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# Measuring National Delegate Positions at the Convention on the Future of Europe Using Computerized Word Scoring

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## KEY WORDS

- comparative party policy
- computerized content analysis
- EU Constitution
- European Union
- Laeken Convention
- word scores

## ABSTRACT

The Convention on the Future of Europe that led to the eventual drafting of an EU Constitution involved numerous political actors from many countries. Their negotiations over the constitution generated a huge volume of texts containing substantive information about their preferences for EU institutional and political outcomes. In this paper, we attempt to measure these preferences at the national party level by analysing the Convention texts using the computerized 'word-scoring' method for text analysis (Laver et al., 2003). For each national party whose delegates' texts were

recorded at the Convention, we estimate their positions on four political dimensions. We then test the validity of these estimates by comparing them with measures of national party positions on EU policy dimensions obtained through an extensive expert survey undertaken in 27 countries (the EU 25 plus Turkey and Romania). Our results show strong evidence that the word-scoring method is broadly successful in reconstructing the map of national party preferences for and against a more centralized and more powerful Europe as expressed through the Convention texts.

## Introduction

The Convention on the Future of Europe, held in Laeken to negotiate and eventually draft a constitution for the European Union (EU), involved political actors from many countries, national parties, European Parliament party groups and representatives of interest groups. Each actor held preferences towards the negotiation outcomes, which they presumably pursued by articulating their positions during the Convention. Measuring these preferences is of high relevance both for political science in general terms and for estimating the course and determinants of European integration more specifically. Fortunately, Convention participants left a written record of their negotiations, articulating these in a manner that was meticulously recorded. Because of the vast quantity of these texts, however – involving a total of 6474 contributions from 197 distinct speakers from 28 different countries – it is time-consuming, costly and difficult to extract useful information from these documents. Recent methodological advances in computerized content analysis, however, offer new ways to deal with such huge volumes of text. The recently developed computerized word-scoring technique (Laver et al., 2003) is one such method, and has already been applied to the analysis of party manifestos (Laver et al., 2003; Benoit and Laver, 2003) and parliamentary speeches (Laver and Benoit, 2002; Giannetti and Laver, forthcoming). Driven by relative word frequencies, the word-scoring method breaks down each text into words, treating these words as data to be analysed statistically. Such techniques offer particularly large payoffs when the research task involves analysing very large numbers of texts in a systematic way, as is precisely the case in relation to negotiations during the Laeken Convention.

In this article we apply the word-scoring method to analyse the thousands of Convention texts, with the goal of estimating the political positions of national party representatives participating in the Convention. In order to assess the validity of the word-score estimates, we compare national party word-score estimates from the Laeken negotiations with expert survey scores of European national parties from the 2003 expert survey reported in Benoit

and Laver (forthcoming). The exercise thus serves as a good test for word-scoring in a substantive application where the sheer volume of texts makes other methods of text analysis impossible or infeasible. Our measure of success will be the degree of statistical correlation we can observe between the word-score estimates and the independent expert survey estimates of the positions of national parties on the same policy dimensions.

The paper proceeds as follows. First, we briefly describe the nature of the Convention on the Future of Europe and the negotiation process on the EU Constitution for which we seek to measure actor preferences. We also set forth our basic theoretical assumptions, namely that actors hold and pursue political outcome preferences that they articulate through negotiations, and that these preferences will be manifest in their negotiating texts. Second, we describe our data, consisting of the Convention texts and the set of expert survey estimates of party positions used to validate the word-score estimates. Third, we briefly describe the computerized word-scoring methodology, and present in detail how it was applied to the Convention texts. Next, we present and discuss the results of the word-scoring and compare them with the set of expert survey estimates. Finally, we discuss the overall achievements of this research and draw conclusions for our ability to measure political actor preferences from their texts.

## **The Convention on the Future of Europe**

During the Intergovernmental Conference held in Nice in 2000, the need was recognized to address substantial EU institutional and constitutional matters that were considered to have been left over from previous rounds of Treaty reform. In a 'Declaration on the Future of Europe', annexed as Declaration No. 23 to the Treaty of Nice (2001), EU member states agreed to initiate a deeper and wider debate within Europe. At an informal meeting of the European Council in Ghent in October 2001, general guidelines were agreed for the establishment of a Convention that would foster a constitutional debate on the future of the EU.

The momentum for a constitutional Convention continued in December 2001, when the European Council in Laeken laid out more precisely not only the goals and the objectives of such a Convention, but also the procedural details of when it should convene and how it should be constituted. According to the Laeken Declaration (2001), the following key issues were expected to be discussed during the Convention: the division of competences between the Union and its member states, the simplification of the Union's legislative instruments, the maintenance of the inter-institutional balance, an

improvement to the efficacy of the decision-making procedures, the definition of the EU's role in an increasingly global environment, and the constitutionalization of the Treaties.

The European Council at Laeken appointed Valéry Giscard d'Estaing as chairman of the Convention, and Giuliano Amato and Jean-Luc Dehaene as vice-chairmen. Additionally, the Convention was constituted by the following members: 15 representatives of the heads of state or government (one from each member state), 30 representatives of the national parliaments of the member states (two from each member state), 16 members of the European Parliament (EP), 2 representatives of the European Commission, 13 government representatives of the accession and candidate countries (one from each country) and 26 representatives of the national parliaments of the accession and candidate countries (two from each country). Participating as observers were 3 representatives of the Economic and Social Committee, 6 representatives of the Committee of the Regions, 3 representatives of the social partners, and 1 person representing the European Ombudsman. In addition to the 105 full members, each member of the Convention, with the exception of the three chairmen, was allowed to appoint one alternate, bringing the total number of members to 204. Furthermore, during the course of the deliberations, many governments replaced previously appointed members with new ones, bringing the total number of members participating in the Convention at one point or another to a total of 275. These members collectively produced a substantive record of the contentious deliberations during the Convention in the form of documents, amendments and speeches, which were all made available publicly.

