

# **Use of the news media for a political discussion on Facebook**

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## **KEYWORDS**

echo chambers, filtering bubbles, Facebook, news media, fan pages, belief polarization

## **ABSTRACT**

This article aims at showing how Facebook users are using the news media in the internet discussions. According to the main research hypothesis, individuals who discuss on political Facebook pages prefer the information published by the media ideologically close to the party administrating the page, and discriminate the others. However, the research material (c.a. 36.5 thousand links to news media which Facebook users used since September 2015 to February 2017) suggest that on political Facebook pages, users refer to a variety of sources.

Development of the internet and social media has made it possible for their users to extend their control over the process of obtaining information. No other technologies - either the press, radio or television - have given so much choice of time of acquiring information, and source. Individuals also decide how much information they want to get regarding a given topic<sup>1</sup>. Considering the relatively low cost of access to the Internet, one could assume that it will contribute to a significant expansion of knowledge and political development of citizens<sup>2</sup>. Among the researchers who do not fully share this optimistic vision, however, there is a belief that the freedom of choice can have adverse consequences for users. The users create their own, individually tailored information environment by choosing the content they are familiar with, choosing the sources they trust, and making decisions with whom to be friends and who to observe with social media. In this way, on the one hand, users obtain a set of information that they consider the most interesting and the most reliable; on the other hand, this subjective selection can be very biased and systematically exclude information inconsistent with previously held beliefs. The result of such a scenario is user-created information environment adapted to their needs, and their vision of the world; the so-called *echo chamber*<sup>3</sup>. In other words, such individuals usually come in contact with those who share their views and with information that confirms their beliefs.

In this context, it should be remembered that social media has also led to a change in the way information is produced and distributed, which in turn may affect its quality in the network. In the case of the users' activity in the internet and social media, there is no restrictive control over the transmitted content. There are no so-called gatekeepers, who verify the accuracy of information, and the average user is not a journalist who is properly educated, has the professional skills to seek reliable information and act in accordance with journalistic ethics. Also, there is little or no criminal liability for disseminating uncertain or even completely false information. This has led to the situation where, although recipients have access to a huge number of diversified information, at the same time they are fully responsible for the

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<sup>1</sup> S. Coleman, J.G. Blumler, *The Internet and democratic Citizenship: theory, practice and policy*, Cambridge, New York, 2009, pp. 12–13.

<sup>2</sup> R.W. Neuman, B. Bimber, M. Hindman, *The Internet and four dimensions of citizenship* [in:] *The Oxford handbook of American public opinion and the media*, red. L.R. Jacobs, R.Y. Shapiro, Oxford, 2011, pp. 22–42; C. Vaccari, *Digital politics in western democracies: a comparative study*, Baltimore, 2013, pp. 57–65.

<sup>3</sup> E. Bakshy, S. Messing, L. Adamic, *Exposure to ideologically diverse news and opinion on Facebook*, "Science", Vol 348 (2015), no. 6239, pp. 1130-1132. C.R. Sunstein, *Echo chambers: Bush V. Gore, Impeachment and beyond*, Princeton 2001; C.R. Sunstein, *Republic.com 2.0*, Princeton, 2009; S. Flaxman, S. Goel, J. Rao, *Filter bubbles, echo chambers, and online news consumption*, "Public Opinion Quarterly" Vol. 80 (2016), pp. 298–320; W. Quattrociocchi, A. Scala, C.R. Sunstein, *Echo chambers on Facebook*, SSRN Scholarly Paper, Rochester–New York, 2016; H. Margetts et al., *Political turbulence: how social media shape collective action*, Princeton, 2015.

verification of the quality and credibility of what they obtain. It is only up to them how important the information will be in the process of formulating political beliefs and attitudes, as well as gathering political knowledge<sup>4</sup>. It is worth bearing in mind that they “(...) often are not uninformed about policy, as political scientists continue to emphasize, but misinformed. People hold inaccurate factual beliefs, and do so confidently. The problem, then, at least with respect to attitudes about public policy, is not that people simply lack information, but that they firmly hold the wrong information – and use it to form preferences.<sup>5”</sup>.

Threats resulting from the use of social media in the process of incorporating uncertain, distorted or even false information seem to be very real. For example, any Twitter user can publish any, not necessarily true information, support it with a properly selected photo or video and reach the same or even more recipients than evening TV news. However, this information is not controlled, as in the case of media companies, which until recently had exclusive access to the media, and themselves decided on what will be shown, how often and in what context. As a result of the changes that occurred after the revolution 2.0, it is not the sender (usually a small group of people), but the recipients (mass) who began to control the content. They decide what interest them and what they want to share with others<sup>6</sup>. At the same time, among individuals who actively search for information increases the probability that they read them more accurately and spend more time doing this. As a result, such information has a stronger impact on their beliefs than an accidental one, for example, acquired while watching TV news<sup>7</sup>.

In the presented context, it is of particular importance to which and how diversified sources the users of social media refer to. A quite specific case was chosen for the research - Facebook pages of the largest Polish political parties and their leaders. Let's assume that Facebook pages mainly group supporters of a given group, that is, they are relatively homogenous. This is due, among others, to the fact that liking the page, and thus increasing the chances of encountering the content published on it, is an act that can cause cognitive

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<sup>4</sup> P.E. Converse, *The Nature of belief systems in mass publics* [in:] *Ideology and discontent*, red. D. Apter, New York, 1964, pp. 206–261; R.R. Lau, *Modele podejmowania decyzji* [Decision-making models] [in] *Psychologia polityczna*, ed. D.O. Sears, L. Huddy, R. Jervis, Kraków, 2008, pp. 17–54; P. Visser, A.L. Holbrook, J.A. Krosnick, *Knowledge and attitudes* [in] *The SAGE handbook of public opinion research*, ed. W. Donsbach, M.W. Traugott, London, 2008, pp. 127–140; M.X. Delli Carpini, S. Keeter, *What Americans know about politics and why it matters*, New Haven, 1997; L.M. Bartels, *Beyond the running tally: partisan bias in political perceptions*, "Political Behavior" Vol. 24 (2002), no. 2, pp. 117–150; S.L. Popkin, *The reasoning voter: communication and persuasion in presidential campaigns*, Chicago, 1994; J. Zaller, *The Nature and origins of mass opinion*, Cambridge, 1992; M. Lodge, C.S. Taber, *The rationalizing voter*, Cambridge–New York, 2013.

<sup>5</sup> J.H. Kuklinski et al., *Misinformation and the currency of democratic citizenship*, "Journal of Politics" Vol. 62 (2000), no. 3, p. 792.

<sup>6</sup> J. Gainous, K.M. Wagner, *Tweeting to power: the social media revolution in American politics*, New York, 2013, pp. 5–7.

