

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Business Analytics from the Nova School of Business and Economics

ANALYZING RHETORICAL FRAMING IN BREXIT DEBATES IN THE HOUSE OF
COMMONS OF THE UNITED KINGDOM USING LARGE LANGUAGE MODELS:
TEMPORAL TRENDS AND STRUCTURAL PATTERNS –
MULTI-STAGE DATA PIPELINE

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Abstract

This study examines rhetorical framing in House of Commons debates on the United Kingdom's exit (Brexit) from the European Union from 2012 to 2022, using Large Language Models (LLMs) to analyze 62,847 parliamentary speech chunks. Building on Neuman et al.'s (1992) generic frame typology, it investigates how framing strategies have changed over time and varied across parties, referendum positions, and speaker attributes. The computational approach provides scale and precision beyond traditional qualitative methods, showing that Economic and Conflict frames dominated and that shifts in usage tracked key Brexit milestones. The findings demonstrate LLMs' value for large-scale political discourse analysis and clarify how parliamentary actors constructed Brexit's meaning during a period of constitutional turmoil.

Keywords: Framing Analysis, Political Framing, Brexit, EU Referendum, UK Parliament, House of Commons, Parliamentary Debates, Political Communication, Natural Language Processing, NLP, Large Language Model, LLM, Transformer Model, GPT Model, Mistral Model, BERT Model

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Content

Abstract	II
List of Tables.....	V
List of Illustrations	VI
List of Abbreviations.....	VII
1 Introduction	8
2 Literature Review.....	11
2.1 Framing Theory.....	11
2.1.1 Definition	11
2.1.2 Systematic Framing Review: Key Findings	12
2.1.3 Synthesis Limitations.....	13
2.2 Literature Synthesis and Research Gap.....	13
3 Research Context and Data.....	15
3.1 Overview of the UK Political System.....	15
3.1.1 Political Parties in the House of Commons	19
3.1.2 Historical Timeline of Brexit.....	21
3.2 Data Collection and Preprocessing	24
3.2.1 Temporal Scope	25
3.2.2 Data Collection	25
3.2.3 Annotated Corpus and Data Augmentation for Supervised Learning	31
4 Predictive Modelling of Rhetorical Framing Using LLMs.....	32
4.1 Model Training.....	32
4.2 Model Performance Evaluation.....	32
5 Empirical Analysis and Findings	35
5.1 Speech Volume and Speaker Participation	36
5.2 Temporal Analysis of Framing during Brexit.....	37
5.3 Impact of Political Affiliation and Referendum Position on Frame Selection	38
5.4 Impact of Speaker Demographics on Brexit Framing.....	39
5.4.1 Impact of Gender on Framing Patterns	40
5.4.2 Impact of Age on Framing Patterns	42

5.5	Geographical Differences in Brexit Framing.....	45
6	Discussions and Conclusion.....	50
6.1	Implications.....	50
6.1.1	Generic Frames as Normatively Flexible Structures	50
6.1.2	Frame Dynamics as Indicators of Institutional Dysfunction	53
6.1.3	Persistent Meaning-Contestation Beyond Institutional Resolution	54
6.2	Frame Classification Using LLMs	54
6.3	Limitations	55
6.4	Future Research Directions	58
6.5	Conclusion.....	58
	Bibliography.....	61
	Appendix	69
	Appendix A: Comparative Overview of Framing Studies	69
	Appendix B: Brexit Keyword List for Speech Filtering	71
	Appendix C: Exemplary Chunks for Each Frame of Parliamentary Debates	72
	Appendix D: Exemplary Challenging Chunks with Divergent Annotations	74
	Appendix E: Description of Database Content	75
	Appendix F: Brexit Issue-Specific Frame Mapping to Generic Frames	77
	Appendix G: Brexit Framing Operationalization Framework	78
	Appendix H: ChatGPT Prompting and Results.....	80
	Appendix I: Standardized Residuals per Party.....	85
	Appendix J: Code-Repository	86

List of Tables

Table 1: Complete Parliamentary Dataset Statistics (2012-2022)	27
Table 2: Distribution of geocoded speech chunks across UK nations	46
Table 3: Nation Comparisons (Chi-Square Test)	47
Table 4: Comparative Overview of Brexit/EU Framing Studies	70
Table 5: Brexit Keywords Used for Speech Filtering	71
Table 6: Exemplary Chunks for Each Frame of Parliamentary Debates.....	73
Table 7: Exemplary Challenging Chunks with Divergent Annotations.....	74
Table 8: MPs Table Data Dictionary.....	75
Table 9: Chunks Table Data Dictionary.....	75
Table 10: Debates Table Data Dictionary	75
Table 11: Manual Annotations Table Data Dictionary	76
Table 12: Speeches Tables Data Dictionary.....	76
Table 13: Training Set Table Data Dictionary	76
Table 14: Brexit Issue-Specific Frame Mapping to Generic Frames	77
Table 15: Brexit Framing Operationalization Framework	79
Table 16: ChatGPT Zero-Shot Model Evaluation Metrics across Frame Categories	80
Table 17: ChatGPT CRAFT Model Evaluation Metrics across Frame Categories.....	82
Table 18: ChatGPT CoT Model Evaluation Metrics across Frame Categories	84

List of Illustrations

Figure 1: The UK Political System: Structure and Institutional Relationships. Adapted from (Wikipedia Commons 2019a)	16
Figure 2: Election Results and the Composition of the House of Commons from 2010 to 2019. Adapted from (Wikipedia Commons 2019b).....	20
Figure 3: Summary of Key Brexit Milestones: From Referendum Pledge to EU Exit	23
Figure 4: Filtering of Brexit-Related Debates and Speeches and the Top Brexit Keywords.....	30
Figure 5: Count and Proportion of Unique Female and Male Speakers over Time	41
Figure 6: Frame Usage by Gender.....	42
Figure 7: MP's Age Distribution.....	43
Figure 8: Frame Deviations by Age Group	44
Figure 9: Frame Distribution by Nation	46
Figure 10: Frame Deviations by Nation	48
Figure 11: ChatGPT Zero-Shot Model Confusion Matrix	80
Figure 12: ChatGPT Craft Model Confusion Matrix	82
Figure 13: ChatGPT CoT Model Confusion Matrix	84
Figure 14: Standardized Residuals per Party.....	85

List of Abbreviations

Frame	Definition
AFD	Alternative für Deutschland
API	Application Programming Interface
BERT	Bidirectional Encoder Representations from Transformers
Brexit	British Exit from the European Union
CoT	Chain-of-Thought
CRAFT	Context-Role-Action-Format-Tone
DAPT	Domain-Adaptive Pretraining
DeBERTa	Decoding-enhanced BERT with Disentangled Attention
DUP	Democratic Unionist Party
EU	European Union
GDP	Gross Domestic Product
GPT	Generative Pretrained Transformer
GPU	Graphics Processing Unit
LLM	Large Language Model
LoRA	Low-Rank Adaptation
ML	Machine Learning
MP	Member of Parliament
NHS	National Health Service
NLP	Natural Language Processing
RN	Rassemblement National
RoBERTa	Robustly Optimized BERT Pretraining Approach
RQ	Research Question
SFT	Supervised-Fine-Tuning
SNP	Scottish National Party
UK	United Kingdom
UKIP	UK Independence Party
US	United States (of America)
XML	Extensible Markup Language

Group Part

1 Introduction

Nearly a decade after the United Kingdom's (UK's) decision to leave the European Union (EU), Brexit continues to reverberate across Europe. Recent economic analyses reveal the profound and persistent consequences of this historic rupture: the UK economy has contracted by up to 8% in Gross Domestic Product (GDP) terms, investment has declined by 12-18%, and both employment and productivity have fallen by approximately 3-4% (Bloom et al. 2025). Beyond these economic impacts, Brexit has fundamentally reshaped social cohesion, intensified identity-based conflicts, and exposed deep territorial divisions, particularly in regions such as Northern Ireland, where constitutional questions remain unresolved (Richards and Heath 2023).

The significance of Brexit, however, extends far beyond the British Isles. Across Europe, populist radical right parties have seized upon Brexit as both a symbol and a precedent, transforming it into a rallying cry for their own Eurosceptic agendas. From Germany's Alternative für Deutschland (AfD) advocating for "Dexit" to France's Rassemblement National (RN) questioning EU membership, Brexit has become a touchstone for movements challenging the European project itself (Taggart and Szczerbiak 2018).

This persistent politicization and international resonance of Brexit raise fundamental questions about the role of rhetorical framing in shaping elite political discourse and public understanding. How political actors construct, contest, and communicate the meaning of Brexit, whether by emphasizing sovereignty restoration, economic catastrophe, or democratic renewal, not only influences domestic political dynamics but also reverberates across the European (De Vries 2017). How Brexit is framed in parliamentary debates matters profoundly. These frames structure public interpretation, legitimize political positions, and provide rhetorical resources that populist movements appropriate and adapt to their national contexts (Vasilopoulou 2016).

Framing, as Entman (1993) defines it, involves "select[ing] some aspects of a perceived reality and mak[ing] them more salient in a communicating text" to promote particular problem definitions, causal interpretations, and treatment recommendations. In the Brexit context, competing frames construct fundamentally different realities: where some see democratic liberation from EU constraints, others perceive economic self-harm and diminished international influence. Understanding how these frames emerged, evolved, and competed in parliamentary discourse illuminates not merely British political dynamics but broader patterns of political communication in moments of constitutional crisis (Brusenbauch Meislová 2021).

To systematically investigate how rhetorical framing structured Brexit parliamentary discourse and evolved across the period from 2012 to 2022, this research is organized around two overarching research questions (RQs).

RQ1: How do rhetorical framing strategies in the UK House of Commons Brexit debates vary over time?

This question targets the longitudinal dimension of the Brexit crisis. It investigates how framing strategies transformed across distinct phases, from the pre-referendum negotiation period to post-Brexit implementation. Furthermore, it seeks to isolate the impact of critical external shocks and "focusing events," such as referendum results or key parliamentary votes, on the sudden prioritization or abandonment of specific rhetorical frames.

RQ2: To what extent do structural factors influence the use of rhetorical frames in the UK House of Commons Brexit discourse?

This question addresses the structural determinants of parliamentary discourse, including political party affiliation, Brexit referendum positions, and speaker demographics. It examines whether frame selection is primarily driven by party ideology (e.g., Labour vs. Conservative),

the speaker's stance on the referendum (Leave vs. Remain), or individual characteristics such as gender, age, and constituency represented.

This thesis employs advanced computational methods, specifically Large Language Models (LLMs) to systematically analyze how rhetorical frames structure Brexit parliamentary discourse from 2012 to 2022. This timeframe encompasses the entire trajectory from the first substantive political commitments to a referendum, through the conclusion of the withdrawal process. More than 30,000 Brexit-related contributions were analyzed using Neuman et al.'s (1992) generic frame typology, which encompasses the Economic, Moral Value, Human Impact, Powerlessness, and Conflict frames. This computational approach enables a scale and granularity that traditional qualitative methods cannot achieve, allowing the detection of temporal and structural patterns that are often inaccessible to human coders and offering a systematic view of how Brexit's political realities were constructed (Yu 2023).

The study's findings contribute to multiple scholarly conversations. Theoretically, they advance understanding of how generic frames operate in contexts of constitutional crisis and institutional transformation, extending framing theory beyond routine policy debates to moments of political rupture. Methodologically, the study provides a rigorous evaluation of LLMs for political science research, demonstrating how these tools can bridge the gap between qualitative nuance and quantitative scale in discourse analysis. Empirically, it provides the most comprehensive study of Brexit parliamentary framing, documenting how one of Europe's most significant political events was rhetorically constructed by its primary political actors.

Moreover, this research carries substantial societal relevance. As European democracies grapple with populism and challenges to a liberal institutional order, understanding how elites frame existential questions of sovereignty and identity has become increasingly urgent (Mudde and Rovira Kaltwasser 2017). The frames structuring Brexit debates echo across European politics, from debates over EU fiscal integration to migration and climate policy. Thus, Brexit

serves as a critical case study in how democratic societies navigate fundamental change through parliamentary discourse, offering lessons for other polities confronting similar challenges.

2 Literature Review

2.1 Framing Theory

Framing theory, originating in Goffman's (2010) sociological work on how individuals organize experience, has become a foundational analytical tool across multiple disciplines. In political communication research, it is used to study how meaning is constructed around political issues by both media and audiences (Neuman 1992). Framing refers to how communicators highlight certain aspects of reality to make them salient to an audience (Entman 1993). These choices shape how publics understand political events and which interpretations gain traction. Brexit provides a particularly fertile context for examining these dynamics, as Members of Parliament (MPs) competed to define what EU membership represented for Britain in ways that cut across traditional party lines, constructing fundamentally different interpretations of sovereignty, economics, and national identity. When parties divide in non-traditional patterns and ideological alignments become unclear, voters cannot rely on familiar partisan cues. They must instead draw more of their information from campaign discourse (Leduc 2002). Under these conditions, the interpretive frames offered by political actors become particularly consequential for structuring voter understanding.

2.1.1 Definition

Entman's (1993) theoretical synthesis provided a foundational definition of framing as a research paradigm that political communication scholars have widely adopted. He defines framing as the act of "select[ing] some aspects of a perceived reality and mak[ing] them more salient in a communicating text, in such a way as to promote a particular problem definition,

causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (Entman 1993, 52).

This definition emphasizes framing as an active process of constructing meaning through strategic emphasis and de-emphasis of dimensions of political issues. Frames achieve their power by structuring what information receives attention and how that information is contextualized within broader interpretive frameworks (Entman 1993).

2.1.2 Systematic Framing Review: Key Findings

The seven studies reviewed primarily examine mass media coverage and campaign communications, with limited attention to parliamentary or other institutional discourse.

Methodologically, this literature is dominated by manual content analysis and small-N qualitative designs. Deductive-quantitative approaches similarly depend on labor-intensive human coding procedures.

Substantively, the review of the existing literature reveals strong empirical convergence on the dominant rhetorical structures in the Brexit discourse. The analyzed studies consistently identify economic consequences, sovereignty/control, and immigration-security concerns as the three most prominent focal points. The research highlights a distinct asymmetry in campaign strategies: While "Remain" rhetoric was confined mainly to narrower frames of economic risk and necessary trade-offs (Hellman 2016; Van Horne 2018), "Leave" discourse successfully deployed a more diversified repertoire. This included intertwining cultural anxiety with security threats (Lundblad 2017) and reframing economic arguments through the lens of lost sovereignty and democratic deficits (Khabaz 2018; Sørensen 2008). Even in the post-Brexit transition, De Luca (2025) observes that these patterns persist, evolving into victim-aggressor relationship

frames that continue to utilize sovereignty and identity as central anchors. A comprehensive overview of these findings is provided in Appendix A.

2.1.3 Synthesis Limitations

The review of framing literature reveals that Brexit discourse was organized around several recurring thematic dimensions: sovereignty and democratic control, economic consequences and material impacts, immigration framed through multiple interpretive lenses (sovereignty, economics, security, identity), democratic accountability and institutional legitimacy, security considerations, and national identity. These patterns appeared consistently across campaign communications, newspaper coverage, immigration debates, and public discussion, providing empirical foundations for understanding how Brexit was discursively constructed. (De Luca 2025; Hellman 2016; Khabaz 2018; Lundblad 2017; Semetko and Valkenburg 2000; Sørensen 2008; Van Horne 2018).

2.2 Literature Synthesis and Research Gap

The literature review reveals a critical divergence between theoretical aspirations and methodological capacities in Brexit research. Existing Brexit framing research relies predominantly on qualitative methods applied to narrow temporal windows concentrated around the 2016 referendum campaign, leaving the decade-long parliamentary debate substantially understudied. Furthermore, while recent advances in NLP demonstrate the potential of LLMs to capture nuanced semantic structures, these tools have not yet been systematically applied to the longitudinal complexity of Brexit parliamentary discourse.

Consequently, a significant gap exists at the intersection of political communication and computational linguistics: no study has yet examined how rhetorical frames evolved within the UK Parliament across the entirety of the Brexit process. The current understanding is heavily skewed towards media narratives and short-term campaigns, leaving the institutional mechanisms through which Brexit was debated, legislated, and implemented over a decade understudied.

This thesis addresses this gap by creating the first comprehensive, longitudinal mapping of Brexit framing in the House of Commons. By leveraging the capabilities of modern LLMs, this study moves beyond the limitations of manual qualitative coding and traditional keyword counting. Specifically, it analyses 62,847 Brexit-related parliamentary speech chunks spanning 2012 to 2022.

3 Research Context and Data

To address the research gap identified in the preceding chapter, this chapter establishes the empirical and contextual foundations of the study. It details the systematic procedures used to acquire, filter, and annotate the dataset to create a robust corpus for model training. The section begins by outlining the political and historical context of the UK parliamentary system and the Brexit timeline, which is essential for interpreting the discourse and justifying the data scope. It then describes the data pipeline, including the acquisition of parliamentary debates, the multi-stage filtering architecture used to identify Brexit-relevant speech, and the segmentation of text into analyzable units. Finally, the chapter details the construction of the annotated corpus, explaining the human coding process and data augmentation strategies used to establish ground truth for the computational analysis.

3.1 Overview of the UK Political System

The UK does not have a single written constitution in the manner of many continental European states; instead, its constitutional order is based on a combination of statutes, judicial decisions (common law), conventions, and traditions. The monarch remains as a ceremonial head of state, with most executive powers effectively exercised by the Prime Minister and the Cabinet. "Parliamentary sovereignty" is a foundational principle: Parliament (Commons and Lords) is the supreme legal authority, able to create or repeal any law, and no court can overrule its legislation (UK Parliament 2022a).

