

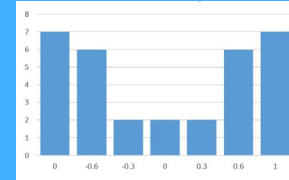
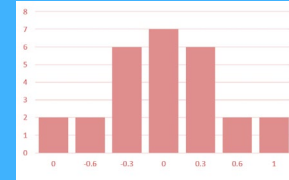
Juliane A. Lischka, Laura Augwitz, Nadja Schaetz, Hendrik Meyer,
Lucien Heitz, Abdullah Rana, Jessica Kunert, Katharina Kleinen
Königslöw

When Recommender Systems Select Political News: Effects of Algorithmic News Curation on Party Preferences

ICA 23, Toronto, CA; May 27, 2023

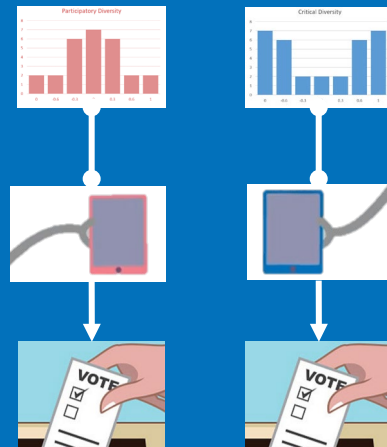


- NRS can create distinct **party visibility patterns** (Helberger, 2019; Vrijenhoek et al., 2020)
- News **party visibility** might affect party **preferences** (Eberl, Boomgaarden, & Wagner, 2017; Geers & Bos, 2017; Hopmann et al., 2010)



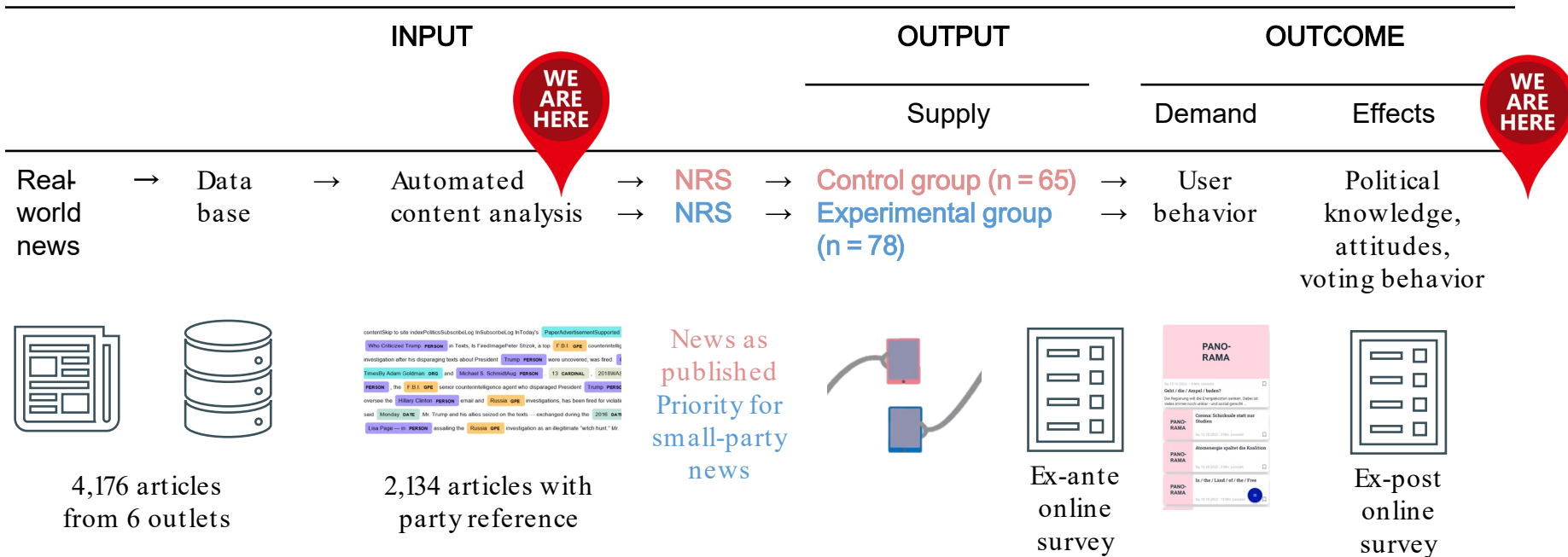
Starting Points

*What are effects of varying party visibilities
in political news recommendations
on political news usage, knowledge,
attitudes, and voting behavior?*

