the referendum as a legitimate and final decision and that democratic debate is illegitimate at this point after the referendum'. Moreover, populist Leave-supporting politicians who claim to represent popular sovereignty are also likely to limit the quality of debate. Breeze (2020) supports this argument, finding that (in the context of Brexit) 'such narratives have the appeal of simplicity and emotional clarity, and may become the dominant representation of events, resisting attempts by politicians of a different calibre to introduce greater complexity to public debate'. This creates challenges, particularly considering that Remain-supporters contested the political framing of Brexit as an expression of the 'will of the people' (Brändle et al., 2018, p812). Brändle et al. (ibid, p825) argue that claims the referendum represented an indicator of popular sovereignty were viewed as a 'tyranny of the majority, which excludes the recognition of the legitimate concerns of the minority'. Asserting that 'while claims of 'the will of the people' are raised by the government with the intention to 'unify' the people, the

paradoxical effect is that substantial parts of the population do not feel recognised and even feel marginalised as their claims for justice are excluded from future consideration' (ibid).

*6.6.1.   Findings*

To explore such debates, I looked to code for claims to popular sovereignty within the context of Brexit. For clarity, popular sovereignty has been defined as a reference to the wishes of a homogenous group (about an element of Brexit) at a national level, i.e., English voters (see Appendix E for a detailed definition).
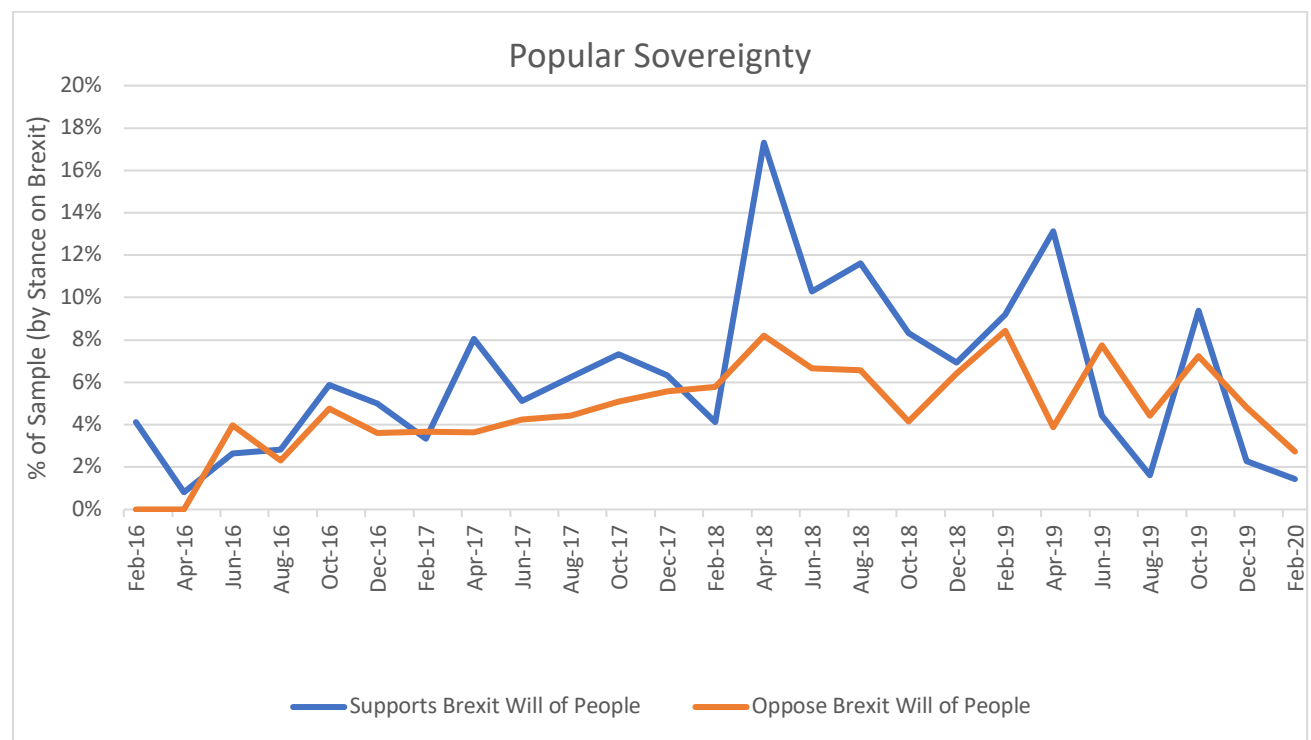


*Figure 46: Claims to popular sovereignty.*

Figure 46 highlights how claims to popular sovereignty are consistently present amongst both Leave- and Remain-supporting tweets across the time of the discussion. While claims to popular sovereignty are generally more common amongst Leave-supporting tweets, there

are several dates within my analysis in which Remain-supporting tweets are more likely to express a popular will.

When exploring the themes present within such tweets, I found that several Remain-supporters adopt rhetoric typically associated with the Leave campaign, often adopting the phrase 'the will of the people'. This is quite surprising because such a phrase had become associated with Leave support (Brändle et al., 2018; 2020; Breeze, 2020). Such a rhetorical style may have been used as a form of irony, intended to negate the implicit meaning behind 'the peoples will' often associated with the 2016 referendum result. This hypothesis is supported by research that demonstrates that 'mock dialogue' has been used in reference to the UK's relationship with the EU (Musolff, 2017).

Remain-supporting tweet from April 2018 - *"The will of the people is clearly that there should be a #PeoplesVote on #Brexit."*

As the implicit meaning is hard to determine, it should be considered that such tweets are actively seeking to represent a popular will, offering a challenge to those who are in favour of leaving the EU. This would somewhat reflect the discourse of some influential Remain-supporting figures, with several seeking to reappropriate the 'will of the people'. In many instances, influential users seem to challenge the idea that Brexit can be considered as the popular will, with a number advocating a second EU referendum as a result. An example of which is highlighted in Figure 47, which shows a tweet from prominent Remain-supporting political advisor Alastair Campbell.
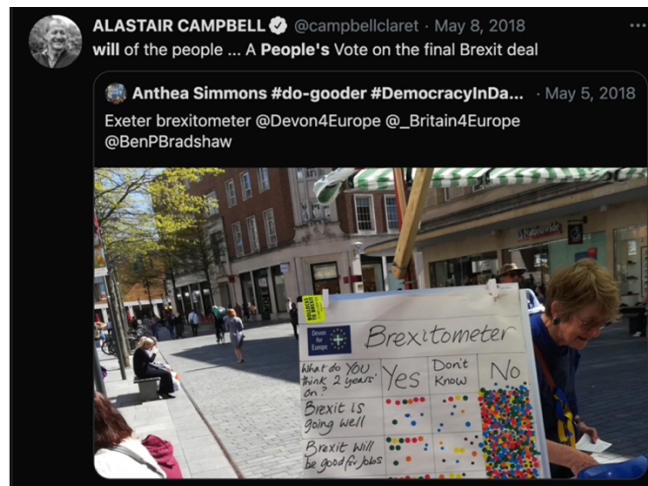
*Figure 47: Alastair Campbell tweet, May 8th 2018.*

In addition, there are several instances in which Remain-supporting tweets allude to a national desire to rebuke such opinion, seeking to juxtapose the popular will. In some sense, this normalises the assumption that Leaving the EU could, at some point, be considered the popular will. Such tweets generally offer an alternative position to highlight a change in opinion.

Remain-supporting tweet from February 2019 - *"Britain wanted Brexit, but you may well be as sad when this country sees common sense and gives up this #Brexit nonsense!"*

Interestingly, I found that several tweets highlight a national desire for Scotland to remain a member of the EU. Such tweets typically use a rhetorical style associated with Leave-supporters, pointing to the 2016 referendum result as evidence of the Scottish people's will to remain in the EU - with the results being 62-38% in favour of Remain.

Remain-supporting tweet from April 2017 - *"Are you joking? Only labour will defend Scottish people's interests to remain in the EU."*

As expected, most Leave-supporting tweets pointed to the 2016 referendum results as evidence that the British people's will is to leave the EU. In addition, there was a feeling of discontent for many users, with a common theme being that the political elite and MSM were seeking to overturn or misrepresent the vote to Leave. This reflects the findings of Brändle et al. (2020), who highlight that Leave-supporting comments typically displayed frustration towards such groups, leading to accusations that elite groups were pitted against the wishes of the British public.

Leave-supporting tweet from February 2016 - *"The UK establishment is invariably wrong due to the fact it does not have best interests of the British people (who want to Leave) at heart."*

This is somewhat expected, mainly due to the type of discourse associated with influential Leave-supporting politicians and campaign groups throughout the pre- and post-referendum discussion, regularly seeking to highlight a dichotomy between the popular opinion and the wishes of the elite, with such a dichotomy typically not being observed within Remain-supporting tweets. This reflects the findings of Breeze et al. (2020), who demonstrates how influential Leave-supporting figures adopted language that sought to represent a degree of popular sovereignty, as highlighted in Figure 48.



**Leave.EU** ✔ @LeaveEUOfficial · Jan 25, 2019

Normal people are taking back control of our political system by rising up against **establishment** MPs. Now the Brexit Secretary is in trouble with his local members for refusing to ditch May's deal 👏

*Figure 48: Influential Twitter users referencing popular sovereignty.*

### 6.6.2. Summary

The findings from this section demonstrate that both Leave- and Remain-supporting tweets lay claim to popular sovereignty, which likely had a limiting effect on inter-ideological discussion and may have posed a challenge to the quality of deliberation. My findings suggest, in line with Breeze (2020) and Brändle et al. (2018; 2020), that a number of Leave-supporting tweets felt that the 2016 referendum result represented an indicator of the people's will (in relation to Brexit), with a frustration that the political elite did not implement the referendum result; such attitudes may reflect the top-down discourse of influential Leave-supporting figures, with a number adopting rhetoric that associates the 2016 referendum result with the people's will. Surprisingly, the findings suggest that several Remain-supporting tweets lay claim to popular sovereignty, which may reflect a challenge to the association between the 2016 referendum result and claims to popular sovereignty.

## 6.7. Conclusion

Sassi (1996, p32) highlights that the public sphere should be understood as 'plural and decentred', a space in which conflicting views are supported through reason and rationality. In contrast, populism is typically hostile towards pluralism and minority opinion, instead emphasising majoritarianism, i.e., the majority of the people against a minority of the few

254

(Aslanidis, 2017; Gerbaudo, 2017). This has the aim of 'amplifying political struggle into a clear dichotomy and maximising political mobilisation on the side of the "we"' (Aslanidis, 2017), in which aggrieved groups compose a front where grievances 'are discursively aggregated and collectively articulated as outcomes of underlying social divisions between "the people" and "the elite"' (Aslanidis, 2017, p6), leading to a discussion crystalised around conflict (Waisbord, 2018).

While there was a lack of understanding regarding the permeation of populist discourse within the bottom-up discussion of Brexit on Twitter, previous research has indicated the presence of top-down populist Leave-supporting communication (for example, Craven and Whitwood, 2019; Breeze, 2020; Tong and Zuo, 2021). As such, when addressing RQ2, I anticipated that the indicators of populist discourse would be significantly greater amongst Leave-supporting tweets. However, the findings demonstrate (except for the out-group analysis) the presence of populist discourse amongst Leave- and Remain-supporting tweets, challenging previous understandings of populism within the context of Brexit. For this reason, the findings from this chapter have left me feeling pessimistic regarding populist discourse and its impact on Twitter's ability to facilitate quality public debate, with the results highlighted within this chapter posing a more significant challenge to rational debate and democratic deliberation than initially anticipated.

When considering the specifics of the findings, they firstly indicate that Leave-supporting tweets construct an out-group through hostility towards migrants, with the thematic analysis highlighting a focus on Middle Eastern migration. As I demonstrate in Figure 40 and Figure 42, this may reflect the top-down discourse of actors who promote populist communication.

While Remain-supporting tweets are considerably more positive towards migration, the thematic analysis highlighted a lack of challenge towards the claims of Leave-supporting tweets. In defending migration, several Remain-supporting tweets promote the idea that there are 'right' and 'wrong' types of migrants, perpetuating the notion that migrants should bring a skill or benefit to the host country. In this sense, I would hypothesise that this construction of an out-group may have negatively impacted participation within the discussion, particularly amongst minority groups. If this is the case, then critiques surrounding exclusion (that have been pointed towards Habermas's conception of the bourgeois public sphere) may apply to the discussion on Twitter. Exploring the impact of the construction of an out-group within the discussion of Brexit, considering the impact of minority opinion, may offer an interesting avenue of research for further exploration.

Secondly, my findings highlight how both Leave- and Remain-supporting tweets are hostile toward the elite. As Waisbord (2018) argues, this conflict-centred view of society is likely to challenge reasoned debate due to populists' emphasis on the binary vision of society. Verifiable information is likely disregarded for such Twitter users, leading to a 'post-truth' politics (ibid). For Leave-supporting tweets, constructions of the elite are likely reflections of (well documented) top-down discourse from influential Leave-supporting users. For Remain-supporters, their discourse may reflect a shift in communication within the UK's Labour Party. As Watts and Bale (2019, p101) argue, this shift in Labour's communication began when 'Labour's people were pitted against the apparently perfidious elite of the Parliamentary Labour Party, as MPs sought (unsuccessfully) to remove Jeremy Corbyn as leader'. Moreover, Wood and Ausserladscheider (2021, p1499) highlight how Labour adopted a populist communication style to challenge neoliberalism, pointing to their slogan 'For the Many, Not

the Few' as a 'clear transposition of the people/elite populist frame'. This would also add credence to the finding that Remain-supporting tweets were more likely to construct the elite in-line with left-wing populist norms.

Finally, my findings suggest that both Leave- and Remain-supporting tweets lay claim to conflicting views of popular sovereignty. For Leave-supporting tweets, the 2016 referendum result is pointed to as an indicator of the people's will, with Brändle et al. (2020, p14) demonstrating how such views are likely to limit democratic debate post-referendum. For Remain-supporting tweets, discourses of popular sovereignty were used to paradoxically challenge the 2016 referendum result, adopting similar language to that of Leave-supporters.

# Chapter 7: Deliberative Quality

## 7.1.    Chapter Overview

As I highlight within the literature review, deliberative democracy emphasises talk-centric democracy (Chambers, 2003, p308). In such circumstances, importance is placed on 'debate and discussion', with the aim of producing reasonable, well-informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants' (ibid). In relation to the EU referendum, the literature review argues that it suffered from a deliberative deficit, one that emphasised 'votes rather than voice' (LeDuc, 2015, p140), challenging the legitimacy of the vote and posing challenges to the formation of public opinion.

This chapter seeks to explore debates related to deliberative quality within the discussion of Brexit on Twitter. Initially, this chapter offers an overview of the deliberative quality on the platform Twitter to add context to the empirical findings. I then present the results from the quantitative content analysis, highlighting measurements of incivility, genuine question asking, the use of evidence for the purpose of justification and the use of the hashtag for the purpose of exploratory serendipity. In doing so, this chapter seeks to address RQ1: *to what extent does the discussion function deliberatively?* This chapter generally points to a decrease in deliberative quality across time and suggests a disparity with the tweet's stance on Brexit relating to deliberative indicators, with Leave supporter's tweets less likely to abide by deliberative norms.

Questions have been raised regarding how Twitter promotes deliberative discourse and how the platform may effectively serve public debate (see, for example, Sunstein, 2018).  Within this section, I seek to offer a general overview of debates surrounding Twitter and deliberative quality, considering deliberative quality in line with the findings from the previous chapters of this thesis, before presenting the empirical elements of my research.

In the pre-social media environment, the role of mass media had been critiqued by Habermas due to its negative impact on pluralistic communication. In addition, there has been a growing cynicism and disillusionment towards politics in Western societies, which may have negatively impacted 'trust and engagement in political and media systems' (Graham, 2015, p2). With the advent of social media, as Gerhards and Schäfer (2010, p143) argue, there was the hope that such platforms would 'make previously marginalised actors and arguments more visible to a broader public', potentially mitigating the deliberative downturn in Western society. However, as social media platforms developed, so did the understanding of their relationship with deliberation. As a result, academics began to emphasise the affordances of individual platforms, moving away from viewing 'social media' in a homogenous manner.

As I argue within the literature review, the material affordances may impact the quality of deliberation on a given platform. For example, on a platform such as Facebook, emphasises is placed on mutual connection, and users are generally identifiable – therefore, not wanting to jeopardise the relationship with friends or acquaintances may encourage politeness and reasoning on the platform (Halpern and Gibbs, 2013). On a platform such as Reddit, there is a generous character limit of 40,000 and discussion is centred around topics rather than a

follower networks, which may encourage more detailed argumentation (Treen et al., 2022, p3). However, on Twitter, its anonymous open communication and character limit are likely to encourage self-centred and unregulated behaviour (Oz et al., 2018, p3405). Another affordance of Twitter is its ability to engage in (or filter) broader discourse using the hashtag. While not particularly unique to Twitter (other platforms have tried to incorporate the hashtag into their structure), it is perhaps one of its most defining and notable characteristics. While undoubtedly beneficial under the right circumstances, for many users on Twitter, the hashtag has become a simplistic symbol of political intent, one which has associations with binary political rhetoric, anger and lack of emotional temperate (Rho and Mazmanian, 2020).

When considering broader debates surrounding Twitter and deliberative quality, there is a marked divide amongst those who view Twitter's relationship with deliberation positively (e.g., Shephard, 2014), negatively (e.g., Oz et al., 2018), as well as those who display a mixed opinion (e.g., Jaidka et al., 2019). As pointed out by Valle et al. (2020), Twitter is often viewed as having many of the characteristics that *should* promote deliberativeness, for example, its open nature and low barriers of entry that may promote discursive engagement; its hashtag function may open debate to a broader range of voices outside of immediate communities and its ability to offer the infrastructure to challenge dominant narratives free from state or social pressures (with the latter point often being cited in regards to tangible offline outcomes, such as the Arab Spring and the #MeToo movement). However, it is easy to point to the counterarguments for such points, being unclear as to whether Twitter truly does incorporate a range of voices or facilitates discussion amongst a particular portion of society, its hashtag function can just as easily be used as a filtering tool that may encourage like-

minded discussion, and dominant narratives may permeate many Twitter discussions. In addition, the impact of Twitter on societal movements is debatable at best, with the small handful of democratising movements associated with Twitter perhaps a reflection of broader debates and public opinion. Furthermore, Bouvier and Rosenbaum (2020, p3) suggest that Twitter may also facilitate movements that are less democratic at heart, with the network just as easily being harnessed by undemocratic interests and authoritarian regimes.

Before exploring the empirical measurements within this chapter, I would like to take a moment to reiterate some of the findings within this thesis that relate to debates surrounding deliberative quality. Firstly, the Polarisation chapter sought to explore homogeneity within the discussion of Brexit on Twitter, with homogeneity relating closely to elements of deliberative quality (Cinalli and O'Flynn, 2014; Bächtiger and Parkinson, 2019). This is due to homogenous ties being more likely to foster extreme opinions and being less responsive to opposing viewpoints, with heterogeneous associations being viewed as beneficial in promoting understanding and a healthy deliberative environment. The findings from my SNA were somewhat mixed, demonstrating the consistent presence of both homogenous and heterogeneous communities, posing challenges in interpreting the results. However, when considered in relation to out-group labelling, my research suggests an increase in the level of polarisation across time, potentially having a damaging impact on inter-ideological discussion. Secondly, the Populism chapter demonstrated the presence of highly exclusionary themes within the everyday discussion of Brexit on Twitter, which I would suggest had a limiting effect in terms of deliberative participation amongst certain groups. On the other hand, the Central Users chapter highlighted the consistent presence of 'everyday'

users within central network positions, potentially increasing the plurality of opinion within

the discussion and challenging dominant communication flows.

Through a focus on indicators of deliberative quality, this chapter, therefore, aids in clarifying

the implications of the findings from the previous chapters. In doing so, I aim to tie together

a number of the arguments made throughout the thesis, particularly those that relate to the

empirical measurements in relation to the quality of deliberation, which will strengthen the

conclusions made in the final chapter.

## 7.3. Empirical Measurements

This section presents the findings from the quantitative content analysis that relate to the

empirical measurements of deliberative quality (Appendix E). As highlighted within the

methodology, the overall corpus consists of 25 samples gathered on the 1st of every other

month from February 2016 until February 2020. Of which, n=385 tweets per sample were

chosen at random for the content analysis. Specifically, this section addresses incivility,

evidenced claims, genuine question asking and the status of the hashtag.

### 7.3.1. *An Exploration of Incivility*

The first empirical measurement explored within this section seeks to highlight the degree of

incivility within the discussion of Brexit on Twitter. In general, incivility can limit the

discussion, negatively impacting participation, engagement amongst opposing viewpoints,

and encouraging attitude polarisation (Kim and Kim, 2019). This is primarily due to incivility

inducing defensive reactions within online discussions, increasing moral indignation, and

reducing open-mindedness (Santana, 2014). On a platform such as Twitter, which allows for

anonymous and open conversation, there is little consequence for engaging in incivility. For many users, self-regulation, which may act to limit negative behaviours, is reduced due to the lack of social context cues. While this may be beneficial in terms of engagement, the benefits are likely outweighed when considering the user may be communicating based on separation from the offline social context and the implications of civility that come with it. This may be further aggravated when considering the issue of Brexit has often been associated with the 'Shy Tory Factor' – a variation of the 'Spiral of Silence Theory' that suggests that certain portions of society are less likely to express their political opinion when it is deemed socially challenging (Whiteley, 2016; Fry and Brint, 2017).

In addition, Brexit's general association with group identity and highly emotional political discourse may have promoted incivility. Evidence has suggested that in the context of the China-Hong Kong relationship, a political discussion that addresses similar emotional themes surrounding identity and sovereignty, that broader factors outside of the context of the social media discussion (such as offline national identity) may have encouraged incivility within the online discussion (Song and Wu, 2018). This may have been further propagated through the binary identities of Chinese and Hong Kongese, which in many senses reflects the Leaver and Remainer dichotomy in relation to Brexit. Moreover, Kim and Kim (2019, p222) demonstrate that exposure to incivility from out-group members may negatively impact attitude formation, willingness to seek further information and is associated with negative emotions.

Within this thesis, I defined incivility as anytime a tweet includes either an ad-hominem attack, swearing or the online equivalent of shouting (expressed through the excessive use of

punction or capital letters). A detailed justification for the inclusion of such categories can be found in Section 3.4.2. of the Methodology Chapter.

*Findings*

The following figure represents the aggregated level of incivility with the discussion of Brexit on Twitter across the time of the debate.
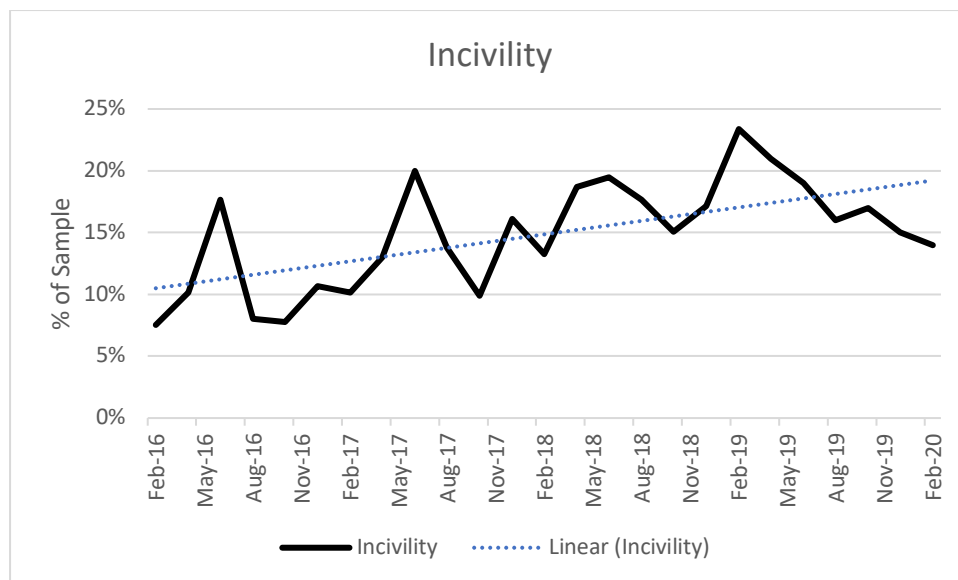


*Figure 49: Levels of incivility.*

Figure 49 highlights an increase in the level of incivility across time, with the trendline moving from slightly over 10% in February of 2016 to nearly 20% in February of 2020. To confirm this observation, I undertook a Pearson's r, hypothesising that there would be a positive correlation between the level of incivility and the date of the dataset. The hypothesis was accepted, scoring 0.558 - suggesting a statistically significant moderate positive correlation between the level of incivility and the date of the dataset. In other words, as the discussion progressed, so did the likelihood that tweets would engage in incivility. In understanding this

finding, I sought to further explore the results by stance on Brexit, hypothesising that Leave-supporting tweets would be most likely to contain incivility due to Leave support being greater amongst the groups that Dijk and Hacker (2018, p93) identify as less accustomed to the norms of civility.
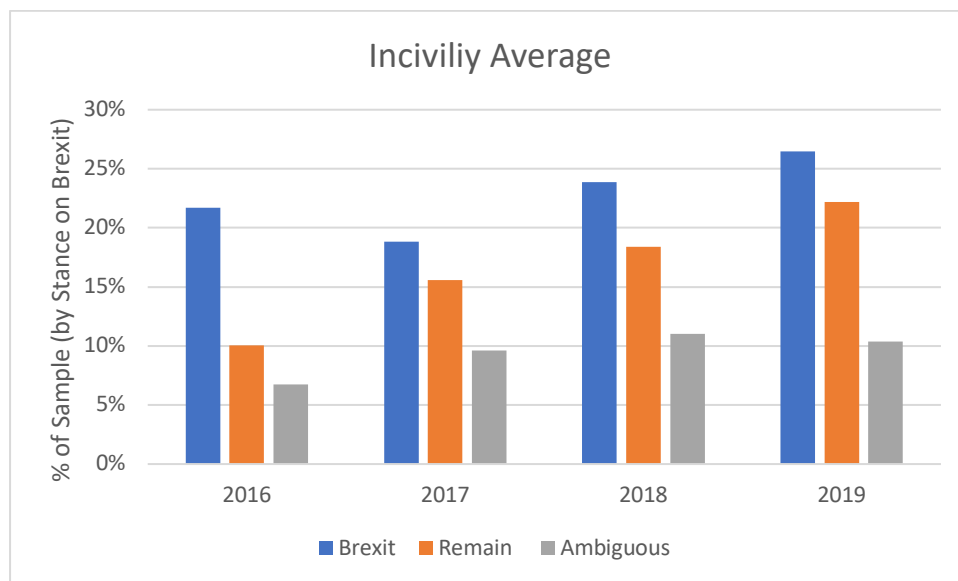


*Figure 50: Average incivility by stance on Brexit.*

This hypothesis was supported when considering the findings from Figure 50, which highlight how Leave-supporting tweets were, on average, more likely to contain incivility across the time of the discussion. Interestingly, the most significant increase in incivility is observed amongst tweets identified as Remain-supporting. This is particularly surprising as Remain support is typically associated with groups more likely accustomed to the norms of civility. Several variables may account for such an increase, which I would like to consider briefly.

Firstly, the findings may reflect a phenomenon in which incivility amongst Leave-supporting tweets led to an increase in levels of incivility amongst other groups, which is supported

when considering the results of Kwon and Gruzd (2017), who demonstrate the presence of mimicry verbal aggression on YouTube. Specifically, they find that 'swearing in a parent comment is significantly and positively associated with the likelihood and intensity of swearing in subsequent 'children' comments' (ibid, p1). This is supported by Goldenberg and Gross (2020, p316), who asserts that 'exposure can lead to recipients' own emotional expressions becoming more similar to those of others, a process referred to as digital emotion contagion'.

Secondly, the increase in incivility could reflect a cascade effect, with incivility impacted by the top-down communication from influential users (Pearson et al., 2000). In such a circumstance, incivility may be affected by the shift in the type of users within a prominent network position (as highlighted within the Central Users chapter). Specifically, my findings suggest that in 2016, several actors associated with populist and emotive discourse were in a position of opinion leadership within Leave-supporting communities, which may reflect the disproportionate degree of incivility amongst Leave-supporting tweets during this time. Amongst Remain-supporting communities, my findings suggest that during the post-referendum period, actors move into positions of opinion leadership that may be less inclined to communicate following deliberative norms (such as @Brexit_Sham).

Thirdly, it may be a reaction to the increased homogeneity of Remain-supporting communities in the post-referendum period (as observed within the Polarisation chapter). As Nishi (2021, p1) highlights, this centres around the argument that when 'individuals are frequently exposed to like-minded information, they are more likely to use uncivil language because discussions with other like-minded persons intensify an individual's pre-existing

beliefs, which in turn leads to more extreme expressions'. There is some evidence to support

this argument. For example, Chan et al. (2019) found (within the context of a Facebook

discussion) that 'content shared within ideologically compatible communities were more

likely to be uncivil', with the association 'significantly more positive in populistic

communities, of which members had unique political nature and cultural norms'. Moreover,

Lee et al. (2019) found a similar phenomenon, suggesting that incivility grew with levels of

homogeneity.

Finally, it may be impacted by the increase in the Twitter character limit, which Jaidka et al.

(2019) assert led to increased incivility on the platform. However, as the character limit

increased in November of 2017, this would not account for the already high levels of incivility

amongst Leave-supporting tweets before this point, so I believe this to be the least likely

hypothesis. There is, of course, the possibility that the increase in incivility reflected a degree

of each of the factors outlined.

Finally, I would like to clarify that I am not seeking to assert that tweets are civil by virtue of

not engaging in incivility. This is due to civility having its own set of rules, which are succinctly

highlighted by Eulau (1973). While highly likely that incivility has a negative relationship with

civility, further research should consider addressing this question through a specific

exploration of civility in relation to the Twitter discussion of Brexit, strengthening the findings

from this section. What is clear, though, is that as the conversation progresses, so did the

degree of incivility amongst all groups, likely negatively impacting discussion amongst

opposing viewpoints and promoting attitude polarisation. This, when considered with the

latter findings within this chapter, poses challenges in viewing Twitter as a platform that supports deliberative ideals across the time of the discussion.

### 7.3.2. *Evidenced Claims*

The second empirical measurement explored within this chapter is the use of evidence to justify a claim made about Brexit. Providing justification can be viewed as a normative function of rational discussion (Habermas, 1996), allowing participants to assess the validity of a claim and, in turn, increasing the likelihood of participants reaching common ground. The logic suggests that in providing justification, claims move from mere assertion void of substantive reasoning to argumentative points likely to encourage further debate. For example, the statement 'Brexit is bad for business' is expected to incentivise a dismissive response, while the inclusion of a justification such as 'Brexit is bad for business because 43% of UK's exports go to the EU' incentivises discussants to consider the validity of such a claim, as well as increasing the claims intersubjectivity.