Underlying our attempt to estimate the policy preferences of Convention participants is not only the fact that actors' positions are recorded in the publicly available texts, but also the expectation that these texts will contain information about the sincere policy preferences of national political actors. Existing research on cleavage theory supports the idea that policy differences will divide parties not just at the national level, but also at the European level (Marks and Wilson, 2000; Hooghe et al., 2002; Gabel and Hix, 2002; Pennings, 2002; Thomson et al., 2004). As the fundamental issues of the Convention dealt with the institutions of Europe, furthermore, we expect that different national party stances regarding the strength and scope of European powers will be directly reflected in national position-taking at the Convention (Pennings et al., 2004). We also expect, although possibly to a lesser extent, general left-right policy differences to be evident in Convention texts. Existing theories indicate that, when actors evaluate their preferences on formal rules to be incorporated into a constitution, they do so by calculating the extent to which these will favour or hamper the realization of their most

preferred policy goals (Collignon, 2003). We therefore expect a correspondence between independently measured positions of national political parties on European and general left–right issues and positions taken at the Convention. The test applied here is whether the computerized content method of word-scoring can reliably extract this correspondence from the body of texts produced during the Convention.

## Data

### Convention texts

The data used in this paper come from two principal sources. The first is the set of Convention texts, which were made publicly available on the official Convention website (<http://european-convention.eu.int>). We were able to access all the documents that were submitted by the Convention participants.<sup>1</sup> Since the Convention completed its work on 10 July 2003, we harvested the full set of the documents in September 2003 to make sure that our database could be presumed to be complete. As might be expected, the corpus of documents collected required cleaning up before it could be used. First, the names of the actors came in many variations, partly because of alternative spellings, differences in electronic character sets and national conventions. We wrote a canonicalization procedure which used disambiguating heuristics to match the 1018 name variations found in the database to the 275 known actors. From the same website, we also obtained information on the actors' nationalities and their national party affiliations. Of the total of 275 actors, we were able to match 197 to a national party. The remaining actors mostly either belonged to the Ministry of Foreign Affairs or were members of the diplomatic corps.

Second, in the meta-information in the Convention database, the language of the document was more often than not identified incorrectly. Therefore, we ignored the information about the language contained in the original database and instead used 'TextCat': an *n*-gram-based language identification tool that uses rank-order statistics to compare the prevalence of short letter sequences (Cavnar and Trenkle, 1994; Dunning, 1994; Sibun and Reynar, 1996).<sup>2</sup> This helped us to discover that the 6474 texts came in seven different languages (English, French, German, Italian, Spanish, Portuguese and Dutch; see Table 1). Because a clear majority of texts (60%) were in English, our analysis began by selecting only the 3893 English texts for further processing. This selection process was necessary because the word-scores method requires that all texts being analysed come from the same lexical universe, which means they must all be in the same language. In appendix A<sup>3</sup>

**Table 1** Texts by language

<i>Language</i>	<i>Number of texts</i>	<i>%</i>
Dutch	14	0.22
English	3893	60.11
French	1425	22.01
German	719	11.11
Italian	190	2.93
Portuguese	115	1.78
Spanish	118	1.82
Total	6474	100.00

we present evidence that the sample of authors providing English, single-authored texts does not contain actors whose positions differ substantially from those in the entire collection of texts.

Concatenations of these files by national party were then processed for use by word scores. We concatenated the files because we view the natural text unit for analysis as being all of the text submitted by particular national party speakers, and we expect all of the speeches to represent a particular political viewpoint at the Convention.<sup>4</sup> Another choice to be made concerned how to handle texts submitted to the Convention by multiple authors. As can be seen in Table 2, of the English-language texts, some 64% were single-authored, with the rest being handed in by two authors or more. For simplicity, we selected the 2493 single-authored texts for further analysis.

The texts came in six basic variations, as can be seen in Table 3. Substantively, the most important type was amendments, and these also represent

**Table 2** Authorship of English-language texts

<i>Number of authors</i>	<i>Number of texts</i>	<i>%</i>
1	2493	64.04
2	437	11.23
3	120	3.08
4	223	5.73
5	127	3.26
6	216	5.55
> 6	277	7.11
Total	3893	100.00

**Table 3** Text type for English, single-authored texts

<i>Text type</i>	<i>Frequency</i>	<i>%</i>
Proposed amendments	2136	85.8
Contributions	186	7.5
Speeches	138	5.5
Documents	17	0.7
Press and information	10	0.4
Related documents	3	0.1
Other	3	0.1
Total	2493	100.00

the vast majority of documents submitted. In fact, the total of 2136 proposed amendments represent almost 86% of all English-language texts submitted by a single author. Given the fact that the overarching rationale for the Convention was to simplify and to constitutionalize the Treaties, it is not surprising that we should find that member states frequently, and strategically, made use of suggested amendments to express their policy preferences. Many of the amendments, in fact, had a fair amount of original text added by the actor submitting the document, in which a detailed explanation was given of why a certain Treaty article needed to be changed. Additional types of documents submitted to the Convention were ‘contributions’ (186) and ‘speeches’ (138). Together, these two categories represent 13% of all English-language documents submitted by a single author.

