Profiling electoral candidates

- an automated content analysis of a 2016 presidential debate of US Democratic Party's candidates -

Raluca-Maria Nicoara

1st Year Ph.D. Candidate
Department of Political Science
Trinity College Dublin

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Abstract

This paper will use quantitative content analysis to assess the profile of the contemporary US democrat politician, by looking at two influential personalities: Hilary Clinton and Bernie Sanders. In order to do that, it will analyse the transcript of one electoral debate from this year, between the previously mentioned US Democratic Party's candidates for the presidential election. Based on methods that measure their lexical diversity, contextual key concepts and readability, the paper will contribute to the literature on political profiling by attempting to analyse the profile of the contemporary US democrats which has 50% chances of becoming the next US president. Overall, the results confirm the previous findings of the academia regarding the high level of readability of democrats' speeches. Additionally, they show that both Hilary Clinton and Bernie Sanders have also a good performance in terms of lexical diversity.

Introduction

The concept of 'profiling' has been explored by the political scholars under the sub-discipline of Political Psychology. It was exported from the Criminal Psychology studies to provide a better understanding about the impact of personality traits on political leadership and system in general. Influential leaders in the recent history, such as Adolf Hitler or Otto von Bismarck, have been the first targets of political profilers, during the wartime period (Post 2005). They provided the first example of the so-called profiling 'at a distance' or techniques of profile creation (e.g. speech analysis) without the direct interaction of the respective political personality (Kesgin 2012; Feldman and Valenty 2001). Nowadays, the political profiling is employed at a larger scale and has expended its object of analysis from an exclusive focus on the highly influential political personalities, such as Saddam Hussein (Post 2005) to local politicians and MPs (Corbett and Wood 2013).

This paper aims to further extend the study of political profiling by creating the profile of the contemporary US democrat which might become the next US president. It intends to investigate the following questions: "Can we talk about a general profile of a US democrat politician? If yes, how can it be characterized?". In order to answer them, I will look at two influential personalities from the contemporary US Democratic Party: Hillary Clinton and Bernie Sanders. They represent the only two democrat pretenders, remaining in the race for nomination as official candidate for this Autumn presidential election.

This issue is particularly important for the contemporary American society as the national statistics show less interest expressed from the general public to view the debates of the Democratic Party as compared to the republicans' debates which attract twice the viewership of its opposition. Additionally, the topic is also relevant for the

political psychology as this paper will extend the current state of art of the political profiling literature by discuss the characteristics that define a US democratic leaders.

The research questions will be investigated through a quantitative content analysis of the last debate of the democratic candidates Hilary Clinton and Bernie Sanders, which took place last month, on the 14th of April. The transcript of the debate was obtained from the American Presidential Project and was exported into a clean corpus by applying particular cleaning techniques. Overall, it contains 399 documents (speech acts) with 16999 words spoken which are divided between the 4 speakers.

The methodology of the analysis includes the calculation of the lexical diversity and readability and assessment to the use of words in different contexts. The findings indicate that the profile of US democrat is characterized by high level of readability and lexical diversity, but they comply to the same US specific rhetoric which included a frequent utilization of words, such as "[us/we] people" and "[our] country".

Motivation

On the one hand, by investigating and creating the profile of a contemporary US democrat leader, this paper will contribute the general understanding about contemporary American politics, and provide important findings, especially, during an electoral year that will decide the name of the future US president. In a context in which, the average audience of Republicans' debates seems to be much more higher (approximately 16 million viewers) than the viewership of the Democratic Party's debates (9.2 million viewers) (Howell 2016), there is a need to further investigate this issue by looking at what the Democratic party is offering: the two presidential candidates. Moreover, a similar

pattern can be observed at the party level, considering that one recent Pew Research's press report has indicated that 70% of democrats have reported watching a debate from the opposition while only 49% of the Republicans have confirmed doing the same (Gottfried and Shearer 2016).

