$\begin{tabular}{l} TABLE\ 1\\ Comparison\ Results\ of\ Eight\ MLFS\ Methods\ (Mean\pm Std.\ Deviation)\ in\ Terms\ of\ {\it Hamming\ Loss},\ {\it Ranking\ Loss},\ and\ {\it Coverage} \end{tabular}$

				Hammii	ng Loss.l.			
Data set	GRROfast	GRRO	PMU	MDMR	FIMF	SCLS	MICO	LRFS
Bibtex	$0.0136 {\pm} 0.0004$	$0.0136 {\pm} 0.0004$	0.0151 ± 0.0000	0.0141 ± 0.0001	0.0147 ± 0.0002	0.0138 ± 0.0002	0.0138 ± 0.0003	0.0138 ± 0.0003
Birds	0.0581 ± 0.0023	0.0551 ± 0.0025	0.0688 ± 0.0027	0.0630 ± 0.0020	0.0645 ± 0.0022	0.0595 ± 0.0021	0.0523 ± 0.0022	0.0512 ± 0.0023
Chemistry	0.0121 ± 0.0001	0.0121 ± 0.0000	0.0122 ± 0.0000	0.0122 ± 0.0000	0.0122 ± 0.0000	0.0121 ± 0.0001	0.0121 ± 0.0000	0.0121 ± 0.0000
Chess	0.0100 ± 0.0001	0.0100 ± 0.0001	0.0103 ± 0.0001	0.0103 ± 0.0001	0.0103 ± 0.0001	0.0101 ± 0.0001	0.0101 ± 0.0001	0.0101 ± 0.0001
Coffee Cooking	0.0161 ± 0.0003	0.0158 ± 0.0002	0.0160 ± 0.0002	0.0159 ± 0.0002	0.0161 ± 0.0003	0.0161 ± 0.0002	0.0161 ± 0.0003 0.0053 ± 0.0001	0.0160 ± 0.0002
Cooking	$0.0052 \pm 0.0001 \\ 0.0088 \pm 0.0001$	$0.0052 {\pm} 0.0001 \ 0.0088 {\pm} 0.0001$	0.0055 ± 0.0000 0.0091 ± 0.0000	0.0054 ± 0.0000 0.0090 ± 0.0000	0.0055 ± 0.0000 0.0090 ± 0.0000	0.0053 ± 0.0001 0.0089 ± 0.0001	0.0033 ± 0.0001 0.0088 ± 0.0001	0.0053 ± 0.0001 0.0088 ± 0.0001
Philosophy	0.0003 ± 0.0001 0.0091 ± 0.0001	0.0033 ± 0.0001 0.0091 ± 0.0001	0.0091 ± 0.0000 0.0094 ± 0.0001	0.0090 ± 0.0000 0.0093 ± 0.0000	0.0090 ± 0.0000 0.0094 ± 0.0001	0.0099 ± 0.0001	0.0033 ± 0.0001 0.0091 ± 0.0001	0.0030 ± 0.0001 0.0091 ± 0.0001
Corel5k	0.0091 ± 0.0001 0.0095 ± 0.0000	0.0091 ± 0.0001 0.0094 ± 0.0000	0.0091 ± 0.0001 0.0094 ± 0.0000	0.0094 ± 0.0000	0.0091 ± 0.0001 0.0094 ± 0.0000	0.0091 ± 0.0001 0.0095 ± 0.0000	0.0091 ± 0.0001 0.0095 ± 0.0000	0.0091 ± 0.0001 0.0095 ± 0.0000
Corel16k001	0.0188 ± 0.0000	0.0188 ± 0.0000	0.0188 ± 0.0000	0.0187 ± 0.0000	0.0188 ± 0.0000	0.0188 ± 0.0000	0.0188 ± 0.0000	0.0188 ± 0.0000
Corel16k002	0.0174 ± 0.0000	0.0174 ± 0.0000	0.0174 ± 0.0000	0.0174 ± 0.0000	0.0174 ± 0.0000	0.0174 ± 0.0000	0.0174 ± 0.0000	0.0174 ± 0.0000
Genbase	$0.0067 {\pm} 0.0077$	0.0069 ± 0.0077	0.0094 ± 0.0076	0.0075 ± 0.0073	0.0079 ± 0.0082	0.0070 ± 0.0075	0.0076 ± 0.0077	0.0075 ± 0.0075
Langlog	0.0156 ± 0.0002	0.0156 ± 0.0001	0.0158 ± 0.0001	0.0157 ± 0.0001	0.0158 ± 0.0001	$0.0156 {\pm} 0.0002$	0.0156 ± 0.0003	0.0156 ± 0.0001
Medical	0.0142 ± 0.0022	0.0138 ± 0.0025	0.0192 ± 0.0008	0.0158 ± 0.0020	0.0157 ± 0.0024	0.0159 ± 0.0017	0.0157 ± 0.0019	0.0153 ± 0.0020
Slashdot	0.0486 ± 0.0010	0.0486 ± 0.0011	0.0510 ± 0.0005	0.0503 ± 0.0007	0.0499 ± 0.0007	0.0492 ± 0.0007	0.0491 ± 0.0008	0.0492 ± 0.0007
Yeast	0.2093 ± 0.0094	0.2086 ± 0.0103	0.2117 ± 0.0081	0.2142 ± 0.0100	0.2140 ± 0.0100	0.2088 ± 0.0091	0.2085 ± 0.0094	0.2090 ± 0.0087
Arts	0.0587 ± 0.0010	0.0586 ± 0.0011	0.0611 ± 0.0007	0.0596 ± 0.0006	0.0611 ± 0.0010	0.0592 ± 0.0009	0.0592 ± 0.0008	0.0591 ± 0.0009