It should be noted that on Twitter, the imposed character limit poses a challenge for users seeking to justify a claim, with Oz et al. (2018) demonstrating that this may lead to a lack of evidence compared to competitor platforms that do not impose such a limit. However, justification on Twitter is often provided in the form of evidential support through content (video, imagery, link, and retweets) included within the tweet (Procter et al., 2013; Addawood and Bashir, 2016; Wessler, 2018). As Wessler (2018, p68) highlights, content can be considered justification when it seeks to support an argument made within the tweet.

To address such questions, I looked to explore the levels of evidence provided to justify or support a particular claim made about Brexit (hereon referred to as 'evidenced claims'), in comparison with claims made that do not offer evidential justification (hereon referred to as 'non-evidenced claims'). While Appendix E provides a detailed overview, an 'evidenced claim' has been defined as any instance in which a user provides supplementary content that may justify their argument or when they support their argument by providing clear evidential justification within the written element of the text. In contrast, a 'non-evidenced claim' does not offer evidential or written justification.

The findings are highlighted in the following figure, with red representing tweets that contain non-evidenced claims and black representing tweets that contain evidenced claims.
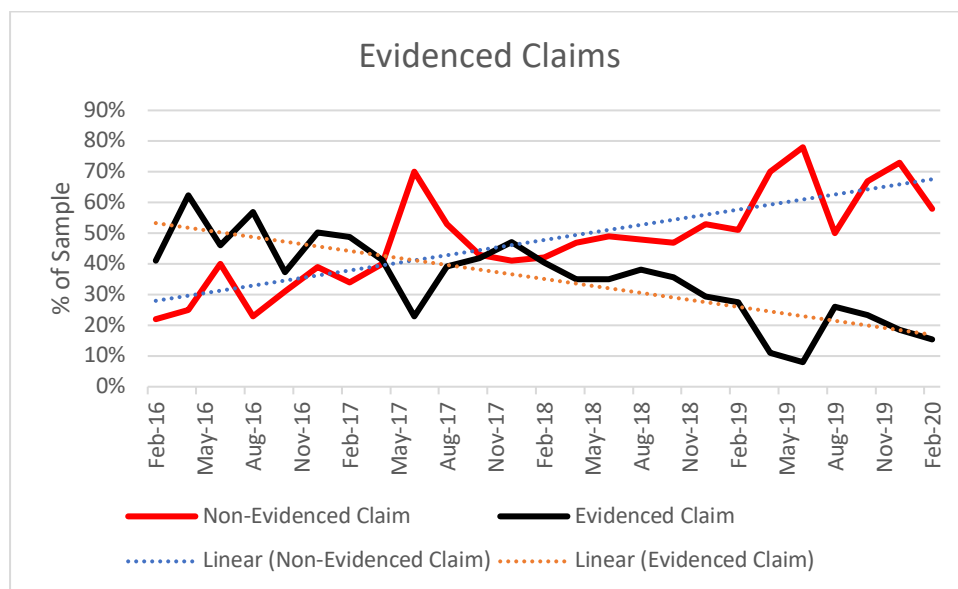


*Figure 51: Levels of evidenced claims*

As is highlighted in Figure 51, there is a consistent decline in tweets that contain evidenced claims across time, which contrasts with an increase in the percentage of tweets that contain

269

non-evidenced claims. To confirm these findings, I undertook a Pearson's r, hypothesising

that there would be a negative correlation between the use of evidenced claims and the date

of the dataset and a positive correlation between the use of non-evidenced claims and the

date of the dataset. Both hypotheses were accepted. The test scored -0.820 for the linear

relationship between evidenced claims and the date of the dataset (suggesting a strong

negative correlation) and 0.838 for the linear relationship between non-evidenced claims and

the date of the dataset (suggesting a strong positive correlation). In other words, as the

discussion progressed, tweets were considerably less likely to contain evidenced claims and

considerably more likely to contain non-evidenced claims.

Interestingly, when the use of evidenced claims was broken down by stance on Brexit and

considered as a yearly average, there was a decrease observed amongst all groups[9].

---

9 Please note, I decided not to present the results from the non-evidenced claims due to the
fact they mirrored the findings from Figure 52. Therefore, the points from the proceeding
discussion can also be applied to non-evidenced claims and should be considered with that in
mind.
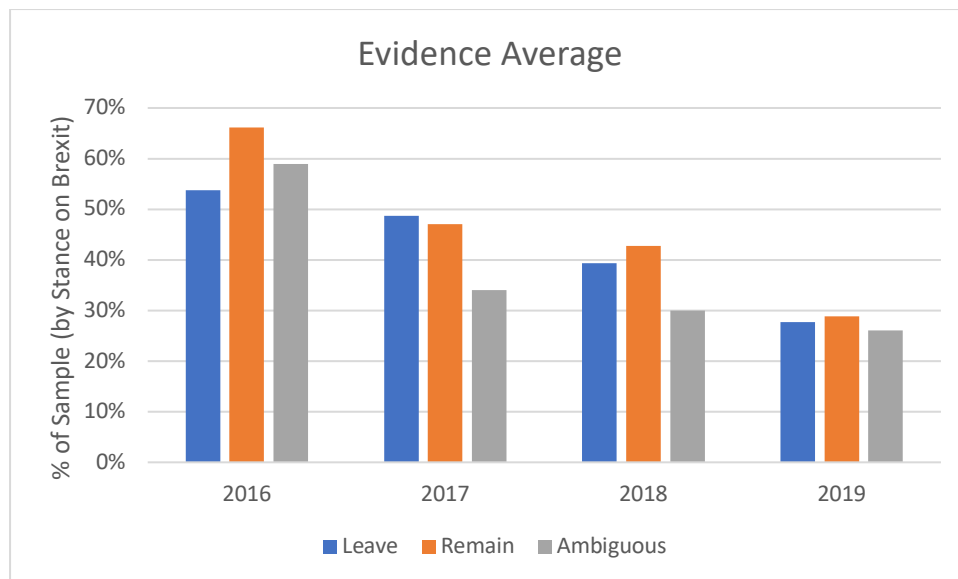
*Figure 52: Average levels of evidenced claims by stance on Brexit.*

Figure 52 highlights the year-on-year decrease in evidenced claims present amongst Leave, Remain and ambiguous tweets. The most significant reduction is amongst Remain-supporting tweets, falling from an average of 66% in 2016 to an average of 29% in 2019. Figure 52 also suggests that, in every dataset post-2016, ambiguous tweets are the least likely to contain evidence. While Leave-supporting tweets were the least likely to contain evidence in 2016, they did not decline in the same terms as Remain-supporting or ambiguous tweets, decreasing from 54% in 2016 to 28% in 2019. It should also be noted that 2019 saw the lowest levels of variance, with the three respective groups ranging from 26-29%.

As previously noted, it could be argued that the decrease in the use of evidenced claims had a damaging impact on the perceived validity of the discussant's arguments. This is particularly harmful on a platform such as Twitter, whose character limit negatively impacts a user's ability to add context to an argument. In this sense, if a user's claim lacks evidential support, it runs the risk of being dismissed, likely at the expense of further engagement.

As I demonstrate in the literature review, Habermas (1984; 1996) highlights the importance of validity claims – argumentation that would be open to criticism and justifiable. In presenting a claim, importance is placed on the 'understanding of the speech act, on behalf of the hearer, consisting of knowledge of the type of reasons that could be offered in support of it' (Heath, 1998, p24). In other words, the comprehension of the meaning of a claim incorporates an understanding of how it could be justified. It may be possible that during the earlier stages of the discussion on Twitter, there is a greater need for discussants to provide evidence for a position that the hearer may not have encountered before. In this sense, evidence may act as a condition by which the hearer may comprehend the meaning and validity of a discussants claim. For example, in the immediate aftermath of the 2016 referendum, if a user had stated "we need a second referendum", the communicative intent of the speaker (Habermas, 1984, p307-308) and the justification for such a claim may be unclear to the hearer. In contrast, there is likely a greater chance of intersubjective understanding if the claim was made during the latter stages of the discussion, reflecting a greater level of common understanding. In this sense, the impact of the decreasing presence of justification may be mitigated somewhat. However, the degree of general understanding is unclear, particularly considering the range of developments within the Brexit process and the observed homogeneity in Chapter 4. As such, the impact of the decreasing levels of evidence may offer an interesting avenue for future research.

I would also suggest that the decrease in evidenced claims may reflect a growing distrust towards media organisations and expertise, particularly relevant as previous research has pointed to 'news media' and 'traditional media' as the most commonly used form of

evidence found within tweets (Himelboim et al. 2013; Addawood and Bashir 2016, p5). To test the strength of the correlation, I undertook a Pearson's r, hypothesising that the decline in evidenced claims (outlined in Figure 51) would positively correlate with the decline in the network position of MSM (outlined in Figure 26). The hypothesis was accepted, with the Pearson's r scoring 0.710, suggesting a strong positive correlation between the network position of MSM and use of evidenced claims. For this reason, my findings indicate that as MSM's network position decreased, so did the likelihood of users providing evidence for claims made surrounding Brexit. While further research would be needed to determine causality, an understanding of these results may be found when considering the findings from the Populism chapter, with an observed hostility towards MSM present amongst Leave- and Remain-supporting tweets, as well as an observed hostility towards perceived expertise. In addition, the findings may also reflect the shift in discourse from political leaders, with the Central Users chapter suggesting that Jeremy Corbyn limited engagement with MSM sources as the discussion progressed.

### 7.3.3.  _Question Asking_

The third metric of deliberative quality explored within this section is the degree of question asking within the discussion of Brexit on Twitter, investigated through the measurement of genuine and rhetorical question asking. As Stromer-Galley (2007, p12) highlights, genuine question asking can indicate engagement with either a topic or fellow participants, eliciting 'information from others, and hence as a process that invites engagement'. In addition, question asking has been related to constructiveness (Friess and Eilders, 2015, 331; Jellema et al., 2017), typically considered an indicator of progression. However, on Twitter, previous research has indicated that most questions asked are rhetorical in nature, which may account

for low levels of response on the platform (Paul et al., 2011) and may negatively impact levels of trust amongst discussants (Oeldorf-Hirsch et al., 2014).

To determine what is meant by 'genuine' and 'rhetorical' question asking, Stromer-Galley's (2007, p12) coding manual perhaps offers the most apparent distinction, defining genuine question asking as:

> Statements that place the operator (who, what, where, how, etc.) before the subject (including statements like is that a fair assessment?), statements with intonation rising at the end of the sentence, and directive questions, such as "please give me an example."

In highlighting these indicators, Stromer-Galley (ibid) distinguishes genuine question asking from rhetorical questions, which they assert typically do not invite engagement from participants, instead seeking to advance opinion or argument in the form of a question. Rhetorical questions are usually identified as questions that contain a statement of intent and lack proper invitation of engagement, for example, "we would be better off outside of the EU, it would save us £350m a week, why waste our money on foreign countries?". In posing the question in such a manner, the user does not actively seek engagement from fellow participants. If they did, they may have worded the question something like "we would be better off outside of the EU, it would save us £350m a week, what are your thoughts on us sending money to other countries?". It should be noted that distinguishing between rhetorical and genuine questions can sometimes be challenging, often relying on the interpreted meaning of the question posed, which may result in some rhetorical questions

eliciting responses from discussants. However, it is generally accepted that rhetorical

questions do not receive the same response frequency as genuine questions, often limiting

further engagement and discussion.

*Findings*

Within this section, I looked to code for genuine question asking (identified as any instance a

user asks a question to elicit a response) and rhetorical question asking (any instance the

user posed the question to advance an argument or opinion). The findings are presented in

the following figure, with the black line representing genuine question asking and the red line

representing rhetorical question asking.
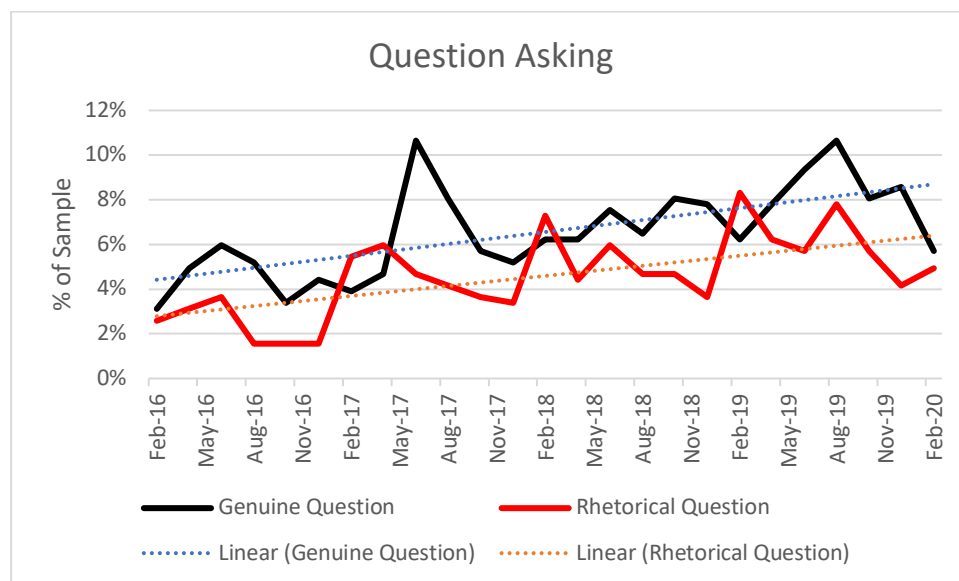


*Figure 53: Levels of rhetorical and genuine question asking.*

Figure 53 highlights an increase in both genuine and rhetorical question asking as the

discussion progressed, with the linear (genuine question) trendline moving from just over 4%

in February 2016 to just over 8% in February 2020. The linear (rhetorical question) trendline

moves from 3% in February 2016 to just over 6% in February 2020. To test the strength of

correlation between the date of the dataset and genuine and rhetorical question asking (respectively), I undertook a Pearson's r, hypothesising that there would be a positive correlation in both tests. Both hypothesis were accepted, with the Pearson's r scoring a statistically significant 0.687 for genuine question asking in relation to the date of the dataset and a statistically significant 0.622 for rhetorical question asking in relation to the date of the dataset, suggesting a moderate correlation in both instances. In other words, as the discussion progresses, so does the likelihood of tweets engaging in both rhetorical and genuine question asking.

I broke the findings down by stance on Brexit to further explore these results, presented in the following table.

*Table 6: Average question asking displayed by stance on Brexit.*

| Type | 2016 Average | 2017 Average | 2018 Average | 2019 Average |
|------|--------------|--------------|--------------|--------------|
| Leave Genuine Question | 3% | 5% | 9% | 9% |
| Remain Genuine Question | 5% | 7% | 6% | 8% |
| Ambiguous Genuine Question | 7% | 11% | 10% | 9% |
| Leave Rhetorical Question | 3% | 5% | 9% | 9% |
| Remain Rhetorical Question | 2% | 7% | 6% | 8% |
| Ambiguous Rhetorical Question | 3% | 3% | 4% | 6% |

*Note: displayed as a percentage of Leave-supporting tweets, Remain supporting tweets and ambiguous tweets (respectively).*

When the findings are considered in relation to Table 6, it becomes apparent that there is a similar increase in genuine and rhetorical question asking across all groups. However, my findings suggest that ambiguous tweets are the most likely to ask genuine questions and least likely to ask rhetorical questions at most points within the discussion. Furthermore, Leave-supporting tweets are the most likely to ask rhetorical questions at all points.

The implications of these findings are somewhat contradictory. On the one hand, the increase in genuine question asking is likely to elicit more significant levels of engagement within the discussion. While on the other hand, the increase in rhetorical questioning is expected to advance pre-existing positions, in some senses limiting debate. In terms of the rise in genuine question asking, it should be noted that this is the only indicator of deliberative quality within this chapter that would point to a positive change across time.

### 7.3.4.  *The Use of the Hashtag*

The final metric within this section sought to explore the use of the hashtag within the discussion. In agreement with Yardi and Boyd (2010) and Sunstein (2018), my research took the view that the hashtag, under the right circumstances, can facilitate exploratory serendipity and promote the type of exposure necessary for the construction of informed opinion. With this, I am referring to the use of the hashtag defined within this thesis as 'neutral', i.e., those that do not display a clear position or statement of intent. For example, the neutral hashtags #Brexit, #GeneralElection, and #LabourParty do not carry direct or implied meaning and are likely to be used by actors displaying a range of opinions. In using a neutral hashtag, users may engage their point to a broader audience, likely to the benefit of cross-ideological discussion.

In contrast, negative evaluations of the hashtag general centre around concerns that individuals are granted the ability to filter views that run concurrent to their own, limiting exposure to wider opinions (Yardi and Boyd, 2010; Sunstein, 2018). This is due to the hashtag offering the ability for users to signal topics or points of view, with this type of hashtag being defined as 'partisan' within this thesis. For example, in using the hashtag #VoteLeave, a user would likely encounter Leave-supporting tweets, negating the exploratory serendipity associated with neutral uses of the hashtag. Sunstein (2018, p70) offers a concise overview of the use of partisan hashtags and their impact, suggesting that this primarily relates to issues surrounding fragmentation and opinion polarisation. In this sense, the partisan hashtag would likely challenge deliberative ideals. The findings from this section seek to explore the frequency of the partisan hashtag compared to the neutral hashtag, which would likely impact deliberative quality within the discussion.

*Findings*

To address such debates, I sought to highlight the percentage of tweets discussing Brexit that contained either only neutral hashtags, only partisan hashtags or both neutral and partisan hashtags (the specifics of this measurement can be found in Appendix E). The findings are presented in the following figure.
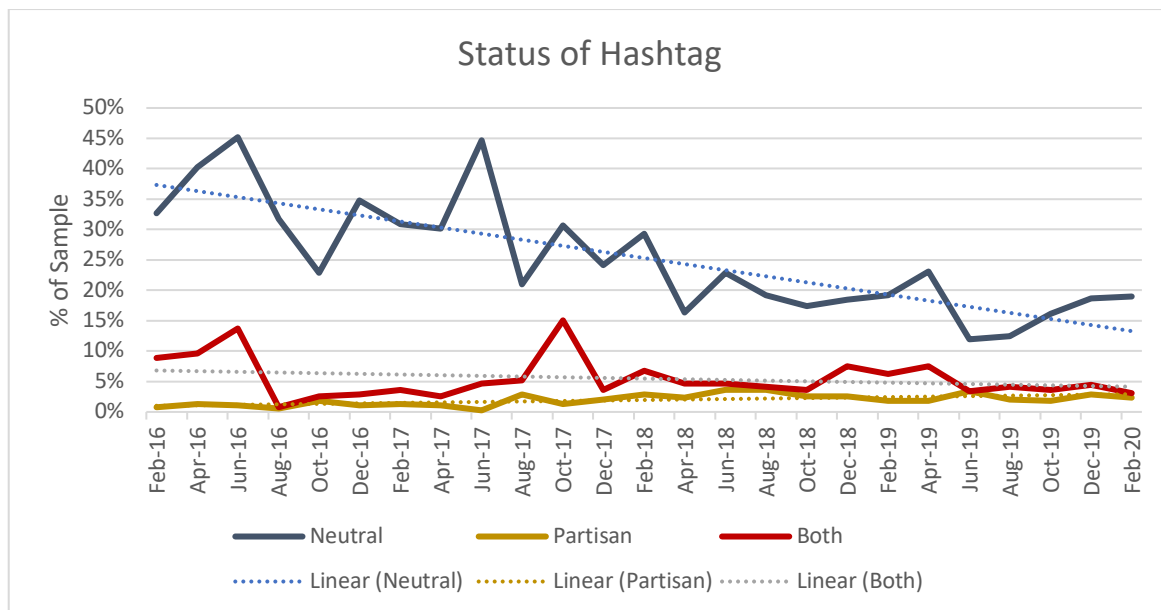
*Figure 54: Type of hashtag used.*

Figure 54 displays a consistent decline in tweets that contain only neutral hashtags across time, which can be observed with the Linear (Neutral) trendline. In contrast, tweets containing only partisan hashtags and tweets containing both neutral and partisan hashtags remain somewhat stable throughout the discussion, which can be highlighted with the Linear (Partisan) and Linear (Both) trendline. Despite an observed decline in tweets that only use neutral hashtags, my findings suggest that in all datasets, tweets are more likely to include only neutral hashtags than they are to include any partisan hashtags. It should also be noted that tweets that use partisan hashtags are more likely to do so in combination with neutral hashtags, potentially mitigating some associated negative implications. However, the findings do suggest, consistent with other empirical measurements within the chapter, that there is a decline in this indicator of deliberative quality across time.

In exploring the specifics of these findings, I found the work of Del Gobbo et al. (2020) particularly useful, as they offer a comprehensive list of the most commonly used hashtags

within the discussion of Brexit on Twitter. While my research did not seek to measure the instances of occurrence amongst each specific hashtag quantitatively, the findings from Del Gobbo et al. (ibid) validate much of my anecdotal observation when undertaking the coding from this section. Primarily, most partisan hashtags were used to signify intent concerning Brexit, such as #LeaveMeansLeave, #StopBrexit, #BrexitBetrayal etc.

Example use of partisan hashtag 1 - *"I'm a Scottish voter. A unionist. A Brexit voter. We do not need pragmatism; we need to leave. We need autonomy, and we don't want to pay a penny more. We can take the rest on the chin. This defeatist approach will ruin the conservative party #leavemeansleave."*

Example use of partisan hashtag 2 - *"This is the year labour come to their senses and #stopbrexit."*

Interestingly, I observed several tweets using the hashtag #FBPE within the most homogenous communities within Chapter 4 (with Del Gobbo et al., ibid, also highlighting the salience of this hashtag). #FBPE, an acronym of 'Follow back pro-EU', had been used to signify a user's position on Brexit and a tag that sought to engage fellow Remain-supporters in discussion. #FBPE formed an element of the user's identity in many senses. Users were encouraged to adopt #FBPE as part of their Twitter 'name' (the customisable identifier that supplements a user's Twitter handle). Often considered to have the characteristics of a grassroots movement, #FBPE became a popular hashtag within the discussion of Brexit, later becoming institutionalised under the banner of the Peoples Vote movement (see Popham, 2021). While likely well-intentioned, it is possible that #FBPE may have some relationship

with the high levels of homogeneity observed amongst Remain-supporting Twitter users during the post-referendum period[10]. I would argue that this may be due to the organised nature of the hashtag, with #FBPE seeking to propagate discussion amongst like-minded users.

Example use of FBPE 1 - *"#FBPE ers and fellow remainers, it's soon to be the local election, and this could be a good way to apply some pressure to #stopbrexit. Please use the #abtv in your names and vote for a #remain in May. #Brexit #Tories #Labour"*

Example use of FBPE 2 - *"We are asked to be patriots and support Brexit. But it is due to me being patriotic that I oppose Brexit. Wise words from John Major, which echo millions of people who continue the campaign to remain in the EU #FBPE."*

To explore the relationship between #FBPE and community homogeneity, I highlighted the percentage of tweets within a given community that included the hashtag #FBPE in relation to the percentage Remain consensus within the given community (the data underpinning this analysis is highlighted in Appendix H). As #FBPE was primarily used at the beginning of 2018, I looked to explore the two datasets from that year: February 2018 and June 2018. To determine the strength of correlation between the two linear variables, I undertook a Pearson's r, hypothesising that the use of #FBPE would display a positive correlation to levels of Remain homogeneity. In both instances, the hypothesis was confirmed, suggesting a positive correlation between the use of #FBPE and community homogeneity. February of

---

[10] See the Chapter 4, section 4.3.

2018 presented a score of 0.760, suggesting a statistically significant strong positive

correlation, and June of 2018 presented a score of 0.520, indicating a statistically significant

moderate positive correlation.

This raises the question, though, does the impact of #FBPE differ from that of other, less

organised, partisan hashtags? To test this, I sought to undertake a similar analysis using the

hashtags #NoDeal (in February of 2019) and #StopBrexit (in October of 2019)[11]. The same

Pearson's r had been conducted, hypothesising that the partisan hashtag would positively

correlate to levels of homogeneity. The Pearson's r suggested that there was no statistically

significant relationship present between the use of #NoDeal and homogeneity in the

February 2019 dataset, scoring 0.252. However, the hypothesis was confirmed when

considering #StopBrexit, scoring 0.632, suggesting a statistically significant moderate positive

correlation between the use of #StopBrexit and community homogeneity. As the findings do

not suggest universal agreement, as it did with #FBPE, it may be that #FBPE is more likely to

promote homogeneity than general partisan hashtags.

Additionally, to address debates surrounding the use of the neutral hashtag and its

relationship with homogeneity, I explored the hashtag #Brexit from three time periods across

the discussion (February 2016, October 2017 and February 2019). Undertaking a Pearson's r,

I hypothesised that the neutral hashtag would negatively correlate with homogeneity. The

findings from two datasets (February of 2016 and October 2017) confirm this hypothesis,

displaying a statistically significant moderate negative correlation (-0.522 and -0.622,

---

[11] Both hashtags were determined as salient at the given points by Del Gobbo et al. (2020)

respectively), suggesting a negative correlation between the use of #Brexit and community homogeneity. To rephrase, this suggests that using the neutral hashtag is likely associated with heterogeneous discussion in both datasets. However, there is no statistically significant relationship present between the use of #Brexit and the degree of community homogeneity in the February 2019 dataset, scoring a significantly insignificant -0.035. As there is a two-thirds agreement with the hypothesis, I do have some confidence in the negative relationship between using the neutral hashtag and homogeneity.

The findings from this section would suggest some challenges when considering the hashtag's function in relation to the discussion of Brexit. Namely, the findings display confidence in the hypothesis that #FBPE has a relationship with homogeneity, although the results from the general partisan hashtag are somewhat mixed. I would argue that using the partisan hashtag is likely to negatively impact exposure to broader viewpoints. Although, this may not be the case for all partisan hashtags used, mitigating some of the negative implications. It should also be considered that the use of the partisan hashtag was considerably lower than that of the neutral hashtag at every point. My findings suggest that, in two-thirds of the datasets explored through the correlation analysis, the neutral hashtag negatively correlates with homogeneity. In this sense, my results indicate that the overall decline in the use of the neutral hashtag may negatively impact exploratory serendipity. However, in one of the datasets, there was no statistically significant correlation observed. Therefore, further research would be needed to validate this conclusion.

## 7.4.    Conclusion

Deliberative theory underpins much of Habermas's public sphere, with Habermas (1991; 1996) emphasising reasoning and deliberation as a basis for democratic legitimacy. As I argue within the literature review, the EU referendum suffered from a deliberative deficit, which may have undermined the legitimacy of the 2016 referendum result. Despite this, further research was needed to explore indicators of deliberative quality within the context of the Twitter discussion of Brexit, paying attention to change across time. As such, I proposed RQ1, which asks *to what extent does the discussion function deliberatively?* To address this research question, I undertook a quantitative content analysis to explore four indicators of deliberative quality: incivility, justification, question-asking and the use of the hashtag. In general, this chapter points to a decline in deliberative quality across time, leading to a challenge for Twitter's ability to add legitimacy to political outcomes, a vital function of an online public sphere.

Firstly, this chapter demonstrated an increase in metrics of incivility across time, which is a challenge to discussion, participation, and engagement amongst opposing viewpoints, potentially encouraging attitude polarisation (Kim and Kim, 2019). In presenting these findings, I suggested several hypotheses that may account for this increase across time, offering an interesting avenue for future research. Moreover, the results indicate a disparity concerning the levels of incivility, with Leave-supporting tweets significantly more likely to engage in incivility during the pre-referendum period. During the post-referendum period, Remain-supporting tweets demonstrate the most significant increase in levels of incivility, with ambiguous tweets considerably less likely to engage in incivility.

Secondly, this chapter demonstrated a significant decrease in the level of evidence provided to justify a claim made about Brexit. This presents a challenge to Twitter's ability to function as a public sphere, with Habermas (1996) highlighting how justification should be considered a normative function, allowing participants to assess the validity of claims. I would argue that this decline is likely to reflect the MSM's decreasing position within the discussion (as outlined in Chapter 5), which may have been impacted through the hostility towards MSM observed within the Populism chapter.

Thirdly, this chapter highlighted a decrease in the use of the neutral hashtag, which contrasted with the consistent, albeit less frequent, use of the partisan hashtag. For this reason, my findings suggest that as the discussion progressed, the exploratory serendipity of users decreased, meaning that users would be less likely to encounter differing views during the latter stages of the debate (Sunstein, 2018). As I highlight in Chapter 4, the partisan hashtag #FBPE (an acronym for follow back pro-EU) is identified within several of the most homogenous Remain-supporting communities. In this chapter, I undertake a Pearson's r, which demonstrates a statistically significant correlation between this partisan hashtag and the degree of community homogeneity. However, the findings are somewhat inconclusive regarding other, more general partisan hashtags.

Fourthly, the findings from this chapter suggest that Leave-supporting tweets are generally less likely to communicate in line with the indicators of deliberative quality. Specifically, my findings suggest that incivility is generally greater amongst Leave-supporting tweets, with question asking and providing evidence being lower amongst Leave-supporting tweets. Interestingly, the distinction between deliberative indicators and stance on Brexit seemed to

be most apparent in 2016. As the debate progressed, the distinction between indicators of deliberative quality and stance on Brexit decreased. Although I should note, this generally reflected an accelerated decrease in the indicators of deliberative quality amongst Remain-supporting tweets across time. Moreover, tweets that did not display a clear stance on Brexit were more likely to communicate in accordance with deliberative norms.

Finally, this chapter highlights an increase in genuine question asking, although this seems to correlate with an increase in rhetorical question asking. On the one hand, this may mean that there is a greater chance of discussants eliciting information from fellow participants as the discussion progressed (Friess and Eilders, 2015), although the positive effects may be mitigated through the increased use of rhetorical question asking, which instead seeks to advance argument in the form of a question (Stromer-Galley, 2007).

# Chapter 8: Conclusion

## 8.1.    Chapter Overview

This chapter summarises the key findings of this thesis, considered in relation to the overall research objective, which sought to assess the quality of public debate within the Twitter discussion of Brexit. I then discuss the findings from the four empirical chapters, considered in relation to arguments made within the literature review, allowing my research to address the four research questions. In the latter half of this conclusion, I consider the implications of the empirical findings, the contribution of this thesis, the limitations of my approach and recommendations for further research.

## 8.2.    Overview of Findings

This thesis aimed to investigate the quality of public debate within the Twitter discussion of Brexit, undertaken through a mixed-methods approach, combining both human coded and computational elements, and qualitative and quantitative methods. This research gathered roughly N=450,000 tweets retrospectively, across four years, at bi-weekly intervals. I took the view that aspects of Habermas's public sphere theory offered the most suitable method to assess the quality of the discussion. As such, the theoretical framework that underpinned this thesis focused heavily on the elements of Habermas's public sphere theory that translated to the Twitter discussion of Brexit. Specifically, this thesis focuses on issues of influence, polarisation, populist communication and deliberative quality. The literature review also outlines debates surrounding deliberative democracy in relation to the EU referendum, which suggested several challenges. This centred around a lack of information and quality

debate, which I argue damaged the legitimacy of the 2016 referendum. I go on to consider research that has explored the Twitter discussion of Brexit, outlining a degree of consensus regarding several negative characteristics within the discussion.