The UK operates under a modified separation of powers system where the legislative, executive, and judicial branches maintain constitutional independence while allowing some institutional overlap (*Figure 1*). The executive branch, comprising the Prime Minister and Cabinet, is responsible for formulating and implementing legislation, establishing the governmental agenda, and maintaining accountability to the House of Commons. Executive

powers include the ability to create new laws through parliament and to make detailed rule-making under existing laws, alongside traditional prerogative powers. Meanwhile, the UK Supreme Court maintains judicial oversight by ensuring executive actions comply with existing law, though it lacks the authority to invalidate Parliamentary legislation. Notably, the executive and legislature are interconnected through arrangements such as Cabinet Ministers serving as MPs. The exercise of governmental power is significantly shaped by established constitutional conventions (UK Government 2025; UK Parliament 2022b).

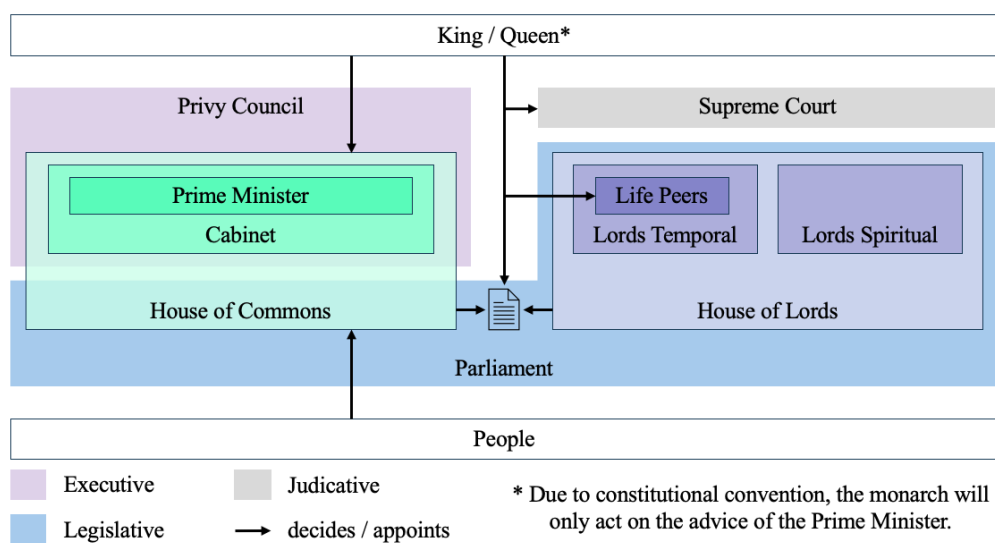


Figure 1: The UK Political System: Structure and Institutional Relationships. Adapted from (Wikipedia Commons 2019a)

The House of Commons

The House of Commons serves as the primary, directly elected chamber of the UK Parliament, with MPs representing individual constituencies through the first-past-the-post electoral system, which favors larger parties by awarding parliamentary seats solely to constituency winners. This constituency-based winner-takes-all mechanism produces a de facto two-party system, as smaller parties must secure pluralities in individual constituencies to gain representation, rendering them at a disadvantage compared to proportional systems, where parliamentary seats are allocated according to parties' overall vote shares. General elections must occur at least every five years. However, they can be called earlier under certain

circumstances, such as when the government loses a vote of no confidence or through provisions of electoral legislation (UK Parliament 2022b).

The Commons fulfills three core functions: legislation, particularly regarding financial matters like taxation and public expenditure as well as government bills; scrutiny and accountability of the executive through various mechanisms including Prime Minister's Questions, Ministerial Questions, Urgent Questions, written and oral questions, and Select Committees; and representation, whereby MPs advocate for both local constituency concerns and broader national issues through parliamentary debates (UK Parliament 2022b).

Parliamentary proceedings are overseen by the "Speaker" or "Deputy Speakers", who maintain order and regulate speaking opportunities during various types of debates, including government bills, opposition motions, statements, and Question Times, all conducted according to established rules of behavior and courtesy. When formal votes, known as divisions, are required, they take place in the main Chamber and carry binding force, with key votes having the potential to determine both government survival and the passage of legislation (UK Parliament 2022a; 2022b).

Westminster Hall

Westminster Hall provides a secondary venue for debate. MPs can raise issues of public concern for consideration, often outside the high-stakes legislative battles in the main Chamber. Motions are formulated in neutral terms, amendments and votes are not permitted; however, they serve to highlight issues and prompt government response (UK Parliament 2022b).

The House of Lords

The House of Lords is the second chamber in the UK parliament. Members of the House of Lords comprise Life Peers who are appointed, in recognition of their knowledge or experience,

rather than elected and accompanied by a limited number of hereditary Peers, and Bishops known as Lords Spiritual (UK Parliament 2022a; 2022b).

The chamber serves three primary functions in the legislative process. First, it reviews legislation passed by the Commons and suggests amendments during detailed scrutiny. Second, it delays and revises legislation, particularly non-financial bills, which forces further parliamentary consideration, though the Commons retains the ability to override such delays in many circumstances. Third, it provides specialized expertise through members who bring knowledge from fields such as law, academia, and business to enhance legislative review and debate (UK Parliament 2022a).

The debate culture and procedural style in the Lords differ markedly from those in the Commons, featuring a more deliberative, less adversarial approach. MPs are permitted longer speeches and discussions focusing on refining policy details rather than political showmanship or obstruction. This distinction largely stems from the fact that Lords are typically appointed for life and do not face re-election pressures, whereas many MPs do not belong to a political party (UK Parliament 2022b).

Given these institutional differences, this thesis focuses exclusively on speeches in the House of Commons. The Commons is the primary arena of electoral accountability and legislative authority within the UK Parliament. Moreover, it offers the most suitable analytical focus: its confrontational debate culture, shaped by strong party discipline and electoral incentives, tends to produce more explicit party positioning than the more deliberative House of Lords. These features create particularly favorable conditions for identifying strategic frame deployment. Accordingly, all subsequent analyses are confined to this Commons-specific scope. Throughout this thesis, the terms "House of Commons" and "Parliament" are used interchangeably to refer to the lower chamber.

3.1.1 Political Parties in the House of Commons

The Labour Party, a center-left political party founded in 1900 from the trade union and socialist movements, rose to prominence in the 1920s and has since produced seven prime ministers. Under Clement Attlee, Labour's landmark post-war government established the welfare state and the National Health Service (NHS). Following shifts between left-wing and centrist orientations, Tony Blair's "New Labour" era (1997-2010) marked a major modernization of the party. The UK's political landscape underwent a significant shift in 2024, when the Labour Party secured victory in the general elections for the first time since 2005, winning 33.7% of votes. Due to the UK's first-past-the-post electoral system, this translated into 411 of 650 seats in the House of Commons. Under the current leader, Keir Starmer, who became Prime Minister after the 2024 election, Labour has moved toward the political center, achieving a decisive return to power after 14 years of Conservative rule (Labour Party 2025; Cracknell and Baker 2024).

The Conservative Party, which governed from 2010 to 2024, secured 23.7% of votes and 121 seats in 2024, becoming the largest opposition party. Founded in 1834, the Conservatives position themselves on the center-right to right-wing of the political spectrum and have produced 20 prime ministers. The party has embraced free-market economic policies since the 1980s, maintains strong stances on national defense, and includes factions such as one-nation conservatives and Thatcherites (Cracknell and Baker 2024).

Alongside these two dominant parties, eleven other political parties and several independent MPs hold seats in the House of Commons. The Liberal Democrats, a centrist party founded in 1988, secured 72 seats in 2024, making them the third-largest party. Led by Ed Davey, they promote liberal, pro-European policies, including civil rights and electoral reform. The Scottish National Party (SNP), a social democratic, pro-independence party founded in 1934, won nine seats in 2024. Despite losing ground under leader John Swinney, the SNP remains the largest

party in the Scottish Parliament and the primary advocate for Scottish independence and rejoining the EU (Liberal Democrat History Group 2025; Cracknell and Baker 2024).

The distribution of votes and parliamentary seats across general elections from 2010 to 2019 is visualized in *Figure 2*.

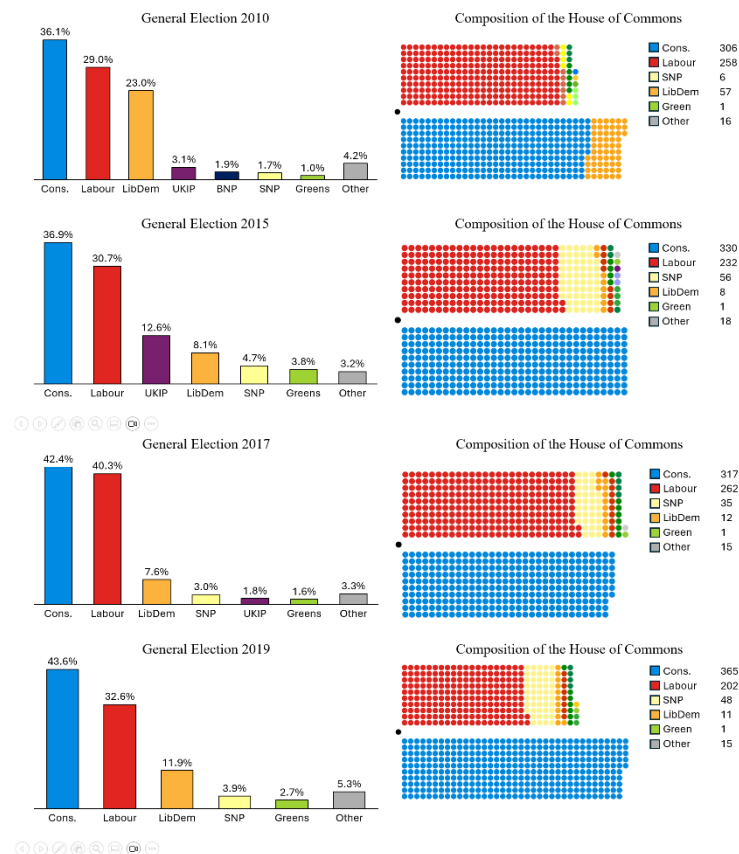


Figure 2: Election Results and the Composition of the House of Commons from 2010 to 2019. Adapted from (Wikipedia Commons 2019b)

Political Parties in the Brexit-Discourse

The parliamentary debates surrounding Brexit were distinctly characterized by a prioritization of personal convictions over party loyalty, with argumentation frequently transcending traditional partisan lines. During the discussions about Britain's Exit from the EU, the majority of established parties aligned with the Remain position. Labour officially supported remaining in the EU, though the leadership under Jeremy Corbyn faced criticism for perceived ambivalence, contributing to internal challenges following the referendum outcome (Hayton 2022). The Liberal Democrats maintained their longstanding pro-European stance. In Scotland,

the SNP campaigned vigorously for Remain, a position reinforced by Scotland's decisive 62% vote in favor of remaining. This pronounced regional divergence enabled the SNP to frame the outcome as undermining Scotland's constitutional interests and to intensify calls for independence.

The Leave campaign was driven primarily by Eurosceptic parties that successfully elevated withdrawal to the center of national debate. The UK Independence Party (UKIP), led by Nigel Farage, proved most instrumental in advocating for restored sovereignty and immigration control. The Democratic Unionist Party (DUP) also endorsed Leave on unionist principles and sovereignty grounds, a position that would subsequently inform its opposition to the Northern Ireland Protocol.

The Conservative Party officially remained neutral during the campaign, a stance necessitated by longstanding internal conflict between Eurosceptic and pro-European factions. While Prime Minister David Cameron actively campaigned for Remain, prominent Conservatives, including Boris Johnson and Michael Gove, spearheaded the Vote Leave campaign. The referendum result triggered Cameron's immediate resignation and precipitated an extended leadership crisis within the party (Hope 2015).

3.1.2 Historical Timeline of Brexit

Reviewing the timeline of Brexit is crucial for situating the analysis of framing within its broader historical and political context. As one of the most transformative and consequential political events in modern British history, Brexit offers an ideal case study for examining how parliamentary discourse reflects and reinforces framing. The period around the 2016 referendum and the subsequent negotiations was marked by intense political conflict, shifting party strategies, and moments of both cross-party convergence and fragmentation. This unique setting allows for the study of framing beyond a left-right ideological divide, highlighting how

narratives of sovereignty, economics, and immigration competed for dominance in parliamentary debates (Lundblad 2017). The Brexit timeline also offers clear temporal anchors, such as the referendum, the triggering of Article 50, repeated withdrawal agreement votes, and the eventual departure in January 2020, that enable systematic analysis of how framing strategies evolved around critical junctures. Focusing on this timeframe is therefore analytically useful as it provides both the intensity of discourse and the empirical richness necessary to study political framing in depth. In doing so, this research not only sheds light on the Brexit debates themselves but also contributes to broader discussions on how disruptive political events shape discourse in parliamentary democracies.

The Roots of Euroscepticism in the UK

The origins of Brexit lie in the UK's long and ambivalent relationship with European integration. Since joining the European Economic Community in 1973, the UK has taken a pragmatic but cautious approach, often resisting deeper political union (Geddes 2013). A key turning point for Euroscepticism in the UK was the Maastricht Treaty negotiations in 1992, which created the EU and encouraged deeper European integration. Within the Conservative Party, these changes triggered major divisions. Although Prime Minister John Major secured important exemptions for the UK, many party members saw the Treaty as a threat to national sovereignty. The resulting internal conflict within the party not only revealed its deep disagreements but also helped organized Eurosceptic movements gain more visibility and influence in British politics and in party competition (Usherwood and Startin 2013).

Cameron's Announcement and the Referendum (2013-2016)

In January 2013, Prime Minister David Cameron announced his intention to hold a referendum on the UK's membership in the EU, a decision shaped by internal and external factors. Within the Conservative Party, long-standing differences over the EU intensified, and the rise of UKIP added to the pressure by attracting voters dissatisfied with the pace and depth of European

integration. With the referendum, Cameron sought to settle internal party disputes and undermine UKIP's growing popularity, while also trying to renegotiate the UK's relationship with the EU in the hope that reforms would convince the public to support continued membership (Clarke 2017; Hobolt 2016). The period from 2013 to the referendum in 2016 was thus characterized by political debate and realignment, with parties and cross-party groups forming both Leave and Remain camps, reflecting enduring disagreements about national sovereignty, immigration, and economic priorities.

The government passed the Referendum Act in 2015, and the vote took place on June 23, 2016. The referendum result, with 51.9% voting to leave and 48.1% voting to remain, triggered a political and constitutional shock (Hobolt 2016).

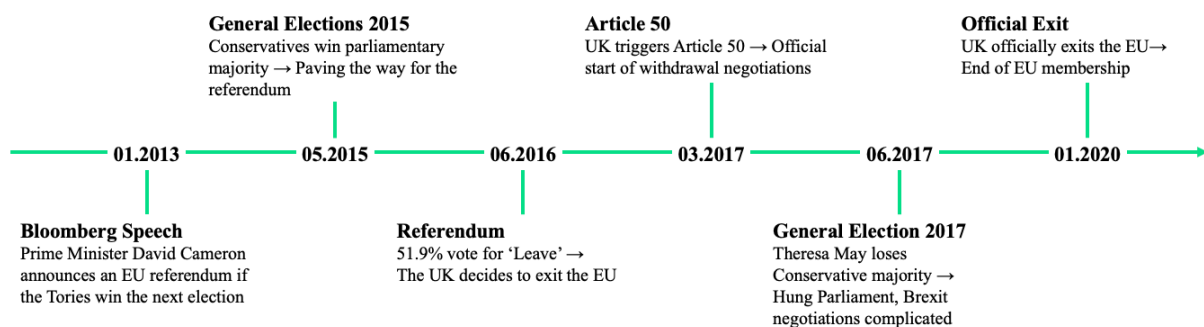


Figure 3: Summary of Key Brexit Milestones: From Referendum Pledge to EU Exit

Withdrawal Negotiations and Brexit Transition (2016-2021)

Cameron, who campaigned to remain in the EU, resigned shortly after the referendum, acknowledging the deep political division it had driven. Theresa May took over as Prime Minister and officially initiated the UK's withdrawal process in March 2017 by triggering Article 50 of the Treaty on EU, which formally started the UK's withdrawal from the EU. The continued within-party division after the referendum shifted from debates over EU membership itself to negotiations over the terms and mechanisms of the UK's withdrawal (Russell 2021).

Theresa May's government sought a compromise between maintaining economic ties with the EU and restoring national sovereignty. This led to the November 2018 withdrawal agreement,

which was rejected by Parliament several times in early 2019. The repeated defeats demonstrated a breakdown of traditional government-opposition dynamics, with backbench rebellions and cross-party alliances becoming increasingly common (Russell 2021).

Boris Johnson succeeded Theresa May as Prime Minister in July 2019. He renegotiated the withdrawal agreement, introducing changes including the Northern Ireland Protocol. Following the December 2019 general election, in which the Conservative Party won a large majority, Johnson secured parliamentary approval of the revised agreement.

The UK formally left the EU on 31 January 2020 and entered a transition period, which ended with the signing of the Trade and Cooperation Agreement in December 2020. During this time, parliamentary debates and political discussions shifted towards the technical implementation of Brexit, such as trade policy and the functioning of the Northern Ireland Protocol (Hobolt et al. 2021).