Business Entertainment	$0.0274 \pm 0.0005 \\ 0.0585 \pm 0.0024$	$0.0274{\pm}0.0005 \ 0.0585{\pm}0.0024$	0.0284 ± 0.0002 0.0650 ± 0.0007	0.0279 ± 0.0004 0.0612 ± 0.0009	0.0282 ± 0.0003 0.0645 ± 0.0016	0.0275 ± 0.0004 0.0591 ± 0.0017	0.0274 ± 0.0006 0.0600 ± 0.0026	0.0274 ± 0.0004 0.0596 ± 0.0018
Health	0.0303 ± 0.0024 0.0405 ± 0.0017	0.0383 ± 0.0024 0.0403 ± 0.0019	0.0439 ± 0.0007	0.0612 ± 0.0009 0.0427 ± 0.0012	0.0425 ± 0.0016 0.0425 ± 0.0015	0.0391 ± 0.0017 0.0417 ± 0.0016	0.0411 ± 0.0017	0.0390 ± 0.0018 0.0411 ± 0.0017
Recreation	0.0403 ± 0.0017 0.0574 ± 0.0014	0.0403 ± 0.0019 0.0572 ± 0.0015	0.0459 ± 0.0013 0.0650 ± 0.0002	0.0585 ± 0.0009	0.0425 ± 0.0015 0.0616 ± 0.0014	0.0576 ± 0.0012	0.0574 ± 0.0017	0.0574 ± 0.0014
Reference	0.0286 ± 0.0009	0.0286 ± 0.0008	0.0302 ± 0.0002	0.0300 ± 0.0009 0.0300 ± 0.0004	0.0296 ± 0.0008	0.0288 ± 0.0009	0.0288 ± 0.0009	0.0287 ± 0.0011
Science	0.0336 ± 0.0005	0.0336 ± 0.0005	0.0355 ± 0.0002	0.0346 ± 0.0002	0.0345 ± 0.0002	0.0340 ± 0.0003	0.0337 ± 0.0004	0.0337 ± 0.0005
Social	0.0243 ± 0.0014	0.0245 ± 0.0015	0.0254 ± 0.0010	0.0253 ± 0.0011	0.0246 ± 0.0013	0.0245 ± 0.0014	0.0243 ± 0.0020	0.0241 ± 0.0017
W/T/L (GRROfast)	/	/	20/2/2	20/1/3	20/3/1	19/4/1	11/11/2	10/9/5
W/T/L (GRRO)	/	/	21/3/0	21/2/1	21/3/0	18/6/0	15/7/2	15/7/2
Data set	CDBOC	CBBO	DMIT		g Loss↓	CCLC	MICO	LDFC
Bibtex	GRROfast 0.2006±0.0349	GRRO 0.1986 ± 0.0334	PMU 0.2936±0.0107	MDMR 0.2299±0.0099	FIMF 0.2808±0.0161	SCLS 0.2044±0.0231	MICO 0.2146±0.0306	LRFS 0.2134±0.0313
Birds	0.2006 ± 0.0349 0.1301 ± 0.0120	0.1986 ± 0.0334 0.1284 ± 0.0145	0.2936 ± 0.0107 0.1352 ± 0.0091	0.1266 ± 0.0101	0.2808 ± 0.0161 0.1347 ± 0.0119	0.2044 ± 0.0231 0.1380 ± 0.0133	0.2140 ± 0.0306 0.1404 ± 0.0172	0.2134 ± 0.0313 0.1344 ± 0.0153
Chemistry	0.1501 ± 0.0120 0.1542 ± 0.0082	0.1234 ± 0.0143 0.1540 ± 0.0077	0.1642 ± 0.0052	0.1200 ± 0.0101 0.1609 ± 0.0040	0.1606 ± 0.0060	0.1550 ± 0.0135 0.1551 ± 0.0070	0.1404 ± 0.0172 0.1553 ± 0.0068	0.1544 ± 0.0155 0.1554 ± 0.0068
Chess	0.1342 ± 0.0002 0.1459 ± 0.0081	0.1340 ± 0.0077 0.1441 ± 0.0083	0.1579 ± 0.0032	0.1570 ± 0.0045	0.1566 ± 0.0057	0.1495 ± 0.0070	0.1487 ± 0.0085	0.1354 ± 0.0000 0.1485 ± 0.0083
Coffee	0.1564 ± 0.0142	0.1627 ± 0.0110	0.1724 ± 0.0120	0.1740 ± 0.0124	0.1733 ± 0.0112	0.1746 ± 0.0092	0.1679 ± 0.0113	0.1668 ± 0.0111
Cooking	0.1850 ± 0.0161	0.1836 ± 0.0156	0.2131 ± 0.0034	0.2052 ± 0.0040	0.2102 ± 0.0050	0.1865 ± 0.0154	0.1857 ± 0.0159	0.1857 ± 0.0160
Cs	0.1477 ± 0.0100	$0.1457 {\pm} 0.0117$	0.1689 ± 0.0035	0.1573 ± 0.0045	0.1659 ± 0.0055	0.1500 ± 0.0091	0.1515 ± 0.0082	0.1513 ± 0.0082
Philosophy	0.1399 ± 0.0057	0.1383 ± 0.0067	0.1526 ± 0.0020	0.1500 ± 0.0015	0.1520 ± 0.0024	0.1431 ± 0.0041	0.1421 ± 0.0050	0.1427 ± 0.0046
Corel5k	0.1370 ± 0.0036	$0.1358 {\pm} 0.0038$	0.1414 ± 0.0008	0.1417 ± 0.0007	0.1414 ± 0.0008	0.1382 ± 0.0023	0.1377 ± 0.0031	0.1378 ± 0.0030
Corel16k001	$0.1864{\pm}0.0026$	$0.1864 {\pm} 0.0026$	0.1917 ± 0.0005	0.1898 ± 0.0005	0.1914 ± 0.0005	0.1869 ± 0.0023	0.1869 ± 0.0023	0.1868 ± 0.0023