On the other hand, this research will also contribute to the academic literature, especially, the literature on political profiling. So far, the last has focus on exploring different personality and individuality traits in order to improve the overall knowledge about political attitudes of politicians. Initially, it has widely concentrated on understanding the actions of influential leaders from international politics by creating their individual profiles. This type of analysis has been extensively produced during the 20th Century's war periods when the necessity of predicting the actions of political leaders such as Adolf Hitler (Langer 1972; Binion 1976; Erikson 1942; Erikson 1950; Dyson 2014) and Nikita Khrushchev (Fursenko and Naftali 1998), has been influence by an enormous pressure to counter their political decisions and acts. Recently, the scholars have extended the study of solely political leaders (Shaw 2003; De Landtsheer and De Vries 2015) to an increasing interest in profiling local politicians (Corbett and Wood 2013) and the electorate (Greaves et al. 2015). The scholarship has also expressed a particular concern for profiling American political leaders. For examples, Winter (2005) has argued, by looking at the speeches of past US presidents that their personality characteristics can be objectively measured, but sometimes they are influenced by the context in which they activate and interact. In this context, this paper will contribute to the political profiling literature by providing updated information about the current presidential candidates. Moreover, it will fill in a gap by looking specifically at the democrats because they have been so far disregarded in favor of the more dynamic personality of republican Trump.

Description of corpus

For the empirical analysis, I will investigate the last debate of the US democratic candidates for the presidential elections, from 14th of April 2016, which took place in Brooklyn, New York. The debate was moderated by the CNN reporter Wolf Blitzer while Dana Bash, also from CNN and Errol Louis, from NY1 were panelists. The two candidates aiming to be nominated as the official representative of the Democratic Party in the 2016 US presidential elections are Hilary Clinton and Bernie Sanders.

The reason for choosing this particular debate to determine the profile of the nowadays political leader from the US Democratic Party is related to the actuality of the debate which makes the quality of the discussions on the top, the speeches highly targeted and strategized towards particular groups of the electorate. It will also give me the opportunity to create an up-to-date profile by analyzing the latest data/information available, which is this particular last debate.

The transcript of the debate was exported from the online database of The American Presidency Project (2016). Before starting the analysis in the R software, I have done preprocessing cleaning actions in both MS Word and R. First, I copied the transcript into a text file and inspected it. Then, I identified and manually removed the following non-lexical remarks in brackets: "[applause]", "[laughter]", "[inaudible]", "[booing]", "[cheering and applause]", "[crosstalk]", "[cheering]" and "[commercial break]" because they are not relevant for my analysis and will be erroneously interpreted by R as being part of the speaker's discourse. Afterwards, I imported the document in R using the textfile() command from the Quanteda package and segmented the whole text by speaker. I have also performed additional cleaning actions to remove all the unwanted spaces and colons from the tags. Finally, I deleted the "Member" speaker because it indicates a

vocalized protest from the audience which does not influence in any way the content of the debate.

The tables and graphs below contains information about the descriptive statistics of the corpus. The first table includes the top 10 frequent features (word stems) and, not surprisingly, the word stems “senat” and “secretari” are the most utilized because they employed to address the two candidates. Hilary Clinton is called Secretary Clinton because she served as the US Secretary of State between 2009 and 2013 and Bernie Sanders as Senator as he currently represents Vermont state in US Senate.