Individual Contribution – Julian Dieter Beese

3.2 Data Collection and Preprocessing

The foundation of the Brexit discourse analysis rests on a comprehensive dataset of UK parliamentary debates, systematically collected and processed to enable rigorous computational analysis. The data collection pipeline addresses the challenge of transforming unstructured parliamentary proceedings into structured, analyzable formats while preserving the rich contextual information essential for understanding Brexit-related discourse. The preprocessing methodology ensures data quality through multiple validation steps, from initial Extensible Markup Language (XML) parsing to final database storage, creating a robust dataset suitable for both quantitative and qualitative analysis. This section details the selection of the temporal scope, the data acquisition procedures, and the multi-stage preprocessing pipeline that

transforms raw parliamentary records into a research-ready corpus optimized for ML classification and discourse analysis.

3.2.1 Temporal Scope

The selection of the 2012-2022 temporal window for the analysis is strategically designed to capture the complete lifecycle of Brexit discourse in parliamentary debates, from its emergence as a political possibility through its eventual implementation. This eleven-year period begins well before David Cameron's 2013 Bloomberg speech promising an EU referendum, allowing for the establishment of a baseline for EU-related parliamentary discourse and for observing how Brexit discussions evolved from marginal political rhetoric to mainstream debate. The timeframe encompasses critical Brexit milestones, including the 2016 referendum campaign, the Article 50 notification in 2017, the prolonged withdrawal negotiations, multiple meaningful votes, the eventual withdrawal in January 2020, and the subsequent transition period ending in December 2020, with 2021 and 2022 data capturing initial post-Brexit parliamentary reflections (Cameron 2013). This comprehensive temporal coverage enables analysis of how parliamentary language, argumentation, and framing patterns, and thematic priorities shifted across distinct Brexit phases, providing insights into the evolution of political discourse during one of the UK's most significant constitutional changes.

3.2.2 Data Collection

The primary debate data is sourced from theyworkforyou.com, a public platform that provides official UK Parliament proceedings in structured XML format, covering the period from 2012 to 2022, to capture the complete Brexit discourse timeline. Data acquisition was automated using a custom Python web scraping script that systematically retrieved XML files from the platform's public archive, ensuring comprehensive coverage of the target time period. The XML format, while ensuring data integrity and preserving the hierarchical structure of parliamentary

proceedings, necessitates a comprehensive parsing pipeline to transform the raw markup into analyzable structured data. This transformation process involves extracting metadata on debates, speakers, speech content, and temporal markers, while preserving the relationships between sessions, debates, and individual contributions.

XML Parsing and Data Structuring

The parsing infrastructure employs individual programmed XML parsers to systematically extract and structure parliamentary data from downloaded XML files. During parsing, the system performs essential text normalization, including XML entity resolution, whitespace standardization, and character encoding corrections to ensure data consistency. The parser automatically calculates linguistic metrics, such as word counts and speaker statistics, while preserving critical metadata, including unique person IDs, resulting in a normalized relational data structure ready for storage and analysis.

Metadata Enrichment

Additionally, a supplementary dataset from theyworkforyou.com is used to obtain further metadata on elected MPs, including their party affiliations, and maps this information to the respective MPs (TheyWorkForYou 2025). An additional dataset from mySociety containing all UK constituencies as of 2025, including each constituency's nation and region, is also incorporated and linked to the respective MPs (SocietyWorks Ltd.). Finally, a dataset from the University of Leicester documenting MPs' positions on the UK's 2016 referendum on EU membership is integrated. This dataset encompasses the stated positions of all Labour and Conservative MPs elected to the 2015-17 Parliament, sourced from their websites, media statements, and Twitter communications, including details of each position's provenance. The data also includes each MP's year of birth, year of first election, and constituency. This information is mapped to the respective MPs to enable analysis of the potential influence of referendum positioning on parliamentary discourse (Cygan et al.). Any remaining gaps in the

speaker dataset, such as missing birth years or years of entry into Parliament, were manually resolved through additional research.

Database Architecture

The processed data is stored in DuckDB, a high-performance relational database management system optimized for complex analytical queries on large datasets (Raasveldt and Mühleisen 2019). The database schema implements a normalized structure with three core tables (*debates*, *speeches*, *topics*) linked through foreign key relationships to maintain data integrity. This architecture enables efficient querying while supporting seamless integration with modern data science tools through Pandas DataFrames and PyArrow for Parquet export functionality (Zeng et al. 2023).

Dataset Characteristics

The complete parliamentary dataset extracted from the XML files comprises 1,613 parliamentary sessions spanning 2012 to 2022, totaling 16,657 individual debates with an average of 10 debates per session, including 720,423 individual speeches from 1,151 unique speakers, stored in a DuckDB database (*Table 1*).

Data Category	Count	Details
Parliamentary Sessions	1,613	Daily sessions from 2012-2022
Debates	16,657	Average 10 debates per session
Individual Speeches	720,423	Average 40 speeches per debate
Unique Speakers	1,151	MPs, and other officials

Table 1: Complete Parliamentary Dataset Statistics (2012-2022)

Data Filtering Approach

The classification of Brexit-related parliamentary speeches presents a significant methodological challenge, balancing computational efficiency with classification accuracy. This study addresses this challenge through a multi-stage filtering architecture that progressively reduces the corpus from the complete parliamentary dataset to a focused collection of Brexit-relevant speeches. The approach is motivated by two key considerations:

first, the substantial volume of parliamentary data requiring classification (over 700,000 individual speeches), and second, the cost implications of applying state-of-the-art LLMs to every speech in the dataset.

The filtering process operates in three sequential stages, each designed to remove non-relevant content while maintaining high classification accuracy. The first stage implements a length-based filter that excludes speeches containing fewer than 25 words. This threshold removes procedural interventions, brief acknowledgments, and administrative statements that lack substantive policy content, thereby reducing computational overhead in subsequent classification stages without risking the loss of meaningful Brexit discourse.

The second stage employs rule-based keyword matching using a curated taxonomy of 48 Brexit-specific terms organized into distinct semantic categories (see *Appendix B* for the complete keyword list). The keyword set encompasses direct Brexit terminology ("brexit," "eu exit," "article 50," "withdrawal agreement"), EU-institutional references ("european court of justice," "european commission," "european parliament"), negotiation-specific terms ("northern ireland protocol," "irish border," "backstop"), and economic concepts ("single market," "customs union," "trade barriers"). The classification system differentiates between direct and indirect Brexit indicators using a confidence scoring mechanism. This score aggregates weighted keyword matches, with direct keywords receiving a higher weight than indirect ones, and is capped at 1.0 according to the formula:

$$confidence = \min(direct\ score + indirect\ score, 1.0)$$

Speeches are retained for subsequent LLM analysis if they contain at least one direct Brexit keyword OR three indirect keywords (confidence score > 0.25), establishing a preliminary filter that balances sensitivity and specificity in identifying potentially relevant content.

The third stage constitutes the final filtering step, using comprehensive LLM-based classification to reduce false positives and ensure dataset quality for subsequent frame analysis. As implemented in the classification pipeline, each speech that passed the keyword threshold undergoes individual assessment using OpenAI's GPT models (gpt-4o-mini and gpt-3.5-turbo in round-robin distribution for cost optimization). The LLM receives the speech text alongside metadata, including the speaker's name, parliamentary office, and timestamp. It performs classification based on explicit criteria encompassing direct Brexit mentions, EU membership discussions, withdrawal negotiations, trade agreement discussions, and sovereignty discourse related to the Brexit context. The model returns a structured response containing a binary classification decision (YES/NO), a confidence score (0.0-1.0), identified key Brexit indicators found in the text, and a brief explanation. This granular metadata capture enables transparency in the classification process and facilitates potential recalibration of classification thresholds in subsequent analysis stages. The system implements robust safeguards against duplicate processing through checkpoint-based progress tracking and database-level verification, ensuring each speech is classified exactly once. Rate-limiting mechanisms respect Application Programming Interface (API) constraints while maintaining processing throughput of approximately 50 concurrent requests.

The multi-stage filtering methodology thus achieves an optimal balance between classification accuracy, computational cost, and processing efficiency. The progressive reduction strategy from length-based filtering through keyword matching to final LLM verification ensures that expensive computational resources are allocated intelligently, with human-level language understanding applied only to speeches that demonstrate preliminary Brexit relevance through simpler heuristic methods.

The application of the hybrid classification methodology to the complete parliamentary dataset yields the filtering statistics presented in *Figure 4*, which illustrates both the absolute counts of

Brexit-related content at various granularity levels and the proportional reduction relative to the unfiltered corpus.

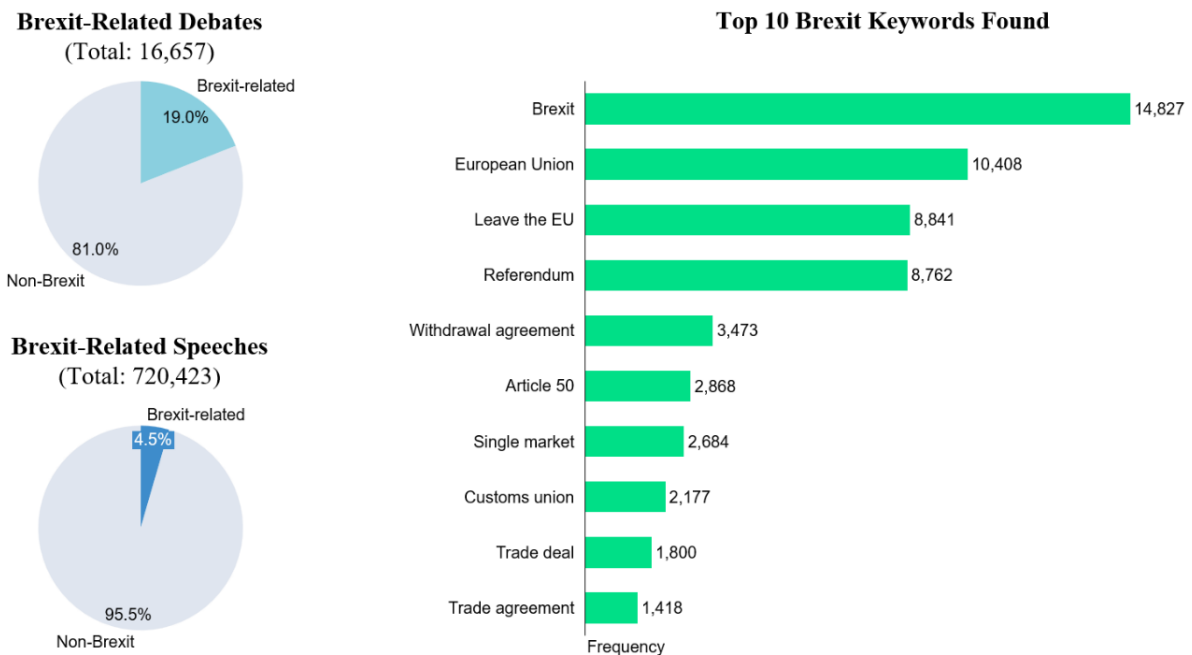


Figure 4: Filtering of Brexit-Related Debates and Speeches and the Top Brexit Keywords

Speech Segmentation and Chunking

To standardize the length of parliamentary speeches and ensure computational tractability, a strategic chunking approach is implemented (Nair et al. 2023). The segmentation methodology balances two competing objectives: maintaining sufficient contextual information for accurate frame detection while creating manageable units that ideally contain a single rhetorical frame. This chunk size selection addresses a documented challenge in framing research: "individual sentences were potentially too short to capture individual frames, and the whole document was difficult to code due to the length and likely containing multiple frames" (Jumle et al. 2024, 7). Medium-sized chunks of up to 1,300 characters represent an optimal trade-off for this purpose. The chunking process proceeds as follows: MPs' speeches are initially segmented using existing paragraph markers in the transcribed texts. When paragraphs exceed the 1,300-character threshold, a secondary segmentation rule is applied, splitting the text at sentence boundaries to ensure no segment surpasses 800 characters. This dual-threshold approach prevents problematic

edge cases, in which a paragraph marginally exceeding 1,300 characters would otherwise result in a disproportionately long segment paired with a single-sentence fragment. Such an outcome would compromise both the balance of the dataset and the contextual integrity required for frame classification.

Applying this segmentation to the filtered speeches yielded in a final corpus of 62,847 chunks, ready for analysis.

Group Part

3.2.3 Annotated Corpus and Data Augmentation for Supervised Learning

For fine-tuning Large Language Models to detect framing strategies in Brexit discourse, a manually annotated corpus was created through a systematic three-stage annotation process following Reiter (2020), whereby 2,000 randomly selected text chunks were classified into six frame categories (five generic frames by Neuman et al. 1992 plus "None"), with disputed cases resolved through group discussion to maximize inter-annotator reliability. To address the limited dataset size and pronounced class imbalance, data augmentation techniques were employed: back-translation via German and French, as well as contextual word substitution using RoBERTa embeddings, generated synthetic samples for underrepresented classes (Human Impact and Moral Value) until balanced distribution was achieved. Through rigorous quality filtering (length constraints, vocabulary overlap >60%, semantic similarity >0.70) and strategic allocation of augmented samples exclusively to the training set to prevent data leakage, the corpus expanded from 2,000 to 2,742 labeled chunks, which were subsequently split 70/15/15 into training, validation, and test sets, ensuring that model evaluation occurs on authentic human-verified data while training benefits from enhanced linguistic diversity and balanced class representation.

4 Predictive Modelling of Rhetorical Framing Using LLMs

4.1 Model Training

In order to analyze the dataset, three distinct classification paradigms were compared to determine the optimal approach for automated frame detection in parliamentary Brexit discourse. The selection encompasses BERT which builds on its previous success in framing analysis (Jumle et al. 2024), ChatGPT, the most prominent public benchmark, and Mistral, an open-source European alternative. The evaluation covers prompt engineering of LLMs, parameter-efficient fine-tuning, and domain-adapted encoder models. Each approach addresses different computational constraints, aiming to balance classification accuracy with the scalability required to process the entire corpus.

4.2 Model Performance Evaluation

To evaluate and compare model performance, the Macro F1-score is used as the primary metric. The F1-score is the harmonic mean of Recall (the proportion of actual positive instances correctly identified) and Precision (the proportion of correct positive), combining both into a single metric. High values are achieved only when Precision and Recall are both high, making the metric particularly suitable when both false positives and false negatives must be minimized. Consequently, the F1-score has established itself as a central evaluation metric in NLP research (Opitz 2022).

For multi-class classification tasks such as frame detection, the Macro F1-score is computed by averaging the F1-score independently for each class. This approach ensures that each class contributes equally, regardless of its frequency in the dataset, allowing minority frames to influence the evaluation to the same degree as more prevalent frames (Hinojosa Lee et al. 2024). A model is substantially penalized if it performs poorly on a minority class, even when it accurately classifies the majority class. This characteristic proves essential in this study, as the

frame categories exhibit an unbalanced distribution in the corpus (with some frames appearing in only about 13-16% of cases).

The Macro F1-score represents the scientific standard for evaluating imbalanced multi-class classification tasks, as it provides a fair representation of model performance across all classes without bias toward dominant categories. This metric also serves as the default evaluation standard in established libraries such as scikit-learn, reinforcing its widespread adoption in the research community (Opitz 2022).

The comprehensive evaluation across all modelling approaches (Table 5) reveals substantial performance differences. The GPT-4.1-mini CoT configuration achieved the highest Macro F1-score at 0.7723, followed by the RoBERTa-DeBERTa ensemble at 0.6952, and the standard RoBERTa DAPT with dynamic class weighting at 0.6881. While fine-tuned encoder models demonstrated consistent performance through domain adaptation and ensemble strategies, the GPT-4.1-mini model with structured reasoning prompts substantially outperformed all BERT-based architectures by 0.0715 points, achieving an Accuracy of 0.7667 compared to the ensemble's 0.6925. The GPT model's superior performance on challenging classes, particularly Powerlessness and Conflict frames, where fine-tuned models consistently struggled, demonstrates the advantages of explicit reasoning chains and rich semantic representations for capturing subtle rhetorical structures in parliamentary discourse. Given this performance superiority, computational efficiency through API-based inference, and consistent classification quality across all frame categories, the GPT-4.1-mini CoT configuration was selected as the primary model for predicting frame labels across the entire unannotated corpus of Brexit parliamentary speeches. This selection enables scalable, high-quality frame detection while maintaining the analytical consistency required for subsequent longitudinal and speaker-level frame usage analysis.

Model	Overall Accuracy	Macro F1-Score
GPT-4.1-mini Zero-Shot	0.4467	0.3921
GPT-4.1-mini CRAFT	0.6725	0.6834
GPT-4.1-mini CoT	0.7667	0.7723
Mistral-7B-v0.1	n/a	0.5642
ModernBERT Base (Standard Fine-Tuning)	0.6092	0.6144
RoBERTa Base (Standard Fine-Tuning)	0.6673	0.6630
RoBERTa with DAPT	0.6592	0.6658
RoBERTa DAPT with Dynamic Class Weighting	0.6897	0.6881
RoBERTa DAPT Regularized	0.6839	0.6839
RoBERTa DAPT with Pseudo-Labels	0.6893	0.6886
RoBERTa-DeBERTa Ensemble	0.6925	0.6952

Table 1: Comparison of All Model Evaluation Metrics

5 Empirical Analysis and Findings

Building on the computational methodology and model validation established in *Chapter 4*, this chapter presents the empirical analysis of 62,847 parliamentary speech chunks delivered in the UK House of Commons between 2012 and 2022. All speeches are classified into Neuman et al.'s (1992) generic frame typology using the GPT-4.1-mini model with CoT prompting, serving as the empirical basis for examining the discursive dynamics that structured parliamentary debate throughout the Brexit process. Accordingly, the reported frame distributions capture both substantive variation in parliamentary discourse as well as residual classification error, which may be more pronounced for lower-performing classes (e.g., Powerlessness frame).

