

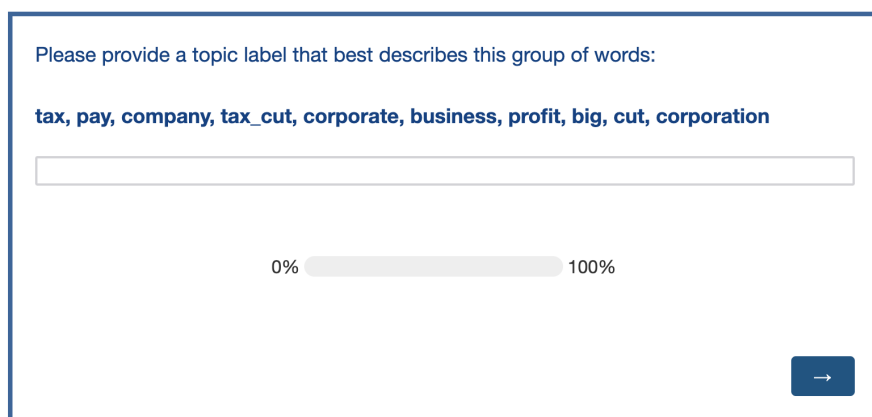
APPENDIX: Topic Model or Topic Twaddle? Re-evaluating Semantic Interpretability Measures

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A Examples of tasks for Qualitative Experiments

Topic word-set labeling



Please provide a topic label that best describes this group of words:

tax, pay, company, tax_cut, corporate, business, profit, big, cut, corporation

0% 100%

Figure 2: Example of topic word-set labeling task. Topic 40 from AP modeled on LDA.

Topic document-collection labeling

@ScottMorrisonMP @KellyODwyer #Budget2018 #Auspol have a read. No benefits to company tax cuts
...and not increasing executive salaries or share buybacks. #TaxCuts #auspol
Can anyone explain who RTPDS Aus Pty Ltd is and how out of \$14,000,000,000 (\$14B if you can't keep up with the zeros) taxable income they paid only \$6,375 in corporate tax? Is that even possible?? #auspol
@SwannyQLD why should multinationals and corporations that pay ZERO tax get a tax cut? #Insiders #AskingForAFriend #auspol
Corp tax cuts, just another gift, nothing to do with stimulating the economy, especially when so many don't even pay tax as it is. #auspol
#Fukushima #auspol AVOID #thorium #nuclear SHILLS John Quakes Quade Malloys Gus Rawles Leo Sutton Marcelina Thomas Hypermetropia
#auspol Profits up 25% wages up 0% ... give my corporation a tax cut!!!. via @watoday
So Treasurer, tell us again how a tax cut for corporations who don't pay tax anyway will mean they will increase salaries. #auspol
Cut out the corporate tax cuts and do not even give them trickle #auspol
Well how else could they afford to pay him so much if they had to pay tax and workers as well!! #auspol

Please provide a topic label that best describes the collection of tweets above.

Your label should describe a central theme, concept, event, or other unifying feature of the collection. If one or more tweets do not align with a label that is suitable to describe all other tweets, then you may disregard them.

You may click on the tweet to see it in context.

If you cannot identify an appropriate label, please enter 'NA'.

0% 100%

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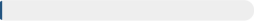
Figure 3: Example of topic document-collection labeling task. Only the top 10 tweets have been shown for brevity.

Difficulty of topic document-collection labeling

Please rate how difficult was it to identify a central theme, concept, event, or other unifying feature of the the collection above, and then provide a descriptive label for this?

Your answer should reflect how coherent the collection was, not the complexity of the concept.

- ☐ Extremely easy
- ☐ Neither easy nor difficult
- ☐ Difficult
- ☐ I could not label the collection and wrote 'NA'

0%  100%



 

Figure 4: Example question asking SME to rate how difficult it was to label a topic document-collection.

Topic word-set and topic document-collection label alignment

Please rate how aligned the following topic-wordset label to the topic-document collection label?

Identical: Labels are nearly identical or synonymous.
Example: Dual citizenship crisis AND Section 44 crisis.

Closely Aligned: Labels are related but describe different aspects of the matter.
Example: Change-the-date campaign AND Australia Day debate.

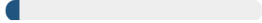
Somewhat Aligned: The topic label is very general acting as a category the collection label would fit under.
Example: Political scandal AND Politicians extramarital affairs.

Loosely Aligned: Labels are related, but the topic label does not accurately describe the document collection.
Example: Adani coal mine AND Anti-fracking protests.