However, as I argue within the literature review, there was a need to expand upon previous research. Primarily, this centred around a limited understanding of the Twitter discussion of Brexit as it relates to development across time. As it currently stands, research is fragmented, with findings often based on limited time points. Through the longitudinal mixed-methods approach undertaken within this thesis, I have contributed to the academic understanding of the discussion of Brexit on Twitter. In addition, the theoretical framework that underpins this research, which is primarily based upon Habermas's public sphere theory, grants my research the ability to contribute to broader debates surrounding public discussion on the platform Twitter.

In presenting the empirical findings, this thesis highlights several challenges to the quality of public debate within the discussion of Brexit on Twitter. Firstly, I observed a consistent degree of homogeneity, which may have limited inter-ideological discussion, encouraged the formation of extreme opinion and bolstered group identity. Secondly, I found that populist discourse resonated at a user level, with both Leave- and Remain-supporting tweets laying claim to contradictory versions of popular sovereignty and demonstrating a conflict centred discourse of hostility towards 'the elite'. Moreover, Leave-supporting tweets displayed a consistent hostility towards immigration, constructing an out-group amongst Middle Eastern migrants. Finally, most indicators of deliberative quality showed a decline amongst all groups across time, suggesting the quality of discussion decreased as the debate progressed.

Yet, there are some positive elements, with perhaps the most distinct being the representation of 'everyday' users within positions of centrality. As I argue within Chapter 5, this is likely to benefit the public issue focus of the discussion. Despite this, 'everyday' users generally account for only a fraction of the most central, with the agenda-setting impact of such users likely limited as a result. Moreover, I also demonstrate an increase in genuine question asking across time, although this correlates with an increase in rhetorical question asking, mitigating the positive aspects associated with this increase.

## 8.3.    A Polarised Discussion

This thesis argues that polarisation is likely to present several challenges to normative elements of the public sphere, limiting common judgment and consensus, as well as encouraging the formation of extreme opinion. Previous research has demonstrated a degree of polarisation within the online discussion of Brexit, both in terms of identity (North et al., 2020) and network structure (Grčar et al., 2017; Mora-Cantallops et al., 2019; Del Vicario et al., 2017), which may reflect polarisation in the offline context (Hobolt, 2016; Hobolt et al., 2020). However, further analysis was needed to broaden the context of previous research. To address polarisation within my thesis, I proposed RQ3, which asks *how does polarisation manifest within the discussion across time?* I based my analysis on three indicators of polarisation: 1) homogeneity, 2) out-group labelling and 3) expressed support for extreme opinion, which allowed me to identify the degree of polarisation within the discussion across time.

The homogeneity analysis found that during the pre-referendum discussion, Leave-supporting Twitter users were more likely to communicate in homogenous communities, which may offer a basis for the previous associations between Leave support and polarisation. However, during the post-referendum discussion, my findings suggest that Leave-supporting Twitter users became more heterogeneous. In contrast, Remain-supporting Twitter users became more homogenous, with an observed increase in Remain-supporting homogenous communities. While my findings observed a change in the network structure, they did not identify a linear increase or decrease in terms of overall levels of homogeneity across time. Despite this, the consistent presence of homogenous communities is still likely to negatively impact inter-ideological discussion and attitude formation.

The out-group analysis was perhaps the clearest indicator of an increase in polarisation across time, finding that out-group labelling increased amongst both Leave- and Remain-supporting tweets within each period of analysis. Specifically, I found that labels typically perpetuate stereotypical assumptions of both Leave- and Reman-supporters (partially agreeing with the findings of North et al., 2020). Remain-supporters were often pointed to as 'traitors' and 'Remoaners', reflecting a perception that they were unwilling to accept a democratic vote, and by virtue, going against the UK's national interest. Leave-supporters were often pointed to as 'racist' and 'lacking intelligence', reflecting the salience of migration within the referendum campaign and the association between Leave support and less privileged social groups.

The analysis of expressed support for opinion suggested that both Leave- and Remain-supporting tweets were more likely to express support for extreme opinion as the discussion

progressed. However, this was positively correlated with an expressed support for more moderate positions. As polarisation is often measured by the degree of extreme opinion in relation to the absence of moderate opinion, this finding may challenge the assumption that the discussion is polarised. Despite this, the fact that Twitter users are more likely to express support for extreme opinion is expected to present some challenge to inter-ideological understanding and reasoning.

In presenting these findings, I offer an indication of the degree of polarisation within the Twitter discussion of Brexit across time, which is likely to negatively impact Twitters' ability to function as a public sphere. The findings also broaden the understanding of polarisation within the context of Brexit, which previous research generally centred around the pre-referendum period. Moreover, as I will highlight in the latter part of this chapter, I have presented a novel methodology for measuring homogeneity within online political discussions, which may aid future research interested in this topic.

## 8.4.    Network Centrality

This thesis argues that network centrality, specifically the measurements of in-degree and eigenvector centrality, are suitable indicators of a user's agenda-setting capacity. In relation to the online public sphere, I argue that this is important as it grants research the ability to indicate the type of users in a position to influence the topic of discussion, which relates closely to the public issue focus of the public sphere. As such, I proposed RQ4, which asks: *what are the characteristics of users in a position of network centrality?* Previous research is somewhat mixed when considering influence within the online discussion of Brexit, with some pointing to a discussion guided by elite users (Blank, 2017; Dagoula, 2019; Bravo and

Valle, 2017), whilst also offering bottom-up communication flows that may challenge elite dominance (Dubois and Gaffney, 2014).

Taken at face value, the findings from my centrality analysis suggest that the elite actors are considerably more likely to be in a position of network centrality, also demonstrating that elite actors are more likely to be in a position of consistent opinion leadership. In this sense, it may be argued that the agenda of discussion is likely impacted by the same distortions in power relations that weakened the public sphere. However, the findings are more positive when the elite bias of in-degree and eigenvector centrality are factored. The measurements indicate that 'everyday' users generally account for around 15% of the most central, which is likely an underrepresentation of the actual degree of influence such groups hold. In this sense, 'everyday' users probably have a greater ability to influence the discussion than my research suggests. Moreover, the findings demonstrate a decrease in centrality amongst Tabloid and Broadsheet news, which have been associated with sensationalist and populist themes (Tong and Zuo, 2021).

Due to the consistent presence of 'everyday' central users, I would argue that Twitter users are granted the ability to discuss issues that are of public importance. However, this is likely to be challenged somewhat due to the prevalence of elite actors. Since elite actors are more likely to be consistently influential, I suggest their long-term agenda-setting capacity is more significant than 'everyday' users. This is likely to reflect platform level affordances (such as verification), which have a demonstrated link with perceived legitimacy (Morris et al., 2012; Flanagin and Metzger, 2007; Vaidya et al., 2019).

<u>8.5. The Resonance of Populist Discourse</u>

Throughout this thesis, I argue that populism may challenge the rationality expected within a public sphere of discussion. As I demonstrate within the literature review, previous research has generally explored top-down manifestations of populism within the context of Brexit, neglecting to consider permeations of populism amongst 'everyday' users. This thesis took the stance, in agreement with Datts (2020) and Hameleers and Schmuck (2017), that ordinary citizens may play a role in disseminating populist discourse. As such, I proposed RQ2, which asks *to what extent do characteristics of populism permeate the discussion at a user level?* To address RQ2, I explored three commonly accepted indicators of populism: the construction of an out-group, hostility towards the 'elite' and laying claim to popular sovereignty.

My findings suggest that Leave-supporters demonstrate a consistent hostility towards immigration, constructing an out-group amongst Middle Eastern migrants. This lacked substantive challenge from Remain-supporters, who were more positive towards migration, but generally judged migrants through the benefit they could bring to the host country, being more favourable towards 'skilled' EU migration. Moreover, both Leave- and Remain-supporting tweets lay claim to popular sovereignty and demonstrated hostility towards the elite, reflecting a conflict centred discourse that challenged reasoned debate (Waisbord, 2018)

It should be noted that there have been attempts to characterise protest movements as populist, such as Gerbaudo (2017), who asserted that such movements could be viewed as bottom-up manifestations of populism. However, this differs somewhat from the populist

discourse typically associated with Brexit. To be clear, my findings do not suggest that populism within the context of the discussion of Brexit on Twitter should be considered as a 'bottom-up' populist movement. Instead, I demonstrate several examples of top-down populist discourse that may have impacted the general conversation. This was most clearly shown within the 'elite' analysis. I argue that Remain-supporters are likely to reflect the type of left-wing populist discourse advocated by Jeremy Corbyn, which contrasts with the right-wing populist discourse advocated by prominent Leave-supporters and observed within several Leave-supporting tweets.

## 8.6.    Deliberative Quality

This thesis took the view that deliberation is an essential element of a public sphere, with quality discussion allowing the public to reach informed political decisions. Within the context of Brexit, the literature review argues that the referendum campaign and ensuing debate suffered from a deliberative deficit, raising questions regarding the quality of the Twitter discussion. As such, I proposed RQ1, which asks *to what extent does the discussion function deliberatively?* To address RQ1, I sought to measure four indicators of deliberative quality: incivility, evidenced claims, question-asking and the use of the hashtag.

Notably, the measurements of incivility, evidenced claims and the use of the hashtag pointed to a decline in the level of deliberative quality across time. My thesis found that in 2016, levels of incivility stood at around 10-15%, increasing to 25-30% by 2019, which has implications for engagement and open-mindedness (Santana, 2014; Kim and Kim, 2019). This finding mirrors the use of evidenced claims, which stood at 40-60% in 2016 and reduced to 10-30% by 2019. This decrease potentially limits the ability of users to assess the validity of

claims. Finally, my findings suggest that the use of the neutral hashtag, which is associated with exploratory serendipity (Sunstein, 2017), decreased from 20-40% in 2016 to 10-20% in 2019. This may suggest that users are less likely to encounter differing viewpoints as the conversation progressed. The measurement addressing question asking was the only indicator that presented a positive result, demonstrating an increase in the level of genuine question asking across time. However, this was positively correlated with an increase in rhetorical question asking.

## 8.7.    Implications of Findings

While this thesis is not the first research to empirically investigate the quality of public debate on Twitter, it is hoped that the findings within this thesis have contributed to understanding how citizens utilise the platform for important political debate across time. Specifically, when the findings from this thesis are considered in relation to the characteristics of the public discussion outlined within the literature review, it may be argued that the type of discussion facilitated by Twitter, within the context of the UK-EU discussion, does not typically indicate the kind of quality debate as promoted by Habermas (1991; 1996; 2006). This supports previous evidence highlighting shortcomings within the discussion of Brexit (Bouko and Garcia, 2020; North et al., 2020; Tong and Zuo, 2021) and Twitter more generally (Sunstein, 2018; Bouvier and Rosenbaum, 2020). In underscoring this challenge, I find it necessary to reiterate the overwhelming purpose of a public sphere, which should allow the citizenry to debate issues of public concern and guide political decision-making through the construction of informed public opinion.

When considering Twitter's role in the construction of public opinion, Dijk and Hacker (2018, p210) argue that an essential benefit of a mediated online discussion is that 'political representatives actually and precisely know what citizens want'. In making this argument, Dijk and Hacker (ibid) allude to online platforms as spaces that reflect public opinion. Yet, as Habermas (2006, p420) highlights, there are preconditions for a considered public opinion, in which even the 'powerful actors should only contribute to the mobilisation of relevant issues, facts, and arguments'. Moreover, Sunstein (2018, Chapter 4) highlights that bottom-up public opinion should be constructed due to extended conversation with heterogeneous groups, allowing a degree of understanding amongst opposing views. With this in mind, my findings point to several challenges that may negatively impact the formation of informed public opinion.

This challenge to an informed public opinion is demonstrated throughout this thesis. For example, the populist discourse observed within Chapter 6 is likely to disregard relevant issues, facts and arguments; instead emphasising emotional, simplistic, sensationalist topics that encourage combativeness and decrease political trust. Moreover, the consistent presence of homogenous communities and out-group labelling observed within Chapter 4, in line with the decreasing indicators of deliberative quality observed within Chapter 6, are likely to have contributed to a decrease in meaningful heterogenous discussion. While Chapter 5 highlighted the presence of 'everyday' users within central network positions, when considered within the context of the other empirical findings within that chapter, I find it likely that any benefit associated with such a group being in a central position may be limited.

Based on my findings, it may be easy to disregard the role of Twitter in public debate. However, Habermas (2006, p417) does highlight the importance of 'everyday' political talk, particularly in relation to its impact on opinion formation and political decision making. In this sense, it may be argued that, while deliberation on the platform is questionable, the discussion may serve an essential function within the broader deliberative system. As I argue within the literature review, Twitter is often viewed as an important part of a wider public sphere of interconnected spaces. In this sense, future research may wish to consider the contribution of Twitter in relation to its interaction within a broader deliberative system. In doing so, future research may wish to consider this relationship by adopting a systemic approach (Mansbridge et al., 2012), allowing clarity regarding the division of labour between parts of the system. Specifically, Mansbridge et al. (2012, p3) argue that a 'single part, which in itself may have low or even negative deliberative quality concerning one of several deliberative ideals, may nevertheless make an important contribution to an overall deliberative system' (ibid, p3). Therefore, it could be argued that there are elements of the discussion on Twitter that may offer some important contribution to public debate (even in light of the negative findings presented within this thesis). In addition, they argue that when one part of the system fails to play an important role, 'another one can fill in or evolve over time to fill in' (ibid, p5). Granted, an exploration of the deliberative system, as a whole, is outside the scope of this project. However, the findings from this thesis represent an analysis of an important platform of public debate, exploring the discussion with a level of depth that would be challenging had I taken a systemic approach. Therefore, I maintain confidence in the approach I have undertaken. It is hoped though, that this thesis can indeed contribute to future research interested in exploring Twitter's position within the broader public debate,

with a systemic approach potentially offering a suitable theoretical framework to build upon the conclusions presented in this thesis.

As I demonstrate within the literature review, a significant corpus of literature has explored the Brexit discussion on Twitter. However, there is a lack of understanding regarding change across time, reflecting an overwhelming focus on specific time points. This focus has led to a lack of clarity regarding the progress of the conversation, with assumptions that required further empirical investigation. Granted, research has explored change across time (for example, North et al., 2020 and Del Gobbo et al., 2020), but there was a need to expand upon previous understandings, as they are currently limited. This thesis has pointed to several instances in which the quality of conversation has deteriorated. Perhaps the most explicit examples can be found with the increase in out-group labelling across time, as well as a decrease in indicators of deliberative quality. However, several of the other findings, while challenging previously held assumptions (for example, Leave-supporters association with polarisation), are considerably more challenging to interpret. This is due to the change being more nuanced, without a clear positive or negative trend across time. Moreover, some measurements (such as the inclusion of 'everyday' users within central network positions) point to an increase in the quality of debate across time.

In agreement with Del Gobbo et al. (2020), I have presented evidence to suggest that the conversation on Twitter may have been impacted by significant events outside of the platform – particularly evident in the expressed support for positions explored within the Polarisation chapter. Moreover, it should not be discounted that some of the other findings, particularly those that point to a deterioration across time, reflect broader trends outside of

the platform. I make this argument because evidence has suggested that, for example, there was a significant increase in parliamentary polarisation as the discussion progressed (Evers, 2021), affective polarisation amongst the electorate (Hobolt et al., 2018) and a shift away from traditional partisanship, towards the identities of Leave and Remainer (Curtice et al., 2020). If my findings reflect these broader observations, then future research may wish to emphasise outside events and their impact on the platform. However, as I highlight within the literature review, the platform's affordances are also likely to impact the quality of the conversation.

By affordances, I am referring to both the platform's material properties and how users perceive and use those properties. There are points within this thesis where the affordances of Twitter are likely to have negatively impacted the quality of discussion. For example, in the Polarisation chapter, I surmise that the level of out-group labelling may have been affected by users editing their display name to include indicators of group affiliation. In this sense, Twitter users can identify the position of other users before engaging in discussion, which may encourage out-group hostility. In addition, in the Deliberative Quality chapter, I highlight how the hashtag is affiliated with both homogenous and heterogenous debate (depending on the nature of the hashtag). As the discussion progressed, I presented evidence to suggest that users were less likely to include neutral hashtags within their tweets, meaning they were less likely to encounter opposing viewpoints. Additional affordances may have negatively impacted the discussion, such as the open network structure encouraging incivility, the character limit limiting justification, and indicators of status (such as verification) promoting elite users to positions of influence. To be clear, the issues surrounding such affordances are nuanced, likely reflecting how they are perceived by Twitter users rather than a reflection of

their intended purpose. However, if Twitter is to benefit public debate, it should now take steps to alter its platform architecture and consider how users engage with its material properties.

At the point of writing, Twitter is in a position where it is likely to undertake several changes. Twitter's potential new owner, Elon Musk, has indicated that the platform should serve the purpose of debating matters of public concern (Gilbert, 2022). To achieve this aim, Musk has asserted that he will take steps to authenticate users, limit censorship, change the algorithm and add 'new features' (ibid). While the specifics of such changes are currently unclear, reflecting on the findings from this thesis, there may be some indication as to the steps Twitter can take, at a platform level, to benefit public debate. It could be that Twitter maintains its open network structure, as this can encourage inter-ideological discussion but take steps to promote rational and constructive debate. This may involve removing the ability for users to edit their Twitter name, instead having a more permanent name (like that found on a platform such as Facebook) or increasing the character limit so that users have a more significant space to offer justification. In addition, the platform may wish to reconsider how the hashtag is incorporated into the discussion, taking steps to encourage users to integrate neutral hashtags, which would promote exploratory serendipity and heterogeneity. Finally, if, as Musk suggests, all users go through an authentication process, then the current indicator of 'verification' (which is only offered to notable users) may become redundant. Based on the findings within the Central Users chapter, which highlights a link between verification and consistent centrality, I would suggest that this may benefit the plurality of opinion within future discussion. If such changes were realised, Twitter may move closer to a platform that promotes the type of discussion advocated by Habermas. If it does not, it will surely maintain

its position as an essential platform for public debate. However, further questions are likely to be raised regarding its role in the discussion of future political events.

## 8.8.    Contribution to New Knowledge

This study provided new insight into the Twitter discussion surrounding the UK's withdrawal from the EU, offering a comprehensive analysis of the debate across time. In longitudinally undertaking the research, I demonstrated several trends that may challenge and corroborate previous understandings. Specifically, the empirical findings within Chapter 4 were able to demonstrate a shift in the network structure, challenging associations between Leave-support and polarisation, as well as demonstrating an increase in out-group labelling as the conversation progressed, which may have implications for research interested in exploring affective polarisation in long-term political discussions. Of equal importance, Chapter 6 demonstrated the resonance of populist discourse at a user level, highlighting the need to go beyond measurements of top-down populist actors. The presence of both left- and right-wing populist discourse also challenges previous associations between right-wing populism and the discussion of Brexit. The findings do, however, support associations between stance on Brexit and attitudes surrounding migration, as well as support associations between Twitter influence and elite users. Moreover, this thesis demonstrates Habermas's public sphere's continued applicability within the context of online political discussions.

## 8.9.    Methodological Contribution

This thesis offers a novel methodological approach for researchers interested in analysing long-term political events on social media. As I demonstrate within the literature review, there is a tendency for social media research to either focus on limited timeframes or adopt

an expanded timeframe that sacrifices detail, typically focusing on computational methods. Through a sequential approach, which analysed the quantitative findings first followed by a qualitative stage, I explored 'bigger picture' trends whilst also capturing quality information that may offer a rationale for conclusions at a given time point. This approach may be adopted for the analysis of additional political events and incorporated within research addressing other social media platforms.

In addition, the homogeneity analysis offers an interesting approach for research seeking to explore social media 'echo chambers'. As I argue within Chapter 3, there is a tendency for research to either place too great of an emphasis on the position of central nodes (oversimplifying the consensus of modular communities) or identify the community consensus through machine learning techniques, which often lacks nuance (which is a particular issue within a highly contextual political setting). Through undertaking a human coded quantitative content analysis, taken from a subsample of vertices from the modular communities, I was able to explore community consensus at a user level with a greater degree of confidence than if I had used machine learning techniques or based consensus on the position of central nodes. Further research may seek to adopt this approach within additional contexts, which may allow a greater understanding of homogeneity within online discussions.

## 8.10.  Limitations

Using the publicly available code GOT3, this study gathered data at two-week intervals across the four-year period in which Brexit was one of the most salient issues within the UK. At the time in which the study was undertaken, GOT3 was the most suitable method to gather

historical Twitter data for those without paid access to Twitter's full archive. However, in early 2021, Twitter unveiled its 'Academic Research Product Track' (see Tornes, 2021 for a detailed overview). This granted researchers 'free access to the full history of public conversation via the full-archive search endpoint, which was previously limited to paid premium or enterprise members' (ibid, para 8). As a result, future research may wish to utilise the access granted by Twitter through their full archive search. However, it is unclear if Twitter will maintain the academic access option. It is possible that Twitter may reorganise its access and pricing structure. If Twitter does take steps to limit academic access to its data, then GOT3 (or similar code) should be considered for future research.

The data was gathered using the keyword 'Brexit', which I had deemed to be neutral, specific to this discussion and likely to have been used throughout the debate. Moreover, because the conversation was analysed over four years, I felt the same keyword would be the most suitable approach to analysing trends across time as it would allow for a degree of consistency. However, a portion of the conversation likely addressed the UK-EU referendum without using the keyword 'Brexit', and I would recommend that future research expands upon the corpus gathered within this thesis by incorporating additional keywords.

Only English-speaking tweets had been analysed within this thesis, with foreign-speaking tweets excluded. This means that the perspectives of those who do not communicate in English were excluded from the discussion. Incorporating additional languages may add an interesting perspective to the UK-EU debate, particularly if research is interested in exploring the debate within the context of non-UK countries. As hostility towards migration has been identified as a salient topic within Chapter 6, I would suggest that non-English speaking

perspectives surrounding such hostility may offer a valuable supplement to the findings within that chapter.

Finally, I have my thoughts and opinions on the UK's exit from the EU. As this was something I was aware of throughout the project, I made every attempt to remain as objective and impartial as possible. To be clear, the focus of this project was to analyse the quality of debate on Twitter within the context of Brexit, not to assess the strengths and weaknesses of the UK-EU relationship. In undertaking this analysis, I did not intend to highlight the shortcomings of either side of the Brexit divide.

## 8.11.    Further Research

When considering future research interested in the discussion of Brexit, my thesis has highlighted several interesting avenues of research that would benefit from further exploration. For example, literature addressing Brexit has generally associated Leave-support with homogeneity and populist discourse. To my surprise, this thesis demonstrated the presence of homogeneity and populist discourse on both sides of the Brexit divide. As such, I would advise future research to consider such topics focusing on Remain-supporting tweets, particularly in the post-referendum period.

My thesis has highlighted several challenges to the quality of discussion on the platform Twitter within the UK-EU debate. I would advise that future research considers the role of additional platforms comparatively. Doing so may aid researchers in understanding the type of platform level affordances that may promote healthy discussion, as well as Twitter's role in the wider deliberative system. Moreover, future research may also benefit from a

comparative analysis of multiple political events on the same platform, using a similar methodology to the one adopted within this thesis. This may allow researchers to better understand whether the political event affects the platforms' ability to facilitate healthy public debate.

Finally, there is a tendency to look at previous arenas of discussion with rose-tinted lenses. Even for Habermas, academics have critiqued his idealistically glossy version of the bourgeois public sphere (for example, Raymond, 1998). As the UK-EU relationship has received a degree of public and political focus since the UK's inclusion into the European Economic Community in 1973, I would advise future research to consider the social media discussion of such an event compared to the debate facilitated during the pre-social media landscape. In doing so, research may better understand the trajectory of the public debate across time.

### 8.12. Concluding Remarks

I would like to end this thesis by concluding, based upon my findings, my thoughts regarding Twitter's contribution to civic-debate and political communication. As Tong and Zuo (2021, p63) conclude, within the Twitter discussion of Brexit, the platform 'enabled public participation and engagement of users', while at the same time posing a 'risk of exacerbating tensions and divisions in society, oversimplifying the complexity of social issues, and being influenced or even being manipulated by individuals and social groups to serve their own private interests'. My thesis does little to challenge their sentiment. However, my thesis does demonstrate a nuanced discussion that may be impacted by the affordances of the platform and the events outside of the platform. In this sense, while I do hold a degree of pessimism regarding public debate on Twitter, there may be broader issues that impact the quality of

discussion on the platform. If, for example, the quality of discussion outside of the platform

was vastly greater than the quality of discussion on the platform, then it would be fair to

conclude that the platform bore a proportion of the blame. However, as I demonstrate within

the literature review, this is generally considered not to be the case (at least within the

context of Brexit). Therefore, to realise the type of discussion advocated by Habermas, steps

must be taken to improve public debate inside *and* outside of the platform. Political

information providers, regardless of the medium in which they disseminate information,

must take accountability for their communication. At the same time, citizens must be willing

to engage, in a rational and constructive manner, with those whom they hold political

disagreements with. While Twitter can take steps to improve the quality of communication

on the platform, it may not be tenable to blame Twitter for the current state of political

communication within UK society.

# Bibliography

Abramowitz, Alan, and Jennifer McCoy. 'United States: Racial Resentment, Negative Partisanship, and Polarization in Trump's America'. *The ANNALS of the American Academy of Political and Social Science* 681, no. 1 (1 January 2019): 137–56. https://doi.org/10.1177/0002716218811309.

Abts, Koen, and Stefan Rummens. 'Populism versus Democracy'. *Political Studies* 55, no. 2 (June 2007): 405–24. https://doi.org/10.1111/j.1467-9248.2007.00657.x.

Addawood, Aseel, and Masooda Bashir. '"What Is Your Evidence?" A Study of Controversial Topics on Social Media'. In *Proceedings of the Third Workshop on Argument Mining (ArgMining2016)*, 1–11. Berlin, Germany: Association for Computational Linguistics, 2016. https://doi.org/10.18653/v1/W16-2801.

Ahlgren, Per, Bo Jarneving, and Ronald Rousseau. 'Requirements for a Cocitation Similarity Measure, with Special Reference to Pearson's Correlation Coefficient'. *Journal of the American Society for Information Science and Technology* 54, no. 6 (2003): 550–60. https://doi.org/10.1002/asi.10242.

Ahonen, Pertti. 'Of Walls and Fences: Brexit and the History of Cross-Border Migration'. *Contemporary European History* 28, no. 1 (2018): 42–45. https://doi.org/10.1017/S0960777318000760.

Allen, Mike. 'Content Analysis: Advantages and Disadvantages'. In *The SAGE Encyclopedia of Communication Research Methods*. 2455 Teller Road, Thousand Oaks California 91320: SAGE Publications, Inc, 2017. https://doi.org/10.4135/9781483381411.n90.

———. 'Simple Bivariate Correlation'. In *The SAGE Encyclopedia of Communication Research Methods*. 2455 Teller Road, Thousand Oaks California 91320: SAGE Publications, Inc, 2017b. https://doi.org/10.4135/9781483381411.n565.

Allen, Nicholas. '"Brexit Means Brexit": Theresa May and Post-Referendum British Politics'. *British Politics* 13, no. 1 (1 April 2018): 105–20. https://doi.org/10.1057/s41293-017-0067-3.

Amiradakis, Mark Jacob. 'Habermas, Mass Communication Technology and the Future of the Public Sphere'. *South African Journal of Philosophy* 38, no. 2 (3 April 2019): 149–65. https://doi.org/10.1080/02580136.2019.1620515.

Angus, Daniel. 'Theme Detection in Social Media'. In *The SAGE Handbook of Social Media Research Methods*, by Luke Sloan and Anabel Quan-Haase, 530–44. 1 Oliver's Yard, 55 City Road London EC1Y 1SP: SAGE Publications Ltd, 2016. https://doi.org/10.4135/9781473983847.n31.

Antonucci, Lorenza. 'The Revolt of the "Squeezed Middle": Why New Cross-Society Coalitions in British Politics Are Now Possible'. *Lawrence & Wishart*, 2017. https://www.lwbooks.co.uk/renewal/25-3-4/cross-society-coalition-labour-brexit.

Arenas, A., A. Fernández, and S. Gómez. 'Analysis of the Structure of Complex Networks at Different Resolution Levels'. *New Journal of Physics* 10, no. 5 (May 2008): 053039. https://doi.org/10.1088/1367-2630/10/5/053039.

Arnorsson, Agust, and Gylfi Zoega. 'On the Causes of Brexit'. *European Journal of Political Economy* 55 (1 December 2018): 301–23. https://doi.org/10.1016/j.ejpoleco.2018.02.001.

Aslanidis, Paris. 'Measuring Populist Discourse with Semantic Text Analysis: An Application on Grassroots Populist Mobilization'. *Quality & Quantity*, 6 June 2017, 1–23. https://doi.org/10.1007/s11135-017-0517-4.

Bächtiger, André, and John Parkinson. *Mapping and Measuring Deliberation: Towards a New Deliberative Quality*. Oxford: University Press, Oxford University Press USA - OSO, 2019. https://doi.org/10.1093/oso/9780199672196.001.0001.

Baldassarri, Delia, and Peter Bearman. 'Dynamics of Political Polarization'. *American Sociological Review* 72, no. 5 (1 October 2007): 784–811. https://doi.org/10.1177/000312240707200507.

Barber, Michael J. 'Modularity and Community Detection in Bipartite Networks'. *Physical Review E* 76, no. 6 (7 December 2007): 066102. https://doi.org/10.1103/PhysRevE.76.066102.

Barber, Stephen. 'The Brexit Environment Demands That Deliberative Democracy Meets Inclusive Growth'. *Local Economy* 32, no. 3 (1 May 2017): 219–39. https://doi.org/10.1177/0269094217705360.

Barker-Plummer, Dave, and Bernadette Barker-Plummer. 'Twitter as a Feminist Resource: #YesAllWomen, Digital Platforms, and Discursive Social Change', 91–118, 2017. https://doi.org/10.1108/S2050-206020170000014010.

Barsaiyan, Sunil, and Charu Sijoria. 'Twitter Blue Tick - A Study of Its Impact on Society'. *Indian Journal of Marketing* 51, no. 11 (30 November 2021): 38–52. https://doi.org/10.17010/ijom/2021/v51/i11/159441.

Barthélemy, M. 'Betweenness Centrality in Large Complex Networks'. *The European Physical Journal B* 38, no. 2 (1 March 2004): 163–68. https://doi.org/10.1140/epjb/e2004-00111-4.

Bartlett, Nicola. 'Labour Will Put £6,716 in Your Pocket with Savings on Bills and Higher Wages'. mirror, 3 December 2019. https://www.mirror.co.uk/news/politics/labour-put-6716-your-pocket-21019899.

Bartley, Leanne. 'For the Many, Not the Few: A Transitivity Analysis of Labour's 2017 Manifesto as a Driving Force for Promoting a Populist Britain'. In *Populist Discourse*. Routledge, 2019.

Bastos, Marco T., and Dan Mercea. 'The Brexit Botnet and User-Generated Hyperpartisan News'. *Social Science Computer Review* 37, no. 1 (1 February 2019): 38–54. https://doi.org/10.1177/0894439317734157.

Baumgartner, Jason, Savvas Zannettou, Brian Keegan, Megan Squire, and Jeremy Blackburn. 'The Pushshift Reddit Dataset'. *Proceedings of the International AAAI Conference on Web and Social Media* 14 (26 May 2020): 830–39.

