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Comparative study of matrix refinement approaches for ensemble clustering

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Supplementary

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This supplementary is prepared as part of the manuscript, with the title ‘Comparative Study of Matrix Refinement Approaches for Ensemble Clustering’. In particular, it contains the evaluation results in addition to those reported in the aforementioned manuscript.

- Tables 1 to 8 shows NMI measures of examined ensemble models, categorized by different matrices, ensemble types and investigated datasets.
- Tables 9 to 16 shows Jaccard measures of examined ensemble models, categorized by different matrices, ensemble types and investigated datasets.
- Tables 17 to 24 shows Dunn measures of examined ensemble models, categorized by different matrices, ensemble types and investigated datasets.
- Tables 25 to 32 shows Silhouette measures of examined ensemble models, categorized by different matrices, ensemble types and investigated datasets.
- Tables 33 to 35 presents better/worse statistics obtained with Jaccard, Dunn and Silhouette metrics, respectively.

Table 1: NMI measures of examined matrices using SL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RAWCT	RAWTQ	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.980 (0.101)	0.977 (0.119)	0.968 (0.158)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
2-doughnut	Fixed-k	0.899 (0.251)	0.961 (0.134)	0.887 (0.264)	0.099 (0.009)	0.383 (0.309)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.253 (0.155)	0.351 (0.274)	0.271 (0.197)	0.178 (0.031)	0.229 (0.000)	0.316 (0.243)	0.297 (0.237)
Difficult Doughnut	Fixed-k	0.384 (0.300)	0.289 (0.271)	0.299 (0.255)	0.035 (0.000)	0.041 (0.011)	0.214 (0.115)	0.241 (0.157)
	Random-k	0.609 (0.318)	0.364 (0.230)	0.495 (0.306)	0.035 (0.000)	0.039 (0.010)	0.469 (0.341)	0.564 (0.324)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.103 (0.019)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	1.000 (0.000)	1.000 (0.000)	0.997 (0.019)	0.978 (0.053)	1.000 (0.000)	0.987 (0.040)	0.987 (0.040)
Fence	Fixed-k	0.510 (0.079)	0.510 (0.071)	0.484 (0.082)	0.373 (0.034)	0.062 (0.000)	0.505 (0.076)	0.489 (0.078)
	Random-k	0.533 (0.062)	0.503 (0.058)	0.490 (0.082)	0.487 (0.054)	0.112 (0.000)	0.501 (0.068)	0.500 (0.067)
E.coli	Fixed-k	0.667 (0.044)	0.644 (0.069)	0.616 (0.073)	0.094 (0.007)	0.537 (0.101)	0.568 (0.065)	0.609 (0.061)
	Random-k	0.666 (0.064)	0.675 (0.061)	0.633 (0.055)	0.105 (0.007)	0.562 (0.013)	0.573 (0.062)	0.661 (0.104)
Ionosphere	Fixed-k	0.080 (0.033)	0.079 (0.029)	0.075 (0.017)	0.018 (0.011)	0.028 (0.007)	0.046 (0.037)	0.081 (0.026)
	Random-k	0.061 (0.030)	0.064 (0.025)	0.048 (0.024)	0.016 (0.005)	0.026 (0.000)	0.069 (0.056)	0.060 (0.025)
Iris	Fixed-k	0.737 (0.065)	0.715 (0.042)	0.722 (0.063)	0.558 (0.170)	0.745 (0.001)	0.677 (0.036)	0.710 (0.055)
	Random-k	0.746 (0.055)	0.722 (0.052)	0.728 (0.071)	0.702 (0.053)	0.723 (0.000)	0.708 (0.031)	0.751 (0.084)
Wine	Fixed-k	0.451 (0.236)	0.502 (0.193)	0.384 (0.231)	0.070 (0.000)	0.058 (0.000)	0.240 (0.280)	0.373 (0.242)
	Random-k	0.548 (0.220)	0.442 (0.262)	0.419 (0.282)	0.068 (0.003)	0.051 (0.010)	0.246 (0.291)	0.456 (0.266)
Breast Cancer	Fixed-k	0.173 (0.280)	0.065 (0.159)	0.030 (0.024)	0.044 (0.000)	0.018 (0.000)	0.029 (0.016)	0.035 (0.032)
	Random-k	0.312 (0.356)	0.371 (0.352)	0.207 (0.280)	0.044 (0.000)	0.018 (0.000)	0.021 (0.014)	0.184 (0.269)
Optical Digits	Fixed-k	0.311 (0.142)	0.312 (0.143)	0.383 (0.047)	0.020 (0.000)	0.035 (0.000)	0.389 (0.058)	0.361 (0.000)
	Random-k	0.373 (0.133)	0.358 (0.126)	0.289 (0.184)	0.020 (0.000)	0.031 (0.002)	0.329 (0.103)	0.366 (0.001)
Pen Digits	Fixed-k	0.392 (0.178)	0.406 (0.192)	0.309 (0.095)	0.016 (0.000)	0.014 (0.000)	0.371 (0.157)	0.214 (0.000)
	Random-k	0.252 (0.201)	0.253 (0.202)	0.252 (0.201)	0.016 (0.002)	0.014 (0.000)	0.252 (0.201)	0.051 (0.000)
Magic Gamma	Fixed-k	0.011 (0.014)	0.010 (0.011)	0.014 (0.014)	0.005 (0.000)	0.008 (0.000)	0.031 (0.013)	0.004 (0.002)
	Random-k	0.006 (0.001)	0.012 (0.020)	0.012 (0.020)	0.002 (0.000)	0.007 (0.001)	0.012 (0.020)	0.005 (0.000)

Table 2: NMI measures of examined matrices using CL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.631 (0.316)	0.748 (0.308)	0.132 (0.013)	0.127 (0.060)	0.541 (0.104)	0.127 (0.013)	0.132 (0.015)
	Random-k	0.828 (0.233)	0.773 (0.246)	0.227 (0.166)	0.485 (0.198)	0.508 (0.042)	0.144 (0.102)	0.372 (0.163)
2-doughnut	Fixed-k	0.721 (0.336)	0.790 (0.285)	0.194 (0.015)	0.184 (0.048)	0.428 (0.054)	0.193 (0.000)	0.171 (0.019)
	Random-k	0.280 (0.161)	0.399 (0.161)	0.207 (0.133)	0.158 (0.092)	0.651 (0.070)	0.296 (0.093)	0.301 (0.088)
Difficult Doughnut	Fixed-k	0.802 (0.160)	0.789 (0.099)	0.152 (0.012)	0.035 (0.000)	0.020 (0.018)	0.153 (0.012)	0.153 (0.012)
	Random-k	0.470 (0.182)	0.455 (0.179)	0.206 (0.063)	0.035 (0.000)	0.012 (0.018)	0.183 (0.045)	0.165 (0.009)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.299 (0.054)	0.213 (0.053)	1.000 (0.000)	0.447 (0.113)	0.317 (0.071)
	Random-k	0.997 (0.019)	1.000 (0.000)	0.918 (0.110)	0.981 (0.038)	1.000 (0.000)	0.944 (0.056)	0.906 (0.091)
Fence	Fixed-k	0.487 (0.059)	0.458 (0.059)	0.322 (0.099)	0.267 (0.094)	0.523 (0.012)	0.360 (0.086)	0.334 (0.074)
	Random-k	0.431 (0.036)	0.412 (0.024)	0.392 (0.051)	0.515 (0.044)	0.527 (0.023)	0.395 (0.042)	0.406 (0.053)
E.coli	Fixed-k	0.639 (0.023)	0.625 (0.015)	0.311 (0.052)	0.307 (0.138)	0.590 (0.030)	0.408 (0.050)	0.307 (0.038)
	Random-k	0.659 (0.032)	0.635 (0.031)	0.591 (0.078)	0.563 (0.031)	0.562 (0.009)	0.579 (0.042)	0.585 (0.075)
Ionosphere	Fixed-k	0.251 (0.164)	0.295 (0.128)	0.098 (0.033)	0.056 (0.002)	0.114 (0.027)	0.077 (0.049)	0.069 (0.041)
	Random-k	0.118 (0.078)	0.150 (0.100)	0.199 (0.137)	0.092 (0.055)	0.119 (0.021)	0.143 (0.111)	0.167 (0.161)
Iris	Fixed-k	0.748 (0.099)	0.688 (0.083)	0.221 (0.084)	0.280 (0.119)	0.728 (0.026)	0.245 (0.123)	0.226 (0.043)
	Random-k	0.785 (0.050)	0.776 (0.048)	0.660 (0.115)	0.656 (0.043)	0.713 (0.018)	0.635 (0.048)	0.700 (0.018)
Wine	Fixed-k	0.784 (0.051)	0.779 (0.037)	0.259 (0.083)	0.717 (0.043)	0.743 (0.051)	0.140 (0.096)	0.166 (0.048)
	Random-k	0.836 (0.044)	0.790 (0.067)	0.564 (0.178)	0.759 (0.067)	0.759 (0.073)	0.664 (0.128)	0.460 (0.252)
Breast Cancer	Fixed-k	0.722 (0.159)	0.755 (0.089)	0.074 (0.035)	0.044 (0.000)	0.597 (0.148)	0.091 (0.062)	0.069 (0.023)
	Random-k	0.785 (0.045)	0.780 (0.055)	0.317 (0.303)	0.240 (0.190)	0.632 (0.164)	0.301 (0.263)	0.258 (0.288)
Optical Digits	Fixed-k	0.788 (0.027)	0.724 (0.037)	0.301 (0.026)	0.020 (0.000)	0.068 (0.012)	0.371 (0.040)	0.301 (0.028)
	Random-k	0.771 (0.022)	0.700 (0.039)	0.487 (0.047)	0.020 (0.000)	0.433 (0.023)	0.595 (0.067)	0.480 (0.020)
Pen Digits	Fixed-k	0.752 (0.016)	0.598 (0.044)	0.351 (0.018)	0.326 (0.007)	0.574 (0.005)	0.408 (0.076)	0.369 (0.000)
	Random-k	0.733 (0.001)	0.656 (0.005)	0.491 (0.000)	0.448 (0.003)	0.640 (0.008)	0.533 (0.042)	0.491 (0.000)
Magic Gamma	Fixed-k	0.028 (0.016)	0.017 (0.012)	0.021 (0.001)	0.005 (0.003)	0.080 (0.027)	0.008 (0.010)	0.021 (0.001)
	Random-k	0.015 (0.021)	0.015 (0.011)	0.018 (0.008)	0.002 (0.001)	0.123 (0.004)	0.036 (0.044)	0.019 (0.000)

Table 3: NMI measures of examined matrices using AL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RAWCT	RAWTQ	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.090 (0.013)	0.429 (0.123)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.831 (0.251)	0.960 (0.137)	0.662 (0.273)	0.616 (0.323)	0.432 (0.096)	0.661 (0.243)	0.661 (0.243)
2-doughnut	Fixed-k	0.848 (0.269)	0.936 (0.178)	0.796 (0.319)	0.134 (0.000)	0.234 (0.074)	0.845 (0.239)	0.845 (0.239)
	Random-k	0.248 (0.158)	0.340 (0.093)	0.138 (0.132)	0.190 (0.101)	0.572 (0.184)	0.111 (0.114)	0.110 (0.114)
Difficult Doughnut	Fixed-k	0.851 (0.080)	0.837 (0.038)	0.674 (0.265)	0.035 (0.000)	0.037 (0.074)	0.695 (0.254)	0.642 (0.265)
	Random-k	0.567 (0.239)	0.453 (0.203)	0.336 (0.157)	0.035 (0.000)	0.008 (0.009)	0.418 (0.203)	0.418 (0.203)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.349 (0.233)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	1.000 (0.000)	1.000 (0.000)	0.987 (0.040)	0.994 (0.021)	1.000 (0.000)	0.999 (0.002)	0.999 (0.002)
Fence	Fixed-k	0.534 (0.019)	0.525 (0.021)	0.518 (0.029)	0.300 (0.142)	0.559 (0.020)	0.526 (0.013)	0.526 (0.013)
	Random-k	0.478 (0.034)	0.448 (0.025)	0.449 (0.025)	0.500 (0.027)	0.556 (0.011)	0.449 (0.017)	0.441 (0.024)
E.coli	Fixed-k	0.665 (0.013)	0.678 (0.030)	0.656 (0.019)	0.135 (0.007)	0.664 (0.008)	0.599 (0.029)	0.649 (0.023)
	Random-k	0.685 (0.032)	0.669 (0.035)	0.630 (0.033)	0.566 (0.107)	0.616 (0.025)	0.631 (0.029)	0.626 (0.045)
Ionosphere	Fixed-k	0.191 (0.129)	0.274 (0.157)	0.129 (0.060)	0.040 (0.013)	0.135 (0.005)	0.152 (0.054)	0.116 (0.049)
	Random-k	0.126 (0.042)	0.124 (0.052)	0.123 (0.035)	0.082 (0.053)	0.125 (0.009)	0.134 (0.033)	0.113 (0.029)
Iris	Fixed-k	0.781 (0.065)	0.746 (0.022)	0.762 (0.062)	0.615 (0.053)	0.705 (0.011)	0.677 (0.075)	0.735 (0.042)
	Random-k	0.765 (0.038)	0.752 (0.025)	0.759 (0.039)	0.634 (0.028)	0.703 (0.010)	0.695 (0.071)	0.754 (0.012)
Wine	Fixed-k	0.791 (0.033)	0.777 (0.044)	0.736 (0.096)	0.717 (0.055)	0.826 (0.044)	0.815 (0.056)	0.754 (0.074)
	Random-k	0.853 (0.043)	0.843 (0.046)	0.839 (0.062)	0.728 (0.047)	0.844 (0.046)	0.840 (0.056)	0.834 (0.066)
Breast Cancer	Fixed-k	0.791 (0.038)	0.803 (0.023)	0.779 (0.049)	0.053 (0.000)	0.747 (0.073)	0.761 (0.084)	0.772 (0.054)
	Random-k	0.810 (0.026)	0.809 (0.027)	0.763 (0.060)	0.165 (0.275)	0.763 (0.044)	0.768 (0.047)	0.761 (0.060)
Optical Digits	Fixed-k	0.855 (0.019)	0.813 (0.022)	0.851 (0.015)	0.020 (0.000)	0.058 (0.006)	0.855 (0.015)	0.859 (0.004)
	Random-k	0.802 (0.015)	0.785 (0.025)	0.778 (0.025)	0.020 (0.000)	0.483 (0.012)	0.780 (0.021)	0.800 (0.007)
Pen Digits	Fixed-k	0.767 (0.017)	0.735 (0.001)	0.776 (0.005)	0.231 (0.017)	0.679 (0.002)	0.775 (0.004)	0.771 (0.000)
	Random-k	0.777 (0.005)	0.721 (0.016)	0.738 (0.015)	0.485 (0.043)	0.672 (0.019)	0.733 (0.010)	0.743 (0.000)
Magic Gamma	Fixed-k	0.029 (0.028)	0.036 (0.004)	0.038 (0.028)	0.003 (0.003)	0.122 (0.000)	0.033 (0.014)	0.027 (0.013)
	Random-k	0.026 (0.031)	0.067 (0.065)	0.057 (0.054)	0.000 (0.000)	0.113 (0.004)	0.063 (0.054)	0.061 (0.052)