Not Aligned: The labels are not aligned.
Example: Racial Vilification AND Climate Change

Note that common words or synonyms which are contextually dissimilar do not align topics.

	Not Aligned	Loosely Aligned	Somewhat Aligned	Closely Aligned	Identical
Election AND Opinion Poll results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climate Science AND Arctic warming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media AND Investigative Journalism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Industrial Relations AND Train driver strikes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National Identity AND Republican movement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Addiction services AND Cannabis decriminalisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0%  100%

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Figure 5: Example question asking SME to rate how aligned a topic word-set label was to topic document-collection label.

B Evaluation 1: Coherence Measures

Pearson’s correlation coefficients between paired coherence measures

LDA AP	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI} and $C_{NPMI-ABC}$	0.671	0.034	0.749	< 0.01	0.762	< 0.01	0.727	< 0.01
C_{NPMI} and $C_{U_{mass}}$	0.661	0.037	0.752	< 0.01	0.579	< 0.01	0.447	< 0.01
C_{NPMI} and $C_{NPMI-AP}$	0.383	0.275	0.394	0.086	0.258	0.108	0.256	0.048
C_{NPMI} and C_P	0.897	< 0.01	0.912	< 0.01	0.919	< 0.01	0.878	< 0.01
C_{NPMI} and C_A	0.692	0.027	0.523	0.018	0.547	< 0.01	0.556	< 0.01
C_{NPMI} and C_V	0.127	0.726	0.117	0.624	-0.071	0.663	0.089	0.498
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.538	0.109	0.541	0.014	0.343	0.030	0.375	0.003

MetaLDA AP	10		20		40		60	
	ρ	p	ρ	p	ρ	p	r_p	p
C_{NPMI} and $C_{NPMI-ABC}$	0.778	0.008	0.783	< 0.01	0.625	< 0.01	0.651	< 0.01
C_{NPMI} and $C_{U_{mass}}$	0.834	0.003	0.738	< 0.01	0.715	< 0.01	0.590	< 0.01
C_{NPMI} and $C_{NPMI-AP}$	0.523	0.121	0.096	0.686	-0.084	0.606	0.005	0.972
C_{NPMI} and C_P	0.929	< 0.01	0.959	< 0.01	0.949	< 0.01	0.923	< 0.01
C_{NPMI} and C_A	0.788	0.007	0.435	0.055	0.623	< 0.01	0.505	< 0.01
C_{NPMI} and C_V	-0.471	0.170	-0.078	0.742	-0.284	0.075	-0.145	0.269
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.100	0.784	0.190	0.423	0.125	0.443	0.172	0.188

Table 3: Pearson’s r and p -values reported for the analysis of correlations between coherence measures for the AP dataset

Aggregate mean for coherence measures

LDA	AP	AWH	AWM
C_{NPMI} and $C_{NPMI-ABC}$	0.727±0.040	0.719±0.050	0.769±0.115
C_{NPMI} and $C_{U_{mass}}$	0.601±0.129	0.395±0.406	0.419±0.088
C_{NPMI} and $C_{NPMI-AP}$	0.323±0.076	0.507±0.189	0.387±0.123
C_{NPMI} and C_P	0.902±0.018	0.779±0.101	0.855±0.043
C_{NPMI} and C_A	0.578±0.076	0.391±0.094	0.626±0.069
C_{NPMI} and C_V	0.066±0.092	-0.108±0.053	0.253±0.118
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.449±0.105	0.565±0.056	0.423±0.073

MetaLDA	AP	AWH	AWM
C_{NPMI} and $C_{NPMI-ABC}$	0.709±0.083	0.606±0.126	0.716±0.104
C_{NPMI} and $C_{U_{mass}}$	0.719±0.100	0.539±0.086	0.272±0.249
C_{NPMI} and $C_{NPMI-AP}$	0.135±0.269	0.258±0.267	0.181±0.153
C_{NPMI} and C_P	0.940±0.017	0.770±0.149	0.884±0.037
C_{NPMI} and C_A	0.588±0.154	0.360±0.183	0.285±0.187
C_{NPMI} and C_V	-0.245±0.174	-0.138±0.273	0.087±0.217
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.147±0.042	0.362±0.223	0.390±0.159

Table 6: The aggregate mean Pearson’s correlation coefficient for LDA and MetaLDA across all topics.