BBC News. 'EU Vote: Where the Cabinet and Other MPs Stand'. *BBC News*, 22 June 2016, sec. EU Referendum. https://www.bbc.com/news/uk-politics-eu-referendum-35616946.

Bellamy, Richard. 'Was the Brexit Referendum Legitimate, and Would a Second One Be So?' *European Political Science* 18, no. 1 (1 March 2019): 126–33. https://doi.org/10.1057/s41304-018-0155-x.

Benkler, Yochai. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven [Conn.]: Yale University Press, 2006.

Bennett, Samuel. 'Chapter 9. Standing up for "Real People". UKIP, the Brexit, and Discursive Strategies on Twitter'. In *Imagining the Peoples of Europe: Populist Discourses across the Political Spectrum*. John Benjamins Publishing Company, 2019. https://benjamins.com/catalog/dapsac.83.10ben.

Bienenstock, Elisa Jayne, Phillip Bonacich, and Melvin Oliver. 'The Effect of Network Density and Homogeneity on Attitude Polarization'. *Social Networks* 12, no. 2 (June 1990): 153–72. https://doi.org/10.1016/0378-8733(90)90003-R.

Billig, Michael, and Henri Tajfel. 'Social Categorization and Similarity in Intergroup Behaviour'. *European Journal of Social Psychology* 3, no. 1 (1973): 27–52. https://doi.org/10.1002/ejsp.2420030103.

Binns, Amy, Martin Bateman, and John Mair. 'The Remoaner Queen under Attack: The Trolling of Gina Miller'. In *Anti-Social Media?: The Impact on Journalism and Society*, edited by John Mair, Tor Clark, Neil Fowler, and Raymond Snoddy, 10–16. Abramis, 2018. http://www.abramis.co.uk/books/bookdetails.php?id=184549729.

Blake, David P. 'Measurement Without Theory: On the Extraordinary Abuse of Economic Models in the EU Referendum Debate'. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 8 June 2016. https://doi.org/10.2139/ssrn.2819954.

Blank, Grant. 'The Digital Divide Among Twitter Users and Its Implications for Social Research'. *Social Science Computer Review* 35, no. 6 (1 December 2017): 679–97. https://doi.org/10.1177/0894439316671698.

Blinder, Scott, and Lindsay Richards. 'UK Public Opinion toward Immigration: Overall Attitudes and Level of Concern'. Migration Observatory, 2020. https://migrationobservatory.ox.ac.uk/resources/briefings/uk-public-opinion-toward-immigration-overall-attitudes-and-level-of-concern/.

Block, Elena, and Ralph Negrine. 'The Populist Communication Style: Toward a Critical Framework'. *International Journal of Communication* 11, no. 0 (1 January 2017): 20.

Blumler, Jay, and Michael Gurevitch. *The Crisis of Public Communication*. London, UNITED KINGDOM: Taylor & Francis Group, 1995. http://ebookcentral.proquest.com/lib/leeds/detail.action?docID=166135.

Bohman, James, and William Rehg. 'Jürgen Habermas'. In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Fall 2017. Metaphysics Research Lab, Stanford University, 2017. https://plato.stanford.edu/archives/fall2017/entries/habermas/.

Bonacich, Phillip. 'Some Unique Properties of Eigenvector Centrality'. *Social Networks* 29, no. 4 (1 October 2007): 555–64. https://doi.org/10.1016/j.socnet.2007.04.002.

Borgatti, Stephen P. 'Centrality and Network Flow'. *Social Networks* 27, no. 1 (January 2005): 55–71. https://doi.org/10.1016/j.socnet.2004.11.008.

Bouko, Catherine, and David Garcia. 'Patterns of Emotional Tweets: The Case of Brexit After the Referendum Results'. In *Twitter, the Public Sphere, and the Chaos of Online Deliberation*, edited by Gwen Bouvier and Judith E. Rosenbaum, 175–203. Cham: Springer International Publishing, 2020. https://doi.org/10.1007/978-3-030-41421-4_8.

Bouko, Catherine, David Garcia, and David Garcia. 'Citizens' Reactions to Brexit on Twitter : A Content and Discourse Analysis'. Discourses of Brexit. Routledge, 12 February 2019. https://doi.org/10.4324/9781351041867-11.

Boutyline, Andrei, and Robb Willer. 'The Social Structure of Political Echo Chambers: Variation in Ideological Homophily in Online Networks'. *Political Psychology* 38, no. 3 (2017): 551–69. https://doi.org/10.1111/pops.12337.

Bouvier, Gwen, and Judith E. Rosenbaum. 'Afterword: Twitter and the Democratization of Politics'. In *Twitter, the Public Sphere, and the Chaos of Online Deliberation*, edited by Gwen Bouvier and Judith E. Rosenbaum, 315–24. Cham: Springer International Publishing, 2020b. https://doi.org/10.1007/978-3-030-41421-4_13.

———. *Twitter, the Public Sphere, and the Chaos of Online Deliberation*. Springer Nature, 2020.

Boyatzis, Richard E. *Transforming Qualitative Information: Thematic Analysis and Code Development*. Thousand Oaks, CA: Sage Publications, 1998.

Boyd, Danah. 'Social Network Sites as Networked Publics: Affordances, Dynamics, and Implications'. In *A Networked Self*. Routledge, 2010.

Boyd, Danah, and Kate Crawford. 'Six Provocations for Big Data'. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 21 September 2011. https://doi.org/10.2139/ssrn.1926431.

Bozzo, Enrico, and Massimo Franceschet. 'Resistance Distance, Closeness, and Betweenness'. *Social Networks* 35, no. 3 (1 July 2013): 460–69. https://doi.org/10.1016/j.socnet.2013.05.003.

Brändle, Verena K., Charlotte Galpin, and Hans-Jörg Trenz. 'Brexit as "Politics of Division": Social Media Campaigning after the Referendum'. *Social Movement Studies* 0, no. 0 (2020): 1–20. https://doi.org/10.1080/14742837.2021.1928484.

———. 'Marching for Europe? Enacting European Citizenship as Justice during Brexit'. *Citizenship Studies* 22, no. 8 (17 November 2018): 810–28. https://doi.org/10.1080/13621025.2018.1531825.

Braun, Virginia, and Victoria Clarke. 'One Size Fits All? What Counts as Quality Practice in (Reflexive) Thematic Analysis?' *Qualitative Research in Psychology* 18, no. 3 (2020): 328–52. https://doi.org/10.1080/14780887.2020.1769238.

———. 'Reflecting on Reflexive Thematic Analysis'. *Qualitative Research in Sport, Exercise and Health* 11, no. 4 (8 August 2019): 589–97. https://doi.org/10.1080/2159676X.2019.1628806.

———. 'Using Thematic Analysis in Psychology'. *Qualitative Research in Psychology* 3, no. 2 (1 January 2006): 77–101. https://doi.org/10.1191/1478088706qp063oa.

Bravo, Rosa Borge, and Marc Esteve Del Valle. 'Opinion Leadership in Parliamentary Twitter Networks: A Matter of Layers of Interaction?' *Journal of Information Technology & Politics* 14, no. 3 (3 July 2017): 263–76. https://doi.org/10.1080/19331681.2017.1337602.

Breeze, Ruth. 'Exploring Populist Styles of Political Discourse in Twitter'. *World Englishes* 39, no. 4 (2020): 550–67. https://doi.org/10.1111/weng.12496.

Brundidge, Jennifer. 'Encountering "Difference" in the Contemporary Public Sphere: The Contribution of the Internet to the Heterogeneity of Political Discussion Networks'. *Journal of Communication* 60, no. 4 (2010): 680–700. https://doi.org/10.1111/j.1460-2466.2010.01509.x.

Brunner, Larissa. 'No-Deal Brexit May Be the Only Way out for Boris Johnson. 24 July 2019'. Policy Paper, July 2019. http://aei.pitt.edu/100406/.

Bruns, Axel, and Jean Burgess. 'Notes towards the Scientific Study of Public Communication on Twitter'. In *Science and the Internet*, edited by A. Tokar, M. Mahrt, I. Peters, K. Weller, S. Keuneke, M. Beurskens, C. Puschmann, and T. van Treeck, 159–69. Germany: Duesseldorf University Press, 2012. http://www.uni-duesseldorf.de/home/fileadmin/redaktion/DUP/PDF-Dateien_/Open_Access/Science_and_the_Internet_OA.pdf.

Bruns, Axel, and Tim Highfield. 'Is Habermas on Twitter? Social Media and the Public Sphere'. In *The Routledge Companion to Social Media and Politics*, edited by G. Enli, A. Bruns, A. O. Larsson, E. Skogerbo, and C. Christensen, 56–73. United States of America: Routledge, 2016. https://www.routledge.com/products/9781138860766.

Bruns, Axel, Tim Highfield, and Jean Burgess. 'The Arab Spring and Social Media Audiences: English and Arabic Twitter Users and Their Networks'. *American Behavioral Scientist* 57, no. 7 (2013): 871–98. https://doi.org/10.1177/0002764213479374.

Bucher, T., and A. Helmond. *The Affordances of Social Media Platforms*. Sage Publications, 2018. https://dare.uva.nl/search?identifier=149a9089-49a4-454c-b935-a6ea7f2d8986.

Bulmer, Simon. 'New Labour, New European Policy? Blair, Brown and Utilitarian Supranationalism'. *Parliamentary Affairs* 61, no. 4 (1 October 2008): 597–620. https://doi.org/10.1093/pa/gsn029.

Burrows, Roger, and Mike Savage. 'After the Crisis? Big Data and the Methodological Challenges of Empirical Sociology'. *Big Data & Society* 1, no. 1 (1 April 2014): 2053951714540280. https://doi.org/10.1177/2053951714540280.

Calhoun, Craig. 'Community without Propinquity Revisited: Communications Technology and the Transformation of the Urban Public Sphere'. *Sociological Inquiry* 68, no. 3 (1998): 373–97. https://doi.org/10.1111/j.1475-682X.1998.tb00474.x.

Calhoun, Craig J., ed. *Habermas and the Public Sphere*. Nachdr. Studies in Contemporary German Social Thought. Cambridge, Mass.: MIT Press, 1992.

Calisir, Emre, and Marco Brambilla. 'The Long-Running Debate about Brexit on Social Media'. *Proceedings of the International AAAI Conference on Web and Social Media* 14 (26 May 2020): 848–52.

Campbell, James E. *Polarized: Making Sense of a Divided America*. Princeton: Princeton University Press, 2016.

Carothers, Thomas, and Andrew O'Donohue, eds. *Democracies Divided: The Global Challenge of Political Polarization*. Washington, D.C: Brookings Institution Press, 2019.

Carpini, Michael X. Delli, Fay Lomax Cook, and Lawrence R. Jacobs. 'PUBLIC DELIBERATION, DISCURSIVE PARTICIPATION, AND CITIZEN ENGAGEMENT: A Review of the Empirical Literature'. *Annual Review of Political Science* 7, no. 1 (17 May 2004): 315–44. https://doi.org/10.1146/annurev.polisci.7.121003.091630.

Carreras, Miguel. '"What Do We Have to Lose?": Local Economic Decline, Prospect Theory, and Support for Brexit'. *Electoral Studies* 62 (1 December 2019): 102094. https://doi.org/10.1016/j.electstud.2019.102094.

Castells, Manuel. *Networks of Outrage and Hope: Social Movements in the Internet Age*. John Wiley & Sons, 2015.

Catanese, Salvatore A., Pasquale De Meo, Emilio Ferrara, Giacomo Fiumara, and Alessandro Provetti. 'Crawling Facebook for Social Network Analysis Purposes'. *Proceedings of the International Conference on Web Intelligence, Mining and Semantics - WIMS '11*, 2011, 1. https://doi.org/10.1145/1988688.1988749.

Ceron, Andrea, Luigi Curini, and Stefano M. Iacus. 'First- and Second-Level Agenda Setting in the Twittersphere: An Application to the Italian Political Debate'. *Journal of Information Technology & Politics* 13, no. 2 (2 April 2016): 159–74. https://doi.org/10.1080/19331681.2016.1160266.

Chambers, Simone. 'Deliberative Democratic Theory'. *Annual Review of Political Science* 6, no. 1 (2003): 307–26. https://doi.org/10.1146/annurev.polisci.6.121901.085538.

———. 'Making Referendums Safe for Democracy: A Call for More and Better Deliberation'. *Swiss Political Science Review* 24, no. 3 (2018): 305–11. https://doi.org/10.1111/spsr.12321.

Chan, Chung-hong, Cassius Siu-lun Chow, and King-wa Fu. 'Echoslamming: How Incivility Interacts with Cyberbalkanization on the Social Media in Hong Kong'. *Asian Journal of Communication* 29, no. 4 (4 July 2019): 307–27. https://doi.org/10.1080/01292986.2019.1624792.

Chen, Gina Masullo. *Online Incivility and Public Debate: Nasty Talk*. 1st ed. 2017. Cham: Springer International Publishing : Imprint: Palgrave Macmillan, 2017. https://doi.org/10.1007/978-3-319-56273-5.

Chen, Mingming, Konstantin Kuzmin, and Boleslaw K. Szymanski. 'Community Detection via Maximization of Modularity and Its Variants'. *IEEE Transactions on Computational Social Systems* 1, no. 1 (March 2014): 46–65. https://doi.org/10.1109/TCSS.2014.2307458.

Chernobrov, D. 'Who Is the Modern "Traitor"? "Fifth Column" Accusations in US and UK Politics and Media', 2018. http://eprints.whiterose.ac.uk/127766/16/0263395718776215.pdf.

Cherven, Ken. *Network Graph Analysis and Visualization with Gephi*. Packt Publishing Ltd, 2013.

Chikumbo, Oliver, and Vincent Granville. 'Optimal Clustering and Cluster Identity in Understanding High-Dimensional Data Spaces with Tightly Distributed Points'. *Machine Learning and Knowledge Extraction* 1, no. 2 (June 2019): 715–44. https://doi.org/10.3390/make1020042.

Chu, Zi, Steven Gianvecchio, Haining Wang, and Sushil Jajodia. 'Detecting Automation of Twitter Accounts: Are You a Human, Bot, or Cyborg?' *IEEE Transactions on Dependable and Secure Computing* 9, no. 6 (November 2012): 811–24. https://doi.org/10.1109/TDSC.2012.75.

Cinalli, Manlio, and Ian O'Flynn. 'Public Deliberation, Network Analysis and the Political Integration of Muslims in Britain'. *The British Journal of Politics & International Relations* 16, no. 3 (2014): 428–51. https://doi.org/10.1111/1467-856X.12003.

Cinelli, Matteo, Gianmarco De Francisci Morales, Alessandro Galeazzi, Walter Quattrociocchi, and Michele Starnini. 'The Echo Chamber Effect on Social Media'. *Proceedings of the National Academy of Sciences* 118, no. 9 (2 March 2021). https://doi.org/10.1073/pnas.2023301118.

Clarke, Victoria, Virginia Braun, and Gareth Terry. 'Thematic Analysis'. In *Qualitative Research in Clinical and Health Psychology*, edited by Poul Rohleder and Antonia Lyons, 95–113, 2014. https://www.academia.edu/42910699/Thematic_Analysis.

Cleen, Benjamin de. 'Populism and Nationalism'. The Oxford Handbook of Populism, 26 October 2017. https://doi.org/10.1093/oxfordhb/9780198803560.013.18.

Colleoni, Elanor, Alessandro Rozza, and Adam Arvidsson. 'Echo Chamber or Public Sphere? Predicting Political Orientation and Measuring Political Homophily in Twitter Using Big Data'. *Journal of Communication* 64, no. 2 (2014): 317–32. https://doi.org/10.1111/jcom.12084.

Conover, Michael D., Jacob Ratkiewicz, Matthew Francisco, Bruno Goncalves, Filippo Menczer, and Alessandro Flammini. 'Political Polarization on Twitter'. In *Fifth International AAAI Conference on Weblogs and Social Media*, 2011. https://www.aaai.org/ocs/index.php/ICWSM/ICWSM11/paper/view/2847.

———. 'Political Polarization on Twitter'. In *Fifth International AAAI Conference on Weblogs and Social Media*, 2011. https://www.aaai.org/ocs/index.php/ICWSM/ICWSM11/paper/view/2847.

Convey. 'FAQ - Convey'. Convey Youube FAQ's, 2021. http://www.youtube.com.convey.pro/faq.

Copus, Colin. 'The Brexit Referendum: Testing the Support of Elites and Their Allies for Democracy; or, Racists, Bigots and Xenophobes, Oh My!' *British Politics* 13, no. 1 (1 April 2018): 90–104. https://doi.org/10.1057/s41293-018-0070-3.

Craven, Arnold, and Christopher Whitwood. 'The Twitter Posts of the Brexit Campaigns: A Comparative Assessment', 2019. http://muep.mau.se/handle/2043/30084.

Creamer, Elizabeth. 'An Introduction to Fully Integrated Mixed Methods Research'. In *Introduction to Mixed Methods*, 2017. https://us.sagepub.com/en-us/nam/an-introduction-to-fully-integrated-mixed-methods-research/book242814.

Creswell, John W., and Vicki L. Plano Clark. *Designing and Conducting Mixed Methods Research*. 2nd ed. Los Angeles: SAGE Publications, 2011.

Cui, Mengyao. 'Introduction to the K-Means Clustering Algorithm Based on the Elbow Method'. *Accounting, Auditing and Finance* 1, no. 1 (22 October 2020): 5–8. https://doi.org/10.23977/accaf.2020.010102.

Curtice, John, Elizabeth Clery, Jane Perry, Miranda Phillips, and Nilufer Rahim. 'British Social Attitudes | NatCen Social Research'. *British Social Attitudes 36*, n.d., 40.

Curtis, John. 'Do Voters Support a No-Deal Brexit?' *BBC News*, 4 September 2019, sec. UK Politics. https://www.bbc.com/news/uk-politics-49551893.

Curtis, Sarah, Wil Gesler, Glenn Smith, and Sarah Washburn. 'Approaches to Sampling and Case Selection in Qualitative Research: Examples in the Geography of Health'. *Social Science & Medicine* 50, no. 7 (1 April 2000): 1001–14. https://doi.org/10.1016/S0277-9536(99)00350-0.

Dagoula, Chrysi. 'Mapping Political Discussions on Twitter: Where the Elites Remain Elites'. *Media and Communication* 7, no. 1 (21 March 2019): 225–34. https://doi.org/10.17645/mac.v7i1.1764.

Dahlberg, Lincoln. 'Rethinking the Fragmentation of the Cyberpublic: From Consensus to Contestation'. *New Media & Society* 9, no. 5 (2007c): 827–47. https://doi.org/10.1177/1461444807081228.

———. 'The Habermasian Public Sphere: Taking Difference Seriously?' *Theory and Society* 34, no. 2 (2005): 111–36.

———. 'The Internet and Discursive Exclusion: From Deliberative to Agonistic Public Sphere Theory'. In *Radical Democracy and the Internet: Interrogating Theory and Practice*, edited by Lincoln Dahlberg and Eugenia Siapera, 128–47. London: Palgrave Macmillan UK, 2007. https://doi.org/10.1057/9780230592469_8.

———. 'The Internet, Deliberative Democracy, and Power: Radicalizing the Public Sphere'. *International Journal of Media & Cultural Politics* 3, no. 1 (2007b-01-01): 47–64. https://doi.org/10.1386/macp.3.1.47_1.

Dahlgren, Peter. *Media and Political Engagement: Citizens, Communication, and Democracy*. Communication, Society and Politics. Cambridge ; New York: Cambridge University Press, 2009.

———. 'The Internet, Public Spheres, and Political Communication: Dispersion and Deliberation'. *Political Communication* 22, no. 2 (April 2005): 147–62. https://doi.org/10.1080/10584600590933160.

Daniel, W. *Iostatistics: A Foundation for Analysis in the Health Sciences.* 7th Edition, John Wiley & Sons, Inc., Hoboken., 1999.

Das, Kousik, Sovan Samanta, and Madhumangal Pal. 'Study on Centrality Measures in Social Networks: A Survey'. *Social Network Analysis and Mining* 8, no. 1 (December 2018): 13. https://doi.org/10.1007/s13278-018-0493-2.

Datts, Mario. 'Social Media, Populism, and Migration'. *Media and Communication* 8, no. 4 (8 October 2020): 73–83. https://doi.org/10.17645/mac.v8i4.3212.

De Blasio, Emiliana, Marianne Kneuer, Wolf Schünemann, and Michele Sorice. 'The Ongoing Transformation of the Digital Public Sphere: Basic Considerations on a Moving Target'. *Media and Communication* 8, no. 4 (8 October 2020): 1–5. https://doi.org/10.17645/mac.v8i4.3639.

Deiwiks, Christa. 'Populism'. *Living Reviews in Democracy*, 1 January 2009.

Del Gobbo, Emiliano, Sara Fontanella, Annalina Sarra, and Lara Fontanella. 'Emerging Topics in Brexit Debate on Twitter Around the Deadlines'. *Social Indicators Research*, 22 July 2020. https://doi.org/10.1007/s11205-020-02442-4.

Del Valle, Marc Esteve, Rimmert Sijtsma, Hanne Stegeman, and Rosa Borge. 'Online Deliberation and the Public Sphere: Developing a Coding Manual to Assess Deliberation in Twitter Political Networks'. *Javnost - The Public* 27, no. 3 (2 July 2020): 211–29. https://doi.org/10.1080/13183222.2020.1794408.

D'Errico, Francesca, and Marinella Paciello. 'Online Moral Disengagement and Hostile Emotions in Discussions on Hosting Immigrants'. *Internet Research* 28, no. 5 (1 January 2018): 1313–35. https://doi.org/10.1108/IntR-03-2017-0119.

Dickson, Annabelle. 'UK Brexit Divide Deepens as Voters Move to the Extremes: Poll'. POLITICO, 18 July 2019. https://www.politico.eu/article/poll-uk-brexit-divide-deepens-as-voters-move-to-the-extremes/.

Dijk, Jan van, and Kenneth L. Hacker, eds. *Internet and Democracy in the Network Society*. Routledge Studies in Global Information, Politics and Society 17. New York: Routledge, Taylor and Francis Group, 2018.

Downe-Wamboldt, B. 'Content Analysis: Method, Applications, and Issues'. *Health Care for Women International* 13, no. 3 (September 1992): 313–21. https://doi.org/10.1080/07399339209516006.

Du, Siying, and Steve Gregory. 'The Echo Chamber Effect in Twitter: Does Community Polarization Increase?' In *Complex Networks & Their Applications V*, edited by Hocine Cherifi, Sabrina Gaito, Walter Quattrociocchi, and Alessandra Sala, 373–78. Studies in Computational Intelligence. Cham: Springer International Publishing, 2017. https://doi.org/10.1007/978-3-319-50901-3_30.

Dubois, Elizabeth, and Devin Gaffney. 'The Multiple Facets of Influence: Identifying Political Influentials and Opinion Leaders on Twitter'. *American Behavioral Scientist* 58, no. 10 (1 September 2014): 1260–77. https://doi.org/10.1177/0002764214527088.

Durrheim, Kevin, Mukadder Okuyan, Michelle Sinayobye Twali, Efraín García-Sánchez, Adrienne Pereira, Jennie Sofia Portice, Tamar Gur, Ori Wiener-Blotner, and Tina F. Keil. 'How Racism Discourse Can Mobilize Right-wing Populism: The Construction of Identity and Alliance in Reactions to UKIP's Brexit "Breaking Point" Campaign'. *Journal of Community & Applied Social Psychology* 28, no. 6 (2018): 385–405. https://doi.org/10.1002/casp.2347.

Ecker, Ullrich K. H., Stephan Lewandowsky, Ee Pin Chang, and Rekha Pillai. 'The Effects of Subtle Misinformation in News Headlines'. *Journal of Experimental Psychology: Applied* 20, no. 4 (2014): 323–35. https://doi.org/10.1037/xap0000028.

Edgerly, Stephanie, and Emily K. Vraga. 'The Blue Check of Credibility: Does Account Verification Matter When Evaluating News on Twitter?' *Cyberpsychology, Behavior, and Social Networking* 22, no. 4 (April 2019): 283–87. https://doi.org/10.1089/cyber.2018.0475.

Ediger, D., K. Jiang, J. Riedy, D. A. Bader, C. Corley, R. Farber, and W. N. Reynolds. 'Massive Social Network Analysis: Mining Twitter for Social Good'. In *2010 39th International Conference on Parallel Processing*, 583–93, 2010. https://doi.org/10.1109/ICPP.2010.66.

Ekbia, Hamid, Michael Mattioli, Inna Kouper, G. Arave, Ali Ghazinejad, Timothy Bowman, Venkata Ratandeep Suri, Andrew Tsou, Scott Weingart, and Cassidy R. Sugimoto. 'Big Data, Bigger Dilemmas: A Critical Review'. *Journal of the Association for Information Science and Technology* 66, no. 8 (2015): 1523–45. https://doi.org/10.1002/asi.23294.

Eltantawy, Nahed, and Julie B. Wiest. 'The Arab Spring| Social Media in the Egyptian Revolution: Reconsidering Resource Mobilization Theory'. *International Journal of Communication* 5, no. 0 (2 September 2011): 18.

Eriksen, Erik O. 'Conceptualizing European Public Spheres – General, Segmented and Strong Publics', 2004.

Esau, Katharina, Dannica Fleuß, and Sarah-Michelle Nienhaus. 'Different Arenas, Different Deliberative Quality? Using a Systemic Framework to Evaluate Online Deliberation on Immigration Policy in Germany'. *Policy & Internet* 13, no. 1 (2021): 86–112. https://doi.org/10.1002/poi3.232.

Eulau, Heinz. 'Technology and the Fear of the Politics of Civility'. *The Journal of Politics* 35, no. 2 (1973): 367–85. https://doi.org/10.2307/2129074.

Evers, F. A. 'The Role of Internal Cohesion in the UK Parliament and Its Possible Effects on the Brexit Negotiations'. Info:eu-repo/semantics/masterThesis. University of Twente, 18 June 2021. http://essay.utwente.nl/86446/.

Extejt, Marian M. 'Teaching Students to Correspond Effectively Electronically'. *Business Communication Quarterly* 61, no. 2 (June 1998): 57–67. https://doi.org/10.1177/108056999806100208.

Fan, Hong, Wu Du, Abdelghani Dahou, Ahmed A. Ewees, Dalia Yousri, Mohamed Abd Elaziz, Ammar H. Elsheikh, Laith Abualigah, and Mohammed A. A. Al-qaness. 'Social Media Toxicity Classification Using Deep Learning: Real-World Application UK Brexit'. *Electronics* 10, no. 11 (January 2021): 1332. https://doi.org/10.3390/electronics10111332.

Fenton, Natalie, and Veronica Barassi. 'Alternative Media and Social Networking Sites: The Politics of Individuation and Political Participation'. *The Communication Review* 14, no. 3 (1 July 2011): 179–96. https://doi.org/10.1080/10714421.2011.597245.

Financial Times. 'EU Referendum Poll of Polls - Financial Times', 2016. https://ig.ft.com/sites/brexit-polling/.

Flanagin, Andrew J., and Miriam J. Metzger. 'The Role of Site Features, User Attributes, and Information Verification Behaviors on the Perceived Credibility of Web-Based Information'. *New Media & Society* 9, no. 2 (1 April 2007): 319–42. https://doi.org/10.1177/1461444807075015.

Flemmen, Magne, and Mike Savage. 'The Politics of Nationalism and White Racism in the UK'. *The British Journal of Sociology* 68, no. S1 (2017): S233–64. https://doi.org/10.1111/1468-4446.12311.

Flynn, Jeffrey. 'Communicative Power'. In *The Cambridge Habermas Lexicon*, edited by Amy Allen and Eduardo Mendieta, 53–55. Cambridge: Cambridge University Press, 2019. https://doi.org/10.1017/9781316771303.016.

Flyvbjerg, Bent. 'Habermas and Foucault: Thinkers for Civil Society?' *The British Journal of Sociology* 49, no. 2 (1998): 210–33. https://doi.org/10.2307/591310.

Ford, Robert, and Matthew Goodwin. 'Britain After Brexit: A Nation Divided'. *Journal of Democracy* 28, no. 1 (10 January 2017): 17–30. https://doi.org/10.1353/jod.2017.0002.

Foss, Sonja K., Karen A. Foss, and Robert Trapp. *Contemporary Perspectives on Rhetoric: 30th Anniversary Edition*. Waveland Press, 2014.

Fraser, Nancy. 'Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy'. *Social Text*, no. 25/26 (1990): 56–80. https://doi.org/10.2307/466240.

Freeden, Michael. 'After the Brexit Referendum: Revisiting Populism as an Ideology'. *Journal of Political Ideologies* 22, no. 1 (2 January 2017): 1–11. https://doi.org/10.1080/13569317.2016.1260813.

Freelon, Deen. 'Discourse Architecture, Ideology, and Democratic Norms in Online Political Discussion'. *New Media & Society* 17, no. 5 (1 May 2015): 772–91. https://doi.org/10.1177/1461444813513259.

Freelon, Deen G. 'Analyzing Online Political Discussion Using Three Models of Democratic Communication , Analyzing Online Political Discussion Using Three Models of Democratic Communication'. *New Media & Society* 12, no. 7 (1 November 2010): 1172–90. https://doi.org/10.1177/1461444809357927.

Freeman, Linton C. 'Centrality in Social Networks Conceptual Clarification'. *Social Networks* 1, no. 3 (January 1978): 215–39. https://doi.org/10.1016/0378-8733(78)90021-7.

Friess, Dennis, and Christiane Eilders. 'A Systematic Review of Online Deliberation Research'. *Policy & Internet* 7, no. 3 (2015): 319–39. https://doi.org/10.1002/poi3.95.

Fry, John, and Andrew Brint. 'Bubbles, Blind-Spots and Brexit'. *Risks* 5, no. 3 (September 2017): 37. https://doi.org/10.3390/risks5030037.

Fuchs, Christian. 'Social Media and the Public Sphere'. *TripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society* 12, no. 1 (19 February 2014): 57–101. https://doi.org/10.31269/triplec.v12i1.552.

Furman, Ivo, and Asli Tunç. 'The End of the Habermassian Ideal? Political Communication on Twitter During the 2017 Turkish Constitutional Referendum'. *Policy & Internet* 12, no. 3 (2020): 311–31. https://doi.org/10.1002/poi3.218.

Gamble, Andrew. 'The Realignment of British Politics in the Wake of Brexit'. *The Political Quarterly* 90, no. S2 (2019): 177–86. https://doi.org/10.1111/1467-923X.12643.

García Agustín, Óscar. *Left-Wing Populism: The Politics of the People*. Bingley: Emerald Publishing, 2020.

Garry, John, Michael Marsh, and Richard Sinnott. '"Second-Order" versus "Issue-Voting" Effects in EU Referendums: Evidence from the Irish Nice Treaty Referendums'. *European Union Politics* 6, no. 2 (1 June 2005): 201–21. https://doi.org/10.1177/1465116505051983.

Geiger, R. Stuart. 'Does Habermas Understand the Internet? The Algorithmic Construction of the Blogo/Public Sphere'. *Gnovis: A Journal of Communication, Culture, and Technology* 10, no. 1 (2009). https://escholarship.org/uc/item/60s6s0p8.