Table 4: NMI measures of examined matrices using KM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RAWCT	RAWTQ	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.976 (0.082)	1.000 (0.000)	0.527 (0.144)	0.490 (0.050)	0.446 (0.012)	0.207 (0.047)	0.499 (0.087)
	Random-k	0.808 (0.234)	0.923 (0.111)	0.528 (0.231)	0.472 (0.098)	0.465 (0.009)	0.304 (0.132)	0.510 (0.175)
2-doughnut	Fixed-k	0.917 (0.178)	0.946 (0.168)	0.261 (0.131)	0.257 (0.162)	0.319 (0.069)	0.237 (0.100)	0.270 (0.141)
	Random-k	0.152 (0.184)	0.474 (0.218)	0.058 (0.083)	0.058 (0.003)	0.579 (0.029)	0.078 (0.063)	0.051 (0.016)
Difficult Doughnut	Fixed-k	0.842 (0.034)	0.823 (0.034)	0.612 (0.199)	0.000 (0.000)	0.018 (0.015)	0.374 (0.252)	0.700 (0.243)
	Random-k	0.849 (0.066)	0.788 (0.136)	0.809 (0.109)	0.000 (0.000)	0.003 (0.004)	0.424 (0.262)	0.837 (0.085)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.001)	0.994 (0.021)	0.967 (0.026)	0.917 (0.083)	0.634 (0.103)	0.991 (0.024)
	Random-k	1.000 (0.000)	0.996 (0.018)	0.998 (0.009)	0.985 (0.027)	0.955 (0.045)	0.783 (0.097)	0.999 (0.002)
Fence	Fixed-k	0.550 (0.025)	0.535 (0.033)	0.560 (0.113)	0.477 (0.016)	0.474 (0.028)	0.499 (0.069)	0.570 (0.019)
	Random-k	0.485 (0.028)	0.436 (0.025)	0.492 (0.067)	0.507 (0.020)	0.476 (0.011)	0.423 (0.064)	0.516 (0.037)
E.coli	Fixed-k	0.565 (0.022)	0.569 (0.029)	0.567 (0.024)	0.543 (0.008)	0.546 (0.009)	0.517 (0.031)	0.552 (0.013)
	Random-k	0.580 (0.038)	0.571 (0.048)	0.584 (0.018)	0.553 (0.014)	0.524 (0.006)	0.541 (0.032)	0.581 (0.015)
Ionosphere	Fixed-k	0.112 (0.021)	0.123 (0.036)	0.126 (0.017)	0.190 (0.000)	0.132 (0.002)	0.137 (0.057)	0.120 (0.009)
	Random-k	0.123 (0.013)	0.126 (0.017)	0.108 (0.020)	0.202 (0.015)	0.127 (0.003)	0.137 (0.104)	0.107 (0.014)
Iris	Fixed-k	0.769 (0.080)	0.706 (0.089)	0.785 (0.091)	0.613 (0.003)	0.797 (0.037)	0.452 (0.170)	0.734 (0.123)
	Random-k	0.816 (0.050)	0.789 (0.046)	0.747 (0.086)	0.637 (0.019)	0.694 (0.004)	0.667 (0.057)	0.743 (0.105)
Wine	Fixed-k	0.807 (0.031)	0.771 (0.063)	0.810 (0.055)	0.843 (0.012)	0.656 (0.016)	0.616 (0.128)	0.814 (0.058)
	Random-k	0.838 (0.054)	0.791 (0.047)	0.818 (0.134)	0.810 (0.033)	0.674 (0.004)	0.783 (0.166)	0.830 (0.071)
Breast Cancer	Fixed-k	0.323 (0.125)	0.750 (0.138)	0.238 (0.033)	0.201 (0.001)	0.722 (0.003)	0.426 (0.211)	0.221 (0.026)
	Random-k	0.793 (0.073)	0.793 (0.018)	0.344 (0.172)	0.564 (0.266)	0.732 (0.013)	0.620 (0.227)	0.628 (0.200)
Optical Digits	Fixed-k	0.836 (0.024)	0.780 (0.026)	0.811 (0.016)	0.018 (0.000)	0.613 (0.002)	0.812 (0.016)	0.776 (0.026)
	Random-k	0.791 (0.029)	0.770 (0.034)	0.757 (0.030)	0.018 (0.000)	0.609 (0.019)	0.757 (0.030)	0.794 (0.022)
Pen Digits	Fixed-k	0.771 (0.026)	0.706 (0.032)	0.781 (0.032)	0.559 (0.001)	0.650 (0.001)	0.781 (0.032)	0.747 (0.000)
	Random-k	0.757 (0.007)	0.627 (0.027)	0.725 (0.028)	0.609 (0.017)	0.653 (0.000)	0.725 (0.028)	0.736 (0.000)
Magic Gamma	Fixed-k	0.050 (0.015)	0.035 (0.007)	0.045 (0.024)	0.000 (0.000)	0.004 (0.000)	0.045 (0.024)	0.055 (0.003)
	Random-k	0.012 (0.025)	0.017 (0.010)	0.033 (0.028)	0.000 (0.000)	0.005 (0.000)	0.033 (0.028)	0.036 (0.023)

Table 5: NMI measures of examined matrices using PAM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RAWCT	RAWTQ	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.750 (0.175)	0.900 (0.145)	0.170 (0.069)	0.399 (0.031)	0.472 (0.012)	0.213 (0.028)	0.207 (0.051)
	Random-k	0.737 (0.215)	0.874 (0.136)	0.443 (0.152)	0.472 (0.076)	0.487 (0.008)	0.407 (0.146)	0.478 (0.123)
2-doughnut	Fixed-k	0.628 (0.281)	0.809 (0.240)	0.213 (0.080)	0.304 (0.057)	0.108 (0.095)	0.215 (0.100)	0.298 (0.150)
	Random-k	0.190 (0.159)	0.326 (0.137)	0.087 (0.102)	0.112 (0.085)	0.466 (0.083)	0.056 (0.032)	0.059 (0.064)
Difficult Doughnut	Fixed-k	0.604 (0.109)	0.520 (0.041)	0.265 (0.092)	0.035 (0.000)	0.015 (0.015)	0.294 (0.082)	0.351 (0.194)
	Random-k	0.459 (0.106)	0.416 (0.086)	0.297 (0.067)	0.035 (0.000)	0.010 (0.009)	0.773 (0.154)	0.729 (0.143)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.592 (0.097)	0.988 (0.006)	1.000 (0.000)	0.662 (0.080)	0.630 (0.090)
	Random-k	1.000 (0.000)	1.000 (0.000)	0.977 (0.049)	0.995 (0.006)	1.000 (0.000)	0.983 (0.034)	0.838 (0.113)
Fence	Fixed-k	0.515 (0.023)	0.491 (0.022)	0.506 (0.034)	0.455 (0.013)	0.549 (0.001)	0.590 (0.045)	0.414 (0.099)
	Random-k	0.472 (0.019)	0.453 (0.013)	0.428 (0.023)	0.451 (0.011)	0.548 (0.004)	0.467 (0.031)	0.533 (0.051)
E.coli	Fixed-k	0.585 (0.015)	0.592 (0.024)	0.521 (0.039)	0.581 (0.013)	0.622 (0.007)	0.497 (0.034)	0.485 (0.052)
	Random-k	0.593 (0.012)	0.596 (0.012)	0.587 (0.014)	0.572 (0.014)	0.546 (0.016)	0.540 (0.027)	0.572 (0.022)
Ionosphere	Fixed-k	0.228 (0.084)	0.145 (0.024)	0.063 (0.037)	0.121 (0.000)	0.130 (0.004)	0.066 (0.012)	0.108 (0.029)
	Random-k	0.170 (0.051)	0.130 (0.010)	0.134 (0.063)	0.123 (0.004)	0.132 (0.004)	0.098 (0.025)	0.132 (0.074)
Iris	Fixed-k	0.810 (0.072)	0.774 (0.073)	0.416 (0.103)	0.647 (0.032)	0.748 (0.015)	0.530 (0.081)	0.435 (0.156)
	Random-k	0.802 (0.050)	0.772 (0.036)	0.706 (0.094)	0.670 (0.021)	0.734 (0.006)	0.663 (0.023)	0.709 (0.059)
Wine	Fixed-k	0.805 (0.027)	0.793 (0.022)	0.483 (0.112)	0.860 (0.009)	0.755 (0.020)	0.592 (0.095)	0.629 (0.134)
	Random-k	0.843 (0.037)	0.826 (0.037)	0.831 (0.073)	0.840 (0.027)	0.731 (0.008)	0.804 (0.058)	0.766 (0.133)
Breast Cancer	Fixed-k	0.199 (0.131)	0.676 (0.221)	0.171 (0.044)	0.753 (0.003)	0.699 (0.003)	0.211 (0.025)	0.159 (0.038)
	Random-k	0.638 (0.274)	0.767 (0.025)	0.195 (0.098)	0.782 (0.006)	0.722 (0.012)	0.263 (0.075)	0.503 (0.275)
Optical Digits	Fixed-k	0.776 (0.065)	0.726 (0.043)	0.482 (0.033)	0.005 (0.002)	0.590 (0.029)	0.500 (0.032)	0.457 (0.027)
	Random-k	0.759 (0.036)	0.748 (0.030)	0.659 (0.045)	0.002 (0.001)	0.616 (0.009)	0.674 (0.058)	0.714 (0.022)
Pen Digits	Fixed-k	0.669 (0.002)	0.661 (0.004)	0.376 (0.033)	0.529 (0.008)	0.633 (0.001)	0.468 (0.003)	0.289 (0.000)
	Random-k	0.703 (0.032)	0.658 (0.037)	0.617 (0.020)	0.581 (0.006)	0.638 (0.015)	0.659 (0.046)	0.695 (0.000)
Magic Gamma	Fixed-k	0.029 (0.029)	0.041 (0.027)	0.016 (0.017)	0.000 (0.000)	0.003 (0.001)	0.013 (0.008)	0.011 (0.004)
	Random-k	0.035 (0.041)	0.012 (0.010)	0.018 (0.021)	0.000 (0.000)	0.010 (0.005)	0.036 (0.020)	0.006 (0.005)

Table 6: NMI measures of examined matrices using SPC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.953 (0.134)	0.980 (0.080)	1.000 (0.000)	0.284 (0.166)	0.450 (0.009)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.779 (0.226)	0.846 (0.140)	0.501 (0.228)	0.447 (0.073)	0.467 (0.009)	0.469 (0.177)	0.466 (0.179)
2-doughnut	Fixed-k	0.863 (0.244)	0.880 (0.219)	0.788 (0.307)	0.169 (0.000)	0.421 (0.064)	0.705 (0.317)	0.830 (0.276)
	Random-k	0.193 (0.132)	0.334 (0.100)	0.107 (0.110)	0.114 (0.087)	0.542 (0.019)	0.092 (0.105)	0.094 (0.105)
Difficult Doughnut	Fixed-k	0.809 (0.022)	0.739 (0.111)	0.539 (0.185)	0.191 (0.194)	0.018 (0.015)	0.470 (0.155)	0.551 (0.141)
	Random-k	0.532 (0.197)	0.420 (0.165)	0.320 (0.110)	0.201 (0.189)	0.003 (0.004)	0.341 (0.118)	0.365 (0.130)
5-gaussian	Fixed-k	0.997 (0.018)	1.000 (0.000)	0.953 (0.075)	0.967 (0.028)	1.000 (0.000)	1.000 (0.000)	0.911 (0.061)
	Random-k	0.995 (0.026)	1.000 (0.000)	0.955 (0.068)	0.988 (0.007)	1.000 (0.000)	0.959 (0.061)	0.902 (0.074)
Fence	Fixed-k	0.539 (0.033)	0.522 (0.024)	0.492 (0.059)	0.566 (0.024)	0.550 (0.005)	0.516 (0.007)	0.459 (0.050)
	Random-k	0.502 (0.016)	0.486 (0.015)	0.462 (0.023)	0.523 (0.050)	0.551 (0.002)	0.454 (0.023)	0.436 (0.029)
E.coli	Fixed-k	0.573 (0.025)	0.576 (0.019)	0.619 (0.040)	0.536 (0.011)	0.581 (0.025)	0.592 (0.035)	0.549 (0.055)
	Random-k	0.602 (0.022)	0.581 (0.028)	0.600 (0.020)	0.514 (0.016)	0.557 (0.019)	0.571 (0.024)	0.544 (0.046)
Ionosphere	Fixed-k	0.171 (0.092)	0.295 (0.135)	0.113 (0.034)	0.115 (0.015)	0.130 (0.000)	0.106 (0.021)	0.105 (0.022)
	Random-k	0.122 (0.029)	0.137 (0.070)	0.121 (0.032)	0.187 (0.019)	0.123 (0.008)	0.113 (0.023)	0.117 (0.037)
Iris	Fixed-k	0.808 (0.071)	0.799 (0.057)	0.754 (0.059)	0.464 (0.049)	0.790 (0.039)	0.673 (0.056)	0.726 (0.060)
	Random-k	0.787 (0.053)	0.765 (0.039)	0.750 (0.057)	0.623 (0.013)	0.695 (0.004)	0.664 (0.054)	0.682 (0.154)
Wine	Fixed-k	0.810 (0.028)	0.793 (0.024)	0.795 (0.065)	0.800 (0.017)	0.855 (0.014)	0.859 (0.046)	0.810 (0.020)
	Random-k	0.867 (0.032)	0.863 (0.038)	0.873 (0.027)	0.819 (0.021)	0.886 (0.008)	0.866 (0.028)	0.852 (0.083)
Breast Cancer	Fixed-k	0.648 (0.225)	0.784 (0.030)	0.728 (0.030)	0.053 (0.000)	0.668 (0.009)	0.777 (0.030)	0.741 (0.027)
	Random-k	0.761 (0.021)	0.751 (0.022)	0.757 (0.023)	0.552 (0.285)	0.700 (0.002)	0.735 (0.037)	0.756 (0.018)
Optical Digits	Fixed-k	0.764 (0.048)	0.793 (0.044)	0.800 (0.037)	0.003 (0.000)	0.574 (0.011)	0.800 (0.037)	0.779 (0.020)
	Random-k	0.738 (0.054)	0.726 (0.020)	0.690 (0.027)	0.003 (0.001)	0.576 (0.022)	0.693 (0.031)	0.755 (0.013)
Pen Digits	Fixed-k	0.684 (0.006)	0.672 (0.038)	0.754 (0.019)	0.536 (0.021)	0.629 (0.012)	0.721 (0.002)	0.792 (0.000)
	Random-k	0.721 (0.001)	0.647 (0.019)	0.686 (0.001)	0.607 (0.007)	0.628 (0.013)	0.679 (0.030)	0.693 (0.000)
Magic Gamma	Fixed-k	0.046 (0.012)	0.037 (0.004)	0.030 (0.020)	0.000 (0.000)	0.005 (0.002)	0.031 (0.025)	0.025 (0.006)
	Random-k	0.013 (0.024)	0.010 (0.012)	0.010 (0.013)	0.000 (0.000)	0.009 (0.007)	0.016 (0.021)	0.045 (0.037)