LDA AWH	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI} and $C_{NPMI-ABC}$	0.794	0.006	0.702	0.01	0.693	< 0.01	0.688	< 0.01
C_{NPMI} and C_{Umass}	0.714	0.020	-0.193	0.414	0.454	0.003	0.606	< 0.01
C_{NPMI} and $C_{NPMI-AP}$	0.746	0.013	0.545	0.013	0.438	0.005	0.297	0.021
C_{NPMI} and C_P	0.628	0.052	0.816	< 0.01	0.846	< 0.01	0.826	< 0.01
C_{NPMI} and C_A	0.315	0.375	0.316	0.174	0.421	0.007	0.511	< 0.01
C_{NPMI} and C_V	-0.093	0.798	-0.176	0.459	-0.112	0.490	-0.049	0.709
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.586	0.075	0.619	0.004	0.567	< 0.01	0.488	< 0.01

MetaLDA AWH	10		20		40		60	
	ρ	p	ρ	p	ρ	p	r_p	p
C_{NPMI} and $C_{NPMI-ABC}$	0.719	0.019	0.613	0.004	0.428	0.006	0.663	< 0.01
C_{NPMI} and C_{Umass}	0.593	0.071	0.459	0.042	0.473	0.002	0.631	< 0.01
C_{NPMI} and $C_{NPMI-AP}$	0.450	0.192	0.476	0.034	0.204	0.208	-0.098	0.458
C_{NPMI} and C_P	0.547	0.102	0.844	< 0.01	0.855	< 0.01	0.835	< 0.01
C_{NPMI} and C_A	0.089	0.808	0.407	0.075	0.469	0.002	0.476	< 0.01
C_{NPMI} and C_V	0.034	0.925	-0.491	0.028	0.115	0.479	-0.209	0.108
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.489	0.151	0.580	0.007	0.303	0.058	0.076	0.565

Table 4: Pearson’s r and p -values reported for the analysis of coherence measures correlations for the AWH dataset

Graphs of aggregate coherence measures for LDA vs MetaLDA

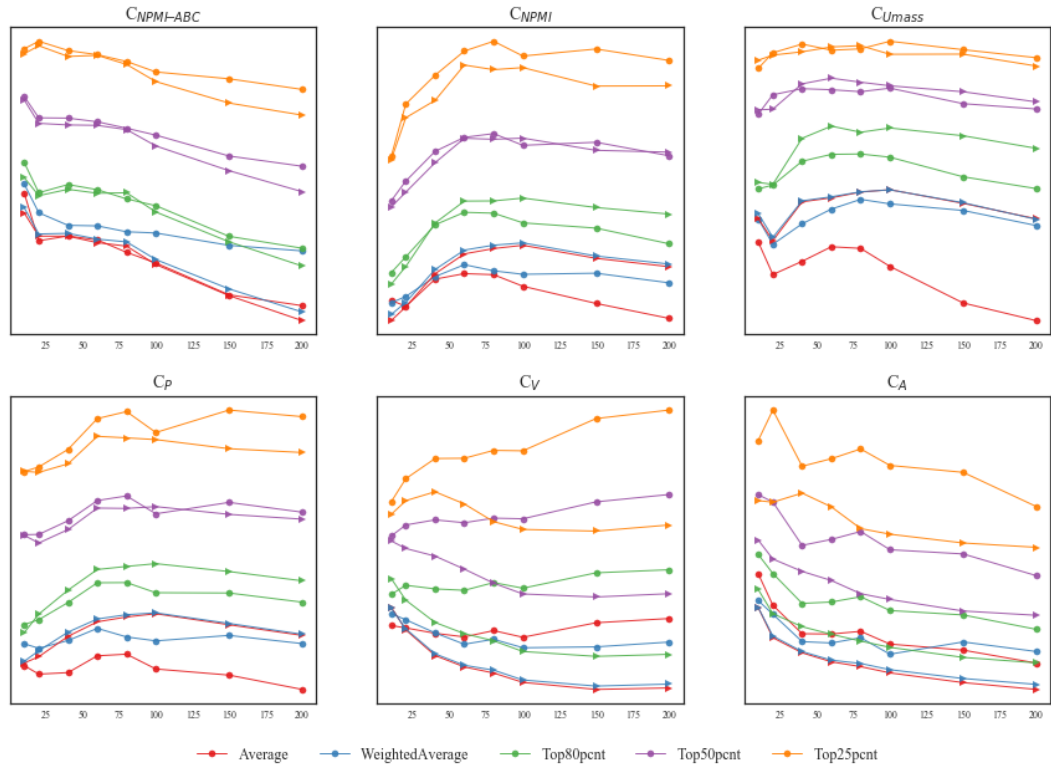


Figure 6: Comparison of LDA (triangle) and MetaLDA (circle) aggregated coherence scores for the AWH dataset. Scores are shown on the y-axis and K is shown on the x-axis.