<sup>7</sup> R.J. Klotz, *The politics of internet communication*, Lanham, 2003.

dissonance in the opponents of a given party (liking something they don't like), as well as negative reactions of from their social environment, because having a given page among favourites is visible to the network of friends of a given user<sup>8</sup>. For example, a person associated with left-wing movements could arouse controversy among her Facebook friends if she had information on her profile that she liked, for example, the National Movement website.

Facebook allows commenting on pages by people who did not add those pages to their favourites. However, there is a question about the control of published content. The page's homogeneity is related to the actions taken by its administrators who decide what appears on it. Although the scope of tolerance for unfavourable comments is probably diverse, it can be assumed that some people, due to their views or repeated unfavourable actions, are blocked, which increases homogeneity. In addition, due to the clearly defined nature of these pages, it can be assumed that supporting comments are favoured (they are liked and meet with other positive comments) by followers of a given page, while unfavourable comments will be discriminated (less frequently liked, meet with negative comments from users who like the page). This type of social content control - if it actually exists - should confirm the previous beliefs of supporters of a given political party.

The article aims to investigate whether typical users of political Facebook pages tend to limit the sources they use in discussions to those preferred in a given political environment. In connection with the above, the author formulates the following main hypothesis and two auxiliary hypotheses:

H1: There is a clear division between users of political parties' Facebook pages in terms of which information media (newspapers, magazines, internet portals, TV stations, radio stations) they refer to. They prefer information published by media ideologically close to the party that administrates the page and at the same time discriminate other sources.

H1-1: A user posting a link that is incompatible with the ideological line of a given group, faces discrimination from followers of a given page. This means that comments containing preferred sources will be more liked than those containing non-preferred sources.

H1-2: A user posting a link that is incompatible with the ideological line of a given group uses it in a discrediting context, indicating that it is an unreliable source.

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<sup>8</sup> S. Asch, *Studies in the principles of judgments and attitudes: II. Determination of judgments by group and by ego standards*, "The Journal of Social Psychology" Vol. 12 (1940), no. 2, pp. 433–465; R.B. Cialdini, *Wywieranie wpływu na ludzi: teoria i praktyka* [Influencing people: theory and practice], Sopot, 2004, pp. 110–121.

Most research on information concerns the supply side primarily, and therefore what is offered to the recipients. The text aims to fill the gap and show the other side, i.e. how information is actually used by the recipients.

### **Methodology**

Analyses were conducted on data downloaded automatically from Facebook and cover the period from 11 September 2015, i.e. the dates when the National Electoral Commission published the list of registered election committees, to 28 February 2017. The end date is not related to any event, and it is only the point at which the decision was made to stop the data collection and perform the analysis. The research included official Facebook pages of all political parties and their leaders, who maintained stable survey support above 1 per cent after the election. The list consists of: Partia KORWiN<sup>9</sup> (since October 2016 Wolność) and Janusz Korwin-Mikke, Kukiz'15 and Paweł Kukiz, Nowoczesna and Ryszard Petru, Prawo i Sprawiedliwość (PiS) and Beata Szydło, Platforma Obywatelska (PO) and Grzegorz Schetyna, Polskie Stronnictwo Ludowe (PSL) and Władysław Kosiniak-Kamysz, Partia Razem and Adrian Zandberg (informal leader), Sojusz Lewicy Demokratycznej (SLD) and Włodzimierz Czarzasty. In the period up to 25 October 2015, the page of Zjednoczona Lewica (ZL) electoral committee was also included in the analyses. In most cases, the results are presented jointly for the page of the leader and party and bear only the name of the party, e.g. PiS signature on the chart concerns the results for PiS and Beata Szydło. In total, 2,337,852 comments were collected, including 140,966 links. The analyses included only information media, to which users referred at least 10 times (33,251 links).

Analysis of the research material required various preparatory steps. First of all, links to media were extracted from the text of the message automatically in the R environment. Secondly, the analysis of the context in which the links appeared was based on the iSAX algorithm<sup>10</sup>. Previously, the text has been subjected to standard procedures in such cases: punctuation marks, symbols, numbers, multiple spaces and pronouns, connectors, prepositions etc<sup>11</sup>. have been removed. In the case of text written by ordinary users, various types of errors

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<sup>9</sup> The old name of the Freedom Party (KORWiN) was used in the text, because the party was recognised under this name for the greater part of the period covered by the study.

<sup>10</sup> A. Ceron, L. Curini, S.M. Iacus, *iSA: a fast, scalable and accurate algorithm for sentiment analysis of social media content*, "Information Sciences" Vol 367–368 (2016), pp. 105–124; A. Ceron, L. Curini, S. M. Iacus, *Politics and Big Data: nowcasting and forecasting elections with social media*, Abingdon–New York, 2017.

<sup>11</sup> W. Gogołek, D. Jaruga, *Z badań nad systemem rafinacji sieciowej. Identyfikacja sentymentów* [Research on the network refining system. Identification of sentiments], "Studia Medioznawcze" 2016, no. 4 (67), pp. 103–111; J. Grimmer, B.M. Stewart, *Text as data: the promise and pitfalls of automatic content analysis methods for political*

may be a serious problem (e.g. typos, spelling). For this reason, all the words in the comments have been corrected in this respect with the help of the tool developed by the author based on the *Polish Language Dictionary*. The last step was lemmatization - bringing a group of words to one form so that we could treat them as the same word. Here is an example of comment before and after the described normalization process.

Before:

“what is your idea to solve this problem? maybe instead of patents, the company that invents in a drug should receive a reward and its height depends on the demand for this drug”

After:

"idea solve problem patent company invent drug should receive reward height depend demand drug

A comment may contain many topics and its overall analysis could lead to a different sentiment result than the sentiment of the nearest context of a link that was used. For this reason, links were treated as the keywords<sup>12</sup>, and the sentiment was examined on the basis of 10 words that appeared before and after them<sup>13</sup>. Based on the exploration analysis, it seems that this is a sufficient range, but also not too wide to capture the sentiment towards the medium being shared. Włodzimierz Gogołek and Dariusz Jaruga show that, in practice, the limits are set to a value of 10 to 60 characters, which coincides with the analyses of the author of the text<sup>14</sup>.

The iSAX algorithm classifies comments based on the preprocessed material. This means that a part of the material should be encoded manually first, so that the algorithm is able to recognise the classification rules and apply them to encode the rest of the research material. 5000 entries were encoded manually, which made it possible to obtain a standard error for the sentiment proportion around 1 per cent.

The ideological classification of political parties turned out to be a problematic issue<sup>15</sup>. Political divisions can overlap many axes that cross. For this reason, e.g. the same party can

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texts, "Political Analysis" Vol. 21 (2013), no. 3, pps. 267–297; B. Makhabel, *Learning data mining with R*, Birmingham, 2015.