Table 7: NMI measures of examined matrices using METIS as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RAWCT	RAWTQ	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.944 (0.167)	0.444 (0.004)	0.088 (0.096)	0.000 (0.000)
	Random-k	0.820 (0.254)	1.000 (0.000)	0.638 (0.309)	0.443 (0.029)	0.464 (0.011)	0.340 (0.293)	0.588 (0.303)
2-doughnut	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.632 (0.451)	0.936 (0.021)	0.281 (0.024)	1.000 (0.000)	0.000 (0.000)
	Random-k	0.231 (0.313)	0.862 (0.283)	0.037 (0.028)	0.065 (0.021)	0.531 (0.000)	0.037 (0.033)	0.041 (0.032)
Difficult Doughnut	Fixed-k	0.919 (0.033)	0.929 (0.000)	0.883 (0.036)	0.029 (0.000)	0.013 (0.013)	0.905 (0.048)	0.000 (0.000)
	Random-k	0.917 (0.036)	0.929 (0.000)	0.915 (0.028)	0.029 (0.000)	0.005 (0.005)	0.929 (0.000)	0.919 (0.037)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.999 (0.004)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.999 (0.002)	1.000 (0.000)	1.000 (0.000)	0.998 (0.012)
Fence	Fixed-k	0.510 (0.003)	0.508 (0.005)	0.507 (0.020)	0.494 (0.020)	0.501 (0.010)	0.515 (0.020)	0.000 (0.000)
	Random-k	0.503 (0.007)	0.473 (0.031)	0.500 (0.009)	0.491 (0.015)	0.484 (0.005)	0.495 (0.021)	0.000 (0.000)
E.coli	Fixed-k	0.524 (0.010)	0.520 (0.016)	0.509 (0.011)	0.503 (0.004)	0.464 (0.005)	0.503 (0.017)	0.000 (0.000)
	Random-k	0.518 (0.012)	0.515 (0.007)	0.508 (0.009)	0.517 (0.005)	0.468 (0.007)	0.512 (0.020)	0.513 (0.011)
Ionosphere	Fixed-k	0.096 (0.005)	0.108 (0.007)	0.082 (0.016)	0.117 (0.000)	0.114 (0.003)	0.010 (0.013)	0.000 (0.000)
	Random-k	0.107 (0.010)	0.109 (0.006)	0.106 (0.002)	0.120 (0.004)	0.118 (0.003)	0.105 (0.007)	0.108 (0.005)
Iris	Fixed-k	0.859 (0.023)	0.857 (0.023)	0.853 (0.013)	0.647 (0.024)	0.800 (0.033)	0.744 (0.092)	0.000 (0.000)
	Random-k	0.863 (0.035)	0.830 (0.074)	0.858 (0.017)	0.658 (0.006)	0.698 (0.009)	0.668 (0.057)	0.830 (0.081)
Wine	Fixed-k	0.781 (0.017)	0.771 (0.016)	0.774 (0.030)	0.726 (0.000)	0.679 (0.012)	0.770 (0.079)	0.000 (0.000)
	Random-k	0.771 (0.025)	0.760 (0.027)	0.778 (0.032)	0.729 (0.010)	0.690 (0.012)	0.802 (0.023)	0.781 (0.028)
Breast Cancer	Fixed-k	0.510 (0.005)	0.497 (0.012)	0.102 (0.138)	0.446 (0.000)	0.512 (0.000)	0.305 (0.215)	0.174 (0.196)
	Random-k	0.495 (0.014)	0.494 (0.008)	0.390 (0.126)	0.489 (0.017)	0.512 (0.000)	0.316 (0.219)	0.360 (0.161)
Optical Digits	Fixed-k	0.858 (0.026)	0.761 (0.020)	0.851 (0.035)	0.014 (0.008)	0.007 (0.004)	0.631 (0.032)	0.808 (0.018)
	Random-k	0.788 (0.034)	0.746 (0.022)	0.730 (0.050)	0.418 (0.029)	0.586 (0.006)	0.702 (0.029)	0.783 (0.033)
Pen Digits	Fixed-k	0.751 (0.008)	0.686 (0.027)	0.743 (0.030)	0.000 (0.000)	0.000 (0.000)	0.598 (0.001)	0.713 (0.000)
	Random-k	0.669 (0.003)	0.623 (0.017)	0.672 (0.001)	0.000 (0.000)	0.000 (0.000)	0.672 (0.005)	0.670 (0.000)
Magic Gamma	Fixed-k	0.001 (0.001)	0.001 (0.003)	0.014 (0.019)	0.000 (0.000)	0.001 (0.000)	0.003 (0.004)	0.002 (0.002)
	Random-k	0.003 (0.002)	0.000 (0.000)	0.021 (0.036)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.010 (0.006)

Table 8: NMI measures of examined matrices using gSPEC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RAWCT	RAWTQ	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.530 (0.475)	0.500 (0.039)	0.446 (0.010)	0.439 (0.188)	0.408 (0.483)
	Random-k	0.788 (0.234)	0.903 (0.113)	0.516 (0.224)	0.459 (0.071)	0.464 (0.010)	0.248 (0.259)	0.515 (0.167)
2-doughnut	Fixed-k	0.902 (0.186)	0.934 (0.180)	0.790 (0.320)	0.193 (0.000)	0.303 (0.058)	0.168 (0.167)	0.848 (0.245)
	Random-k	0.158 (0.183)	0.456 (0.226)	0.052 (0.055)	0.056 (0.005)	0.540 (0.024)	0.035 (0.024)	0.043 (0.017)
Difficult Doughnut	Fixed-k	0.858 (0.032)	0.829 (0.066)	0.281 (0.184)	0.007 (0.009)	0.018 (0.014)	0.655 (0.281)	0.236 (0.184)
	Random-k	0.795 (0.140)	0.723 (0.197)	0.537 (0.146)	0.006 (0.009)	0.003 (0.004)	0.568 (0.329)	0.512 (0.173)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.903 (0.093)	0.982 (0.001)	1.000 (0.000)	0.939 (0.051)	0.844 (0.093)
	Random-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.001)	0.992 (0.007)	1.000 (0.000)	0.900 (0.004)	0.933 (0.097)
Fence	Fixed-k	0.531 (0.022)	0.524 (0.015)	0.469 (0.038)	0.452 (0.021)	0.539 (0.012)	0.585 (0.035)	0.422 (0.055)
	Random-k	0.511 (0.019)	0.493 (0.014)	0.475 (0.021)	0.494 (0.016)	0.541 (0.018)	0.452 (0.034)	0.457 (0.037)
E.coli	Fixed-k	0.564 (0.030)	0.576 (0.013)	0.539 (0.025)	0.567 (0.011)	0.564 (0.013)	0.525 (0.031)	0.517 (0.047)
	Random-k	0.610 (0.019)	0.585 (0.025)	0.584 (0.018)	0.557 (0.015)	0.583 (0.008)	0.539 (0.025)	0.556 (0.042)
Ionosphere	Fixed-k	0.117 (0.038)	0.133 (0.015)	0.067 (0.009)	0.168 (0.000)	0.131 (0.003)	0.116 (0.012)	0.064 (0.008)
	Random-k	0.133 (0.012)	0.128 (0.011)	0.124 (0.017)	0.174 (0.012)	0.126 (0.003)	0.083 (0.038)	0.129 (0.010)
Iris	Fixed-k	0.851 (0.025)	0.829 (0.040)	0.784 (0.124)	0.657 (0.000)	0.745 (0.052)	0.494 (0.142)	0.753 (0.163)
	Random-k	0.824 (0.046)	0.799 (0.046)	0.760 (0.071)	0.643 (0.017)	0.676 (0.004)	0.535 (0.102)	0.790 (0.055)
Wine	Fixed-k	0.800 (0.026)	0.788 (0.024)	0.793 (0.063)	0.818 (0.011)	0.868 (0.017)	0.821 (0.080)	0.797 (0.081)
	Random-k	0.845 (0.038)	0.829 (0.042)	0.859 (0.033)	0.842 (0.022)	0.817 (0.008)	0.729 (0.155)	0.829 (0.089)
Breast Cancer	Fixed-k	0.800 (0.018)	0.797 (0.015)	0.183 (0.066)	0.139 (0.012)	0.783 (0.000)	0.381 (0.119)	0.185 (0.063)
	Random-k	0.759 (0.154)	0.805 (0.014)	0.234 (0.119)	0.388 (0.262)	0.794 (0.005)	0.345 (0.181)	0.295 (0.167)
Optical Digits	Fixed-k	0.852 (0.021)	0.823 (0.031)	0.752 (0.037)	0.032 (0.005)	0.601 (0.011)	0.748 (0.056)	0.760 (0.050)
	Random-k	0.816 (0.031)	0.782 (0.038)	0.750 (0.028)	0.478 (0.013)	0.608 (0.019)	0.743 (0.034)	0.777 (0.034)
Pen Digits	Fixed-k	0.790 (0.000)	0.744 (0.005)	0.666 (0.007)	0.601 (0.007)	0.672 (0.011)	0.655 (0.025)	0.665 (0.000)
	Random-k	0.714 (0.008)	0.694 (0.004)	0.706 (0.008)	0.622 (0.010)	0.715 (0.024)	0.635 (0.001)	0.672 (0.000)
Magic Gamma	Fixed-k	0.006 (0.003)	0.001 (0.001)	0.002 (0.001)	0.000 (0.000)	0.002 (0.000)	0.043 (0.003)	0.003 (0.000)
	Random-k	0.005 (0.002)	0.000 (0.000)	0.003 (0.003)	0.000 (0.000)	0.002 (0.000)	0.049 (0.030)	0.001 (0.000)

Table 9: Jaccard measures of examined matrices using SL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.984 (0.079)	0.983 (0.085)	0.979 (0.105)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
2-doughnut	Fixed-k	0.927 (0.180)	0.969 (0.107)	0.919 (0.187)	0.473 (0.002)	0.567 (0.216)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.479 (0.091)	0.547 (0.185)	0.496 (0.130)	0.460 (0.005)	0.459 (0.000)	0.526 (0.160)	0.515 (0.162)
Difficult Doughnut	Fixed-k	0.592 (0.189)	0.550 (0.157)	0.542 (0.150)	0.490 (0.000)	0.489 (0.003)	0.479 (0.016)	0.497 (0.055)
	Random-k	0.736 (0.214)	0.549 (0.152)	0.651 (0.205)	0.490 (0.000)	0.489 (0.003)	0.651 (0.222)	0.702 (0.222)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.197 (0.000)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	1.000 (0.000)	1.000 (0.000)	0.993 (0.050)	0.940 (0.133)	1.000 (0.000)	0.964 (0.108)	0.964 (0.108)
Fence	Fixed-k	0.333 (0.047)	0.334 (0.041)	0.319 (0.048)	0.264 (0.017)	0.224 (0.000)	0.330 (0.045)	0.321 (0.047)
	Random-k	0.348 (0.036)	0.333 (0.032)	0.325 (0.047)	0.323 (0.031)	0.227 (0.000)	0.326 (0.042)	0.331 (0.038)
E.coli	Fixed-k	0.585 (0.081)	0.560 (0.095)	0.522 (0.094)	0.267 (0.003)	0.454 (0.057)	0.481 (0.055)	0.522 (0.073)
	Random-k	0.611 (0.097)	0.609 (0.106)	0.548 (0.092)	0.269 (0.002)	0.472 (0.006)	0.505 (0.079)	0.611 (0.140)
Ionosphere	Fixed-k	0.493 (0.036)	0.492 (0.034)	0.501 (0.028)	0.532 (0.006)	0.538 (0.000)	0.539 (0.001)	0.518 (0.033)
	Random-k	0.481 (0.039)	0.482 (0.023)	0.501 (0.033)	0.533 (0.003)	0.538 (0.000)	0.512 (0.035)	0.481 (0.024)
Iris	Fixed-k	0.629 (0.115)	0.588 (0.069)	0.606 (0.110)	0.475 (0.068)	0.591 (0.002)	0.564 (0.012)	0.590 (0.095)
	Random-k	0.639 (0.096)	0.601 (0.087)	0.622 (0.124)	0.557 (0.040)	0.584 (0.000)	0.577 (0.016)	0.663 (0.146)
Wine	Fixed-k	0.470 (0.103)	0.488 (0.086)	0.434 (0.089)	0.338 (0.000)	0.330 (0.000)	0.402 (0.112)	0.433 (0.092)
	Random-k	0.517 (0.085)	0.473 (0.118)	0.466 (0.110)	0.337 (0.001)	0.334 (0.002)	0.403 (0.112)	0.480 (0.102)
Breast Cancer	Fixed-k	0.605 (0.125)	0.558 (0.070)	0.539 (0.008)	0.519 (0.000)	0.544 (0.000)	0.544 (0.000)	0.540 (0.006)
	Random-k	0.669 (0.161)	0.691 (0.163)	0.592 (0.142)	0.519 (0.000)	0.544 (0.000)	0.544 (0.001)	0.591 (0.132)
Optical Digits	Fixed-k	0.120 (0.013)	0.120 (0.013)	0.127 (0.011)	0.100 (0.000)	0.100 (0.000)	0.127 (0.012)	0.121 (0.000)
	Random-k	0.128 (0.016)	0.125 (0.014)	0.120 (0.017)	0.100 (0.000)	0.100 (0.000)	0.119 (0.006)	0.121 (0.000)
Pen Digits	Fixed-k	0.150 (0.044)	0.165 (0.059)	0.118 (0.012)	0.100 (0.000)	0.100 (0.000)	0.135 (0.029)	0.106 (0.000)
	Random-k	0.125 (0.025)	0.125 (0.025)	0.125 (0.025)	0.100 (0.000)	0.100 (0.000)	0.125 (0.025)	0.100 (0.000)
Magic Gamma	Fixed-k	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)
	Random-k	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)	0.542 (0.000)

Table 10: Jaccard measures of examined matrices using CL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.720 (0.237)	0.807 (0.234)	0.468 (0.002)	0.470 (0.013)	0.677 (0.054)	0.469 (0.003)	0.468 (0.003)
	Random-k	0.867 (0.178)	0.819 (0.195)	0.486 (0.085)	0.623 (0.125)	0.670 (0.031)	0.444 (0.049)	0.541 (0.091)
2-doughnut	Fixed-k	0.793 (0.243)	0.835 (0.224)	0.458 (0.002)	0.462 (0.003)	0.612 (0.040)	0.458 (0.000)	0.460 (0.002)
	Random-k	0.474 (0.079)	0.535 (0.109)	0.453 (0.053)	0.421 (0.050)	0.763 (0.048)	0.485 (0.033)	0.487 (0.030)
Difficult Doughnut	Fixed-k	0.862 (0.122)	0.846 (0.087)	0.462 (0.002)	0.490 (0.000)	0.355 (0.020)	0.462 (0.002)	0.462 (0.002)
	Random-k	0.589 (0.141)	0.578 (0.142)	0.464 (0.008)	0.490 (0.000)	0.352 (0.021)	0.462 (0.007)	0.460 (0.001)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.209 (0.016)	0.200 (0.013)	1.000 (0.000)	0.263 (0.064)	0.215 (0.022)
	Random-k	0.993 (0.050)	1.000 (0.000)	0.822 (0.214)	0.961 (0.090)	1.000 (0.000)	0.859 (0.144)	0.785 (0.196)
Fence	Fixed-k	0.311 (0.041)	0.295 (0.036)	0.248 (0.030)	0.238 (0.029)	0.348 (0.016)	0.252 (0.029)	0.251 (0.024)
	Random-k	0.279 (0.021)	0.268 (0.013)	0.265 (0.026)	0.339 (0.040)	0.359 (0.020)	0.262 (0.020)	0.274 (0.024)
E.coli	Fixed-k	0.421 (0.051)	0.417 (0.039)	0.205 (0.024)	0.340 (0.065)	0.442 (0.067)	0.260 (0.049)	0.196 (0.013)
	Random-k	0.532 (0.102)	0.442 (0.078)	0.431 (0.119)	0.397 (0.082)	0.422 (0.030)	0.408 (0.032)	0.393 (0.110)
Ionosphere	Fixed-k	0.535 (0.116)	0.562 (0.101)	0.537 (0.010)	0.504 (0.002)	0.423 (0.009)	0.511 (0.051)	0.524 (0.019)
	Random-k	0.435 (0.054)	0.454 (0.074)	0.540 (0.074)	0.476 (0.038)	0.420 (0.009)	0.462 (0.083)	0.545 (0.072)
Iris	Fixed-k	0.685 (0.127)	0.588 (0.068)	0.322 (0.037)	0.346 (0.055)	0.615 (0.052)	0.332 (0.039)	0.315 (0.006)
	Random-k	0.705 (0.090)	0.690 (0.086)	0.578 (0.087)	0.569 (0.050)	0.622 (0.035)	0.552 (0.031)	0.599 (0.034)
Wine	Fixed-k	0.755 (0.060)	0.743 (0.044)	0.333 (0.030)	0.681 (0.050)	0.699 (0.070)	0.325 (0.013)	0.316 (0.010)
	Random-k	0.821 (0.053)	0.757 (0.097)	0.519 (0.126)	0.735 (0.086)	0.710 (0.087)	0.606 (0.134)	0.478 (0.164)
Breast Cancer	Fixed-k	0.827 (0.137)	0.864 (0.070)	0.534 (0.024)	0.519 (0.000)	0.764 (0.101)	0.519 (0.041)	0.542 (0.008)
	Random-k	0.887 (0.026)	0.883 (0.034)	0.608 (0.181)	0.480 (0.140)	0.781 (0.117)	0.618 (0.144)	0.620 (0.141)
Optical Digits	Fixed-k	0.535 (0.062)	0.457 (0.050)	0.106 (0.004)	0.100 (0.000)	0.100 (0.000)	0.122 (0.009)	0.106 (0.003)
	Random-k	0.526 (0.054)	0.405 (0.057)	0.162 (0.025)	0.100 (0.000)	0.190 (0.015)	0.277 (0.094)	0.148 (0.006)
Pen Digits	Fixed-k	0.497 (0.015)	0.275 (0.055)	0.113 (0.003)	0.114 (0.003)	0.280 (0.001)	0.135 (0.022)	0.116 (0.000)
	Random-k	0.490 (0.020)	0.367 (0.015)	0.170 (0.013)	0.142 (0.001)	0.354 (0.020)	0.227 (0.051)	0.158 (0.000)
Magic Gamma	Fixed-k	0.416 (0.039)	0.366 (0.013)	0.525 (0.001)	0.507 (0.018)	0.525 (0.019)	0.522 (0.015)	0.524 (0.000)
	Random-k	0.385 (0.023)	0.386 (0.017)	0.491 (0.040)	0.470 (0.007)	0.542 (0.002)	0.483 (0.070)	0.479 (0.037)

Table 11: Jaccard measures of examined matrices using AL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.478 (0.003)	0.608 (0.071)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.875 (0.183)	0.968 (0.109)	0.750 (0.197)	0.722 (0.228)	0.616 (0.058)	0.746 (0.179)	0.746 (0.179)
2-doughnut	Fixed-k	0.883 (0.202)	0.949 (0.142)	0.852 (0.229)	0.465 (0.000)	0.453 (0.036)	0.875 (0.193)	0.875 (0.193)
	Random-k	0.460 (0.079)	0.503 (0.043)	0.402 (0.063)	0.442 (0.050)	0.698 (0.148)	0.390 (0.056)	0.390 (0.056)
Difficult Doughnut	Fixed-k	0.901 (0.065)	0.889 (0.031)	0.766 (0.198)	0.490 (0.000)	0.360 (0.047)	0.780 (0.196)	0.737 (0.207)
	Random-k	0.676 (0.176)	0.582 (0.154)	0.514 (0.102)	0.490 (0.000)	0.343 (0.011)	0.565 (0.145)	0.565 (0.145)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.263 (0.082)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	1.000 (0.000)	1.000 (0.000)	0.964 (0.106)	0.986 (0.057)	1.000 (0.000)	0.999 (0.002)	0.999 (0.002)
Fence	Fixed-k	0.341 (0.017)	0.339 (0.017)	0.333 (0.019)	0.248 (0.038)	0.396 (0.032)	0.339 (0.012)	0.339 (0.012)
	Random-k	0.308 (0.022)	0.288 (0.014)	0.289 (0.016)	0.321 (0.020)	0.386 (0.019)	0.288 (0.011)	0.284 (0.013)
E.coli	Fixed-k	0.466 (0.059)	0.551 (0.105)	0.454 (0.045)	0.269 (0.003)	0.583 (0.026)	0.369 (0.036)	0.471 (0.069)
	Random-k	0.609 (0.109)	0.530 (0.110)	0.414 (0.090)	0.515 (0.091)	0.494 (0.058)	0.480 (0.100)	0.403 (0.116)
Ionosphere	Fixed-k	0.501 (0.084)	0.541 (0.118)	0.452 (0.053)	0.517 (0.011)	0.434 (0.004)	0.461 (0.045)	0.434 (0.055)
	Random-k	0.448 (0.031)	0.436 (0.036)	0.443 (0.025)	0.487 (0.034)	0.425 (0.011)	0.444 (0.030)	0.444 (0.015)
Iris	Fixed-k	0.705 (0.118)	0.632 (0.038)	0.671 (0.114)	0.488 (0.023)	0.603 (0.009)	0.603 (0.103)	0.620 (0.077)
	Random-k	0.665 (0.072)	0.641 (0.043)	0.656 (0.068)	0.508 (0.039)	0.612 (0.017)	0.620 (0.060)	0.640 (0.019)
Wine	Fixed-k	0.764 (0.038)	0.742 (0.051)	0.703 (0.114)	0.670 (0.068)	0.821 (0.068)	0.802 (0.064)	0.717 (0.093)
	Random-k	0.845 (0.051)	0.832 (0.054)	0.833 (0.077)	0.690 (0.061)	0.813 (0.078)	0.829 (0.070)	0.815 (0.094)
Breast Cancer	Fixed-k	0.886 (0.024)	0.893 (0.016)	0.882 (0.026)	0.510 (0.000)	0.864 (0.051)	0.866 (0.053)	0.878 (0.029)
	Random-k	0.899 (0.014)	0.898 (0.015)	0.873 (0.034)	0.578 (0.139)	0.877 (0.028)	0.876 (0.027)	0.871 (0.034)
Optical Digits	Fixed-k	0.709 (0.056)	0.592 (0.056)	0.696 (0.058)	0.100 (0.000)	0.100 (0.000)	0.704 (0.052)	0.743 (0.005)
	Random-k	0.590 (0.033)	0.528 (0.060)	0.545 (0.054)	0.100 (0.000)	0.201 (0.023)	0.548 (0.051)	0.574 (0.051)
Pen Digits	Fixed-k	0.490 (0.011)	0.477 (0.017)	0.458 (0.013)	0.104 (0.000)	0.373 (0.004)	0.457 (0.014)	0.471 (0.000)
	Random-k	0.563 (0.012)	0.418 (0.024)	0.474 (0.003)	0.162 (0.011)	0.351 (0.010)	0.490 (0.013)	0.502 (0.000)
Magic Gamma	Fixed-k	0.403 (0.028)	0.385 (0.007)	0.460 (0.047)	0.542 (0.000)	0.545 (0.000)	0.466 (0.047)	0.478 (0.065)
	Random-k	0.421 (0.054)	0.483 (0.066)	0.458 (0.072)	0.430 (0.014)	0.542 (0.002)	0.470 (0.074)	0.472 (0.072)

Table 12: Jaccard measures of examined matrices using KM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.982 (0.063)	1.000 (0.000)	0.611 (0.118)	0.659 (0.028)	0.630 (0.009)	0.465 (0.004)	0.581 (0.080)
	Random-k	0.867 (0.161)	0.947 (0.077)	0.676 (0.157)	0.646 (0.066)	0.644 (0.007)	0.499 (0.072)	0.657 (0.117)
2-doughnut	Fixed-k	0.933 (0.145)	0.959 (0.125)	0.395 (0.048)	0.440 (0.087)	0.533 (0.044)	0.461 (0.036)	0.396 (0.035)
	Random-k	0.411 (0.107)	0.594 (0.153)	0.361 (0.042)	0.363 (0.002)	0.715 (0.024)	0.382 (0.043)	0.358 (0.011)
Difficult Doughnut	Fixed-k	0.894 (0.027)	0.877 (0.028)	0.692 (0.157)	0.495 (0.000)	0.336 (0.009)	0.564 (0.168)	0.785 (0.177)
	Random-k	0.898 (0.057)	0.847 (0.116)	0.863 (0.095)	0.495 (0.000)	0.328 (0.002)	0.589 (0.180)	0.887 (0.075)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.001)	0.986 (0.048)	0.949 (0.055)	0.840 (0.160)	0.377 (0.086)	0.981 (0.055)
	Random-k	1.000 (0.000)	0.988 (0.056)	0.997 (0.016)	0.975 (0.065)	0.856 (0.144)	0.542 (0.181)	0.999 (0.002)
Fence	Fixed-k	0.350 (0.023)	0.345 (0.026)	0.286 (0.060)	0.326 (0.016)	0.322 (0.022)	0.322 (0.044)	0.362 (0.017)
	Random-k	0.317 (0.021)	0.282 (0.012)	0.287 (0.042)	0.346 (0.028)	0.317 (0.011)	0.271 (0.042)	0.346 (0.035)
E.coli	Fixed-k	0.325 (0.022)	0.325 (0.036)	0.317 (0.030)	0.304 (0.021)	0.311 (0.027)	0.290 (0.031)	0.307 (0.030)
	Random-k	0.371 (0.099)	0.393 (0.118)	0.313 (0.026)	0.311 (0.025)	0.285 (0.004)	0.330 (0.096)	0.306 (0.019)
Ionosphere	Fixed-k	0.402 (0.011)	0.421 (0.031)	0.368 (0.036)	0.420 (0.000)	0.431 (0.002)	0.499 (0.055)	0.380 (0.036)
	Random-k	0.423 (0.012)	0.425 (0.015)	0.409 (0.014)	0.416 (0.002)	0.429 (0.003)	0.457 (0.077)	0.406 (0.013)
Iris	Fixed-k	0.736 (0.097)	0.664 (0.097)	0.746 (0.122)	0.555 (0.003)	0.772 (0.049)	0.442 (0.123)	0.692 (0.147)
	Random-k	0.756 (0.098)	0.711 (0.084)	0.675 (0.107)	0.576 (0.015)	0.637 (0.005)	0.564 (0.062)	0.672 (0.133)
Wine	Fixed-k	0.780 (0.038)	0.726 (0.075)	0.782 (0.076)	0.846 (0.021)	0.601 (0.020)	0.543 (0.147)	0.791 (0.089)
	Random-k	0.823 (0.075)	0.764 (0.065)	0.676 (0.169)	0.793 (0.046)	0.624 (0.005)	0.777 (0.180)	0.811 (0.102)
Breast Cancer	Fixed-k	0.472 (0.105)	0.851 (0.123)	0.418 (0.017)	0.418 (0.000)	0.854 (0.002)	0.584 (0.133)	0.419 (0.004)
	Random-k	0.890 (0.064)	0.894 (0.009)	0.500 (0.147)	0.688 (0.232)	0.861 (0.008)	0.738 (0.199)	0.738 (0.191)
Optical Digits	Fixed-k	0.660 (0.055)	0.571 (0.043)	0.619 (0.033)	0.100 (0.000)	0.375 (0.003)	0.620 (0.033)	0.547 (0.034)
	Random-k	0.601 (0.057)	0.572 (0.063)	0.555 (0.053)	0.100 (0.000)	0.376 (0.020)	0.555 (0.053)	0.623 (0.048)
Pen Digits	Fixed-k	0.536 (0.055)	0.463 (0.050)	0.567 (0.066)	0.233 (0.001)	0.401 (0.001)	0.567 (0.066)	0.497 (0.000)
	Random-k	0.543 (0.009)	0.356 (0.036)	0.506 (0.041)	0.287 (0.019)	0.408 (0.003)	0.506 (0.041)	0.530 (0.000)
Magic Gamma	Fixed-k	0.378 (0.005)	0.373 (0.004)	0.362 (0.020)	0.383 (0.000)	0.372 (0.002)	0.362 (0.020)	0.342 (0.001)
	Random-k	0.363 (0.010)	0.376 (0.008)	0.374 (0.020)	0.386 (0.001)	0.382 (0.001)	0.374 (0.020)	0.369 (0.011)

Table 13: Jaccard measures of examined matrices using PAM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.805 (0.138)	0.923 (0.113)	0.452 (0.033)	0.596 (0.021)	0.650 (0.009)	0.463 (0.002)	0.465 (0.006)
	Random-k	0.813 (0.149)	0.906 (0.104)	0.605 (0.106)	0.648 (0.055)	0.660 (0.006)	0.592 (0.097)	0.620 (0.095)
2-doughnut	Fixed-k	0.715 (0.202)	0.851 (0.184)	0.451 (0.030)	0.478 (0.024)	0.393 (0.051)	0.449 (0.037)	0.498 (0.100)
	Random-k	0.429 (0.078)	0.501 (0.073)	0.377 (0.053)	0.394 (0.046)	0.627 (0.067)	0.361 (0.022)	0.365 (0.038)
Difficult Doughnut	Fixed-k	0.683 (0.097)	0.610 (0.034)	0.478 (0.043)	0.490 (0.000)	0.335 (0.010)	0.499 (0.045)	0.531 (0.135)
	Random-k	0.570 (0.082)	0.538 (0.066)	0.478 (0.024)	0.490 (0.000)	0.334 (0.007)	0.837 (0.122)	0.793 (0.125)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.369 (0.084)	0.987 (0.009)	1.000 (0.000)	0.404 (0.090)	0.363 (0.073)
	Random-k	1.000 (0.000)	1.000 (0.000)	0.950 (0.111)	0.994 (0.006)	1.000 (0.000)	0.967 (0.064)	0.634 (0.217)
Fence	Fixed-k	0.329 (0.018)	0.310 (0.018)	0.329 (0.026)	0.289 (0.007)	0.369 (0.002)	0.412 (0.035)	0.282 (0.052)
	Random-k	0.303 (0.013)	0.290 (0.007)	0.273 (0.016)	0.289 (0.007)	0.364 (0.005)	0.302 (0.027)	0.355 (0.049)
E.coli	Fixed-k	0.314 (0.021)	0.365 (0.063)	0.271 (0.033)	0.319 (0.019)	0.376 (0.014)	0.267 (0.023)	0.273 (0.045)
	Random-k	0.318 (0.024)	0.325 (0.023)	0.311 (0.017)	0.312 (0.021)	0.297 (0.012)	0.291 (0.014)	0.323 (0.041)
Ionosphere	Fixed-k	0.515 (0.071)	0.443 (0.021)	0.403 (0.027)	0.419 (0.000)	0.432 (0.002)	0.394 (0.005)	0.435 (0.041)
	Random-k	0.466 (0.044)	0.428 (0.009)	0.431 (0.053)	0.412 (0.003)	0.429 (0.003)	0.400 (0.018)	0.428 (0.064)
Iris	Fixed-k	0.780 (0.090)	0.705 (0.090)	0.393 (0.072)	0.575 (0.035)	0.681 (0.021)	0.489 (0.064)	0.405 (0.111)
	Random-k	0.727 (0.088)	0.676 (0.064)	0.629 (0.086)	0.583 (0.035)	0.672 (0.016)	0.598 (0.024)	0.591 (0.096)
Wine	Fixed-k	0.780 (0.031)	0.763 (0.025)	0.445 (0.093)	0.864 (0.011)	0.713 (0.028)	0.541 (0.099)	0.566 (0.145)
	Random-k	0.835 (0.045)	0.815 (0.044)	0.810 (0.096)	0.845 (0.028)	0.680 (0.011)	0.788 (0.070)	0.721 (0.183)
Breast Cancer	Fixed-k	0.439 (0.095)	0.813 (0.164)	0.420 (0.013)	0.873 (0.002)	0.836 (0.002)	0.419 (0.002)	0.444 (0.036)
	Random-k	0.786 (0.198)	0.881 (0.015)	0.417 (0.027)	0.891 (0.003)	0.854 (0.008)	0.443 (0.024)	0.654 (0.233)
Optical Digits	Fixed-k	0.513 (0.158)	0.478 (0.071)	0.149 (0.011)	0.099 (0.000)	0.361 (0.042)	0.156 (0.015)	0.135 (0.007)
	Random-k	0.503 (0.082)	0.509 (0.057)	0.372 (0.073)	0.100 (0.000)	0.369 (0.019)	0.410 (0.081)	0.403 (0.032)
Pen Digits	Fixed-k	0.341 (0.007)	0.373 (0.005)	0.123 (0.007)	0.222 (0.020)	0.356 (0.002)	0.141 (0.003)	0.106 (0.000)
	Random-k	0.462 (0.069)	0.390 (0.049)	0.337 (0.012)	0.272 (0.001)	0.382 (0.015)	0.396 (0.088)	0.442 (0.000)
Magic Gamma	Fixed-k	0.393 (0.026)	0.373 (0.013)	0.506 (0.020)	0.382 (0.013)	0.369 (0.004)	0.502 (0.012)	0.513 (0.004)
	Random-k	0.389 (0.022)	0.377 (0.020)	0.420 (0.046)	0.385 (0.008)	0.403 (0.020)	0.421 (0.041)	0.416 (0.020)

Table 14: Jaccard measures of examined matrices using SPC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.964 (0.104)	0.984 (0.063)	1.000 (0.000)	0.530 (0.059)	0.633 (0.007)	1.000 (0.000)	1.000 (0.000)
	Random-k	0.843 (0.160)	0.888 (0.106)	0.656 (0.157)	0.624 (0.046)	0.645 (0.007)	0.628 (0.128)	0.625 (0.129)
2-doughnut	Fixed-k	0.892 (0.188)	0.904 (0.175)	0.842 (0.226)	0.459 (0.000)	0.571 (0.048)	0.781 (0.225)	0.873 (0.200)
	Random-k	0.433 (0.064)	0.502 (0.044)	0.387 (0.054)	0.397 (0.046)	0.660 (0.021)	0.379 (0.050)	0.380 (0.049)
Difficult Doughnut	Fixed-k	0.866 (0.018)	0.804 (0.099)	0.642 (0.144)	0.445 (0.103)	0.339 (0.011)	0.586 (0.116)	0.642 (0.120)
	Random-k	0.638 (0.153)	0.555 (0.123)	0.496 (0.068)	0.452 (0.102)	0.331 (0.004)	0.507 (0.074)	0.522 (0.080)
5-gaussian	Fixed-k	0.993 (0.049)	1.000 (0.000)	0.882 (0.178)	0.954 (0.065)	1.000 (0.000)	1.000 (0.000)	0.771 (0.152)
	Random-k	0.986 (0.069)	1.000 (0.000)	0.882 (0.173)	0.987 (0.007)	1.000 (0.000)	0.892 (0.164)	0.757 (0.173)
Fence	Fixed-k	0.338 (0.036)	0.329 (0.021)	0.318 (0.028)	0.396 (0.021)	0.372 (0.007)	0.331 (0.005)	0.291 (0.035)
	Random-k	0.321 (0.011)	0.309 (0.010)	0.297 (0.014)	0.348 (0.051)	0.367 (0.002)	0.294 (0.011)	0.283 (0.017)
E.coli	Fixed-k	0.328 (0.028)	0.340 (0.029)	0.406 (0.083)	0.320 (0.011)	0.329 (0.015)	0.373 (0.054)	0.344 (0.057)
	Random-k	0.347 (0.032)	0.340 (0.039)	0.345 (0.035)	0.292 (0.016)	0.305 (0.017)	0.337 (0.033)	0.312 (0.038)
Ionosphere	Fixed-k	0.465 (0.073)	0.561 (0.105)	0.437 (0.029)	0.455 (0.011)	0.431 (0.000)	0.420 (0.015)	0.413 (0.018)
	Random-k	0.442 (0.019)	0.447 (0.050)	0.443 (0.018)	0.422 (0.004)	0.427 (0.004)	0.431 (0.014)	0.448 (0.021)
Iris	Fixed-k	0.767 (0.107)	0.738 (0.096)	0.653 (0.107)	0.409 (0.025)	0.764 (0.051)	0.584 (0.067)	0.628 (0.049)
	Random-k	0.701 (0.096)	0.664 (0.069)	0.646 (0.077)	0.509 (0.038)	0.639 (0.005)	0.589 (0.055)	0.602 (0.122)
Wine	Fixed-k	0.788 (0.032)	0.762 (0.027)	0.770 (0.075)	0.788 (0.023)	0.857 (0.017)	0.853 (0.053)	0.786 (0.025)
	Random-k	0.865 (0.038)	0.859 (0.043)	0.870 (0.032)	0.812 (0.028)	0.894 (0.008)	0.864 (0.034)	0.840 (0.109)
Breast Cancer	Fixed-k	0.763 (0.200)	0.889 (0.017)	0.858 (0.017)	0.510 (0.000)	0.812 (0.006)	0.886 (0.018)	0.866 (0.015)
	Random-k	0.878 (0.012)	0.872 (0.014)	0.875 (0.013)	0.691 (0.235)	0.837 (0.002)	0.861 (0.023)	0.875 (0.011)
Optical Digits	Fixed-k	0.435 (0.102)	0.571 (0.114)	0.543 (0.092)	0.052 (0.000)	0.340 (0.008)	0.543 (0.092)	0.475 (0.034)
	Random-k	0.451 (0.103)	0.454 (0.038)	0.391 (0.059)	0.053 (0.000)	0.323 (0.037)	0.395 (0.062)	0.527 (0.006)
Pen Digits	Fixed-k	0.318 (0.007)	0.409 (0.061)	0.408 (0.019)	0.249 (0.015)	0.366 (0.026)	0.337 (0.036)	0.530 (0.000)
	Random-k	0.421 (0.033)	0.361 (0.014)	0.414 (0.016)	0.287 (0.018)	0.359 (0.024)	0.414 (0.048)	0.439 (0.000)
Magic Gamma	Fixed-k	0.382 (0.012)	0.375 (0.003)	0.462 (0.044)	0.359 (0.002)	0.385 (0.014)	0.453 (0.052)	0.453 (0.018)
	Random-k	0.366 (0.008)	0.407 (0.015)	0.391 (0.040)	0.373 (0.010)	0.401 (0.036)	0.409 (0.046)	0.473 (0.070)

Table 15: Jaccard measures of examined matrices using METIS as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.963 (0.112)	0.629 (0.003)	0.386 (0.063)	0.497 (0.000)
	Random-k	0.882 (0.170)	1.000 (0.000)	0.757 (0.209)	0.629 (0.021)	0.643 (0.008)	0.557 (0.198)	0.724 (0.205)
2-doughnut	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.750 (0.306)	0.964 (0.012)	0.510 (0.017)	1.000 (0.000)	0.495 (0.000)
	Random-k	0.477 (0.212)	0.906 (0.192)	0.348 (0.018)	0.365 (0.013)	0.690 (0.000)	0.348 (0.021)	0.351 (0.021)
Difficult Doughnut	Fixed-k	0.955 (0.020)	0.960 (0.000)	0.931 (0.022)	0.343 (0.000)	0.332 (0.008)	0.946 (0.029)	0.495 (0.000)
	Random-k	0.953 (0.022)	0.960 (0.000)	0.953 (0.015)	0.343 (0.000)	0.328 (0.003)	0.960 (0.000)	0.955 (0.021)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.999 (0.004)	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
	Random-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)	0.999 (0.003)	1.000 (0.000)	1.000 (0.000)	0.997 (0.019)
Fence	Fixed-k	0.336 (0.002)	0.336 (0.004)	0.336 (0.015)	0.325 (0.014)	0.319 (0.004)	0.347 (0.022)	0.223 (0.000)
	Random-k	0.331 (0.004)	0.311 (0.021)	0.329 (0.005)	0.324 (0.009)	0.317 (0.003)	0.326 (0.014)	0.223 (0.000)
E.coli	Fixed-k	0.266 (0.007)	0.265 (0.009)	0.266 (0.007)	0.262 (0.004)	0.241 (0.003)	0.257 (0.011)	0.270 (0.000)
	Random-k	0.262 (0.007)	0.259 (0.005)	0.264 (0.006)	0.275 (0.003)	0.244 (0.004)	0.265 (0.011)	0.266 (0.006)
Ionosphere	Fixed-k	0.401 (0.003)	0.408 (0.004)	0.393 (0.009)	0.412 (0.000)	0.411 (0.002)	0.354 (0.007)	0.538 (0.000)
	Random-k	0.407 (0.006)	0.408 (0.003)	0.407 (0.001)	0.414 (0.002)	0.413 (0.002)	0.406 (0.004)	0.408 (0.003)
Iris	Fixed-k	0.854 (0.029)	0.850 (0.028)	0.846 (0.016)	0.588 (0.014)	0.777 (0.043)	0.704 (0.119)	0.329 (0.000)
	Random-k	0.858 (0.045)	0.815 (0.095)	0.852 (0.022)	0.593 (0.008)	0.644 (0.012)	0.606 (0.074)	0.816 (0.104)
Wine	Fixed-k	0.751 (0.017)	0.739 (0.013)	0.742 (0.022)	0.699 (0.000)	0.652 (0.012)	0.739 (0.087)	0.338 (0.000)
	Random-k	0.744 (0.024)	0.730 (0.024)	0.746 (0.025)	0.702 (0.009)	0.662 (0.012)	0.772 (0.017)	0.752 (0.025)
Breast Cancer	Fixed-k	0.608 (0.002)	0.603 (0.004)	0.405 (0.069)	0.583 (0.000)	0.608 (0.000)	0.506 (0.107)	0.440 (0.098)
	Random-k	0.603 (0.005)	0.602 (0.003)	0.554 (0.064)	0.600 (0.007)	0.608 (0.000)	0.512 (0.110)	0.538 (0.082)
Optical Digits	Fixed-k	0.755 (0.058)	0.566 (0.039)	0.744 (0.074)	0.057 (0.003)	0.053 (0.001)	0.366 (0.041)	0.652 (0.033)
	Random-k	0.625 (0.069)	0.560 (0.048)	0.547 (0.076)	0.219 (0.031)	0.390 (0.005)	0.497 (0.036)	0.621 (0.064)
Pen Digits	Fixed-k	0.537 (0.011)	0.433 (0.033)	0.530 (0.046)	0.100 (0.000)	0.100 (0.000)	0.340 (0.010)	0.484 (0.000)
	Random-k	0.428 (0.000)	0.356 (0.018)	0.438 (0.007)	0.100 (0.000)	0.100 (0.000)	0.438 (0.006)	0.431 (0.000)
Magic Gamma	Fixed-k	0.352 (0.001)	0.352 (0.002)	0.359 (0.010)	0.352 (0.000)	0.352 (0.000)	0.353 (0.002)	0.352 (0.001)
	Random-k	0.353 (0.001)	0.352 (0.000)	0.363 (0.020)	0.352 (0.000)	0.352 (0.000)	0.542 (0.000)	0.357 (0.003)

Table 16: Jaccard measures of examined matrices using gSPEC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.685 (0.317)	0.668 (0.022)	0.630 (0.007)	0.574 (0.124)	0.605 (0.322)
	Random-k	0.855 (0.161)	0.932 (0.084)	0.667 (0.154)	0.639 (0.051)	0.643 (0.007)	0.490 (0.165)	0.660 (0.113)
2-doughnut	Fixed-k	0.921 (0.151)	0.949 (0.134)	0.845 (0.229)	0.458 (0.000)	0.522 (0.038)	0.426 (0.077)	0.881 (0.191)
	Random-k	0.420 (0.110)	0.585 (0.160)	0.359 (0.027)	0.361 (0.004)	0.689 (0.021)	0.351 (0.012)	0.353 (0.012)
Difficult Doughnut	Fixed-k	0.907 (0.026)	0.882 (0.056)	0.481 (0.095)	0.333 (0.008)	0.337 (0.008)	0.761 (0.190)	0.457 (0.098)
	Random-k	0.852 (0.119)	0.793 (0.164)	0.635 (0.113)	0.332 (0.007)	0.328 (0.003)	0.689 (0.240)	0.624 (0.126)
5-gaussian	Fixed-k	1.000 (0.000)	1.000 (0.000)	0.809 (0.182)	0.980 (0.001)	1.000 (0.000)	0.852 (0.128)	0.685 (0.171)
	Random-k	1.000 (0.000)	1.000 (0.000)	1.000 (0.001)	0.991 (0.008)	1.000 (0.000)	0.763 (0.011)	0.838 (0.211)
Fence	Fixed-k	0.343 (0.017)	0.336 (0.011)	0.311 (0.025)	0.305 (0.012)	0.342 (0.012)	0.405 (0.033)	0.290 (0.028)
	Random-k	0.333 (0.013)	0.318 (0.010)	0.305 (0.017)	0.320 (0.013)	0.344 (0.020)	0.285 (0.020)	0.298 (0.024)
E.coli	Fixed-k	0.301 (0.029)	0.330 (0.018)	0.279 (0.023)	0.316 (0.010)	0.324 (0.024)	0.273 (0.024)	0.277 (0.039)
	Random-k	0.344 (0.028)	0.326 (0.030)	0.307 (0.018)	0.305 (0.013)	0.334 (0.005)	0.294 (0.026)	0.301 (0.035)
Ionosphere	Fixed-k	0.417 (0.028)	0.431 (0.012)	0.384 (0.003)	0.414 (0.000)	0.429 (0.002)	0.400 (0.003)	0.383 (0.003)
	Random-k	0.431 (0.010)	0.427 (0.009)	0.423 (0.014)	0.412 (0.002)	0.427 (0.003)	0.397 (0.020)	0.426 (0.009)
Iris	Fixed-k	0.834 (0.040)	0.798 (0.069)	0.735 (0.169)	0.502 (0.000)	0.706 (0.065)	0.467 (0.122)	0.701 (0.196)
	Random-k	0.768 (0.090)	0.728 (0.084)	0.690 (0.094)	0.561 (0.037)	0.616 (0.005)	0.491 (0.089)	0.717 (0.086)
Wine	Fixed-k	0.776 (0.030)	0.757 (0.027)	0.768 (0.070)	0.825 (0.014)	0.865 (0.017)	0.796 (0.108)	0.770 (0.099)
	Random-k	0.840 (0.045)	0.818 (0.050)	0.856 (0.037)	0.849 (0.024)	0.796 (0.010)	0.695 (0.178)	0.817 (0.113)
Breast Cancer	Fixed-k	0.896 (0.009)	0.896 (0.008)	0.410 (0.018)	0.440 (0.005)	0.892 (0.000)	0.513 (0.079)	0.410 (0.018)
	Random-k	0.861 (0.130)	0.900 (0.006)	0.432 (0.070)	0.555 (0.214)	0.897 (0.003)	0.506 (0.144)	0.472 (0.138)
Optical Digits	Fixed-k	0.684 (0.055)	0.637 (0.081)	0.474 (0.070)	0.058 (0.002)	0.382 (0.006)	0.477 (0.099)	0.515 (0.104)
	Random-k	0.641 (0.084)	0.572 (0.081)	0.520 (0.056)	0.269 (0.004)	0.389 (0.027)	0.509 (0.058)	0.539 (0.081)
Pen Digits	Fixed-k	0.544 (0.001)	0.512 (0.006)	0.393 (0.012)	0.317 (0.010)	0.426 (0.001)	0.359 (0.021)	0.400 (0.000)
	Random-k	0.468 (0.015)	0.420 (0.003)	0.478 (0.017)	0.332 (0.025)	0.475 (0.044)	0.354 (0.004)	0.410 (0.000)
Magic Gamma	Fixed-k	0.377 (0.010)	0.360 (0.003)	0.369 (0.013)	0.368 (0.000)	0.361 (0.000)	0.392 (0.004)	0.392 (0.003)
	Random-k	0.356 (0.002)	0.354 (0.002)	0.363 (0.012)	0.368 (0.000)	0.363 (0.000)	0.376 (0.010)	0.377 (0.019)

Table 17: Dunn measures of examined matrices using SL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)
	Random-k	2.029 (0.025)	2.026 (0.033)	1.991 (0.219)	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)
2-doughnut	Fixed-k	0.971 (0.210)	0.961 (0.089)	0.923 (0.210)	0.592 (0.261)	1.123 (0.112)	0.899 (0.000)	0.899 (0.000)
	Random-k	1.299 (0.291)	1.342 (0.260)	1.242 (0.355)	0.658 (0.247)	1.179 (0.000)	1.160 (0.417)	0.967 (0.423)
Difficult Doughnut	Fixed-k	1.091 (0.297)	1.080 (0.267)	1.074 (0.221)	1.275 (0.000)	1.336 (0.111)	1.221 (0.230)	1.170 (0.301)
	Random-k	0.920 (0.278)	0.956 (0.258)	0.777 (0.459)	1.275 (0.000)	1.262 (0.046)	0.842 (0.516)	0.686 (0.480)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	0.053 (0.037)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)
	Random-k	4.184 (0.000)	4.184 (0.000)	4.112 (0.507)	3.466 (1.538)	4.184 (0.000)	3.822 (1.087)	3.822 (1.087)
Fence	Fixed-k	0.504 (0.212)	0.480 (0.197)	0.449 (0.200)	0.404 (0.196)	0.026 (0.000)	0.470 (0.224)	0.456 (0.229)
	Random-k	0.781 (0.171)	0.831 (0.326)	0.683 (0.209)	0.914 (0.448)	0.037 (0.000)	0.759 (0.194)	0.704 (0.129)
E.coli	Fixed-k	0.850 (0.395)	0.819 (0.372)	0.698 (0.311)	0.000 (0.000)	0.000 (0.000)	0.378 (0.588)	0.272 (0.356)
	Random-k	0.810 (0.566)	0.812 (0.569)	0.465 (0.539)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.345 (0.532)
Ionosphere	Fixed-k	1.124 (0.237)	1.230 (0.187)	1.193 (0.223)	0.855 (0.218)	0.790 (0.177)	0.877 (0.334)	0.934 (0.268)
	Random-k	1.084 (0.251)	1.237 (0.172)	1.066 (0.283)	0.614 (0.191)	0.732 (0.001)	0.938 (0.249)	1.218 (0.199)
Iris	Fixed-k	1.712 (0.307)	1.787 (0.403)	1.648 (0.351)	1.196 (0.283)	0.953 (0.004)	2.057 (0.490)	1.542 (0.308)
	Random-k	1.767 (0.372)	1.773 (0.332)	1.596 (0.353)	1.076 (0.175)	1.189 (0.008)	1.508 (0.469)	1.559 (0.278)
Wine	Fixed-k	1.251 (0.128)	1.274 (0.095)	1.220 (0.176)	0.017 (0.000)	0.024 (0.000)	0.633 (0.610)	1.239 (0.143)
	Random-k	0.753 (0.259)	0.941 (0.310)	0.583 (0.300)	0.015 (0.004)	0.013 (0.009)	0.305 (0.483)	0.540 (0.458)
Breast Cancer	Fixed-k	1.174 (0.363)	1.197 (0.265)	1.091 (0.373)	0.715 (0.000)	1.267 (0.000)	1.494 (0.358)	1.125 (0.399)
	Random-k	1.383 (0.287)	1.347 (0.383)	1.254 (0.307)	0.715 (0.000)	1.268 (0.000)	1.282 (0.182)	1.315 (0.225)
Optical Digits	Fixed-k	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.243 (0.243)	0.000 (0.000)	0.000 (0.000)
	Random-k	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Pen Digits	Fixed-k	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
	Random-k	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Magic Gamma	Fixed-k	1.493 (0.364)	1.425 (0.341)	0.894 (0.395)	0.012 (0.000)	1.516 (0.000)	1.998 (0.742)	0.012 (0.000)
	Random-k	1.197 (3.557)	1.421 (0.321)	0.344 (0.404)	0.012 (0.000)	1.764 (0.752)	0.480 (0.755)	0.012 (0.000)

Table 18: Dunn measures of examined matrices using CL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.784 (0.202)	1.706 (0.226)	1.642 (0.294)	1.603 (0.282)	1.845 (0.096)	1.599 (0.363)	1.687 (0.103)
	Random-k	2.309 (0.128)	2.309 (0.102)	1.039 (0.769)	2.164 (0.198)	2.269 (0.054)	0.728 (0.593)	1.669 (0.649)
2-doughnut	Fixed-k	1.133 (0.250)	1.154 (0.210)	0.592 (0.031)	1.142 (0.284)	1.223 (0.052)	0.594 (0.000)	1.219 (0.379)
	Random-k	1.518 (0.191)	1.491 (0.178)	1.348 (0.354)	1.597 (0.064)	1.080 (0.054)	1.510 (0.189)	1.473 (0.205)
Difficult Doughnut	Fixed-k	1.282 (0.109)	1.237 (0.034)	1.350 (0.031)	1.275 (0.000)	0.527 (0.057)	1.355 (0.035)	1.355 (0.035)
	Random-k	0.772 (0.268)	0.765 (0.277)	1.237 (0.117)	1.275 (0.000)	0.601 (0.054)	1.286 (0.072)	1.313 (0.016)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	0.409 (0.213)	0.198 (0.077)	4.184 (0.000)	0.410 (0.366)	0.436 (0.099)
	Random-k	4.184 (0.000)	4.184 (0.000)	2.666 (1.668)	3.838 (0.995)	4.184 (0.000)	2.822 (1.407)	2.289 (1.581)
Fence	Fixed-k	0.741 (0.177)	0.834 (0.148)	0.176 (0.061)	0.192 (0.089)	0.463 (0.187)	0.209 (0.108)	0.148 (0.034)
	Random-k	0.396 (0.744)	0.287 (0.537)	0.930 (0.877)	1.513 (0.884)	0.478 (0.204)	1.450 (0.908)	1.159 (1.068)
E.coli	Fixed-k	0.633 (0.049)	0.628 (0.053)	0.409 (0.071)	0.309 (0.157)	0.604 (0.133)	0.478 (0.073)	0.404 (0.057)
	Random-k	0.685 (0.108)	0.670 (0.093)	0.585 (0.191)	0.462 (0.131)	0.626 (0.076)	0.590 (0.045)	0.577 (0.124)
Ionosphere	Fixed-k	1.057 (0.105)	0.098 (0.127)	0.732 (0.112)	1.278 (0.009)	1.027 (0.017)	0.765 (0.244)	1.041 (0.238)
	Random-k	1.034 (0.032)	1.029 (0.052)	0.800 (0.237)	1.149 (0.217)	1.020 (0.007)	0.895 (0.113)	0.548 (0.227)
Iris	Fixed-k	1.379 (0.327)	1.455 (0.283)	0.786 (0.307)	0.591 (0.056)	1.416 (0.166)	0.774 (0.318)	0.588 (0.250)
	Random-k	1.882 (0.095)	1.900 (0.106)	1.414 (0.641)	1.775 (0.348)	1.871 (0.031)	1.703 (0.563)	1.200 (0.759)
Wine	Fixed-k	1.264 (0.083)	1.259 (0.074)	0.741 (0.143)	1.148 (0.044)	1.232 (0.028)	1.006 (0.281)	0.807 (0.145)
	Random-k	1.257 (0.056)	1.246 (0.065)	0.971 (0.213)	1.168 (0.075)	1.254 (0.061)	1.110 (0.185)	0.963 (0.188)
Breast Cancer	Fixed-k	1.596 (0.167)	1.663 (0.151)	1.387 (0.601)	0.715 (0.000)	1.655 (0.100)	1.176 (0.622)	1.484 (0.472)
	Random-k	1.688 (0.046)	1.696 (0.052)	1.179 (0.543)	0.981 (0.257)	1.710 (0.120)	1.292 (0.507)	1.243 (0.633)
Optical Digits	Fixed-k	0.629 (0.097)	0.662 (0.041)	0.516 (0.058)	0.000 (0.000)	0.550 (0.106)	0.534 (0.058)	0.529 (0.093)
	Random-k	0.688 (0.061)	0.648 (0.075)	0.521 (0.064)	0.000 (0.000)	0.282 (0.057)	0.583 (0.088)	0.461 (0.089)
Pen Digits	Fixed-k	0.578 (0.007)	0.573 (0.003)	0.460 (0.022)	0.120 (0.012)	0.587 (0.065)	0.531 (0.108)	0.438 (0.000)
	Random-k	0.813 (0.063)	0.882 (0.041)	0.416 (0.038)	0.086 (0.025)	0.953 (0.106)	0.552 (0.075)	0.378 (0.000)
Magic Gamma	Fixed-k	0.822 (0.118)	0.976 (0.048)	1.186 (0.039)	1.180 (0.081)	1.083 (0.019)	1.023 (0.543)	1.201 (0.007)
	Random-k	1.043 (0.158)	0.903 (0.196)	1.119 (0.132)	1.206 (0.019)	1.084 (0.025)	1.077 (0.314)	1.069 (0.104)

Table 19: Dunn measures of examined matrices using AL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	1.611 (0.166)	2.089 (0.071)	2.026 (0.000)	2.026 (0.000)
	Random-k	2.114 (0.098)	2.137 (0.045)	2.200 (0.175)	2.062 (0.162)	2.137 (0.047)	2.195 (0.163)	2.195 (0.163)
2-doughnut	Fixed-k	0.957 (0.136)	0.940 (0.197)	1.021 (0.278)	0.721 (0.000)	1.034 (0.102)	0.902 (0.283)	0.902 (0.283)
	Random-k	1.618 (0.107)	1.662 (0.094)	1.581 (0.139)	1.605 (0.097)	1.070 (0.032)	1.575 (0.139)	1.577 (0.138)
Difficult Doughnut	Fixed-k	0.435 (0.054)	0.426 (0.006)	0.453 (0.355)	1.275 (0.000)	0.539 (0.143)	0.408 (0.307)	0.449 (0.308)
	Random-k	0.937 (0.156)	0.880 (0.109)	1.010 (0.259)	1.275 (0.000)	0.623 (0.039)	0.885 (0.319)	0.885 (0.319)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	0.133 (0.020)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)
	Random-k	4.184 (0.000)	4.184 (0.000)	3.826 (1.075)	4.067 (0.578)	4.184 (0.000)	4.185 (0.002)	4.185 (0.002)
Fence	Fixed-k	1.413 (0.255)	1.857 (0.315)	1.177 (0.485)	0.271 (0.136)	0.279 (0.017)	1.345 (0.471)	1.345 (0.471)
	Random-k	2.065 (0.179)	2.077 (0.197)	2.128 (0.510)	2.210 (0.285)	0.353 (0.109)	2.076 (0.392)	2.115 (0.243)
E.coli	Fixed-k	0.633 (0.068)	0.752 (0.147)	0.630 (0.052)	0.000 (0.000)	0.845 (0.109)	0.600 (0.104)	0.699 (0.077)
	Random-k	0.690 (0.220)	0.767 (0.196)	0.684 (0.189)	0.097 (0.166)	0.802 (0.113)	0.514 (0.273)	0.695 (0.089)
Ionosphere	Fixed-k	0.969 (0.201)	1.082 (0.144)	0.964 (0.137)	1.121 (0.177)	1.011 (0.113)	0.920 (0.038)	0.907 (0.022)
	Random-k	1.057 (0.152)	1.108 (0.137)	1.076 (0.138)	1.123 (0.234)	1.015 (0.112)	1.015 (0.103)	1.133 (0.145)
Iris	Fixed-k	1.786 (0.136)	1.971 (0.118)	1.784 (0.267)	1.165 (0.065)	1.884 (0.154)	1.837 (0.257)	1.897 (0.173)
	Random-k	1.944 (0.156)	1.968 (0.125)	1.937 (0.172)	1.285 (0.295)	1.939 (0.086)	1.964 (0.027)	2.006 (0.118)
Wine	Fixed-k	1.290 (0.056)	1.284 (0.055)	1.285 (0.079)	1.110 (0.076)	1.257 (0.034)	1.286 (0.052)	1.276 (0.074)
	Random-k	1.253 (0.048)	1.245 (0.055)	1.253 (0.048)	1.196 (0.088)	1.286 (0.065)	1.277 (0.039)	1.262 (0.033)
Breast Cancer	Fixed-k	1.641 (0.040)	1.645 (0.035)	1.665 (0.027)	0.876 (0.000)	1.733 (0.078)	1.660 (0.056)	1.662 (0.037)
	Random-k	1.690 (0.020)	1.690 (0.026)	1.706 (0.059)	0.886 (0.352)	1.726 (0.096)	1.703 (0.058)	1.716 (0.061)
Optical Digits	Fixed-k	0.794 (0.064)	0.843 (0.059)	0.760 (0.092)	0.000 (0.000)	0.465 (0.021)	0.755 (0.085)	0.686 (0.002)
	Random-k	0.869 (0.031)	0.886 (0.047)	0.816 (0.051)	0.000 (0.000)	0.597 (0.098)	0.827 (0.057)	0.821 (0.078)
Pen Digits	Fixed-k	0.838 (0.024)	0.796 (0.066)	0.763 (0.122)	0.046 (0.002)	0.926 (0.116)	0.759 (0.126)	0.885 (0.000)
	Random-k	0.982 (0.006)	1.034 (0.139)	0.768 (0.091)	0.112 (0.028)	1.110 (0.133)	0.752 (0.075)	0.827 (0.000)
Magic Gamma	Fixed-k	0.922 (0.257)	1.041 (0.021)	1.154 (0.424)	0.589 (0.577)	1.187 (0.058)	1.291 (0.566)	1.324 (0.697)
	Random-k	1.062 (0.042)	1.217 (0.029)	1.092 (0.098)	1.260 (0.017)	1.141 (0.103)	1.131 (0.102)	1.022 (0.029)

