Tasks

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1 Baseline

ACL : Citation Intent Classification
Hyper: HyperPartisan News Detection
RCT : Randomized Controlled Trials

1.1 Baseline

Task	train	dev	test	Classes
ACL	1688	114	139	6
Hyper	516	64	65	2
RCT-sample	500	30212	30135	5
RCT-200k	180040	30212	30135	5

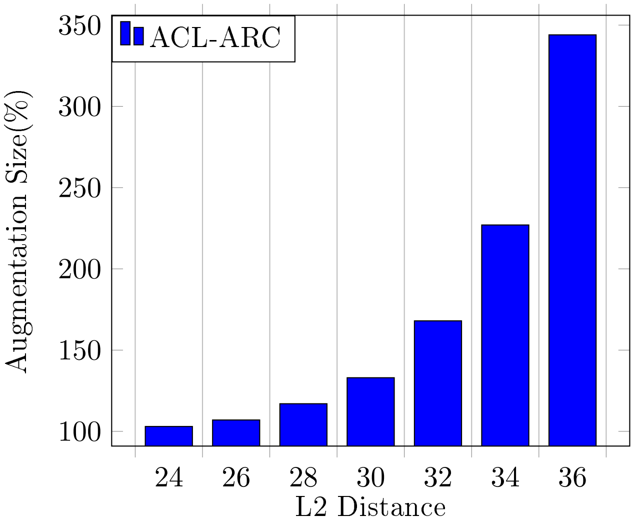
2 Tables & Plots

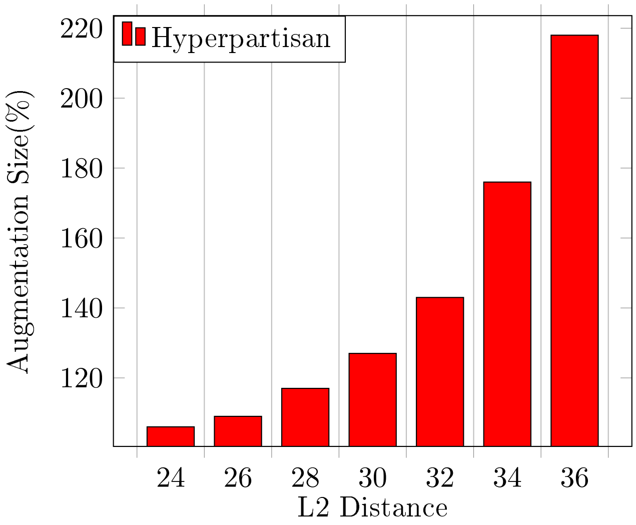
2.1 Augmentation by Distance

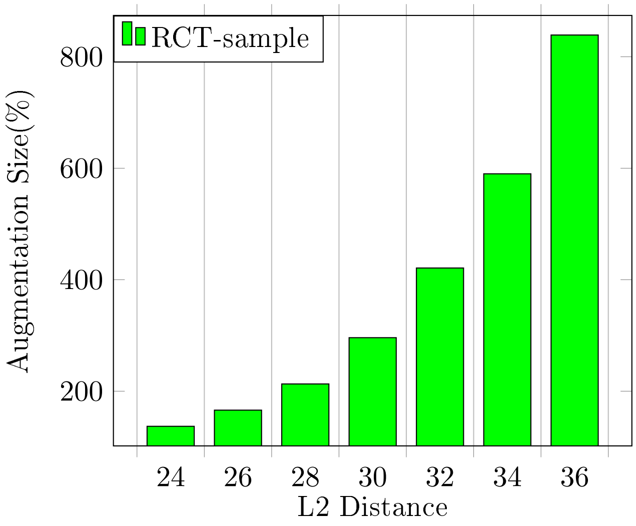
2.1.1 Size Table

Max Distance	ACL	Hyper	RCT*
Baseline	1688 (100%)	516 (100%)	500(100%)
24	1746 (103%)	551 (106%)	686(137%)
26	1815 (107%)	567 (109%)	831(166%)
28	1981 (117%)	606 (117%)	1065(213%)
30	2253 (133%)	656 (127%)	1484(296%)
32	2842 (168%)	742 (143%)	2105(421%)
34	3848 (227%)	911 (176%)	2952(590%)
36	5819 (344%)	1127 (218%)	4196(839%)