LDA AWM	10		20		40		60	
	ρ	p	ρ	p	ρ	p	r_p	p
C_{NPMI} and $C_{NPMI-ABC}$	0.894	< 0.01	0.821	< 0.01	0.734	< 0.01	0.627	< 0.01
C_{NPMI} and C_{Umass}	0.512	0.131	0.450	0.047	0.303	0.058	0.410	< 0.01
C_{NPMI} and $C_{NPMI-AP}$	0.294	0.409	0.389	0.090	0.560	< 0.01	0.304	0.018
C_{NPMI} and C_P	0.898	< 0.01	0.886	< 0.01	0.816	< 0.01	0.821	< 0.01
C_{NPMI} and C_A	0.725	0.018	0.584	0.007	0.620	< 0.01	0.576	< 0.01
C_{NPMI} and C_V	0.341	0.335	0.105	0.660	0.354	0.025	0.210	0.108
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.364	0.301	0.391	0.088	0.528	< 0.01	0.407	< 0.01

MetaLDA AWM	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI} and $C_{NPMI-ABC}$	0.866	< 0.01	0.687	0.001	0.684	< 0.01	0.625	< 0.01
C_{NPMI} and C_{Umass}	0.302	0.396	-0.080	0.736	0.500	0.001	0.366	< 0.01
C_{NPMI} and $C_{NPMI-AP}$	0.289	0.418	0.133	0.576	0.315	0.048	-0.015	0.912
C_{NPMI} and C_P	0.939	< 0.01	0.860	< 0.01	0.861	< 0.01	0.875	< 0.01
C_{NPMI} and C_A	0.080	0.825	0.333	0.151	0.207	0.201	0.518	< 0.01
C_{NPMI} and C_V	-0.109	0.765	0.384	0.094	-0.033	0.839	0.105	0.425
$C_{NPMI-ABC}$ and $C_{NPMI-AP}$	0.417	0.231	0.516	0.020	0.469	0.002	0.160	0.222

Table 5: Pearson’s r and p -values reported for the analysis of correlations between coherence measures for the AWM dataset

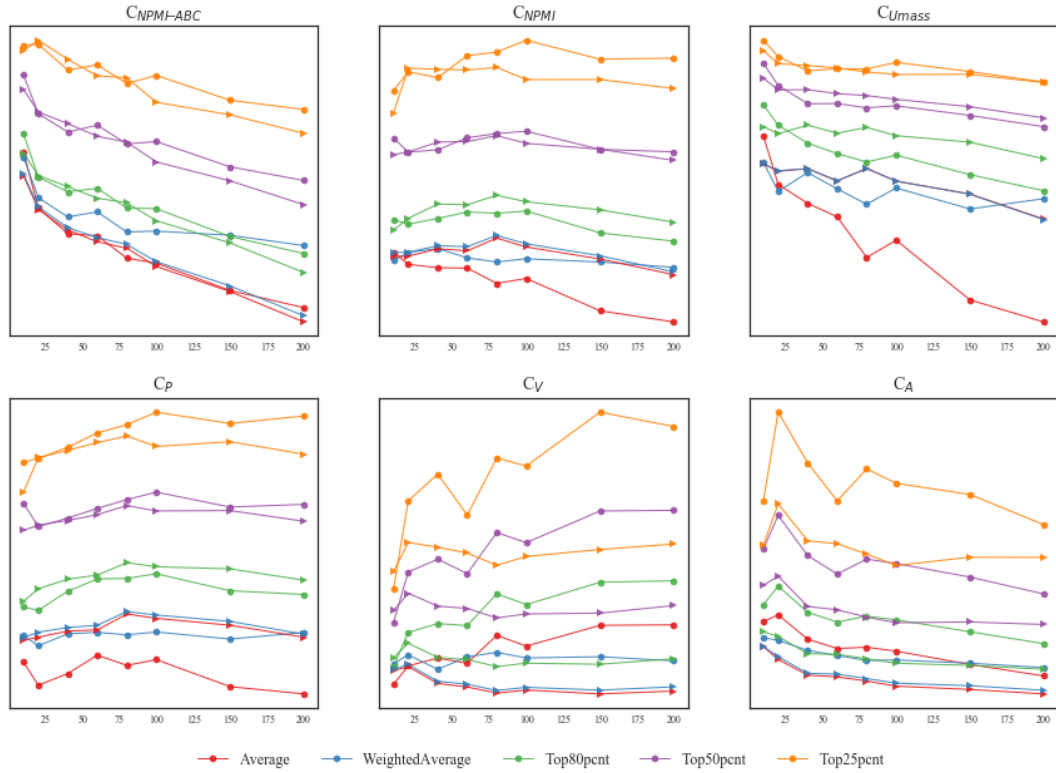


Figure 7: Comparison of LDA (triangle) and MetaLDA (circle) aggregated coherence scores for the AWM dataset. Scores are shown on the y-axis and K is shown on the x-axis.