### **Expert surveys**

As a set of external reference points for the policy positions of the national parties whose Convention texts we examine in this paper, we use an expert survey of party policy positions conducted by Kenneth Benoit and Michael Laver in 2003. This survey, reported in Benoit and Laver (forthcoming), extended the Laver–Hunt (1992) expert survey methodology to all of the 25 EU member states. In each of the countries surveyed, respondents were sent (by regular post or by e-mail) a questionnaire on the main political parties in their country, plus a list of approximately 12 policy dimensions on which they were asked to locate these parties. Respondents consisted of academic political experts, selected in each country from lists provided by national political science associations. In an effort to reach more respondents, Benoit and Laver translated the survey (originally in English) into the native language of 16 of

the 25 EU countries, resulting in native languages (including English) being used in 18 of the 25 countries. Details on response rates and question items are provided in appendix A to this paper, as well as being described in full in Benoit and Laver (forthcoming).

The expert surveys characterized policy dimensions a priori, and asked respondents to locate political parties on a scale ranging from one extreme of this dimension to the other. Following the Laver–Hunt methodology, the Benoit–Laver expert survey used 1 to 20 point scales, where 1 generally corresponds to the ‘left’ position and 20 to the ‘right’. In the context of the EU, 1 meant a pro-EU stance and 20 meant an anti-EU position. For this paper, we have relied mainly on a subset of these questions that relate specifically to the EU. These questions were the following:

#### **EU Accountability**

Promotes the direct accountability of the EU to citizens via institutions such as the European Parliament. (1)

Promotes the indirect accountability of the EU to citizens via their own national governments. (20)

#### **EU Authority<sup>5</sup>**

Favours increasing the range of areas in which the EU can set policy. (1)

Favours reducing the range of areas in which the EU can set policy. (20)

#### **EU Security**

Favours <Country> involvement in European security and peacekeeping missions. (1)

Opposes any <Country> involvement in European military affairs. (20)

The expert survey also included a direct measure of left–right positioning, asking experts to locate parties on a general left–right scale as well as on a set of substantive policy scales. After providing an average of 10 other policy dimensions per country, the questionnaire further asked:

#### **Left–Right**

Please locate each party on a general left–right dimension, taking all aspects of party policy into account. Left (1). Right (20).

In what follows we will use the estimates of national party positions from these dimensions to provide an external validity check on the results of computerized word-scoring of each national party’s Convention texts. If we can demonstrate a positive and significant correlation between the word-score estimates of a party’s Convention position and the estimates of that national

party's policy position from the completely independent expert survey, then this will be evidence that word scores can be successfully applied to measure the positions of political actors in forums such as the Convention on the Future of Europe.

### **Methodology: Computerized word-scoring**

Having identified the Convention texts we will analyse here, we now set out to estimate the policy positions of the authors who wrote them. To do this, we analyse the texts using the computerized 'word-scoring' technique set out in Laver et al. (2003), which contains a full description of what is involved, together with web links to downloadable software that will perform all of the data analysis required.<sup>6</sup> Briefly, the word-scoring technique is a method for estimating the position of 'virgin' (unknown) texts on a priori policy dimensions. Essentially, it does this by statistically comparing the patterns of word frequencies in the virgin texts under investigation with the patterns of word frequencies in a set of 'reference' texts from well-known sources. Once the analyst has access to external estimates of the positions of the reference texts on the a priori dimensions under investigation, as we have with our expert survey findings, or indeed is confident in being able to assume these, the word-scoring technique proceeds as follows.

First, the reference texts are analysed in order to calculate a matrix of the relative frequencies of all words in the word universe of the set of reference texts. This in turn allows the calculation of a matrix of key conditional probabilities, each element of which is the probability that a reader is reading reference text  $r$  given that he or she is reading word  $w$ . For any given a priori policy dimension for which the positions of the authors of each reference text can be either estimated or confidently assumed, this allows the calculation of a vector of 'word scores', each element of which is in effect an estimated policy position of text  $r$ , given that the reader is reading word  $w$ . The vector of word scores for any a priori policy dimension is thus a function of the policy positions and the patterns of relative word frequencies in the set of reference texts. Having calculated the vector of word scores for a given dimension from the reference texts, the analyst is now in a position to investigate 'virgin' texts, where no information whatsoever is available about the policy positions expressed in them. This is very simply achieved. The pattern of relative word frequencies in each virgin text is observed and this, combined with the vector of word scores for the dimension under investigation, allows the analyst to estimate the position of each virgin text on this dimension.

Because this technique is purely statistical, it has three great advantages

over more traditional methods of text analysis. It requires no substantive judgement calls during the process of data analysis and is thus perfectly replicable; it operates in any language, not needing predefined coding dictionaries; and it generates an estimate of the uncertainty associated with any estimated policy position. The analyst's crucial expert role when using the word-scoring technique is at the research design stage – in identifying appropriate reference texts and in picking good estimates or assumptions about the positions of these texts on the a priori dimensions under investigation. If the reference texts are inappropriate or if their estimated or assumed policy positions are misleading, then this will produce misleading estimates of the positions of the virgin texts. The key, therefore, is to build on a solid foundation of well-chosen reference texts, with solid estimates or assumptions about policy positions.