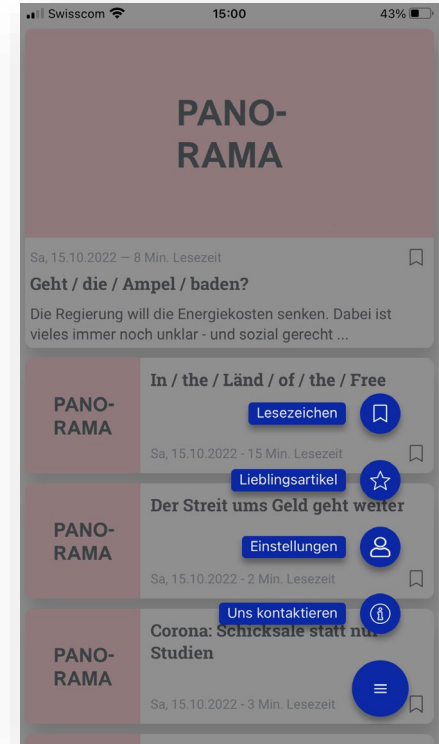
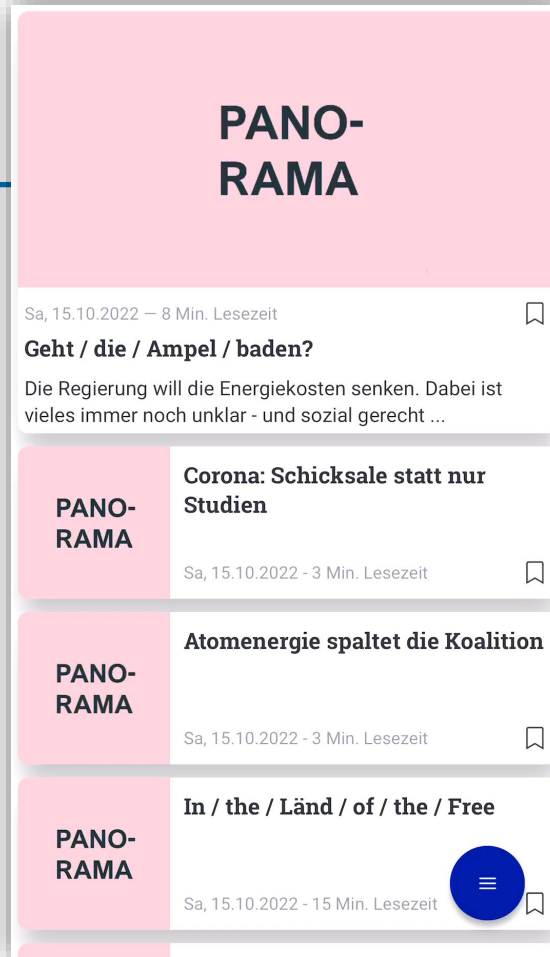