Table 1. Top 10 features of the corpus

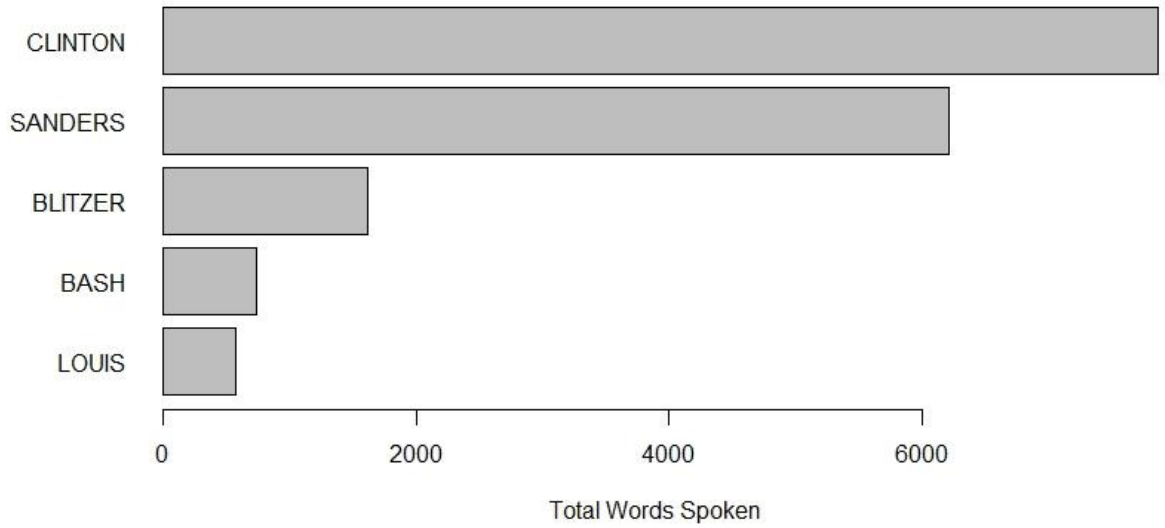
word	senat	secretari	go	peopl	thank	Clinton	presid	say	think	Well
frequency	150	113	111	86	81	76	72	71	68	61

The second table contains information about each speaker in terms of total speech act, syllables and characters. According to it, Bernie Sanders seems to have more initiatives to speak, but his interventions are shorter than those of Hilary Clinton.

Table 2. Overall information about the corpus

Speaker	Clinton	Sanders	Bash	Blitzer	Louis
Total speech acts	112	117	34	113	23
Total syllables	11254	9050	1139	2591	893
Total characters	43310	35008	4444	9821	3395

The situation is not different when we look at the total of words spoken as Hilary Clinton is reported to use approximately 1600 words more compared to her opponent.



Lastly, I also include a table with descriptive statistics of all speech act (denoted as texts) which contains information about the speaker, number of sentences, tokens and types.

Table 3. Descriptive statistics

Text	Types	Tokens	Sentences	tag
text11	66	84	8	BLITZER
text12	130	217	12	SANDERS
text13	2	2	1	BLITZER
text14	143	274	13	CLINTON
text15	64	96	6	BLITZER
text16	94	160	10	SANDERS
text17	2	2	1	BLITZER
text18	124	217	10	CLINTON
text19	1	1	1	BLITZER
text110	66	90	9	SANDERS
text111	3	3	1	CLINTON
text112	2	2	1	SANDERS
text113	4	4	1	CLINTON
text114	3	5	1	CLINTON
text115	5	5	1	BLITZER

text116	1	1	1	CLINTON
text117	15	16	1	SANDERS
text118	2	2	1	BLITZER
text119	18	20	2	SANDERS
text120	4	4	2	BLITZER
text121	76	125	8	CLINTON
text122	16	18	2	BLITZER
text123	58	75	4	BASH
text124	137	226	16	CLINTON
text125	32	40	5	BASH
text126	2	2	1	SANDERS
text127	9	9	1	BASH
text128	88	117	6	SANDERS
text129	2	2	1	BASH
text130	26	32	1	SANDERS
text131	22	26	1	BASH
text132	49	64	5	SANDERS
text133	98	148	7	CLINTON
text134	4	4	1	BASH
text135	6	6	1	CLINTON
text136	30	36	2	BASH
text137	79	121	7	SANDERS
text138	95	152	14	CLINTON
text139	4	4	1	BASH
text140	19	20	2	CLINTON
text141	4	4	2	BASH
text142	72	96	9	SANDERS
text143	51	66	2	BASH
text144	89	138	9	CLINTON
text145	2	2	1	BASH
text146	16	19	2	CLINTON
text147	21	23	3	BASH
text148	65	103	7	CLINTON
text149	23	26	1	BASH
text150	1	1	1	CLINTON
text151	19	21	2	BASH
text152	26	37	3	CLINTON
text153	2	2	1	BLITZER
text154	62	84	10	SANDERS
text155	1	1	1	BLITZER
text156	5	5	1	SANDERS