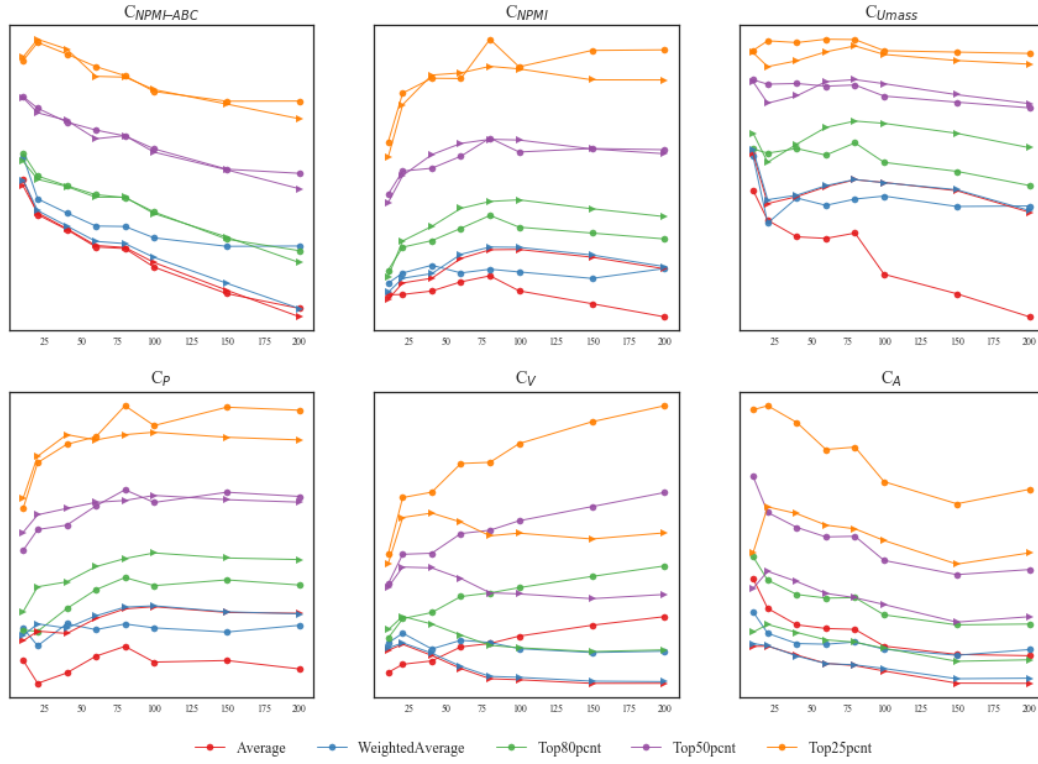


Figure 8: Comparison of LDA (triangle) and MetaLDA (circle) aggregated coherence scores for the AWHM dataset. Scores are shown on the y-axis and K is shown on the x-axis.

C Evaluation 2: Labeling Topics

The Spearman's ρ correlation coefficients for pairwise combinations of $Q_{(nbr)}$ and coherence measures for all learned models.

LDA AP	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI}	0.058	0.873	0.264	0.261	0.144	0.374	-0.165	0.209
$C_{NPMI-ABC}$	0.522	0.122	0.379	0.099	0.245	0.128	-0.038	0.774
C_{Umass}	0.522	0.122	0.104	0.663	-0.022	0.892	-0.384	< 0.01
$C_{NPMI-AP}$	0.406	0.244	0.626	0.003	0.638	< 0.01	0.217	0.096
C_P	0.174	0.631	0.355	0.125	0.245	0.128	-0.062	0.636
C_A	0.406	0.244	0.409	0.073	0.383	0.015	0.246	0.058
C_V	0.058	0.873	0.138	0.562	0.254	0.114	0.472	< 0.01
D_{tp}	-0.174	0.631	0.046	0.846	0.017	0.919	0.056	0.671
D_{ew}	-0.522	0.122	-0.814	< 0.01	-0.535	< 0.01	-0.223	0.087
MetaLDA AP	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI}	0.623	0.054	-0.069	0.774	0.253	0.115	0.336	< 0.01
$C_{NPMI-ABC}$	0.337	0.340	0.096	0.686	0.098	0.547	0.403	< 0.01
C_{Umass}	0.623	0.054	-0.302	0.195	0.099	0.544	0.348	< 0.01
$C_{NPMI-AP}$	0.450	0.192	0.054	0.822	0.220	0.172	0.329	0.010
C_P	0.623	0.054	-0.088	0.714	0.339	0.032	0.307	0.017
C_A	0.701	0.024	-0.022	0.927	0.600	< 0.01	0.304	0.018
C_V	-0.545	0.103	0.320	0.169	0.172	0.289	0.118	0.371
D_{tp}	0.078	0.831	-0.250	0.288	0.069	0.670	0.230	0.077
D_{ew}	-0.017	0.962	-0.211	0.372	-0.082	0.616	-0.099	0.45