Research Question

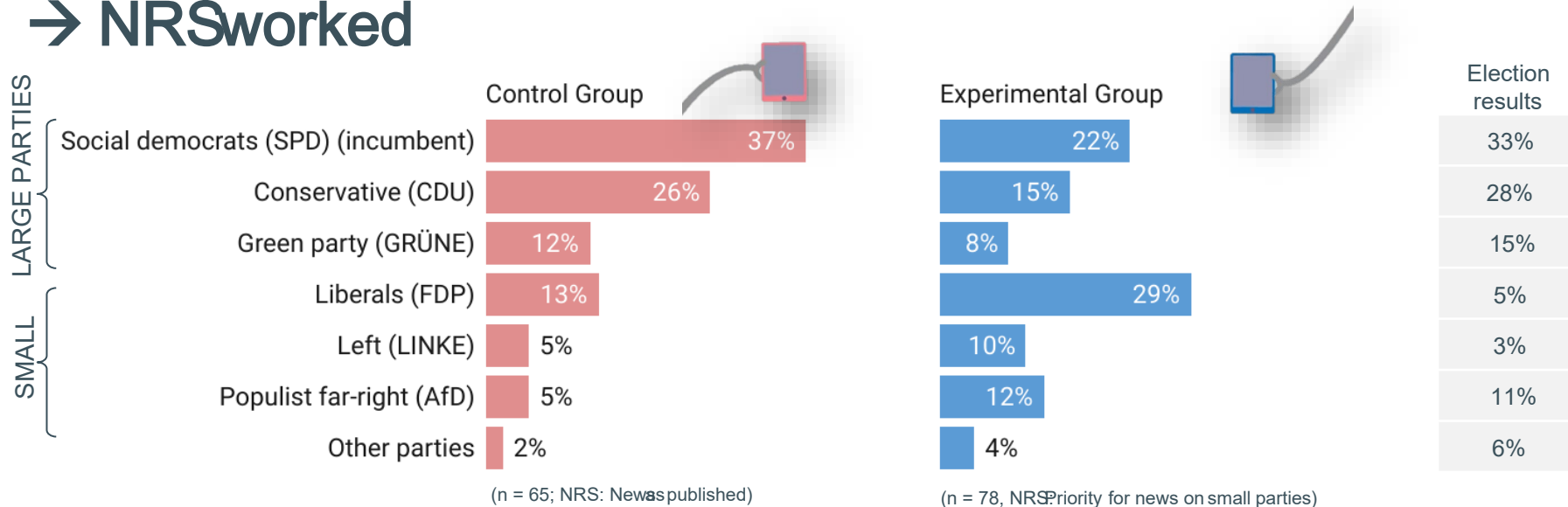
Study Outline: Field Experiment



News App Interface

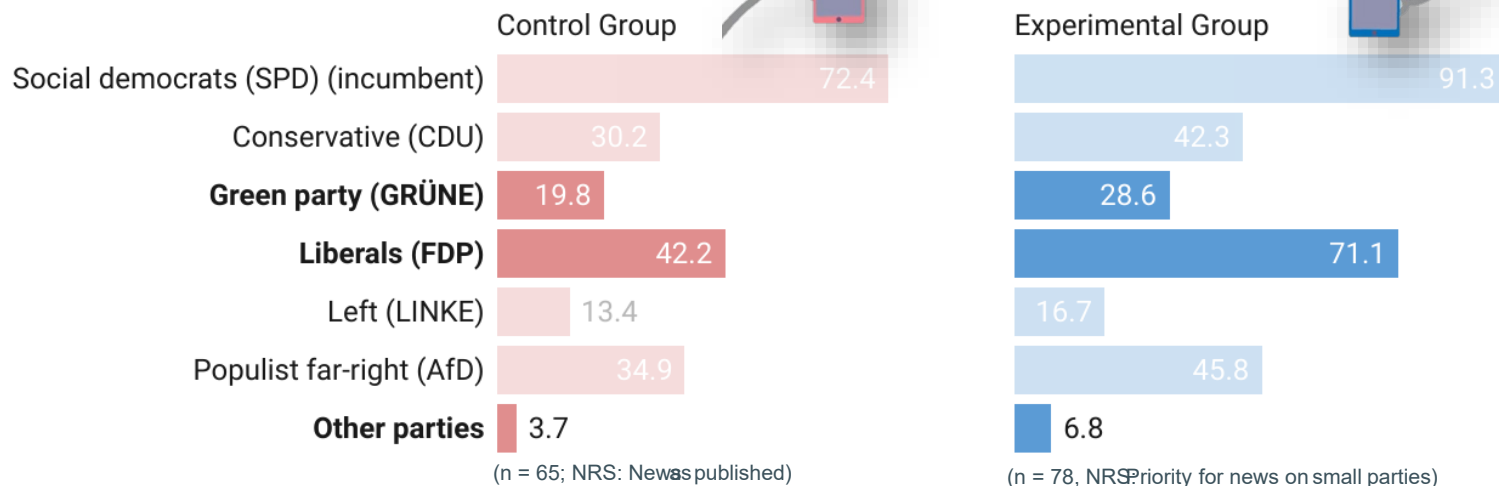


Supply: All party visibilities differ significantly → NRSworked



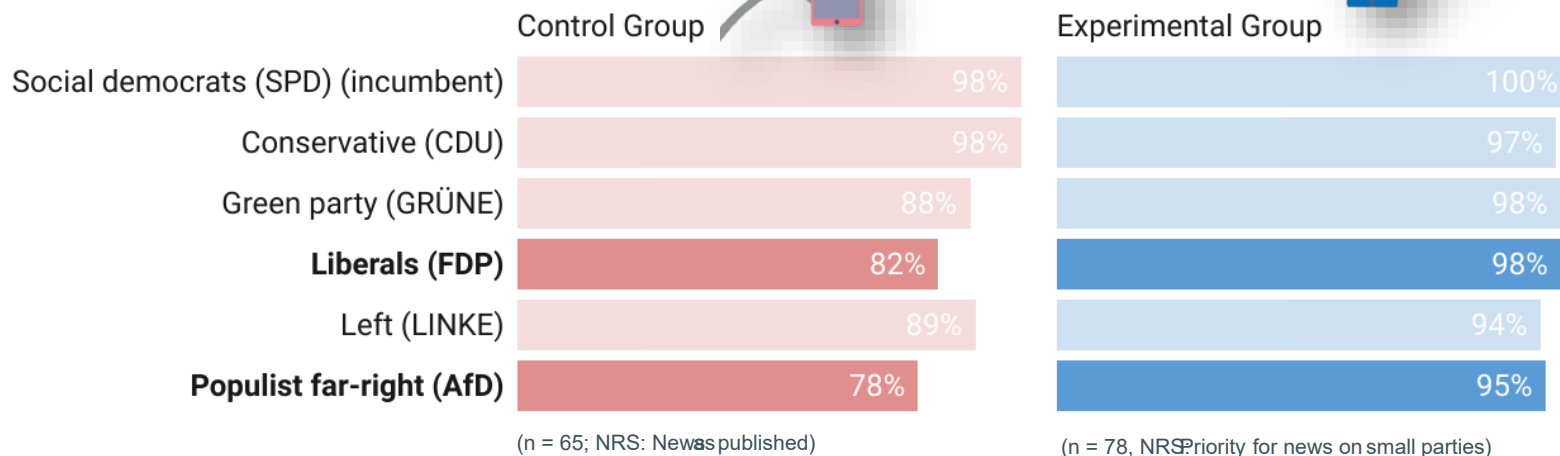