Research on political communication conceptualizes framing as a dynamic and structured phenomenon. Frame usage evolves over time (Chong and Druckman 2007) and is strongly shaped by institutional constraints, most notably party affiliation (Slothuus and De Vreese 2010). Existing Brexit scholarship has extensively documented divergent framing strategies in media and campaign communication, particularly between Leave and Remain actors. However, it remains unclear whether comparable patterns emerge in parliamentary debate, where formal procedures and party discipline shape strategic communication.

This chapter explores to what extent established mechanisms of temporal adaptation and partisan signaling are adequate to explain parliamentary framing during the Brexit crisis, or if the unique and existential nature of withdrawal generated a distinct framing logic that partially overrode traditional political alignments. To address the research questions, the analysis adopts a deductive design, progressing from the descriptive context to the explanatory factors.

1. Descriptive Overview (*Section 5.1*): Quantifies the volume and distribution of speech contributions to contextualize the intensity of the debate throughout the observation period.

2. Temporal Analysis (*Section 5.2*): Examines the evolution of frame usage over time (*RQ1*) and analyzes how external shocks and historical milestones altered the discursive prioritization of specific frames.
3. Structural Determinants (*Section 5.3*): Investigates the political drivers of frame selection (*RQ2*) and assesses the extent to which political party affiliation and the speaker's position in the Brexit referendum (Leave vs. Remain) determined rhetorical strategies.
4. Demographic and Geographical Variance (*Sections 5.4 and 5.5*): Explores whether individual speaker characteristics, such as gender and age, as well as regional representation, account for significant deviations in framing practices (*RQ2*).

5.1 Speech Volume and Speaker Participation

Analysis of the temporal distribution of Brexit-related speech chunks in the UK House of Commons between 2012 and 2022 reveals systematic variation corresponding to key political developments in the withdrawal process. The dataset comprises an annual mean of 2,917 speech chunks distributed across 288 debates ($M = 10.1$ speeches per debate). However, annual speech volume exhibits marked heterogeneity: from 386 speeches in 2012, the corpus expanded to a maximum of 8,573 speeches in 2019, then declining to approximately 1,000 speeches annually in 2021 and 2022 (Figure 5). This distribution pattern aligns with documented periods of heightened parliamentary activity during withdrawal negotiations, followed by normalization after the UK's formal departure on January 31, 2020, and the ratification of the Trade and Cooperation Agreement in December 2020 (Usherwood 2021).

5.2 Temporal Analysis of Framing during Brexit

The longitudinal investigation of framing strategies yields three critical insights into how the House of Commons navigated the Brexit crisis, indicating that discourse followed a pattern of punctuated equilibrium rather than linear change.

Two moments stand out as major discursive ruptures: the referendum outcome and the transition into parliamentary deadlock. The referendum transformed Brexit from abstract campaign rhetoric into an immediate policy reality. In response, Economic framing increased sharply as Parliament addressed market volatility, while Human Impact framing intensified as questions concerning citizens' rights and legal status became salient. The collapse of Theresa May's withdrawal agreement led to an even more pronounced reorganization. Conflict framing surged as procedural confrontation and partisan positioning displaced substantive policy deliberation, while economic considerations receded.

Moreover, frames follow distinct temporal logics. Economic framing is highly volatile and responds rapidly to market-relevant events. Human Impact framing follows a delayed trajectory, peaking once the practical consequences of Brexit became visible in everyday life. Conflict framing is episodic, intensifying during periods of acute political confrontation rather than routine negotiation. Moral Value framing remains rare but is selectively activated at moments of democratic legitimacy, such as electoral mandates and the end of the transition period. Powerlessness framing declines over time, reflecting the shift from abstract sovereignty claims toward implementation and institutional action. Together, these dynamics reinforce a pattern of punctuated equilibrium in which crisis episodes, rather than formal milestones, drive shifts in parliamentary framing.

Additionally, discursive intensity is concentrated during periods of institutional crisis, rather than during formal or ceremonial milestones. Expected transitions, such as Brexit Day, elicit little discursive response, whereas uncertainty and legislative impasse prompt sharp increases. These patterns are consistent with existing research. The prominence of Economic and Conflict frames resonates with findings from framing analyses of European political discourse, where attribution of responsibility, conflict, and economic consequences emerge as the most frequently deployed frames in coverage of European integration topics (Semetko and Valkenburg 2000) the strong prevalence of economic risk framing in parliamentary debates, in particular, mirrors Hellman's (2016) finding that economic arguments constituted a central Remain frame during the referendum campaign, suggesting continuity between campaign and parliamentary discourse.

5.3 Impact of Political Affiliation and Referendum Position on Frame Selection

The analysis of frame deployment patterns across the four major UK parties (Conservative, Labour, Liberal Democrats, SNP) reveals that while the Economic frame maintained consistent prominence across the political spectrum (23.4%-26%), parties exhibited statistically significant differences in secondary frame emphasis ($p < 0.001$ for all parties), with the Conservative Party displaying the most distinctive profile (Cramér's $V = 0.21$) characterized by pronounced overrepresentation of Powerlessness framing (23.5%, standardized residual = +11.07) to construct EU membership as constraining British sovereignty, while systematically underrepresenting Human Impact (standardized residual = -21.69). Labour's rhetorical identity emerged through substantial deployment of Human Impact framing (19.1%, standardized residual = +18.44) to reframe Brexit as a socioeconomic crisis affecting workers and communities, whereas the SNP adopted the most confrontational profile with highest Conflict frame usage (26.2%, standardized residual = +13.02) combined with elevated Human Impact

framing to portray Brexit as externally imposed on Scotland, and Liberal Democrats distinguished themselves through overrepresentation of Moral Value framing (8.8%, standardized residual = +5.79) emphasizing ethical arguments about liberal internationalist principles. Temporal analysis indicates that parties developed more stable, characteristic frame profiles following the 2016 referendum, which functioned as a critical juncture, with these rhetorical structures persisting beyond Brexit's formal resolution. However, examining frame deployment by referendum position reveals that individual Brexit stance superseded party affiliation as the primary determinant: Leave-supporting MPs overwhelmingly prioritized Powerlessness framing (28.3% vs 18.1% for Remain) to construct narratives of sovereignty restoration, while Remain-supporting MPs emphasized Economic (26.4% vs 20.2%) and particularly Human Impact frames (14.2% vs 6.6%) to highlight material consequences and constituent welfare, creating a fundamental "reality gap" where opposing camps operated on distinct normative planes—constitutional principle versus material consequences—thereby structurally impeding constructive dialogue and explaining the Brexit debate's intractability, with intra-party divergence across referendum positions (especially within Labour) exceeding variation between parties sharing the same Brexit stance.

Individual Contribution – Julian Dieter Beese

5.4 Impact of Speaker Demographics on Brexit Framing

This section investigates whether demographic characteristics of MPs, specifically gender and age, influence how they frame Brexit in parliamentary discourse to continue to answer *RQ2*. Although the complete corpus comprises 62,847 text chunks, not all of them can be attributed to identifiable MPs. A subset of the chunks originates from speakers such as the "Speaker of the House" and "Deputy Speakers", who preside over parliamentary proceedings and do not contribute to debates in a representative capacity. Because these interventions cannot be linked to individual MPs and lack corresponding demographic metadata, they are excluded from the

analysis. After removing all contributions without speaker-level metadata, the dataset comprises 62,115 attributable text chunks. These speeches can be mapped to identifiable MPs and are therefore enriched with demographic variables, including gender and birth date. As detailed in *Section 3.2.2*, this metadata was compiled through an enrichment process using external datasets and additional manual research. Age is calculated using each MP's date of birth, and tenure is derived from the year in which the MP first entered the House of Commons, allowing for measurement of the length of parliamentary service at the time of each speech. This enriched dataset enables a systematic examination of whether demographic factors correspond to systematic differences in communicative framing, extending the analytical lens beyond party affiliation to assess the role of individual-level characteristics in shaping rhetorical strategies during the Brexit process.

5.4.1 Impact of Gender on Framing Patterns

A substantial body of research suggests that gendered norms and institutional inequalities shape how politicians communicate, influencing not only how often men and women speak but also how they construct political issues (Winfrey and Schnoebelen 2019). Their review shows that political leadership and discussion, particularly in high-stakes, conflict-oriented contexts, are still culturally coded as masculine, which affects both who speaks and how arguments are constructed. The Brexit debate reflects these broader patterns. Across the study period, male MPs consistently accounted for most parliamentary speakers, although female representation increased over time (*Figure 16*). It should be noted, however, that this pattern is influenced by data preprocessing steps, such as the Brexit-related filtering of debates and the chunking method, meaning that the gender distribution in the corpus does not fully reflect the overall composition of MPs.

In the earliest years (2012-2014), women account for roughly 15% of unique speakers. Their participation rises steadily thereafter, reaching between 28% and 32% in the peak years of 2017-

2020. Despite this growth, male MPs remain dominant throughout the period, mirroring long-standing gender imbalances in the House of Commons and reflecting the gradual but incomplete progress toward gender parity in British politics (Shaw 2020).

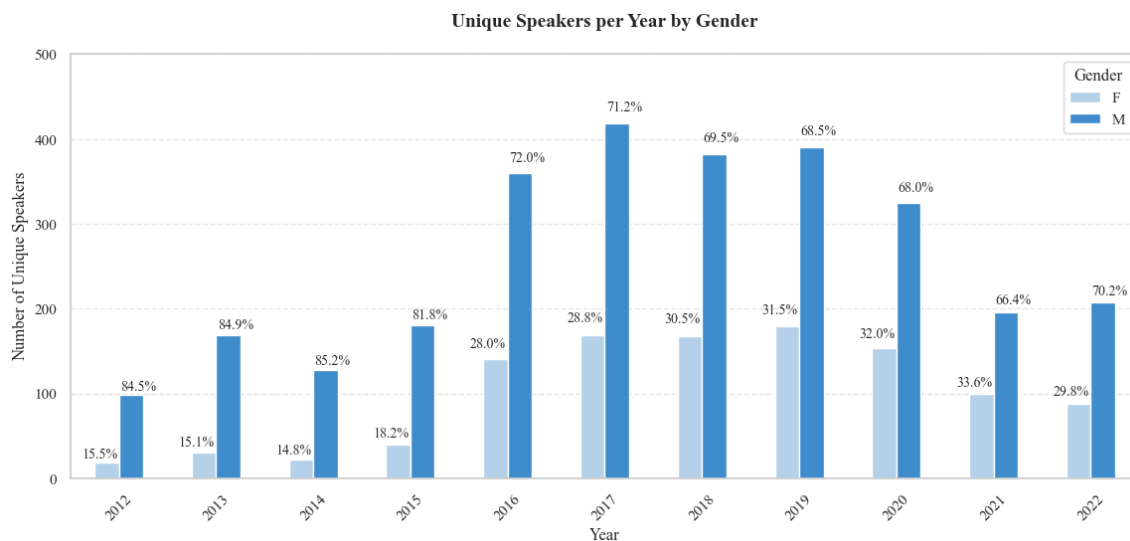


Figure 5: Count and Proportion of Unique Female and Male Speakers over Time

The distribution of frames by gender indicates meaningful differences in rhetorical focus. The proportional comparison in *Figure 17* and an additional chi-square test show that female MPs devote a significantly larger share of their discourse to the Human Impact frame (+21.71) and, to a lesser extent, to the Moral Value frame (+4.27), indicating stronger attention to social consequences and normative considerations. These patterns align with research suggesting that women in legislatures tend to adopt more relational and socially grounded communication styles and communicate less adversarially than men in the House of Commons (Hargrave and Langengen 2021). Male MPs, in contrast, allocate more of their framing activity to Conflict (+6.60) and Powerlessness (+3.49), reflecting a more adversarial and institution-focused rhetorical style that aligns with broader gender communication theory studied by Hargrave and Langengen (2021), which found that men in general communicate more directly and are oriented toward asserting power and status.

The findings suggest that female MPs favor socially grounded and normative frames, whereas men rely more on adversarial and institutional narratives. However, these patterns should not be interpreted as gender deterministic. Framing choices are influenced simultaneously by, among others, party affiliation, ideological positioning, and the strategic dynamics of parliamentary debate. Gender, therefore, represents only one dimension of a broader set of factors that structure how MPs discussed Brexit in the House of Commons.

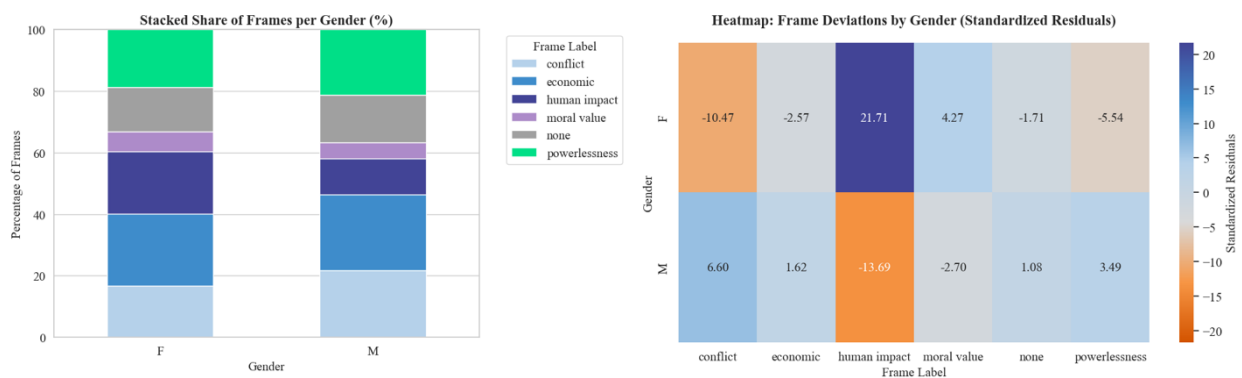


Figure 6: Frame Usage by Gender

5.4.2 Impact of Age on Framing Patterns

Exploratory and statistical analyses reveal differences in how MPs of different ages framed Brexit in parliamentary debates. The dataset shows that MPs speaking in Brexit debates in the House of Commons were, on average, 53 years old, with ages ranging from 23 to 85. The age distribution shown in *Figure 18* is strongly concentrated in mid-to-late career cohorts, with 50-59-year-olds accounting for the largest share of speech chunks (21,381), followed by 60-69-year-olds.

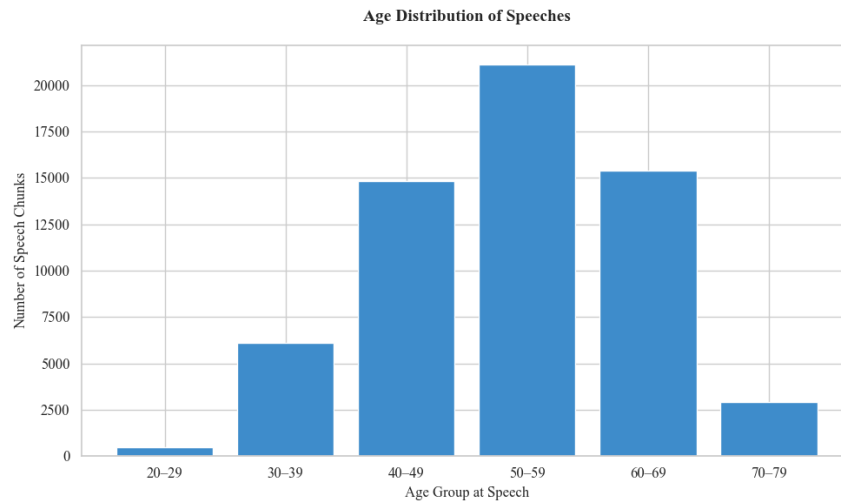


Figure 7: MP's Age Distribution

A chi-square test shows statistically significant differences in framing behavior across age cohorts, and standardized residuals highlight which frames are disproportionately used by age groups (*Figure 19*).

A pronounced pattern emerges in the use of Human Impact frames. MPs aged 30–39 show a strong overuse of this frame (+12.75), while older cohorts underuse it substantially. This indicates that younger MPs more frequently emphasize experiential and citizen-centered narratives, foregrounding the social consequences of Brexit for individuals and communities. This pattern can be interpreted through the socioemotional selectivity theory of (Carstensen 2021), which suggests that individuals with a longer perceived future time horizon, typically younger cohorts, are more strongly motivated by future-oriented goals and long-term outcomes. Applied to the parliamentary context, younger MPs may be more inclined to stress how Brexit will shape citizens' lives over time, particularly given that they and their constituents are likely to experience its effects for a longer period. In contrast, older MPs, whose motivational priorities are less future-oriented, appear to rely more on institutional, procedural, and established political arguments than on experiential framing.

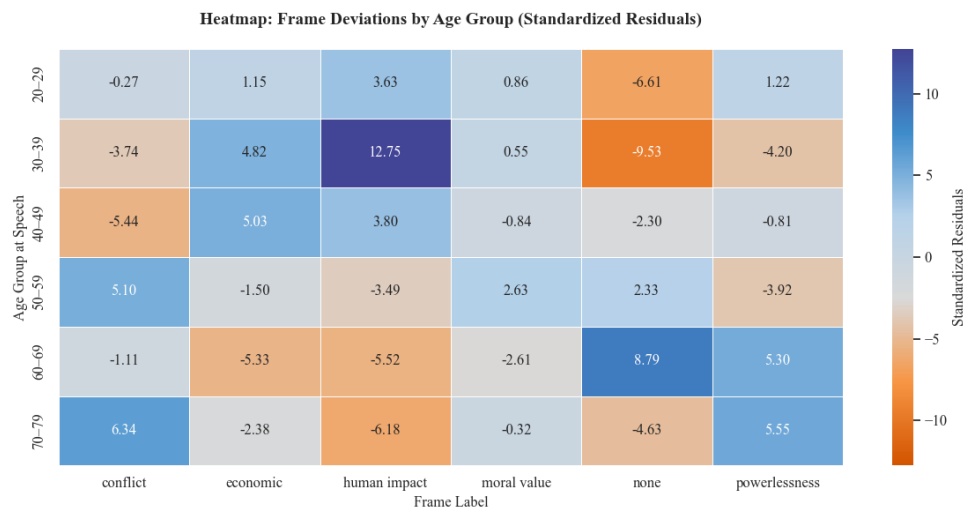


Figure 8: Frame Deviations by Age Group

Conflict framing also shows age-related variation. MPs in the 50-59 group overuse Conflict frames (+5.10), while younger MPs in the 20-49 group underuse them. This may reflect the positional dynamics of mid-career MPs, who are often senior enough to play prominent roles in party confrontation but not yet insulated by long institutional tenure. Older MPs (70-79) again show elevated Conflict framing (+6.34), which may be linked to their longer-standing ideological commitments and deeper engagement in constitutional debates.

Economic framing shows milder deviations. MPs aged 30-39 and 40-49 overuse economic arguments, while older age groups underuse them. One plausible explanation is cohort socialization examined by Wells 2007): many in the 30-49 age bracket entered politics during or after the post-New Labour period, when the UK political mainstream emphasized evidence-based and technocratic economic policymaking, a mode of governance that prioritized expert knowledge, measurable outcomes, and modern economic management. New Labour's evidence-based, technocratic approach embedded economic competence and managerial confidence in political identity and public legitimacy.

Overall, age emerges as one of the structuring factors in Brexit rhetoric. Younger MPs foreground the social and economic consequences, whereas older MPs, who constitute the majority of speakers, place greater emphasis on political confrontation and constitutional and

sovereignty-related arguments. Taken together, these patterns indicate that Brexit discourse was shaped not only by party and Brexit vote, but also by the generational experiences and rhetorical traditions of MPs within Parliament. This finding aligns with established research on descriptive representation, which shows that female and younger legislators often prioritize welfare and social outcomes in their parliamentary communication (Wängnerud 2009).

5.5 Geographical Differences in Brexit Framing

The geographical analysis addresses *RQ2* by examining how Brexit-related framing varies across the UK's four constituent nations: England, Scotland, Wales, and Northern Ireland. These territorial categories mirror the devolved structure of the UK political system and provide essential context for understanding how national political environments shaped parliamentary engagement with Brexit. Nation labels were assigned to each speech chunk by mapping each speaker's constituency to the nation in which it is located. As outlined in *Section 3.2.2*, this mapping procedure forms part of the broader metadata enrichment process that links external constituency information to MPs. This ensures that the geographical attribution of each chunk reflects the institutional and electoral context of the MP delivering the speech, thereby grounding the analysis in the territorial structure of parliamentary representation.

The geocoded sub-corpus comprises 60,907 speech chunks, representing 96.9% of the annotated corpus of 62,847 chunks. As shown in *Table 10*, the distribution of Brexit-related speech across UK nations is highly uneven, where England accounts for most geocoded chunks, reflecting its larger number of parliamentary constituencies. The remaining 1,940 chunks (3.1%) cannot be assigned to a nation due to missing constituency metadata and are excluded from geographical comparisons.

Nation	Chunks	Percentage
England	44,886	73.7%
Scotland	10,596	17.4%
Wales	3,597	5.9%
Northern Ireland	1,828	3.0%

Table 2: Distribution of geocoded speech chunks across UK nations

The distribution of frames across the four nations of the UK in *Figure 20* reveals systematic differences in how Brexit was rhetorically constructed in parliamentary discourse. Across all nations, Economic and Conflict frames are prominent, but their relative importance varies. Welsh and English MPs rely most heavily on Economic framing (29% and 24%), whereas Scottish and Northern Irish MPs use Conflict framing (27% and 24%) more frequently than MPs from other nations. The usage of the Human Impact frame is relatively constant across nations, but lowest in England (13%). Across all nations, Economic and Conflict frames are prominent, but their relative importance varies. Welsh and English MPs rely most heavily on Economic framing (29% and 24%), whereas Scottish and Northern Irish MPs use Conflict framing (27% and 24%) more frequently than MPs from other nations. The usage of the Human Impact frame is relatively constant across nations, but lowest in England (13%).

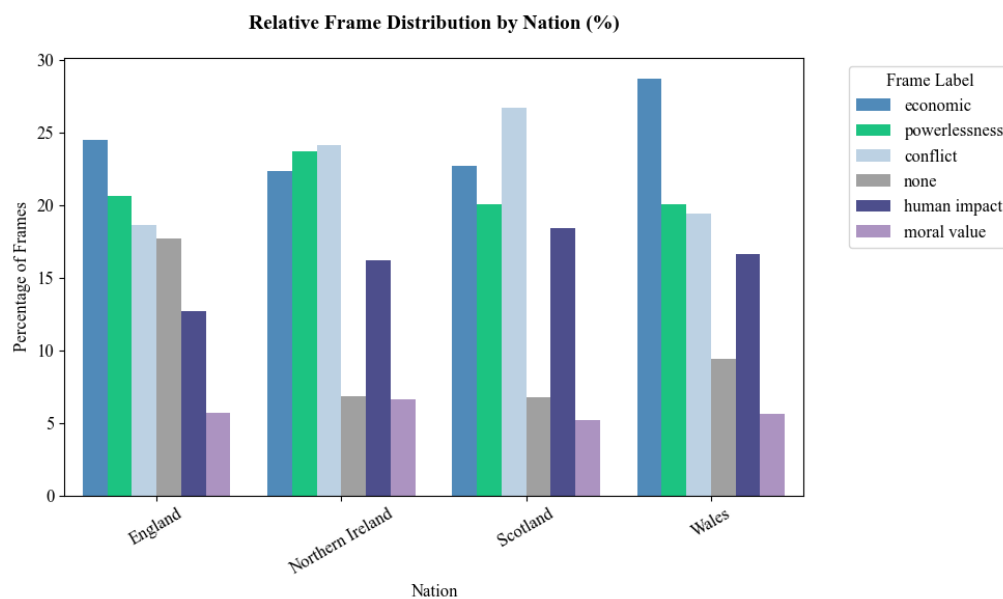


Figure 9: Frame Distribution by Nation

These proportional differences are statistically supported by chi-square tests shown in *Table 11*. Although Cramér's V values remain small, which is typical for high-volume textual datasets, it is confirmed that geographic variation in framing is systematic rather than random.

Nation	Chi ²	P-Value	Cramér's V	Significant
England	273.44	< 0.001	0.07	True
Scotland	331.73	< 0.001	0.08	True
Wales	33.83	< 0.001	0.03	True
Northern Ireland	18.96	< 0.001	0.02	True

Table 3: Nation Comparisons (Chi-Square Test)

Standardized residuals (*Figure 21*) offer deeper insight into which frames drive these differences. Scotland exhibits the most pronounced deviations, as Conflict framing (+9.79) and Human Impact framing (+7.92) are used more than expected. This may imply that Scottish MPs predominantly framed Brexit as a constitutional crisis and social threat, reflecting its Remain-majority electorate and national identity. The overuse of Conflict and Human Impact frames corroborates the Scottish National Party's (SNP) strategic portrayal of Brexit as a "power grab" by Westminster that threatened the devolution settlement and Scottish autonomy (Klint 2020).

England shows the reverse pattern as Economic (+3.92) and Powerlessness (+3.31) frames are overrepresented, while the other frames are underrepresented, reflecting both a Leave-majority electorate and the dominance of governing parties. The prominent use of the Powerlessness frame in England aligns with the "taking back control" narrative, which constructed the UK as constrained by EU structures, thereby justifying Brexit as a necessary restoration of agency (Zappettini 2019).

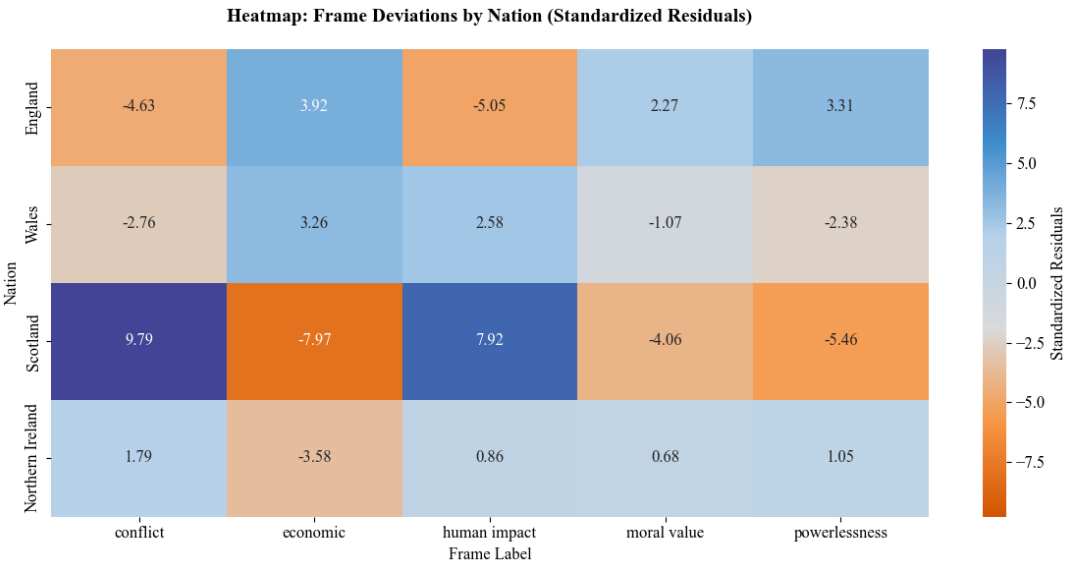


Figure 10: Frame Deviations by Nation

Wales displays a more intermediate profile, with only slight overrepresentation of the Economic (+3.26) and Human Impact (+2.58) frames. These comparatively small deviations suggest that Welsh parliamentary discourse did not adopt the highly polarized rhetorical stances observed in England and Scotland. Instead, this "middle ground" aligns with the specific political dilemma described by Wincott and Lerner (2020): the Welsh Labour government sought to manage a Leave-voting territory while simultaneously opposing a "hard Brexit" to protect the regional economy. This context likely encouraged a pragmatic discourse that acknowledged economic risks without pivoting to the confrontational constitutional rhetoric seen in Scotland. Wales slightly overrepresents the Economic (+3.26) and Human Impact frame (+2.58). These comparatively small deviations indicate that Welsh parliamentary discourse did not adopt the pronounced rhetorical stances observed in England and Scotland. Northern Ireland's residuals are more moderate, and only the Economic frame is modestly underrepresented (-3.58). These patterns reflect Northern Ireland's unique political context, where community-level consequences and constitutional tensions shape rhetorical emphasis. As (McGrattan 2024) argues, Brexit discourse in Northern Ireland is characterized by heightened sensitivity to constitutional balance, governance stability, and community relations, which constrain the

dominance of singular economic or sovereignty-based narratives and encourage a more cautious and multidimensional rhetorical approach.

Finally, Northern Ireland shows moderate residuals overall, though the Economic frame is notably underrepresented (-3.58). This pattern reflects the region's unique political logic, in which the peace process and border stability often take precedence over financial metrics. As McGrattan (2024) and Whitten (2020) argue, the specific circumstances of Northern Ireland meant that technical trade questions were frequently viewed through the lens of the Good Friday Agreement. Consequently, what might be framed as a technical "economic" debate in England (e.g., customs checks) was often articulated as a Conflict or Human Impact issue in Northern Ireland, centered on the legitimacy of borders and the protection of rights (McDonagh 2019).

Overall, these geographic framing patterns suggest that Brexit amplified pre-existing territorial divisions and produced regionally distinct narratives within parliamentary debate. This indicates that parliamentary framing responded not only to party competition, but also to territorially specific constitutional stakes embedded in the UK's devolved political system. These results align with regional media-framing research showing that local newspapers across the UK adopted territorially specific framing logics when covering Brexit (Schotte 2020).

Group Part

6 Discussions and Conclusion

This chapter synthesizes empirical findings on rhetorical framing in UK House of Commons Brexit debates (2012-2022), evaluates the contribution to framing theory, computational frame detection in parliamentary discourse, and identifies directions for future research. The discussion is structured in four parts: (1) it first examines the theoretical and political implications of the observed framing patterns during a period of constitutional transformation; (2) it then assesses the methodological contributions and constraints of the LLM-based approach; (3) it next outlines key limitations; (4) and it concludes with directions for future research.

6.1 Implications

6.1.1 Generic Frames as Normatively Flexible Structures

This research extends Neuman et al.'s (1992) generic frame typology into the domain of constitutional crisis, demonstrating that generic frames maintain analytical utility when institutional foundations are contested. The findings reveal a critical theoretical property: frame structures operate independently of normative direction. Generic frames define argumentative organization, as economic calculation, agency constraint, or personal harm, without predetermining whose interests are prioritized, which actors are constrained, or what remedies follow. This separation of argumentative architecture from ideological content explains how identical frames underpin opposed political projects.

The Powerlessness frame exemplifies this flexibility. Conservative Leave MPs deployed it to construct EU membership as a sovereignty constraint, portraying Brussels as "overruling" British democracy. This created a liberation narrative that diagnosed lost agency and justified

withdrawal. Conversely, the SNP employed structurally identical Powerlessness framing toward opposite ends, depicting Scotland as systematically "ignored" by Westminster, with its 62% Remain vote disregarded. The same generic structure (constraint by dominant external forces) thus legitimized both UK-EU and Scotland-UK withdrawal, differing in causal attribution and villain identification (*Section 5.3*).

This pattern advances framing theory by demonstrating that generic frames function as ideologically neutral architectures acquiring political valence through strategic deployment. Prior research emphasized frame competition and selection mechanisms (Entman 1993; Chong and Druckman 2007), yet this study reveals that identical frames can serve opposed strategic goals simultaneously when speakers attribute causality differently. This suggests frame effectiveness derives not from ideological persuasiveness but from providing familiar structures that accommodate new content.

Frame Selection as Contextually Determined

Beyond demonstrating frame flexibility, the analysis reveals systematic contextual responsiveness in frame selection across institutional conditions, ideological positioning, and speaker identity.

First, temporal analysis indicates that frame hierarchies shift following external shocks rather than remaining static (*Section 5.2*). Economic framing became most prominent immediately after the referendum when market volatility became undeniable. Similarly, Human Impact framing became more salient post-implementation as trade frictions materialized. Conflict framing dominated during the parliamentary deadlock. This temporal responsiveness suggests frames function not only as strategic rhetorical resources but also as adaptive responses to changing political realities.

Second, structural analysis suggests that frame deployment has diverged more substantially across referendum positions than party affiliations (*Section 5.3*). MPs aligned with the Leave campaign tended to emphasize Powerlessness and Conflict frames, while Remain-aligned MPs channeled Economic and Human Impact framings, often transcending party boundaries. This finding adds nuance to framing theory's understanding of strategic deployment in the parliamentary context: it indicates that fundamental ideological positioning can structure frame choice as powerfully as party discipline. This implies that frames may represent underlying interpretations of political reality alongside their function as tactical rhetoric, rather than being driven solely by strategic considerations.

Third, demographic stratification persisted across party and tenure boundaries. Female and younger MPs disproportionately deployed Human Impact narratives while male and older MPs favored Powerlessness and Conflict frames (*Sections 5.4.1* and *5.4.2*). This introduces a merely underexplored dimension: the relationship between speaker identity and frame preference. If descriptive representation theory argues demographic diversity matters for policy representation, these findings suggest it equally matters for how political problems are interpretively framed.

These findings position framing analysis as particularly valuable for understanding elite political communication during constitutional crises. Generic frames remain analytically stable across contexts, yet their deployment is contextually determined and shaped by temporal conditions, ideological commitments, and speaker characteristics. This dual property of structural, stability combined with strategic flexibility, explains both the persistence of frame typologies across diverse settings and their divergent political applications.

6.1.2 Frame Dynamics as Indicators of Institutional Dysfunction

The conventional explanation for the UK Parliament's failure to resolve the Brexit crisis between 2016 and 2019 relies primarily on parliamentary arithmetic. Without a stable majority for either the government or the opposition, no negotiated settlement could be reached. While factually accurate, this account is insufficient to explain the depth of the institutional paralysis. The framing analysis presented here suggests that the deadlock was not merely a function of vote distribution but was reinforced by the discursive structure of the debates themselves.