text157	1	1	1	BLITZER
text158	11	11	1	CLINTON
text159	15	19	1	BLITZER
text160	10	10	1	SANDERS
text161	2	2	1	BLITZER
text162	2	2	1	SANDERS
text163	7	7	1	BLITZER
text164	41	48	6	SANDERS
text165	18	19	1	BLITZER
text166	1	1	1	SANDERS
text167	8	9	2	BLITZER
text168	1	1	1	SANDERS
text169	19	20	2	BLITZER
text170	34	42	5	SANDERS
text171	71	94	5	BLITZER
text172	68	109	6	SANDERS
text173	26	31	2	BLITZER
text174	80	105	5	SANDERS
text175	40	63	2	BLITZER
text176	77	100	4	SANDERS
text177	4	5	3	BLITZER
text178	106	178	9	CLINTON
text179	1	1	1	BLITZER
text180	15	15	1	CLINTON
text181	2	2	1	BLITZER
text182	6	6	1	CLINTON
text183	4	4	1	BLITZER
text184	4	4	1	SANDERS
text185	9	9	2	BLITZER
text186	2	2	1	SANDERS
text187	47	72	5	BLITZER
text188	46	82	7	CLINTON
text189	2	2	1	SANDERS
text190	55	68	4	CLINTON
text191	2	2	1	BLITZER
text192	6	8	1	CLINTON
text193	23	24	1	SANDERS
text194	5	5	1	CLINTON
text195	3	3	1	CLINTON
text196	1	2	1	CLINTON
text197	5	5	2	SANDERS

text198	8	9	1	CLINTON
text199	3	3	1	SANDERS
text1100	5	5	1	CLINTON

Description of methods

The methods that I will apply in my empirical investigation are the following: lexical diversity, contexts of key concepts and readability. They have been all previously employed by scholars from different fields, for the content analysis of speeches and interviews. For example, the lexical diversity of a document represents a measurement of the range of different words used by the speaker. It has been empirically measured in different ways by Fergadiotis et al. (2013) to assess the lexical deficits in discourses of people with Aphasia or by deBoer (2014) to evaluate the richness of foreigners' English vocabulary. Nevertheless, none of these studies have tested 'Carroll's Corrected TTR' method of measuring lexical diversity. According to Bradac et al. (1979) and Bradac and Wisegarver (1984), a high level of lexical diversity is related to the perception of competence, control and high status of the speaker.

The second method refers to the key words/concepts employed in the text and their relationship with the context. During electoral campaigns, the political candidates pay more attention than usual in their choice of words because their primary purpose is to win the trust of targeted electorate. This is, it is important to interpret the words in relation to the context in which they are used. Many scholars, such as (Coffey 2005; Rooduijn and Pauwels 2010) have applied this method to measure the ideology of political leaders. For example, Coffey (2005) finds that on average, the speeches of the republican US state governors is more conservative than those of the democrats.

Readability is the last method that will be employed in this analysis. It is probably the most used technique to evaluate the quality of the speech because it can influence the content of the message and can restrict its accessibility to a specific audience. Recently, (Schumacher and Eskenazi 2016) have published their findings about the readability level of US presidential candidates in which they indicated that Hilary Clinton and Bernie Sanders have the similar lexical and grammars levels in their speeches.

