



Echo chambers and polarisation in the German federal election 2017

Wolf J. Schünemann/Stefan Steiger/Fritz Kliche

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W^gSN_{BTW17}

Election campaigns in (un)social networks

Hildesheim University

Consortium leadership

- Prof. Dr. Wolf J. Schünemann
- Stefan Steiger, M.A.
- Dr. Sylvia Jaki (associated)
- Fritz Kliche, M.A. (associated)



Göttingen University

- Dr. Stine Marg
- Christopher Schmitz, M.A.

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Göttinger Institut
für Demokratieforschung



Heidelberg University

Computer Science

Psychology

- Prof. Dr. Michael Gertz
- Patrick Breithaupt, M.A.
- Dr. Jan Rummel



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386



ZDF media research

- Dr. Heinz Gerhard

State of research

- Both, the widely discussed concepts of “filter bubble” (Pariser 2011) and “echo chamber” (Sunstein 2017) rely on the psychological theory of “selective exposure” (Klapper, 1960; Sears & Freedman, 1967).
- Two main strands of research either examine homophily networks or partisan selective exposure itself.
- Empirical studies on online communication in general (Flaxman, Goel, & Rao, 2016; Garrett, 2009; Karlsen, Steen-Johnsen, Wollebæk, & Enjolras, 2017; Knobloch-Westerwick, 2012), Twitter (Barberá, Jost, Nagler, Tucker, & Bonneau, 2015; Boutyline & Willer, 2017; Bright, 2016; Colleoni, Rozza, & Arvidsson, 2014; Merry, 2016) and Facebook (Bakshy, Messing, & Adamic, 2015; Jacobson, Myung, & Johnson, 2015) in particular, predominantly on the US, more seldom on other countries (Spain: Agarwal, Chomsisengphet, Meier, & Zou, 2017; UK: Dubois & Blank, 2018; Netherlands: Trilling et al., 2016). Different sorts of data and methodologies have been applied: survey methodology (Dubois & Blank, 2018; Weeks, Ksiazek, & Holbert, 2016; Stroud, 2010), web tracking (Agarwal et al., 2017; Gentzkow & Shapiro, 2011; Flaxman et al., 2016), experimental designs (Feldman, Stroud, Bimber, & Wojcieszak, 2013; Trilling et al., 2016), content-based methods (Himmelboim, McCreery, & Smith 2013; Jacobson, Myung & Johnson, 2015; Taneja 2016). Divergent results: pro vs. contra (Dubois & Blank, 2018; Fletcher & Nielsen, 2017; Gentzkow & Shapiro, 2011).
- Our analysis better complies with data protection standards.
- In contrast to the existent literature, we ex ante define comment spaces on party political pages as party political venues. We have prepared the data set accordingly.

Research questions

- Do we observe polarisation in political Facebook communication during the federal election campaign 2017 in Germany?
- Can this be explained by the echo chamber mechanism?

Germany as an unlikely case for the online echo chamber effect

Germany is a particularly unlikely case for both large effects of political online communication and partisan selective exposure...

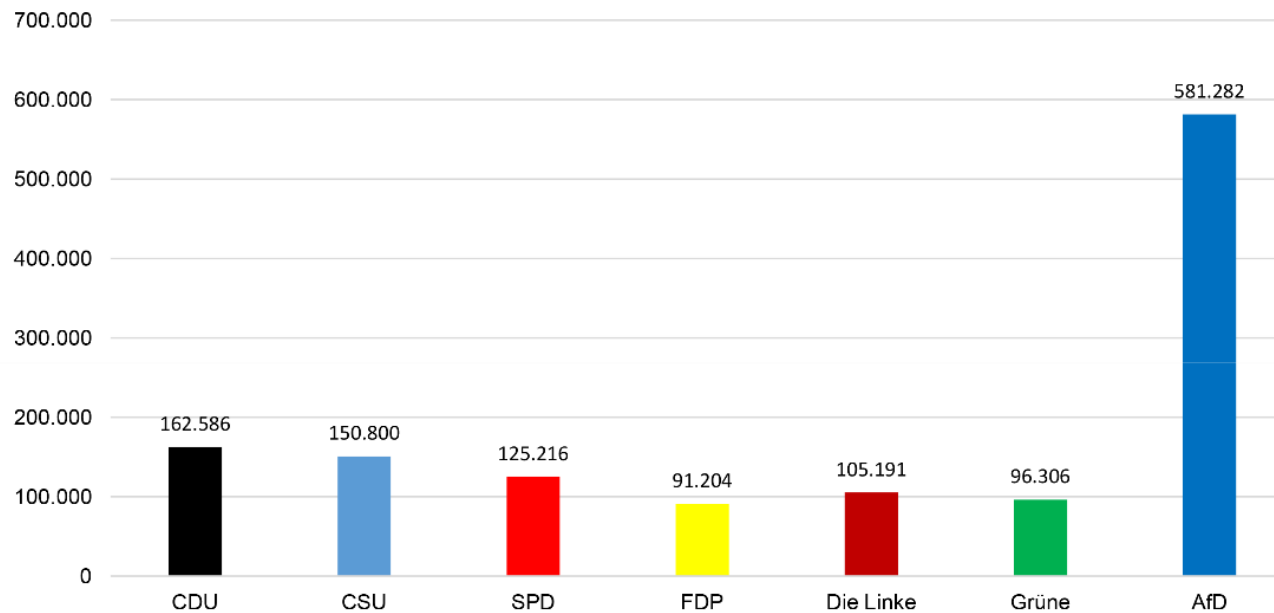
- ...because compared to other countries it is a late-comer regarding the use of social media in general and for political news and information in particular.
- ...because it is known for its corporatist media system.

However, also in Germany we have recently discussed trends of political polarisation what...

- ... could be observed especially during the recent election campaign.
- ...was particularly driven by the intense online campaign of the new right wing populist movement Alternative für Deutschland (AfD).
- ...is about to stay with regard to the party system and the political discourse as the AfD won about 12.6% of the votes and 94 seats in German Bundestag.