Our selection of reference texts involves identifying a set of extreme pro-EU texts on the one hand, and a set of extreme anti-EU texts, on the other. Since our unit of estimation will be national political parties, we can use the Benoit and Laver (forthcoming) expert survey results to identify extreme parties on the four policy dimensions. Our method was therefore kept deliberately simple and data driven. For each dimension under investigation, a cluster of parties occupying the extreme positions on the expert survey dimensions was identified by using the 10th and 90th percentiles of dimension scores as cut-offs. On the a priori scale of 1 to 20, going from pro- to anti-EU, any text associated with a national political party scoring in the 10th or lower percentile of 'extremism' was used to create the pro-EU reference text. Likewise, any text associated with a national political party scoring in the 90th or higher percentile of extremism was used to create the anti-EU reference text. All such texts were concatenated into two sets of reference texts: one representing a pro-EU position and one representing an anti-EU position.<sup>7</sup> For each of our policy dimensions examined, appendix C of this paper provides full details on which speakers, parties and countries provided the texts to create these 'extreme' reference texts.

Reference texts were assigned scores on a metric of -1.0 to +1.0, with the pro-EU reference text receiving the -1.0 score, and the anti-EU text receiving +1.0. We then scored the words for each of the policy dimensions under investigation using the different reference texts.<sup>8</sup> We created two sets of scored words for each of these: one using the pair of concatenated reference texts (one on each extreme) consisting of amendments, and another pair of reference texts consisting of other (non-amendment) text types. Following the creation of the word scores, we then applied this to *virgin* texts contributed by national parties, paired similarly into amendment and non-amendment texts. Virgin texts consisted of concatenated texts of all speakers representing

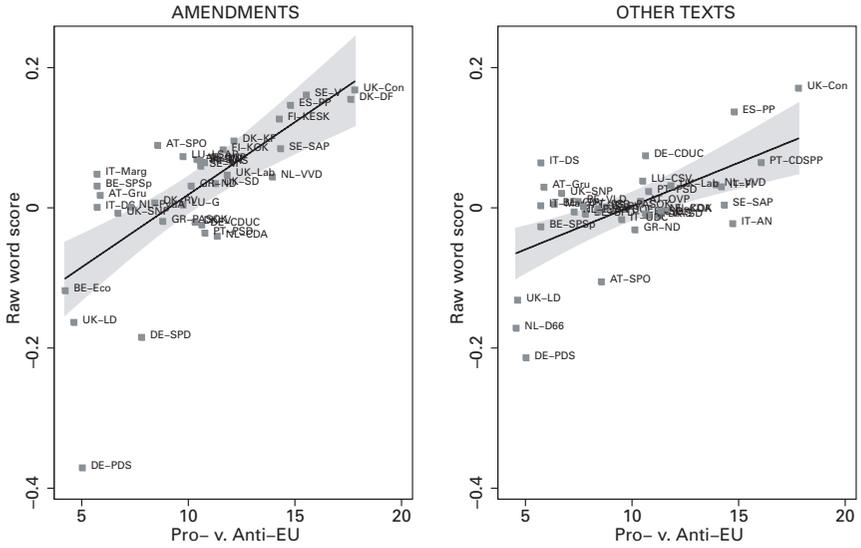
the same national political party. For example, for the EU Authority Dimension, there were three different speakers from the UK Conservative Party: Heathcoat-Amory, Kirkhope and Stockton (see appendix C). These speakers' texts were concatenated into two sets of texts to be scored, depending on text type: respectively 76, 134 and 65 proposed amendments from the three speakers were used to create a single concatenated text for the UK Conservative Party for amendments, and the respectively 6, 3 and 3 other types of text were used to create the 'other' text type of concatenated text.<sup>9</sup> Because of the possible concerns about different text types providing different lexical orientations, we separated virgin texts into two types: proposed amendments and all other texts. As stated previously, we expect amendments to contain more directed information about actors' policy preferences, given their focused purpose and more standard content relative to the much looser possibilities for other text types, which included contributions, speeches, press releases and miscellaneous other documents.

Our final step was then to compare the scalar estimates for each virgin text with the expert survey means for each national party, analysing amendments and other text types separately. We used both graphical and statistical methods for this evaluation, with statistics being simple OLS regression analysis. We do not expect to predict party scores perfectly – for a number of reasons – but we consider it a success for the word-scores technique if we observe a statistically significant, positive correlation between the word-score estimates and the expert survey estimates. In addition to cross-national tests comparing word-scores and expert survey estimates for all national parties, we also compared word-scores and expert survey rankings within each country.

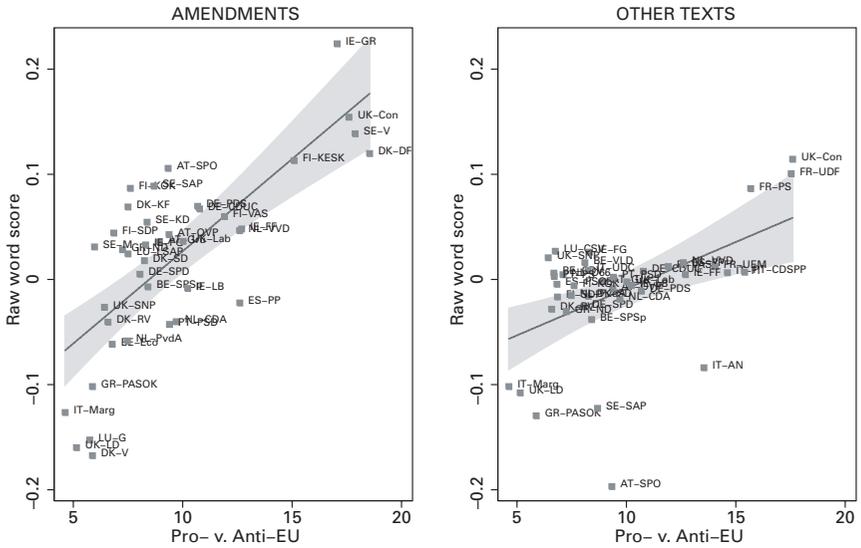
## Results

### Pooled comparisons

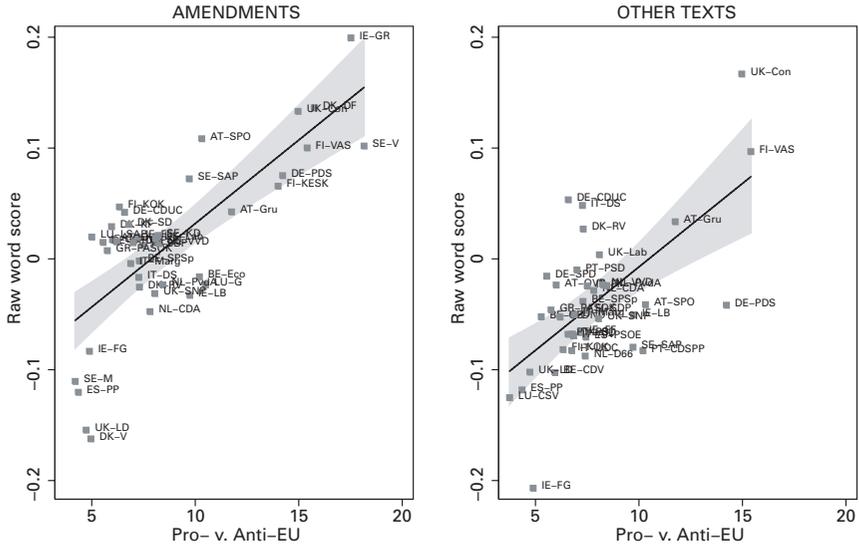
If word scores can correctly identify the positions of national political parties as recorded in their Convention texts, then we would expect word-score estimates of national party texts to show a significant, positive relationship with the expert survey estimates that provide external and independent measurement of national party positions. Our first test thus pooled all national parties and examined cross-national correlations between the word-score and expert survey estimates. Figures 1–4 portray the associations for each of our four policy dimensions: EU Accountability, EU Authority, EU Security and general Left–Right preferences for socioeconomic policy. In each graph, the expert



**Figure 1** Raw word-score estimates compared with expert survey estimates for national parties: EU Accountability dimension.  
 Note: Extremism is 10th, 90th percentile, 200-word minimum. The party names and abbreviations are listed at URL: <http://www.politics.tcd.ie/ppmd/>.

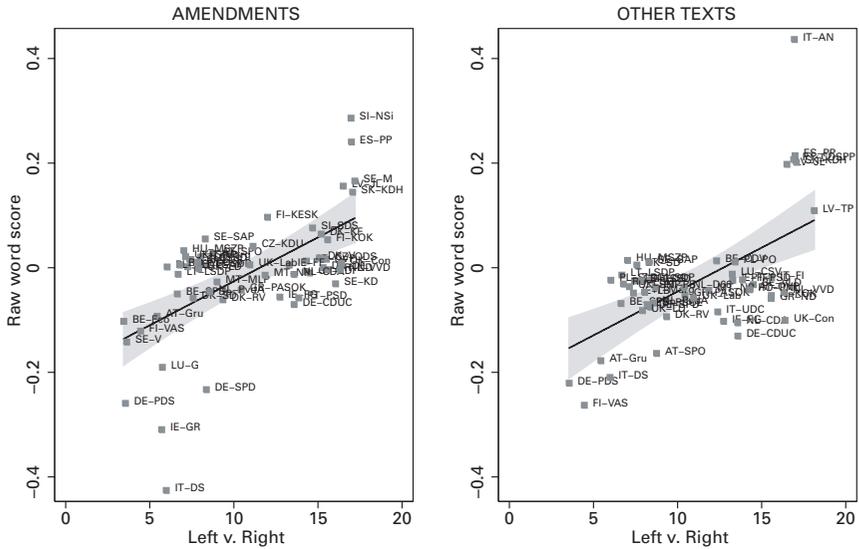


**Figure 2** Raw word-score estimates compared with expert survey estimates for national parties: EU Authority dimension.  
 Note: Extremism is 10th, 90th percentile, 200-word minimum.



**Figure 3** Raw word-score estimates compared with expert survey estimates for national parties: EU Security dimension.

Note: Extremism is 10th, 90th percentile, 200-word minimum.



**Figure 4** Raw word-score estimates compared with expert survey estimates for national parties: Left-Right dimension.

Note: Extremism is 10th, 90th percentile, 200-word minimum.