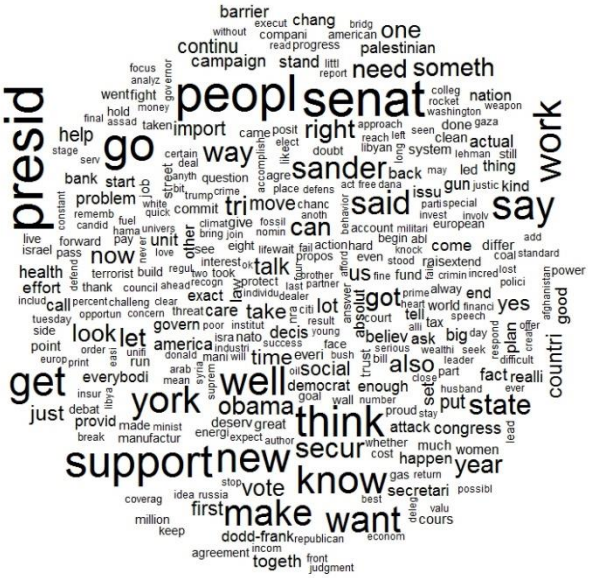
Results

The analysis is performed using 'quanteda' package from R software. After I managed to load transcript of the Democratic Party's debate and transform it into a corpus, I inspect it by looking at the descriptive statistics both at the speaker level and at the corpus level. My observations about the corpus and its documents have been provided in a previous section of this paper.

First, I explore the top features from the speeches of both candidates and interpret them in relation to the context of usage. In order to do that, I use the topfeatures() command on a dfm of corpus's subset which includes only the speech acts of one candidate at a times. Then, I plot the words into a word cloud as it is a good visualization method to differentiate between the most and not so frequent features. After that, I take two pick two features and look at the various contexts in which they have been employed.

In the case of Hilary Clinton, the top 5 features based on frequency are: "presid", "senat", "people", "go", "support". I will at the different contexts of "go" and "support" because "presid" and "senat" are widely utilized to discuss the purpose of the debate (the presidential election) and interact with Bernie Sanders, which, still servers as a Senator.

Moreover, the word stem “people” is part of the American rhetoric and, thus, does not provide any additional information.



On the one hand, by looking at the contexts in which the word “support” appears, I find not special use. It is due to the fact that Hilary Clinton maintains the same Western oratory style of talking in terms of cooperation (giving and receiving support)

Table 4 – “support” word in context

	contextPre	keyword	contextPost
[text121, 139]	no evidence or	[support]	, to undergird
[text140, 3]	So I	[support]	Dodd- Frank
[text1125, 111]	, and I	[support]	that. I
[text1131, 201]	whether he would	[support]	the Sandy Hook
[text1200, 27]	still would not	[support]	what you are
[text1214, 15]	to try to	[support]	them. The
[text1220, 43]	United States should	[support]	the efforts by
[text1220, 77]	eek Security Council	[support]	. Senator sanders
[text1222, 24]	We got	[support]	from the Security
[text1228, 50]	try to provide	[support]	for our European
[text1231, 109]	I do still	[support]	a no-
[text1238, 2]		I [support]	our continuing involvement
[text1242, 29]	that they will	[support]	. Remember,
[text1321, 45]	I happen to	[support]	Democrats and I
[text1351, 24]	. I fully	[support]	the president.
[text1351, 63]	I'm going to	[support]	the president.

[text1399, 175]	asking for your [support] again in the
[text1399, 314]	asking for your [support] on Tuesday.

On the other hand, I find the frequent use of "go" word to be very important in Hilary Clinton's speech act because it transmits information about the future's perspective.