Table 7: Spearman’s ρ and p -values reported for the analysis of correlations between coherence measures and $Q_{(nbr)}$ for the AP dataset

LDA AWH	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI}	0.000	nan	0.371	0.107	-0.045	0.784	0.101	0.441
hline $C_{NPMI-ABC}$	0.000	nan	0.328	0.158	0.160	0.325	0.181	0.165
C_{Umass}	0.000	nan	-0.280	0.232	-0.078	0.634	-0.003	0.980
$C_{NPMI-AP}$	0.000	nan	0.182	0.443	0.355	0.025	0.216	0.097
C_P	0.000	nan	0.375	0.104	-0.016	0.921	0.066	0.615
C_A	0.000	nan	0.103	0.665	0.179	0.270	0.319	0.013
C_V	0.000	nan	0.043	0.857	0.192	0.235	0.235	0.071
D_{tp}	0.000	nan	-0.131	0.581	0.024	0.884	0.193	0.140
D_{ew}	0.000	nan	-0.589	< 0.01	-0.345	0.029	-0.157	0.230
MetaLDA AWH	10		20		40		60	
	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI}	-0.522	0.122	0.074	0.758	-0.051	0.753	0.394	< 0.01
$C_{NPMI-ABC}$	-0.406	0.244	0.217	0.357	0.401	0.010	0.305	0.018
C_{Umass}	-0.290	0.416	0.127	0.594	-0.039	0.813	0.297	0.021
$C_{NPMI-AP}$	-0.174	0.631	0.676	< 0.01	0.490	< 0.01	0.011	0.934
C_P	-0.522	0.122	-0.031	0.897	-0.087	0.595	0.392	< 0.01
C_A	-0.406	0.244	0.322	0.166	0.240	0.135	0.404	< 0.01
C_V	0.290	0.416	-0.088	0.713	0.338	0.033	-0.013	0.920
D_{tp}	0.174	0.631	0.200	0.399	0.132	0.417	0.321	0.0120
D_{ew}	0.058	0.873	-0.255	0.279	-0.374	0.017	-0.049	0.708

Table 8: Spearman’s ρ and p -values reported for the analysis of correlations between coherence measures and $Q_{(nbr)}$ for the AWH dataset

LDA	10		20		40		60	
AWM	ρ, p	ρ, p	ρ, p	ρ, p	ρ, p	ρ, p	ρ, p	ρ, p
C_{NPMI}	0.142	0.696	-0.039	0.871	0.092	0.573	0.014	0.914
$C_{NPMI-ABC}$	0.321	0.366	0.063	0.792	0.141	0.386	0.207	0.112
C_{Umass}	-0.142	0.696	0.015	0.952	0.083	0.609	-0.314	0.015
$C_{NPMI-AP}$	0.321	0.366	0.285	0.223	0.323	0.042	0.295	0.022
C_P	0.306	0.390	-0.119	0.619	-0.007	0.968	-0.045	0.730
C_A	0.350	0.321	-0.056	0.816	0.237	0.140	0.286	0.027
C_V	0.634	0.049	-0.099	0.677 0.149	0.357	0.228	0.080	
D_{tp}	0.007	0.984	0.312	0.180	0.059	0.719	0.432	< 0.01
D_{ew}	-0.500	0.141	-0.508	0.022	-0.408	0.009	-0.203	0.120