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Demand: Higher usage intensity in experimental group for Green, Liberal, Others



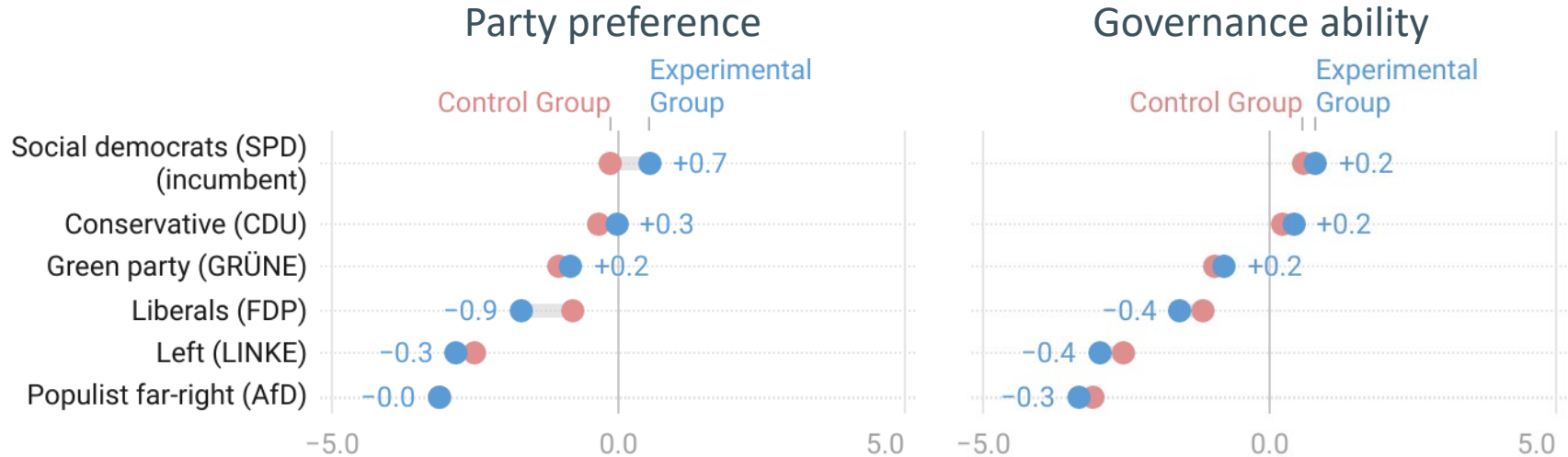
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Cognition: Knowledge (correct candidate attribution) differs for Liberal and Far-Right