<sup>12</sup> Por. W. Gogołek, D. Jaruga, *Z badań nad systemem...*, op. cit.

<sup>13</sup> Facebook users in 38% of cases do not comment on the link. Such situations were classified as neutral.

<sup>14</sup> Por. W. Gogołek, D. Jaruga, *Z badań nad systemem...*, op. cit., p. 107.

<sup>15</sup> The problems of this type of classification were raised by, among others, N. Bobbio, *Prawica i lewica* [Left and Right], Kraków–Warszawa 1996; *Budowanie demokracji: podziały społeczne, partie polityczne i społeczeństwo obywatelskie w postkomunistycznej Polsce* [Building democracy: social divisions, political parties and civil society in post-communist Poland], ed. M. Grabowska, T. Szawiel, Warszawa, 2001; J. Szacki, *Socjaldemokracja i liberalizm* [Social democracy and liberalism] [in:] *Liberalizm i socjaldemokracja wobec wschodnioeuropejskiego wyzwania* [Liberalism and social democracy in the face of the Eastern European challenge], ed. P. Marciniak, A. Stadler, Warszawa, 1991, pp. 11–20; R. Scruton, *Co znaczy konserwatyzm* [What is conservatism], Poznań 2014;

support the economic program proper for social democracy, and refer to the tradition of conservatism<sup>16</sup> in matters of norms and values. The classification of political parties was made on the basis of their social perception on the left-right axis in the research of the Polish General Election Study conducted after the parliamentary elections in 2015<sup>17</sup>. Making the electorate views the basis for division instead of party program line was not accidental. In the case analysed here, when the coherence between the views of users and their selection of information sources is examined, their convictions rather than the party's official program line are more significant. In this way, right-leaning parties are: PiS (average position on the scale "0 - left" - 10 - right" was 7.11), KORWiN (average position 5.09), Kukiz'15 (average position 5.59). Left-leaning parties are: Nowoczesna (average position 4,82), PO (average position 4,82), Razem (average position 2,82), PSL (average position 4,12), ZL (average position 1,41). The expression "right/left-leaning" was deliberately used because for some parties the result is very close to the middle value (5) and in such cases it would be unjustified to use distinctive categories such as "right-wing" and "left-wing" party. As in the question asked by PGSW, it seems more appropriate to include these differences in the form of a bipolar continuum.

The issue of ideological classification of media turned out to be even more problematic. The basic criterion was the formal self-identification (e.g. <http://www.wsieci.pl/o-tygodniku.html>; <http://krytykapolityczna.pl/o-nas/historia>) or the classification present in the Wikipedia entries devoted to the given medium. In contrast to political groups, the media do not always identify with a specific ideology or they do not want to be associated with such ideology (for example, internet portals wp.pl, onet.pl, dziennik.pl). Therefore, the media was divided into self-identified i.e. those that identify with some political ideology or political parties and self-unidentified, that is, those that do not identify themselves with any ideology or party. In the self-identified media category, a simplified ideological classification was made. They were divided into the left-leaning and right-leaning media, while only the differences regarding the sphere of values were taken into account (excluding, e.g. economic issues). This method allowed to avoid additional categories of media, which would probably more accurately reflect the reality, but would be too detailed for statistical analysis. The main criteria of the

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F. Hayek, *Dlaczego nie jestem konserwatystą?* [Why I am not conservative] [in: ] *Myśl polityczna XIX i XX w.: liberalizm* [Political thought of the 19th and 20th centuries: liberalism], ed. B. Sobolewska, M. Sobolewski, Warszawa, 1978, pp. 572–585.

<sup>16</sup> A. Kwiatkowska et al., *Ideologiczna treść wymiaru lewica–prawica w Polsce w latach 1997–2015* [The ideological content of the left-right dimension in Poland in 1997-2015], "Studia Socjologiczne", Vol. 223 (2016), no. 4, pp. 97–130; B. Patkowska-Pająk, *Wymiar lewica–prawica w Polsce – podziały ideologiczne w polskim społeczeństwie* [The left-right dimension in Poland - ideological divisions in Polish society], 2010, pp. 79–96.

<sup>17</sup> See. A. Kwiatkowska et al., *Ideologiczna treść wymiaru...* op. cit.

division are (left-wing, right-wing): secularity vs religiosity, emancipation vs tradition, innovation vs conservatism and equality vs hierarchism<sup>18</sup>. The full list of media along with the classification can be found in the appendix.

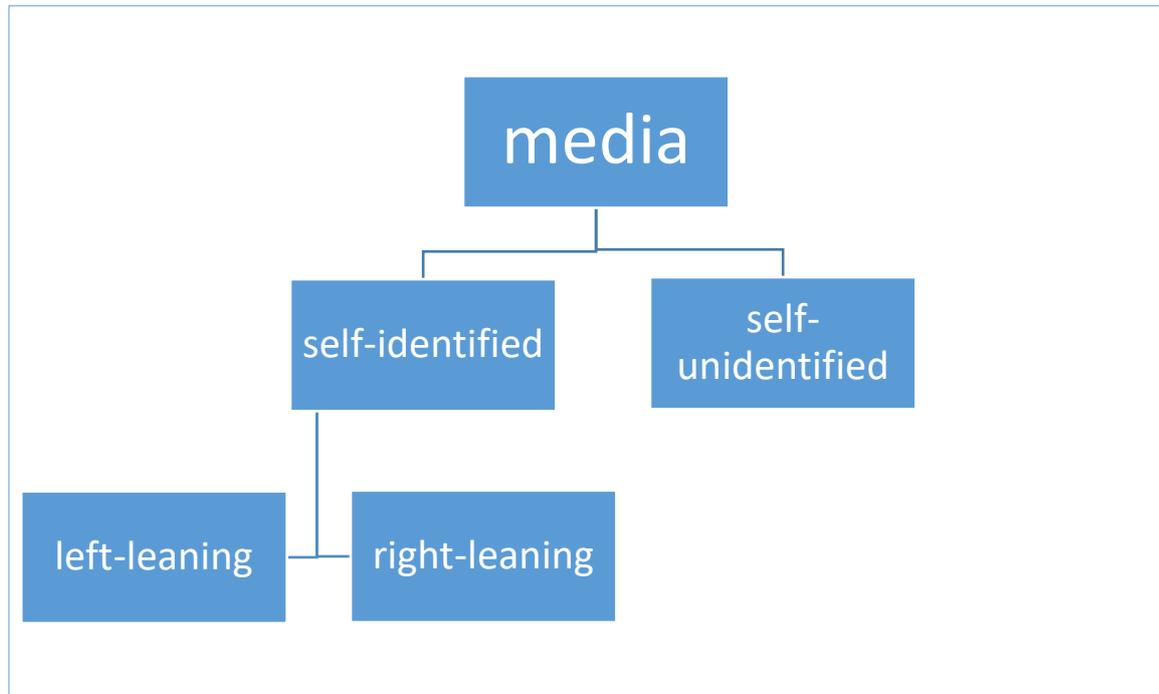


Figure 1. Classification of media  
Source: own development

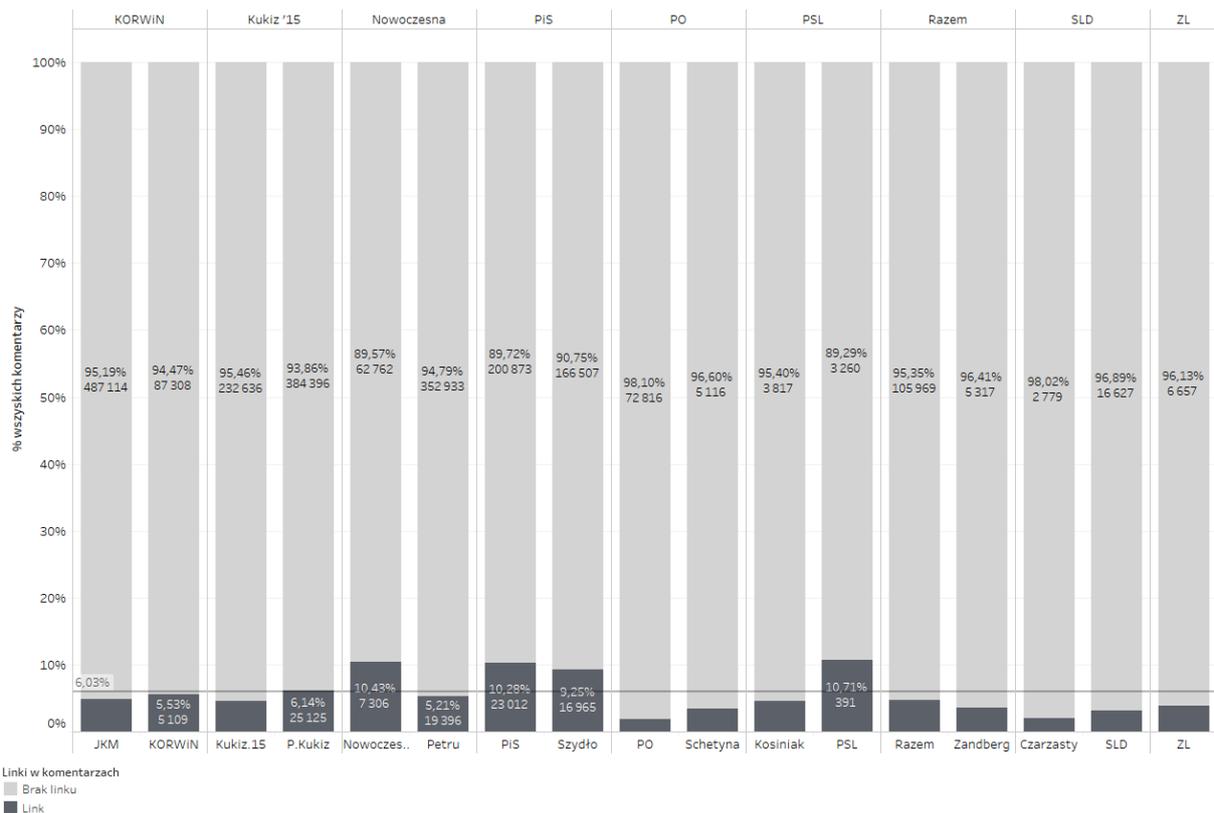
### Results

The collected empirical data indicate that about 6 per cent of all comments left on political Facebook pages include a hyperlink (chart 1). Analyses show that a statistically significant result above the total mean<sup>19</sup> concerns Prawo i Sprawiedliwość and the Polskie Stronnictwo Ludowe. Apart from the pages of Nowoczesna and Ryszard Petru, in all other cases the proportion of comments was below the total mean.

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<sup>18</sup> See N. Bobbio, *Prawica i lewica* [Left and right], Kraków, 1996, pp. 57–68.

<sup>19</sup> There is 95% probability that the average for a given page is different from the overall average; the basis for calculations were at the same time the page of the leader and political party.



% wszystkich komentarzy - % of all comments

Linki w komentarzach – links in comments

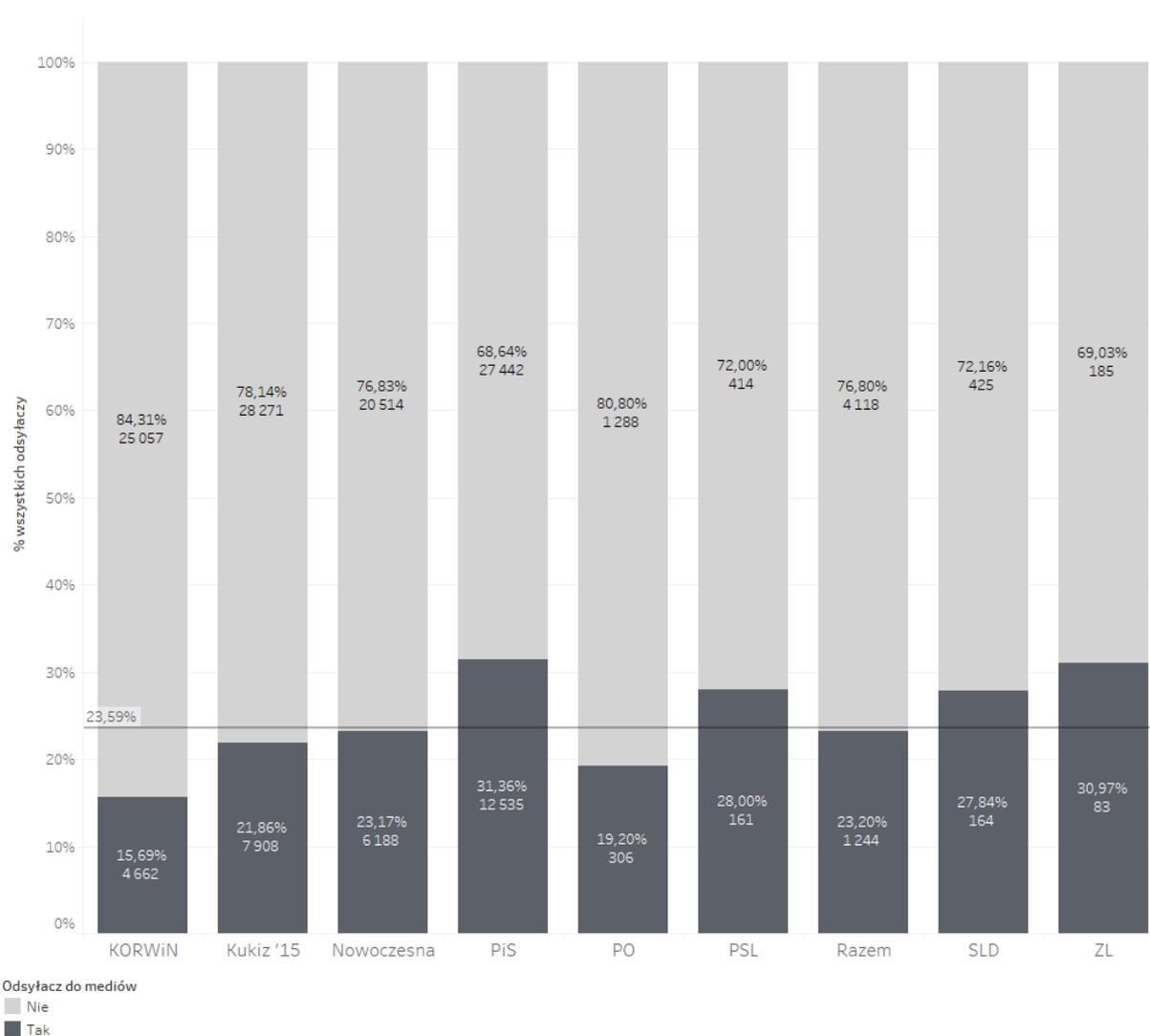
Chart 1. Per cent of links in comments

Source: own development

Not every one of these links leads to news media, such as information portals, electronic press releases or television and radio news websites. However, this applies to every fourth case (Chart 2). This pool does not include links to YouTube, because the link format (e.g. [www.youtube.com/watch?v=LYiAathvVYI](http://www.youtube.com/watch?v=LYiAathvVYI)) does not allow to determine to which channel (information, entertainment etc.) it leads. Checking this would require watching and manual labelling of each film. Considering, however, that this applies to 43,663 cases (31% of all links), it would be too labour-intensive task compared to the possible benefits that could result from it.

The reference to information sources turned out to be a factor significantly differentiating the users of particular Facebook pages. The users of KORWiN and Janusz Korwin-Mikke pages were least likely to refer to the news media (17% of all links), and the most likely in this respect were users of Prawo i Sprawiedliwość and Beata Szydło pages (35% of all links). The above-average result was obtained by users of pages related to Zjednoczona

Lewica (32%), Polskie Stronictwo Ludowe and Sojusz Lewicy Demokratycznej (both 31% each). Apart from the case of Partia Razem, whose result turned out to be statistically not smaller than the total mean (with 95% probability), on other pages, users relatively rarely used links to news media.



% wszystkich odsyłaczy - % of all links

Odsyłacz do mediów– links to media

Chart 2. Percentage of links to news media

Source: own development

Facebook users more often referred to self-identified media than self-unidentified media (54.4% and 45.6% per cent of links, respectively). In turn, the proportion of links to self-identified media consists of 37.5% links to right-leaning media and 16.9% links to left-leaning media. Facebook users therefore referred to right-leaning media more than twice as often.

The self-unidentified media were most often referred to by the users of pages of KORWiN (54%), Sojusz Lewicy Demokratycznej (52 %), Kukiz '15 (48%) and Prawo i Sprawiedliwość (47%). On the other hand, below-average results were recorded on the pages of Nowoczesna (33%), Zjednoczona Lewica (35%), Polskie Stronnictwo Ludowe (38%), Partia Razem (43%) and Platforma Obywatelska (44%)<sup>20</sup>.

Right-leaning media was mostly referred to in comments on Nowoczesna (57% of the links to news media), Polskie Stronnictwo Ludowe (50%), Kukiz'15 (42%) and Zjednoczona Lewica (41%) Facebook pages. It was less frequently referred to on Partia Razem (21.8%), Prawo i Sprawiedliwość (27%) and Platforma Obywatelska (27%)<sup>21</sup> pages.

Left-leaning media was mostly referred to in comments on pages of Partia Razem (35%), Platforma Obywatelska (30%), Prawo i Sprawiedliwość (25%) and Zjednoczona Lewica (24%), and least often on the pages of KORWiN (9%), Nowoczesna (10%). Kukiz'15 (10%). Polskie Stronnictwo Ludowe (12%) and Sojusz Lewicy Demokratycznej (16%)<sup>22</sup>.

Considering the ideological orientation of political parties assumed in the assumptions, it should be noted that some of the empirical material contradicts the H1 hypothesis, according to which users on a given political page prefer information published by media ideologically close to the group and at the same time other sources are discriminated. This applies to Nowoczesna, Prawo i Sprawiedliwość, Platforma Obywatelska, Polskie Stronnictwo Ludowe, Sojusz Lewicy Demokratycznej, and Zjednoczona Lewica. On the Nowoczesna's pages, the prevalence of right-leaning media over left-leaning is 47%, on Polskie Stronnictwo Ludowe pages - 38%, Zjednoczona Lewica - 17%. and Sojusz Lewicy Demokratycznej - 16%<sup>23</sup> On the other hand, in the case of data from Prawo i Sprawiedliwość and Platforma Obywatelska pages, differences in the frequency of referral to the right-leaning and left-leaning media turned out to be statistically insignificant. On these pages, both types of media appeared in links with similar frequency (Prawo i Sprawiedliwość - left-leaning 25 per cent, right-leaning - 27 per cent, Platforma Obywatelska - left-leaning 30 per cent, right-leaning - 27 per cent). In summary, in six out of nine cases, the evidence turned out to be different than what was predicted in the hypothesis.