**Table 4** Regressions of raw word-score estimates on expert survey positions of national parties

<i>Indep. variable</i>	<i>Text type</i>							
	<i>Amendments</i>	<i>Other</i>	<i>Amendments</i>	<i>Other</i>	<i>Amendments</i>	<i>Other</i>	<i>Amendments</i>	<i>Other</i>
Accountability	.0207 (.0037)	.0124 (.0028)						
Authority			.0207 (.0037)	.0092 (.0023)				
Security					.0151 (.0021)	.0151 (.0031)		
Left-Right							.0168 (.0030)	.0168 (.0034)
Constant	-.1883 (.0124)	-.1212 (.0289)	-.1877 (.0370)	-.1015 (.0234)	-.1187 (.0201)	-.1578 (.0252)	-.1940 (.0343)	-.2132 (.0396)
Adj $R^2$	.47	.34	.44	.27	.56	.37	.36	.32
Root MSE	.0765	.0572	.0837	.0498	.0497	.0506	.0940	.0959
<i>N</i>	36	36	40	42	40	39	55	51

*Note:* All coefficients are statistically significant at the  $p < .001$  level. Standard errors in parentheses.

survey estimates (ranging from 1 to 20) are plotted against the raw word-score estimates, set originally in a  $(-1, 1)$  interval, but bunched more narrowly towards an interval of approximately  $(-0.5, 0.5)$  because of overlapping words. The solid line in each plot shows the (OLS) linear relationship, and the shaded region depicts the associated 95% confidence interval.

We see immediately from Figures 1–4 that in each case there is indeed a positive and significant relationship between the national party texts and the associated word scores. The panel on the left shows the results for amendment texts, and the panel on the right for all other texts. In the case of the three EU policy dimensions, our expectation that amendment texts would show a better word-scores fit is confirmed, whereas the linear-fitting models for the Left–Right dimension are essentially the same between amendments and other text types. The poorer fit of the Left–Right word scores to the expert survey estimates (Figure 4) also suggests that there is less direct information about this policy dimension in the Convention texts than exists for EU-related policy.

The linear fits and confidence regions suggest a strong association between the virgin text scores and the quite independent expert survey estimates of the positions of the authors of the virgin texts, something we can examine further by looking at the OLS regression results presented for each dimension in Table 4. From this table we see numerical versions of the relationships portrayed in Figures 1–4. All coefficients are positive and statistically significant, with the strongest coefficient estimates coming from the amendment texts for the EU Security and EU Accountability questions, both estimated at .0207. This coefficient means that a movement from the minimum to the maximum of the expert survey scale – from 1 to 20 – is associated with a .41 change in the word-score value, which is a substantively significant shift considering the range for all word-scores estimates is within the  $(-0.45, 0.45)$  interval. The overall fit of each model as measured by the  $R^2$  values for each dimension is also remarkably high, ranging from .56 for amendment texts on the EU Security dimension, to .47 and .44 for EU Accountability and EU Authority respectively. As expected, the linear-fitting models for proposed amendment texts were better than for other text types for every EU dimension.

Word-score estimates for Left–Right positions also show a positive, statistically significant relationship, although the slopes were of a lower magnitude (.0168 for both text types) than for the typical corresponding EU dimension. Linear fit as measured by the  $R^2$  values was also typically lower, with expert survey values explaining only about 36% and 32% of the variation in word-score estimates for amendments and other text types, respectively. This suggests either less information about Left–Right policy positions

**Table 5** Summary of within-country word-scores results: Rank-order correlations of word-scores rankings versus expert survey rankings within countries

<i>Spearman's R</i>	<i>EU Accountability</i>		<i>EU Authority</i>		<i>EU Security</i>		<i>Left-Right</i>	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
<i>Amendments</i>								
-1.00--0.50	1	10.0	1	7.7	3	25.0		
-0.50-0.00							1	6.3
0.00-0.25								
0.25-0.50							1	6.3
0.50-0.75	2	20.0	2	15.4	3	25.0	3	18.8
0.75-0.95	3	30.0	3	23.1	2	16.7	2	12.5
1.00	4	40.0	7	53.9	4	33.3	9	56.3
Total countries	10		13		12		16	
Country median <i>rho</i>	0.85		1.00		0.75		1.00	
Mean parties compared	3.1		3.1		3.2		3.0	
<i>Other texts</i>								
-1.00--0.50	2	18.2	3	23.1	1	8.3	5	31.3
-0.50-0.00	2	18.2			2	16.7		
0.00-0.25			1	7.7			1	6.3
0.25-0.50								
0.50-0.75	1	9.1	2	15.4	2	16.7	4	25.0
0.75-0.95	0	0	1	7.7	2	16.7	1	6.3
1.00	6	54.6	6	46.2	5	41.7	5	31.3
Total countries	11		13		12		16	
Country median <i>rho</i>	1.00		0.80		0.85		0.50	
Mean parties compared	3.1		3.1		3.1		2.8	

in the Convention texts, or alternatively that national party positions on substantive policy matters may be somehow modified when represented in supranational bodies. The latter possibility is something we return to briefly in our concluding remarks.

Our overall assessment of these results is positive: the strong statistical associations between the word-score estimates of Convention texts and completely independent expert survey estimates of national party policy positions serve as compelling evidence that, on the whole, the computerized word-scoring method has the ability to measure policy positions of political actors in a cross-national context. For the most part in discussions on the future EU Constitution, representatives of national political parties held preferences very similar to those one would expect them to hold based on their policy stances expressed in the national context. There are, however, some notable outliers, which it would be interesting to investigate further. For instance, in the case of the PDS (Party of Democratic Socialism) in Germany, the party was able to send only one representative, namely Yvonne Kaufmann. It would perhaps be instructive to explore the political substance behind these outliers by looking into the type of working group in which each delegate chose to be particularly active.

### **Within-country comparisons**

Since estimates of party policy positions may not necessarily be directly comparable across different national contexts, we have also compared within-country rankings of the two independent estimates. For each country, we compared the ranking from pro- to anti-EU (or left to right) for the parties for which both word-scores and expert survey estimates existed, and summarized the correspondence in rankings using Spearman's *rho*, the ordinal equivalent of Pearson's *R* and, like Pearson's coefficient, ranging from -1.0 to +1.0.