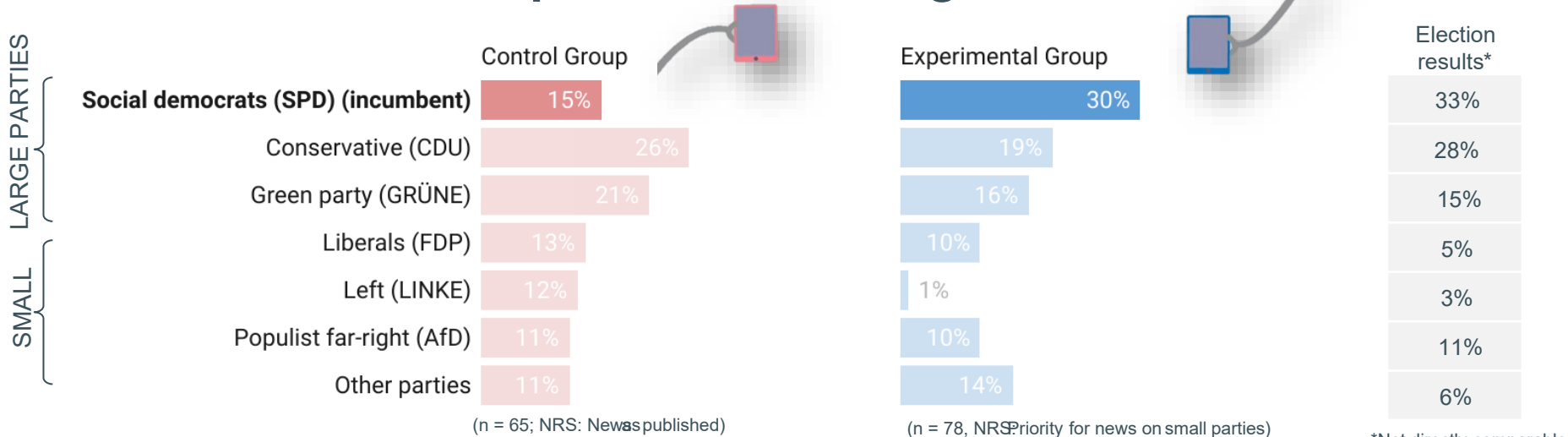
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No significant attitudinal differences



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Voting behavior: Difference for Social Democrats, BUT unrelated to experimental design



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*Not directly comparable as we over-recruited small-party supporters.

Discussion

- USAGE: exposure to more small-party news is partly associated with higher reading intensity
 - more informed voting decision
- KNOWLEDGE: exposure to more small-party news is partly associated with an increase in knowledge about their candidates
 - more informed voting decision
- No effects on ATTITUDES
- No effects on VOTING BEHAVIOR
 - No translating to a change in voting behavior

CONCLUSION

Eventhough effects on usage & knowledge level only; we should invest into **socially responsible** (= content-diverse) NRS!

THANK YOU!

Ethical Measures

1. Transparent goal, procedure, and risk explanation to participants before participation agreement
2. No party should have a visibility advantage or disadvantage so that any effects even out overall participants

		Control condition (news as published) (n = 65)					Experimental condition (higher small-party visibility) (n = 78)					Election results		
		OUTPUT	OUTCOME				OUTPUT	OUTCOME						
		Supply	Demand	Cognition	Attitudes		Behavior	Supply	Demand	Cognition	Attitudes		Behavior	
		Party visibility	Usage intensity	Knowledge	Party preference	Governan- ce ability	Voting decision	Party visibility	Usage intensity	Knowledge	Party preference	Governan- ce ability	Voting decision	
LARGE PARTIES	Social demo- crats (SPD) (incumbent)	37% ^a	72,42	98%	-.12	.59	15% ^a	22% ^b	91,31	100%	.55	.81	30% ^b	33%
	Conservative (CDU)	26% ^a	30,18	98%	-.34	.22	26%	15% ^b	42,26	97%	-.03	.42	19%	28%
	Green party (GRÜNE)	12% ^a	19,77 ^a	88%	-1.02	-.95	21%	8% ^b	28,61 ^b	98%	-.82	-.78	16%	15%
SMALL PARTIES	Liberals (FDP)	13% ^a	42,17 ^a	82% ^a	-.77	-1.16	13%	29% ^b	71,06 ^b	98% ^b	-1.68	-1.55	10%	5%
	Left (LINKE)	5% ^a	13,37	89%	-2.48	-2.53	12%	10% ^b	16,69	94%	-2.81	-2.96	1%	3%
	Populist far- right (AfD)	5% ^a	34,90	78% ^a	-3.11	-3.06	11%	12% ^b	45,75	95% ^b	-3.12	-3.32	10%	11%
	Other parties	2% ^a	3,65 ^a		-.60	-1.00	11%	4% ^b	6,83 ^b		1.60	4.00	14%	6%