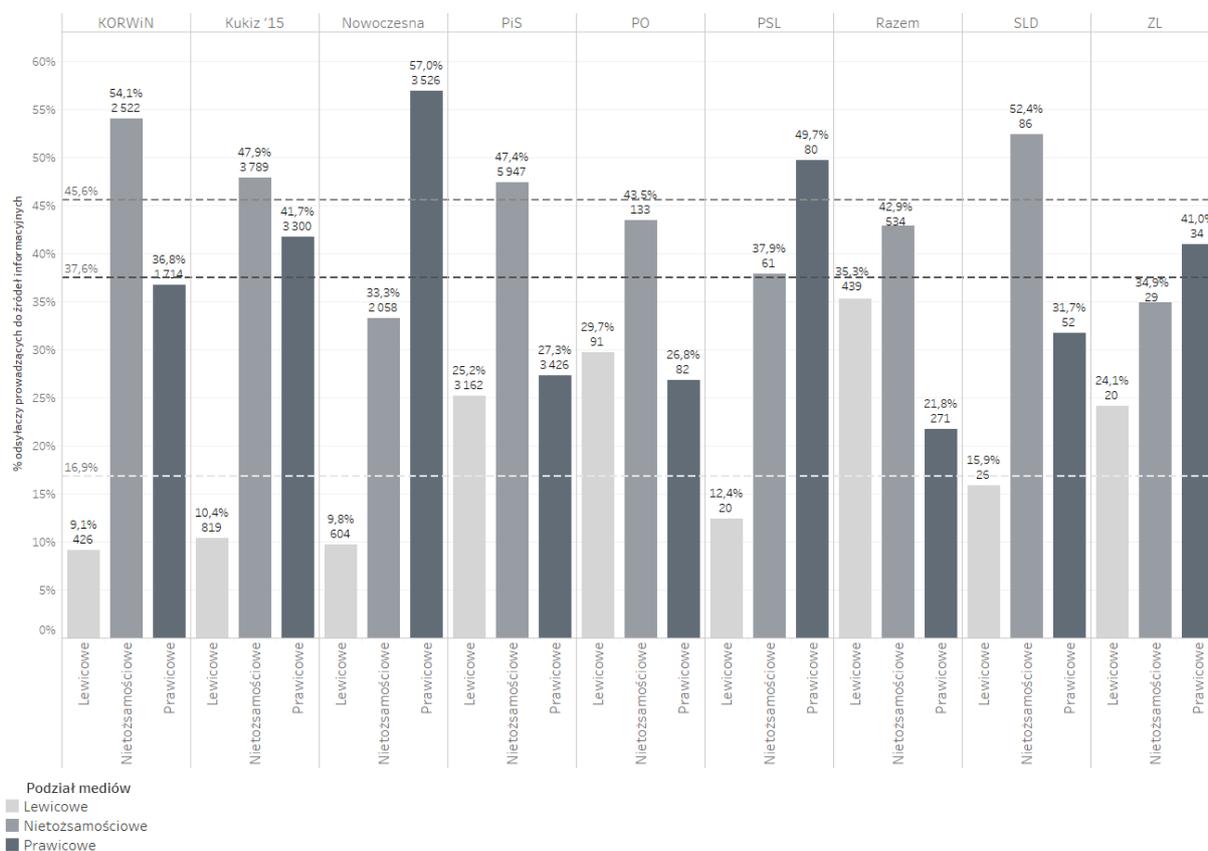
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<sup>20</sup> The results for Civic Platform, Together Party and Democratic Left-Alliance are not significantly different from the total mean (95% CI). All other results are statistically significantly different from the total mean. Z-test was performed.

<sup>21</sup> The results for KORWiN, Democratic Left Alliance and United Left are not significantly different from the total mean (95% CI). All other results are statistically significantly different from the total mean. Z-test for proportions was performed.

<sup>22</sup> The result for PSL, SLD and Zjednoczona Lewica are not significantly different from the total mean (95% CI). All other results are statistically significantly different from the total mean. Z-test was performed.

<sup>23</sup> All other results are statistically significant (95% CI). Z-test was performed.



% odsyłaczy prowadzących do źródeł informacyjnych – % of links to news media

Podział mediów – Division of media

Lewicowe - Left-leaning media

Nietożsamościowe – Self-unidentified

Prawicowe – Right-leaning media

Chart 3. Division of media, which comment authors refer to

Source: own development

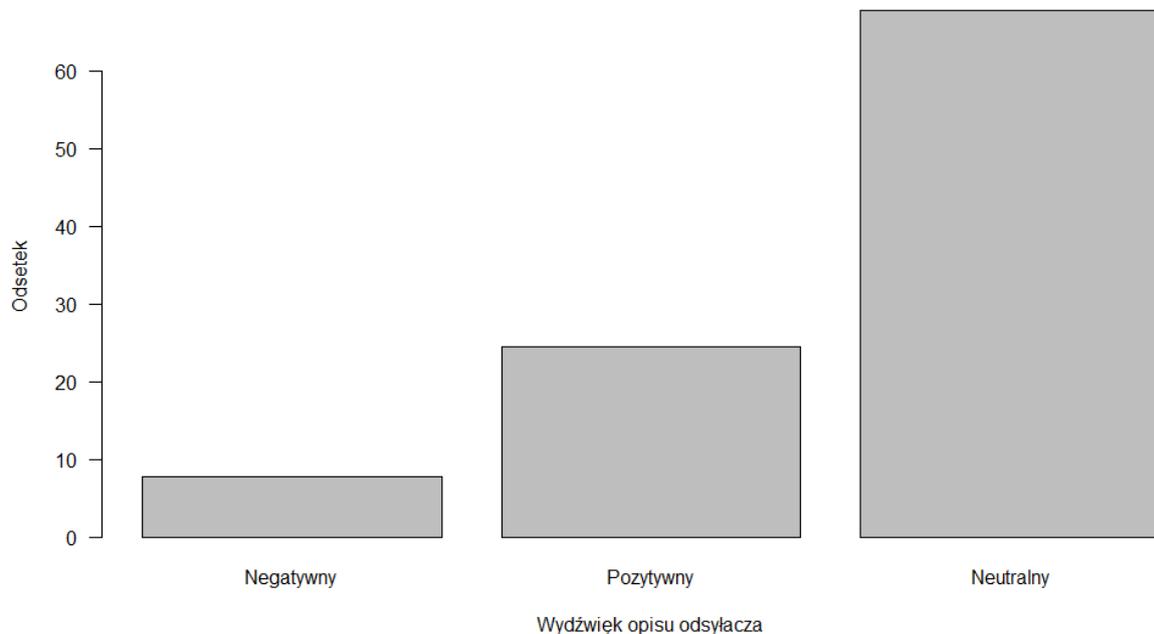
The data in Chart 4 and the results of statistical calculations indicate that there is not enough evidence to support the H1-1 hypothesis, according to which reference to media associated with political competition is discriminated, while links to sources found to be favourable will be rewarded in the form of a larger number of likes. Such regularity applies only to users on Sojusz Lewicy Demokratycznej and Partia Razem pages. On the Prawo i Sprawiedliwość pages the most liked sources were left-leaning. In other cases, the differences were statistically insignificant.