Gerbaudo, Paolo. 'Social Media and Populism: An Elective Affinity?' *Media, Culture & Society* 40, no. 5 (1 July 2018): 745–53. https://doi.org/10.1177/0163443718772192.

———. *The Mask and the Flag: Populism, Citizenism and Global Protest*. London: Hurst & Company, 2017.

Gerber, Marlène, André Bächtiger, Susumu Shikano, Simon Reber, and Samuel Rohr. 'Deliberative Abilities and Influence in a Transnational Deliberative Poll (EuroPolis)'. *British Journal of Political Science* 48, no. 4 (October 2018): 1093–1118. https://doi.org/10.1017/S0007123416000144.

Gerhards, Jürgen, and Mike S. Schäfer. 'Is the Internet a Better Public Sphere? Comparing Old and New Media in the USA and Germany'. *New Media & Society* 12, no. 1 (1 February 2010): 143–60. https://doi.org/10.1177/1461444809341444.

Gibson, James J. 'The Theory of Affordances (1979)'. In *The People, Place, and Space Reader*. Routledge, 1979.

Gietel-Basten, Stuart. 'Why Brexit? The Toxic Mix of Immigration and Austerity'. *Population and Development Review* 42, no. 4 (2016): 673–80.

Gil de Zúñiga, Homero, Karolina Koc Michalska, and Andrea Römmele. 'Populism in the Era of Twitter: How Social Media Contextualized New Insights into an Old Phenomenon'. *New Media & Society* 22, no. 4 (1 April 2020): 585–94. https://doi.org/10.1177/1461444819893978.

Gil de Zúñiga, Homero, Logan Molyneux, and Pei Zheng. 'Social Media, Political Expression, and Political Participation: Panel Analysis of Lagged and Concurrent Relationships'. *Journal of Communication* 64, no. 4 (1 August 2014): 612–34. https://doi.org/10.1111/jcom.12103.

Gilbert, Ben. 'Elon Musk Says Twitter under His Leadership Will Be "super Focused" on These 4 Things'. Business Insider, 2022. https://www.businessinsider.com/heres-how-elon-musk-will-change-twitter-as-new-leader-2022-5.

Gligorić, Kristina, Ashton Anderson, and Robert West. 'How Constraints Affect Content: The Case of Twitter's Switch from 140 to 280 Characters'. *Proceedings of the International AAAI Conference on Web and Social Media* 12, no. 1 (15 June 2018). https://ojs.aaai.org/index.php/ICWSM/article/view/15079.

Goldenberg, Amit, and James J. Gross. 'Digital Emotion Contagion'. *Trends in Cognitive Sciences* 24, no. 4 (1 April 2020): 316–28. https://doi.org/10.1016/j.tics.2020.01.009.

González-Bailón, Sandra. 'Social Science in the Era of Big Data'. *Policy & Internet* 5, no. 2 (2013): 147–60. https://doi.org/10.1002/1944-2866.POI328.

Goode, Luke. *Jurgen Habermas: Democracy and the Public Sphere*. London ; Ann Arbor, MI: Pluto Press, 2005.

Goodwin, Matthew J., and Oliver Heath. 'The 2016 Referendum, Brexit and the Left Behind: An Aggregate-Level Analysis of the Result'. *The Political Quarterly* 87, no. 3 (2016): 323–32. https://doi.org/10.1111/1467-923X.12285.

Goodwin, Matthew, and Caitlin Milazzo. 'Taking Back Control? Investigating the Role of Immigration in the 2016 Vote for Brexit'. *The British Journal of Politics and International Relations* 19, no. 3 (1 August 2017): 450–64. https://doi.org/10.1177/1369148117710799.

Gorrell, Genevieve, Ian Roberts, Mark A. Greenwood, Mehmet E. Bakir, Benedetta Iavarone, and Kalina Bontcheva. 'Quantifying Media Influence and Partisan Attention on Twitter During the UK EU Referendum'. In *Social Informatics*, edited by Steffen Staab, Olessia Koltsova, and Dmitry I. Ignatov, 274–90. Lecture Notes in Computer Science. Cham: Springer International Publishing, 2018. https://doi.org/10.1007/978-3-030-01129-1_17.

Graham, T. 'Everyday Political Talk in the Internet- Based Public Sphere'. In *Handbook of Digital Politics*, edited by S. Coleman and D. Freelon, 247–63. Cheltenham, UK: Edward Elgar, 2015. https://doi.org/10.4337/9781782548768.00024.

Graham, T., M. Broersma, and K. Hazelhoff. 'Closing the Gap? Twitter as an Instrument for Connected Representation'. edited by R. Scullion, D. Gerodimos, D. Jackson, and D. Lilleker, 71–88. Routledge, 2013. https://www.routledge.com/The-Media-Political-Participation-and-Empowerment/Scullion-Gerodimos-Jackson-Lilleker/p/book/9780415633499.

Grčar, Miha, Darko Čerepnalkoski, and Igor Mozetič. 'The Hirsch Index for Twitter : Influential Proponents and Opponents of Brexit'. In *Book of Abstracts*, 2016. https://dirros.openscience.si/IzpisGradiva.php?id=6231&lang=eng.

Grčar, Miha, Darko Cherepnalkoski, Igor Mozetič, and Petra Kralj Novak. 'Stance and Influence of Twitter Users Regarding the Brexit Referendum'. *Computational Social Networks* 4, no. 1 (24 July 2017): 6. https://doi.org/10.1186/s40649-017-0042-6.

Gruzd, Anatoliy, and Jeffrey Roy. 'Investigating Political Polarization on Twitter: A Canadian Perspective'. *Policy & Internet* 6, no. 1 (2014): 28–45. https://doi.org/10.1002/1944-2866.POI354.

Guerra, P.H., Wagner Meira Jr, Claire Cardie, and R. Kleinberg. 'A Measure of Polarization on Social Media NetworksBased on Community Boundaries'. *Proceedings of the 7th International Conference on Weblogs and Social Media, ICWSM 2013*, 1 January 2013, 215–24.

Guo, Lei, Jacob A. Rohde, and H. Denis Wu. 'Who Is Responsible for Twitter's Echo Chamber Problem? Evidence from 2016 U.S. Election Networks'. *Information, Communication & Society* 23, no. 2 (28 January 2020): 234–51. https://doi.org/10.1080/1369118X.2018.1499793.

Gupta, Pankaj, Ashish Goel, Jimmy Lin, Aneesh Sharma, Dong Wang, and Reza Zadeh. 'WTF: The Who to Follow Service at Twitter'. In *Proceedings of the 22nd International Conference on World Wide Web - WWW '13*, 505–14. Rio de Janeiro, Brazil: ACM Press, 2013. https://doi.org/10.1145/2488388.2488433.

Habermas, Jürgen. *Between Facts and Norms: Contributions to a Discourse Theory of Law and Democracy*. Studies in Contemporary German Social Thought. Cambridge, Mass: MIT Press, 1996.

———. *Europe: The Faltering Project*. English ed. Cambridge ; Malden, MA: Polity, 2009.

———. 'Further Reflections of the Public Sphere'. In *Habermas and the Public Sphere*. Studies in Contemporary German Social Thought. p421-461: MIT Press, 1992.

———. 'Interview with Jürgen Habermas'. The Oxford Handbook of Deliberative Democracy, 6 September 2018. https://doi.org/10.1093/oxfordhb/9780198747369.013.60.

———. 'Political Communication in Media Society: Does Democracy Still Enjoy an Epistemic Dimension? The Impact of Normative Theory on Empirical Research'. *Communication Theory* 16, no. 4 (2006): 411–26. https://doi.org/10.1111/j.1468-2885.2006.00280.x.

———. 'The Public Sphere: An Encyclopedia Article (1964)'. *New German Critique*, no. 3 (1974): 49–55. https://doi.org/10.2307/487737.

———. *The Structural Transformation of the Public Sphere: An Inquiry Into a Category of Bourgeois Society*. MIT Press, 1991.

———. *The Theory of Communicative Action. Vol 1.* Boston: Beacon Press, 1984.

Hall, W., R. Tinati, and W. Jennings. 'From Brexit to Trump: Social Media's Role in Democracy'. *Computer* 51, no. 1 (January 2018): 18–27. https://doi.org/10.1109/MC.2018.1151005.

Halpern, Daniel, and Jennifer Gibbs. 'Social Media as a Catalyst for Online Deliberation? Exploring the Affordances of Facebook and YouTube for Political Expression'. *Computers in Human Behavior* 29, no. 3 (May 2013): 1159–68. https://doi.org/10.1016/j.chb.2012.10.008.

Hameleers, Michael, and Desirée Schmuck. 'It's Us against Them: A Comparative Experiment on the Effects of Populist Messages Communicated via Social Media'. *Information, Communication & Society* 20, no. 9 (2 September 2017): 1425–44. https://doi.org/10.1080/1369118X.2017.1328523.

Hamilton, Michael. 'Record Number of Foreign Paedophiles Have Been Unmasked by Cops in Britain'. The Sun, 2019. https://www.thesun.co.uk/news/10459630/foreign-paedos-record-unmasked-british-cops/.

Hannan, Jason, ed. *Truth in the Public Sphere*. Lanham: Lexington Books, 2016.

Hanneman, Robert A., and Mark Riddle. 'Concepts and Measures for Basic Network Analysis'. In *The SAGE Handbook of Social Network Analysis*, by John Scott and Peter Carrington, 340–69. 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom: SAGE Publications Ltd, 2014. https://doi.org/10.4135/9781446294413.n24.

Hansen, Derek L., Ben Schneiderman, and Marc A. Smith. *Analyzing Social Media Networks with NodeXL: Insights from a Connected World*. Burlington, MA: Morgan Kaufmann, 2011.

Hänska, Max, and Stefan Bauchowitz. 'Tweeting for Brexit: How Social Media Influenced the Referendum'. In *Brexit, Trump and the Media*, edited by John Mair, Tor Clark, Neil Fowler, Raymond Snoddy, and Richard Tait, 31–35. Bury St Edmunds, UK: abramis academic publishing, 2017. http://www.abramis.co.uk/publish/home.php.

Hargittai, Eszter, and Aaron Shaw. 'Digitally Savvy Citizenship: The Role of Internet Skills and Engagement in Young Adults' Political Participation around the 2008 Presidential Election'. *Journal of Broadcasting & Electronic Media* 57, no. 2 (1 April 2013): 115–34. https://doi.org/10.1080/08838151.2013.787079.

Harlow, Summer, and Thomas J. Johnson. 'The Arab Spring| Overthrowing the Protest Paradigm? How The New York Times, Global Voices and Twitter Covered the Egyptian Revolution'. *International Journal of Communication* 5, no. 0 (2 September 2011): 16.

Hayton, Richard. 'Towards the Mainstream? UKIP and the 2009 Elections to the European Parliament'. *Politics* 30, no. 1 (1 February 2010): 26–35. https://doi.org/10.1111/j.1467-9256.2009.01365.x.

Heath, Joseph. 'What Is a Validity Claim?' *Philosophy & Social Criticism* 24, no. 4 (1 July 1998): 23–41. https://doi.org/10.1177/019145379802400402.

Hill, Marc Lamont. '"Thank You, Black Twitter": State Violence, Digital Counterpublics, and Pedagogies of Resistance'. *Urban Education* 53, no. 2 (1 February 2018): 286–302. https://doi.org/10.1177/0042085917747124.

Himelboim, Itai, Stephen McCreery, and Marc Smith. 'Birds of a Feather Tweet Together: Integrating Network and Content Analyses to Examine Cross-Ideology Exposure on Twitter'. *Journal of Computer-Mediated Communication* 18, no. 2 (January 2013): 40–60. https://doi.org/10.1111/jcc4.12001.

Himelboim, Itai, Marc A. Smith, Lee Rainie, Ben Shneiderman, and Camila Espina. 'Classifying Twitter Topic-Networks Using Social Network Analysis'. *Social Media + Society* 3, no. 1 (1 January 2017): 2056305117691545. https://doi.org/10.1177/2056305117691545.

Himmelroos, Staffan. 'Discourse Quality in Deliberative Citizen Forums – A Comparison of Four Deliberative Mini-Publics'. *Journal of Deliberative Democracy* 13, no. 1 (1 May 2020). https://doi.org/10.16997/jdd.269.

Hix, Simon. 'Brexit: Where Is the EU-UK Relationship Heading'. *Journal of Common Market Studies* 56 (2018): 11.

Hobolt, Sara B. 'The Brexit Vote: A Divided Nation, a Divided Continent'. *Journal of European Public Policy* 23, no. 9 (20 October 2016): 1259–77. https://doi.org/10.1080/13501763.2016.1225785.

Hobolt, Sara B, Thomas J Leeper, and James Tilley. 'Divided by the Vote: Affective Polarization in the Wake of Brexit', 2018, 34.

Hobolt, Sara, Thomas J. Leeper, and James Tilley. 'Divided by the Vote: Affective Polarization in the Wake of the Brexit Referendum'. *British Journal of Political Science*, 7 July 2020. https://www.cambridge.org/core/journals/british-journal-of-political-science.

Höller, Maximilian. 'The Human Component in Social Media and Fake News: The Performance of UK Opinion Leaders on Twitter during the Brexit Campaign'. *European Journal of English Studies* 25, no. 1 (2 January 2021): 80–95. https://doi.org/10.1080/13825577.2021.1918842.

Holt, Kristoffer, Adam Shehata, Jesper Strömbäck, and Elisabet Ljungberg. 'Age and the Effects of News Media Attention and Social Media Use on Political Interest and Participation: Do Social Media Function as Leveller?' *European Journal of Communication* 28, no. 1 (1 February 2013): 19–34. https://doi.org/10.1177/0267323112465369.

Howard, Philip N., Aiden Duffy, Deen Freelon, M. M. Hussain, Will Mari, and Marwa Maziad. 'Opening Closed Regimes: What Was the Role of Social Media During the Arab Spring?' SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 2011. https://papers.ssrn.com/abstract=2595096.

Howard, Philip N., and Bence Kollanyi. 'Bots, #Strongerin, and #Brexit: Computational Propaganda During the UK-EU Referendum'. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 20 June 2016. https://papers.ssrn.com/abstract=2798311.

Howlader, Prantik, and K. S Sudeep. 'Degree Centrality, Eigenvector Centrality and the Relation between Them in Twitter'. In *2016 IEEE International Conference on Recent Trends in Electronics, Information Communication Technology (RTEICT)*, 678–82, 2016. https://doi.org/10.1109/RTEICT.2016.7807909.

Huckfeldt, R. Robert, and John Sprague. *Citizens, Politics, and Social Communication: Information and Influence in an Election Campaign*. Citizens, Politics, and Social Communication: Information and Influence in an Election Campaign. New York, NY, US: Cambridge University Press, 1995. https://doi.org/10.1017/CBO9780511664113.

Ibarra, Herminia, and Steven B. Andrews. 'Power, Social Influence, and Sense Making: Effects of Network Centrality and Proximity on Employee Perceptions'. *Administrative Science Quarterly* 38, no. 2 (1993): 277–303. https://doi.org/10.2307/2393414.

Imafidon, Elvis. 'Habermas' Ethics of Intersubjectivity'. In *The Ethics of Subjectivity: Perspectives since the Dawn of Modernity*, edited by Elvis Imafidon, 255–79. London: Palgrave Macmillan UK, 2015. https://doi.org/10.1057/9781137472427_15.

Indraneil, Paul, Abhinav Khattar, Ponnurangam Kumaraguru, Manish Gupta, and Shaan Chopra. 'Elites Tweet? Characterizing the Twitter Verified User Network'. In *2019 IEEE 35th International Conference on Data Engineering Workshops (ICDEW)*, 278–85, 2019. https://doi.org/10.1109/ICDEW.2019.00006.

Ipsos Mori. 'European Union Poll'. Ipsos MORI, 2011. https://www.ipsos.com/ipsos-mori/en-uk/european-union-poll.

Israel, G.D. 'Determining Sample Size.', 1992. University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS, Florida.

Ivankova, Nataliya V., John W. Creswell, and Sheldon L. Stick. 'Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice'. *Field Methods* 18, no. 1 (February 2006): 3–20. https://doi.org/10.1177/1525822X05282260.

Iyengar, Shanto, Yphtach Lelkes, Matthew Levendusky, Neil Malhotra, and Sean J. Westwood. 'The Origins and Consequences of Affective Polarization in the United States'. *Annual Review of Political Science* 22, no. 1 (2019): 129–46. https://doi.org/10.1146/annurev-polisci-051117-073034.

Iyengar, Shanto, and Sean J. Westwood. 'Fear and Loathing across Party Lines: New Evidence on Group Polarization'. *American Journal of Political Science* 59, no. 3 (2015): 690–707. https://doi.org/10.1111/ajps.12152.

Jackson, Sarah J., and Brooke Foucault Welles. 'Hijacking #myNYPD: Social Media Dissent and Networked Counterpublics'. *Journal of Communication* 65, no. 6 (2015): 932–52. https://doi.org/10.1111/jcom.12185.

Jacobs, Kristof, and Niels Spierings. 'A Populist Paradise? Examining Populists' Twitter Adoption and Use'. *Information, Communication & Society* 0, no. 0 (20 March 2018): 1–16. https://doi.org/10.1080/1369118X.2018.1449883.

Jacomy, Mathieu, Tommaso Venturini, Sebastien Heymann, and Mathieu Bastian. 'ForceAtlas2, a Continuous Graph Layout Algorithm for Handy Network Visualization Designed for the Gephi Software'. *PLOS ONE* 9, no. 6 (10 June 2014): e98679. https://doi.org/10.1371/journal.pone.0098679.

Jagers, Jan, and Stefaan Walgrave. 'Populism as Political Communication Style: An Empirical Study of Political Parties' Discourse in Belgium'. *European Journal of Political Research* 46, no. 3 (2007): 319–45. https://doi.org/10.1111/j.1475-6765.2006.00690.x.

Jaidka, Kokil, Alvin Zhou, and Yphtach Lelkes. 'Brevity Is the Soul of Twitter: The Constraint Affordance and Political Discussion'. *Journal of Communication* 69, no. 4 (1 August 2019): 345–72. https://doi.org/10.1093/joc/jqz023.

Jeffries, Stuart. 'A Rare Interview with Jürgen Habermas'. *Financial Times*, 2010. https://www.ft.com/content/eda3bcd8-5327-11df-813e-00144feab49a.

Jellema, Hylke, Swanny Kremer, Anne-Ruth Mackor, and Bert Molewijk. 'Evaluating the Quality of the Deliberation in Moral Case Deliberations: A Coding Scheme'. *Bioethics* 31, no. 4 (2017): 277–85. https://doi.org/10.1111/bioe.12346.

Joppke, Christian. 'Immigration in the Populist Crucible: Comparing Brexit and Trump'. *Comparative Migration Studies* 8, no. 1 (21 December 2020): 49. https://doi.org/10.1186/s40878-020-00208-y.

Jukes, Stephen. 'Crossing the Line between News and the Business of News: Exploring Journalists' Use of Twitter'. *Media and Communication* 7, no. 1 (21 March 2019): 248–58.

Jungherr, Andreas. 'Twitter in Politics: A Comprehensive Literature Review'. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 27 February 2014. https://papers.ssrn.com/abstract=2402443.

Kaid, L, and J Wadsworth. 'Content Analysis'. In *Measurement of Communication Behavior*, edited by Philip Emmert and Larry Lee Barker. Longman, 1989.

Kallis, Aristotle. 'Populism, Sovereigntism, and the Unlikely Re-Emergence of the Territorial Nation-State'. *Fudan Journal of the Humanities and Social Sciences* 11, no. 3 (1 September 2018): 285–302. https://doi.org/10.1007/s40647-018-0233-z.

Kemmer, Laura, Christian Helge Peters, Vanessa Weber, Ben Anderson, and Rainer Mühlhoff. 'On Right-Wing Movements, Spheres, and Resonances: An Interview with Ben Anderson and Rainer Mühlhoff'. *Distinktion: Journal of Social Theory* 20, no. 1 (2 January 2019): 25–41. https://doi.org/10.1080/1600910X.2018.1544577.

Keohane, Daniel. 'A Terrible Border Is Reborn? Ireland and a No-Deal Brexit'. Centre for European Reform, 2020. https://www.cer.eu/insights/terrible-border-reborn-ireland-and-no-deal-brexit.

Kim, Yonghwan, and Youngju Kim. 'Incivility on Facebook and Political Polarization: The Mediating Role of Seeking Further Comments and Negative Emotion'. *Computers in Human Behavior* 99 (1 October 2019): 219–27. https://doi.org/10.1016/j.chb.2019.05.022.

Klinger, Ulrike, and Jakob Svensson. 'The Emergence of Network Media Logic in Political Communication: A Theoretical Approach'. *New Media & Society* 17, no. 8 (1 September 2015): 1241–57. https://doi.org/10.1177/1461444814522952.

Knappett, C. 'Thinking through Material Culture: An Interdisciplinary Perspective'. *Thinking Through Material Culture: An Interdisciplinary Perspective*, 1 January 2005, 1–202.

Kohn, Margaret. 'Language, Power, and Persuasion: Toward a Critique of Deliberative Democracy'. *Constellations* 7, no. 3 (2000): 408–29. https://doi.org/10.1111/1467-8675.00197.

Koroleva, Ksenia, and Gerald C. Kane. 'Relational Affordances of Information Processing on Facebook'. *Information & Management* 54, no. 5 (1 July 2017): 560–72. https://doi.org/10.1016/j.im.2016.11.007.

Kreis, Ramona. '#refugeesnotwelcome: Anti-Refugee Discourse on Twitter'. *Discourse & Communication* 11, no. 5 (October 2017): 498–514. https://doi.org/10.1177/1750481317714121.

Krippendorff, Klaus. 'Validity in Content Analysis'. *Computerstrategien Für Die Kommunikationsanalyse* Frankfurt/New York: Campus, 1980. (1 January 1980): 69–112.

Kruse, Lisa M., Dawn R. Norris, and Jonathan R. Flinchum. 'Social Media as a Public Sphere? Politics on Social Media'. *The Sociological Quarterly* 59, no. 1 (2 January 2018): 62–84. https://doi.org/10.1080/00380253.2017.1383143.

Kweon, Sang-Hee, Taeseong Go, Bo-young Kang, Min-Kyung Cha, Se-Jin Kim, and Hea-Ji Kweon. 'Study on Agenda-Setting Structure between SNS and News: Focusing on Application of Network Agenda-Setting'. *International Journal of Contents* 15, no. 1 (2019): 10–24. https://doi.org/10.5392/IJoC.2019.15.1.010.

Kwon, K. Hazel, and Anatoliy Gruzd. 'Is Aggression Contagious Online? A Case of Swearing on Donald Trump's Campaign Videos on YouTube'. *Hawaii International Conference on System*

*Sciences 2017 (HICSS-50)*, 4 January 2017. https://aisel.aisnet.org/hicss-50/dsm/persistent_conversation/2.

Labour Party. '2017 Manifesto'. The Labour Party, 2017. https://labour.org.uk/manifesto-2017/.

Lai, Mirko, Marcella Tambuscio, Viviana Patti, Giancarlo Ruffo, and Paolo Rosso. 'Extracting Graph Topological Information and Users' Opinion'. In *Experimental IR Meets Multilinguality, Multimodality, and Interaction*, edited by Gareth J.F. Jones, Séamus Lawless, Julio Gonzalo, Liadh Kelly, Lorraine Goeuriot, Thomas Mandl, Linda Cappellato, and Nicola Ferro, 112–18. Lecture Notes in Computer Science. Cham: Springer International Publishing, 2017. https://doi.org/10.1007/978-3-319-65813-1_10.

———. 'Stance Polarity in Political Debates: A Diachronic Perspective of Network Homophily and Conversations on Twitter'. *Data & Knowledge Engineering* 124 (1 November 2019): 101738. https://doi.org/10.1016/j.datak.2019.101738.

Lancichinetti, Andrea, and Santo Fortunato. 'Limits of Modularity Maximization in Community Detection'. *Physical Review E* 84, no. 6 (27 December 2011): 066122. https://doi.org/10.1103/PhysRevE.84.066122.

Landis, J. Richard, and Gary G. Koch. 'The Measurement of Observer Agreement for Categorical Data'. *Biometrics* 33, no. 1 (1977): 159–74. https://doi.org/10.2307/2529310.

Lansiaux, Edouard, Noé Tchagaspanian, and Joachim Forget. 'Community Impact on a Cryptocurrency: Twitter Comparison Example Between Dogecoin and Litecoin'. *Frontiers in Blockchain* 5 (2022). https://www.frontiersin.org/article/10.3389/fbloc.2022.829865.

Laumann, Edward O. *Bonds of Pluralism: The Form and Substance of Urban Social Networks*. Wiley Series in Urban Research. New York: J. Wiley, 1973.

Laurier, Eric, and Chris Philo. '"A Parcel of Muddling Muckworms": Revisiting Habermas and the English Coffee-Houses'. *Social & Cultural Geography* 8, no. 2 (1 April 2007): 259–81. https://doi.org/10.1080/14649360701360212.

Lawrence, Barbara, and Neha Shah. *Homophily: Measures and Meaning*, 2017.

Lawrence, John, Joonsuk Park, Katarzyna Budzynska, Claire Cardie, Barbara Konat, and Chris Reed. 'Using Argumentative Structure to Interpret Debates in Online Deliberative Democracy and ERulemaking'. *ACM Transactions on Internet Technology* 17, no. 3 (9 July 2017): 25:1-25:22. https://doi.org/10.1145/3032989.

LBC. *The Nigel Farage Show: Steve Bannon Takes Your Calls (Trump's Former Adviser). LBC - 15th July 2018*. Accessed 11 August 2021. https://www.youtube.com/watch?v=nU0F8rP7dr4.

LeDuc, Lawrence. 'Referendums and Deliberative Democracy'. *Electoral Studies* 38 (1 June 2015): 139–48. https://doi.org/10.1016/j.electstud.2015.02.007.

Lee, Francis L. F., Hai Liang, and Gary K. Y. Tang. 'Online Incivility, Cyberbalkanization, and the Dynamics of Opinion Polarization During and After a Mass Protest Event'. *International Journal of Communication* 13, no. 0 (22 September 2019): 20.

Leibowitz, Uri D. 'Moral Deliberation and Ad Hominem Fallacies'. *Journal of Moral Philosophy* 13, no. 5 (29 September 2016). https://doi.org/10.1163/17455243-46810045.

Leonardi, Paul M, Bonnie A Nardi, and Jannis Kallinikos. *Materiality and Organizing: Social Interaction in a Technological World*. Oxford: Oxford University Press, 2012. http://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=3055039.

Lewis, Seth C., Rodrigo Zamith, and Alfred Hermida. 'Content Analysis in an Era of Big Data: A Hybrid Approach to Computational and Manual Methods'. *Journal of Broadcasting & Electronic Media* 57, no. 1 (2013): 34–52. https://doi.org/10.1080/08838151.2012.761702.

Li, Yanyan, Shaoqian Ma, Yonghe Zhang, Ronghuai Huang, and Kinshuk. 'An Improved Mix Framework for Opinion Leader Identification in Online Learning Communities'. *Knowledge-Based Systems* 43 (1 May 2013): 43–51. https://doi.org/10.1016/j.knosys.2013.01.005.

Liang, Hai, and King-wa Fu. 'Testing Propositions Derived from Twitter Studies: Generalization and Replication in Computational Social Science'. *PLOS ONE* 10, no. 8 (19 August 2015): e0134270. https://doi.org/10.1371/journal.pone.0134270.

Lievrouw, Leah A. 'Materiality and Media in Communication and Technology Studies: An Unfinished Project'. In *Media Technologies: Essays on Communication, Materiality, and Society*, edited by Tarleton Gillespie, Pablo J. Boczkowski, and Kirsten A. Foot, 21–51. MIT Press, 2014. https://ieeexplore.ieee.org/document/6734002.

Liu, Xian. *Methods and Applications of Longitudinal Data Analysis*. Amsterdam ; Boston: Elsevier/Academic Press, Academic Press is an imprint of Elsevier, 2016.

Liu, Zhe, and Ingmar Weber. 'Is Twitter a Public Sphere for Online Conflicts? A Cross-Ideological and Cross-Hierarchical Look'. In *Social Informatics: 6th International Conference, SocInfo 2014, Barcelona, Spain, November 11-13, 2014. Proceedings*, edited by Luca Maria Aiello and Daniel McFarland, 336–47. Lecture Notes in Computer Science. Cham: Springer International Publishing, 2014. https://doi.org/10.1007/978-3-319-13734-6_25.

Livingstone, Sonia, and Peter Lunt. 'The Mass Media, Democracy and the Public Sphere'. In *Talk on Television Audience Participation and Public Debate*, edited by Sonia Livingstone and Peter Lunt, 9–35. London, UK: Routledge, 1994. http://eprints.lse.ac.uk/48964/.

Looney, Sarah. 'Breaking Point? An Examination of the Politics of Othering in Brexit Britain'. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 28 April 2017. https://doi.org/10.2139/ssrn.3014638.

LSE. 'Social Media Platforms and Demographics'. LSE Digitaql Communications, 2017. https://info.lse.ac.uk/staff/divisions/communications-division/digital-communications-team/assets/documents/guides/A-Guide-To-Social-Media-Platforms-and-Demographics.pdf.

Lwanga Stephen Kaggwa, and Lemeshow Stanley. 'Sample size determination in health studies : a practical manual'. World Health Organization, 1991. https://apps.who.int/iris/handle/10665/40062.

Lynch, Philip, and Richard Whitaker. 'Rivalry on the Right: The Conservatives, the UK Independence Party (UKIP) and the EU Issue'. *British Politics* 8, no. 3 (1 September 2013): 285–312. https://doi.org/10.1057/bp.2012.29.

Lyotard, Jean-François. *The Postmodern Condition: A Report on Knowledge*. Repr. Theory and History of Literature. Manchester: Manchester Univ. Press, 1979.

Macskassy, Sofus. 'On the Study of Social Interactions in Twitter'. *Proceedings of the International AAAI Conference on Web and Social Media* 6, no. 1 (20 May 2012). https://ojs.aaai.org/index.php/ICWSM/article/view/14241.

Maharani, Warih, Adiwijaya, and Alfian Akbar Gozali. 'Degree Centrality and Eigenvector Centrality in Twitter'. In *2014 8th International Conference on Telecommunication Systems Services and Applications (TSSA)*, 1–5, 2014. https://doi.org/10.1109/TSSA.2014.7065911.

Maia, Rousiley C. M., and Thaiane A. S. Rezende. 'Respect and Disrespect in Deliberation Across the Networked Media Environment: Examining Multiple Paths of Political Talk: Disrespect in Deliberation across Digital Settings'. *Journal of Computer-Mediated Communication* 21, no. 2 (March 2016): 121–39. https://doi.org/10.1111/jcc4.12155.

Mancosu, Moreno, and Federico Vegetti. 'What You Can Scrape and What Is Right to Scrape: A Proposal for a Tool to Collect Public Facebook Data'. *Social Media + Society* 6, no. 3 (1 July 2020): 2056305120940703. https://doi.org/10.1177/2056305120940703.