MetaLDA	10		20		40		60	
AWM	ρ	p	ρ	p	ρ	p	ρ	p
C_{NPMI}	0.151	0.678	0.187	0.429	0.492	< 0.01	0.407	< 0.01
$C_{NPMI-ABC}$	0.243	0.499	-0.002	0.993	0.228	0.158	0.159	0.224
C_{Umass}	0.125	0.732	-0.289	0.216	-0.067	0.680	-0.015	0.908
$C_{NPMI-AP}$	0.321	0.365	-0.099	0.678	-0.055	0.734	0.047	0.721
C_P	0.282	0.430	0.153	0.520	0.527	< 0.01	0.481	< 0.01
C_A	-0.164	0.651	-0.085	0.722	0.053	0.747	0.267	0.039
C_V	-0.164	0.651	0.332	0.153	0.053	0.745	0.220	0.091
D_{tp}	0.085	0.815	0.004	0.986	0.594	< 0.01	0.372	< 0.01
D_{ew}	-0.125	0.732	-0.040	0.868	0.274	0.087	0.224	0.085

Table 9: Spearman’s ρ and p -values reported for the analysis of correlations between coherence measures and $Q_{(nbr)}$, for the AWM dataset

D Evaluation 3: Topic Label Agreement

Inter-coder Reliability results

Kripp. alpha	10		20		40		60	
	LDA	Meta	LDA	Meta	LDA	Meta	LDA	Meta
AP	0.398	0.363	0.250	0.361	0.402	0.361	0.584	0.486
AWH	0.283	0.391	0.294	0.327	0.368	0.405	0.512	0.498
AWM	0.267	0.344	0.323	0.322	0.366	0.361	0.513	0.447
Fleiss kappa	10		20		40		60	
	LDA	Meta	LDA	Meta	LDA	Meta	LDA	Meta
AP	0.387	0.363	0.156	0.332	0.411	0.344	0.578	0.485
AWH	0.265	0.406	0.290	0.305	0.381	0.371	0.527	0.515
AWM	0.258	0.394	0.321	0.353	0.362	0.356	0.535	0.492
Q_{agr}	10		20		40		60	
	LDA	Meta	LDA	Meta	LDA	Meta	LDA	Meta
AP	0.417	0.433	0.167	0.292	0.342	0.283	0.503	0.492
AWH	0.283	0.400	0.258	0.258	0.286	0.296	0.439	0.411
AWM	0.217	0.250	0.275	0.292	0.296	0.279	0.428	0.369

Table 10: The ICR for labels of each topic set using Krippendorff’s α , Fleiss’ κ , and Percentage Agreement Q_{agr}

E Evaluation 4: Ease of Labeling Collections

Difficulty labeling document collections

This section presents all the correlations with Q_{aln} and Q_{dif} .

	LDA		MetaLDA		LDA		MetaLDA	
	Q_{aln}		Q_{aln}		Q_{dif}		Q_{dif}	
All	ρ	p	ρ	p	ρ	p	ρ	p
$C_{NPMI-ABC}$	-0.0423	0.7486	0.141	0.283	-0.1454	0.2676	0.1688	0.197
$C_{NPMI-AP}$	0.3394	0.008	0.39	0.002	0.2224	0.0877	0.3694	0.004
C_{NPMI}	-0.2156	0.0981	0.148	0.259	-0.1291	0.3257	0.2342	0.072
C_A	0.123	0.3491	0.297	0.021	-0.0672	0.61	0.2276	0.080
C_P	-0.1016	0.4397	0.226	0.082	-0.0712	0.5887	0.1334	0.310
C_V	0.2376	0.0676	0.147	0.264	-0.079	0.5485	0.2321	0.074
C_{Umass}	-0.397	0.0017	0.029	0.827	-0.1671	0.2018	0.0131	0.921
Proportion	0.0717	0.5861	0.09	0.493	0.0037	0.9774	0.0536	0.684
Effwords	-0.2657	0.0402	-0.239	0.066	-0.1528	0.2438	-0.285	0.027

	LDA		MetaLDA		LDA		MetaLDA	
	Q_{aln}		Q_{aln}		Q_{dif}		Q_{dif}	
Top25pcnt	ρ	p	ρ	p	ρ	p	ρ	p
$C_{NPMI-ABC}$	0.8245	0.0002	0.08	0.778	0.1643	0.5586	-0.1956	0.485
$C_{NPMI-AP}$	0.4838	0.0677	0.11	0.697	0.2918	0.2914	-0.2999	0.278
C_{NPMI}	0.5904	0.0205	0.347	0.206	0.0545	0.8469	0.2962	0.284
C_A	-0.3135	0.2552	-0.014	0.961	-0.3557	0.1932	-0.3181	0.248
C_P	0.568	0.0272	0.236	0.397	0.1609	0.5667	0.24	0.389
C_V	-0.3442	0.209	0.119	0.674	-0.2046	0.4645	0.4085	0.131
C_{Umass}	-0.2858	0.3017	-0.326	0.235	-0.2283	0.4132	-0.3965	0.143
D_{tp}	-0.0897	0.7505	-0.592	0.02	0.2163	0.4388	-0.5307	0.042
D_{ew}	-0.1391	0.621	-0.776	0.001	-0.1171	0.6778	-0.7638	0.001