Usageintensity

„Political Consumption Score“

Combination of user metrics regarding ...

- „Party Reference Score“ per article
- Reading time per article
- Scrolling activity per article



Content analysis

Sentiment

- Pre-trained ML
German sentiment Transformer
- Sofar:
just Sentiment, no differentiation
between emotions
- Bestpractice on
comparability between docs?

2	negative	Seit Beginn des Kriegs gegen die Ukraine hat R...
3	neutral	Gefolgt sind sie ihm trotzdem - und zu Beginn ...
4	neutral	"Auch wir sind einem Stresstest unterworfen" ,...
5	neutral	Doch wenn eine Antwort gefunden sei, stünden d...
6	positive	"Nie habe ich mich so zuhause gefühlt wie in d...
7	neutral	Der Partei geht es umgekehrt offenbar genauso.
8	neutral	Immer wieder gibt es langen Applaus während se...
9	neutral	Es lohnt sich, an der Regierung zu sein, das w...
10	neutral	Auch wenn das Kompromisse bedeutet - etwa beim...
11	neutral	Das für Habeck und Partei heikelste Thema alle...
12	neutral	Dann sollte das Delegiertentreffen debattieren...
13	neutral	Dezember hinaus laufen zu lassen.
14	neutral	Als "Einsatzreserve" zur Netzstabilisierung so...
15	neutral	Das allein ist für große Teile der Basis, die ...
16	neutral	Doch Habeck könnte davon profitieren, dass ein...
17	neutral	Der will nicht nur, dass alle drei noch aktive...
18	neutral	Ob die Partei sich hinter Habeck stellt, stand...
19	neutral	Die Partei rechnete mit Debatten bis in den sp...

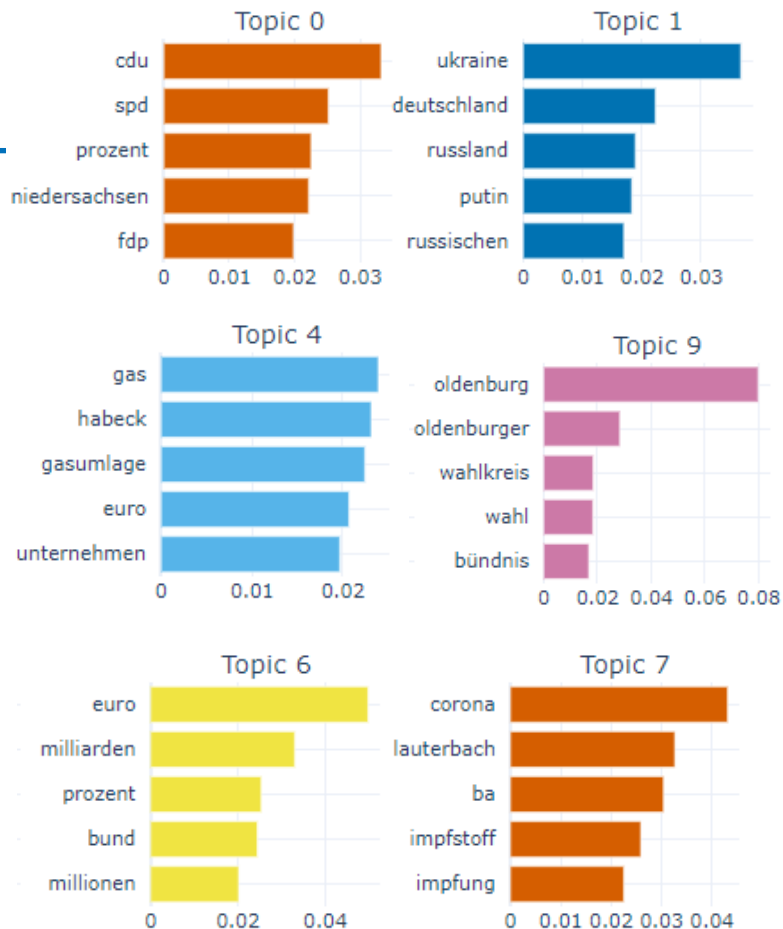

```
[ ] df.output.value_counts().to_frame('count').join(df.output.value_counts(normalize=True).to_frame('%'))
```