The analysis reveals a consistent pattern in which discursive shifts mirrored institutional conditions across the entire Brexit timeline, from the dominance of economic argumentation in the pre-referendum phase to the surge of moral framing immediately following the vote. One of the critical diagnostic signals appears in the 2019 parliamentary phase. This period was characterized by a distinct rise in Conflict framing, which peaked precisely as the institutional impasse deepened. This shift signals a fundamental reorganization of parliamentary function: the House of Commons effectively transitioned from a deliberative forum seeking consensus into an arena for performative contestation. Rather than bridging divides, the dominant discourse deepened them, with opposing interpretive communities utilizing frames that offered no common evaluative ground for compromise.

Consequently, this study posits that frame analysis serves a purpose beyond historical description. It functions as a diagnostic indicator of institutional health. A dominance of substantive frames, such as Economics or Human Impact, suggests a functioning deliberative process, whereas a sharp pivot toward Conflict framing, divorced from policy substance, can serve as an early warning signal of institutional stress. By monitoring these shifts, political actors and analysts can better identify when a legislature ceases to function as a body of integration and instead succumbs to systemic polarization.

6.1.3 Persistent Meaning-Contestation Beyond Institutional Resolution

Temporal analysis demonstrates that opposed frame repertoires persisted after Brexit's formal completion on January 31, 2020. The post-Brexit phase (2021-2022) maintained elevated Economic (31.5%) and Human Impact framing (19.7%), indicating continued Remain-aligned emphasis on the consequences of withdrawal. Conversely, Powerlessness framing declined to its lowest level (15.3%) once sovereignty was juridically restored, confirming its instrumental function: the frame's strategic utility expired after formal autonomy was regained.

This pattern reveals a fundamental characteristic of constitutional crises: interpretive communities formed during such ruptures persist after formal resolution. Leave MPs constructed Brexit as a democratic restoration; Remain MPs framed it as economic self-harm. Institutional settlements such as withdrawal agreements, trade deals, and parliamentary majorities could not reconcile these opposed constructions because they rested on incommensurable problem definitions: sovereignty versus security, principle versus pragmatism, liberation versus loss. Interpretive communities formed during a crisis endure beyond formal resolution.

6.2 Frame Classification Using LLMs

The application of LLMs to classify framing in parliamentary discourse requires methodological validation. While Neuman et al.'s (1992) generic frames provide a structured conceptual foundation, identifying a dominant frame remains empirically challenging, particularly when multiple frames co-occur in a single speech excerpt. These ambiguities emerged during corpus preparation and reflected the interpretive nature of framing itself. The three-stage annotation procedure - independent coding, blind review, and collective resolution - was designed to address this challenge by retaining contested cases in the training corpus, enabling the model to learn from boundary instances where frame distinctions are subtle.

The fine-tuned model was expected to rely on contextual reasoning rather than surface-level lexical cues. Although LLMs inevitably carry priors from pre-training corpora, the model's performance on held-out data indicates that it learned the operationalized frame definitions effectively. However, weaker performance on frames such as Powerlessness and Moral Value, alongside stable classification of the Economic frame, suggests that LLM-based approaches are most effective for frames with explicit lexical markers such as quantitative terminology. Model classifications also align with established patterns documented in Brexit media-framing research, providing external validation. Overall, the GPT-4.1-mini CoT model achieved a Macro F1-score of 0.77 and produced stable results across the full corpus, demonstrating that LLM-based frame detection can operate reliably at scale.

This empirical performance directly addresses a methodological bottleneck in framing research highlighted by Ali and Hassan (2022). Qualitative, manual analysis offers interpretive depth but cannot feasibly handle corpora of this size. At the same time, unsupervised topic models scale well yet fail to capture the semantic and rhetorical structures through which frames shape interpretation. The supervised LLM approach used here overcomes this divide by combining theoretical grounding, via annotation guidelines operationalizing Neuman et al.'s (1992), with large-scale analytical capacity. The study thus introduces a quantitative method for examining framing in the UK House of Commons and represents the first application of this specific LLM-based approach in this context.

6.3 Limitations

Data and Corpus Limitations

First, the construction of the analysis corpus relies on a multi-stage filtering pipeline that introduces potential inclusion and exclusion biases. The identification of Brexit-related

speeches employed a keyword-based taxonomy followed by LLM-based filtering. While this approach maximizes precision, it inevitably entails a trade-off in recall.

Second, the analysis is strictly limited to the House of Commons. By excluding the House of Lords, Westminster Hall debates, or non-parliamentary discourse, the study creates a representational bias, most notably regarding UKIP. Despite being a primary driver of the Brexit agenda, UKIP's negligible parliamentary presence means a decisive rhetorical component of the Brexit ecosystem is absent. Additionally, survivor bias likely affects the longitudinal analysis of Remain-supporting MPs, as pro-European MPs experienced higher electoral churn in 2017 and 2019. Consequently, the observed evolution of Remain framing may partly reflect a shrinking, self-selecting cohort rather than a constant population.

Methodological and Computational Limitations

Beyond corpus construction, methodological constraints shape the analysis. A central limitation is the decision to employ a single-label classification approach, which requires assigning exactly one dominant frame to each speech chunk. Political arguments often blend several perspectives at once, meaning some semantic nuance is inevitably lost. This approach was chosen to be straightforward to operationalize, provide cleaner predictive behavior, and mitigate the limitations of LLM context windows, which are critical given the substantial length of many speeches and the available computational resources. This choice was supported by segmenting of speeches into chunks to isolate distinct arguments. Without this granular segmentation, full speeches would almost invariably contain multiple competing frames, rendering a single-label approach invalid. However, the necessary fragmentation may still separate framing devices that function as a unit, potentially influencing classification outcomes based on where the boundaries are drawn.

Additionally, the "Black Box" nature of LLMs complicates the distinction between topic and frame. While the model was instructed to classify the perspective (frame), it remains opaque whether it successfully disentangled this from the subject matter (content) in all instances.

Furthermore, computational constraints influenced the LLM training process. Restricted access to high-performance Graphics Processing Unit (GPU) resources necessitated trade-offs in the fine-tuning process. Specifically, these resource constraints prevented the implementation of more exhaustive hyperparameter optimization, full-parameter fine-tuning, or the development of model ensembles, which could have improved classification robustness and accuracy. Moreover, the annotated training dataset used for fine-tuning was relatively small given the task's complexity, potentially limiting the model's ability to generalize to the subtle rhetorical nuances of parliamentary speech. Consequently, the model represents a resource-efficient implementation rather than the theoretical upper bound of performance achievable with unlimited computational capacity.

Statistical Limitations

Finally, the statistical results must be interpreted with caution, given potential sample-size effects. Given the large corpus size ($n > 60,000$), statistical tests such as chi-square are "overpowered," rendering even trivial differences statistically significant ($p < 0.001$). Therefore, statistical significance in this study does not automatically equate to substantive relevance; the interpretation focuses primarily on effect sizes (Cramér's V) and standardized residuals. Conversely, results for smaller parties, specifically the Liberal Democrats and SNP, face the opposite challenge of sparse data in specific phase-frame-party intersections. Findings related to these groups should be viewed as exploratory, as their framing profiles are less robust than those of the Conservative or Labour parties due to lower observation counts in contingency table cells.

6.4 Future Research Directions

This research adopts a single-label design, which simplifies the inherently multi-dimensional nature of framing. Parliamentary speeches often combine several frames within the same argumentative unit, yet the current architecture forces a dominant-label choice and obscures secondary interpretative layers. Future work should explore multi-label classification approaches that estimate probabilistic distributions across frames and allow systematic analysis of frame co-occurrence patterns.

A second direction concerns generalizability. The present models were optimized for Brexit-specific discourse using domain-tailored annotation guidelines. Whether they transfer to other constitutional debates, policy domains, or parliamentary contexts remains an open question. Systematic transfer experiments are needed to identify when LLM-based frame detection generalizes and when domain-specific rhetorical or institutional differences limit portability.

Finally, future research should investigate Human-AI collaboration more explicitly. LLM-based frame detection is most effective as an analytical amplifier rather than an autonomous classifier. Promising avenues include using model outputs to guide targeted qualitative analysis, designing iterative correction loops that refine model predictions through researcher feedback, and prototyping real-time monitoring tools that track emerging framing shifts in parliamentary debate. Such developments would move frame detection from a retrospective method toward an operational instrument for observing political discourse as it unfolds.

6.5 Conclusion

Brexit continues to cast a long shadow over European politics, serving as both a domestic constitutional rupture and a transnational catalyst for Eurosceptic mobilization across the continent. As populist movements across Europe draw rhetorical sustenance from this episode, understanding how political elites constructed and contested its meaning becomes essential for

democratic theory and practice. This thesis addresses this challenge by systematically mapping rhetorical framing in the UK House of Commons across the Brexit timeframe from 2012 to 2022 and using LLMs to analyze over 62,000 parliamentary speech excerpts through Neuman et al.'s (1992) generic frame typology, selected for its capacity to capture power asymmetries central to sovereignty debates. In a crisis defined by competing interpretive frameworks rather than consensus over factual premises, examining how issues were framed, not merely what was discussed, documents the strategic mechanisms through which elites defined the boundaries of political possibility and legitimacy.

This thesis examined two core research questions. *RQ1* investigated how rhetorical framing strategies varied over time and the extent to which discrete political events and long-term developments shaped these temporal patterns. The analysis identified distinct temporal phases in which the Economic and Conflict frames dominated shifting in response to external shocks. Before the referendum, abstract economic risk narratives prevailed. In 2019, parliamentary deadlock led to procedural conflict. Human Impact framing peaked only after withdrawal, when trade frictions and regulatory change translated into concrete social costs. Frame evolution proved responsive to external political shocks rather than independent of them.

RQ2 examined how structural factors shaped frame selection. Party identity and Brexit stance operated as significant structuring forces, with Brexit position exerting particularly strong influence over intra-party framing profiles. Leave-aligned MPs systematically prioritized Powerlessness frames and depicted EU membership as institutional subjugation. Remain-aligned MPs responded with Economic and Human Impact frames emphasizing material welfare and social stability. Demographic and territorial patterns further reinforced these divides. Taken together, these patterns demonstrate that Brexit's meaning in Parliament was not fixed but actively constructed through competing generic frames that mapped onto broader ideological, generational, and territorial cleavages.

These findings contribute to scholarly understanding on two levels. Theoretically, they extend generic frame theory into contexts of constitutional crisis, demonstrating that Neuman et al.'s (1992) typology captures the argumentative complexity of fundamental political rupture. The analysis shows that generic frames operate as durable structures across both routine policy debates and existential crises. Political actors mobilize these frames to legitimize radical institutional change, bridging everyday political communication and crisis rhetoric. Methodologically, the research demonstrates that LLMs, when combined with theoretically grounded operationalization, achieve classification performance previously available only through manual coding. This approach validates LLMs as analytical instruments that reveal temporal shifts, demographic variations, and structural determinants at a scale that qualitative research cannot feasibly achieve.

Beyond Brexit itself, these patterns carry implications for parliamentary democracies confronting existential rupture. When elites operate on distinct normative planes rather than contesting shared problem definitions, institutional deadlock becomes structural rather than contingent. As Europe navigates resurgent nationalism and institutional strain, the generic frames documented here offer diagnostic tools for understanding how political communication either bridges or entrenches such divides. This analysis provides conceptual foundations for understanding rhetorical contestation in moments when fundamental constitutional questions are contested.

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Appendix

Appendix A: Comparative Overview of Framing Studies

Study	Extracted Frames	Methodology	Data Source	Temporal Scope
Semetko and Valkenburg (2000)	Attribution of Responsibility; Conflict; Economic Consequences; Human Interest; Morality (five generic news frames applied to European politics coverage).	Deductive quantitative content analysis using 20 operationalized questions measuring five generic frames; principal component analysis confirmed frame structure.	4 Dutch national newspapers (Telegraaf, Algemeen Dagblad, Volkskrant, NRC Handelsblad) and 3 national television news programs (NOS Journaal, RTL Nieuws, Hart van Nederland); 2,601 newspaper stories and 1,522 television news stories analyzed; newspapers ranged from sensationalist to serious on stylistic continuum.	May 1 - June 20, 1997 (seven-week period leading up to and including Amsterdam European Council summit on June 16-17, 1997, when EU heads of government finalized monetary union agreement)
Sørensen (2008)	Economic Euroscepticism (soft/hard); Sovereignty-based Euroscepticism (soft/hard); Democratic Euroscepticism (soft/hard); Social Euroscepticism (soft/hard).	Conceptual-analytical typology of four euroscepticism types (Economic, Sovereignty-based, Democratic, Social) with soft/hard levels; applied in cross-national comparison of 15 EU member states.	Eurobarometer survey indicators for 15 EU member states, aggregated at national level and grouped into measures of economic, sovereignty-based, democratic, and social euroscepticism; applied comparatively to Denmark, the other Nordic countries, and the remaining member states.	Cross-sectional analysis: 2007 Eurobarometer data; Longitudinal analysis: 1997-2007 decade tracking euroscepticism development across EU-15 member states; specific focus on Nordic countries.
Hellman (2016)	<i>Remain frames</i> : Economic Risks, Consumer Prices, Defence, Safety, Uncertainty; <i>Leave frames</i> : Discredit Remain, Immigration, Cameron Renegotiation, No Change, EU Security Risk, Economic Risks (of Remaining).	Two-step design: (1) inductive frame identification from Facebook pages; (2) frame-based coding of four newspapers during three key weeks to test whether frame salience preceded opinion shifts.	3 campaign organizations: Britain Stronger in Europe (Remain), Vote Leave, Leave.EU (TUSC excluded from study); 4 newspapers: Daily Mail, Daily Mirror, Guardian, Telegraph; campaign Facebook pages (visual material) and newspaper archives searched via Retriever Research database and Telegraph online archive.	September 17, 2015 - April 11, 2016; newspaper coverage in three key weeks (October 2015, January 2016, February 2016) before official campaign start.
Lundblad (2017)	Sovereignty; Value; Economy; Immigration Public Services; Immigration & National Security; Immigration & Wages; Candidate Countries; Future Deal.	Qualitative frame analysis using Entman's (1993) framework with deductive analysis of problem definition, causal interpretation, moral evaluation, remedy, and vocabulary.	Vote Leave official campaign website publications (voteleavetakecontrol.org): statements, op-eds, speeches from "Briefing room" section; 15 strategically selected texts (5 per time period).	April-June 2016 (official campaign period); analysis of 15 texts across three time-periods corresponding to polling peaks: April 25-26, June 1-2 and June 12-22.
Khabaz (2018)	Getting My/Our Country Back (besieged nation); Undemocratic Europe (dysfunctional super-state); Take Control (regaining national sovereignty).	Qualitative content analysis employing software-assisted keyword generation (Reframer tool) to identify salient frames from newspaper corpus; frame repetition quantified across publications.	7 pro-Leave national newspapers: The Sun (1.8M circulation), Daily Mail (1.5M), Mail on Sunday (1.5M), Daily Telegraph (490K), Sunday Telegraph (435K), Daily Express (430K), Daily Star (425K); total combined circulation: 6.5M daily.	June 1-25, 2016 (final campaign intensification period coinciding with heightened political party activity and media attention immediately preceding referendum).

Study	Extracted Frames	Methodology	Data Source	Temporal Scope
Van Horne (2018)	Remain frames: Necessary Trade-Off; Beneficial Leave frames: Sovereignty/Control; Numbers; Social/Economic Burden; Security/Threat; UK Government Performance.	Inductive frame analysis of immigration materials: open coding identified frames, refined using UK immigration policy themes.	Official campaign materials from Stronger In (Remain) and Vote Leave; 3 national newspapers and Sunday editions: Daily Mail/Mail on Sunday, The Guardian, The Times/Sunday Times.	May 7, 2015 through June 23, 2016; encompasses entire pre-referendum campaign period including unofficial and official phases.
De Luca (2025)	Four relationship framing types (not discrete frames): UK-critical (UK as aggressor, EU as victim); EU-critical (EU as aggressor, UK as victim); Balanced (mutual/unclear attribution); Neutral (objective/non-conflictual portrayal).	Sentence-level thematic coding using NVivo; correspondence analysis examined relationships between UK-EU framing and political actors.	4 UK newspapers with distinct editorial positions: The Guardian/Observer (pro-Remain, left-leaning); Daily Telegraph/Sunday Telegraph (pro-Leave, conservative); Mirror/Sunday Mirror (pro-Remain, left-leaning); Daily Mail/Mail on Sunday (pro-Leave, right-leaning); 856 articles analyzed yielding 1,906 sentence-level units of analysis containing "Brexit".	February 1 - December 31, 2020 (full Brexit transition period following UK's official departure on January 31, 2020; period characterized by EU-UK relationship negotiations and COVID-19 pandemic complications).

Table 4: Comparative Overview of Brexit/EU Framing Studies

Appendix B: Brexit Keyword List for Speech Filtering

Category	Keywords
Direct Brexit Terminology	"article 50", "article 50 process", "brexit", "brexit-related", "brexit-related issues", "british exit", "eu exit", "european union exit", "in or out", "leave the eu", "leaving the eu", "vote to leave", "withdrawal agreement"
EU-Institutional Reference (indirect)	"ecj", "eu", "eu membership", "eu referendum", "european commission", "european council", "european court of justice", "european economic area", "european parliament", "european treaty", "european union", "eurozone", "maastricht treaty", "member state"
Negotiation-Specific Terms (indirect)	"backstop", "future relationship", "irish border", "northern ireland protocol", "partnership agreement"
Economic Concepts (indirect)	"customs union", "economic partnership", "european single market", "schengen", "single market", "tariffs", "trade agreement", "trade barriers", "trade deal"
Political Concepts (indirect)	"european integration", "ever closer union", "free movement", "freedom of movement", "independence", "sovereignty", "take back control"

Table 5: Brexit Keywords Used for Speech Filtering

Appendix C: Exemplary Chunks for Each Frame of Parliamentary Debates

Frame	Chunk
Economic	The EU is by no means perfect - there is much that I personally do not like - but on economic grounds there is an overwhelming reason to remain within it. That is the overwhelming consensus when I talk to businesses in my constituency. I will mention a few companies I have visited that all say that we are better off in. Pritex in Wellington manufactures sound-proofing for the car industry. The chief executive heads up the Society of Motor Manufacturers and Traders, and he has categorically stressed that the car industry operates totally EU-wide; it is a £15 billion trade for the UK, so we need to remain in the EU. W. H. Hendy and Sons makes high-pressure water pumps in Wiveliscombe. That is in a rural area, but the company exports right across the EU. It goes with delegations to get contracts in other parts of the world, and it could not do that alone, so it needs us to be in Europe. That is critical for rural jobs in my constituency, which we must not put in jeopardy.
Economic	Yesterday, AstraZeneca joined a long line of major UK employers that have put investment plans on hold because of Brexit uncertainty. The Governor of the Bank of England has indicated that, even before we leave, Brexit has already cost £900 per UK household. Does the Secretary of State agree with the Governor's estimate? If he does not, what is his estimate of what Brexit has cost us to date?
Human Impact	There is, of course, concern about the levels of EU immigration. Let us be honest: views are stronger in respect of non-EU immigration, and there are parallels between the discontent in some leave-voting areas about EU immigration and the discontent regarding the immigration that we have had in this country from the 1950s. There was, after all, a form of free movement from the Commonwealth up until 1971; my father was part of that. I do not deny that immigration poses economic and cultural challenges in parts of our country, but if we implement the right policies, it need not do so.
Human Impact	Young people are very distressed and sad that we are leaving the European Union. Many of them did not vote for it and many did not even get a say in this decision, but they are the generation most greatly affected by it. What will the Prime Minister do to ensure that she listens to and engages with the next generation?
Moral Values	Working together will help us to protect and project our shared values of democracy, human rights and the rule of law, and will underpin the international rules-based order. Indeed, the Foreign Secretary has told us that he intends to do that, but he has not yet decided what level of access to ask for as regards co-operation with the European Union on foreign, security and defence policy making, and he has not clarified the intent of the United Kingdom to work bilaterally with other member states. The Committee believes that this requires clarification soon, as Lord Bridges warned only the other day in the other place.
Moral Values	In conclusion, as the representative of a Welsh constituency, I believe that it has never been more important to put the needs of our constituents before our political ideology. The Bill is not only important for those we represent, but a necessity for the functioning of our United Kingdom. I want to look back in 10 years' time and be able to proudly say Brexit was the best thing to happen to this country and I was on the team that helped to make that happen.
Powerlessness	Perhaps the most worrying of the measures that it is proposed to opt back into is the European arrest warrant. We have heard much about it this afternoon, but let us be clear about what the European arrest warrant means. It gives other countries in the European Union the power to demand that a British subject be removed from this country and incarcerated in a foreign jail without any evidence being placed before a British court. Worst of all, the European arrest warrant could be used for some act or omission that is not a criminal offence in this country, where the conduct is wholly within a foreign country. Indeed, that aspect -dual criminality- was one of the principal grounds that my right hon. Friend the Prime Minister used to argue against the introduction of the European arrest warrant in the Extradition Act 2003. He voted against it.
Powerlessness	I can tell the hon. Lady exactly what taking back control means. When we leave the EU we automatically, under international law, become an independent coastal state. That means that we will have responsibility for managing our exclusive economic zone, which is 200 nautical miles or the median line. We already enforce those waters. The hon. Lady raises concerns about the number of vessels, but most of the work these days is digital. We have a control room in Newcastle that monitors the movement of every single fishing vessel in the country.

Conflict	I get the feeling that the hon. Lady would not accept the result of a referendum that went against her in any shape or form. I am afraid I just say that the Prime Minister has negotiated a very good deal for this country, so the best way to guarantee certainty to businesses and the people of our country is to vote for that deal.
Conflict	Whether people like it or not, the referendum result gave the Government a very clear mandate to get Britain out of the European Union. It is extremely disappointing that some people are trying to frustrate the will of the people, whether it is hedge fund managers, with their money, taking cases to the High Court; Members of this House coming up with all sorts of reasons as to why they may not vote for article 50; or, closer to home for me, Members of the Welsh Assembly, who now seek to parley on equal terms with Ministers and to dictate to them the terms of our withdrawal from the European Union.
None	As we move towards the Easter Adjournment, I wish you, Madam Deputy Speaker, and Mr Speaker, the Deputy Speakers, the staff of the House, and all Members and their staff who work on this estate, a happy Easter. In particular this Easter, I wish the police and security staff - who work very hard and who may often have gone unnoticed but certainly not in the past few days - a happy and peaceful Easter. Happy Pesach to everyone.
None	Let me briefly raise quarterly reporting, which I mentioned in reply to the question asked by the hon. Member for Leeds West. It is very important to give Parliament clarity about the progress that the Government are making. That was why my right hon. Friend the Secretary of State made a commitment in the written ministerial statement to provide quarterly updates on progress, which will include updates on the negotiations and progress made by the ONR on establishing the UK's domestic safeguard regime. I hope that those arguments will persuade Opposition Members not to press the amendments and new clauses to a Division.

Table 6: Exemplary Chunks for Each Frame of Parliamentary Debates

Appendix D: Exemplary Challenging Chunks with Divergent Annotations

Chunk	Frames and Decision Rationale
The hon. Gentleman and I differ in our assessment of the state of the UK economy, but whether he takes his view or I take mine, in neither case would our economy and our constituents benefit from pursuing a policy that would increase unemployment by 500,000 and see average wages fall by nearly £800. I hope he considers the impact that leaving the European Union would have on his constituents.	Annotated Frame: <i>Human Impact</i> Alternate Frame: <i>Economic</i> Although economic figures are cited, the argument foregrounds direct consequences for constituents, framing unemployment and wage loss as harms to well-being and daily life of individuals rather than abstract market outcomes.
I assure my hon. Friend that I share his and the Environment Secretary's view that, once we leave the EU, we will be able to control access to our waters by non-UK registered vessels, which will be a matter for negotiation. Access to markets for fish products will be agreed as part of our future economic partnership, just as with other goods and food products.	Annotated Frame: <i>Economic</i> Alternate Frame: <i>Powerlessness</i> Although control and negotiation are mentioned, the speaker emphasizes agency and economic bargaining over constraint, framing Brexit in terms of market access and trade arrangements.
Given that the Prime Minister has been on her feet for two hours, I think we are now convinced that she still agrees with herself but is listening to very few other people. Last week, no less a person than her predecessor Sir John Major called for an extension of article 50, but, stubbornly, she still refuses to listen to any advice on this. Please will the Prime Minister listen for once?	Annotated Frame: <i>Conflict</i> Alternate Frame: <i>Powerlessness</i> Although ignored advice and lack of responsiveness are mentioned, the chunk primarily frames the issue as a personal confrontation with the Prime Minister, using adversarial and delegitimizing language rather than emphasizing structural constraint.
A Conservative Member asked about the SNP's position on Europe. I would love to see what deal Scotland could get out of Europe if we had a voice in Europe. At the moment every representation that we make to Europe has to go through the Westminster filter, and I do not blame that filter for changing them to act in the interests of the majority of the citizens of the United Kingdom. We are outnumbered by 10, 11, or 12-1 in population terms, so the representations that the UK Government make to Europe will always be loaded towards what they see to be in the best interest of the major nation.	Annotated Frame: <i>Powerlessness</i> Alternate Frame: <i>Conflict</i> Although the chunk contrasts Scottish and UK interests, its primary emphasis is on structural constraint and lack of agency, portraying Scotland as outnumbered and unable to influence outcomes independently.
This House is the guardian of free and fair elections. It is now clear that this referendum result was corrupt because it was bought, quite possibly with Russian money. Which Minister will now ask the Director of Public Prosecutions to consider a joint enterprise prosecution so that it is not just the staff of these campaigns that are prosecuted but the governing minds as well?	Annotated Frame: <i>Moral Value</i> Alternate Frame: <i>Conflict</i> Although the chunk contains accusatory language, its primary emphasis is on democratic integrity, fairness, and legality, evaluating the referendum in moral terms rather than as a strategic confrontation.
This debate is about how long the extension should be. I put it to the Government that we should be requesting at least 22 weeks—five months—to allow time for a referendum. We probably could do with nine months if we are to look at the options. However, there is a real risk that the Government will go forward without a purpose, and we will simply be rejected by the EU, which will then force us into a situation where we will have either to take a no deal or to revoke article 50. In those circumstances, I very much hope that the Government choose to revoke article 50, because the people want to carry on with business as usual and not to have to face chaos.	Annotated Frame: <i>Powerlessness</i> Alternate Frame: <i>Human Impact</i> Although the chunk references public preferences and potential chaos impacting individuals, the core emphasis is on the UK being forced into constrained choices by procedural failure and external rejection, portraying a lack of viable agency, aligning with the Powerlessness frame.

Table 7: Exemplary Challenging Chunks with Divergent Annotations

Appendix E: Description of Database Content

Table: MPs (thesis_final.duckdb)

Column Name	Data Type	Description
twfy_id	Varchar	Continuous id
First name	Varchar	First name of associated MP
Last name	Varchar	Last name of associated MP
Party	Varchar	Party affiliation of associated MP
Constituency	Varchar	Constituency of associated MP
ElectionYear	Integer	First time election year of associated MP
person_id	Varchar	Continuous id
brexit_vote	Varchar	Vote of associated MP in the Brexit Referendum 2016
Speaker_gender	Varchar	Gender of associated MP
Speaker_birthdate	Date	Birthdate of associated MP
Speaker_constituency	Varchar	Constituency of associated MP
Constituency_nation	Varchar	Nation of associated constituency

Table 8: MPs Table Data Dictionary

Table: chunks (thesis_final.duckdb)

Column Name	Data Type	Description
Chunk_id	Varchar	Continuous id
Speech_id	Varchar	Continuous id
Debate_id	Varchar	Continuous id
Speaker_name	Varchar	Full name of associated MP
Debate_title	Varchar	Title of associated debate
Debate_date	Date	Date of debate
Chunk_text	Varchar	Full-text of associated speech chunk
Chunk_index	Integer	Index of associated chunk within speech
Total_chunks	Integer	Total number of chunks within speech
Word_count	Integer	Number of words in associated speech chunk
Char_count	Integer	Number of characters in associated speech chunk
Frame_label	Varchar	Frame used in associated speech chunk
Created_at	Timestamp	Time of chunk creation
Classification_timestamp	Timestamp	Time of chunk classification
Speaker_age_at_speech	Integer	Speaker age at the time of speech

Table 9: Chunks Table Data Dictionary

Table: debates (thesis_final.duckdb)

Column Name	Data Type	Description
Debate_id	Varchar	Continuous id
Date	Date	Debate date
File_name	Varchar	File of origin of associated debate
Major_heading_text	Varchar	Major heading extracted from XML file
Time	Varchar	Time of debate
URL	Varchar	Origin URL of debate

Table 10: Debates Table Data Dictionary

Table: manual_annotation (thesis_final.duckdb)

Column Name	Data Type	Description
Chunk_id	Varchar	Continuous id
Chunk_text	Varchar	Full-text of associated speech chunk
Frame_label	Varchar	Frame used in associated speech chunk
Dataset_split	Varchar	Dataset-Split association of speech chunk
Annotation	Varchar	Annotation type used for associated speech chunk

Table 11: Manual Annotations Table Data Dictionary

Table: speeches (thesis_final.duckdb)

Column Name	Data Type	Description
Speech_id	Varchar	Continuous id
Debate_id	Varchar	Continuous id
Speaker_name	Varchar	Full name of associated MP
Person_id	Varchar	Continuous id
Time	Varchar	Time of speech
URL	Varchar	Origin URL of speech
Speech_text	Varchar	Full-text of associated speech
Paragraph_count	Integer	Number of paragraphs in speech
Confidence_score	Float	Confidence score of Brexit classification based on keyword screening
List_found_keywords	Varchar	Brexit-relevant keywords found in speech
Llm_classified_brexit	Boolean	Brexit classification based on LLM screening
Llm_confidence_score	Float	Confidence score of Brexit classification based on LLM output
Llm_model	Varchar	LLM model used for Brexit-classification
Llm_processed_at	Timestamp	Time of LLM Brexit classification
Llm_reasoning	Varchar	Reasoning of LLM Classification (model output)
Twfy_id	Varchar	Continuous id

Table 12: Speeches Tables Data Dictionary

Table: training (thesis_final.duckdb)

Column Name	Data Type	Description
Chunk_id	Varchar	Continuous id
Chunk_text	Varchar	Full-text of associated speech chunk
Frame_label	Varchar	Frame used in associated speech chunk
Dataset_split	Varchar	Dataset-Split association of speech chunk
Annotation	Varchar	Annotation type used for associated speech chunk

Table 13: Training Set Table Data Dictionary

Appendix F: Brexit Issue-Specific Frame Mapping to Generic Frames

Author	Issue-Specific Frame	Generic Frame Neuman et al. (1992)
De Luca (2025)	Balanced (mutual/unclear attribution)	Conflict
	EU-critical (EU as aggressor, UK as victim)	Conflict
	UK-critical (UK as aggressor, EU as victim)	Conflict
Hellman (2016)	Immigration	Human Impact
	Defence	Human Impact
	Economic Risks	Economic
	Consumer Prices	Economic
	Economic Risks (of Remaining)	Economic
	Cameron Renegotiation	Powerlessness
	Safety	Human Impact
	Uncertainty	Powerlessness
	Discredit Remain	Conflict
	No Change	Powerlessness
	EU Security Risk	Human Impact
Khabaz (2018)	Take Control (regaining national sovereignty)	Powerlessness
	Getting My/Our Country Back (besieged nation)	Conflict
	Undemocratic Europe (dysfunctional super-state)	Powerlessness
Lundblad (2016)	Future Deal	Powerlessness
	Sovereignty	Powerlessness
	Economy	Economic
	Value	Moral Value
	Candidate Countries	Conflict
	Immigration & Wages	Economic
	Immigration & National Security	Human Impact
	Immigration & Public Services	Human Impact
Van Horne (2018)	UK Government Performance	Powerlessness
	Security/Threat	Human Impact
	Numbers	Human Impact
	Social/Economic Burden	Economic
	Beneficial	Economic
	Necessary Trade-Off	Economic
	Sovereignty/Control	Powerlessness

Table 14: Brexit Issue-Specific Frame Mapping to Generic Frames

Appendix G: Brexit Framing Operationalization Framework

Neuman Frame	Generic Definition	Primary Identification Criteria	Required Keywords/ Phrases	Exclusion Criteria
Human Impact	This frame emphasizes the personal consequences and lived experiences of individuals and groups affected by political issues, highlighting the human dimension of policy decisions through testimonials, personal stories, and descriptions of how policies affect ordinary people's daily lives. (Lundblad 2017; Van Horne 2018).	Contains explicit reference to individuals, families, communities, or specific demographic groups	People references: "families", "workers" (Lundblad 2017, 33); "communities", "individuals", "people" (De Luca 2025, 128), "citizens" (Van Horne 2018, 48); "residents", "children" (Hellman 2016, 15), "elderly"	Abstract policy discussions without personal impact
		Describes concrete effects on people's lives, not abstract policy outcomes	Impact descriptors: "affected by", "struggling" (Lundblad 2017, 33), "benefit from", "suffer from", "experience", "face" (Lundblad 2017, 30), "endure"	Purely statistical or economic data without human context
		Uses personal, emotional, or experiential language rather than technical terminology	Personal consequences: "jobs lost", "wages [cut]" (Lundblad 2017, 33), "safety concerns", "daily life", "quality of life", "livelihoods", "well-being"	Institutional or governmental impacts without citizen effects
Powerlessness	This frame presents actors as constrained or dominated by external forces beyond their control, emphasizing the inability of individuals, groups, or institutions to influence outcomes or exercise agency in the face of overwhelming structural pressures or powerful opposing forces (Lundblad 2017; Van Horne 2018).	Describes inability to control outcomes or make autonomous decisions	Constraint language: "cannot" (Lundblad 2017, 32), "unable to" (Van Horne 2018, 49), "powerless", "no choice", "forced to", "compelled", "constrained by"	Discussions of strategic choices or policy preferences
		Presents external forces as dominant or constraining	External domination: "imposed by", "dictated by", "controlled by" (Khabaz 2018, 503), "subject to", "at the mercy of", "dominated [by]" (De Luca 2025, 114)	Statements about institutional cooperation without coercion
		Emphasizes lack of agency or choice in the situation	Agency denial: "no say in", "lack of control" (Van Horne 2018, 46), "helpless", "dependent on", "vulnerable to", "trapped"	References to influence or negotiating power
Economics	This frame focuses on financial costs, benefits, and economic implications of political decisions, emphasizing monetary calculations, market dynamics, business impacts, and the bottom-line consequences of policy choices for economic prosperity and financial well-being (Lundblad 2017).	Contains quantifiable economic measures or financial calculations	Financial terms: "cost" (Lundblad 2017, 31), "beneficial", "losing" (Van Horne 2018, 45, 48); "profit", "savings" (Lundblad 2017, 34), "investment", "revenue", "expenditure", "budget" (Lundblad 2017, 32)	General policy discussions without economic quantification
		Discusses costs, benefits, profits, losses, or economic impacts	Economic indicators: "GDP", "growth" (Lundblad 2017, 31), "recession", "inflation", "unemployment" (Lundblad 2017, 33), "trade" (Lundblad 2017, 34), "exports", "imports"	Social or political impacts without economic dimension
		Uses economic terminology and business language	Business language: "economy", "business" (Lundblad 2017, 31), "market", "industry", "commercial", "financial", "economic impact"	Moral or ethical arguments about economics