	LDA		MetaLDA		LDA		MetaLDA	
	Q_{aln}		Q_{aln}		Q_{dif}		Q_{dif}	
Top50pcent	ρ	p	ρ	p	ρ	p	ρ	p
$C_{NPMI-ABC}$	0.079	0.6781	0.213	0.259	-0.0166	0.9308	0.0862	0.651
$C_{NPMI-AP}$	0.2038	0.2801	0.045	0.815	0.2194	0.2441	-0.1221	0.521
C_{NPMI}	0.3603	0.0505	0.227	0.228	0.0184	0.9233	0.1811	0.338
C_A	-0.0986	0.6041	0.12	0.528	-0.1881	0.3194	0.0143	0.940
C_P	-0.0628	0.7415	0.342	0.065	-0.1011	0.5949	0.221	0.241
C_V	0.0694	0.7157	-0.217	0.248	-0.1216	0.5223	0.019	0.921
C_{Umass}	-0.4059	0.026	-0.023	0.904	-0.3119	0.0933	0.1051	0.581
D_{tp}	0.2278	0.2261	-0.338	0.068	0.0306	0.8726	-0.256	0.172
D_{ew}	-0.2545	0.1748	-0.65	0	-0.2132	0.2581	-0.6298	0.000
	LDA		MetaLDA		LDA		MetaLDA	
	Q_{aln}		Q_{aln}		Q_{dif}		Q_{dif}	
Bot15pcent	ρ	p	ρ	p	ρ	p	ρ	p
$C_{NPMI-ABC}$	0.5317	0.1407	0.037	0.924	0.8165	0.0072	-0.2282	0.555
$C_{NPMI-AP}$	0.1581	0.6845	-0.091	0.815	0.1862	0.6315	-0.0797	0.839
C_{NPMI}	-0.0851	0.8276	0	1	0.2294	0.5527	-0.0913	0.815
C_A	0.0769	0.844	-0.159	0.682	-0.1491	0.7019	-0.01	0.980
C_P	-0.4473	0.2274	-0.169	0.663	-0.1101	0.778	0	1.000
C_V	0.2946	0.4416	0.356	0.347	-0.2092	0.5891	0.2926	0.445
C_{Umass}	0.4873	0.1833	-0.186	0.631	-0.3119	0.0933	0	1.000
D_{tp}	-0.523	0.1486	0.523	0.149	-0.3486	0.3579	0.2739	0.476
D_{ew}	0.2305	0.5507	0.693	0.039	0.3578	0.3444	0.2635	0.493
	LDA		MetaLDA		LDA		MetaLDA	
	Q_{aln}		Q_{aln}		Q_{dif}		Q_{dif}	
Bot10pcent	ρ	p	ρ	p	ρ	p	ρ	p
$C_{NPMI-ABC}$	0.6377	0.1731	0.463	0.355	0.6768	0.1398	-0.0926	0.862
$C_{NPMI-AP}$	-0.0304	0.9545	0	1	-0.206	0.6954	0.1014	0.848
C_{NPMI}	-0.3189	0.5379	0.44	0.383	-0.0304	0.9545	0.8783	0.021
C_A	0.239	0.6483	0.101	0.848	-0.2	0.6059	0	1.000
C_P	0.7537	0.0835	-0.44	0.383	0.8024	0.0547	0.0976	0.854
C_V	0.1543	0.7704	0.741	0.092	-0.3719	0.4679	0.7407	0.092
C_{Umass}	0.7537	0.0835	-0.216	0.681	0.8024	0.0547	0.414	0.414
D_{tp}	-0.8452	0.0341	0.828	0.042	-0.8452	0.0341	0.6831	0.135
D_{ew}	-0.0883	0.8679	0.82	0.046	-0.4414	0.3809	0.4938	0.320

F Examples

Examples of poorly aligned topics are shown in Table 11.

Topic Label	Collection Label	Topic	NPMI
Gun Control	Foreign interference act	law, bill, power, gun, democracy, control, freedom, rule, protect, legislation	0.0734
Cost of Living	Politician's rental property	house, free, property, home, rent, pay, live, buy, move, money	0.0814
Addiction help	Legalization of drugs	health, drug, care, test, medical, doctor, access, alcohol, live, death	0.0702

Table 11: Topics which did not align well with the document collection despite having a high coherence.