Table 20: Dunn measures of examined matrices using KM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	1.980 (0.161)	2.026 (0.000)	1.343 (0.415)	2.412 (0.040)	2.468 (0.007)	0.900 (0.422)	1.302 (0.426)
	Random-k	2.168 (0.161)	2.108 (0.113)	2.350 (0.155)	2.406 (0.071)	2.456 (0.010)	1.291 (0.745)	2.363 (0.104)
2-doughnut	Fixed-k	0.918 (0.109)	0.901 (0.083)	0.609 (0.229)	1.103 (0.267)	1.317 (0.079)	1.168 (0.355)	0.722 (0.212)
	Random-k	1.541 (0.194)	1.326 (0.283)	1.588 (0.259)	1.662 (0.003)	1.130 (0.027)	1.519 (0.223)	1.676 (0.017)
Difficult Doughnut	Fixed-k	0.225 (0.009)	0.225 (0.004)	0.275 (0.042)	0.851 (0.004)	0.559 (0.030)	0.526 (0.384)	0.267 (0.069)
	Random-k	0.251 (0.072)	0.282 (0.147)	0.305 (0.122)	0.853 (0.005)	0.629 (0.025)	0.795 (0.388)	0.272 (0.093)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	3.971 (0.690)	3.787 (0.745)	3.185 (1.001)	0.352 (0.135)	3.928 (0.721)
	Random-k	4.184 (0.000)	4.102 (0.406)	4.141 (0.214)	4.025 (0.704)	3.169 (1.015)	0.740 (1.157)	4.185 (0.002)
Fence	Fixed-k	0.554 (0.508)	0.373 (0.509)	0.212 (0.207)	0.448 (0.513)	0.744 (0.410)	0.382 (0.433)	0.268 (0.201)
	Random-k	1.110 (0.728)	1.559 (0.290)	0.844 (0.836)	0.608 (0.753)	0.623 (0.388)	0.477 (0.620)	0.704 (0.687)
E.coli	Fixed-k	0.554 (0.075)	0.509 (0.068)	0.486 (0.074)	0.519 (0.065)	0.565 (0.050)	0.469 (0.140)	0.505 (0.107)
	Random-k	0.566 (0.111)	0.649 (0.204)	0.608 (0.086)	0.423 (0.106)	0.475 (0.018)	0.544 (0.124)	0.666 (0.069)
Ionosphere	Fixed-k	0.836 (0.076)	0.949 (0.051)	0.589 (0.213)	0.833 (0.000)	1.019 (0.001)	0.678 (0.165)	0.665 (0.211)
	Random-k	0.995 (0.051)	1.001 (0.033)	0.969 (0.071)	0.823 (0.008)	1.016 (0.001)	0.959 (0.134)	0.970 (0.067)
Iris	Fixed-k	1.177 (0.443)	1.084 (0.479)	1.291 (0.425)	2.040 (0.007)	1.771 (0.059)	1.217 (0.502)	1.130 (0.440)
	Random-k	1.827 (0.168)	1.872 (0.193)	1.593 (0.662)	2.002 (0.034)	1.951 (0.005)	1.507 (0.490)	1.422 (0.785)
Wine	Fixed-k	1.284 (0.031)	1.244 (0.086)	1.217 (0.059)	1.263 (0.022)	1.232 (0.020)	0.805 (0.192)	1.187 (0.069)
	Random-k	1.266 (0.052)	1.236 (0.058)	1.065 (0.261)	1.254 (0.037)	1.242 (0.002)	1.122 (0.273)	1.234 (0.048)
Breast Cancer	Fixed-k	0.871 (0.202)	1.575 (0.230)	0.835 (0.181)	0.932 (0.000)	1.766 (0.001)	1.110 (0.270)	0.905 (0.058)
	Random-k	1.661 (0.124)	1.690 (0.027)	1.002 (0.292)	1.357 (0.344)	1.753 (0.007)	1.420 (0.348)	1.439 (0.346)
Optical Digits	Fixed-k	0.646 (0.059)	0.640 (0.053)	0.605 (0.063)	0.000 (0.000)	0.595 (0.002)	0.604 (0.062)	0.537 (0.003)
	Random-k	0.661 (0.036)	0.643 (0.059)	0.659 (0.032)	0.000 (0.000)	0.541 (0.004)	0.659 (0.032)	0.710 (0.011)
Pen Digits	Fixed-k	0.723 (0.006)	0.759 (0.024)	0.505 (0.050)	0.170 (0.004)	0.758 (0.072)	0.505 (0.050)	0.454 (0.000)
	Random-k	0.782 (0.072)	0.756 (0.050)	0.785 (0.035)	0.289 (0.099)	0.775 (0.091)	0.785 (0.035)	0.795 (0.000)
Magic Gamma	Fixed-k	0.949 (0.069)	0.922 (0.025)	0.577 (0.248)	1.206 (0.095)	1.124 (0.203)	0.577 (0.248)	0.453 (0.011)
	Random-k	1.058 (0.215)	1.165 (0.291)	0.668 (0.295)	1.211 (0.053)	1.114 (0.098)	0.668 (0.295)	0.370 (0.049)

Table 21: Dunn measures of examined matrices using PAM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	2.229 (0.348)	2.306 (0.274)	0.855 (0.418)	2.405 (0.143)	2.353 (0.170)	0.941 (0.171)	0.932 (0.434)
	Random-k	2.230 (0.150)	2.347 (0.127)	2.089 (0.547)	2.342 (0.107)	2.406 (0.126)	1.899 (0.730)	2.178 (0.389)
2-doughnut	Fixed-k	1.011 (0.280)	1.123 (0.226)	0.774 (0.360)	1.168 (0.106)	1.179 (0.185)	0.673 (0.267)	1.336 (0.334)
	Random-k	1.533 (0.139)	1.597 (0.204)	1.591 (0.192)	1.595 (0.107)	1.219 (0.065)	1.643 (0.055)	1.553 (0.170)
Difficult Doughnut	Fixed-k	0.622 (0.062)	0.683 (0.052)	0.741 (0.409)	0.979 (0.000)	0.534 (0.042)	0.335 (0.038)	0.725 (0.404)
	Random-k	0.707 (0.202)	0.756 (0.207)	0.895 (0.201)	1.279 (0.000)	0.622 (0.034)	0.280 (0.094)	0.367 (0.164)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	0.428 (0.215)	4.173 (0.114)	4.184 (0.000)	0.312 (0.127)	0.282 (0.133)
	Random-k	4.184 (0.000)	4.184 (0.000)	3.667 (1.113)	4.190 (0.009)	4.184 (0.000)	3.800 (0.775)	1.215 (1.491)
Fence	Fixed-k	0.721 (0.418)	1.355 (0.838)	0.153 (0.016)	1.237 (0.812)	0.444 (0.022)	0.147 (0.037)	0.168 (0.097)
	Random-k	2.260 (0.471)	2.428 (0.431)	0.854 (0.723)	2.477 (0.466)	0.444 (0.031)	0.607 (0.679)	0.476 (0.541)
E.coli	Fixed-k	0.729 (0.086)	0.752 (0.090)	0.513 (0.121)	0.717 (0.046)	0.903 (0.032)	0.484 (0.086)	0.481 (0.168)
	Random-k	0.671 (0.037)	0.662 (0.022)	0.660 (0.059)	0.594 (0.093)	0.672 (0.070)	0.644 (0.086)	0.531 (0.150)
Ionosphere	Fixed-k	1.055 (0.034)	0.990 (0.052)	0.724 (0.246)	1.015 (0.104)	1.019 (0.083)	0.902 (0.029)	0.861 (0.267)
	Random-k	0.997 (0.036)	1.013 (0.012)	0.994 (0.073)	0.983 (0.088)	1.016 (0.102)	0.955 (0.066)	0.960 (0.085)
Iris	Fixed-k	1.498 (0.154)	1.686 (0.116)	0.737 (0.286)	1.987 (0.102)	1.725 (0.134)	0.793 (0.356)	0.753 (0.488)
	Random-k	1.891 (0.106)	1.910 (0.115)	1.639 (0.637)	1.917 (0.224)	1.882 (0.007)	1.916 (0.109)	1.575 (0.332)
Wine	Fixed-k	1.295 (0.029)	1.300 (0.033)	0.827 (0.155)	1.265 (0.010)	1.334 (0.121)	0.875 (0.160)	0.906 (0.284)
	Random-k	1.285 (0.030)	1.259 (0.045)	1.268 (0.086)	1.249 (0.014)	1.331 (0.094)	1.277 (0.051)	0.996 (0.288)
Breast Cancer	Fixed-k	1.641 (0.198)	1.565 (0.371)	0.777 (0.124)	1.758 (0.201)	1.796 (0.215)	0.861 (0.067)	0.866 (0.082)
	Random-k	1.688 (0.107)	1.726 (0.028)	0.774 (0.202)	1.632 (0.009)	1.709 (0.087)	0.866 (0.143)	1.313 (0.412)
Optical Digits	Fixed-k	0.557 (0.016)	0.543 (0.024)	0.508 (0.096)	0.203 (0.018)	0.516 (0.022)	0.522 (0.067)	0.456 (0.051)
	Random-k	0.630 (0.027)	0.630 (0.027)	0.546 (0.088)	0.215 (0.002)	0.581 (0.022)	0.535 (0.085)	0.504 (0.001)
Pen Digits	Fixed-k	0.659 (0.038)	0.593 (0.049)	0.368 (0.144)	0.146 (0.025)	0.708 (0.109)	0.425 (0.012)	0.526 (0.000)
	Random-k	0.843 (0.004)	0.821 (0.007)	0.542 (0.030)	0.192 (0.021)	0.745 (0.058)	0.758 (0.141)	0.789 (0.000)
Magic Gamma	Fixed-k	0.881 (0.158)	0.922 (0.102)	1.007 (0.554)	1.204 (0.116)	1.126 (0.205)	0.621 (0.250)	0.670 (0.109)
	Random-k	0.999 (0.234)	1.058 (0.156)	0.821 (0.346)	1.210 (0.110)	1.107 (0.129)	0.761 (0.301)	1.084 (0.144)

Table 22: Dunn measures of examined matrices using SPC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	2.077 (0.081)	2.020 (0.099)	2.026 (0.000)	1.429 (0.900)	2.161 (0.107)	2.026 (0.000)	2.026 (0.000)
	Random-k	2.374 (0.150)	2.369 (0.122)	2.344 (0.165)	2.426 (0.289)	2.452 (0.112)	2.323 (0.165)	2.319 (0.160)
2-doughnut	Fixed-k	1.248 (0.108)	1.169 (0.110)	1.035 (0.311)	1.348 (0.118)	1.328 (0.109)	0.992 (0.369)	0.869 (0.243)
	Random-k	1.677 (0.116)	1.660 (0.104)	1.637 (0.106)	1.627 (0.178)	1.208 (0.094)	1.667 (0.216)	1.667 (0.316)
Difficult Doughnut	Fixed-k	0.525 (0.002)	0.554 (0.058)	0.504 (0.310)	0.161 (0.046)	0.569 (0.028)	0.585 (0.300)	0.421 (0.186)
	Random-k	0.959 (0.201)	0.986 (0.197)	1.033 (0.213)	0.172 (0.058)	0.625 (0.028)	0.991 (0.266)	0.937 (0.287)
5-gaussian	Fixed-k	4.106 (0.544)	4.184 (0.000)	3.018 (1.708)	4.105 (0.558)	4.184 (0.000)	4.184 (0.000)	4.188 (1.558)
	Random-k	4.184 (0.000)	4.184 (0.000)	3.040 (1.669)	4.198 (0.011)	4.184 (0.000)	3.115 (1.635)	1.728 (1.639)
Fence	Fixed-k	1.649 (0.339)	1.875 (0.282)	1.412 (0.741)	0.145 (0.024)	0.447 (0.013)	1.470 (0.622)	0.834 (0.767)
	Random-k	2.287 (0.224)	2.364 (0.182)	2.262 (0.715)	1.337 (0.991)	0.453 (0.010)	2.312 (0.466)	1.355 (1.163)
E.coli	Fixed-k	0.702 (0.051)	0.668 (0.033)	0.697 (0.072)	0.645 (0.029)	0.662 (0.058)	0.651 (0.161)	0.547 (0.112)
	Random-k	0.663 (0.033)	0.683 (0.042)	0.688 (0.097)	0.548 (0.044)	0.549 (0.055)	0.660 (0.156)	0.487 (0.170)
Ionosphere	Fixed-k	1.047 (0.083)	0.952 (0.119)	1.067 (0.151)	0.802 (0.151)	1.016 (0.100)	1.019 (0.171)	0.971 (0.146)
	Random-k	1.082 (0.031)	1.065 (0.040)	1.095 (0.135)	0.811 (0.006)	1.016 (0.002)	1.066 (0.122)	1.124 (0.153)
Iris	Fixed-k	1.662 (0.134)	1.743 (0.108)	1.852 (0.214)	0.765 (0.106)	1.800 (0.159)	1.818 (0.333)	1.739 (0.466)
	Random-k	1.910 (0.149)	1.923 (0.171)	1.872 (0.236)	1.337 (0.364)	1.949 (0.086)	1.934 (0.196)	1.727 (0.474)
Wine	Fixed-k	1.272 (0.040)	1.284 (0.036)	1.294 (0.029)	1.160 (0.003)	1.261 (0.012)	1.263 (0.039)	1.291 (0.022)
	Random-k	1.242 (0.041)	1.227 (0.042)	1.281 (0.065)	1.159 (0.004)	1.259 (0.071)	1.274 (0.039)	1.215 (0.199)
Breast Cancer	Fixed-k	1.684 (0.083)	1.721 (0.031)	1.708 (0.017)	0.876 (0.003)	1.816 (0.072)	1.706 (0.033)	1.708 (0.022)
	Random-k	1.735 (0.026)	1.747 (0.021)	1.744 (0.027)	1.358 (0.360)	1.794 (0.055)	1.750 (0.038)	1.748 (0.023)
Optical Digits	Fixed-k	0.628 (0.088)	0.613 (0.095)	0.599 (0.136)	0.038 (0.001)	0.559 (0.150)	0.598 (0.135)	0.557 (0.007)
	Random-k	0.603 (0.087)	0.624 (0.069)	0.516 (0.134)	0.041 (0.004)	0.496 (0.162)	0.515 (0.136)	0.629 (0.104)
Pen Digits	Fixed-k	0.622 (0.112)	0.685 (0.323)	0.651 (0.052)	0.290 (0.030)	0.772 (0.111)	0.617 (0.114)	0.640 (0.210)
	Random-k	0.620 (0.047)	0.696 (0.076)	0.618 (0.023)	0.146 (0.083)	0.667 (0.100)	0.639 (0.051)	0.451 (0.009)
Magic Gamma	Fixed-k	0.908 (0.027)	0.924 (0.017)	1.218 (0.418)	1.141 (0.152)	1.119 (0.084)	1.098 (0.143)	1.036 (0.104)
	Random-k	1.175 (0.181)	1.153 (0.159)	1.096 (0.042)	1.191 (0.211)	1.111 (0.116)	1.086 (0.138)	1.508 (0.410)

Table 23: Dunn measures of examined matrices using METIS as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	2.026 (0.000)	2.026 (0.000)	2.026 (0.000)	2.071 (0.136)	2.026 (0.000)	0.313 (0.378)	2.026 (0.000)
	Random-k	2.478 (0.017)	2.478 (0.017)	2.286 (0.218)	2.478 (0.017)	2.470 (0.007)	1.729 (1.038)	2.316 (0.214)
2-doughnut	Fixed-k	0.899 (0.000)	0.899 (0.000)	0.887 (0.181)	0.927 (0.010)	0.914 (0.031)	0.899 (0.000)	0.865 (0.156)
	Random-k	1.641 (0.163)	1.687 (0.187)	1.685 (0.044)	1.649 (0.018)	1.165 (0.000)	1.654 (0.049)	1.647 (0.181)
Difficult Doughnut	Fixed-k	0.213 (0.011)	0.216 (0.014)	0.230 (0.009)	0.162 (0.000)	0.365 (0.153)	0.228 (0.012)	0.227 (0.012)
	Random-k	0.215 (0.014)	0.213 (0.013)	0.213 (0.013)	0.162 (0.000)	0.238 (0.035)	0.213 (0.013)	0.213 (0.013)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.186 (0.004)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)
	Random-k	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.137 (0.315)
Fence	Fixed-k	1.215 (0.309)	1.071 (0.260)	1.150 (0.496)	0.724 (0.485)	0.716 (0.044)	0.383 (0.199)	1.089 (0.486)
	Random-k	1.231 (0.204)	1.160 (0.129)	0.680 (0.507)	0.566 (0.425)	0.807 (0.032)	0.645 (0.575)	0.745 (0.510)
E.coli	Fixed-k	0.515 (0.055)	0.587 (0.024)	0.524 (0.063)	0.444 (0.005)	0.481 (0.017)	0.413 (0.113)	0.498 (0.098)
	Random-k	0.493 (0.053)	0.495 (0.047)	0.488 (0.052)	0.445 (0.028)	0.466 (0.028)	0.428 (0.059)	0.468 (0.066)
Ionosphere	Fixed-k	0.933 (0.008)	0.931 (0.008)	0.872 (0.115)	0.999 (0.102)	1.016 (0.093)	0.674 (0.105)	0.868 (0.116)
	Random-k	0.966 (0.029)	0.994 (0.018)	1.002 (0.013)	0.997 (0.015)	1.006 (0.081)	0.969 (0.027)	0.986 (0.032)
Iris	Fixed-k	1.511 (0.104)	1.528 (0.091)	1.560 (0.046)	1.717 (0.209)	1.692 (0.113)	1.737 (0.219)	1.531 (0.117)
	Random-k	1.692 (0.064)	1.710 (0.082)	1.616 (0.053)	1.756 (0.125)	1.854 (0.213)	1.831 (0.274)	1.520 (0.408)
Wine	Fixed-k	1.310 (0.003)	1.300 (0.005)	1.304 (0.004)	1.277 (0.005)	1.248 (0.013)	1.195 (0.243)	1.306 (0.012)
	Random-k	1.309 (0.014)	1.289 (0.022)	1.275 (0.045)	1.246 (0.039)	1.243 (0.009)	1.264 (0.034)	1.292 (0.046)
Breast Cancer	Fixed-k	1.201 (0.021)	1.177 (0.048)	0.581 (0.217)	0.992 (0.052)	1.222 (0.110)	0.899 (0.311)	0.690 (0.315)
	Random-k	1.169 (0.061)	1.178 (0.028)	1.053 (0.215)	1.148 (0.073)	1.121 (0.031)	0.909 (0.330)	0.997 (0.259)
Optical Digits	Fixed-k	0.704 (0.057)	0.794 (0.044)	0.718 (0.066)	0.037 (0.002)	0.045 (0.002)	0.450 (0.023)	0.667 (0.062)
	Random-k	0.646 (0.051)	0.613 (0.064)	0.617 (0.048)	0.244 (0.009)	0.485 (0.005)	0.571 (0.043)	0.639 (0.054)
Pen Digits	Fixed-k	0.659 (0.028)	0.699 (0.040)	0.597 (0.009)	0.107 (0.059)	0.816 (0.286)	0.437 (0.054)	0.588 (0.000)
	Random-k	0.744 (0.005)	0.687 (0.029)	0.594 (0.020)	0.236 (0.152)	0.846 (0.191)	0.518 (0.029)	0.614 (0.000)
Magic Gamma	Fixed-k	1.231 (0.010)	1.226 (0.021)	1.049 (0.203)	1.148 (0.007)	1.143 (0.031)	0.477 (0.179)	1.121 (0.001)
	Random-k	1.136 (0.005)	1.140 (0.006)	0.986 (0.262)	1.148 (0.001)	1.143 (0.011)	1.019 (0.217)	0.732 (0.395)