Manikonda, Lydia, Ghazaleh Beigi, Huan Liu, and Subbarao Kambhampati. 'Twitter for Sparking a Movement, Reddit for Sharing the Moment: #metoo through the Lens of Social Media'. *ArXiv:1803.08022 [Cs]*, 21 March 2018. http://arxiv.org/abs/1803.08022.

Manners, Ian. 'Political Psychology of European Integration: The (Re)Production of Identity and Difference in the Brexit Debate'. *Political Psychology* 39, no. 6 (2018): 1213–32. https://doi.org/10.1111/pops.12545.

Mansbridge, Jane, James Bohman, Simone Chambers, Thomas Christiano, Archon Fung, John Parkinson, Dennis F. Thompson, and Mark E. Warren. 'A Systemic Approach to Deliberative Democracy'. In *Deliberative Systems: Deliberative Democracy at the Large Scale*, edited by Jane Mansbridge and John Parkinson, 1–26. Theories of Institutional Design. Cambridge: Cambridge University Press, 2012. https://doi.org/10.1017/CBO9781139178914.002.

Marchal, Nahema, Bence Kollanyi, Lisa-Maria Neudert, Hubert Au, and Philip N. Howard. 'Junk News & Information Sharing During the 2019 UK General Election'. *ArXiv:2002.12069 [Cs]*, 27 February 2020. http://arxiv.org/abs/2002.12069.

Marshall, David J., and Lynn Staeheli. 'Mapping Civil Society with Social Network Analysis: Methodological Possibilities and Limitations'. *Geoforum* 61 (1 May 2015): 56–66. https://doi.org/10.1016/j.geoforum.2015.02.015.

Martin, Shawn, W. Brown, Richard Klavans, and Kevin Boyack. 'OpenOrd: An Open-Source Toolbox for Large Graph Layout'. *Proc SPIE* 7868 (23 January 2011): 786806. https://doi.org/10.1117/12.871402.

Matuszewski, Paweł, and Gabriella Szabó. 'Are Echo Chambers Based on Partisanship? Twitter and Political Polarity in Poland and Hungary'. *Social Media + Society* 5, no. 2 (1 April 2019): 2056305119837671. https://doi.org/10.1177/2056305119837671.

McCarty, Nolan M. *Polarization: What Everyone Needs to Know*. New York, NY: Oxford University Press, 2019.

McLoughlin, Liam, Stephen Ward, Rachel Gibson, and Rosalynd Southern. 'A Tale of Three Tribes: UK MPs, Twitter and the EU Referendum Campaign'. *Information Polity* 25, no. 1 (1 January 2020): 49–66. https://doi.org/10.3233/IP-190140.

McPherson, Miller, Lynn Smith-Lovin, and James M Cook. 'Birds of a Feather: Homophily in Social Networks'. *Annual Review of Sociology* 27, no. 1 (2001): 415–44. https://doi.org/10.1146/annurev.soc.27.1.415.

Menon, Anand, and Alan Wager. 'Taking Back Control: Sovereignty as Strategy in Brexit Politics'. *Territory, Politics, Governance* 8, no. 2 (14 March 2020): 279–84. https://doi.org/10.1080/21622671.2019.1702895.

Michailidou, Asimina. 'Twitter, Public Engagement and the Eurocrisis: More than an Echo Chamber?' In *Social Media and European Politics: Rethinking Power and Legitimacy in the Digital Era*, edited by Mauro Barisione and Asimina Michailidou, 241–66. Palgrave Studies in European Political Sociology. London: Palgrave Macmillan UK, 2017. https://doi.org/10.1057/978-1-137-59890-5_11.

Migration Observatory. 'UK Public Opinion toward Immigration: Overall Attitudes and Level of Concern'. Migration Observatory, 2020. https://migrationobservatory.ox.ac.uk/resources/briefings/uk-public-opinion-toward-immigration-overall-attitudes-and-level-of-concern/.

Miles, Matthew B., and A. M. Huberman. *Qualitative Data Analysis: An Expanded Sourcebook*. 2nd ed. Thousand Oaks: Sage Publications, 1994.

Miller, Vaughne, and Leonora Barclay. 'UK Public Opinion on the European Union'. International Affairs and Defence Section, April 2012. House of Commons Library.

Mitchell, Lisa. 'Civility and Collective Action: Soft Speech, Loud Roars, and the Politics of Recognition'. *Anthropological Theory* 18, no. 2–3 (1 June 2018): 217–47. https://doi.org/10.1177/1463499618782792.

Moffitt, Benjamin. *The Global Rise of Populism: Performance, Political Style, and Representation*. Stanford, California: Stanford University Press, 2016.

Moore, Martin, and Gordon Ramsay. 'UK Media Coverage of the 2016 EU Referendum Campaign', 10 May 2017. https://doi.org/10.18742/pub01-029.

Mora-Cantallops, Marçal, Salvador Sánchez-Alonso, and Anna Visvizi. 'The Influence of External Political Events on Social Networks: The Case of the Brexit Twitter Network'. *Journal of Ambient Intelligence and Humanized Computing*, 18 March 2019. https://doi.org/10.1007/s12652-019-01273-7.

Morris, Meredith Ringel, Scott Counts, Asta Roseway, Aaron Hoff, and Julia Schwarz. 'Tweeting Is Believing? Understanding Microblog Credibility Perceptions'. In *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work*, 441–50. CSCW '12. Seattle, Washington, USA: Association for Computing Machinery, 2012. https://doi.org/10.1145/2145204.2145274.

Mouffe, Chantal. *Agonistics: Thinking the World Politically*. Verso Books, 2013.

Moukarzel, Sara, Martin Rehm, and Alan J. Daly. 'Breastfeeding Promotion on Twitter: A Social Network and Content Analysis Approach'. *Maternal & Child Nutrition* 16, no. 4 (2020): e13053. https://doi.org/10.1111/mcn.13053.

Moy, Patricia, and John Gastil. 'Predicting Deliberative Conversation: The Impact of Discussion Networks, Media Use, and Political Cognitions'. *Political Communication* 23, no. 4 (1 December 2006): 443–60. https://doi.org/10.1080/10584600600977003.

Mudde, Cas. 'The Populist Zeitgeist'. *Government and Opposition* 39, no. 4 (2004): 541–63. https://doi.org/10.1111/j.1477-7053.2004.00135.x.

Mudde, Cas, and C.R. Kaltwasser. 'Populism and (Liberal) Democracy: A Framework for Analysis', 1–26, 2012. https://doi.org/10.1017/CBO9781139152365.002.

Mudde, Cas, and Cristóbal Rovira Kaltwasser. *Populism in Europe and the Americas: Threat or Corrective for Democracy?* Cambridge University Press, 2012.

Müller, Philipp, and Anne Schulz. 'Alternative Media for a Populist Audience? Exploring Political and Media Use Predictors of Exposure to Breitbart, Sputnik, and Co.' *Information, Communication & Society* 24, no. 2 (25 January 2021): 277–93. https://doi.org/10.1080/1369118X.2019.1646778.

Murthy, Dhiraj. *Twitter Social Communication in the Twitter Age*. Digital Media and Society. Cambridge: Polity, 2013.

Musolff, Andreas. 'Metaphor, Irony and Sarcasm in Public Discourse'. *Journal of Pragmatics* 109 (1 February 2017): 95–104. https://doi.org/10.1016/j.pragma.2016.12.010.

Nahon, Karine. 'Where There Is Social Media There Is Politics', 2015. https://doi.org/10.4324/9781315716299-4.

Neuendorf, Kimberly A. *The Content Analysis Guidebook*. Second edition. Los Angeles: SAGE, 2017.

Newman, M. E. J. 'A Measure of Betweenness Centrality Based on Random Walks'. *Social Networks* 27, no. 1 (1 January 2005): 39–54. https://doi.org/10.1016/j.socnet.2004.11.009.

———. 'Modularity and Community Structure in Networks'. *Proceedings of the National Academy of Sciences* 103, no. 23 (6 June 2006): 8577–82. https://doi.org/10.1073/pnas.0601602103.

Niemi, Jari I. 'Habermas and Validity Claims'. *International Journal of Philosophical Studies* 13, no. 2 (2005): 227–44. https://doi.org/10.1080/09672550500080462.

Nishi, Kohei. 'The Effect of Exposure to (Non-)Like-Minded Information on the Use of Political Incivility on Twitter', 10 March 2021. https://doi.org/10.31124/advance.14191046.v1.

Nolte, Adam C., Kevin A. Nguyen, Aaron Perecman, Matthew S. Katz, Patrick A. Kenney, Matthew R. Cooperberg, Cary P. Gross, and Michael S. Leapman. 'Association Between Twitter Reception at a National Urology Conference and Future Publication Status'. *European Urology Focus* 7, no. 1 (1 January 2021): 214–20. https://doi.org/10.1016/j.euf.2019.05.004.

Norman, Donald A. *The Psychology of Everyday Things*. New York: Basic Books, 1988.

North, Samantha, Lukasz Piwek, and Adam Joinson. 'Battle for Britain: Analyzing Events as Drivers of Political Tribalism in Twitter Discussions of Brexit'. *Policy & Internet* n/a, no. n/a (2020). https://doi.org/10.1002/poi3.247.

O'Brien, Patrick. '"Enemies of the People": Judges, the Media and the Mythic Lord Chancellor', 2017. https://radar.brookes.ac.uk/radar/items/a7666467-7a26-4600-89b5-da16ecda5055/1/.

Oeldorf-Hirsch, Anne, Brent Hecht, Meredith Ringel Morris, Jaime Teevan, and Darren Gergle. 'To Search or to Ask: The Routing of Information Needs between Traditional Search Engines and Social Networks'. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 16–27. Baltimore Maryland USA: ACM, 2014. https://doi.org/10.1145/2531602.2531706.

Ofcom. 'News Consumption in the UK: 2018', 2018, 151.

ONS. 'Internet Access – Households and Individuals, Great Britain - Office for National Statistics', 2020. https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/bulletins/internetaccesshouseholdsandindividuals/2020.

Organ, James. 'Legal Regulation of Campaign Deliberation: Lessons from Brexit'. *Politics and Governance* 7, no. 2 (27 June 2019): 268–77. https://doi.org/10.17645/pag.v7i2.1942.

Owen, Joe, Jill Rutter, and Maddy Thimont Jack. 'Preparing Brexit: No Deal', 29 July 2019. https://www.instituteforgovernment.org.uk/publications/preparing-brexit-no-deal.

Oz, Mustafa, Pei Zheng, and Gina Masullo Chen. 'Twitter versus Facebook: Comparing Incivility, Impoliteness, and Deliberative Attributes'. *New Media & Society* 20, no. 9 (1 September 2018): 3400–3419. https://doi.org/10.1177/1461444817749516.

Paicheler, Geneviève. 'Polarization of Attitudes in Homogeneous and Heterogeneous Groups'. *European Journal of Social Psychology* 9, no. 1 (1979): 85–96. https://doi.org/10.1002/ejsp.2420090107.

Papacharissi, Zizi. *Affective Publics: Sentiment, Technology, and Politics*. Oxford University Press, 2014.

———. 'The Virtual Sphere: The Internet as a Public Sphere'. *New Media & Society* 4, no. 1 (1 February 2002): 9–27. https://doi.org/10.1177/14614440222226244.

Papacharissi, Zizi A. *A Private Sphere: Democracy in a Digital Age.* Oxford: Wiley, 2010. http://public.eblib.com/choice/publicfullrecord.aspx?p=1180919.

Park, Chang Sup, and Barbara K. Kaye. 'The Tweet Goes on: Interconnection of Twitter Opinion Leadership, Network Size, and Civic Engagement'. *Computers in Human Behavior* 69 (1 April 2017): 174–80. https://doi.org/10.1016/j.chb.2016.12.021.

Parkinson, John. 'The Roles of Referendums in Deliberative Systems'. *Representation* 56, no. 4 (1 October 2020): 485–500. https://doi.org/10.1080/00344893.2020.1718195.

Partington, Alan, Alison Duguid, and Charlotte Taylor. *Patterns and Meanings in Discourse: Theory and Practice in Corpus-Assisted Discourse Studies (CADS)*. Amsterdam, NETHERLANDS, THE:

John Benjamins Publishing Company, 2013.
http://ebookcentral.proquest.com/lib/leeds/detail.action?docID=1163757.

Pasquino, Gianfranco. 'Populism and Democracy'. In *Twenty-First Century Populism: The Spectre of Western European Democracy*, edited by Daniele Albertazzi and Duncan McDonnell, 15–29. London: Palgrave Macmillan UK, 2008. https://doi.org/10.1057/9780230592100_2.

Paul, Sharoda, Lichan Hong, and Ed Chi. 'Is Twitter a Good Place for Asking Questions? A Characterization Study'. *Proceedings of the International AAAI Conference on Web and Social Media* 5, no. 1 (5 July 2011). https://ojs.aaai.org/index.php/ICWSM/article/view/14165.

Pearson, Christine, Lynne Andersson, and Christine Porath. 'Assessing an Attacking Workplace Incivility'. *Organizational Dynamics* 29 (1 November 2000): 123–37. https://doi.org/10.1016/S0090-2616(00)00019-X.

Petrie, Margaret. 'James S Fishkin (21st June 2018) Democracy When the People Are Thinking: Revitalising Our Politics through Public Deliberation'. *Concept* 11, no. 1 (26 February 2020): 1–4.

Popham, Gabriel. 'What's the Problem with Brexit? Notes from the Middle of Britain's Crisis'. *European Journal of English Studies* 25, no. 1 (2 January 2021): 96–109. https://doi.org/10.1080/13825577.2021.1918845.

Poster, Mark, ed. 'CyberDemocracy: Internet as a Public Sphere?' In *What's the Matter with the Internet?*, Electronic mediations:171–96. Minneapolis, MN: University of Minnesota Press, 1995.

Postigo, Hector. 'The Socio-Technical Architecture of Digital Labor: Converting Play into YouTube Money'. *New Media & Society* 18 (1 June 2014). https://doi.org/10.1177/1461444814541527.

Potter, W. James, and Deborah Levine-Donnerstein. 'Rethinking Validity and Reliability in Content Analysis'. *Journal of Applied Communication Research* 27, no. 3 (1 August 1999): 258–84. https://doi.org/10.1080/00909889909365539.

Privitera, Walter. *The public sphere and the populist challenge*. Mimesis, 2018.

Procter, Rob, Farida Vis, and Alex Voss. 'Reading the Riots on Twitter: Methodological Innovation for the Analysis of Big Data'. *International Journal of Social Research Methodology* 16, no. 3 (1 May 2013): 197–214. https://doi.org/10.1080/13645579.2013.774172.

PytlikZillig, Lisa M., Myiah J. Hutchens, Peter Muhlberger, Frank J. Gonzalez, and Alan J. Tomkins. 'Attitude Change and Polarization'. In *Deliberative Public Engagement with Science: An Empirical Investigation*, edited by Lisa M. PytlikZillig, Myiah J. Hutchens, Peter Muhlberger, Frank J. Gonzalez, and Alan J. Tomkins, 61–87. SpringerBriefs in Psychology. Cham: Springer International Publishing, 2018. https://doi.org/10.1007/978-3-319-78160-0_4.

Quinlan, Stephen, Mark Shephard, and Lindsay Paterson. 'Online Discussion and the 2014 Scottish Independence Referendum: Flaming Keyboards or Forums for Deliberation?' *Electoral Studies* 38 (1 June 2015): 192–205. https://doi.org/10.1016/j.electstud.2015.02.009.

Qvortrup, Matt. 'Democracy by Delegation: The Decision to Hold Referendums in the United Kingdom'. *Representation* 42, no. 1 (1 April 2006): 59–72. https://doi.org/10.1080/00344890600583792.

Rajabi, Amirarsalan, Alexander V. Mantzaris, Kuldip Singh Atwal, and Ivan Garibay. 'Exploring the Disparity of Influence between Users in the Discussion of Brexit on Twitter'. *Journal of Computational Social Science*, 30 March 2021. https://doi.org/10.1007/s42001-021-00112-0.

Raymond, Joad. 'The Newspaper, Public Opinion, and the Public Sphere in the Seventeenth Century'. *Prose Studies* 21, no. 2 (August 1998): 109–36. https://doi.org/10.1080/01440359808586641.

Read, Jonathon. 'Public Want to Revoke Article 50 and Remain in the EU, Reveals New Poll'. The New European, 26 June 2019. https://www.theneweuropean.co.uk/brexit-news/times-poll-for-yougov-50500.

Recuero, Raquel, Gabriela Zago, and Felipe Soares. 'Using Social Network Analysis and Social Capital to Identify User Roles on Polarized Political Conversations on Twitter'. *Social Media + Society* 5, no. 2 (April 2019): 205630511984874. https://doi.org/10.1177/2056305119848745.

Rehg, William, and James Bohman. 'Discourse and Democracy: The Formal and Informal Bases of Legitimacy in Habermas' Faktizität Und Geltung*'. *Journal of Political Philosophy* 4, no. 1 (1996): 79–99. https://doi.org/10.1111/j.1467-9760.1996.tb00043.x.

Rho, Eugenia Ha Rim, and Melissa Mazmanian. 'Political Hashtags &amp; the Lost Art of Democratic Discourse'. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–13. CHI '20. New York, NY, USA: Association for Computing Machinery, 2020. https://doi.org/10.1145/3313831.3376542.

Riddell, Jeff, Alisha Brown, Ivor Kovic, and Joshua Jauregui. 'Who Are the Most Influential Emergency Physicians on Twitter?' *Western Journal of Emergency Medicine* 18, no. 2 (February 2017): 281–87. https://doi.org/10.5811/westjem.2016.11.31299.

Roberts, John Michael, and Nick Crossley. 'Introduction'. *The Sociological Review* 52, no. s1 (2004): 1–27. https://doi.org/10.1111/j.1467-954X.2004.00471.x.

Roese, Vivian. 'You Won't Believe How Co-Dependent They Are: Or: Media Hype and the Interaction of News Media, Social Media, and the User'. In *From Media Hype to Twitter Storm*, edited by Peter Vasterman, 313–32. Amsterdam University Press, 2018. https://doi.org/10.2307/j.ctt21215m0.19.

Rogers, Everett. *Diffusion of Innovations, 5th Edition*. 5th edition. New York: Free Press, 2003.

Rogers, Everett M., and Bhowmilk Dilip. 'Homophily-Heterophily: Relational Concepts for Communication Research'. *The Public Opinion Quarterly* 34, no. 4 (1970): 523–38.

Rosa, Jorge Martins, and Cristian Jiménez Ruiz. 'Reason vs. Emotion in the Brexit Campaign: How Key Political Actors and Their Followers Used Twitter'. *First Monday*, 24 February 2020. https://doi.org/10.5210/fm.v25i3.9601.

Russell, Matheson. 'The Contestation of Credibility and the Deliberative Model of Democracy', 2019. https://researchspace.auckland.ac.nz/handle/2292/51329.

Ryan, John. 'Britain's No-Deal Debacle? The Costs at Home and Likely Setbacks Abroad'. London School of Economics and Political Science, 2020. https://www.lse.ac.uk/ideas/publications/updates/britains-no-deal-debacle.aspx.

Sabbagh, Dan, Jessica Elgot, and Pippa Crerar. 'Brexit Deal: Theresa May Gives Herself Two Weeks to Win over MPs'. *The Guardian*, 26 November 2018, sec. Politics. https://www.theguardian.com/politics/2018/nov/26/11-december-named-as-date-for-mps-vote-on-mays-brexit-deal.

Salikov, Alexey. 'Hannah Arendt, Jürgen Habermas, and Rethinking the Public Sphere in the Age of Social Media'. *Sotsiologicheskoe Obozrenie / Russian Sociological Review* 17 (1 January 2018): 88–102. https://doi.org/10.17323/1728-192x-2018-4-88-102.

Salmela, Mikko, and Christian von Scheve. 'Emotional Dynamics of Right- and Left-Wing Political Populism'. *Humanity & Society* 42, no. 4 (1 November 2018): 434–54. https://doi.org/10.1177/0160597618802521.

Sanders, LYNN M. 'Against Deliberation'. *Political Theory* 25, no. 3 (1 June 1997): 347–76. https://doi.org/10.1177/0090591797025003002.

Santana, Arthur D. 'Virtuous or Vitriolic'. *Journalism Practice* 8, no. 1 (2 January 2014): 18–33. https://doi.org/10.1080/17512786.2013.813194.

Santos, José Carlos, and Sérgio Matos. 'Analysing Twitter and Web Queries for Flu Trend Prediction'. *Theoretical Biology and Medical Modelling* 11, no. 1 (7 May 2014): S6. https://doi.org/10.1186/1742-4682-11-S1-S6.

Santos, Tiago, Jorge Louçã, and Helder Coelho. 'The Digital Transformation of the Public Sphere'. *Systems Research and Behavioral Science* 36, no. 6 (2019): 778–88. https://doi.org/10.1002/sres.2644.

Sasahara, Kazutoshi, Wen Chen, Hao Peng, Giovanni Luca Ciampaglia, Alessandro Flammini, and Filippo Menczer. 'On the Inevitability of Online Echo Chambers'. *ArXiv:1905.03919 [Physics]*, 20 May 2019. http://arxiv.org/abs/1905.03919.

Sassi, Sinikka. 'The Network and the Fragmentation of the Public Sphere'. *Javnost - The Public* 3, no. 1 (January 1996): 25–41. https://doi.org/10.1080/13183222.1996.11008613.

Savanta:ComRes. 'Leave Means Leaves – Snap Brexit Poll – April 2019 « Savanta ComRes'. Accessed 9 November 2021. https://comresglobal.com/polls/leave-means-leaves-snap-brexit-poll-april-2019/.

Schäfer, Mike S. 'Digital Public Sphere'. In *The International Encyclopedia of Political Communication*, 1–7. American Cancer Society, 2016. https://doi.org/10.1002/9781118541555.wbiepc087.

Schlesinger, Philip. 'After the Post-Public Sphere'. *Media, Culture & Society* 42, no. 7–8 (1 October 2020): 1545–63. https://doi.org/10.1177/0163443720948003.

Schradie, Jen. 'The Digital Activism Gap: How Class and Costs Shape Online Collective Action'. *Social Problems* 65, no. 1 (1 February 2018): 51–74. https://doi.org/10.1093/socpro/spx042.

Schrock, Andrew Richard. 'Communicative Affordances of Mobile Media: Portability, Availability, Locatability, and Multimediality'. *International Journal of Communication* 9, no. 0 (15 April 2015): 18.

Schumacher, Shannon, Suite 800Washington, and DC 20036USA202-419-4300 | Main202-857-8562 | Fax202-419-4372 | Media Inquiries. 'Brexit Divides the UK, but Partisanship and Ideology Are Still Key Factors'. *Pew Research Center* (blog), 2019. https://www.pewresearch.org/fact-tank/2019/10/28/brexit-divides-the-uk-but-partisanship-and-ideology-are-still-key-factors/.

Schwartz, C., M. Simon, D. Hudson, and J. Hudson. 'A Populist Paradox? How Brexit Softened Anti-Immigration Attitudes'. *British Journal of Political Science*, 10 February 2020. https://www.cambridge.org/core/journals/british-journal-of-political-science.

Segesten, Anamaria Dutceac, and Michael Bossetta. 'A Typology of Political Participation Online: How Citizens Used Twitter to Mobilize during the 2015 British General Elections'. *Information, Communication & Society* 20, no. 11 (2 November 2017): 1625–43. https://doi.org/10.1080/1369118X.2016.1252413.

Sennett, Richard. *The Fall of Public Man*. 1st ed. New York: Knopf, 1977.

Shephard, Mark. 'Twittish Tweets? Twitter's Ability to Be Deliberative?' SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, 2014. https://papers.ssrn.com/abstract=2452646.

Shepherd, Tamara, Alison Harvey, Tim Jordan, Sam Srauy, and Kate Miltner. 'Histories of Hating'. *Social Media + Society* 1, no. 2 (1 July 2015): 2056305115603997. https://doi.org/10.1177/2056305115603997.

Shulman, Jason, Jewelry Yep, and Daniel Tomé. 'Leveraging the Power of a Twitter Network for Library Promotion'. *The Journal of Academic Librarianship* 41, no. 2 (1 March 2015): 178–85. https://doi.org/10.1016/j.acalib.2014.12.004.

Siapera, Eugenia. 'Organised and Ambient Digital Racism: Multidirectional Flows in the Irish Digital Sphere'. *Open Library of Humanities* 5, no. 1 (8 February 2019). https://doi.org/10.16995/olh.405.

Sjøvaag, Helle, Hallvard Moe, and Eirik Stavelin. 'Public Service News on the Web'. *Journalism Studies* 13, no. 1 (1 February 2012): 90–106. https://doi.org/10.1080/1461670X.2011.578940.

Skwawk Box. 'About the SKWAWKBOX'. SKWAWKBOX, 20 May 2012. https://skwawkbox.org/about/.

Sogelola, Deborah. 'Brexit, Agenda Setting and Framing of Immigration in the Media: The Case of the Daily Mail'. *LSE Undergraduate Political Review* 1 (19 January 2018): 128–42.

Song, Yunya, and Yi Wu. 'Tracking the Viral Spread of Incivility on Social Networking Sites: The Case of Cursing in Online Discussions of Hong Kong–Mainland China Conflict'. *Communication and the Public* 3, no. 1 (1 March 2018): 46–61. https://doi.org/10.1177/2057047318756408.

Sorensen, Lone, Heather Ford, Walid Al-Saqaf, and Tanja Bosch. 'Dialogue of the Deaf: Listening on Twitter and Democratic Responsiveness during the 2015 South African State of the Nation Address'. In *Media, Communication and the Struggle for Democratic Change*, edited by Katrin Voltmer, Christian Christensen, Irene Neverla, Nicole Stremlau, Barbara Thomass, Nebojša Vladisavljević, and Herman Wasserman, 229–54. Cham: Springer International Publishing, 2019. https://doi.org/10.1007/978-3-030-16748-6_10.

Starkey, Ken, Jeannie Holstein, and Sue Tempest. 'Xenophobia, the Unconscious, the Public Sphere and Brexit'. *European Management Review* 18, no. 1 (2021): 25–35. https://doi.org/10.1111/emre.12446.

Statista. 'Household Internet Penetration in the UK 1998-2020'. Statista, 2020. https://www.statista.com/statistics/275999/household-internet-penetration-in-great-britain/.

Steenbergen, Marco R, André Bächtiger, Markus Spörndli, and Jürg Steiner. 'Measuring Political Deliberation: A Discourse Quality Index'. *Comparative European Politics* 1, no. 1 (1 March 2003): 21–48. https://doi.org/10.1057/palgrave.cep.6110002.

Stephens, Richard, and Amy Zile. 'Does Emotional Arousal Influence Swearing Fluency?' *Journal of Psycholinguistic Research* 46, no. 4 (1 August 2017): 983–95. https://doi.org/10.1007/s10936-016-9473-8.

Stier, Sebastian, Wolf J Schünemann, and Stefan Steiger. 'Of Activists and Gatekeepers: Temporal and Structural Properties of Policy Networks on Twitter'. *New Media & Society* 20, no. 5 (2018b): 1910–30. https://doi.org/10.1177/1461444817709282.

Stromer-Galley, Jennifer. 'Measuring Deliberation's Content: A Coding Scheme'. *Journal of Public Deliberation* 3, no. 1 (6 July 2007). https://www.publicdeliberation.net/jpd/vol3/iss1/art12.

Sunstein, Cass. 'The Law of Group Polarization'. *Law & Economics Working Papers*, 1 December 1999. https://chicagounbound.uchicago.edu/law_and_economics/542.

Sunstein, Cass R. *#Republic: Divided Democracy in the Age of Social Media*. Princeton ; Oxford: Princeton University Press, 2018.

———. *Republic.Com 2.0*. Princeton University Press, 2007. https://doi.org/10.2307/j.ctt7tbsw.

Susen, S. 'Critical Notes on Habermas's Theory of the Public Sphere'. *Sociological Analysis* 5, no. 1 (2011): 37–62.

Swales. 'NATCEN Social Research That Works for Society'. NATCEN Social Research, 2016.
http://natcen.ac.uk/our-research/research/understanding-the-leave-vote/.

Swales, Kirby. 'Understanding the Leave Vote'. NetCen Social Research, 2016.
https://www.bl.uk/collection-items/understanding-the-leave-vote.

Taggart, Paul A. *Populism*. Concepts in the Social Sciences. Buckingham [England] ; Philadelphia:
Open University Press, 2000.

Terry, Gareth, and Nikki Hayfield. *Essentials of Thematic Analysis*. Essentials of Qualitative
Methods. Washington, DC: American Psychological Association, 2021.

Tidke, Bharat, Rupa Mehta, and Jenish Dhanani. 'Multimodal Ensemble Approach to Identify and
Rank Top-k Influential Nodes of Scholarly Literature Using Twitter Network'. *Journal of
Information Science*, 18 March 2019, 0165551519837190.
https://doi.org/10.1177/0165551519837190.

Tong, Jingrong, and Landong Zuo. *BREXIT REFERENDUM ON TWITTER: A Mixed-Method
Computational Analysis.* S.l.: EMERALD GROUP PUBL, 2021.

Tornes, Andy. 'Enabling the Future of Academic Research with the Twitter API', 2021.
https://blog.twitter.com/developer/en_us/topics/tools/2021/enabling-the-future-of-
academic-research-with-the-twitter-api.

Treen, Kathie, Hywel Williams, Saffron O'Neill, and Travis G. Coan. 'Discussion of Climate Change
on Reddit: Polarized Discourse or Deliberative Debate?' *Environmental Communication* 0, no.
0 (10 April 2022): 1–19. https://doi.org/10.1080/17524032.2022.2050776.

Treib, Oliver. 'The Voter Says No, but Nobody Listens: Causes and Consequences of the
Eurosceptic Vote in the 2014 European Elections'. *Journal of European Public Policy* 21, no.
10 (26 November 2014): 1541–54. https://doi.org/10.1080/13501763.2014.941534.

Tromble, Rebekah. 'Thanks for (Actually) Responding! How Citizen Demand Shapes Politicians'
Interactive Practices on Twitter'. *New Media & Society* 20, no. 2 (1 February 2018): 676–97.
https://doi.org/10.1177/1461444816669158.

Trott, Verity. 'Networked Feminism: Counterpublics and the Intersectional Issues of #MeToo'.
*Feminist Media Studies* 21, no. 7 (3 October 2021): 1125–42.
https://doi.org/10.1080/14680777.2020.1718176.

Tucker, Joshua A., Andrew Guess, Pablo Barbera, Cristian Vaccari, Alexandra Siegel, Sergey
Sanovich, Denis Stukal, and Brendan Nyhan. 'Social Media, Political Polarization, and Political
Disinformation: A Review of the Scientific Literature'. SSRN Scholarly Paper. Rochester, NY:
Social Science Research Network, 19 March 2018.
https://papers.ssrn.com/abstract=3144139.

Twitter. 'Verified Account FAQs', 2020. https://help.twitter.com/en/managing-your-
account/twitter-verified-accounts.