Activity on Facebook

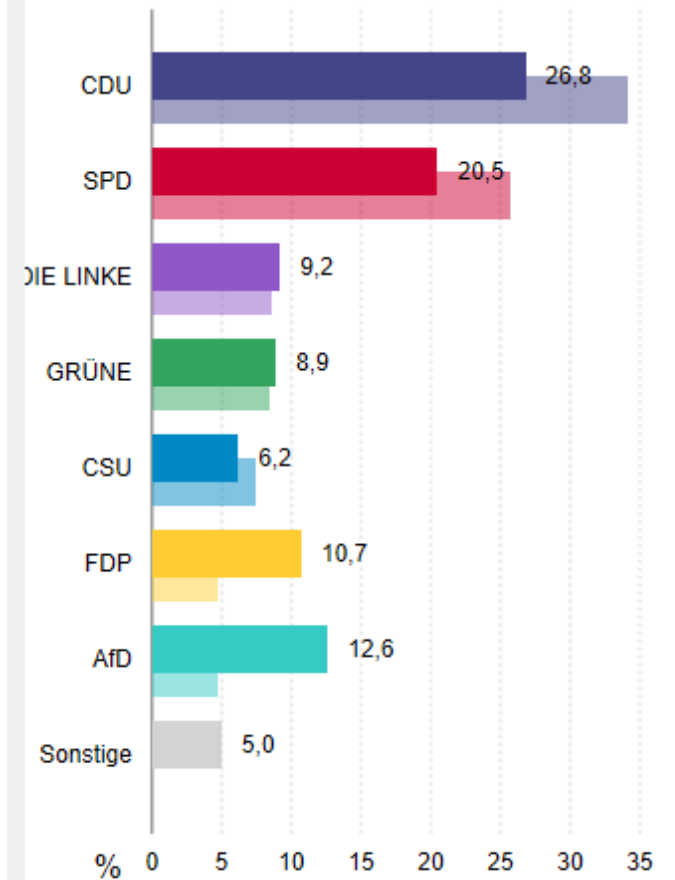
Number of posts and comments on parties' Facebook profiles
(29 January 2017 - 24 September 2017)



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Electoral results

Zweitstimmen
Bundestagswahl 2017, Deutschland
Endgültiges Ergebnis



■ Bundestagswahl 2017
■ Bundestagswahl 2013

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Research hypotheses

Hypotheses of selective exposure

- H1a: Users that actively comment on a party political Facebook page show significant differences in media exposure measured by the websites they most frequently refer to compared to other parties.
- H1b: Users that actively comment on a party political Facebook page do not show significant differences in media exposure measured by the websites they most frequently refer to compared to other parties, except for the parties at the margins of the political spectrum (the AfD in Germany).

Hypotheses of political polarisation

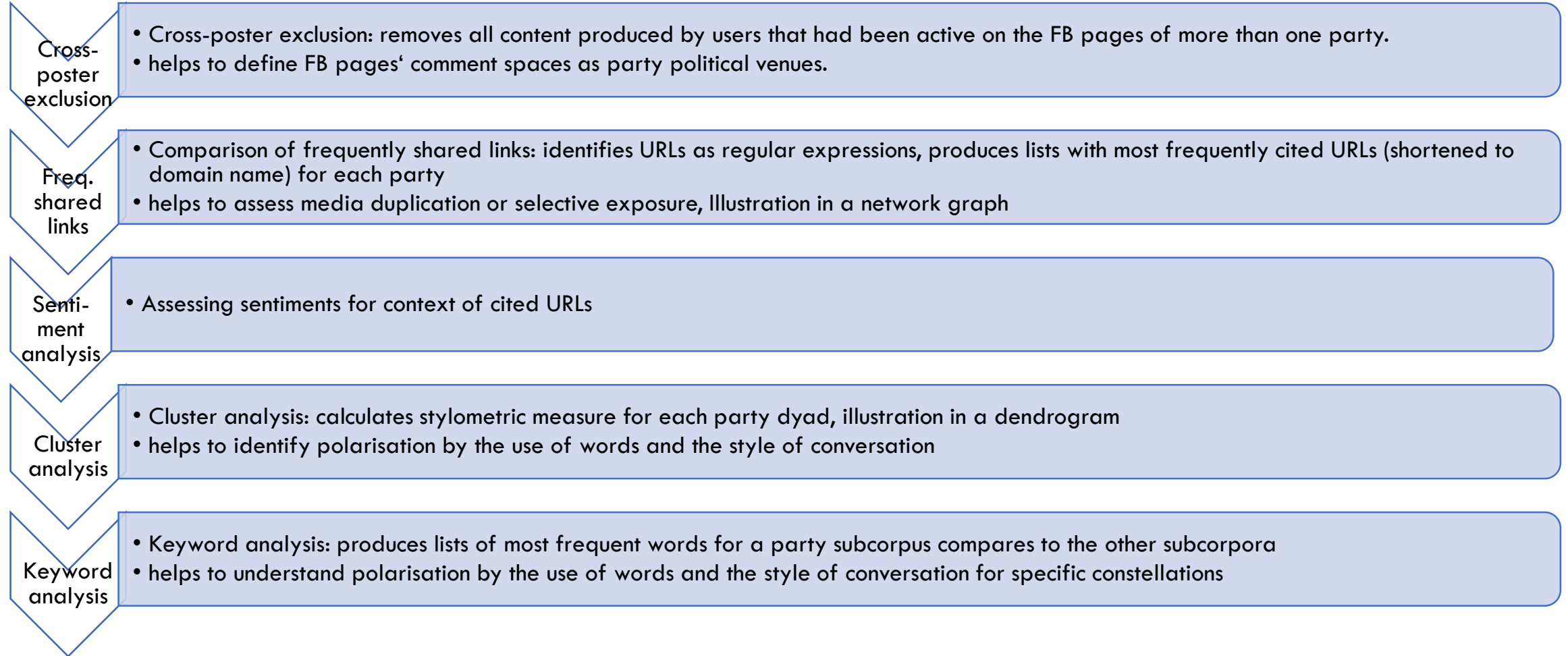
- H2a: Content produced on the Facebook pages of different political parties is clearly different in topical orientation and style thus indicating political polarisation.
- H2b: Content produced on the Facebook pages of mainstream political parties converge in topical orientation and style, while there are differences in comparison to the margins of the political spectrum (to the AfD) in Germany.