2.1.2 Size Plot



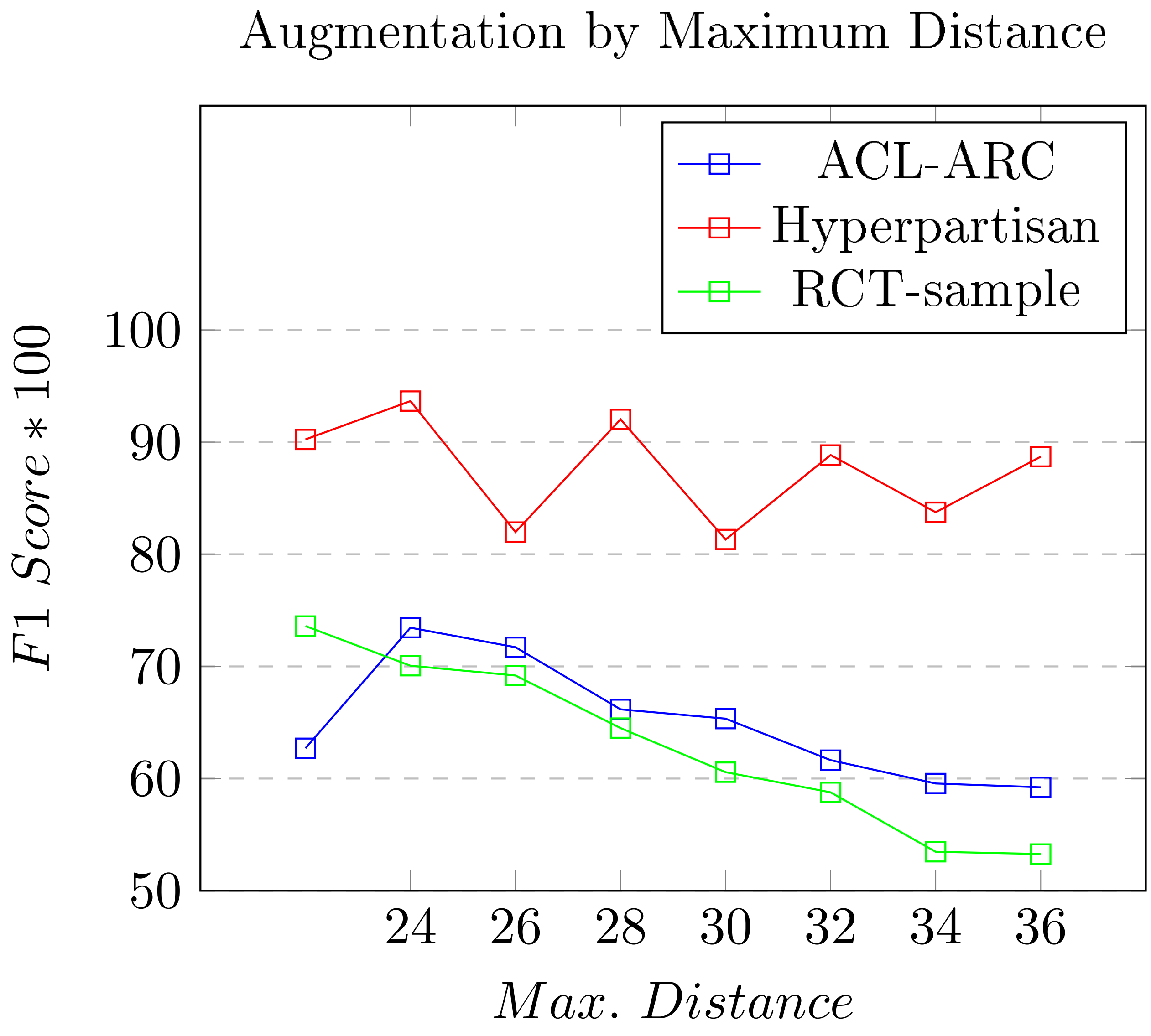




2.1.3 F1 Table

Max Distance	ACL	Hyper	RCT*
Baseline	62.70	90.24	**73.60**
24	**73.45**	**93.66**	70.06
26	71.71	81.98	69.19
28	66.17	92.03	64.50
30	65.34	81.32	60.57
32	61.64	88.85	58.77
34	59.56	83.75	53.47
36	59.22	88.70	53.27

