Title:

Parliamentary Mandate Fulfilment. An automated approach to measuring congruence between the pre and post-electoral discourse of parties using word embeddings.

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Abstract:

The idea that electoral competition and party promises are important for how the representative behaviour of parties unfolds post-electorally is central to democratic theories of representation. Scholars of Party Mandate fulfilment have for long been focusing methodologically on the number of pre-electoral pledges that parties in government actually manage to implement. This article proposes a novel approach to the measurement of mandate fulfilment which extends past research, both conceptually and methodologically, by looking at the extent to which the parties' electoral discourse matches their parliamentary discourse. It designs, tentatively validates and implements a novel measure of how similar is the pre and post-electoral rhetoric of parties by utilizing recent advances in computational linguistics and the diffusion of text analysis tools in the social sciences. Applied on the Irish parliament, it compares electoral manifesto data with post-electoral parliamentary data from 1997 to 2019 and demonstrates satisfactory performance.

Keywords:

Parliamentary Mandate Fulfilment, Discourse Congruence, Political Parties, Text Similarity, Word Embeddings, Representation, Manifestos, Parliamentary Speeches

I. Introduction

The party mandate model's logic (an idea that dates back to the 1950s and the influential "responsible parties" report: APSA, 1950) lies in the premise that voters choose parties according to the policies they propose and in turn, once in power, parties must enact these policies. Indeed, a strong program-to-policy linkage is important for theories of representation. The empirical study of this linkage has relied extensively upon the 'responsible party model' and there is already a well-developed body of literature on this topic (among others: Esaiasson & Holmberg, 1996; Kitschelt, Mansfeldova, Powell, 2000, 2004; Thomassen, 1994; Thomson et al., 2012).

Scholars of the party mandate model have tended to focus on the fulfilment of electoral pledges once the party is in government, whereas less attention has been dedicated to the comparison between election pledges and parliamentary discourse, ie the parliamentary mandate (see Louwerse, 2011; 2012). The present article aims to contribute to this literature. Recent developments in computational linguistics allow researchers to shed new methodological light on what is still an understudied aspect of the quality of representation. This article takes advantage of these developments and designs, tentatively validates, and implements a novel measure of the degree of similarity between the pre and post-electoral rhetoric of parties.

In the following sections the reader can find a detailed literature review on how the problem of measuring mandate fulfilment has been tackled until now, followed by the introduction of the new measures and its application to the Irish parliament. Next follows the presentation of the validation exercise. Finally, the possible applications of the measure for future research are discussed.

II. Literature Review

The party mandate model has been conceived by scholars as providing a governing mandate to the winning party or parties (Ranney, 1951). The congruence is achieved if they fulfill their electoral commitments. Mandate fulfillment is the extent to which the electoral mandate is translated into government policy output.

One of the earliest systematic attempts looking at election pledges, focused on the United States (Pomper & Lederman, 1980) and employed the *saliency approach*. Scholars that use this approach compare how the electoral emphasis on a certain issue, translates into increases in government spending in the corresponding policy area (Hofferbert & Budge, 1992; Klingeman et al., 1994). In terms of methodology however, Royed (1996), locates the main point of criticism in the assumption that a promise to enact a policy necessarily means observable spending increases.¹ Indeed, policies can naturally include cuts which are not accounted for with this approach. Hence, he developed a more straightforward approach to assessing the fulfilment of party pledges by directly looking at specific promises/pledges and measuring whether they were realized or not. The so-called *pledge approach* was subsequently used by various scholars (e.g. Artés & Bustos, 2008; Mansergh & Thomson, 2007; Naurin, 2009; Thomson, 2001; Thomson et al., 2012).

Most researchers on mandate fulfilment have now implemented one of the two methodological approaches described above despite certain limitations identified. Those namely are the difficulty of distinguishing between ‘fully’ and ‘partially’ fulfilled pledges, and that election pledges are not weighted based on their electoral salience.

¹ For further reviews of the saliency approach, also see Mansergh & Thomson, 2007; Naurin, 2014)

Meanwhile, the mandate model has also been conceived in an alternative way. Although winning parties have the mandate to govern, opposition parties have still received a mandate to represent their voters in parliament. Louwerse (2011, 2012), calls this “the parliamentary mandate”. This mandate gives parties the obligation to maintain their policy stances before and after the election. This approach extends the reach of the party mandate model to encapsulate opposition parties (Serra-Silva & Belchior, 2020). Working at the level of the party system, Louwerse’s approach is spatial, looking at the entire legislative arena, considering the party mandate linkage between parties in parliament and their voters. He considers the mandate fulfilled not only when there is congruence between voters’ opinions and policy output but also when the views and interests of the people have been taken into account during the process that produced said output. It is the comparison of the electoral party competition with the parliamentary party competition. Essentially pitting parties’ election manifestos against their speeches in parliament after being elected. He shifts the analysis from individual party mandate fulfilment to what he calls the “collective mandate fulfilment”, an idea that derives from Golder and Stramski’s concept of the “many to many” issue congruence (2010: 95).