Collection of FB data

Data collection:

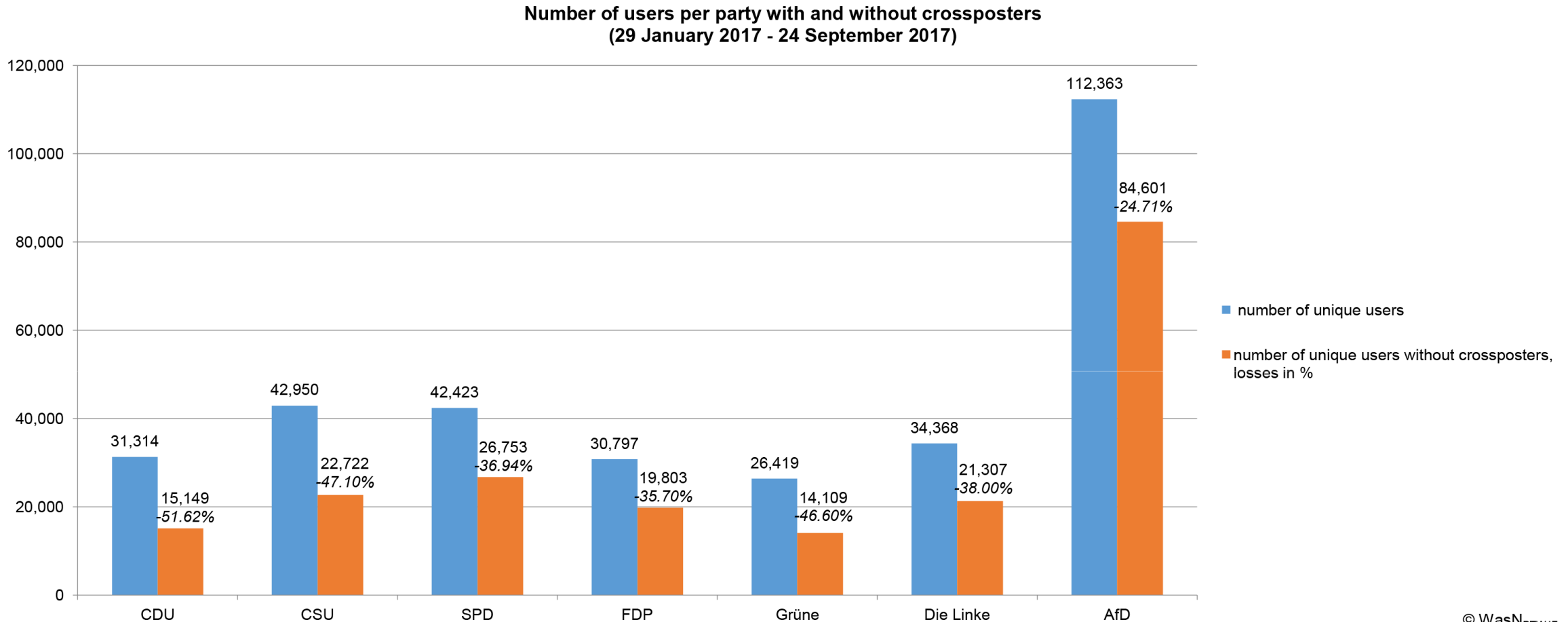
- Collection of ‚natural‘ data from Facebook using the Graph API.
- All posts and comments on public FB pages of parties with a realistic outlook to win seats in the German federal election 2017 (CDU, CSU, SPD, Bündnis 90/Die Grünen, FDP, Die Linke, AfD) and their leading candidates (Merkel, Herrmann, Schulz, Lindner, Göring-Eckardt, Özdemir, Bartsch, Wagenknecht, Weidel).
- Collection period: 29 Jan to 24 Sep 2017.
- in total 2.9 mio. posts and comments made by 539.056 single users.

Multi-method research design



Results

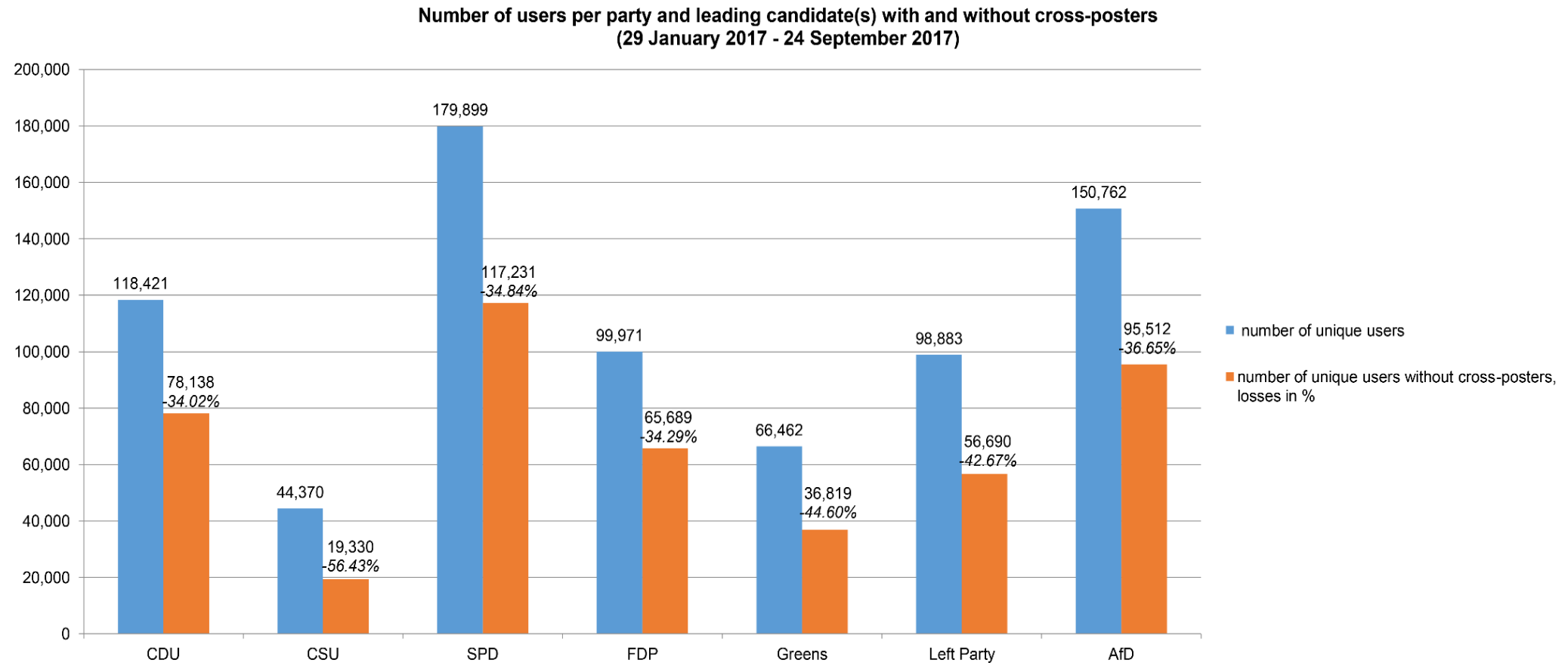
Cross-poster exclusion



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Results

Cross-poster exclusion



Results

Comparison of most frequently shared URLs – lists of shortened URLs
(sources and shares of total number of links in %) – complete dataset

CDU, A. Merkel (N=38,006)		CSU, J. Herrmann (N=811)		SPD, M. Schulz (N=11,441)		FDP, C. Lindner (N=6,622)		Greens, K. Göring-Eckardt, C. Özdemir (N=7,059)		Left Party, S. Wagenknecht, D. Bartsch (N=11,872)		AfD, A. Weidel (N=17,505)	
welt.de	8.75	csu.de	15.66	focus.de	9.17	fdp.de	27.63	welt.de	7.35	die-linke.de	5.85	welt.de	7.90
focus.de	6.77	welt.de	7.15	welt.de	5.34	spiegel.de	4.34	focus.de	4.15	welt.de	4.32	focus.de	5.57
bild.de	2.95	focus.de	5.92	spd.de	4.82	welt.de	3.04	spiegel.de	3.68	Focus.de	3.71	wikipedia.org	3.04
spiegel.de	2.94	bayernkurier.de	3.21	spiegel.de	4.11	liberale.de	2.25	wikipedia.org	3.23	wikipedia.org	3.10	spiegel.de	2.78
epochtimes.de	2.46	spiegel.de	2.84	zeit.de	2.22	faz.net	2.17	gruene.de	2.95	bz-berlin.de	2.64	zeit.de	2.60
faz.net	1.93	br.de	2.84	wikipedia.org	2.08	wikipedia.org	2.07	zeit.de	2.22	zeit.de	2.64	faz.net	2.36
zeit.de	1.87	stmi.bayern.de	2.47	faz.net	2.06	zeit.de	2.04	bild.de	1.95	spiegel.de	2.16	bild.de	1.94
t-online.de	1.30	epochtimes.de	2.34	theeuropean.de	1.58	focus.de	1.86	epochtimes.de	1.69	faz.net	1.74	epochtimes.de	1.61
n-tv.de	1.24	sueddeutsche.de	1.97	nachdenkseiten.de	1.30	fdp.nrw	1.33	gruene-bundestag.de	1.54	tagesspiegel.de	1.69	tagesspiegel.de	1.13
journalistenwatch.com	1.09	faz.net	1.73	sueddeutsche.de	1.23	bild.de	1.19	n-tv.de	1.32	epochtimes.de	1.63	n-tv.de	1.11

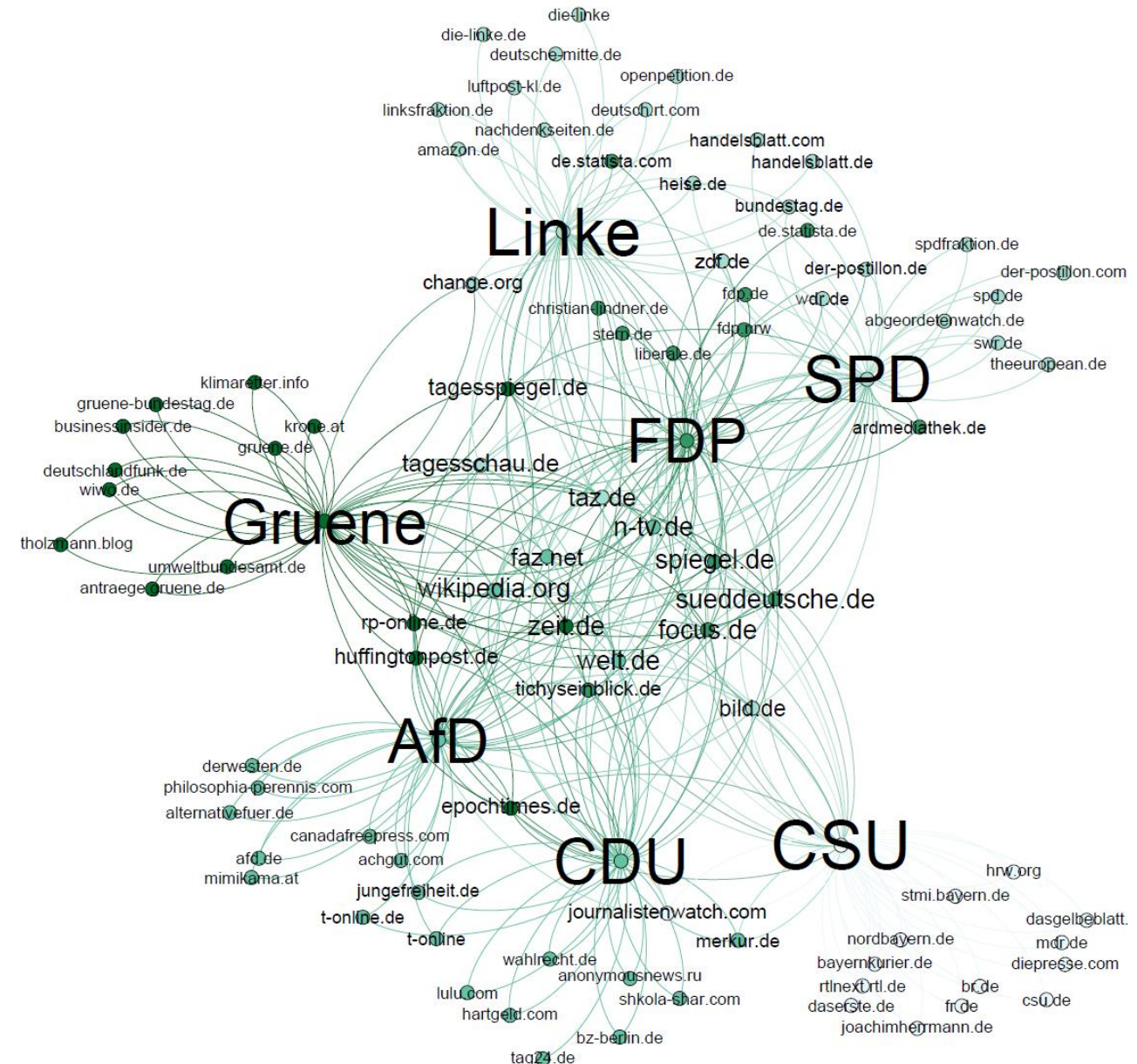
Results

Comparison of most frequently shared URLs – lists of shortened URLs (sources and shares of total number of links in %) – after CP exclusion

CDU, A. Merkel (N=7,755)		CSU, J. Herrmann (N=97)		SPD, M. Schulz (N=2,543)		FDP, C. Lindner (N=3,639)		Greens, K. Göring-Eckardt, C. Özdemir (N=1,538)		Left Party, S. Wagenknecht, D. Bartsch (N=2,579)		AfD, A. Weidel (N=6,316)	
welt.de	5.66	stmi.bayern.de	17.53	spd.de	8.18	fdp.de	44.05	gruene.de	6.24	die-linke.de	11.79	welt.de	5.86
focus.de	5.02	br.de	6.19	focus.de	6.10	liberale.de	3.52	welt.de	5.40	wikipedia.org	4.43	focus.de	5.59
spiegel.de	3.11	welt.de	3.09	spiegel.de	4.33	spiegel.de	2.97	spiegel.de	4.88	spiegel.de	3.22	wikipedia.org	3.28
bild.de	2.39	focus.de	3.09	welt.de	3.46	fdp.nrw	2.12	wikipedia.org	4.75	welt.de	2.52	zeit.de	3.28
shkola-shar.com	2.10	nordbayern.de	3.09	wikipedia.org	2.60	welt.de	1.73	gruene-bundestag.de	4.42	deutsche-mitte.de	2.25	spiegel.de	2.98
zeit.de	1.86	wikipedia.org	3.09	zeit.de	2.12	faz.net	1.62	zeit.de	3.25	linksfraktion.de	2.09	faz.net	2.36
epochtimes.de	1.72	bayernkurier.de	3.09	faz.net	1.89	wikipedia.org	1.46	focus.de	2.47	zeit.de	1.90	afd.de	1.55
faz.net	1.48	joachimherrmann.de	3.09	theuropean.de	1.69	christian-lindner.de	1.40	taz.de	1.76	openpetition.de	1.47	bild.de	1.47
wikipedia.org	1.42	hrw.org	3.09	swr.de	1.53	zeit.de	1.40	tagesspiegel.de	1.56	sueddeutsche.de	1.28	tagesspiegel.de	1.23
hartgeld.com	1.42	spiegel.de	2.06	der-postillon.com	1.62	focus.de	1.21	faz.net	1.37	zdf.de	1.18	n-tv.de	1.12

Results

Comparison of most frequently shared URLs – network graph



Results

Comparison of most frequently shared URLs – correlation of complete lists (Pearson's r)

	Other parties with main party websites	Other parties without main party websites
AfD	0.6138284	0.9241117
CDU	0.554189	0.8521174
CSU	0.2227391	0.2863901
FDP	0.09422225	0.650709
Greens	0.5436539	0.7942716
Left Party	0.3123245	0.6974893
SPD	0.5162121	0.8650968

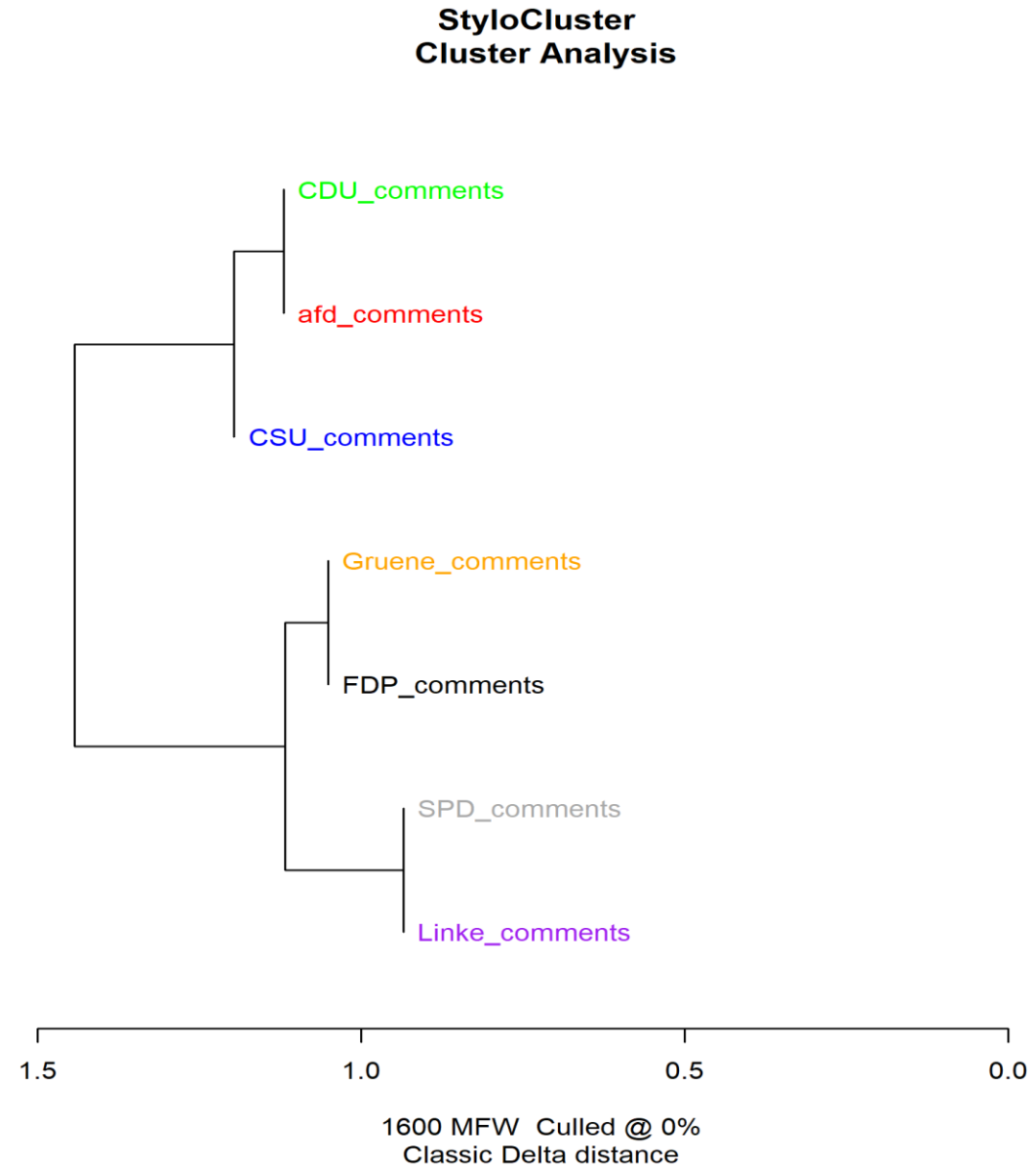
Results

Sentiment analysis of most frequently shared URLs –
lists of shortened URLs – context

	Domain	Positive	Negative	Neutral
AfD	welt.de	25.66%	10.31%	64.04%
AfD	focus.de	19.94%	10.80%	69.25%
AfD	wikipedia.org	19.63%	8.59%	71.78%
AfD	zeit.de	26.98%	14.08%	58.94%
AfD	spiegel.de	22.18%	6.28%	71.55%
AfD	faz.net	16.34%	8.50%	75.16%
AfD	afd.de	37.50%	10.69%	51.81%
AfD	bild.de	35.22%	13.48%	51.30%
AfD	tagesspiegel.de	10.67%	6.67%	82.67%
AfD	n-tv.de	14.12%	14.12%	71.76%

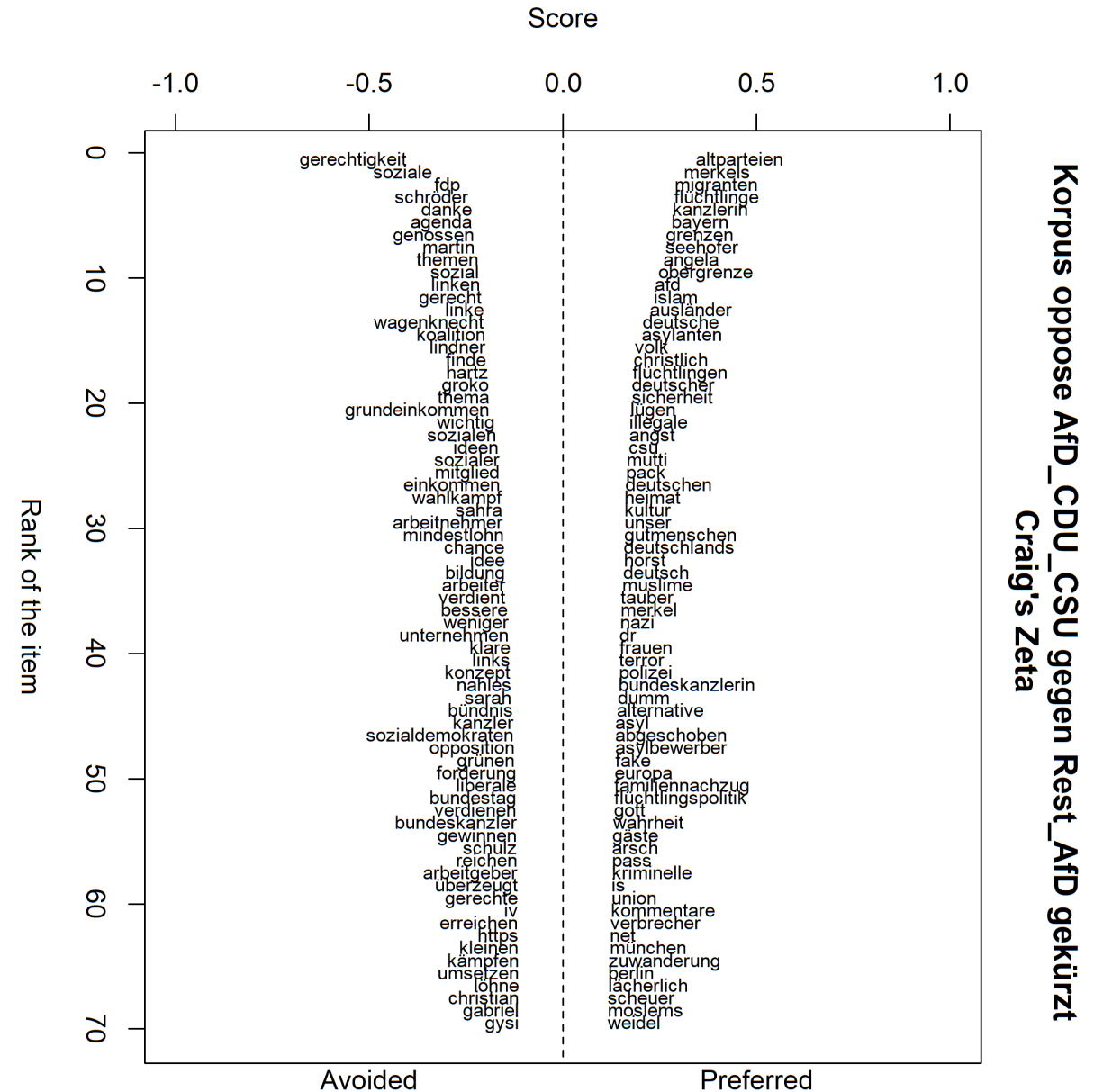
Results

Cluster analysis



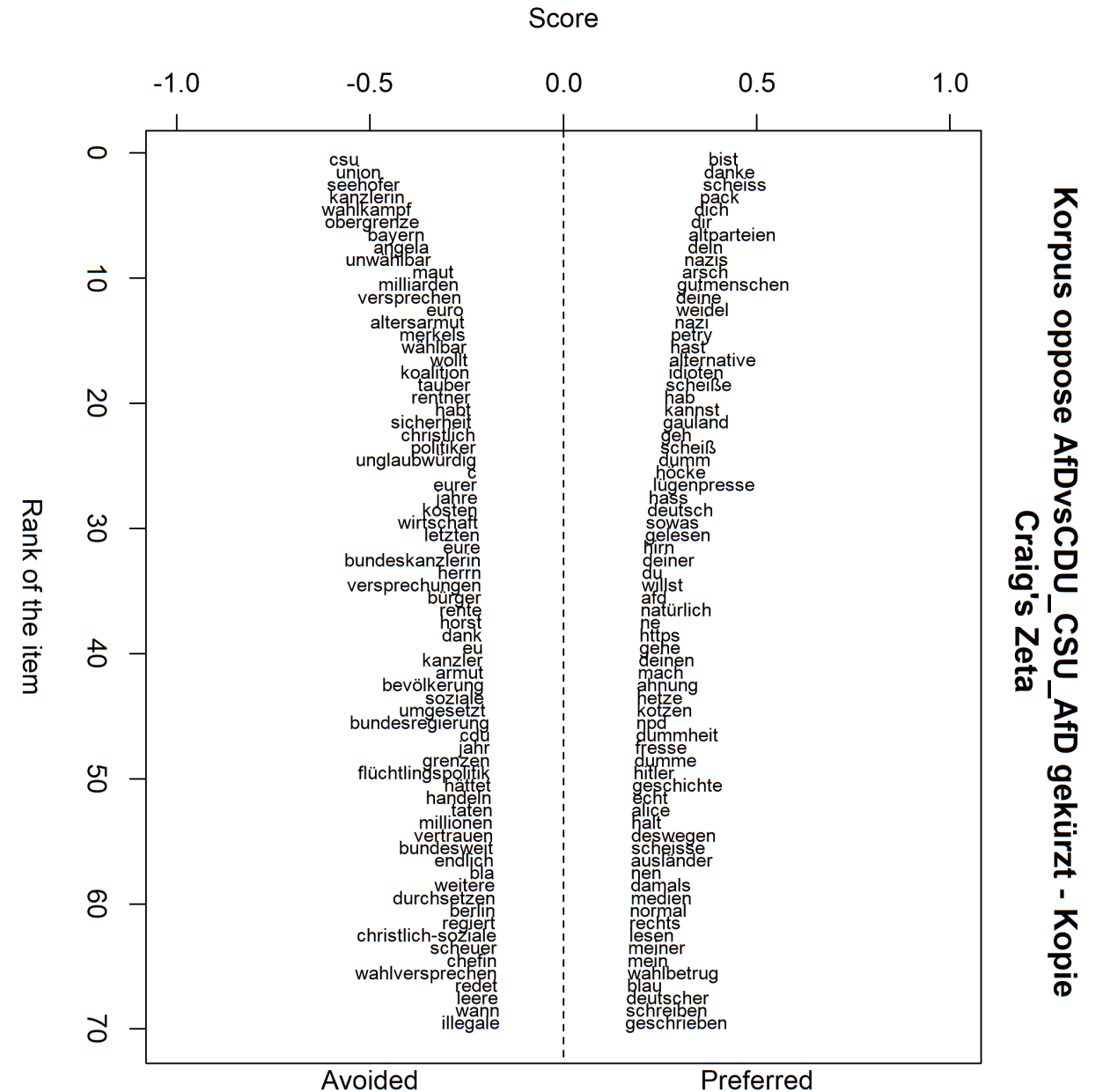
Results

Keyword analysis (AfD+CDU+CSU vs. the rest)



Results

Keyword analysis (AfD vs. CDU+CSU)



Discussion and conclusions

- No support for the echo chamber hypothesis.
- We could not observe partisan selective exposure neither for political camps (e.g. the right vs. the left) nor between the AfD and the remaining parties.
- However, regarding polarisation we find a robust pattern of issue polarisation in stylometric cluster analysis.
- Our analysis helps to better understand existing polarisation regarding the issues debated (AfD+CDU+CSU vs. the other parties) and style of conversation (AfD vs. CDU+CSU). If there is an outlier position of the AfD with regard to its FB campaigning activity (including audience activity) it is based less on issue orientation but the style of political discourse.
- Methodological innovations: comment-based assessment of party affiliation by cross-poster exclusion, use of stylometric tools.
- Limitation: comparison of frequently shared links based on shortened URLs, thus partisan selective exposure measured by cited sources not by actually shared content.
- Future steps: more fine-grained analytical tools for examining partisan selective exposure, improved detection of offensive speech as one aspect of polarisation

Keyword analysis – Sketch Engine

AfDComments			German Web 2013 (deTenTen13)		
lc	frequency	frequency/mill	frequency	frequency/mill	Score
afd	36,740	5485.7	14,297	0.7	3186.7
afdafd	3,743	558.9	1	0.0	559.8
trump	4,050	604.7	5,939	0.3	466.0
höcke	3,108	464.1	183	0.0	460.8
altparteien	2,906	433.9	3,363	0.2	371.8
petry	2,763	412.5	9,651	0.5	278.1
weidel	969	144.7	486	0.0	142.2
gauland	944	141.0	521	0.0	138.3
lügenpresse	911	136.0	161	0.0	135.9
maas	1,864	278.3	29,363	1.5	112.5
meuthen	747	111.5	231	0.0	111.2
merkel	15,552	2322.1	401,459	20.3	109.2
asylanten	1,130	168.7	11,094	0.6	108.8
gutmenschen	1,382	206.3	22,670	1.1	96.7
stegner	867	129.5	9,330	0.5	88.7
merkels	1,425	212.8	30,408	1.5	84.3
erdogan	1,743	260.3	45,214	2.3	79.6
maut	1,045	156.0	20,605	1.0	77.0
frauke	1,006	150.2	28,089	1.4	62.5
abschieben	668	99.7	12,248	0.6	62.2
flüchtling	838	125.1	20,647	1.0	61.8
flüchtlinge	4,380	654.0	195,750	9.9	60.2
antifa	853	127.4	22,499	1.1	60.1
storch	984	146.9	32,926	1.7	55.6
nazi	1,160	173.2	45,833	2.3	52.6
syrer	549	82.0	11,821	0.6	52.0
volksverräter	367	54.8	1,628	0.1	51.6
flüchtlingspolitik	479	64.1	6,787	0.3	49.4

gefährder	348	52.0	1,953	0.1	48.2
islamisierung	559	83.5	15,236	0.8	47.7
kinderehen	312	46.6	304	0.0	46.9
schulz	2,957	441.5	167,819	8.5	46.7
gez	890	132.9	39,290	2.0	44.9
kotzen	1,119	167.1	55,986	2.8	43.9
hetze	857	128.0	39,326	2.0	43.2
brexit	279	41.7	62	0.0	42.5
pretzell	281	42.0	206	0.0	42.5
abgeschoben	783	116.9	40,845	2.1	38.5
wähle	1,081	161.4	67,330	3.4	36.9
flüchtlingen	999	149.2	64,673	3.3	35.2
moslems	876	130.8	54,638	2.8	35.1
ceta	233	34.8	602	0.0	34.7
pack	1,562	233.2	114,788	5.8	34.5
flüchtlingskrise	226	33.7	294	0.0	34.2
schande	1,288	192.3	92,532	4.7	34.1
asyl	910	135.9	62,451	3.2	33.0
groko	219	32.7	609	0.0	32.7
idioten	855	127.7	58,147	2.9	32.7
asylbewerber	633	94.5	39,005	2.0	32.2
afdlar	209	31.2	29	0.0	32.2
abgewählt	381	56.9	15,865	0.8	32.1
islam	3,963	591.7	346,454	17.5	32.1
gesindel	324	48.4	11,254	0.6	31.5
özoguz	221	33.0	1,678	0.1	31.3
türken	1,538	229.6	128,801	6.5	30.7
invasoren	285	42.6	8,673	0.4	30.3
abschaffen	820	122.4	60,971	3.1	30.3
hetzer	279	41.7	8,229	0.4	30.1
kanzlerin	1,352	201.9	113,545	5.7	30.1
einzelfälle	461	68.8	26,180	1.3	30.1
unwählbar	223	33.3	2,888	0.1	29.9
pegida	192	28.7	0	0.0	29.7

soros	291	43.4	10,416	0.5	29.1
abwählen	262	39.1	7,567	0.4	29.0
wähler	2,541	379.4	240,024	12.1	29.0
höckes	187	27.9	1	0.0	28.9
abschaum	292	43.6	10,833	0.5	28.8
erdowahn	187	27.9	273	0.0	28.5
verteidigungsministerin	190	28.4	705	0.0	28.4
vollpfosten	252	37.6	7,207	0.4	28.3
armes	588	87.8	42,402	2.1	28.3
rot-rot-grün	226	33.7	4,591	0.2	28.2
heuchler	308	46.0	13,277	0.7	28.1
wirtschaftsflüchtlinge	207	30.9	2,906	0.1	27.8
schmarotzer	283	42.3	10,988	0.6	27.8
amri	186	27.8	847	0.0	27.6
burka	273	40.8	10,461	0.5	27.3
masseneinwanderung	204	30.5	3,071	0.2	27.2
arsch	1,347	201.1	129,512	6.5	26.8
migranten	1,586	236.8	156,459	7.9	26.7
pfui	416	62.1	27,064	1.4	26.7
poggenburg	173	25.8	221	0.0	26.5
scharia	401	59.9	25,699	1.3	26.5
arabisch	547	81.7	42,065	2.1	26.5
multikulti	274	40.9	11,746	0.6	26.3
fake	562	83.9	44,255	2.2	26.3
bamf	207	30.9	4,396	0.2	26.1
fakenews	168	25.1	11	0.0	26.1
familiennachzug	210	31.4	4,871	0.2	26.0
käbmann	323	48.2	17,857	0.9	25.9
drecks	190	28.4	2,669	0.1	25.9
islamisten	650	97.1	55,497	2.8	25.8
altpartei	167	24.9	125	0.0	25.8
verblödet	219	32.7	6,294	0.3	25.6
drecksack	169	25.2	666	0.0	25.4
kopftuch	557	83.2	46,195	2.3	25.3
bahnhofsklatscher	161	24.0	0	0.0	25.0
steuergelder	449	67.0	34,228	1.7	24.9
hetzen	410	61.2	29,689	1.5	24.9
nafris	159	23.7	0	0.0	24.7

Schlüsselwörter: altparteien lügenpresse asylanten gutmenschen abschieben flüchtling flüchtlinge nazi volksverräter gefährder islamisierung kinderehen kotzen hetze abgeschoben flüchtlingen pack idioten asylbewerber gesindel invasoren hetzer soros abschaum vollpfosten heuchler schmarotzer arsch pfui drecks altpartei verblödet drecksack hetzen widerlich

2-Gramme: "deutsches Volk" "eigenes Volk" "etablierte Partei" "armes Deutschland" "deutsche Frau" "eigene Bevölkerung" "deutsche Kultur" "deutsches Kind" "deutscher Boden"

Results

Topic modelling

CDU	CSU	SPD	FDP	Greens	Left Party	AfD
foreign policy and environmental policy	labour market	agenda 2010 (2)	foreign policy/Europe	social policy	labour market	attack on political adversary (3)
German history and reunification	role of CSU on the federal level	education (2)	education (3)	foreign policy	emission scandal	constitutional order
marriage	German history/reunification	same sex marriage	emission scandal	emission scandal	Europe	economic policy
family	migration policy/refugees (5)	family (3)	digitisation (2)	same sex marriage	family/education	environmental policy
migration policy/refugees (9)	credibility of electoral promises	migration policy/refugees	same sex marriage	electronic mobility	migration policy/refugees	foreign policy
car toll	terrorism (2)	public health	electronic mobility	family	public health	German culture (2)
critique against the Chancellor	Bavarian politics	credibility of electoral promises/politicians (3)	financial policy	migration policy/refugees (2)	credibility of electoral promises	lying press
G8 summit	car toll	G8 summit	migration policy	G8 summit	attack on political adversary	manifestations of political adversary
religion/Islam	attack on political adversary	security policy	public health (2)	religion/Islam	political system (2)	marriage and family
security policy	rule of law	social policy (4)	childcare institutions	Turkey (8)	security policy (4)	migration policy/refugees (7)
social policy	religion/Islam	fiscal policy	opening hours shops	environmental policy (4)	social policy (4)	presidential election
Turkey	security policy	Turkey	liberalism		fiscal policy	public service media
terrorism	social policy	TV debate	attack on political adversary		Turkey	regulation on online content
tv debate	Turkey (2)	emission scandal/electronic mobility	G8 summit		car toll	religion/Islam
		economic policy (2)	social policy		economic policy (2)	security policy/defence
		housing market	Turkey		housing market	terrorism
			Ukraine			Turkey
			economic policy (2)			USA/Trump