Table 5 summarizes the results of the within-country rank associations. For each dimension analysed in this paper, we have provided a frequency distribution for ranges of Spearman's coefficient, listing the number of countries scoring in this ranking. The total number of countries compared indicates how many different countries were involved in the overall frequency breakdown, ranging from 16 countries for the Left-Right dimension to 10 for EU Accountability. The country median *rho* reports the median Spearman coefficient for the countries compared, indicating the typical value. For amendment texts, these values were exceptionally high, ranging from 1.0 for EU Authority and the Left-Right scores, to 0.85 and 0.75 for EU Accountability and EU Security, respectively. This indicates that the typical ranking

of national party amendment texts by word scores and by the expert surveys is correlated between 0.75 and perfectly, depending on the policy dimension. Similar median correlations for the other text types were also high, ranging from 0.50 for the Left–Right dimension to 1.0 for EU Accountability.

Of course, different numbers of parties were being compared in different countries, and this affects the probability of rank correspondence occurring by chance.<sup>10</sup> To provide a sense of the number of parties being compared, we report the mean number of parties used for comparison. In most countries, about 3 parties were compared, with a range of 2 to 5 parties.

Our strong results here on the correspondence of intra-country party rankings generated by word scores and independent expert surveys reinforce our findings from the cross-national comparison. It is also remarkable that the median Spearman coefficient for 16 country rankings compared for the Left–Right dimension was (for amendments) 1.0, indicating a high degree of correspondence in the word scores and expert survey rankings of this substantive policy dimension. Overall, word scores provide a remarkably accurate way to reproduce national country rankings from pro- to anti-EU and from left to right, as compared with and validated by external and independent expert survey estimates.

## Conclusion

Substantively, the Laeken process that led to a draft EU Constitution is of considerable importance for the EU's future development. A large and diverse set of actors, from many different countries and starting with a varied set of policy preferences, came together to negotiate a common document. Many of these actors left traces on the historical record, in the form of texts that were input into the negotiation process, and that we can take to contain information about their policy preferences. Analysing this complex body of texts in a systematic way presents some formidable methodological challenges. It is to these challenges that this paper has been addressed. The hope is that, if we can find appropriate techniques for analysing these texts, then we can find systematic ways to interrogate this potentially very valuable data source about the preferences of the actors involved in negotiating the future of Europe. Statistical techniques of computerized content analysis such as word scores offer particularly large payoffs when the research task involves analysing very large numbers of texts in a systematic way, as is precisely the case in relation to negotiations during the Laeken Convention.

This article thus sought to investigate the potential of computerized word-scoring in analysing the large number of texts associated with this

complex international negotiation. As a methodological contribution, our paper set out to explore whether the initial positive evaluations of computerized word-scoring could be replicated in the context of international negotiations. The results are resoundingly positive, and suggest not only that extraordinary gains in terms of time, effort and expense are possible using the word-scoring method of computerized content analysis, but also that this method is capable of extracting valid measures from negotiating texts such as those generated from the Laeken Convention.

As a substantive contribution, our analysis explored whether systematic order could be brought to the empirical analysis of the diverse set of Laeken texts. The acid test in all of this was to see whether computerized word-scoring of the Laeken Convention texts could replicate the judgements of country specialists in relation to national party positions on four key policy dimensions – three related specifically to the EU (on accountability, authority and security) and a more general left–right dimension. Our analysis in this paper suggests that information on the policy preferences of the authors of the Convention texts, retrieved using computerized word-scoring, can be cross-validated against information on the policy positions of the same authors as estimated using independent expert surveys. In general cross-national comparisons, strong positive results were observed for word scores, particularly when analysing proposed amendments, with independently measured expert survey scores explaining between 44% and 56% of the variance in the word-score estimates for the EU dimensions of policy.

Our results clearly show that word-scoring of the Laeken documents was able to retrieve the left–right positioning of national political parties, although with greater prediction error than for their policy positions on various aspects of the EU. Expert survey estimates of left–right positioning explained only 36% of the variation in word-score estimates (for amendment text types). This suggests two possibilities. One is that the Convention texts lacked sufficient textual information about left–right policy positions of the parties – because the negotiations concerned matters that were not systematically structured in left–right terms. The other is that the parties revealed their ‘true’ preferences on the EU in the Laeken amendments that they proposed but did not reveal their left–right positions in such a systematic way – or indeed felt differently about left and right in the EU context.

The core purpose of the present paper has been methodological, its aim being to assess the value of computerized word-scoring in this complex and data-rich international context. If we accept that word-scoring does have some value in this context, then the way opens up for it to put to substantive use. It also suggests the strong future gains to be realized through applying computerized content analysis techniques such as word scores to fields where

traditional hand-coded content analysis is infeasible and unreliable. For example, word scores could be used to trace potential movements of the policy positions of particular actors during the course of the negotiations, testing the conjecture that these positions moved closer together as the actors moved towards agreeing a common text. Alternatively, they could be used, within individual countries, to estimate the policy positions of non-party political actors, such as trade unions and interest groups, whose policy texts could be treated as virgin texts and scored on the same policy dimensions as part of an exploration of domestic constraints on the international bargaining process. Our initial findings are encouraging and suggest that such applications could indeed be attempted in the expectation of valid results.