Table 5 – "go" word in context

	contextPre	keyword	contextPost
[text18, 132]	But if you [	go]	and read,
[text124, 224]	, but I [	go]	further because I
[text133, 143]	we have to [	go]	after not just
[text133, 156]	have got to [	go]	after the people
[text138, 165]	just say, [	go]	break them up
[text148, 81]	and you can [	go]	— you can
[text148, 85]	— you can [	go]	to my website
[text178, 135]	you've got to [	go]	at this with
[text192, 1]	[	Go]	as quickly as
[text1125, 106]	cities will [	go]	higher, and
[text1125, 160	place that can [	go]	above it to
[text1125, 164]	above it to [	go]	above it.
[text1125, 222]	the way to [	go]	, encouraging others
[text1125, 246]	, we will [	go]	to$ 15
[text1155, 186]	all of us [	go]	and look back
[text1180, 133]	, it didn't [	go]	far enough.
[text1195, 19]	to do to [	go]	from where we
[text1220, 68]	we should [	go]	to the United
[text1391, 6]	. that we'll [	go]	onto the general

For Bernie Sanders, the top 5 most frequent features are similar the those observed in Hilary's case: "people", "secretari", "countri", "got" and "right". I will look at the context of the "right" and "country". While the word "country" is used as a substitute for "us", "we" or "people" when talking about the US, the word "right" is employed several types in contexts related to the situation from Middle East.