Vaidya, Tavish, Daniel Votipka, Michelle L. Mazurek, and Micah Sherr. 'Does Being Verified Make
You More Credible?: Account Verification's Effect on Tweet Credibility'. In *Proceedings of the
2019 CHI Conference on Human Factors in Computing Systems - CHI '19*, 1–13. Glasgow,
Scotland Uk: ACM Press, 2019. https://doi.org/10.1145/3290605.3300755.

Valente, Thomas W., and Patchareeya Pumpuang. 'Identifying Opinion Leaders to Promote
Behavior Change'. *Health Education & Behavior* 34, no. 6 (1 December 2007): 881–96.
https://doi.org/10.1177/1090198106297855.

Valle, Marc Esteve Del, Rimmert Sijtsma, Hanne Stegeman, and Rosa Borge. 'Online Deliberation
and the Public Sphere: Developing a Coding Manual to Assess Deliberation in Twitter Political
Networks'. *Javnost - The Public* 27, no. 3 (2 July 2020): 211–29.
https://doi.org/10.1080/13183222.2020.1794408.

Van Leeuwen, Theo, and Carey Jewitt, eds. *Handbook of Visual Analysis*. London ; Thousand Oaks [Calif.]: SAGE, 2001.

Varpio, Lara, Elise Paradis, Sebastian Uijtdehaage, and Meredith Young. 'The Distinctions Between Theory, Theoretical Framework, and Conceptual Framework'. *Academic Medicine* 95, no. 7 (July 2020): 989–94. https://doi.org/10.1097/ACM.0000000000003075.

Vasilopoulou, Sofia, and Liisa Talving. 'British Public Opinion on Brexit: Controversies and Contradictions'. *European Political Science* 18, no. 1 (1 March 2019): 134–42. https://doi.org/10.1057/s41304-018-0156-9.

Verbrugge, Lois. 'The Structure of Adult Friendship Choices'. *Social Forces* 56 (1 December 1977): 576. https://doi.org/10.2307/2577741.

Verdegem, Pieter, and Evelien D'heer. 'Social Media Logic and Its Impact on Political Communication During Election Times'. In *Managing Democracy in the Digital Age: Internet Regulation, Social Media Use, and Online Civic Engagement*, edited by Julia Schwanholz, Todd Graham, and Peter-Tobias Stoll, 119–35. Cham: Springer International Publishing, 2018. https://doi.org/10.1007/978-3-319-61708-4_7.

Vicari, Stefania. 'Twitter and Non-Elites: Interpreting Power Dynamics in the Life Story of the (#)BRCA Twitter Stream'. *Social Media + Society* 3, no. 3 (1 July 2017): 2056305117733224. https://doi.org/10.1177/2056305117733224.

Virdee, Satnam, and Brendan McGeever. 'Racism, Crisis, Brexit'. *Ethnic and Racial Studies* 41, no. 10 (9 August 2018): 1802–19. https://doi.org/10.1080/01419870.2017.1361544.

Vreese, Claes H. de, Frank Esser, Toril Aalberg, Carsten Reinemann, and James Stanyer. 'Populism as an Expression of Political Communication Content and Style: A New Perspective'. *The International Journal of Press/Politics* 23, no. 4 (1 October 2018): 423–38. https://doi.org/10.1177/1940161218790035.

Vrikki, Photini. '#PeoplesVoteMarch or #LosersVoteMarch? Tracing the Collective Identity of a Post-Brexit Referendum Movement on Twitter'. *Communication in the Age of Twitter: The Nature of Online Deliberation*, 2020. https://kclpure.kcl.ac.uk/portal/en/publications/peoplesvotemarch-or-losersvotemarch-tracing-the-collective-identity-of-a-postbrexit-referendum-movement-on-twitter(5a21cfff-4dcd-4707-968a-2fbd67f9a9ae).html.

Wagner, Markus. 'Affective Polarization in Multiparty Systems'. *Electoral Studies* 69 (1 February 2021): 102199. https://doi.org/10.1016/j.electstud.2020.102199.

Waisbord, Silvio. 'Populism as Media and Communication Phenomenon'. In *Routledge Handbook of Global Populism*. Routledge, 2018.

———. 'Why Populism Is Troubling for Democratic Communication'. *Communication, Culture and Critique* 11, no. 1 (1 March 2018): 21–34. https://doi.org/10.1093/ccc/tcx005.

Ward, Irene. 'How Democratic Can We Get?: The Internet, the Public Sphere, and Public Discourse'. *JAC* 17, no. 3 (1997): 365–79.

Ward, Jonathan Stuart, and Adam Barker. 'Undefined By Data: A Survey of Big Data Definitions'. *ArXiv:1309.5821 [Cs]*, 20 September 2013. http://arxiv.org/abs/1309.5821.

Wasserman, Stanley, and Katherine Faust. *Social Network Analysis: Methods and Applications*. Structural Analysis in the Social Sciences 8. Cambridge ; New York: Cambridge University Press, 1994.

Watts, Jake, and Tim Bale. 'Populism as an Intra-Party Phenomenon: The British Labour Party under Jeremy Corbyn'. *The British Journal of Politics and International Relations* 21, no. 1 (1 February 2019): 99–115. https://doi.org/10.1177/1369148118806115.

Weinberg, Nyasha. 'Nastiness toward Leave Voters Isn't Going to Reverse Brexit' Kennedy School Review; Cambridge Vol.17 (95-96) (n.d.): 2017.

Wellings, Ben, and Emma Vines. 'Populism and Sovereignty: The EU Act and the In-Out Referendum, 2010–2015'. *Parliamentary Affairs* 69, no. 2 (April 2016): 309–26. https://doi.org/10.1093/pa/gsv045.

Wellings, Thomas, and Lone Sorensen. 'The Digital Performance of Populism'. *Edward Elgar* Handbook of Digital Politics (2022).

Wessler, Hartmut. *Habermas and the Media*. Medford, MA: Polity, 2018.

Westbrook, Ian. 'General Election 2019: A Really Simple Guide'. *BBC News*, 6 December 2019, sec. Election 2019. https://www.bbc.com/news/uk-politics-49826655.

Westlake, Martin. 'The Increasing Inevitability of That Referendum'. In *Brexit: Sociological Responses*, edited by William Outhwaite, 3–18. Anthem Press, 2017. https://www.cambridge.org/core/books/brexit/increasing-inevitability-of-that-referendum/C2545EB4B0ED9919CC291036749AC37D.

Whiteley, Paul. 'Why Do Voters Lie to the Pollsters?' *Political Insight* 7, no. 1 (1 April 2016): 16–19. https://doi.org/10.1177/2041905816637454.

Willems, Wendy. 'Beyond Platform-Centrism and Digital Universalism: The Relational Affordances of Mobile Social Media Publics'. *Information, Communication & Society* 24, no. 12 (10 September 2021): 1677–93. https://doi.org/10.1080/1369118X.2020.1718177.

Wojcieszak, Magdalena, and Nuri Kim. 'How to Improve Attitudes Toward Disliked Groups: The Effects of Narrative Versus Numerical Evidence on Political Persuasion'. *Communication Research* 43, no. 6 (August 2016): 785–809. https://doi.org/10.1177/0093650215618480.

Wood, James D. G., and Valentina Ausserladscheider. 'Populism, Brexit, and the Manufactured Crisis of British Neoliberalism'. *Review of International Political Economy* 28, no. 6 (2 November 2021): 1487–1508. https://doi.org/10.1080/09692290.2020.1786435.

Woodcock, Andrew. 'Labour Set to Whip MPs to Back a Final Say Referendum'. The Independent, 20 October 2019. https://www.independent.co.uk/news/uk/politics/brexit-second-referendum-labour-final-say-support-vote-keir-starmer-a9164066.html.

Wu, Shaomei, Jake M. Hofman, Winter A. Mason, and Duncan J. Watts. 'Who Says What to Whom on Twitter'. In *Proceedings of the 20th International Conference on World Wide Web*, 705–14. WWW '11. New York, NY, USA: Association for Computing Machinery, 2011. https://doi.org/10.1145/1963405.1963504.

Yarchi, Moran, Christian Baden, and Neta Kligler-Vilenchik. 'Political Polarization on the Digital Sphere: A Cross-Platform, Over-Time Analysis of Interactional, Positional, and Affective Polarization on Social Media'. *Political Communication* 38, no. 1–2 (15 March 2021): 98–139. https://doi.org/10.1080/10584609.2020.1785067.

Yardi, Sarita, Daniel Romero, Grant Schoenebeck, and Danah Boyd. 'Detecting Spam in a Twitter Network'. *First Monday*, 2010. https://doi.org/10.5210/fm.v15i1.2793.

Yardi, Sarita, and Danah Boyd. 'Dynamic Debates: An Analysis of Group Polarization Over Time on Twitter'. *Bulletin of Science, Technology & Society* 30, no. 5 (1 October 2010): 316–27. https://doi.org/10.1177/0270467610380011.

Zamith, Rodrigo, and Seth C. Lewis. 'From Public Spaces to Public Sphere'. *Digital Journalism* 2, no. 4 (2 October 2014): 558–74. https://doi.org/10.1080/21670811.2014.882066.

Zaslove, Andrej. 'Here to Stay? Populism as a New Party Type'. *European Review* 16, no. 3 (July 2008): 319–36. https://doi.org/10.1017/S1062798708000288.

Zheng, Pei, and Saif Shahin. 'Live Tweeting Live Debates: How Twitter Reflects and Refracts the US Political Climate in a Campaign Season'. *Information, Communication & Society* 23, no. 3 (23 February 2020): 337–57. https://doi.org/10.1080/1369118X.2018.1503697.

## Appendices

### Appendix A: Pilot Study

The pilot study sought to test the feasibility of the proposed data collection methods, SNA and quantitative content analysis. The pilot study was conducted using the software 'NodeXL'. Node XL was chosen because it contains inbuilt network analysis tools and can gather data directly from Twitter's Application Programme Interface (API). During the first step, I sought to determine which keyword (or keywords) should be used to generate the overall corpus. While I had initially gathered the data based upon a range of hashtags and words related to the UK-EU withdrawal (such as 'Brexit', 'EURef', 'InOrOut, 'No Deal' etc.), I found that this may pose challenges due to the developing nature of the discussion, with several keywords relating to specific timeframes. It became apparent that 'Brexit' seemed to be the most appropriate keyword, likely maintaining its relevance throughout the discussion and displaying a degree of neutrality[12]. I gathered the 500 most recent tweets that used the keyword 'Brexit' to test the further steps.

The second step was to test the feasibility of the proposed homogeneity analysis and centrality analysis. For the centrality analysis, the pilot study confirmed the ability for computational measurements to indicate which users are in a position of network influence. Specifically, this analysis was undertaken using a combination of in-degree, eigenvector centrality, and betweenness centrality. However, I would later drop betweenness centrality

---

[12] Although it is accepted that the hashtag #Brexit during the pre-referendum period generally leaned towards a Leave consensus (Tong and Zuo, 2021).

(the logic for this decision is outlined in Section 3.3.3.). For the homogeneity analysis, I found that a modularity analysis was the most suitable method to partition the network based on the strength of interactions within a community, allowing my research to explore the level of consensus within each community (Section 3.3.4. offers a detailed explanation of this approach). At this stage, I hypothesised that it should be possible to attach the variable addressing the user's stance on Brexit from the quantitative content analysis to the nodes within the community (although it would later become apparent that further research would be required).

The third step sought to test the variables from the quantitative content analysis, coding the 500 tweets gathered within the previous step. To do so, I used the IBM software SPSS. However, it became apparent that several of the proposed variables would need further refinement, lacking the necessary clarity to ensure replicability. For this reason, I adjusted the coding manual and scaled-down several the codes. When I was confident in the final coding manual, I trained a coder to perform inter-coder reliability testing (outlined in Section 3.4.3.).

Finally, it became apparent that further analysis would be required, adding needed context to the quantitative results. I had initially considered undertaking interviews; however, this was primarily rejected due to two main concerns: 1) the topics addressed by discussants were often sensitive and highly personal, raising ethical concerns 2) there were apparent challenges in identifying suitable candidates, particularly as Twitter is associated with anonymity. For this reason, I decided that a more suitable approach would be to undertake a non-intrusive qualitative analysis, conducted through a thematic analysis.

# Appendix B: Python Code (GOT3)

```python
# -*- coding: utf-8 -*-

import json, re, datetime, sys, random, http.cookiejar
import urllib.request, urllib.parse, urllib.error
from pyquery import PyQuery
from .. import models

class TweetManager:
    """A class for accessing the Twitter's search engine"""
    def __init__(self):
        pass

    user_agents = [
        'Mozilla/5.0 (Windows NT 6.1; WOW64; rv:63.0) Gecko/20100101 Firefox/63.0',
        'Mozilla/5.0 (Windows NT 6.1; WOW64; rv:62.0) Gecko/20100101 Firefox/62.0',
        'Mozilla/5.0 (Windows NT 6.1; WOW64; rv:61.0) Gecko/20100101 Firefox/61.0',
        'Mozilla/5.0 (Windows NT 6.1; Win64; x64; rv:63.0) Gecko/20100101 Firefox/63.0',
        'Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.77 Safari/537.36',
        'Mozilla/5.0 (Windows NT 6.3; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.77 Safari/537.36',
        'Mozilla/5.0 (Windows NT 6.1; Trident/7.0; rv:11.0) like Gecko',
        'Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/605.1.15 (KHTML, like Gecko) Version/12.0 Safari/605.1.15',
    ]

    @staticmethod
    def getTweets(tweetCriteria, receiveBuffer=None, bufferLength=100, proxy=None, debug=False):
        """Get tweets that match the tweetCriteria parameter
        A static method.

        Parameters
        ----------
        tweetCriteria : tweetCriteria, an object that specifies a match criteria
        receiveBuffer : callable, a function that will be called upon a getting next `bufferLength` tweets
        bufferLength: int, the number of tweets to pass to `receiveBuffer` function
        proxy: str, a proxy server to use
        debug: bool, output debug information
        """
        results = []
        resultsAux = []
        cookieJar = http.cookiejar.CookieJar()
        user_agent = random.choice(TweetManager.user_agents)

        all_usernames = []
        usernames_per_batch = 20

        if hasattr(tweetCriteria, 'username'):
            if type(tweetCriteria.username) == str or not hasattr(tweetCriteria.username, '__iter__'):
                tweetCriteria.username = [tweetCriteria.username]

            usernames_ = [u.lstrip('@') for u in tweetCriteria.username if u]
            all_usernames = sorted({u.lower() for u in usernames_ if u})
            n_usernames = len(all_usernames)
            n_batches = n_usernames // usernames_per_batch + (n_usernames % usernames_per_batch > 0)
        else:
            n_batches = 1

        for batch in range(n_batches):  # process all_usernames by batches
            refreshCursor = ''
            batch_cnt_results = 0

            if all_usernames:  # a username in the criteria?
                tweetCriteria.username = all_usernames[batch*usernames_per_batch:batch*usernames_per_batch+usernames_per_batch]

            active = True
            while active:
                json = TweetManager.getJsonResponse(tweetCriteria, refreshCursor, cookieJar, proxy, user_agent, debug=debug)
                if len(json['items_html'].strip()) == 0:
                    break

                refreshCursor = json['min_position']
```

```python
        scrapedTweets = PyQuery(json['items_html'])
        #Remove incomplete tweets withheld by Twitter Guidelines
        scrapedTweets.remove('div.withheld-tweet')
        tweets = scrapedTweets('div.js-stream-tweet')

        if len(tweets) == 0:
            break

        for tweetHTML in tweets:
            tweetPQ = PyQuery(tweetHTML)
            tweet = models.Tweet()

            usernames = tweetPQ("span.username.u-dir b").text().split()
            if not len(usernames):  # fix for issue #13
                continue

            tweet.username = usernames[0]
            tweet.to = usernames[1] if len(usernames) >= 2 else None  # take the first recipient if many
            rawtext = TweetManager.textify(tweetPQ("p.js-tweet-text").html(), tweetCriteria.emoji)
            tweet.text = re.sub(r"\s+", " ", rawtext)\
                .replace('# ', '#').replace('@ ', '@').replace('$ ', '$')
            tweet.retweets = int(tweetPQ("span.ProfileTweet-action--retweet span.ProfileTweet-actionCount").attr("data-tweet-stat-count").replace(",", ""))
            tweet.favorites = int(tweetPQ("span.ProfileTweet-action--favorite span.ProfileTweet-actionCount").attr("data-tweet-stat-count").replace(",", ""))
            tweet.replies = int(tweetPQ("span.ProfileTweet-action--reply span.ProfileTweet-actionCount").attr("data-tweet-stat-count").replace(",", ""))
            tweet.id = tweetPQ.attr("data-tweet-id")
            tweet.permalink = 'https://Twitter.com' + tweetPQ.attr("data-permalink-path")
            tweet.author_id = int(tweetPQ("a.js-user-profile-link").attr("data-user-id"))

            dateSec = int(tweetPQ("small.time span.js-short-timestamp").attr("data-time"))
            tweet.date = datetime.datetime.fromtimestamp(dateSec, tz=datetime.timezone.utc)
            tweet.formatted_date = datetime.datetime.fromtimestamp(dateSec, tz=datetime.timezone.utc)\
                                .strftime("%a %b %d %X +0000 %Y")
            tweet.hashtags, tweet.mentions = TweetManager.getHashtagsAndMentions(tweetPQ)

            geoSpan = tweetPQ('span.Tweet-geo')
            if len(geoSpan) > 0:
                tweet.geo = geoSpan.attr('title')
            else:
                tweet.geo = ''

            urls = []
            for link in tweetPQ("a"):
                try:
                    urls.append((link.attrib["data-expanded-url"]))
                except KeyError:
                    pass

            tweet.urls = ",".join(urls)

            results.append(tweet)
            resultsAux.append(tweet)

            if receiveBuffer and len(resultsAux) >= bufferLength:
                receiveBuffer(resultsAux)
                resultsAux = []

            batch_cnt_results += 1
            if tweetCriteria.maxTweets > 0 and batch_cnt_results >= tweetCriteria.maxTweets:
                active = False
                break

        if receiveBuffer and len(resultsAux) > 0:
            receiveBuffer(resultsAux)
            resultsAux = []

    return results

@staticmethod
def getHashtagsAndMentions(tweetPQ):
    """Given a PyQuery instance of a tweet (tweetPQ) getHashtagsAndMentions
    gets the hashtags and mentions from a tweet using the tweet's
    anchor tags rather than parsing a tweet's text for words begining
    with '#'s and '@'s. All hashtags are wrapped in anchor tags with an href
```

```python
        attribute of the form '/hashtag/{hashtag name}?...' and all mentions are
        wrapped in anchor tags with an href attribute of the form '/{mentioned username}'.
        """
        anchorTags = tweetPQ("p.js-tweet-text")("a")
        hashtags = []
        mentions = []
        for tag in anchorTags:
            tagPQ = PyQuery(tag)
            url = tagPQ.attr("href")
            if url is None or len(url) == 0 or url[0] != "/":
                continue

            # Mention anchor tags have a data-mentioned-user-id
            # attribute.
            if not tagPQ.attr("data-mentioned-user-id") is None:
                mentions.append("@" + url[1:])
                continue

            hashtagMatch = re.match('/hashtag/\w+', url)
            if hashtagMatch is None:
                continue

            hashtag = hashtagMatch.group().replace("/hashtag/", "#")
            hashtags.append(hashtag)

        return (" ".join(hashtags), " ".join(mentions))

    @staticmethod
    def textify(html, emoji):
        """Given a chunk of text with embedded Twitter HTML markup, replace
        emoji images with appropriate emoji markup, replace links with the original
        URIs, and discard all other markup.
        """
        # Step 0, compile some convenient regular expressions
        imgre = re.compile("^(.*?)(<img.*?/>)(.*)$")
        charre = re.compile("^&#x([^;]+);(.*)$")
        htmlre = re.compile("^(.*?)(<.*?>)(.*)$")
        are = re.compile("^(.*?)(<a href=[^>]+>(.*?)</a>)(.*)$")

        # Step 1, prepare a single-line string for re convenience
        puc = chr(0xE001)
        html = html.replace("\n", puc)

        # Step 2, find images that represent emoji, replace them with the
        # Unicode codepoint of the emoji.
        text = ""
        match = imgre.match(html)
        while match:
            text += match.group(1)
            img = match.group(2)
            html = match.group(3)

            attr = TweetManager.parse_attributes(img)
            if emoji == "unicode":
                chars = attr["alt"]
                match = charre.match(chars)
                while match:
                    text += chr(int(match.group(1),16))
                    chars = match.group(2)
                    match = charre.match(chars)
            elif emoji == "named":
                text += "Emoji[" + attr['title'] + "]"
            else:
                text += " "

            match = imgre.match(html)
        text = text + html

        # Step 3, find links and replace them with the actual URL
        html = text
        text = ""
        match = are.match(html)
        while match:
            text += match.group(1)
            link = match.group(2)
            linktext = match.group(3)
```

```python
            html = match.group(4)

        attr = TweetManager.parse_attributes(link)
        try:
            if "u-hidden" in attr["class"]:
                pass
            elif "data-expanded-url" in attr \
            and "Twitter-timeline-link" in attr["class"]:
                text += attr['data-expanded-url']
            else:
                text += link
        except:
            pass

        match = are.match(html)
    text = text + html

    # Step 4, discard any other markup that happens to be in the tweet.
    # This makes textify() behave like tweetPQ.text()
    html = text
    text = ""
    match = htmlre.match(html)
    while match:
        text += match.group(1)
        html = match.group(3)
        match = htmlre.match(html)
    text = text + html

    # Step 5, make the string multi-line again.
    text = text.replace(puc, "\n")
    return text

@staticmethod
def parse_attributes(markup):
    """Given markup that begins with a start tag, parse out the tag name
    and the attributes. Return them in a dictionary.
    """
    gire = re.compile("^<([^\s]+?)(.*?)>.*")
    attre = re.compile("^.*?([^\s]+?)=\"(.*?)\"(.*)$")
    attr = {}

    match = gire.match(markup)
    if match:
        attr['*tag'] = match.group(1)
        markup = match.group(2)

        match = attre.match(markup)
        while match:
            attr[match.group(1)] = match.group(2)
            markup = match.group(3)
            match = attre.match(markup)

    return attr

@staticmethod
def getJsonResponse(tweetCriteria, refreshCursor, cookieJar, proxy, useragent=None, debug=False):
    """Invoke an HTTP query to Twitter.
    Should not be used as an API function. A static method.
    """
    url = "https://Twitter.com/i/search/timeline?"

    if not tweetCriteria.topTweets:
        url += "f=tweets&"

    url += ("vertical=news&q=%s&src=typd&%s"
        "&include_available_features=1&include_entities=1&max_position=%s"
        "&reset_error_state=false")

    urlGetData = ''

    if hasattr(tweetCriteria, 'querySearch'):
        urlGetData += tweetCriteria.querySearch

    if hasattr(tweetCriteria, 'username'):
        if not hasattr(tweetCriteria.username, '__iter__'):
            tweetCriteria.username = [tweetCriteria.username]
```

```python
        usernames_ = [u.lstrip('@') for u in tweetCriteria.username if u]
        tweetCriteria.username = {u.lower() for u in usernames_ if u}

        usernames = [' from:'+u for u in sorted(tweetCriteria.username)]
        if usernames:
            urlGetData += ' OR'.join(usernames)

    if hasattr(tweetCriteria, 'within'):
        if hasattr(tweetCriteria, 'near'):
            urlGetData += ' near:"%s" within:%s' % (tweetCriteria.near, tweetCriteria.within)
        elif hasattr(tweetCriteria, 'lat') and hasattr(tweetCriteria, 'lon'):
            urlGetData += ' geocode:%f,%f,%s' % (tweetCriteria.lat, tweetCriteria.lon, tweetCriteria.within)

    if hasattr(tweetCriteria, 'since'):
        urlGetData += ' since:' + tweetCriteria.since

    if hasattr(tweetCriteria, 'until'):
        urlGetData += ' until:' + tweetCriteria.until

    if hasattr(tweetCriteria, 'lang'):
        urlLang = 'l=' + tweetCriteria.lang + '&'
    else:
        urlLang = ''
    url = url % (urllib.parse.quote(urlGetData.strip()), urlLang, urllib.parse.quote(refreshCursor))
    useragent = useragent or TweetManager.user_agents[0]

    headers = [
        ('Host', "Twitter.com"),
        ('User-Agent', useragent),
        ('Accept', "application/json, text/javascript, */*; q=0.01"),
        ('Accept-Language', "en-US,en;q=0.5"),
        ('X-Requested-With', "XMLHttpRequest"),
        ('Referer', url),
        ('Connection', "keep-alive")
    ]

    if proxy:
        opener = urllib.request.build_opener(urllib.request.ProxyHandler({'http': proxy, 'https': proxy}),
urllib.request.HTTPCookieProcessor(cookieJar))
    else:
        opener = urllib.request.build_opener(urllib.request.HTTPCookieProcessor(cookieJar))
    opener.addheaders = headers

    if debug:
        print(url)
        print('\n'.join(h[0]+': '+h[1] for h in headers))

    try:
        response = opener.open(url)
        jsonResponse = response.read()
    except Exception as e:
        print("An error occured during an HTTP request:", str(e))
        print("Try to open in browser: https://Twitter.com/search?q=%s&src=typd" % urllib.parse.quote(urlGetData))
        sys.exit()

    try:
        s_json = jsonResponse.decode()
    except:
        print("Invalid response from Twitter")
        sys.exit()

    try:
        dataJson = json.loads(s_json)
    except:
        print("Error parsing JSON: %s" % s_json)
        sys.exit()

    if debug:
        print(s_json)
        print("---\n")

    return dataJson
```

| Type | Definition |
|---|---|
| Alternative Media | Alternative media has been defined as a media organisation that has primarily been established to provide alternative information to MSM. Notably, such organisations should be independent and typically representing some special interest intermediary. |
| 'Everyday' User | An 'everyday' user has been defined as a personal Twitter account of a user who is not a well-known public figure or organisation. The account should be used for personal purposes. The account should not be used to represent a political party, media organisation, activist organisation or for professional purposes (although loose affiliations are allowed). |
| Journalist | A journalist has been defined as a Twitter user who primarily writes for a newspaper, magazine, news website or prepares news to be broadcast. |

| | |
|---|---|
| MSM (Broadsheet) | MSM (Broadsheet) has been defined as Twitter accounts that represent news organisations that primarily print newspapers in broadsheet format. |
| MSM (Online) | MSM (Online) has been defined any Twitter account that represent mainstream news organisations that primarily are associated with the online dissemination of news and do not have a significant offline presence. Such accounts should be distinguished from alternative news due to their ownership, size and lack of special interest focus. |
| MSM (Public Service) | MSM (Public Service) have been defined as any Twitter account that represents a public service media organisation that does not rely on commercial advertising. |
| MSM (Radio) | MSM (Radio) has been defined as any Twitter account that represents an established radio station or platform. |
| MSM (Tabloid) | MSM (Tabloid) has been defined as any Twitter account that represent a news organisation that primarily print newspapers in tabloid format. |

| | | | |
|---|---|---|
| MSM (Television) | MSM (Television) has been defined as any Twitter account that represent a news organisation a that primarily broadcasts on television or represents a television channel. |
| Political Party | Political Party has been defined as any account the represents an established political party, both domestically and internationally. |
| Politician | A politician has been defined as any account that represents an individual who is currently serving or is best known for serving in as some form of elected public position. |

Note – where two or more categories are applicable, I used discretion to determine which category best suited the user.