2.1.4 F1 Plot

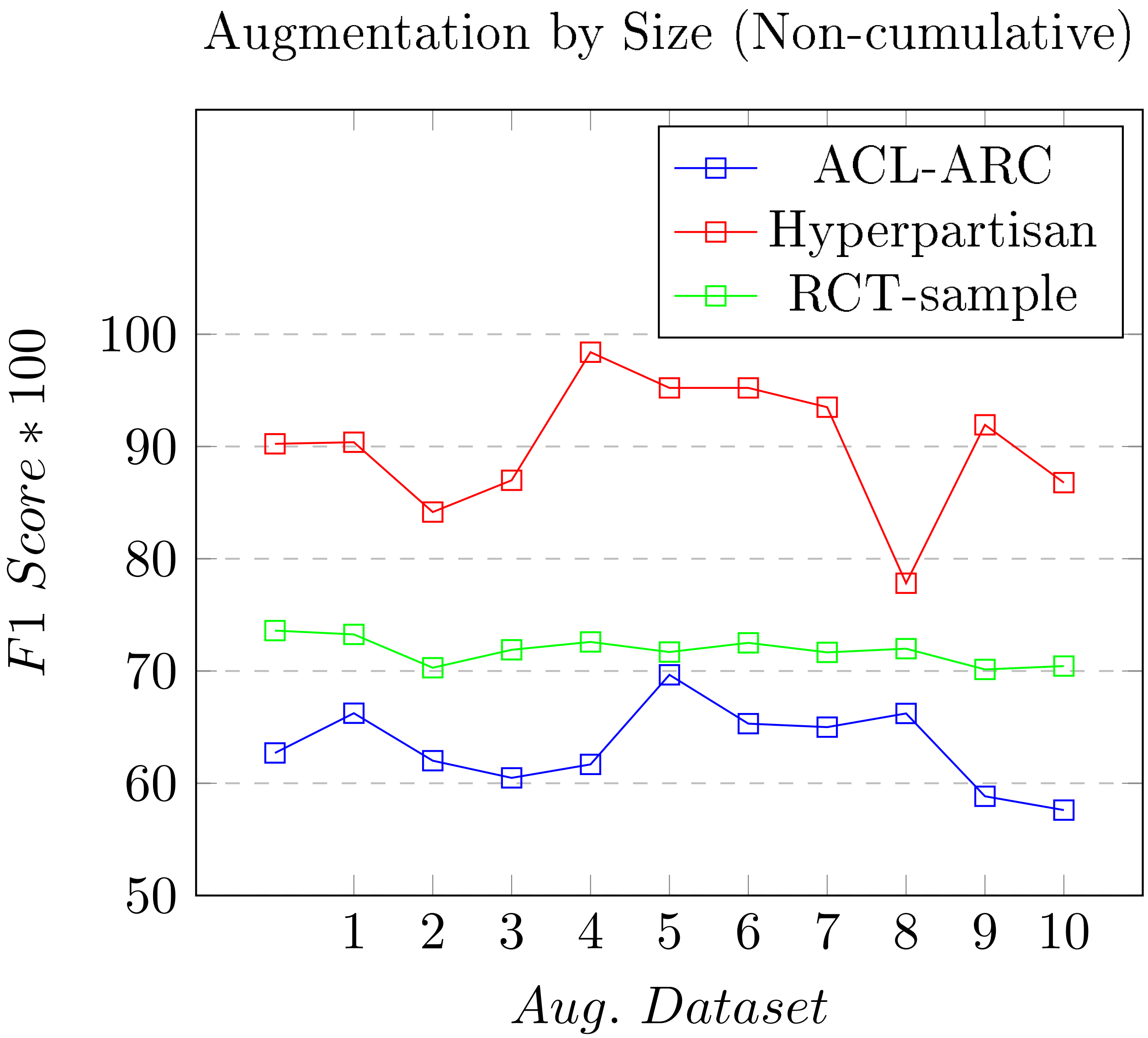


2.2 Augmentation by Fixed Size

2.2.1 F1 Table

Dataset #	ACL	Hyper	RCT*	Interval
Baseline	62.70	90.24	**73.60**	-
1	66.24	90.38	73.26	0-3%
2	62.01	84.16	70.29	3-6%
3	60.48	86.99	71.89	6-9%
4	61.68	**98.40**	72.59	9-12%
5	**69.66**	95.22	71.69	12-15%
6	65.31	95.22	72.51	15-18%
7	65.00	93.50	71.66	18-21%
8	66.22	77.82	71.99	21-24%
9	58.84	91.93	70.14	24-27%
10	57.61	86.78	70.44	27-30%