## Notes

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- 1 To 'spider' automatically through the Convention website and to harvest all the documents with the corresponding meta-information, we wrote customized scripts in the computer language Perl.
- 2 We converted all the documents to ISO-8859-1/ASCII using 'pdftotext' in a Linux environment and ran the language identification tool through all of them.
- 3 The Appendices can be found on the EUP webpage. As indicated by Table 1, the largest non-English text set was in French. These texts tended to come primarily from Belgian and French sources, although Belgian and French sources also recorded substantial English-language texts: 273 English versus 985 French texts for France, and 303 English texts versus 1001 French texts for Belgium.
- 4 It would of course be possible to analyse each text separately, to see (for instance) whether national party positions changed over time as the Convention proceeded. This analysis would be significantly more complex than the one attempted here, however, given the thousands of texts involved. Many individual texts are also too short to permit reliable analysis.
- 5 Two closely related questions were also coded as EU Authority: (Ireland only) Favours a more powerful and centralized EU (1). Opposes a more powerful and centralized EU (20). (France only) Opposes an expanded and stronger EU (1). Favours an expanded and stronger EU (20).
- 6 A full replication data set for this paper, including log files with full results of the word-scoring, is available from URL: <http://www.politics.tcd.ie/wordscores/Laeken.html>.
- 7 In fact, two reference texts were created for each extreme, one for proposed

amendments and one for all other text types. Both text types were given identical reference scores.

- 8 One difference between the analysis of the EU dimensions and the usual Left–Right dimension is that expert survey estimates for the EU dimensions were available only for the 15 EU member states existing prior to 1 May 2004. The 10 accession countries were asked only a question about EU joining, and this question was not posed to the experts from 15 non-accession states. Because the accession states provided relatively few texts, there is not sufficient variation or information about EU accession to support a word-scores analysis of that dimension on the basis of the Convention documents.
- 9 Because the UK Conservative Party was also identified as an anti-EU reference party for this dimension (see appendix C), these two concatenated texts for the UK Conservative Party were also used in creating the anti-EU reference texts (one for amendments and one for other text types) for the EU Authority dimension. The choice to analyse reference texts individually again as virgin texts allows us to place reference text parties relative to other virgin text parties. Because raw virgin text scores are computed independently from one another, the decision to include reference texts in no way affects the estimates for non-reference virgin text parties.
- 10 For instance, two rankings of a pair of parties have a .5 probability of perfect correspondence by chance. The number of parties compared in each country mainly differs widely because, for each dimension and each text type, different parties had both submitted texts and been scored on the expert survey dimensions.

## References

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- Benoit, Kenneth and Michael Laver (2003) 'Estimating Irish Party Policy Positions Using Computer Wordscoring: The 2002 Election', *Irish Political Studies* 18(1): 97–107.
- Benoit, Kenneth and Michael Laver (2005) *Party Policy in Modern Democracies*. London: Routledge (forthcoming).
- Cavnar, William B. and John M. Trenkle (1994) 'N-Gram-Based Text Categorization', in *Proceedings of Third Annual Symposium on Document Analysis and Information Retrieval*, Las Vegas, NV, UNLV Publications/Reprographics, pp. 161–75, 11–13 April 1994.
- Collignon, S. (2003) *The European Republic: Reflections on the Economy of a Future Constitution*. London: Federal Trust for Education and Research/Bertelsmann Foundation.
- Dunning, Ted (1994) 'Statistical Identification of Language', CRL Technical Report MCCS, 94–273, New Mexico State University.
- Gabel, Matthew and Simon Hix (2002) 'Defining the EU Political Space', *Comparative Political Studies* 35(8): 934–64.
- Giannetti, Daniela and Michael Laver (forthcoming) 'Policy Positions and Jobs in the Government', *European Journal of Political Research*.
- Hooghe, Lisbet, Gary Marks and Carole J. Wilson (2002) 'Does Left/Right

- Structure Party Positions on European Integration?', *Comparative Political Studies* 35(8): 965–89.
- Laeken Declaration on the Future of the European Union (2001) in Presidency Conclusions of the Laeken European Council (14 and 15 December 2001), Annex I, *Bulletin of the European Union*, No. 12, pp. 19–23.
- Laver, Michael and Kenneth Benoit (2002) 'Locating TDs in Policy Spaces Using Computer Word-Scoring', *Irish Political Studies* 17(1): 59–72.
- Laver, Michael and Ben Hunt (1992) *Party and Policy Competition*. London: Routledge.
- Laver, Michael, Kenneth Benoit and John Garry (2003) 'Extracting Policy Positions from Political Texts Using Words as Data', *American Political Science Review* 97(2): 311–31.
- Marks, Gary and Carole J. Wilson (2000) 'The Past in the Present: A Cleavage Theory of Party Response to European Integration', *British Journal of Political Science* 30: 433–59.
- Pennings, Paul, Madeleine O. Hosli and Christine Arnold (2004) 'The EU Constitution and Positions on Governance', Paper presented at the workshop 'Domestic Structures and Institution Building in the European Union', ECPR 13–18 April 2004.
- Pennings, Paul (2002) 'The Dimensionality of the EU Policy Space: The European Elections of 1999', *European Union Politics* (1): 59–80.
- Sibun, Penelope and Jeffrey Reynar (1996) 'Language Identification: Examining the Issues', in *Symposium on Document Analysis and Information Retrieval*, pp. 125–35, Las Vegas.
- Thomson, Robert, Jovanka Boerefijn and Frans Stokman (2004) 'Actor Alignments in European Union Decision Making', *European Journal of Political Research* 43: 237–61.
- Treaty of Nice amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts (2001) *Official Journal of the European Communities*, No. C 80, 10 March, p. 1.

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