Corel16k002	0.1846 ± 0.0023	$0.1844 {\pm} 0.0025$	0.1900 ± 0.0003	0.1875 ± 0.0009	0.1899 ± 0.0006	$0.1841 {\pm} 0.0026$	0.1842 ± 0.0026	0.1843 ± 0.0025
Genbase	0.0153 ± 0.0216	0.0149 ± 0.0206	0.0154 ± 0.0210	0.0136 ± 0.0197	0.0166 ± 0.0229	$0.0134 {\pm} 0.0198$	0.0158 ± 0.0199	0.0153 ± 0.0196
Langlog	$0.1545{\pm}0.0083$	0.1578 ± 0.0065	0.1697 ± 0.0030	0.1719 ± 0.0029	0.1689 ± 0.0060	0.1635 ± 0.0045	0.1628 ± 0.0035	0.1635 ± 0.0055
Medical	0.0573 ± 0.0191	0.0571 ± 0.0189	0.0769 ± 0.0123	0.0660 ± 0.0150	0.0637 ± 0.0176	0.0593 ± 0.0181	0.0645 ± 0.0168	0.0631 ± 0.0182
Slashdot	0.1792 ± 0.0096	0.1769 ± 0.0086	0.1890 ± 0.0038	0.1853 ± 0.0046	0.1805 ± 0.0081	0.1783 ± 0.0089	0.1790 ± 0.0080	0.1788 ± 0.0081
Yeast	0.1837±0.0089 0.1515±0.0085	0.1834 ± 0.0085	0.1843 ± 0.0098	0.1848 ± 0.0095	0.1895 ± 0.0095	0.1809 ± 0.0096	0.1841 ± 0.0085	0.1838 ± 0.0090
Arts Business	0.1313 ± 0.0083 0.0417 ± 0.0018	$0.1514 \pm 0.0087 \ 0.0423 \pm 0.0015$	0.1610 ± 0.0040 0.0463 ± 0.0019	0.1569 ± 0.0048 0.0446 ± 0.0010	0.1565 ± 0.0059 0.0457 ± 0.0019	0.1517 ± 0.0071 0.0426 ± 0.0015	0.1533 ± 0.0066 0.0425 ± 0.0017	0.1525 ± 0.0068 0.0423 ± 0.0015
Entertainment	0.1224 ± 0.0013	0.1222 ± 0.0013	0.0403 ± 0.0019 0.1383 ± 0.0067	0.1360 ± 0.0010	0.1398 ± 0.0019	0.1224 ± 0.0013	0.1277 ± 0.0084	0.0423 ± 0.0013 0.1311 ± 0.0058
Health	0.0599 ± 0.0061	0.0594 ± 0.0065	0.0657 ± 0.0029	0.0641 ± 0.0033	0.0629 ± 0.0044	0.0615 ± 0.0050	0.0610 ± 0.0056	0.0602 ± 0.0057
Recreation	0.1709 ± 0.0138	0.1692 ± 0.0149	0.2151 ± 0.0029	0.1797 ± 0.0089	0.1980 ± 0.0110	0.1731 ± 0.0133	0.1733 ± 0.0123	0.1726 ± 0.0126
Reference	0.0894 ± 0.0064	0.0894 ± 0.0065	0.0952 ± 0.0034	0.0949 ± 0.0034	0.0927 ± 0.0055	0.0894 ± 0.0061	0.0924 ± 0.0058	0.0906 ± 0.0056
Science	0.1346 ± 0.0071	0.1323 ± 0.0076	0.1464 ± 0.0028	0.1408 ± 0.0031	0.1434 ± 0.0040	0.1378 ± 0.0049	0.1367 ± 0.0063	0.1353 ± 0.0061
Social	0.0673 ± 0.0053	0.0670 ± 0.0050	0.0698 ± 0.0024	0.0695 ± 0.0027	0.0699 ± 0.0031	0.0692 ± 0.0029	0.0693 ± 0.0044	0.0689 ± 0.0041
W/T/L (GRROfast)	/	/	24/0/0	22/0/2	/24/0/0	18/2/4	22/0/2	21/1/2
W/T/L (GRRO)	/	/	24/0/0	22/0/2	24/0/0	20/1/3	23/0/1	22/1/1
Data set	GRROfast	GRRO	PMU	MDMR	rage↓ FIMF	SCLS	MICO	LRFS
Bibtex	0.3166±0.0434	0.3128±0.0424	0.4445±0.0144	0.3661 ± 0.0095	0.4304±0.0199	0.3323±0.0260	0.3367 ± 0.0374	0.3350±0.0383
Birds	0.1826 ± 0.0156	0.1831 ± 0.0185	0.1860 ± 0.0103	0.1763 ± 0.0137	0.1856 ± 0.0157	0.1928 ± 0.0173	0.1984 ± 0.0183	0.1898 ± 0.0180
Chemistry	0.2552 ± 0.0094	0.2551 ± 0.0091	0.2663 ± 0.0059	0.2629 ± 0.0042	0.2625 ± 0.0066	0.2569 ± 0.0076	0.2570 ± 0.0075	0.2570 ± 0.0075
Chess	$0.2724 {\pm} 0.0103$	$0.2694{\pm}0.0106$	0.2866 ± 0.0065	0.2855 ± 0.0063	0.2858 ± 0.0067	0.2767 ± 0.0095	0.2762 ± 0.0113	0.2759 ± 0.0108
Coffee	$0.2598 {\pm} 0.0143$	$0.2667{\pm}0.0074$	0.2752 ± 0.0167	0.2760 ± 0.0167	0.2776 ± 0.0132	0.2810 ± 0.0114	0.2742 ± 0.0110	0.2713 ± 0.0113
Cooking	0.3096 ± 0.0187	0.3082 ± 0.0181	0.3448 ± 0.0033	0.3358 ± 0.0039	0.3411 ± 0.0052	0.3112 ± 0.0186	0.3110 ± 0.0186	0.3110 ± 0.0187