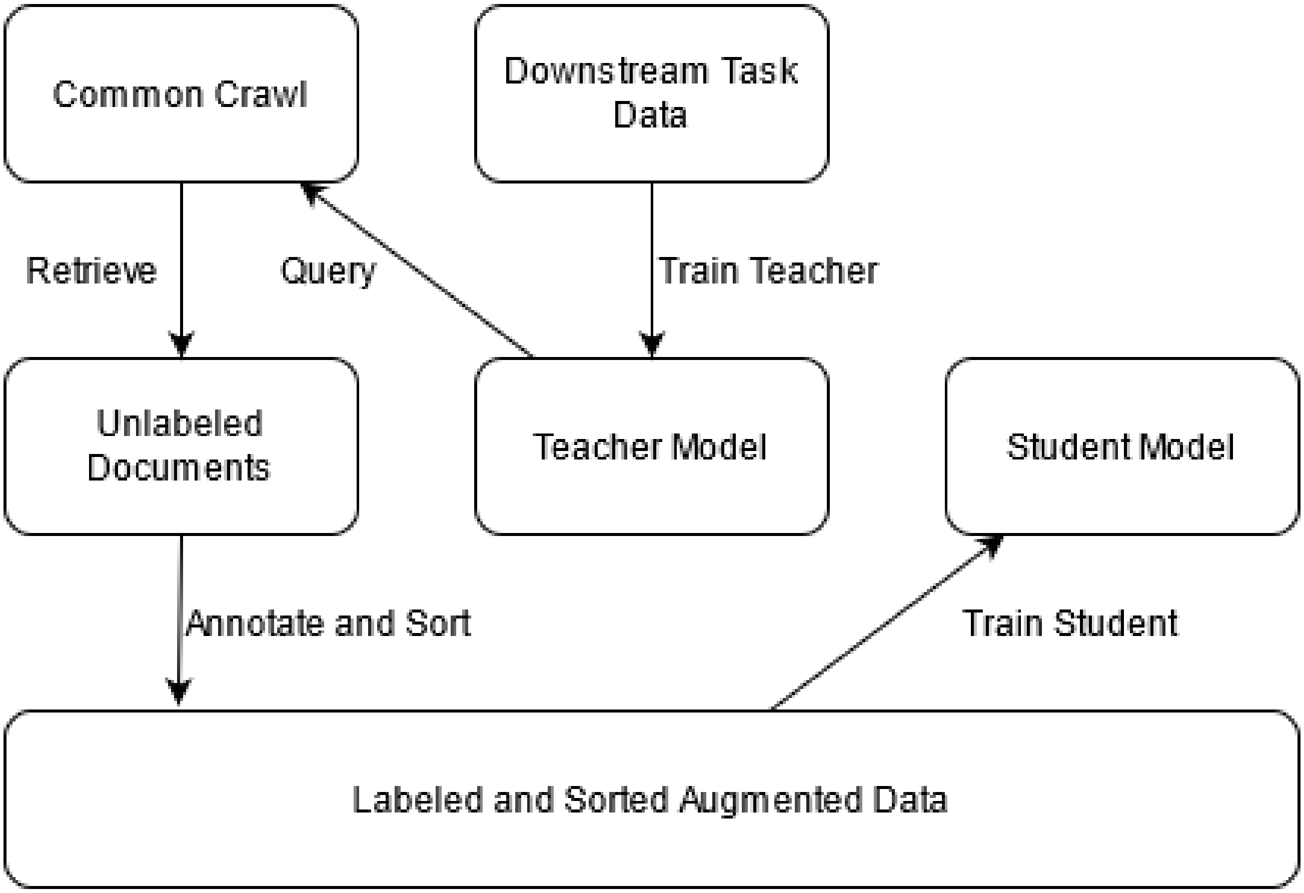
2.2.2 F1 Plot



3 Baseline models:

- An off-the-shelf RoBERTa model that has been finetuned to perform classification for each of the downstream tasks

4 Augmentation Model



5 Algorithm

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1. Extract failed test examples from the baseline model
2. Retrieve passages/sentences from Common Crawl
3. Apply augmentation strategy (i)-(iii)
4. Augment all the labelled CC data to the training data
5. Retrain RoBERTa on the augmented training set
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6 Augmentation Strategies

- Strategy (i)
  Use baseline model (Teacher) to perform unsupervised labelling on retrieved CC data

- Strategy (ii)
  Using a task specific binary classifier, filter out retrieved CC data that is "out-domain"
  Use baseline model (Teacher) to perform unsupervised labelling on the filtered "in-domain" CC data

- Strategy (iii)
  Using a task specific binary classifier, filter out retrieved CC data that is "out-domain"
  Use ground truth labels of failed test examples and assign labels to the filtered "in-domain" CC data