Table 1. Differences between the average number of likes under comments

Fanpage	Type of medium in the link	Average number of likes	Standard deviation	Statistical significance in Kruskal–Wallis test
KORWiN	left-wing	0.7	2.43	p > 0.05
	self-unidentified	1.58	26.5	
	right-wing	1.21	10.01	
Kukiz'15	left-wing	1.08	7.96	p > 0.05
	self-unidentified	0.87	5.62	
	right-wing	0.86	8.74	
Nowoczesna	left-wing	1.03	6.1	p > 0.05
	self-unidentified	0.81	3.95	
	right-wing	0.83	6.83	
Prawo i Sprawiedliwość	left-wing	0.86	2.25	p > 0.05
	self-unidentified	0.65	1.55	
	right-wing	0.76	4.12	
Platforma Obywatelska	left-wing	1.14	1.9	p > 0.05
	self-unidentified	0.97	2.26	
	Right-wing	0.99	1.58	
Polskie Stronnictwo Ludowe	Left-wing	0.5	1	p > 0.05
	self-unidentified	0.33	0.65	
	right-wing	0.4	0.72	
Partia Razem	left-wing	4.74	15.11	p > 0.05
	self-unidentified	3.43	14.39	
	right-wing	2.22	7.77	
Democratic Left-Alliance	left-wing	1.15	2.94	p > 0.05
	self-unidentified	0.5	1.11	
	right-wing	0.21	0.78	
Zjednoczona Lewica	left-wing	0.85	1.53	p > 0.05
	self-unidentified	0.31	0.66	
	right-wing	0.24	0.43	

Source: own development

The above results are consistent with the analysis of the context in which the links appear. In only 7.7% of cases this was a negative context (e.g. “it is manipulated”, “sorry for the source”, “sorry that it was taken from a lying ‘wyborcza’”), so the user clearly suggests that the source which he/she just quoted is unreliable. 24.5% cases had positive context (e.g., “I recommend reading this”), and 67.8% cases had neutral context (usually this was the case when there was no text in the comment except for the link). This means that with a high probability users treated the source to which they referred to as reliable.



Wydźwięk opisu odsyłacza – the sentiment of the link description

Odsetek – per cent

Negatywny – negative

Pozytywny – positive

Neutralny - neutral

Chart 4. Sentiment\* around links

\*Sentiment was analysed for up to 10 words that came before or after the link

Source: own development

## Discussion and summary

The analyses allow for making some important insights related to the use of media information in discussions on political Facebook pages. Links to additional content appear in the comments relatively often (in 6% of the comments). However, only 26% of these links lead to news media, i.e. websites of the press, radio, television and news portals, which play an informative role towards the public.

As a result of the analyses, sufficient evidence was obtained to reject the main and auxiliary hypotheses. First of all, it has not been confirmed that users of Facebook pages are more likely to refer to news media that are closer to the worldview of the group. Secondly, it has not been confirmed that users of the Facebook page would more often like comments in which links to such media appear. Thirdly, in nearly 92% of cases links appeared in a positive or neutral context, suggesting that the source was considered reliable.

The collected results lead to the formulation of two fundamental conclusions: one - regarding the Facebook page as an example of the echo chamber, and the second - regarding social interactions on these pages and their consequences for possible polarization of political beliefs.

The hypothesis contained a hidden assumption that Facebook pages of political parties bring together their supporters, and hence, are for them a kind of information cocoon - a place where it is easiest to find people with similar views, reading the same press, watching similar TV programs or using similar news portals. Consequently, it could be expected that such virtual spaces may enhance appearing of closed or nearly-closed communities that selectively choose information sources and information they want to obtain. In other words, echo chambers emerge. It turned out that the above-year observation did not provide any evidence that would support such a hypothesis regarding hyperlinks used in the discussion. On the macro level<sup>24</sup>, discussion on Facebook pages appears to be extremely pluralistic. Undoubtedly, if they are considered to create any echo chambers, they are at best “leaky”.

Taking into account the obtained results, users could embody the democratic ideal of the citizen and the recipient, who acquires information from various sources and critically analyses it.<sup>25</sup> However, such aggregated effect does not necessarily mean that they are not

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<sup>24</sup> It refers to the relationship between the micro and macro level of social phenomena, described, among others, by T. Schellinga w *Micromotives and macrobehavior*, New York, 2006.

<sup>25</sup> P. Norris, *A virtuous circle: political communications in postindustrial societies*, Cambridge, 2003, pp. 121–122; R.J. Dalton, *Citizen politics: public opinion and political parties in advanced industrial democracies*, Washington, D.C, 2008, pp. 15–16.

biased and do not interpret reality in a biased way. Individual actions may lead to results that are contrary to the intention of the agent<sup>26</sup>. This means that actions of many individuals with very specific, but different views, and using one-sided sources of information (in line with their views) may result in aggregated statistics that indicate far-reaching pluralism in terms of using news media. This does not mean, however, that a particular individual engaged in discussions observes and uses various sources.

The following mechanism is likely:

1. An assumption has been made that the majority of people visiting a given Facebook page of a party or a leader are their supporters (Facebook pages by definition bring such people together).
2. Political Facebook pages are available not only to their members (individuals who liked the page), but all Facebook users.
3. Among the people who visit pages there are supporters of competing parties who, when entering into the discussion, may refer to different sources, also raising the subject of discussion in a different light. This would explain why the results show high proportions of news media associated with political opponents, e.g. the highest share of right-leaning media is found on left-leaning Nowoczesna's pages.
4. Political opponents who engage in polemics with supporters of a given party on its page refer to sources that are perhaps not very popular among people with whom they discuss, but are treated by themselves as credible, because that is the logic of the dispute. In the discussion, one does not bring evidence supporting the thesis in a way that comprises it. Probably, for this reason, almost all references were placed in a positive or neutral context.
5. Very small substantive differences between the likes of comments referring to coherent and inconsistent sources with the ideological line of parties and electorates may be related to the division into supporters and opponents of a given party. Comments that refer to the media preferred by supporters are liked by them. The meaning of such social action may be related to, among others, expression of general support ("X liked Y's comment, because he agrees with the thesis contained in it and/or considers the reference valuable") or support in the discussion ("X liked Y's comment to support Y in discussion with the opponents"). A similar mechanism, consistent with the minimal

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<sup>26</sup> Por. R. Boudon, *Efekt odwrócenia. Niezamierzone skutki działań społecznych* [The Unintended Consequences of Social Action], Warszawa, 2008.

group paradigm<sup>27</sup>, takes place in the case of people who are not supporters, who try to push through a different position or introduce new information to the discussion, undermining the beliefs of supporters. In such a situation, supporters cannot easily react to this fact, because the Facebook architecture lacks the option “I do not like it” (as it is on YouTube). The only possibility to express disapproval is to write a negative comment (this issue was not taken into account in this article). Likes, in turn, do not necessarily have to come from supporters of the page administrator (party or its leader). They may be left by users who attack the group and want to support other like-minded users.