	count	%
neutral	17	0.85
negative	2	0.10
positive	1	0.05

Content analysis

Agenda / topics

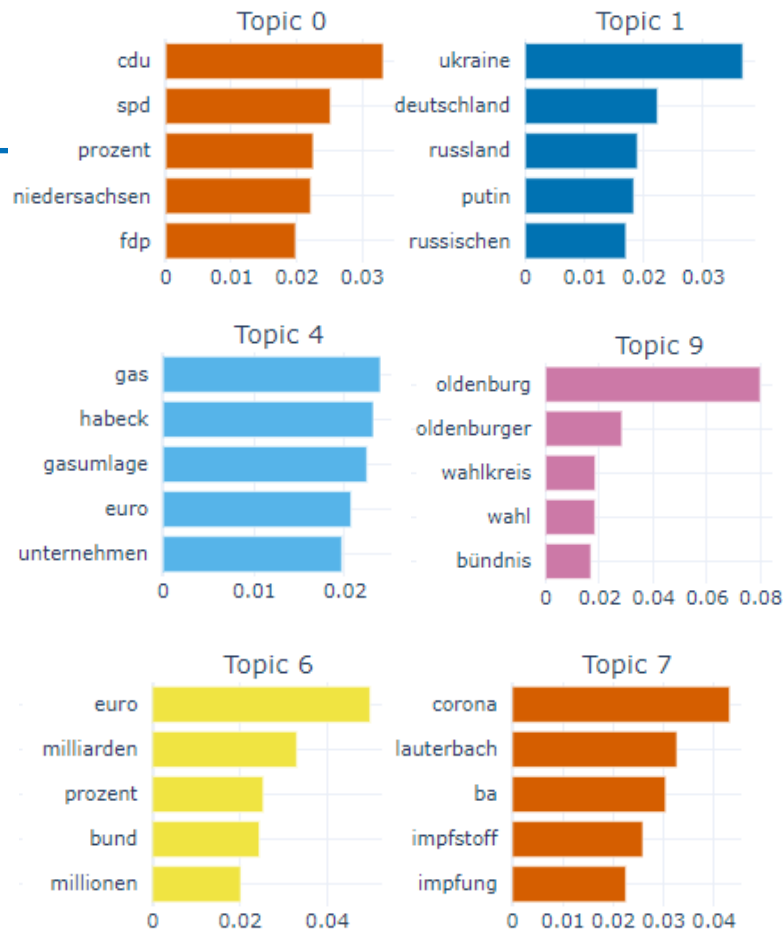
- BERTopic
(Transformer + UMAP + Clustering + TF-IDF)
- Provides a great overview