Cs	0.2708 ± 0.0135	0.2684 ± 0.0154	0.2973 ± 0.0045	0.2831 ± 0.0063	0.2937 ± 0.0070	0.2737 ± 0.0128	0.2765 ± 0.0114	0.2759 ± 0.0114
Philosophy	0.2498 ± 0.0067	0.2474 ± 0.0081	0.2639 ± 0.0028	0.2612 ± 0.0015	0.2633 ± 0.0033	0.2537 ± 0.0042	0.2524 ± 0.0056	0.2529 ± 0.0052
Corel5k	0.3155 ± 0.0042	0.3128 ± 0.0048	0.3209 ± 0.0012	0.3215 ± 0.0008	0.3210 ± 0.0009	0.3173 ± 0.0024	0.3157 ± 0.0044	0.3157 ± 0.0042
Corel16k001	0.3565 ± 0.0033	0.3565 ± 0.0033	0.3639 ± 0.0010	0.3612 ± 0.0007	0.3635 ± 0.0006	0.3574 ± 0.0030	0.3577 ± 0.0030	0.3574 ± 0.0030
Corel16k002 Genbase	0.3549 ± 0.0033 0.0297 ± 0.0224	0.3544 ± 0.0037 0.0294 ± 0.0214	0.3627 ± 0.0006 0.0302 ± 0.0217	0.3587 ± 0.0013 0.0282 ± 0.0198	0.3625 ± 0.0010 0.0312 ± 0.0237	$0.3533 \pm 0.0041 \\ 0.0280 \pm 0.0199$	0.3538 ± 0.0040 0.0297 ± 0.0203	0.3540 ± 0.0038 0.0292 ± 0.0200
Langlog	0.0297 ± 0.0224 0.1594 ± 0.0077	0.0294 ± 0.0214 0.1632 ± 0.0065	0.0302 ± 0.0217 0.1756 ± 0.0024	0.0282 ± 0.0198 0.1780 ± 0.0025	0.0312 ± 0.0237 0.1744 ± 0.0052	0.0280 ± 0.0199 0.1680 ± 0.0045	0.0297 ± 0.0203 0.1682 ± 0.0033	0.0292 ± 0.0200 0.1690 ± 0.0046
Medical	0.1394 ± 0.0077 0.0804 ± 0.0206	0.1632 ± 0.0065 0.0799 ± 0.0205	0.1736 ± 0.0024 0.1033 ± 0.0121	0.1780 ± 0.0025 0.0906 ± 0.0155	0.1744 ± 0.0032 0.0879 ± 0.0185	0.1680 ± 0.0043 0.0836 ± 0.0191	0.1682 ± 0.0033 0.0890 ± 0.0178	0.0874 ± 0.0191
Slashdot	0.0804 ± 0.0206 0.1954 ± 0.0086	0.0799 ± 0.0203 0.1930 ± 0.0080	0.2043 ± 0.0036	0.2008 ± 0.0042	0.0879 ± 0.0183 0.1958 ± 0.0074	0.1940 ± 0.0082	0.0890 ± 0.0178 0.1948 ± 0.0072	0.0874 ± 0.0191 0.1945 ± 0.0073
Yeast	0.4702 ± 0.0000	0.4690 ± 0.0099	0.4710 ± 0.0103	0.4711 ± 0.0112	0.4783 ± 0.0101	0.4655 ± 0.0116	0.4705 ± 0.0101	0.4708 ± 0.0073
Arts	0.2103 ± 0.0082	0.2101 ± 0.0084	0.2203 ± 0.0035	0.2162 ± 0.0045	0.2153 ± 0.0055	0.2104 ± 0.0072	0.2121 ± 0.0065	0.2112 ± 0.0068
Business	0.0777 ± 0.0023	0.0782 ± 0.0019	0.0833 ± 0.0025	0.0814 ± 0.0011	0.0830 ± 0.0024	0.0787 ± 0.0018	0.0784 ± 0.0022	0.0781 ± 0.0020
Entertainment	0.1584 ± 0.0090	$0.1577{\pm}0.0100$	0.1726 ± 0.0068	0.1710 ± 0.0037	0.1740 ± 0.0090	$0.1581{\pm}0.0084$	0.1633 ± 0.0086	0.1662 ± 0.0062
Health	$0.1031 {\pm} 0.0073$	$0.1025{\pm}0.0079$	0.1097 ± 0.0031	0.1080 ± 0.0037	0.1062 ± 0.0051	0.1042 ± 0.0059	$0.1044 {\pm} 0.0065$	0.1034 ± 0.0067
Recreation	0.2131 ± 0.0140	0.2116 ± 0.0150	0.2530 ± 0.0033	0.2221 ± 0.0089	0.2385 ± 0.0097	0.2151 ± 0.0111	0.2156 ± 0.0122	0.2145 ± 0.0126
Reference	$0.1048 {\pm} 0.0063$	$0.1047{\pm}0.0065$	0.1105 ± 0.0036	0.1104 ± 0.0036	0.1079 ± 0.0056	0.1048 ± 0.0061	0.1076 ± 0.0058	0.1059 ± 0.0056
Science	0.1706 ± 0.0075	0.1684 ± 0.0081	0.1826 ± 0.0030	0.1772 ± 0.0034	0.1797 ± 0.0043	0.1738 ± 0.0053	0.1728 ± 0.0070	0.1714 ± 0.0063
Social	0.0923 ± 0.0059	0.0919 ± 0.0056	0.0949 ± 0.0028	0.0946 ± 0.0029	0.0946 ± 0.0035	0.0944 ± 0.0030	0.0946 ± 0.0046	0.0947 ± 0.0042
W/T/L (GRROfast)	/	/,	24/0/0 24/0/0	22/0/2 22/0/2	24/0/0 24/0/0	18/1/5 21/0/3	21/1/2 23/0/1	21/0/3 21/0/3
W/T/L (GRRO)								

 $\begin{tabular}{l} TABLE\ 2\\ Comparison\ Results\ of\ Eight\ MLFS\ Methods\ (Mean\pm Std.\ Deviation)\ in\ Terms\ of\ \it Average\ Precision,\ \it Macro-F1,\ and\ \it Micro-F1 \end{tabular}$

	Average Precision↑									
Data set	GRROfast	GRRO	PMU	MDMR	FIMF	SCLS	MICO	LRFS		
Bibtex	0.3569 ± 0.0697	0.3526 ± 0.0633	0.1787 ± 0.0131	0.2896 ± 0.0208	0.2040 ± 0.0235	0.3356 ± 0.0485	0.3094 ± 0.0601	0.3121 ± 0.0617		
Birds	0.6720 ± 0.0161	0.6910 ± 0.0253	0.6274 ± 0.0166	0.6646 ± 0.0119	0.6555 ± 0.0147	0.6632 ± 0.0171	0.6827 ± 0.0275	0.6918 ± 0.0228		
Chemistry	$0.2947{\pm}0.0252$	0.2971 ± 0.0238	0.2624 ± 0.0108	0.2700 ± 0.0097	0.2719 ± 0.0140	0.2914 ± 0.0214	0.2914 ± 0.0219	0.2918 ± 0.0216		
Chess	0.3275 ± 0.0394	0.3325 ± 0.0392	0.2591 ± 0.0176	0.2648 ± 0.0136	0.2682 ± 0.0244	0.3104 ± 0.0273	0.3138 ± 0.0373	0.3151 ± 0.0366		
Coffee	0.3613 ± 0.0438	0.3671 ± 0.0436	0.2923 ± 0.0287	0.3006 ± 0.0225	0.2889 ± 0.0174	0.3030 ± 0.0175	0.3526 ± 0.0408	0.3513 ± 0.0399		
Cooking	0.2626 ± 0.0618	0.2659 ± 0.0604	0.1365 ± 0.0163	0.1843 ± 0.0152	0.1527 ± 0.0249	0.2543 ± 0.0604	0.2544 ± 0.0621	0.2547 ± 0.0624		
Cs	0.3211 ± 0.0324	0.3263 ± 0.0352	0.2178 ± 0.0082	0.2788 ± 0.0116	0.2372 ± 0.0190	0.3124 ± 0.0281	0.3094 ± 0.0280	0.3104 ± 0.0272		
Philosophy Corel5k	$0.3355 {\pm} 0.0335 \ 0.2374 {\pm} 0.0101$	$0.3366 {\pm} 0.0341 \\ 0.2425 {\pm} 0.0116$	0.2464 ± 0.0053 0.2153 ± 0.0031	0.2670 ± 0.0070 0.2163 ± 0.0031	0.2481 ± 0.0068 0.2157 ± 0.0030	0.3107 ± 0.0211 0.2286 ± 0.0054	0.3158 ± 0.0247 0.2323 ± 0.0077	0.3146 ± 0.0240 0.2316 ± 0.0071		
Corel16k001	0.2574 ± 0.0101 0.2597 ± 0.0052	0.2425 ± 0.0116 0.2597 ± 0.0052	0.2193 ± 0.0031 0.2499 ± 0.0017	0.2163 ± 0.0031 0.2560 ± 0.0026	0.2496 ± 0.0030	0.2573 ± 0.0034 0.2573 ± 0.0032	0.2525 ± 0.0077 0.2588 ± 0.0045	0.2516 ± 0.0071 0.2589 ± 0.0043		
Corel16k002	0.2597 ± 0.0032 0.2501 ± 0.0042	0.2597 ± 0.0032 0.2501 ± 0.0042	0.2499 ± 0.0017 0.2411 ± 0.0010	0.2360 ± 0.0026 0.2455 ± 0.0022	0.2490 ± 0.0012 0.2414 ± 0.0014	0.2373 ± 0.0032 0.2486 ± 0.0038	0.2503 ± 0.0043 0.2503 ± 0.0050	0.2389 ± 0.0043 0.2497 ± 0.0046		
Genbase	0.9527 ± 0.0042	0.9525 ± 0.0940	0.9551 ± 0.0966	0.9584 ± 0.0939	0.9505 ± 0.1022	0.9584 ± 0.0940	0.9469 ± 0.0964	0.9493 ± 0.0941		
Langlog	0.3132 ± 0.0285	0.3038 ± 0.0226	0.2580 ± 0.0113	0.2600 ± 0.0108	0.2589 ± 0.0157	0.2912 ± 0.0188	0.2694 ± 0.0112	0.3031 ± 0.0239		
Medical	0.7950 ± 0.0857	0.7998 ± 0.0878	0.6852 ± 0.0453	0.7454 ± 0.0656	0.7558 ± 0.0783	0.7656 ± 0.0757	0.7520 ± 0.0747	0.7627 ± 0.0791		
Slashdot	0.4746 ± 0.0285	0.4767 ± 0.0291	0.4406 ± 0.0122	0.4554 ± 0.0147	0.4659 ± 0.0236	0.4729 ± 0.0263	0.4719 ± 0.0244	0.4722 ± 0.0247		
Yeast	0.7426 ± 0.0122	0.7435 ± 0.0123	0.7417 ± 0.0124	0.7397 ± 0.0120	0.7360 ± 0.0123	0.7460 ± 0.0132	0.7422 ± 0.0118	0.7428 ± 0.0119		
Arts	0.5142 ± 0.0239	0.5151 ± 0.0247	0.4861 ± 0.0132	0.5021 ± 0.0152	0.4923 ± 0.0167	0.5120 ± 0.0204	0.5076 ± 0.0196	0.5096 ± 0.0196		
Business	0.8743 ± 0.0041	0.8736 ± 0.0036	0.8658 ± 0.0036	0.8701 ± 0.0026	0.8669 ± 0.0037	0.8731 ± 0.0030	0.8736 ± 0.0040	0.8739 ± 0.0036		
Entertainment	0.5730 ± 0.0313	$0.5755 {\pm} 0.0345$	0.5138 ± 0.0161	0.5224 ± 0.0098	0.5111 ± 0.0202	0.5754 ± 0.0307	0.5559 ± 0.0315	0.5494 ± 0.0245		
Health	$0.7094 {\pm} 0.0195$	0.7118 ± 0.0225	0.6763 ± 0.0099	0.6870 ± 0.0110	0.6902 ± 0.0164	0.7001 ± 0.0179	0.7025 ± 0.0195	0.7054 ± 0.0205		
Recreation	0.5326 ± 0.0353	$0.5368 {\pm} 0.0377$	0.3881 ± 0.0102	0.5013 ± 0.0198	0.4452 ± 0.0291	0.5278 ± 0.0303	0.5285 ± 0.0341	0.5295 ± 0.0342		
Reference	0.6231 ± 0.0242	0.6207 ± 0.0232	0.5988 ± 0.0100	0.5977 ± 0.0089	0.6064 ± 0.0196	0.6200 ± 0.0198	0.6129 ± 0.0224	0.6200 ± 0.0200		
Science	0.4852 ± 0.0199	0.4873 ± 0.0218	0.4303 ± 0.0100	0.4582 ± 0.0088	0.4542 ± 0.0112	0.4677 ± 0.0133	0.4774 ± 0.0204	0.4788 ± 0.0197		
Social	0.7166 ± 0.0160	0.7168 ± 0.0174	0.6974 ± 0.0077	0.6989 ± 0.0112	0.7039 ± 0.0097	0.7073 ± 0.0124	0.7078 ± 0.0156	0.7099 ± 0.0141		
W/T/L (GRROfast)	/	/	23/0/1	23/0/1	24/0/0	21/0/3	22/0/2	22/0/2		
W/T/L (GRRO)	/	/	23/0/1	23/0/1	24/0/0	22/0/2	21/1/1	22/0/2		
Data set	GRROfast	GRRO	PMU	Macı MDMR	o-F1↑ FIMF	SCLS	MICO	LRFS		
Bibtex	0.0538±0.0335	0.0545±0.0332	0.0026±0.0017	0.0225 ± 0.0050	0.0062 ± 0.0032	0.0355±0.0160	0.0362±0.0188	0.0369±0.0194		
Birds	0.1025 ± 0.0210	0.0343 ± 0.0332 0.1222 ± 0.0246	0.0890 ± 0.0215	0.0223 ± 0.0030 0.1061 ± 0.0146	0.0769 ± 0.0175	0.1012 ± 0.0205	0.0302 ± 0.0186 0.1110 ± 0.0286	0.0309 ± 0.0194 0.1312 ± 0.0328		
Chemistry	0.0103 ± 0.0066	0.0117 ± 0.0060	0.0024 ± 0.0011	0.0037 ± 0.0015	0.0033 ± 0.0017	0.0085 ± 0.0046	0.0100 ± 0.0058	0.0100 ± 0.0057		
Chess	0.0211 ± 0.0095	0.0209 ± 0.0081	0.0038 ± 0.0019	0.0052 ± 0.0020	0.0061 ± 0.0041	0.0124 ± 0.0037	0.0149 ± 0.0065	0.0154 ± 0.0066		
Coffee	0.4925 ± 0.0035	0.4973 ± 0.0047	0.4905 ± 0.0018	0.4897 ± 0.0016	0.4901 ± 0.0023	0.4904 ± 0.0019	$0.4934{\pm}0.0046$	0.4929 ± 0.0044		
Cooking	$0.0285{\pm}0.0152$	0.0283 ± 0.0147	0.0024 ± 0.0022	0.0089 ± 0.0022	0.0043 ± 0.0034	0.0228 ± 0.0125	0.0245 ± 0.0141	0.0243 ± 0.0140		
Cs	0.0263 ± 0.0106	$0.0286 {\pm} 0.0116$	0.0013 ± 0.0008	0.0116 ± 0.0022	0.0033 ± 0.0019	0.0188 ± 0.0064	0.0205 ± 0.0076	0.0206 ± 0.0075		
Philosophy	0.0275 ± 0.0097	$0.0298 {\pm} 0.0107$	0.0028 ± 0.0011	0.0068 ± 0.0010	0.0030 ± 0.0012	0.0194 ± 0.0059	0.0196 ± 0.0065	0.0193 ± 0.0061		
Corel5k	$0.2994 {\pm} 0.0015$	0.3010 ± 0.0024	0.2968 ± 0.0006	0.2968 ± 0.0006	0.2968 ± 0.0008	0.2981 ± 0.0014	0.2979 ± 0.0013	0.2980 ± 0.0011		
Corel16k001	$0.0035 {\pm} 0.0016$	$0.0035 {\pm} 0.0016$	0.0001 ± 0.0001	0.0019 ± 0.0013	0.0025 ± 0.0018	0.0016 ± 0.0013	0.0017 ± 0.0012	0.0018 ± 0.0013		
Corel16k002	0.0048 ± 0.0013	0.0050 ± 0.0015	0.0001 ± 0.0001	0.0035 ± 0.0004	0.0001 ± 0.0000	0.0039 ± 0.0006	0.0044 ± 0.0014	0.0043 ± 0.0013		
Genbase	0.5856 ± 0.1372	0.5803 ± 0.1446	0.5393 ± 0.1225	0.5533 ± 0.1231	0.5903 ± 0.1571	0.5663 ± 0.1317	0.5646 ± 0.1425	0.5676 ± 0.1384		
Langlog	$0.1200\!\pm\!0.0042$	0.1178 ± 0.0030	0.1079 ± 0.0015	0.1103 ± 0.0022	0.1070 ± 0.0005	0.1139 ± 0.0029	0.1150 ± 0.0051	0.1142 ± 0.0033		
Medical	0.3596 ± 0.0590	0.3520 ± 0.0573	0.2472 ± 0.0162	0.3022 ± 0.0342	0.3122 ± 0.0559	0.3228 ± 0.0490	0.3139 ± 0.0555	0.3228 ± 0.0549		
Slashdot	0.2193 ± 0.0323	0.2254 ± 0.0318	0.1718 ± 0.0106	0.1893 ± 0.0155	0.2024 ± 0.0203	0.2126 ± 0.0244	0.2167 ± 0.0271	0.2150 ± 0.0262		
Yeast	0.3244 ± 0.0478	0.3220 ± 0.0472	0.3049 ± 0.0410	0.2987 ± 0.0402	0.3008 ± 0.0500	0.3320 ± 0.0522	0.3196 ± 0.0468	0.3240 ± 0.0430		
Arts Business	0.0778 ± 0.0215 0.1548 ± 0.0153	0.0759 ± 0.0212 0.1533 ± 0.0137	0.0499 ± 0.0143 0.0519 ± 0.0095	0.0632 ± 0.0107 0.1404 ± 0.0071	0.0529 ± 0.0182 0.1329 ± 0.0149	0.0773 ± 0.0180 0.1519 ± 0.0121	0.0702 ± 0.0152 0.1582 ± 0.0179	0.0751 ± 0.0176 0.1566 ± 0.0146		
Entertainment	0.1348 ± 0.0133 0.1249 ± 0.0403	0.1333 ± 0.0137 0.1227 ± 0.0399	0.0519 ± 0.0093 0.0641 ± 0.0120	0.0864 ± 0.0071	0.0642 ± 0.0149	0.1319 ± 0.0121 0.1183 ± 0.0319	0.0927 ± 0.0342	0.1300 ± 0.0140 0.1007 ± 0.0227		
Health	0.1249 ± 0.0403 0.2170 ± 0.0297	0.1227 ± 0.0399 0.2280 ± 0.0330	0.0041 ± 0.0120 0.1291 ± 0.0193	0.0804 ± 0.0121 0.2008 ± 0.0190	0.0042 ± 0.0197 0.2048 ± 0.0247	0.2175 ± 0.0319	0.0927 ± 0.0342 0.2141 ± 0.0257	0.1007 ± 0.0227 0.2163 ± 0.0266		
Recreation	0.1345 ± 0.0338	0.1371 ± 0.0356	0.0073 ± 0.0077	0.1231 ± 0.0238	0.0585 ± 0.0266	0.1302 ± 0.0270	0.2141 ± 0.0237 0.1284 ± 0.0305	0.1286 ± 0.0290		
Reference	0.1208 ± 0.0173	0.1220 ± 0.0177	0.0399 ± 0.0074	0.1004 ± 0.0068	0.1040 ± 0.0138	0.1200 ± 0.0170	0.1168 ± 0.0186	0.1205 ± 0.0256 0.1215 ± 0.0176		
Science	0.0590 ± 0.0179	0.0604 ± 0.0143	0.0163 ± 0.0069	0.0416 ± 0.0074	0.0387 ± 0.0099	0.0486 ± 0.0092	0.0541 ± 0.0136	0.0571 ± 0.0129		
Social	0.1284 ± 0.0243	0.1317 ± 0.0220	0.1138 ± 0.0111	0.1149 ± 0.0125	0.1099 ± 0.0149	0.1213 ± 0.0159	0.1121 ± 0.0170	0.1139 ± 0.0167		
W/T/L (GRROfast)	/	/	24/0/0	23/0/1	23/0/1	22/0/2	21/0/3	21/0/3		
W/T/L (GRRO)	,	,	24/0/0	24/0/0	23/0/1	22/0/2	23/0/1	21/0/3		
Data set	CDDO(·	CDDO	D) (II		o-F1↑	0.01.0	1,500	I DEC		
	GRROfast 0.2214±0.0689	GRRO	PMU	MDMR	FIMF	SCLS	MICO	LRFS		
Bibtex Birds	0.2214 ± 0.0689 0.4350 ± 0.0588	0.2205 ± 0.0715 0.4890 ± 0.0322	0.0153 ± 0.0107 0.3661 ± 0.0390	0.1610 ± 0.0124 0.4080 ± 0.0383	0.0794 ± 0.0354 0.3607 ± 0.0403	0.1957 ± 0.0382 0.4314 ± 0.0353	0.1988 ± 0.0475 0.4999 ± 0.0316	0.1995±0.0483 0.5156±0.0353		
Chemistry	0.4330 ± 0.0388 0.0439 ± 0.0233	0.4890 ± 0.0322 0.0508 ± 0.0236	0.0153 ± 0.0091	0.4080 ± 0.0383 0.0235 ± 0.0098	0.0190 ± 0.0100	0.4314 ± 0.0333 0.0411 ± 0.0194	0.0430 ± 0.0208	0.0430 ± 0.0333 0.0430 ± 0.0197		
Chess	0.1874 ± 0.0364	0.0303 ± 0.0230 0.1887 ± 0.0257	0.0153 ± 0.0091 0.0854 ± 0.0328	0.0255 ± 0.0098 0.0995 ± 0.0147	0.0190 ± 0.0100 0.0919 ± 0.0351	0.1566 ± 0.0257	0.1621 ± 0.0383	0.1657 ± 0.0360		
Coffee	0.0294 ± 0.0190	0.0435 ± 0.0237	0.0196 ± 0.0133	0.0171 ± 0.0137	0.0162 ± 0.0179	0.0196 ± 0.0144	0.0391 ± 0.0264	0.0367 ± 0.0360 0.0367 ± 0.0265		
Cooking	0.1679 ± 0.0563	0.1699 ± 0.0575	0.0156 ± 0.0156	0.0789 ± 0.0145	0.0337 ± 0.0253	0.1491 ± 0.0547	0.1532 ± 0.0625	0.1525 ± 0.0612		
Cs	0.1469 ± 0.0370	0.1564 ± 0.0419	0.0115 ± 0.0069	0.0853 ± 0.0147	0.0309 ± 0.0158	0.1266 ± 0.0285	0.1356 ± 0.0363	0.1353 ± 0.0340		
Philosophy	0.1795 ± 0.0269	$0.1825{\pm}0.0361$	0.0505 ± 0.0193	0.0903 ± 0.0149	0.0513 ± 0.0200	0.1637 ± 0.0226	0.1640 ± 0.0224	0.1644 ± 0.0226		
Corel5k	0.0103 ± 0.0058	$0.0170\!\pm\!0.0095$	0.0003 ± 0.0006	0.0004 ± 0.0009	0.0010 ± 0.0012	0.0050 ± 0.0044	0.0055 ± 0.0042	0.0054 ± 0.0039		
Corel16k001	0.0072 ± 0.0045	$0.0072 \!\pm\! 0.0045$	0.0001 ± 0.0002	0.0015 ± 0.0010	0.0018 ± 0.0012	0.0033 ± 0.0031	0.0046 ± 0.0036	0.0044 ± 0.0036		
Corel16k002	0.0085 ± 0.0033	$0.0095 {\pm} 0.0035$	0.0002 ± 0.0002	0.0038 ± 0.0005	0.0001 ± 0.0001	0.0078 ± 0.0027	$0.0086 {\pm} 0.0039$	0.0081 ± 0.0034		
Genbase	0.9093 ± 0.1317	$0.9066 {\pm} 0.1290$	0.8778 ± 0.1282	0.9003 ± 0.1258	0.8948 ± 0.1378	0.9053 ± 0.1280	0.8974 ± 0.1285	0.9003 ± 0.1263		
Langlog	0.0896 ± 0.0168	0.0782 ± 0.0175	0.0058 ± 0.0080	0.0306 ± 0.0231	0.0011 ± 0.0016	0.0536 ± 0.0236	0.0638 ± 0.0435	0.0563 ± 0.0269		
Medical	0.7038 ± 0.0760	0.7117 ± 0.0771	0.5447 ± 0.0362	0.6576 ± 0.0710	0.6587 ± 0.0870	0.6599 ± 0.0628	0.6624 ± 0.0674	0.6750 ± 0.0696		
Slashdot	0.2347 ± 0.0488	0.2330 ± 0.0492	0.1338 ± 0.0182	0.1739 ± 0.0243	0.1990 ± 0.0321	0.2220 ± 0.0407	0.2240 ± 0.0419	0.2209 ± 0.0400		
Yeast	0.6044 ± 0.0325	0.6054 ± 0.0349	0.5949 ± 0.0280	0.5884 ± 0.0281	0.5976 ± 0.0341	0.6085 ± 0.0340	0.6065 ± 0.0344	0.6069 ± 0.0294		
Arts	0.1987 ± 0.0447	0.1996 ± 0.0468	0.1227 ± 0.0355	0.1693 ± 0.0274	0.1276 ± 0.0482	0.1891 ± 0.0368	0.1797 ± 0.0339	0.1912 ± 0.0398		
Business	0.6915 ± 0.0092	0.6907 ± 0.0086	0.6757 ± 0.0039	0.6825 ± 0.0046	0.6789 ± 0.0057	0.6894 ± 0.0065	0.6913 ± 0.0098	0.6908 ± 0.0078		
Entertainment	0.2965 ± 0.0809	0.2931 ± 0.0773	0.1085 ± 0.0216	0.2158 ± 0.0316	0.1217 ± 0.0438	0.2806 ± 0.0544	0.2387 ± 0.0838	0.2628 ± 0.0572		
Health Recreation	0.4930 ± 0.0290	0.5123 ± 0.0245	0.4376 ± 0.0290	0.4585 ± 0.0290	0.4682 ± 0.0270	0.4777 ± 0.0254	0.4996 ± 0.0216	0.5070 ± 0.0224 0.2649 ± 0.0503		
Recreation Reference	$0.2689 \pm 0.0534 \\ 0.3854 \pm 0.0459$	0.2713 ± 0.0552	0.0105 ± 0.0117	0.2302 ± 0.0329 0.3267 ± 0.0254	0.1174 ± 0.0492 0.3289 ± 0.0366	0.2623 ± 0.0449 0.3693 ± 0.0390	0.2636 ± 0.0535 0.3665 ± 0.0390			
Science	0.3854 ± 0.0459 0.1816 ± 0.0359	$0.3830 \pm 0.0421 \\ 0.1830 \pm 0.0423$	0.3265 ± 0.0266 0.0407 ± 0.0194	0.3267 ± 0.0234 0.1187 ± 0.0223	0.3289 ± 0.0366 0.1148 ± 0.0240	0.3693 ± 0.0390 0.1502 ± 0.0312	0.3665 ± 0.0390 0.1700 ± 0.0379	0.3741 ± 0.0427 0.1750 ± 0.0410		
Social	0.1810 ± 0.0339 0.5118 ± 0.0633	0.1830 ± 0.0423 0.5152 ± 0.0627	0.0407 ± 0.0194 0.4379 ± 0.0527	0.1187 ± 0.0223 0.4468 ± 0.0595	0.1148 ± 0.0240 0.4740 ± 0.0469	0.1302 ± 0.0312 0.4813 ± 0.0491	0.1700 ± 0.0379 0.4936 ± 0.0531	0.1730 ± 0.0410 0.4880 ± 0.0579		
W/T/L (GRROfast)	/	/	24/0/0	24/0/0	24/0/0	23/0/1	19/0/5	20/0/4		
W/T/L (GRRO)	/	,	24/0/0	24/0/0	24/0/0	23/0/1	21/0/3	21/0/3		
, 1, 2 (Gidio)	/	/	-1/0/0	-1/0/0	-1/0/0	-0/0/1	-1/0/0	-1/0/0		