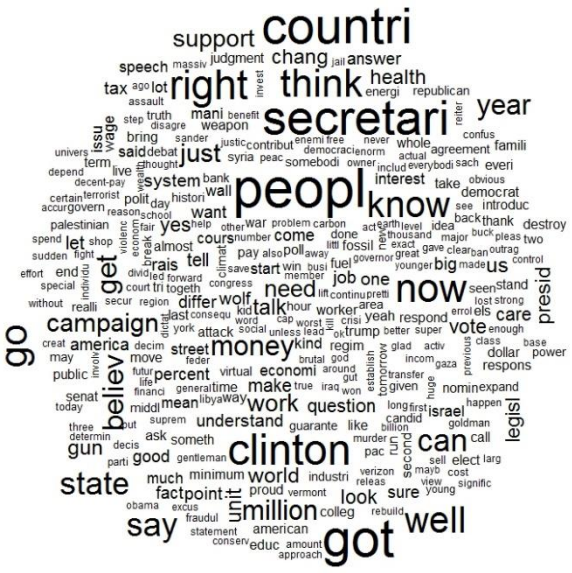


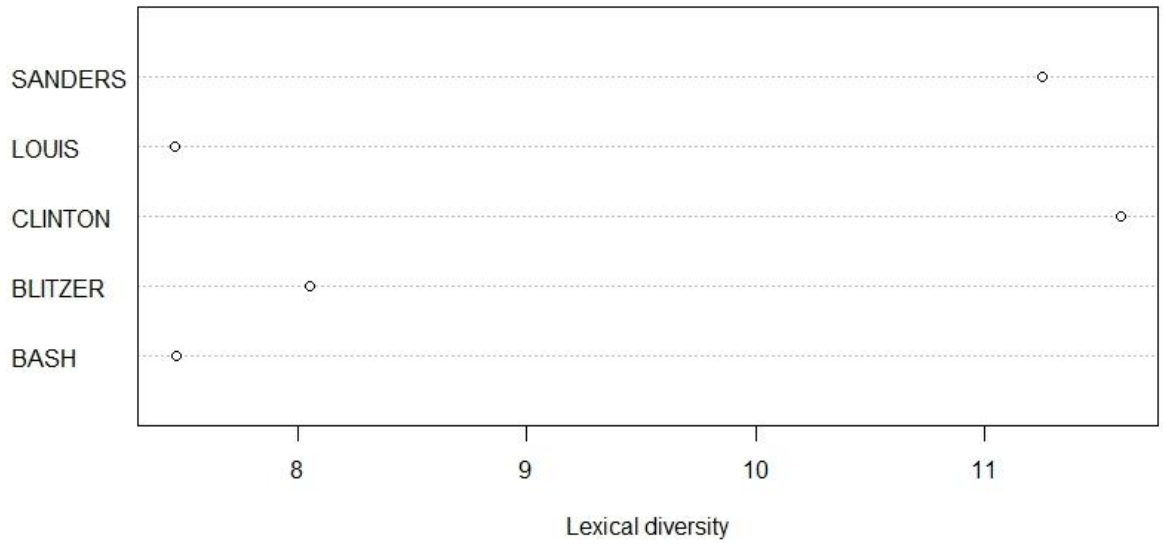
Table 6 – “right” word in context

	contextPre	keyword	contextPost
[text128, 2]	That's [	right]	. So,
[text174, 10]	contempt is not [	right]	. There are
[text1116, 7]	responding. All [	right]	? When this
[text1147, 30]	They have the [	right]	to sue,
[text1147, 44]	who wants the [	right]	to sue.
[text1163, 26]	Clinton said was [	right]	. We had
[text1184, 65]	get beyond paper [	right]	now. We
[text1197, 2]	All [	right]	, here is
[text1197, 40]	enough. Not [	right]	now. Not
[text1197, 73]	of all, [	right]	now, we
[text1206, 101]	up and say [	right]	now, as
[text1208, 143]	approach we need [	right]	now.
[text1216, 150]	and in Libya [	right]	now, where
[text1230, 147]	talk about Syria [	right]	now, no
[text1230, 168]	dictator, but [	right]	now our fight
[text1244, 31]	Israel has a [	right]	not only to
[text1244, 81]	, has every [	right]	in the world
[text1246, 126]	to say that [	right]	now in Gaza
[text1246, 131]	in Gaza, [	right]	now in Gaza
[text1254, 45]	Israel have a [	right]	to respond,
[text1254, 54]	Israel have a [	right]	to go after
[text1257, 42]	Israel has a [	right]	to defend itself
[text1260, 29]	Netanyahu is not [	right]	all of the
[text1265, 58]	to do the [	right]	thing. All
[text1268, 121]	free? Damn [	right]	. That is
[text1303, 2]	All [	right]	. Essentially what
[text1307, 2]	All [	right]	, so.
[text1353, 39]	seen from these [	right]	- wing Republicans
[text1353, 62]	States has the [	right]	to nominate individuals
[text1358, 35]	restrict a woman's [	right]	to choose,
[text1358, 45]	on those governors [	right]	now who are
[text1397, 192]	people as a [	right]	, can have