Nevertheless, if one looks at the sheer amount of scholarly work implementing the pledge approach, it is obvious that the literature on mandate fulfilment has been mostly about it. Although attempting to tap empirically on the fulfilment of concrete pledges is very valuable for representation studies, we must not forget the role of parliamentary debates and of opposition parties in this process. Bearing in mind that not only are parliaments the principal political arena but also an indispensable link in the ‘chain of representation’ (Müller, 2000), the degree to which the parliamentary mandate fulfilment has been understudied is surprising.

One cannot overlook the important process of deliberation before a certain policy output, since quality of representation can also stem from whether voters' opinions and interests are taken into account in the legislative instruments. At the same time, Louwerse's spatial approach (which has not been re-implemented since) does not allow for an analysis at the party level which limits the ability of the approach to reach more conclusive results concerning individual party behaviour. In addition, most of the research on pledge fulfilment has used manual coding, whereas very few studies use automated methods.

Against this backdrop, the present article attempts to extend the parliamentary mandate approach both conceptually and methodologically. It does so, by bringing relatively new document-comparison methodological developments from the field of computational linguistics and presents a measure of discourse congruence. As will be described in the following section, the measure compares electoral (i.e. manifestos) with post-electoral (i.e. speeches) textual sources and allows for between-party comparisons of representative performance while minimizing manual input and the costs that coding tasks entail.

III. Methodology

a. Data

The use of political text for research purposes has already taken place across a diverse set of textual sources including: media data (Young & Soroka, 2012); parliamentary speeches (Proksch & Slapin, 2010; Quinn et al., 2010); presidential, MPs and party statements, proposed legislation and bills (Adler & Wilkerson, 2013; Grimmer, 2009) and it is now a

common and very useful way to study representation with large corpora already available to the public (e.g. Rauh et al., 2017; Schumacher et al., 2016).

This article in particular, illustrates the measure's applicability using original data collected from the electoral periods and subsequent legislatures in Ireland between the years 1997 and 2019. Ireland is chosen without specific theoretical criteria in mind but because a) it is a prominent case in the mandate fulfillment literature, b) found to have relatively low levels of pledge fulfilment overall (Thomson et al. 2017), c) manifesto use is quite uniform among parties (Däubler, 2012), and lastly d) the English language is probably the most well-covered language in text analysis applications.

For each election and for each party that won seats in the consecutive legislature the manifesto and subsequent parliamentary speeches in every plenary session are collected. For the manifestos, the use of the Manifesto Project (MRG/CMP/MARPOR) dataset² allows for the easy access to the necessary data for all parties in Ireland. For the parliamentary speeches, the data on all plenary sessions of the *Dáil Éireann*, the lower chamber of the Oireachtas (the Irish Parliament) comes in a readily-accessible machine-readable .xml format directly from the Oireachtas website³. After accessing it, the data is treated⁴ and split into the necessary time intervals as explained in the next section yielding a corpus of 140.000 speeches.

b. Measurement

The conceptual point of departure for the measurement is the assumption that in the absence of constraints, the priorities of a party in the parliamentary arena should simply

² The paper uses its 2018a version (Lehmann et al., 2019).

³ At: <https://www.oireachtas.ie/en/open-data/>

⁴ eliminating interventions given by the Speaker and that contain less than 50 words

mirror those expressed in its manifesto. Consequently, under the lens of this article, the parliamentary mandate fulfilment entails some level of congruence between electoral and parliamentary discourse. Henceforth, *discourse congruence* is the degree to which parties talk post-electorally like they talked pre-electorally.

In order to operationalize discourse congruence, manifestos and speeches are compared for their textual similarity. For the estimation of this similarity, the article implements a state-of-the-art document comparison method called Word Mover's Distance (Kusner et al., 2015). The Relaxed Word Mover's Distance (RWMD) variation in particular, which is developed in the same piece and reduces the computational cost without hindering its validity, is able to capture the semantic similarity between documents.

RWMD compares documents through the use of word embeddings. Word embeddings map words into a high-dimensional vector space to the effect that semantically similar words are close to each other. In other words, they produce numeric representations for words so that for instance, the distance between the words Greece and feta (i.e., $\text{Embedding}(\text{Greece}) - \text{Embedding}(\text{feta})$) will be similar to the distance between the words Italy and mozzarella (i.e., $\text{Embedding}(\text{Italy}) - \text{Embedding}(\text{mozzarella})$). These vectors can be trained on a specific corpus or come pre-trained with unsupervised neural network models like the Word2vec algorithm (Mikolov et al., 2013) on publicly available corpora. In this case, the FastText pre-trained language models taken from Grave et. al. (2018) are used. They are trained by the Facebook AI Research (FAIR) team, and by the time of writing almost 300 languages are covered, on billions of Common Crawl⁵ and Wikipedia online texts.⁶ This of course allows for the

⁵ <https://commoncrawl.org/>

⁶ An important quality of the FastText model is the use of subword information to derive word embeddings, rendering it an excellent option for multilingual use cases. Especially for languages that contain large vocabularies, many compounds, and rare words, standard models would not have embeddings. A further quality of FastText embeddings is the possibility to easily continue the training using data/corpus from a specific use-case for which the vocabulary might not be covered or the accuracy of the embeddings is not great.

application of the embeddings for a variety of cases since the vast majority of the languages commonly used are covered. Word embeddings are by now almost a necessity for state-of-the-art text-analysis approaches and are steadily gaining traction in political science (Rheault & Cochrane, 2020; Rodman, 2020).

Using these embeddings, RWMD then computes the similarity between two documents as the transportation cost between the vectors of their words. In other words, it compares the distance that the words of one document need to “travel” to reach the words of another document. In this implementation the vectors are compared using the cosine distance as suggested by the author of the *text2vec()* package in R.⁷ The similarity ranges from 0 to 1 (where 0 means no similarity at all and 1 means perfect semantic similarity).

The biggest advantage of this method in comparison to traditional document representations of bag of words (BOW) and term frequency-inverse document frequency (TF-IDF), and the subsequent one-hot vectors of documents is the ability to even compare documents that share no common words but speak about the same thing and in a similar way. The classic example, as presented in Kusner et. al. ’s article, are the two sentences “*Obama speaks to the media in Illinois*” and “*The President greets the press in Chicago*”. While these sentences share no common words, they convey nearly the same meaning. This is a fact that a BOW approach cannot represent but RWMD can.

To demonstrate the performance of the method and considering the example of the two sentences present in Kusner et. al.’s article, Table 1 shows the RWMD score of their similarity is 0.593. In comparison, when the sentence “*The President greets the press in Chicago*” is compared with “*The band gave a concert in Japan*” the score is 0.367. To give a

⁷ <http://text2vec.org/>

further example from Table 1 and the specific use case of discourse congruence, consider sentences seven and eight (two Fianna Fáil sentences from its manifesto and consequent speeches of one of its MPs in 2016 respectively). The method returns the value of 0.431 similarity or in our case, discourse congruence. For further demonstration, Table 2, contains the five most similar pairs of sentences between EU-related parts of the manifesto and speeches of Fine Gael in the 2007 election.⁸

Table 1. Example Sentences and their Matrix of RWMD Similarity Scores

1	Obama speaks to the media in Illinois.
2	The president greets the press in Chicago.
3	Chelsea won the Champions League.
4	The band gave a concert in Japan.
5	We must reject all illegal immigrants. We promise to protect our borders by reinstating tough controls.
6	Thank you Mr. Chairman, why is the Prime Minister still allowing the flows of illegal immigrants and leaving our borders unprotected?
7	We will oppose the further militarisation of the EU and attempts to create a standing EU army, and we will terminate Ireland's involvement in EU Battle Groups.
8	I very much welcome the Taoiseach's clear commitment to Ireland's neutrality. We have no interest in the creation of a common army. Each single treaty that has been voted on in this country has gradually increased the militarisation of the European Union.

	1	2	3	4	5	6	7	8
1	1.000							
2	0.593	1.000						
3	0.333	0.299	1.000					
4	0.367	0.304	0.282	1.000				
5	0.219	0.230	0.247	0.193	1.000			
6	0.299	0.393	0.295	0.275	0.546	1.000		
7	0.239	0.234	0.295	0.300	0.356	0.290	0.928	
8	0.324	0.301	0.368	0.375	0.354	0.275	0.431	0.941

⁸ After removing very short (<100 characters) and very large sentences (>400 characters) as well as duplicate sentence pairs to focus on unique pairs and demonstrate the usability of the measurement.

Table 2. Examples of Most Similar (RWMD) Pairs of EU Sentences Between Manifesto and Speeches for Fine Gael 2007

Manifesto Sentence	Speeches Sentence	Similarity
“BUDGETING FOR GROWTH AND STABILITY Fiscal Prudence and Economic Stability We will subject all spending and tax commitments to the over-riding commitment to adhere to the EU Growth and Stability Pact.”	“The EU indicated the current fiscal stance could be out of line with the Stability and Growth Pact in 2009.”	0,744
“Ensure that the European Union gives every possible support to the people of Iraq, for example through enhanced support for the training of police and through greater humanitarian aid.”	“We cannot force the European Union to go our way and it cannot force us to go its way against each other's will.”	0,660
“Security and Defence We believe that Ireland should be a full participant in European Security and Defence Policy according to five key principles which are: The commitment to adhere to the fundamental principles of the UN.”	“On the issue of neutrality, Ireland will retain its veto on all matters concerning European defence policy.”	0,650
“Regulation We will undertake a radical overhaul of the current regulatory framework for waste collection services, introducing competitive tendering for waste collection services at a local and regional level, as in done in other EU countries.”	“I would like to conclude by asking about compliance with EU regulations and possible contact from third countries.”	0,642
“Red Tape We will work to reform the European Union to reduce ‘red tape’ and bureaucracy, especially regarding the impact on small and medium enterprises.”	“Many groups and individuals have complained bitterly about the impact of regulation and red tape, which is a consequence of how the European Union does its business.”	0,642

With that sentence-to-sentence comparison in mind, the attention shifts towards the greater example of longitudinal parliamentary discourse congruence for all Irish parties. The comparison of the manifestos of every party with its consequent parliamentary speeches can happen at different time intervals as the researcher sees fit. In this case, Figures 1 and 2 show the discourse congruence for all parties that gained seats in the Irish Dáil from 1997 to 2019 per calendar quarter and year respectively.

Figure 1. Discourse Congruence per Party per Quarter in Ireland

Figure 2. Discourse Congruence per Party per Year in Ireland

One thing that is prominent, is that the Labour party seems to be relatively very congruent to the manifesto in its speechmaking behaviour across the years. Additionally, Fianna Fáil appears to be very congruent up until the 2011 election when Fine Gael surges to the top of the figure together with the Labour party. This coincides with the fact that these

parties were actually in government during the respective periods and would indicate that incumbent parties seem to demonstrate more congruent to the manifesto speechmaking behaviour. This is perhaps because of their ability to set the agenda but further studies attempting to explain discourse congruence would be necessary to back this claim.

c. Validation - Synthetic and Natural (real-world) benchmarks

Having shown how RWMD would work with a single case and in a longitudinal fashion, the measure's validity is addressed next. A double benchmarking test is performed, namely, validating against a synthetic (artificial) as well as a natural (real-world) benchmark. For the first, a pair of virtual/artificial parties is created. On the one hand, a very congruent party by comparing a random manifesto (Ireland, Fianna Fáil, 2002 Election) with an artificial text representing the average length of speeches per quarter⁹ and comprised of only sentences of said manifesto. This is simply done by randomly selecting the manifesto's sentences in a loop until the desired length is reached. On the other hand, a very incongruent party is created by comparing the same manifesto with a text of equal length but comprised of random texts drawn from the English Wikipedia in Python, using the *wikipedia* library.

For the second test, using the Chapel Hill Expert Survey's (Bakker et al., 2020) general Left-Right position scores, two pairs of ideologically very similar (close in CHES scores) and very dissimilar (distant in CHES scores) parties are selected for a random election (Ireland 2007).¹⁰ The manifestos of these parties are compared using the RWMD method with the speeches of the respective party pair.

⁹ (roughly 300000 words, calculated as 275 words per speech and 18000 Speeches per term)

¹⁰ Fine Gael (CHES LRgen: 7.25) vs Sinn Féin (1.25) as most LR dissimilar pair and Fine Gael (7.25) vs Fianna Fáil (7.25) as most LR similar pair

Figure 6. Text Similarity (Congruence) by Benchmark for Ireland 2007

Figure 6 shows that, as expected, the measure attributes the highest score to the artificial congruent party and the lowest to the artificial incongruent party with the random Wikipedia speeches. In between lie the natural benchmarks where, again as expected, the pair of ideologically similar parties shows more congruence than the pair of dissimilar parties.

IV. Conclusions

A lot of research has been devoted to the way in which parties deliver on their pre-election promises. Extant studies have delved into both incumbent performance, as well as parliamentary behaviour. Yet, most of these studies have used manual content analysis, and rarely have automated analyses been able to measure parties' congruence before and after the

election. This article is innovative in that it describes a new measure of parliamentary mandate fulfilment that extends past attempts. It applies methodological tools from the field of computational linguistics to the field of legislative studies in a novel way and manages to measure the extent to which parties' manifestos and subsequent parliamentary speeches are similar.

It has the capacity to provide empirical evidence as to whether legislators and parties carry their electoral rhetoric into parliaments without the need for costly manual coding while enabling cross-party longitudinal comparisons. It can easily be applied to specific parts of the texts to capture the similarity on specific topics/issues since it is only a matter of feeding the respective texts into the pipeline. Additionally, it is easily scalable to multiple countries, since it is language-blind, and requires minimal manual input. However, multi-lingual (and cross-country) applications should be made with caution taking into consideration the lengths of the texts as well as control for differences in speechmaking rules.

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