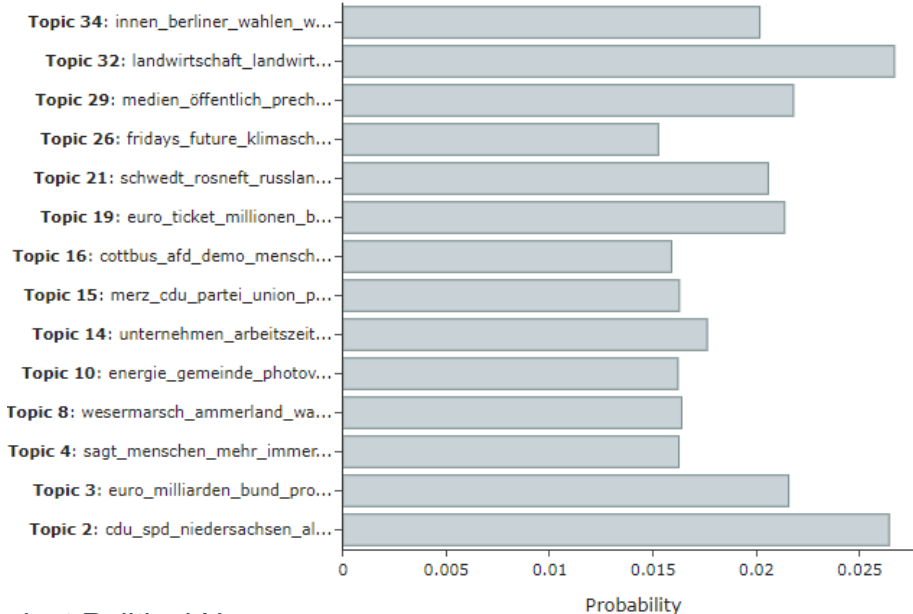
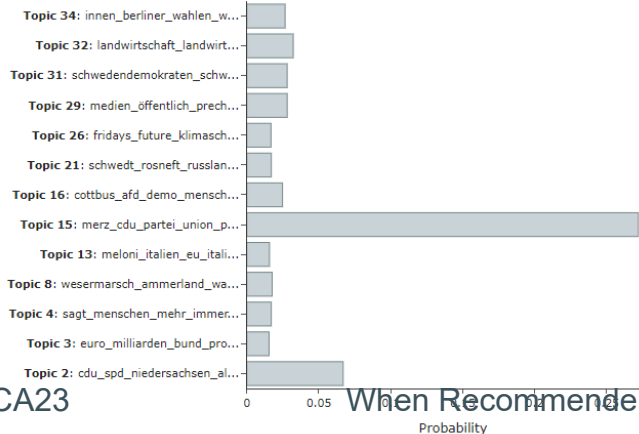
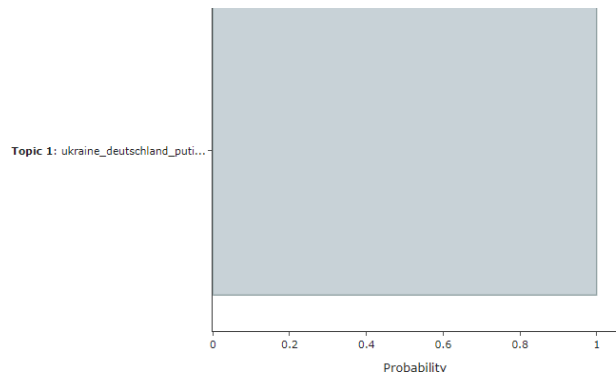
Content analysis

Agenda / topics

- BERTopic
(Transformer + UMAP + Clustering + TF-IDF)
- Provides a great overview
- But:
Assigns one topic per text / paragraph
→ diverse texts == outliers



Content analysis Topic Probability Distribution per Document



Next Steps?

Combining insights:

Conditions connected to ...

- Topics + Party (Dictionary +sentences/ paragraphs?)
- Sentiment + Party (Dictionary +sentences/ paragraphs?)
- Consumption

→ Participants' change in attitudes ?

Content analysis

- Party visibility (PREREC)
- Agenda / topics (POSTREC)
- Sentiment (POSTREC)

Userbehavior

- Political Consumption
- Topical context
- Sentiment context

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Who Criticized Trump PERSON in Texts, Is FiredImagePeter Strzok, a top F.B.I. GPE counterintellig

investigation after his disparaging texts about President Trump PERSON were uncovered, was fired. C

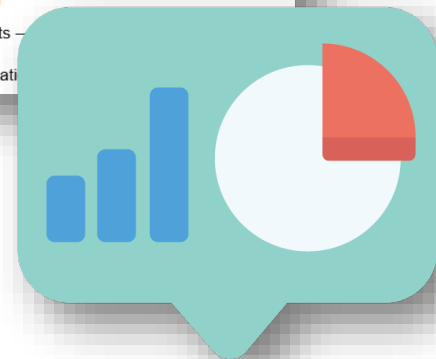
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Lisa Page — in PERSON assailing the Russia GPE investigati



Content analysis

- Party visibility (PREREC)
- **Agenda / topics (POSTREC)**
- **Sentiment (POSTREC)**

Userbehavior

- Political Consumption
- **Topical context**
- **Sentiment context**

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Content analysis

Party visibility (PREREC)

- Dictionary-based
- „Political Reference Score“ per text

→ sampling and recommendation:

