| | 5% CS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Dataset | PCCC | PCCC-N2-S | PCCC-N5-S | PCCC-N2-S-RD | COPKM | CSC | DILS | LCC | KMEANS |
| n500-k2 | **0.3** | 0.5 | 0.4 | 1.4 | – | 2.9 | 3,039.7 | 8.2 | 0.3 |
| n500-k5 | 1.3 | 0.8 | 1.6 | 2.1 | **0.1** | 2.9 | 2,506.3 | 20.2 | 0.1 |
| n500–k10 | 4.6 | 0.8 | 2.0 | 2.7 | **0.3** | 2.7 | 2,549.4 | 28.7 | 0.1 |
| n500-k20 | 12.7 | 1.5 | 3.9 | 3.2 | **0.6** | 3.0 | 2,441.9 | 47.1 | 0.1 |
| n500-k50 | 21.6 | **0.9** | 1.9 | 3.2 | 2.6 | 3.7 | 2,507.1 | 108.4 | 0.1 |
| n500-k100 | 27.1 | **0.6** | 1.4 | 2.3 | 8.6 | 2.7 | 2,411.4 | 210.6 | 0.2 |
| n1000-k2 | **0.3** | 0.6 | 0.6 | 1.0 | 4.2 | 23.4 | 3,612.9 | 165.3 | 0.1 |
| n1000-k5 | 5.3 | **2.3** | 6.5 | 5.7 | – | 22.9 | 3,617.4 | 37.3 | 0.1 |
| n1000-k10 | 8.9 | 1.4 | 4.7 | 4.4 | **0.5** | 24.4 | 3,606.4 | 63.3 | 0.2 |
| n1000-k20 | 27.4 | 2.0 | 6.3 | 7.7 | **1.8** | 22.9 | 3,620.8 | 104.2 | 0.1 |
| n1000-k50 | 52.5 | **1.5** | 4.0 | 6.4 | 6.0 | 24.9 | 3,611.6 | 232.5 | 0.2 |
| n1000-k100 | 122.2 | **1.7** | 3.8 | 5.1 | 18.6 | 25.5 | 3,630.2 | – | 0.2 |
| n2000-k2 | **0.5** | 0.7 | 0.6 | 1.4 | 503.5 | 263.6 | 3,716.9 | 3,669.7 | 0.3 |
| n2000-k5 | 5.2 | **1.8** | 6.7 | 6.4 | 3.0 | 267.3 | 3,661.7 | 403.9 | 0.2 |
| n2000-k10 | 24.8 | 2.2 | 8.8 | 4.9 | **1.2** | 270.6 | 3,651.1 | 136.2 | 0.4 |
| n2000-k20 | 132.3 | 6.8 | 18.3 | 15.6 | **3.6** | 280.1 | 3,646.3 | 254.1 | 0.2 |
| n2000-k50 | 303.6 | **5.3** | 13.2 | 17.0 | 14.3 | 277.3 | 3,615.8 | 537.3 | 0.7 |
| n2000-k100 | 462.2 | **4.0** | 10.5 | 10.3 | 41.4 | 270.1 | 3,627.7 | 1,006.2 | 0.4 |
| n5000-k2 | 0.6 | **0.4** | 0.5 | 1.2 | – | 2,764.0 | 4,006.1 | 3,793.6 | 0.4 |
| n5000-k5 | 4.6 | **1.9** | 6.6 | 5.7 | 5,929.3 | 2,770.6 | 3,815.8 | 3,802.6 | 0.3 |
| n5000-k10 | 79.8 | **4.3** | 18.2 | 11.9 | – | 2,696.5 | 3,860.4 | 3,863.2 | 0.5 |
| n5000-k20 | 857.0 | **8.9** | 135.4 | 45.6 | – | 2,733.4 | 3,772.5 | 2,310.8 | 0.4 |
| n5000-k50 | 238.5 | **12.9** | 51.7 | 53.5 | 45.0 | 2,730.1 | 3,813.6 | 2,283.4 | 0.6 |
| n5000-k100 | 446.8 | **16.0** | 53.5 | 38.8 | 116.9 | 2,639.6 | 3,759.0 | 3,608.7 | 0.6 |
| Sum | 2,840.1 | **79.6** | 361.1 | 257.5 | 24,701.6* | 18,125.0 | 82,102.0 | 30,295.4* | 6.9 |

*Nan values (–) are replaced with 3,600 before computing the sum.

Table W96: Average running times (in seconds) of the versions of the PCCC algorithm and the four state-of-the-art algorithms (COPKM, CSC, DILS, LCC) for the constraint sets of size 5% CS. The lowest values are stated in bold. The column KMEANS reports the average running time of the unconstrained k-means algorithm. The hyphen indicates that the respective algorithm returned no solution within the time limit of 3,600 seconds.