## Appendix D: Community Structure

*Community Structure February 2016*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 28% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 1% | 22% | 78% | Remain +56% |
| 1 | 10% | 46% | 54% | Remain +8% |

| 2 | 57% | 80% | 20% | Leave +60% |
| 3 | 4% | 15% | 85% | Remain +70% |
| 4 | 7% | 58% | 42% | Leave +16% |
| 5 | 1% | 19% | 81% | Remain +62% |
| 6 | 4% | 56% | 44% | Leave +12% |
| 7 | 3% | 30% | 70% | Remain +40% |
| 8 | 2% | 29% | 71% | Remain +42% |
| 9 | 1% | 38% | 62% | Remain +24% |
| 10 | 5% | 64% | 36% | Leave +28% |
| 11 | 4% | 25% | 75% | Remain +50% |

## Community Structure April 2016

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 40% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 13% | 66% | 34% | +32% Leave |
| 1 | 7% | 77% | 23% | +54% Leave |
| 2 | 12% | 39% | 61% | +22% Remain |
| 3 | 9% | 78% | 22% | +56% Leave |
| 4 | 3% | 55% | 45% | +10% Leave |
| 5 | 7% | 49% | 51% | +2% Remain |
| 6 | 2% | 36% | 66% | +30% Remain |
| 7 | 27% | 83% | 17% | +66% Leave |
| 8 | 4% | 25% | 75% | +50% Remain |
| 9 | 7% | 22% | 78% | +56% Remain |
| 10 | 5% | 49% | 51% | +2% Remain |
| 11 | 5% | 60% | 40% | +20% Leave |
| 12 | 1% | 40% | 60% | +20% Remain |

## Community Structure June 2016

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 40% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 26% | 77% | 23% | Leave +54% |
| 1 | 20% | 66% | 34% | Leave +32% |
| 2 | 7% | 44% | 56% | Remain +12% |
| 3 | 6% | 68% | 32% | Leave +36% |
| 4 | 4% | 70% | 30% | Leave +40% |
| 5 | 5% | 12% | 88% | Remain +76% |
| 6 | 7% | 86% | 14% | Leave +72% |
| 7 | 3% | 86% | 14% | Leave +72% |
| 8 | 5% | 69% | 31% | Leave +38% |
| 9 | 3% | 65% | 35% | Leave +30% |
| 10 | 4% | 32% | 68% | Remain +36% |
| 11 | 3% | 56% | 44% | Leave +12% |
| 12 | 4% | 64% | 36% | Leave +28% |
| 13 | 1% | 64% | 36% | Leave +28% |
| 14 | 2% | 38% | 62% | Remain +24% |

*Community Structure October 2017*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 42% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 4% | 29% | 71% | Remain+42% |
| 1 | 8% | 21% | 79% | Remain+58% |
| 2 | 2% | 47% | 53% | Remain+6% |
| 3 | 7% | 32% | 68% | Remain+36% |
| 4 | 23% | 33% | 67% | Remain+34% |
| 5 | 5% | 35% | 65% | Remain+30% |
| 6 | 6% | 40% | 60% | Remain+20% |
| 7 | 4% | 33% | 67% | Remain+34% |
| 8 | 7% | 35% | 65% | Remain+30% |
| 9 | 8% | 39% | 61% | Remain+22% |

| | | | | |
|---|---|---|---|---|
| 10 | 5% | 23% | 77% | Remain+54% |
| 11 | 4% | 7% | 93% | Remain+86% |
| 12 | 4% | 10% | 90% | Remain+80% |
| 13 | 6% | 11% | 89% | Remain+78% |
| 14 | 9% | 54% | 46% | Leave +8% |

*Community Structure Feb 2018*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 40% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 6% | 18% | 82% | Remain +64% |
| 1 | 6% | 13% | 87% | Remain +74% |
| 2 | 11% | 32% | 68% | Remain +36% |
| 3 | 4% | 31% | 69% | Remain +38% |
| 4 | 5% | 45% | 55% | Remain +10% |
| 5 | 15% | 8% | 92% | Remain +84% |
| 6 | 21% | 36% | 64% | Remain +28% |
| 7 | 3% | 19% | 81% | Remain +62% |
| 8 | 3% | 57% | 43% | Leave +14% |
| 9 | 6% | 23% | 77% | Remain +54% |
| 10 | 2% | 17% | 83% | Remain +66% |
| 11 | 8% | 11% | 89% | Remain +78% |
| 12 | 4% | 30% | 70% | Remain +40% |
| 13 | 2% | 54% | 46% | Leave +8% |
| 14 | 3% | 82% | 18% | Leave +64% |

*Community Structure June 2018*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 40% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 3% | 14% | 86% | Remain +72% |

| 1 | 4% | 17% | 83% | Remain +66% |
|---|----|-----|-----|-------------|
| 2 | 1% | 16% | 84% | Remain +68% |
| 3 | 3% | 36% | 64% | Remain +28% |
| 4 | 10% | 49% | 51% | Remain +2% |
| 5 | 10% | 21% | 79% | Remain +58% |
| 6 | 13% | 33% | 67% | Remain +34% |
| 7 | 1% | 0% | 0% | N/A |
| 8 | 3% | 23% | 77% | Remain +54% |
| 9 | 9% | 13% | 87% | Remain +74% |
| 10 | 4% | 28% | 72% | Remain +44% |
| 11 | 11% | 6% | 94% | Remain +88% |
| 12 | 4% | 24% | 76% | Remain +52% |
| 13 | 8% | 18% | 82% | Remain +64% |
| 14 | 4% | 17% | 83% | Remain +66% |
| 15 | 2% | 7% | 93% | Remain +86% |
| 16 | 2% | 29% | 71% | Remain +42% |
| 17 | 4% | 17% | 83% | Remain +66% |
| 18 | 4% | 26% | 74% | Remain +48% |

*Community Structure Feb 2019*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 48% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|-----------------|----------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|-----------------|
| 0 | 3% | 27% | 73% | Remain +46% |
| 1 | 4% | 51% | 49% | Leave +2% |
| 2 | 4% | 52% | 48% | Leave +4% |
| 3 | 10% | 12% | 88% | Remain +76% |
| 4 | 4% | 7% | 93% | Remain +86% |
| 5 | 18% | 18% | 82% | Remain +64% |
| 6 | 7% | 42% | 58% | Remain +16% |
| 7 | 6% | 20% | 80% | Remain +60% |
| 8 | 4% | 30% | 70% | Remain +40% |
| 9 | 10% | 30% | 70% | Remain +40% |

| 10 | 4% | 60% | 40% | Leave +20% |
| 11 | 4% | 15% | 85% | Remain +70% |
| 12 | 3% | 55% | 45% | Leave +10% |
| 13 | 2% | 30% | 70% | Remain +40% |
| 14 | 2% | 14% | 86% | Remain +72% |
| 15 | 1% | 71% | 29% | Leave +42% |
| 16 | 4% | 31% | 69% | Remain +38% |
| 17 | 1% | 7% | 93% | Remain +86% |
| 18 | 4% | 43% | 57% | Remain +14% |
| 19 | 7% | 17% | 83% | Remain +66% |

*Community Structure June 2019*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 38% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 3% | 56% | 44% | Leave +12% |
| 1 | 4% | 26% | 74% | Remain +48% |
| 2 | 13% | 63% | 37% | Leave +26% |
| 3 | 6% | 34% | 66% | Remain +32% |
| 4 | 11% | 44% | 56% | Remain +12% |
| 5 | 6% | 20% | 80% | Remain +60% |
| 6 | 7% | 52% | 48% | Leave +4% |
| 7 | 11% | 31% | 69% | Remain +38% |
| 8 | 14% | 62% | 38% | Leave +24% |
| 9 | 5% | 41% | 59% | Remain +18% |
| 10 | 2% | 53% | 47% | Leave +6% |
| 11 | 5% | 75% | 25% | Leave +50% |
| 12 | 4% | 56% | 44% | Leave +12% |
| 13 | 2% | 12% | 88% | Remain +76% |
| 14 | 2% | 64% | 36% | Leave +28% |
| 15 | 4% | 62% | 38% | Leave +24% |
| 16 | 2% | 31% | 69% | Remain +38% |

*Community Structure October 2019*

| Community Class | % of Conversation (Isolate Nodes Excluded, Representing 47% of Total) | % Tweets Within Community Coded as Leave Supporting | % Tweets Within Community Coded as Remain Supporting | Community Swing |
|---|---|---|---|---|
| 0 | 7% | 20% | 80% | Remain +60% |
| 1 | 3% | 51% | 49% | Leave +2% |
| 2 | 7% | 21% | 79% | Remain +58% |
| 3 | 13% | 21% | 79% | Remain +58% |
| 4 | 13% | 46% | 54% | Remain +8% |
| 5 | 0.5% | 58% | 42% | Leave +16% |
| 6 | 5% | 16% | 84% | Remain +68% |
| 7 | 2% | 81% | 19% | Leave +62% |
| 8 | 5% | 9% | 91% | Remain +82% |
| 9 | 3% | 51% | 49% | Leave +2% |
| 10 | 1% | N/A | N/A | N/A |
| 11 | 2% | 23% | 77% | Remain +54% |
| 12 | 8% | 16% | 84% | Remain +68% |
| 13 | 2% | 41% | 59% | Remain +18% |
| 14 | 5% | 39% | 61% | Remain +22% |
| 15 | 4% | 19% | 81% | Remain +62% |
| 16 | 9% | 81% | 19% | Leave +62% |
| 17 | 1% | 67% | 33% | Leave +34% |
| 18 | 2% | 23% | 77% | Remain +54% |
| 19 | 2% | 42% | 58% | Remain +16% |
| 20 | 5% | 44% | 56% | Remain +12% |
| 21 | 2% | 12% | 88% | Remain +76% |

## Appendix E: Coding Manual

This coding manual offers a detailed overview of the function of the codes; it should be used

as a reference point to add context to the findings and may be used to replicate this

research. The codebook contains nine variables, outlining the description, options, examples and additional notes for each variable.

*Unit of analysis*

Within this research, the unit of analysis varies depending on the variable analysed, but generally, it is either the tweets textual data only or both the tweets textual data and any content attached to the tweet. Where the variable calls for the coder to explore the tweet and the content, the primary source of analysis should always be the tweet's text, due to this often adding the most significant level of context to the tweet. Where content is attached to the tweet, the following rules should apply:

1) In instances where a user posts a news article, the coder should use the headline to determine its relation to the variables. The coder can click into the article if further context is needed.

2) For videos, the coder should watch an exert of 1 minute; if further context is needed, the coder should continue to watch until satisfied.

3) The coder should determine the implicit meaning (where possible) for imagery. The coder may use information such as the tweet thread and tweet text to add context to the imagery.

The username, profile picture and any other information associated with the user who published the tweet should not be used to determine the variables within this content analysis; this is due to such information possibly being updated by the user, which may not reflect the intention within the tweet at the time of publishing. Tweet threads (such as conversation threads, the tweet that the user has responded to etc.) can and should be used

to aid the coder. In instances where the tweet's thread has been deleted, and the coder

cannot infer the accurate code due to this, the tweet should be excluded.

*Variable 1: Tweets stance on Brexit.*

| Variable Title | What is the tweet's stance on Brexit? |
|---|---|
| Unit of Analysis | Tweet's textual data and content attached to tweet. |
| Variable Description | This asks the coder to identify the tweets stance on Brexit. There will be three options, clear support for leaving the EU/opposition to Remain, clear support for remaining in the EU/opposition to Leave and an ambiguous position on Brexit. To be coded as supporting leaving or remaining in the EU, the tweet must demonstrate an explicit position on Brexit, which may be identified through the use of language or content attached to the tweet. Tweets that have been coded as containing an ambiguous stance on Brexit typically lack an obvious position but may also include instances in which a user is yet to make up their mind upon Brexit. |
| Inter-Coder | Agreement Score: | 96.593%. |

| Coding option and description | 1) Supports the UK Leaving the EU |
| --- | --- |
| | • Explicitly states that they are supportive of the UK leaving the EU. |
| | • Highlights a positive aspect of Brexit. |
| | • Shares content that may be supportive of Brexit in some way. |
| | • States opposition to Remaining. |
| | • Seeks to discredit arguments surrounding Remain. |
| | • Attacks a prominent Remain supporter (unless regarding a specific point unrelated to Brexit). |
| | • Supports a politician that is associated with the Leave campaign or Britain's exit of the EU (unless the support is stated for an unrelated reason). |
| | 2) Supports the UK Remaining in the EU |
| | • Explicitly states that they are supportive of the UK remaining in the EU. |
| | • Highlights a negative aspect of Brexit. |
| | • Shares content that may be supportive of Remain in some way. |
| | • States opposition to Leaving. |
| | • Seeks to discredit arguments surrounding Leave. |

|  | • Attacks a prominent Leave supporter (unless regarding a specific point unrelated to Brexit). |
|  | • Supports a politician that is associated with the Remain campaign or Britain remaining in the EU (unless the support is stated for an unrelated reason). |
|  | 3) Ambiguous |
|  | • The position on Brexit cannot be confidently determined. <br> • The user states they have not made their mind up regarding which side to support. |
|  | 4) Foreign language/excluded |
|  | • The tweet is incoherent. <br> • The tweet uses a non-English language. |
| Notes | 1) Opposition to a 'No-Deal' Brexit should be coded as opposition to Brexit. However, in instances the tweet opposes a 'No Deal' on the basis a deal would be preferred, then the tweet should be coded as supporting Leave. <br> 2) If the tweet attacks one prominent Remain-supporting politician, whilst expressing support for a different |

|  | prominent Remain-supporting politician, then the tweet should be coded as Remain-supporting (and vice-versa in relation to Leave). |
|  | 3) Support for a politician should reflect the stance on Brexit at the time in which the tweet was published. |
|  | 4) Tweets that contain support for a second referendum without further context should be coded as supporting remaining in the EU. |
|  | 5) If the tweet highlights support for a second referendum combined with the intention to vote to leave in a second referendum, then the tweet should be coded as Leave-supporting. |

*Variable 2: Incivility*

| Variable Title | Does the tweet contain incivility? |
| --- | --- |
| Unit of Analysis | Tweet's textual data (with the exception of ad-hominem attack, which should consider the content). |
| Variable Description | This variable looks to see if the tweet contains 'uncivil' characteristics. For the purpose of this research 'uncivil' we be deemed as anytime a tweet contains one of the following: swearing, capitalization, ad-hominem attack or excessive punctuation. |

| Inter-Coder | Agreement Score: | 99.799%. |
|---|---|---|
| Coding option and description | 1) 'Uncivil' characteristics are present. | |
| | <ul><li>An ad hominem attack (direct personal attack) that looks to highlight a personal negative about another individual to discredit their opinion or standing within the discussion.</li><li>Capitalization, in which two or more adjacent words (of two characters or more in length) are capitalized within the tweets text (with the exception of 'BREAKING NEWS').</li><li>Excessive punctuation, instances that the tweets text contains two or more adjacent exclamation marks, question marks or the interrobang.</li><li>Swearing within the tweet. This includes "medium" and "hard" swear words, as defined by Ofcom (2016). In addition, it is also to include any language that has explicitly racist, sexist or homophobic meaning. It also includes variations that allude to the words outlined above, for example 'FFS' (for fucks sake) would be coded as being uncivil.</li></ul> | |
| | 2) 'Uncivil' characteristics are not present | |

| | • The characteristics are highlighted above are not included within the tweet or (where appropriate) the content of the tweet. |
|---|---|
| | 3) Foreign language/excluded |
| | • The tweet uses a non-English language. |

*Variable 3: Evidenced Claim*

| Variable Title | Does the tweet contain evidence for a claim made regarding Brexit? | |
|---|---|---|
| Unit of Analysis | Tweet's textual data and content attached to tweet. | |
| Variable Description | This variable looks to measure if a claim has been made about Brexit that includes an accompanying piece of evidence for the purpose of justification. The evidence should act to justify the initial claim and may come in the form of content, a retweet or reference to evidence within the tweets text. | |
| Inter-Coder | Agreement Score: | 93.987%. |
| Coding option and description | 1) Claim made without evidence | |
| | • A claim is made relating to Brexit, lacking supportive evidence or justification. | |
| | 2) Claim made with evidence | |

| | |
|---|---|
| | • A claim is made regarding Brexit and includes content to support the claim.<br><br>• A claim is made regarding Brexit and includes a retweet that can support the claim.<br><br>• A claim is made about Brexit and provides eventual support within the tweets text. Evidential support, for example, may come in the form of a user stating evidence.<br><br>• A claim made about Brexit states a clear justification for a position (e.g., I believe this because…). |
| | 3) No claim present |
| | • The tweet is void of any argumentative claim regarding Brexit. |
| | 4) Foreign language/excluded |
| | • The tweet uses a non-English language. |
| Notes | • 'Relating to Brexit' should be understood in a broad manner. For example, if the claim relates to any political process that could be linked to Brexit, then it should be coded as containing a claim regarding Brexit. |

| | • Where content is included that does not relate in any way to a claim made, it should be coded as claim without evidence. |
|---|---|

*Variable 4: Question asking*

| Variable Title | Does the tweet ask a genuine question or rhetorical question? | |
|---|---|---|
| Unit of Analysis | Tweets textual data. | |
| Variable Description | This variable looks to measure instances in which a user asks a genuine question (one that seeks to illicit further information) or a rhetorical question (one that seeks to advance an opinion in the form of a question) within the discussion. | |
| Inter-Coder | Agreement Score: | 96.593%. |
| | 1) A genuine question has been asked. | |
| | To be identified as a question, it may fall into the following four categories: <br><br> • An assertation question, that seeks to make a statement with a rising inclination towards the end of the question i.e. "Brexit is going to make Britain better off?". <br><br> • A 'Five Ws' question: Who, what, when, why and where? i.e., "who told you that information". | |

| | |
|---|---|
| | • A directive question: "please elaborate". |
| | 2) A rhetorical question has been asked. |
| | • The tweet provides a question for the purpose of illustrating a point or in a dogmatic manner seeking to discredit another users point (i.e. "Brexit would benefit the UK? It's hard to believe as every piece of evidence suggests it would actually harm the UK"). |
| | 3) No question present. |
| | • The tweet does not include a question. |
| | 4) Foreign language/excluded |
| | • The tweet uses a non-English language. |

*Variable 5: The status of the hashtag*

| Variable Title | What is the status of the hashtag within the tweet? |
|---|---|
| Unit of Analysis | Tweets textual data. |
| Variable Description | This variable seeks to identify instances in which the tweet contains a hashtag, as well as identify the status of the included hashtag. The status of the hashtag can either be determined as neutral (does not contain a clear indication of a user's position on |

| | |
|---|---|
| | a topic) or partisan (does contain a clear indication of a user's position on a topic). |
| Inter-Coder | Agreement Score: 97.595%. |
| Coding option and description | 1) The tweet contains a neutral hashtag |
| | • The tweet includes a hashtag that does not indicate a user's position on a given topic. |
| | 2) The tweet contains a partisan hashtag |
| | • The tweet contains a hashtag in which a user's position on a topic is likely to be inferred. |
| | 3) The tweet contains both a neutral and partisan hashtag |
| | 4) The tweet does not contain a hashtag |
| | 99) Foreign language/excluded |
| | • The tweet uses a non-English language.<br>• The status of the hashtag cannot be determined.<br>• If the status of the hashtag cannot be determined, but it does contain other hashtags, then the coder should code this in line with the other hashtag present and should not exclude the tweet. |

| Variable Title | Does the tweet reference 'the elite' in relation to Brexit? |
|---|---|
| Unit of Analysis | Tweets textual data and content. |
| Variable Description | This variable seeks to identify instances in which the tweet references 'the elite' in a pejorative manner in relation to Brexit. The 'elite' is to be identified when the user specifically uses the term 'the elite' (or variations of). Variations of the elite have been determined as phrases that would allude to a vague powerful group of individuals such as 'the establishment', 'the political class', 'the upper class', 'the 1%', 'the ruling class', 'the bureaucrats', 'the rich', 'politicians' (in general), 'business leaders', 'MSM' etc. |
| Inter-Coder | Agreement Score: 96.993%. |
| Coding option and description | 1) The user references the 'elite' in relation to the discussion of Brexit.<br><br>• The user references the 'elite' or variations of in relation to the discussion of Brexit. As highlighted above, variations of the elite refer to a homogenous and vague powerful group. The reference must be in a pejorative manner. |

| | |
|---|---|
| | • The user points to an individual as being a part of, or representing the wishes of a wider elite. |
| | 2) The user does not reference the 'elite' in relation to the discussion of Brexit. |
| | • There are no identifiable references to the elite.<br><br>• References variations of the elite, such as politicians or the media, are done so through highlighting a specific characteristic and not in a homogenous manner (i.e. conservative politicians). |
| | 3) Foreign language/excluded |
| | • The tweet uses a non-English language.<br><br>• It cannot be determined if the tweet does or does not reference the elite. |

Variable 7: The peoples will

| | |
|---|---|
| Variable Title | Does the tweet highlight a 'peoples will' in relation to Brexit? |
| Unit of Analysis | Tweets textual data and content. |
| Variable Description | This variable seeks to identify instances in which the tweet references the wishes of the 'people' as a monolithic group, |

| | which can be observed through instances in which a shared common feeling, desire or opinion is expressed. |
|---|---|
| Inter-Coder | Agreement Score: 96.993%. |
| Coding option and description | 1) The user references the peoples will |
| | • In any instance, the tweet must include an expressed feeling, desire or opinion and an explicit statement that such a feeling, desire or opinion is commonly held at a national level. <br><br> • National level should be understood as the wishes of a particular country but may also include a religion or ethnic group when expressed in a homogenous manner. <br><br> • The national will must relate to Brexit in some way. |
| | 2) The user does not reference the peoples will |
| | • The user expresses the peoples will, but applies it to a portion of society. (i.e. 'Londoners want to Remain). <br><br> • The user does not explicitly state that the desire, feeling or opinion refers to a national level. |
| | 3) Foreign language/excluded |
| | • The tweet uses a non-English language. |

| | |
|---|---|
| | • It cannot be determined as to whether the tweet contains reference to the peoples will. |

Variable 8: Immigration.

| Variable Title | Does the tweet mention immigration? | |
|---|---|---|
| Unit of Analysis | Tweets textual data and content. | |
| Variable Description | This variable asks the coder to identify references to immigration, both positive and negative, within the discussion. | |
| Inter-Coder | Agreement Score: | 99% |
| Coding option and description | 1) Immigration - Positive | |
| | • The tweet mentions a positive surrounding migration. <br><br> • The tweet challenges someone who is negative towards migration (on the basis of their opinion). <br><br> • The tweet shares content that presents immigration in a positive light. <br><br> • The tweet encourages greater levels of migration. <br><br> • The tweet is positive towards migrants. | |
| | 2) Immigration - Negative | |
| | • The tweet mentions a negative surrounding migration. | |

| | • The tweet challenges someone who is supportive of migration (on the basis of their opinion). • The tweet shares content that presents immigration in a negative light. • The tweet seeks to limit migration. • The tweet is negative towards migrants/non-English citizens. |
| --- | --- |
| | 3) No mention |
| | • The tweet makes no mention of immigration. |
| | 4) Foreign language/excluded |
| | • The tweet uses a non-English language. • The sentiment within the tweet cannot be determined. |

Variable 9: Expressed Position on Brexit.

| Variable Title | Does the tweet express support for a position on Brexit? |
| --- | --- |
| Unit of Analysis | Tweets textual data and content. |
| Variable Description | This variable asks the coder to identify whether the tweet expresses support for a moderate stance on Brexit (Brexit deal or second referendum) or a more extreme stance (stopping Brexit or a 'No Deal' exit). |

| Inter-Coder | Agreement Score: | 97.1% |
|---|---|---|
| Coding option and description | 1) Support for No Deal | |
| | <ul><li>The tweet directly expresses support for a No Deal, which may be worded in a number of ways, such as WTO Brexit, Hard Brexit etc.</li><li>The tweet or content shared makes an argument that would support a No Deal.</li></ul> | |
| | 2) Support for Brexit deal | |
| | <ul><li>The tweet directly expresses support for a Brexit deal.</li><li>The tweet or content shared makes an argument that would support a deal.</li></ul> | |
| | 3) Support for second referendum | |
| | <ul><li>The tweet directly expresses support for a second referendum or variations of (such as final say).</li><li>The tweet or content shared makes an argument that would support a second referendum.</li></ul> | |
| | 4) Support for stopping Brexit | |
| | <ul><li>The tweet directly expresses support for stopping Brexit unilaterally (unilaterally meaning does not mention a process by which Brexit should be stopped).</li></ul> | |

| | • The tweet or content shared makes an argument that would support stopping Brexit unilaterally. |
|---|---|
| | 5) No mention |
| | • The tweet does not express support for a position. |
| | 6) Foreign language/excluded |
| | • The tweet uses a non-English language.<br>• The tweet is unclear. |

## Appendix F: Pearson's r Table of Critical Values

| 2-tailed | 0.1% | 0.05% | 0.01% |
|---|---|---|---|
| N | | | |
| 1 | 0.988 | 0.997 | 0.999 |
| 2 | 0.900 | 0.950 | 0.990 |
| 3 | 0.805 | 0.878 | 0.959 |
| 4 | 0.729 | 0.811 | 0.917 |
| 5 | 0.669 | 0.754 | 0.875 |
| 6 | 0.621 | 0.707 | 0.834 |
| 7 | 0.584 | 0.666 | 0.798 |
| 8 | 0.549 | 0.632 | 0.765 |
| 9 | 0.521 | 0.602 | 0.735 |
| 10 | 0.497 | 0.576 | 0.708 |

| | | | |
|----|-------|-------|-------|
| 11 | 0.476 | 0.553 | 0.684 |
| 12 | 0.458 | 0.532 | 0.661 |
| 13 | 0.441 | 0.514 | 0.641 |
| 14 | 0.426 | 0.497 | 0.623 |
| 15 | 0.412 | 0.482 | 0.606 |
| 16 | 0.400 | 0.468 | 0.590 |
| 17 | 0.389 | 0.456 | 0.575 |
| 18 | 0.378 | 0.444 | 0.561 |
| 19 | 0.369 | 0.433 | 0.549 |
| 20 | 0.360 | 0.423 | 0.537 |
| 21 | 0.352 | 0.413 | 0.526 |
| 22 | 0.344 | 0.404 | 0.515 |
| 23 | 0.337 | 0.396 | 0.505 |
| 24 | 0.330 | 0.388 | 0.496 |
| 25 | 0.323 | 0.381 | 0.487 |
| 26 | 0.317 | 0.374 | 0.479 |
| 27 | 0.311 | 0.367 | 0.471 |
| 28 | 0.306 | 0.361 | 0.463 |
| 29 | 0.301 | 0.355 | 0.456 |
| 30 | 0.296 | 0.349 | 0.449 |
| 35 | 0.275 | 0.325 | 0.418 |
| 40 | 0.257 | 0.304 | 0.393 |
| 45 | 0.243 | 0.288 | 0.372 |
| 20 | 0.360 | 0.423 | 0.537 |
| 21 | 0.352 | 0.413 | 0.526 |
| 22 | 0.344 | 0.404 | 0.515 |
| 23 | 0.337 | 0.396 | 0.505 |

| 24 | 0.330 | 0.388 | 0.496 |
|----|-------|-------|-------|
| 25 | 0.323 | 0.381 | 0.487 |
| 26 | 0.317 | 0.374 | 0.479 |
| 27 | 0.311 | 0.367 | 0.471 |
| 28 | 0.306 | 0.361 | 0.463 |
| 29 | 0.301 | 0.355 | 0.456 |
| 30 | 0.296 | 0.349 | 0.449 |
| 35 | 0.275 | 0.325 | 0.418 |
| 40 | 0.257 | 0.304 | 0.393 |
| 45 | 0.243 | 0.288 | 0.372 |

## Appendix G: Ethics Approval

The Secretariat
University of Leeds
Leeds, LS2 9JT
Tel: 0113 343 4873
Email: ResearchEthics@leeds.ac.uk

**UNIVERSITY OF LEEDS**

Thomas Wellings
School of Media and Communication
University of Leeds
Leeds, LS2 9JT

**Faculty of Arts, Humanities and Cultures Research Ethics Committee**
**University of Leeds**

6 December 2022

Dear Tom

| Title of study | Exploring the everyday discussion of Brexit on Twitter |
| Ethics reference | FAHC 18-050 amendment June 2019 |

I am pleased to inform you that your amendment to the research application listed above has been reviewed by the Chair of the Faculty of Arts, Humanities and Cultures Research Ethics Committee and I can confirm a favourable ethical opinion as of the date of this letter. The following documentation was considered:

| Document | Version | Date |
|---|---|---|
| FAHC 18-050 amendment June 2019 Amendment_form GM[1].doc | 1 | 03/06/19 |
| FAHC 18-050 Cover letter..docx | 1 | 24/01/19 |
| FAHC 18-050 Ethics.doc | 3 | 24/01/19 |
| FAHC 18-050 Information Sheet.docx | 3 | 24/01/19 |
| FAHC 18-050 Informed consent form.docx | 3 | 24/01/19 |

The Chair made the following comments:
- A considerable quantitative increase is proposed. However the application makes clear the research need, the supervisorial support and the protocols and ethics concerns outlined in the original application appear sufficiently robust and adequately capacious for the new scope.

Please notify the committee if you intend to make any further amendments to the original research as submitted at date of this approval as all changes must receive ethical approval prior to implementation. The amendment form is available at http://ris.leeds.ac.uk/EthicsAmendment.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited. There is a checklist listing examples of documents to be kept which is available at http://ris.leeds.ac.uk/EthicsAudits.

We welcome feedback on your experience of the ethical review process and suggestions for improvement. Please email any comments to ResearchEthics@leeds.ac.uk.

Yours sincerely


Senior Research Ethics Administrator, the Secretariat
On behalf of Prof Robert Jones, Chair, AHC FREC

## Appendix H: Pearson's Correlation Scoring

#Brexit February 2016

| Community Class | % Homogeneity | % Tweets using #Brexit within community |
|---|---|---|
| 0 | 78% | 32% |
| 1 | 54% | 70% |
| 2 | 80% | 64% |
| 3 | 85% | 54% |
| 4 | 58% | 74% |
| 5 | 81% | 73% |
| 6 | 56% | 70% |
| 7 | 70% | 65% |
| 8 | 71% | 58% |
| 9 | 62% | 72% |
| 10 | 64% | 66% |
| 11 | 75% | 43% |

#Brexit October 2017

| Community Class | % Homogeneity | % Tweets using #Brexit within community |
|---|---|---|
| 0 | 71% | 19% |
| 1 | 79% | 21% |
| 2 | 53% | 28% |
| 3 | 68% | 31% |
| 4 | 67% | 35% |
| 5 | 65% | 52% |
| 6 | 60% | 31% |
| 7 | 67% | 24% |
| 8 | 65% | 29% |

| 9 | 61% | 44% |
| --- | --- | --- |
| 10 | 77% | 25% |
| 11 | 93% | 25% |
| 12 | 90% | 27% |
| 13 | 89% | 22% |
| 14 | 54% | 31% |

#Brexit Feb 2019

| Community Class | % Homogeneity | % Tweets using #Brexit within community |
| --- | --- | --- |
| 0 | 73% | 20% |
| 1 | 51% | 47% |
| 2 | 52% | 17% |
| 3 | 88% | 22% |
| 4 | 93% | 20% |
| 5 | 82% | 30% |
| 6 | 58% | 30% |
| 7 | 80% | 26% |
| 8 | 70% | 35% |
| 9 | 70% | 23% |
| 10 | 60% | 13% |
| 11 | 85% | 18% |
| 12 | 55% | 18% |
| 13 | 70% | 11% |
| 14 | 86% | 21% |
| 15 | 71% | 34% |
| 16 | 69% | 15% |
| 17 | 93% | 20% |
| 18 | 57% | 26% |
| 19 | 83% | 18% |

#FBPE February 2018

| Community Class | % Consensus Remain | % Tweets using #FBPE within community |
|---|---|---|
| 0 | 82% | 4% |
| 1 | 87% | 3% |
| 2 | 68% | 5% |
| 3 | 69% | 0% |
| 4 | 55% | 1% |
| 5 | 92% | 6% |
| 6 | 64% | 3% |
| 7 | 81% | 1% |
| 8 | 57% | 0% |
| 9 | 77% | 3% |
| 10 | 83% | 8% |
| 11 | 89% | 6% |
| 12 | 70% | 2% |
| 13 | 46% | 0% |
| 14 | 18% | 0% |

#FBPE June 2018

| Community class | % Consensus Remain | % Tweets using #FBPE within community |
|---|---|---|
| 0 | 86% | 3% |
| 1 | 83% | 4% |
| 2 | 84% | 4% |
| 3 | 64% | 0% |
| 4 | 51% | 5% |
| 5 | 79% | 4% |
| 6 | 67% | 1% |
| 7 | 0% | 0% |
| 8 | 77% | 1% |
| 9 | 87% | 5% |
| 10 | 72% | 3% |

| 11 | 94% | 5% |
|----|-----|-----|
| 12 | 76% | 5% |
| 13 | 82% | 3% |
| 14 | 83% | 8% |
| 15 | 93% | 3% |
| 16 | 71% | 0% |
| 17 | 83% | 9% |
| 18 | 74% | 3% |

#NoDeal February 2019

| Community class | % Consensus Leave | % Tweets using #NoDeal within community |
|-----------------|-------------------|------------------------------------------|
| 0 | 27% | 0% |
| 1 | 51% | 0% |
| 2 | 52% | 0% |
| 3 | 12% | 0% |
| 4 | 7% | 0% |
| 5 | 18% | 0% |
| 6 | 42% | 0% |
| 7 | 20% | 0% |
| 8 | 30% | 0% |
| 9 | 30% | 1% |
| 10 | 60% | 0% |
| 11 | 15% | 0% |
| 12 | 55% | 1% |
| 13 | 30% | 0% |
| 14 | 14% | 0% |
| 15 | 71% | 0% |
| 16 | 31% | 0% |
| 17 | 7% | 0% |
| 18 | 43% | 0% |

#StopBrexit October 2019

| Community class | % Consensus Remain | % Tweets using #StopBrexit within community |
|---|---|---|
| 0 | 80% | 0% |
| 1 | 49% | 0% |
| 2 | 79% | 0% |
| 3 | 79% | 1% |
| 4 | 54% | 0% |
| 5 | 42% | 0% |
| 6 | 84% | 2% |
| 7 | 19% | 0% |
| 8 | 91% | 3% |
| 9 | 49% | 0% |
| 11 | 77% | 1% |
| 12 | 84% | 0% |
| 13 | 59% | 0% |
| 14 | 61% | 1% |
| 15 | 81% | 2% |
| 16 | 19% | 0% |
| 17 | 33% | 0% |
| 18 | 77% | 0% |
| 19 | 58% | 1% |
| 20 | 56% | 1% |
| 21 | 88% | 1% |