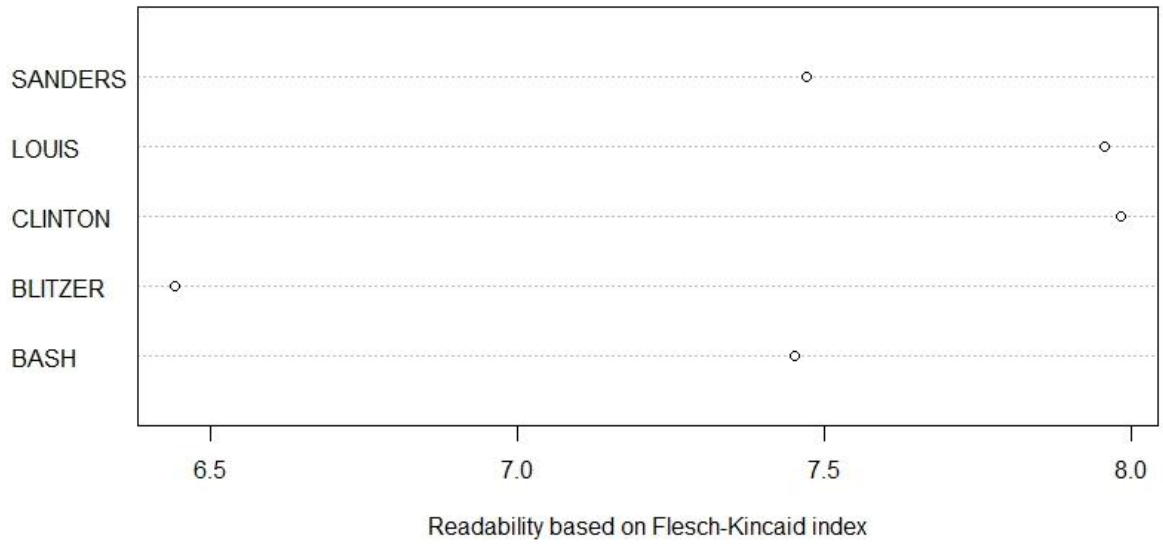
Table 7 – “country” word in context

	contextPre	keyword	contextPost
[text12, 164]	is that this	[country]	is not going
[text16, 128]	history of this	[country]	, voted for
[text110, 23]	history of this	[country]	...
[text128, 125]	GFP of this	[country]	, they are
[text137, 22]	street brought this	[country]	into the worst
[text172, 53]	class of this	[country]	. This gentleman
[text1116, 69]	all over this	[country]	, people are
[text1129, 23]	states in this	[country]	as soon as
[text1141, 186]	needed in this	[country]	.
[text1145, 52]	all over this	[country]	, if a
[text1163, 118]	than any other	[country]	on Earth.
[text1171, 11]	all over this	[country]	. And you
[text1176, 32]	industry in the	[country]	. But,
[text1176, 168]	tomorrow the whole	[country]	would rise up
[text1208, 72]	all over this	[country]	. Saving—
[text1254, 17]	flying into their	[country]	. That is
[text1268, 34]	are the only	[country]	, major country
[text1268, 37]	country, major	[country]	on Earth,
[text1268, 239]	families of this	[country]	.
[text1277, 5]	are not a	[country]	that has the
[text1277, 29]	families of the	[country]	. Secretary Clinton
[text1277, 42]	people of our	[country]	how it could
[text1277, 51]	every other major	[country]	on Earth manages
[text1277, 92]	of communist authoritarian	[country]	. They're doing
[text1358, 70]	marriage in this	[country]	, proudly so
[text1362, 118]	independents in this	[country]	.
[text1386, 54]	of this great	[country]	. That's the
[text1397, 24]	came to this	[country]	from Poland at
[text1397, 56]	, because this	[country]	gave him and
[text1397, 75]	believe that this	[country]	has enormous potential
[text1397, 151]	families of this	[country]	. I just
[text1397, 165]	is that this	[country]	, if we
[text1397, 242]	people in this	[country]	start paying their

The second analytical technique is the lexical diversity. In order to calculate it, I use the function lexdifv() with CTTR as measure. The results from the plot indicate that both candidates have a high level of lexical diversity, but Hilary Clinton has a slightly better score than Bernie Sanders. Therefore, based on (Bradac et al. 1979; Bradac and Wisegarver 1984), the two democrats possess traits of competence and control.



The last method used in the analysis is the level of readability. My findings conform the previous ones of (Schumacher and Eskenazi 2016) that the speeches of Hilary Clinton and Bernie Sanders also share a high level of readability on the Flesch-Kincaid scale.



Conclusions

In conclusion, the findings of this paper indicate that there is indeed a profile that characterize the US democratic leaders. The main characteristics are high level of readability and lexical diversity and the reutilization of the same US specific rhetoric which includes a frequent utilization of words, such as "[us/we] people" and "[our] country". Overall, the paper confirms the previous findings of the academia and contributes to the literature on political profiling by analysing the democratic speeches.

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Annexes

Similarity matrix, method = correlation					
Reference	Bash	Blitzer	Clinton	Louis	Sanders
Bash		0.8487	0.6702	0.8484	0.6989
Blitzer	0.8487		0.6124	0.8186	0.6202
Clinton	0.6702	0.6124		0.6704	0.9510
Louis	0.8484	0.8186	0.6704		0.7070
Sanders	0.6989	0.6202	0.9510	0.7070	

Similarity matrix, method = cosine					
Reference	Bash	Blitzer	Clinton	Louis	Sanders
Bash		0.8534	0.6818	0.8533	0.7098
Blitzer	0.8534		0.6262	0.8244	0.6342
Clinton	0.6818	0.6262		0.6830	0.9531
Louis	0.8533	0.8244	0.6830		0.7185
Sanders	0.7098	0.6342	0.9531	0.7185	

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