In conclusion, it should be clearly stressed that the article proposed the thesis that political Facebook pages are not echo chambers, in the sense that they do not create a place where one-sided information prevails. However, the author of this article would not like his voice to be interpreted in terms of proof against the polarisation of attitudes and beliefs to which discussions in social media are most likely to lead<sup>28</sup>. Therefore, I want to say that although in the given sense, political pages on Facebook are not echo chambers, it does not mean that they do not polarise beliefs. If we treat them as the arena of a dispute between individuals with fairly well-established attitudes for and against a given political option, then it can be expected that the discussions going on there will lead to consolidation in the original beliefs rather than to a compromise<sup>29</sup>. For this reason, in conclusion, it should be emphasised that in the case of echo chambers and polarisation of beliefs, it is necessary to talk about separate social mechanisms, which necessarily do not have to co-exist.

## Appendix

Table 2. Division of media<sup>30</sup>

Media	Self-identified		Self-unidentified
	Left-leaning	Right-leaning	

<sup>27</sup> According to this paradigm, the division into groups alone leads to preferences in the activities and choices of the in-group and discrimination of a out-group: H. Tajfel et al., *Social categorization and intergroup behaviour*, "European Journal of Social Psychology" Vol. 1 (1971), no. 2, pp. 149–178.

<sup>28</sup> C.R. Sunstein, *#Republic. Divided democracy in the age of social media*. Princeton 2017.

<sup>29</sup> V. Price, *Playing politics: the experience of e-participation* [in:] *Connecting democracy*, ed. S. Coleman, P.M. Shane, Cambridge–Massachusetts, 2012, pp. 125–148; C.R. Sunstein, *Echo chambers...*, op. cit.

<sup>30</sup> Only the media that occurred in link for 10 or more times were analysed. Therefore, it is only a list of media to which the users referred in their discussions.

<p>Press</p>	<p>chinadaily.com.cn, gazeta.pl, theguardian.com, haaretz.com, independent.co.uk, krytykapolityczna.pl, lemonde.fr, mirror.co.uk, polityka.pl, tygodnikprzeglad.pl, wyborcza.pl, wysokieobcasy.pl</p>	<p>bibula.com, dailymail.co.uk, dorzeczy.pl, dzienniknarodowy.pl, gazetapolska.pl, gazetawarszawska.com, gosc.pl, nczas.com, naszdzienik.pl, rp.pl, telegraph.co.uk, tygodnikpowszechny.pl, tygodniksolidarnosc.com, tysol.pl, uwazamrze.pl, warszawskagazeta.pl, welt.de</p>	<p>dw.com, dziennik.com, dziennikbaltycki.pl, dziennikzachodni.pl, dziennikzwiazkowy.com, dziennikpolski24.pl, express.co.uk, fakt.pl, forbes.pl, gazetaprawna.pl, gazetabaltycka.pl, gazetakrakowska.pl, gazetalubuska.pl, gazetawroclawska.pl, komputerswiat.pl, latimes.com, lodzkagazeta.pl, metrowarszawa.gazeta.pl, national-geographic.pl, nytimes.com, pb.pl, polskatimes.pl, se.pl, spiegel.de, timesofisrael.com, tygodnikkrag.pl, washingtonpost.com, wprost.pl</p>
<p>Radio</p>	<p>tokfm.pl</p>	<p>polskieradio.pl, radiomaryja.pl, radionet.pl</p>	<p>eska.pl, radiokrakow.pl, radio.opole.pl, radioszczecin.pl, radiowawa.pl, rdc.pl, rmf24.pl, radiozet.pl, classic105, polskalive.pl</p>
<p>Television</p>		<p>foxnews.com, telewizjarepublika.pl, tvp.pl, tv-trwam.pl</p>	<p>bbc.co.uk, polsat.pl, superstacja.tv, tvn.pl</p>
<p>Online portal</p>	<p>lewica.pl, lewicowo.pl, natemat.pl, racjapolskiejlewicy.pl, trybuna.eu, mygorszysort.pl</p>	<p>breitbart.com, dlapolski.pl, dzienniknarodowy.pl, prawicowyinternet.pl, blastingnews.com, cnsnews.com, dailysignal.com, dziennik-polityczny.com, eprudnik.pl, fronda.pl, gazetapolonii.com, gazetatrybunalska.pl, kontrowersje.net, magnapolonia.org,</p>	<p>300polityka.pl, 4lomza.pl, biala24.pl, dziennik.pl, dzienniklodzki.pl, dziennikwschodni.pl, echodnia.eu, esanok.pl, expresselblag.pl, expressilustrowany.pl, fakty.elblag.pl, fleszdnia.com.pl, gazetakrakowska.pl, glosgminny.pl, gp24.pl, interia.pl, jpost.com,</p>

		<p>newsweb.pl, niezalezna.pl, niezlomni.com, odbudowarp.pl, pch24.pl,</p> <p>politico.eu, polskaniepodlegla.pl, polskaracja.com, polskasuwerenna.pl, prawastronamedalu.pl,</p> <p>prawapolityka.pl, prawicowyinternet.pl, prawy.pl, progressforpoland.com, prostozmostu.net, salon24.pl,</p> <p>wirtualnapolonia.com, wolna-polska.pl,</p> <p>wmeritum, wolnosc24.pl, wpolityce.pl, wsensie.pl, xportal.pl, wgospodarce.pl,</p> <p>blizejprawdy.pl, deon.pl, niedziela.pl, ndie.pl, niepoprawni.pl, niezwykle.com, piens.pl, wrealu24.pl</p>	<p>kurierlubelski.pl, londynek.net, mediumpubliczne.pl, metrocafe.pl, mpolska24.pl, naszestrony.co.uk, neon24.pl, nowiny24.pl, nto.pl, o2.pl, oko.press, onet.pl, pap.pl, pikio.pl, polishexpress.co.uk, polityczek.pl, polskie- echo.com, pomorska.pl, poranny.pl, portalniezalezny.pl, studioopinii.pl, thefad.pl, trojmiasto.pl, wawalove.pl, wdolnymslasku.pl,</p> <p>wp.pl, wspolczesna.pl,</p> <p>bankier.pl, bankier.tv, biznes.pl, biznesalert.pl, biztok.pl, businessinsider.com.pl, cire.pl, forsal.pl, mambiznes.pl,</p> <p>magazynbusinessman.com, money.pl,</p> <p>obserwatorfinansowy.pl, strefainwestorow.pl, wnp.pl, aferyprawa.eu,</p> <p>cannabisnews.pl, crowdmedia.pl, defence24.pl, fastnews.pl, farmer.pl,</p> <p>geekweek.pl, innpoland.pl, kresy.pl, kresy24.pl, kulisy24.com, motofakty.pl, nf.pl, niewygodne.info.pl, noizz.pl, parlamentarny.pl, prisonplanet.pl, pressmix.eu, prokapitalizm.pl, reporters.pl, rt.com, skepticalscience.com,</p> <p>sfora.pl, sport.pl, sputniknews.com,</p>
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			wikileaks.org, wirtualnemedi.pl, yournewswire.com, zmienmy.to
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Source: own development

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