Moral Values	This frame invokes fundamental principles, ethical considerations, and moral judgments about right and wrong, often through indirect references to societal values, moral obligations, and ethical standards that guide appropriate behavior and policy choices (Lundblad 2017).	Invokes ethical principles, moral standards, or fundamental values	Moral language: "right", "value" (Lundblad 2017, 17), "wrong", "fair", "unfair", "just", "unjust", "moral", "ethical", "principles" (Lundblad 2017, 31)	Purely pragmatic or instrumental arguments
		Makes judgments about right/wrong, good/bad, fair/unfair	Value appeals: "democracy", "freedom", "sovereignty", "independence" (Lundblad 2017, 30); "responsibility" (Lundblad 2017, 17), "duty", "obligation"	Economic calculations without moral dimension
		Appeals to shared moral commitments or cultural values	Justice terms: "fairness", "equality", "justice", "rights", "legitimate", "illegitimate", "proper", "appropriate"	Technical policy discussions without value appeals
Conflict	This frame presents political issues as contests between opposing forces with incompatible interests, emphasizing competition, winners and losers, strategic maneuvering, and the zero-sum nature of political struggles where one side's gain necessarily means another's loss (De Luca 2025).	Presents issue as contest between opposing sides	Competition language: "battle", "fight", "struggle" (De Luca 2025, 122); "contest", "competition", "versus", "against" (Lundblad 2017, 18), "clash"	Cooperative or collaborative language
		Emphasizes incompatibility of positions or zero-sum outcomes	Win-lose terms: "winner", "loser", "victory", "defeat", "triumph", "success", "failure" (Lundblad 2017, 30), "advantage"	Discussions of compromise or middle ground
		Uses competitive, strategic, or confrontational language	Strategic language: "strategy" (Lundblad 2017, 34), "tactics", "campaign" (Lundblad 2017, 15), "attack", "defend", "counter" (Lundblad 2017, 31), "response"	Technical policy debates without adversarial framing

Table 15: Brexit Framing Operationalization Framework

Appendix H: ChatGPT Prompting and Results

ChatGPT Zero-Shot Prompt:

Classify speeches into one of the following 6 communicative frames:

1. Economic
2. Human Impact
3. Conflict
4. Powerlessness
5. Moral Value
6. None

Respond ONLY with the exact category name. No explanations or additional text.

ChatGPT Zero-Shot Results:

Frame	Precision	Recall	F1-Score
Economic	0.5442	0.9756	0.6987
Moral Value	1.0000	0.0935	0.1709
Human Impact	0.8235	0.3500	0.4912
Powerlessness	0.2056	0.4151	0.2750
Conflict	0.3750	0.6462	0.4746
None	0.8000	0.1429	0.2424

Table 16: ChatGPT Zero-Shot Model Evaluation Metrics across Frame Categories

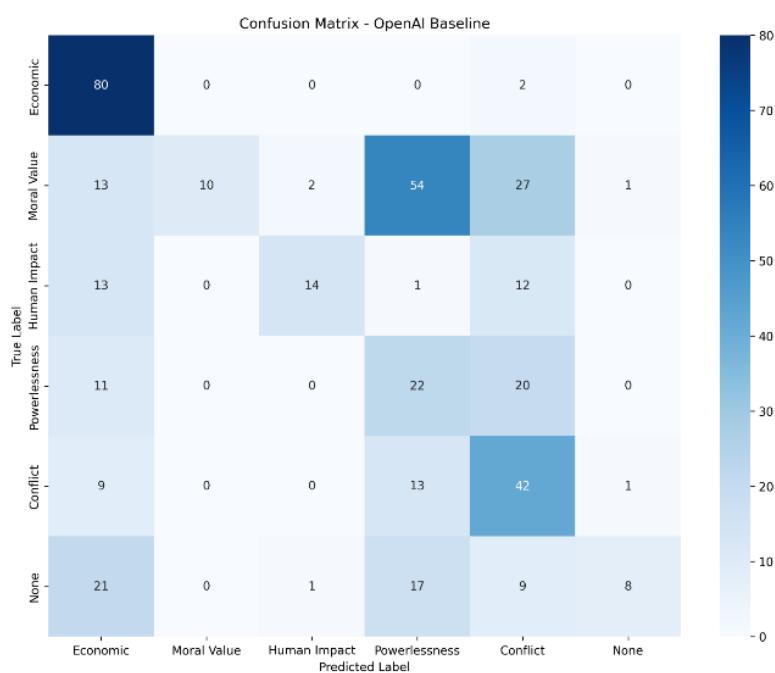


Figure 11: ChatGPT Zero-Shot Model Confusion Matrix

ChatGPT CRAFT Prompt:

****Capacity/Role:**** You are an expert linguistic analyst specializing in political discourse classification, with deep knowledge of Brexit referendum rhetoric and argumentative framing strategies.

****Action:**** Classify the following speech into one of six distinct communicative frames. Your classification should identify the dominant frame that best represents the speech's primary persuasive strategy.

****Format:****

- Input: A political speech from the Brexit referendum
- Output: Respond with ONLY the exact category name (nothing else)
- Structure: Single-label classification (one category only)

****Tone:**** Analytical, precise, and unambiguous. Prioritize accuracy and consistency over any attempt to explain or justify the classification.

****Frame Definitions:****

1. Economic - Centers on financial costs, benefits, and economic implications using quantifiable measures, market dynamics, and economic terminology and business language.
2. Human Impact - Focuses on how political decisions affect individuals, families, communities, or specific demographic group; people's daily lives and personal well-being. Describes "concrete effects" using "personal, emotional, or experiential language"
3. Conflict - Frames politics as a struggle between opposing sides, using adversarial/strategic or competitive language to depict winners and losers; zero-sum nature; incompatible interests
4. Powerlessness - Highlights a lack of agency, control, or influence, portraying individuals, institutions, or the nation as constrained or subordinated by external authorities or structures, and emphasizing the need/action to reclaim autonomy, independence, or decision-making power.
5. Moral Value - Appeals to principles of fairness, justice, integrity, and ethical responsibility, praising actions that uphold honesty, inclusivity, and democratic or social norms, while condemning hypocrisy, discrimination, fearmongering, or unethical behavior. It often works through indirect references to societal values.
6. None - Only if no other frame is applicable. Does contain e.g. procedural or administrative content. Technical or procedural descriptions without evaluative framing.

ChatGPT CRAFT Results:

Frame	Precision	Recall	F1-Score
Economic	0.8659	0.8659	0.8659
Moral Value	0.9091	0.2804	0.4286
Human Impact	0.6809	0.8000	0.7356
Powerlessness	0.3565	0.7736	0.4881
Conflict	0.6974	0.8154	0.7518
None	0.8800	0.7857	0.8302

Table 17: ChatGPT CRAFT Model Evaluation Metrics across Frame Categories

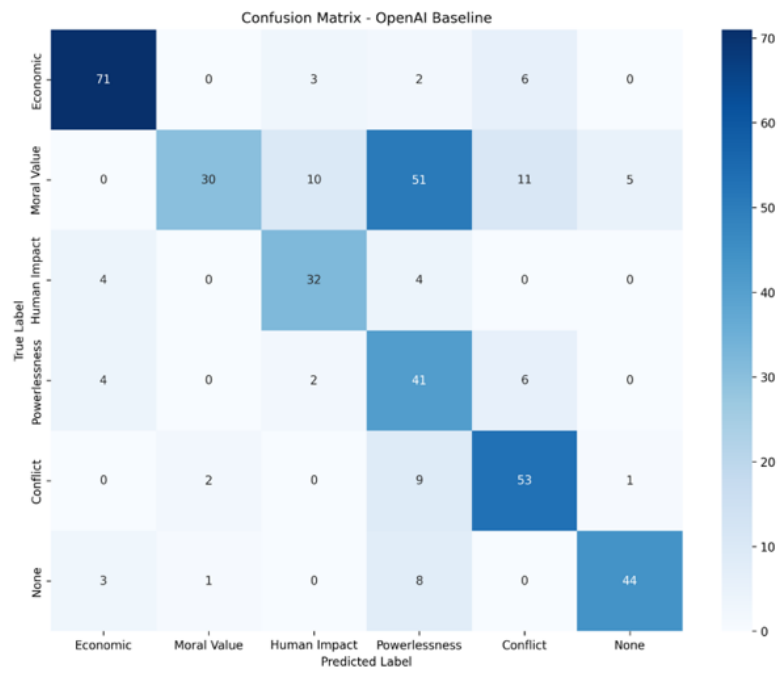


Figure 12: ChatGPT Craft Model Confusion Matrix

ChatGPT CoT Prompt:

You are an expert for the analysis of political speeches in the context of the Brexit referendum

Your task is to classify speeches into one of the following 6 communicative frames. Think through this step-by-step:

FIRST, identify the key themes and linguistic patterns present in the speech.

SECOND, match those themes against the frame definitions below.

THIRD, consider potential overlapping categories and determine which frame is most dominant.

FINALLY, select the single best-fitting category.

Here are the 6 communicative frames:

1. Economic - Centers on financial costs, benefits, and economic implications using quantifiable measures, market dynamics, and economic terminology and business language.
2. Human Impact - Focuses on how political decisions affect individuals, families, communities, or specific demographic group; people's daily lives and personal well-being. Describes "concrete effects" using "personal, emotional, or experiential language"
3. Conflict - Frames politics as a struggle between opposing sides, using adversarial/strategic or competitive language to depict winners and losers; zero-sum nature; incompatible interests
4. Powerlessness - Highlights a lack of agency, control, or influence, portraying individuals, institutions, or the nation as constrained or subordinated by external authorities or structures, and emphasizing the need/action to reclaim autonomy, independence, or decision-making power.
5. Moral Value - Appeals to principles of fairness, justice, integrity, and ethical responsibility, praising actions that uphold honesty, inclusivity, and democratic or social norms, while condemning hypocrisy, discrimination, fearmongering, or unethical behavior. It often works through indirect references to societal values.
6. None - Only if no other frame is applicable. Does contain e.g. procedural or administrative content. Technical or procedural descriptions without evaluative framing.

Respond ONLY with the exact category name. No explanations or additional text.

ChatGPT CoT Results:

Frame	Precision	Recall	F1-Score
Economic	0.8861	0.8537	0.8696
Moral Value	0.9118	0.5794	0.7086
Human Impact	0.7727	0.8500	0.8095
Powerlessness	0.4889	0.8302	0.6154
Conflict	0.8305	0.7538	0.7903
None	0.7937	0.8929	0.8403

Table 18: ChatGPT CoT Model Evaluation Metrics across Frame Categories

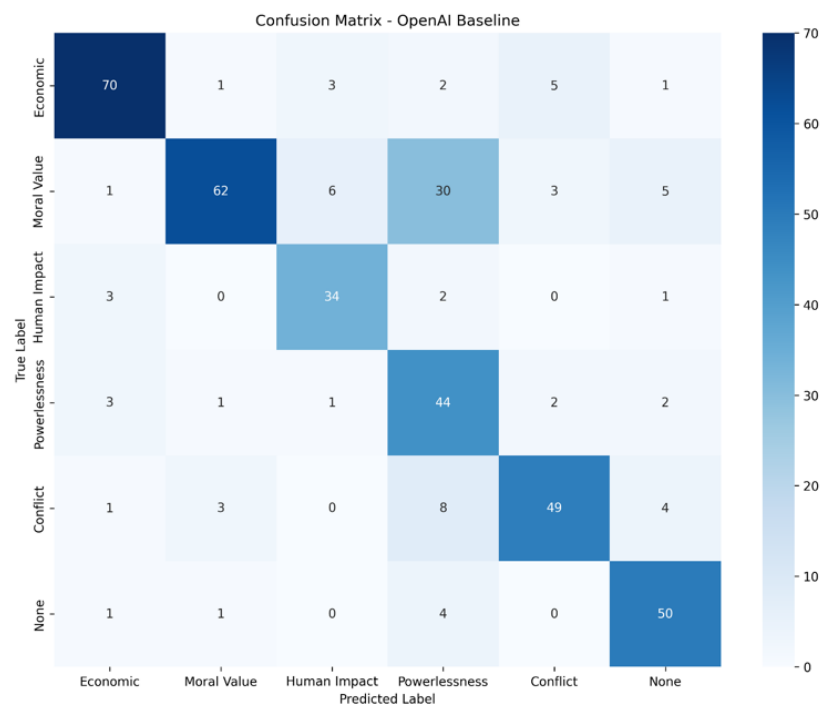


Figure 13: ChatGPT CoT Model Confusion Matrix

Appendix I: Standardized Residuals per Party

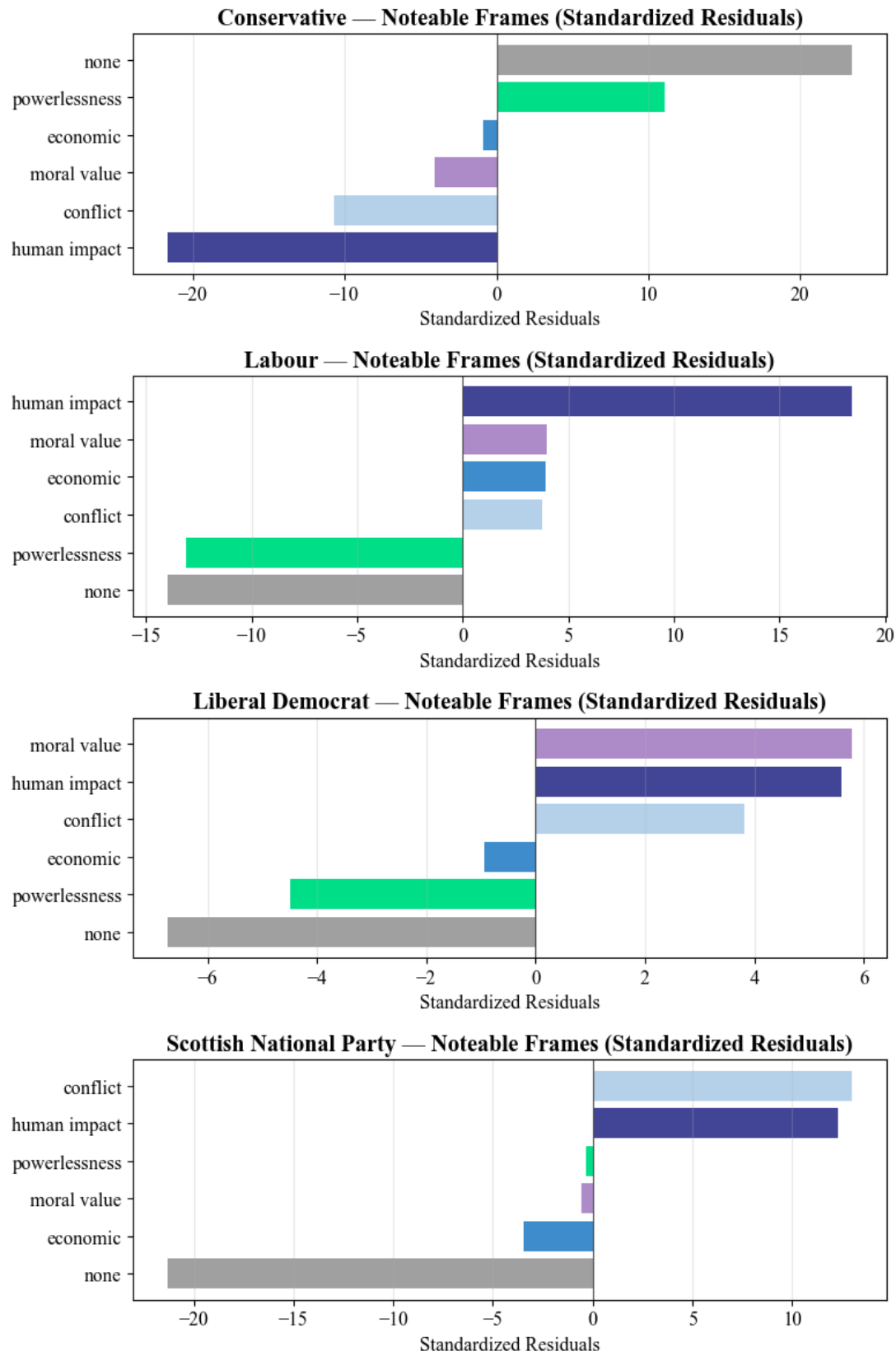


Figure 14: Standardized Residuals per Party

Appendix J: Code-Repository

All programs and scripts developed for this thesis are documented and accessible in a public GitHub repository. The repository includes the complete source code as well as a README file with instructions: https://github.com/julianbeese/master_thesis_code.git