Table 24: Dunn measures of examined matrices using gSPEC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	2.026 (0.000)	2.026 (0.000)	1.445 (0.682)	2.026 (0.000)	2.026 (0.000)	1.237 (0.563)	1.200 (0.711)
	Random-k	2.458 (0.009)	2.458 (0.009)	2.314 (0.290)	2.430 (0.055)	2.458 (0.009)	1.058 (0.894)	2.355 (0.098)
2-doughnut	Fixed-k	1.410 (0.000)	1.410 (0.000)	0.877 (0.277)	1.410 (0.000)	1.315 (0.064)	0.932 (0.281)	0.881 (0.303)
	Random-k	1.634 (0.103)	1.674 (0.187)	1.623 (0.185)	1.668 (0.105)	1.157 (0.025)	1.433 (0.297)	1.684 (0.048)
Difficult Doughnut	Fixed-k	0.528 (0.008)	0.535 (0.051)	0.453 (0.175)	0.195 (0.046)	0.553 (0.033)	0.277 (0.086)	0.505 (0.191)
	Random-k	0.618 (0.075)	0.683 (0.054)	0.637 (0.221)	0.202 (0.044)	0.628 (0.025)	0.478 (0.258)	0.651 (0.296)
5-gaussian	Fixed-k	4.184 (0.000)	4.184 (0.000)	2.187 (1.879)	4.008 (0.005)	4.184 (0.000)	2.082 (1.749)	1.074 (1.561)
	Random-k	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	4.184 (0.000)	0.950 (0.506)	2.680 (1.855)
Fence	Fixed-k	1.519 (0.292)	1.820 (0.240)	0.535 (0.265)	0.418 (0.060)	0.330 (0.036)	0.186 (0.168)	0.310 (0.268)
	Random-k	2.100 (0.126)	2.111 (0.100)	1.577 (0.774)	1.909 (0.622)	0.379 (0.059)	0.755 (0.867)	1.564 (0.766)
E.coli	Fixed-k	0.688 (0.095)	0.698 (0.087)	0.675 (0.081)	0.632 (0.026)	0.717 (0.092)	0.575 (0.097)	0.518 (0.135)
	Random-k	0.690 (0.069)	0.677 (0.082)	0.665 (0.049)	0.620 (0.030)	0.691 (0.069)	0.569 (0.135)	0.561 (0.109)
Ionosphere	Fixed-k	0.985 (0.024)	0.987 (0.031)	0.953 (0.012)	0.848 (0.000)	1.018 (0.092)	0.767 (0.050)	0.954 (0.011)
	Random-k	1.010 (0.021)	1.011 (0.019)	1.016 (0.013)	0.848 (0.014)	1.017 (0.033)	0.771 (0.267)	1.020 (0.005)
Iris	Fixed-k	1.678 (0.125)	1.655 (0.168)	1.421 (0.266)	1.261 (0.012)	1.692 (0.103)	1.174 (0.657)	1.394 (0.254)
	Random-k	1.819 (0.159)	1.871 (0.140)	1.796 (0.440)	1.824 (0.327)	1.858 (0.002)	1.297 (0.617)	1.880 (0.150)
Wine	Fixed-k	1.294 (0.031)	1.297 (0.031)	1.287 (0.037)	1.233 (0.004)	1.301 (0.005)	1.245 (0.050)	1.255 (0.062)
	Random-k	1.267 (0.040)	1.258 (0.049)	1.271 (0.034)	1.240 (0.015)	1.356 (0.009)	1.063 (0.272)	1.229 (0.160)
Breast Cancer	Fixed-k	1.665 (0.010)	1.678 (0.013)	0.860 (0.156)	0.892 (0.008)	1.726 (0.000)	1.037 (0.137)	0.864 (0.172)
	Random-k	1.615 (0.200)	1.672 (0.016)	0.904 (0.198)	1.143 (0.319)	1.703 (0.042)	0.929 (0.288)	1.023 (0.245)
Optical Digits	Fixed-k	0.647 (0.056)	0.653 (0.014)	0.541 (0.054)	0.043 (0.001)	0.614 (0.080)	0.540 (0.086)	0.561 (0.116)
	Random-k	0.691 (0.036)	0.654 (0.027)	0.612 (0.142)	0.360 (0.017)	0.547 (0.062)	0.583 (0.116)	0.538 (0.127)
Pen Digits	Fixed-k	0.702 (0.023)	0.716 (0.037)	0.551 (0.011)	0.293 (0.002)	0.751 (0.068)	0.360 (0.044)	0.586 (0.000)
	Random-k	0.634 (0.022)	0.595 (0.083)	0.664 (0.008)	0.503 (0.038)	0.677 (0.097)	0.440 (0.079)	0.535 (0.000)
Magic Gamma	Fixed-k	1.169 (0.012)	1.159 (0.007)	1.005 (0.124)	1.189 (0.020)	1.132 (0.031)	0.553 (0.048)	0.897 (0.031)
	Random-k	1.139 (0.005)	1.150 (0.003)	1.154 (0.028)	1.189 (0.091)	1.128 (0.057)	0.545 (0.295)	1.195 (0.102)

Table 25: Silhouette measures of examined matrices using SL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)
	Random-k	0.520 (0.000)	0.520 (0.000)	0.502 (0.113)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)
2-doughnut	Fixed-k	0.157 (0.021)	0.165 (0.014)	0.135 (0.095)	- 0.296 (0.147)	0.123 (0.040)	0.132 (0.000)	0.132 (0.000)
	Random-k	0.274 (0.027)	0.277 (0.022)	0.223 (0.176)	- 0.148 (0.119)	0.233 (0.000)	0.166 (0.230)	0.091 (0.193)
Difficult Doughnut	Fixed-k	0.387 (0.004)	0.403 (0.003)	0.317 (0.086)	0.236 (0.000)	0.407 (0.073)	0.362 (0.011)	0.350 (0.039)
	Random-k	0.320 (0.016)	0.325 (0.023)	0.263 (0.110)	0.236 (0.000)	0.220 (0.286)	0.265 (0.118)	0.240 (0.120)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	- 0.593 (0.025)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.880 (0.034)	0.775 (0.242)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)
Fence	Fixed-k	0.107 (0.026)	0.122 (0.053)	0.009 (0.414)	- 0.091 (0.222)	- 0.766 (0.000)	0.011 (0.444)	- 0.010 (0.452)
	Random-k	0.497 (0.020)	0.492 (0.067)	0.360 (0.283)	0.290 (0.191)	- 0.731 (0.000)	0.424 (0.178)	0.422 (0.304)
E.coli	Fixed-k	0.235 (0.102)	0.249 (0.097)	0.130 (0.252)	- 0.777 (0.010)	0.260 (0.162)	- 0.001 (0.228)	0.111 (0.219)
	Random-k	0.342 (0.124)	0.318 (0.093)	0.160 (0.231)	- 0.782 (0.011)	0.313 (0.045)	- 0.051 (0.210)	0.264 (0.277)
Ionosphere	Fixed-k	0.411 (0.146)	0.387 (0.151)	0.324 (0.118)	- 0.335 (0.263)	0.523 (0.140)	0.389 (0.079)	0.399 (0.091)
	Random-k	0.382 (0.082)	0.350 (0.013)	0.306 (0.156)	- 0.439 (0.148)	0.537 (0.157)	0.352 (0.059)	0.270 (0.115)
Iris	Fixed-k	0.587 (0.020)	0.591 (0.035)	0.574 (0.079)	0.551 (0.157)	0.449 (0.108)	0.541 (0.127)	0.554 (0.103)
	Random-k	0.580 (0.109)	0.598 (0.070)	0.571 (0.097)	0.610 (0.107)	0.545 (0.007)	0.603 (0.160)	0.564 (0.065)
Wine	Fixed-k	0.342 (0.010)	0.359 (0.007)	0.294 (0.126)	- 0.067 (0.002)	0.094 (0.001)	0.197 (0.150)	0.309 (0.113)
	Random-k	0.291 (0.011)	0.297 (0.020)	0.240 (0.135)	- 0.181 (0.204)	0.108 (0.089)	0.161 (0.127)	0.229 (0.136)
Breast Cancer	Fixed-k	0.092 (0.024)	0.023 (0.032)	- 0.026 (0.332)	- 0.482 (0.001)	0.102 (0.078)	0.122 (0.105)	- 0.009 (0.322)
	Random-k	0.290 (0.048)	0.321 (0.013)	0.133 (0.390)	- 0.482 (0.000)	0.219 (0.024)	0.112 (0.246)	0.097 (0.402)
Optical Digits	Fixed-k	- 0.276 (0.074)	- 0.270 (0.069)	- 0.264 (0.043)	- 0.460 (0.000)	- 0.188 (0.101)	- 0.250 (0.059)	- 0.299 (0.022)
	Random-k	- 0.240 (0.065)	- 0.235 (0.054)	- 0.297 (0.070)	- 0.460 (0.000)	- 0.227 (0.101)	- 0.288 (0.039)	- 0.281 (0.004)
Pen Digits	Fixed-k	- 0.250 (0.050)	- 0.245 (0.041)	- 0.356 (0.007)	- 0.395 (0.002)	- 0.403 (0.013)	- 0.313 (0.098)	- 0.349 (0.000)
	Random-k	- 0.349 (0.066)	- 0.360 (0.015)	- 0.420 (0.146)	- 0.410 (0.009)	- 0.394 (0.010)	- 0.369 (0.100)	- 0.566 (0.000)
Magic Gamma	Fixed-k	0.542 (0.081)	0.517 (0.064)	0.191 (0.494)	- 0.232 (0.000)	0.606 (0.100)	0.612 (0.213)	- 0.354 (0.068)
	Random-k	0.454 (0.052)	0.475 (0.123)	0.203 (0.396)	- 0.263 (0.000)	0.533 (0.173)	0.334 (0.347)	0.049 (0.473)

Table 26: Silhouette measures of examined matrices using CL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.417 (0.051)	0.415 (0.086)	0.268 (0.148)	0.234 (0.149)	0.344 (0.127)	0.242 (0.189)	0.287 (0.059)
	Random-k	0.553 (0.049)	0.557 (0.043)	0.079 (0.338)	0.549 (0.096)	0.551 (0.009)	- 0.025 (0.256)	0.385 (0.268)
2-doughnut	Fixed-k	0.218 (0.015)	0.206 (0.103)	- 0.159 (0.006)	0.120 (0.185)	0.268 (0.131)	- 0.159 (0.000)	0.145 (0.192)
	Random-k	0.418 (0.073)	0.401 (0.053)	0.309 (0.185)	0.418 (0.068)	0.227 (0.021)	0.388 (0.096)	0.368 (0.103)
Difficult Doughnut	Fixed-k	0.343 (0.054)	0.341 (0.028)	0.366 (0.023)	0.236 (0.000)	0.104 (0.036)	0.369 (0.108)	0.369 (0.078)
	Random-k	0.347 (0.013)	0.355 (0.008)	0.349 (0.031)	0.236 (0.000)	0.104 (0.030)	0.357 (0.004)	0.359 (0.005)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	- 0.270 (0.150)	- 0.526 (0.149)	0.885 (0.000)	- 0.085 (0.232)	- 0.195 (0.140)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.705 (0.232)	0.855 (0.083)	0.885 (0.000)	0.755 (0.142)	0.689 (0.182)
Fence	Fixed-k	0.340 (0.025)	0.395 (0.041)	- 0.409 (0.141)	- 0.493 (0.151)	0.055 (0.052)	- 0.341 (0.123)	- 0.400 (0.099)
	Random-k	0.609 (0.031)	0.649 (0.107)	0.344 (0.307)	0.536 (0.187)	0.053 (0.059)	0.409 (0.363)	0.396 (0.304)
E.coli	Fixed-k	0.383 (0.005)	0.354 (0.019)	- 0.206 (0.080)	- 0.603 (0.081)	0.331 (0.067)	- 0.105 (0.064)	- 0.219 (0.088)
	Random-k	0.348 (0.022)	0.369 (0.011)	0.247 (0.134)	- 0.037 (0.140)	0.289 (0.038)	0.262 (0.092)	0.260 (0.121)
Ionosphere	Fixed-k	0.382 (0.052)	0.323 (0.040)	0.108 (0.074)	0.174 (0.009)	0.409 (0.089)	0.324 (0.183)	0.242 (0.158)
	Random-k	0.368 (0.042)	0.372 (0.050)	0.193 (0.184)	0.154 (0.114)	0.398 (0.112)	0.362 (0.063)	0.022 (0.281)
Iris	Fixed-k	0.407 (0.108)	0.511 (0.117)	- 0.156 (0.176)	- 0.343 (0.173)	0.513 (0.105)	- 0.050 (0.209)	- 0.319 (0.075)
	Random-k	0.603 (0.019)	0.607 (0.008)	0.419 (0.258)	0.586 (0.091)	0.584 (0.021)	0.543 (0.114)	0.385 (0.198)
Wine	Fixed-k	0.428 (0.014)	0.423 (0.016)	- 0.041 (0.111)	0.365 (0.041)	0.426 (0.011)	0.160 (0.112)	- 0.050 (0.094)
	Random-k	0.439 (0.008)	0.423 (0.008)	0.242 (0.132)	0.392 (0.041)	0.417 (0.018)	0.348 (0.081)	0.196 (0.149)
Breast Cancer	Fixed-k	0.690 (0.083)	0.716 (0.018)	0.135 (0.370)	- 0.482 (0.000)	0.722 (0.088)	0.160 (0.286)	0.236 (0.279)
	Random-k	0.733 (0.011)	0.734 (0.012)	0.242 (0.368)	- 0.009 (0.301)	0.705 (0.029)	0.385 (0.309)	0.271 (0.331)
Optical Digits	Fixed-k	0.199 (0.050)	0.179 (0.047)	- 0.221 (0.024)	- 0.444 (0.000)	- 0.179 (0.004)	- 0.129 (0.034)	- 0.216 (0.036)
	Random-k	0.246 (0.024)	0.229 (0.040)	- 0.042 (0.035)	- 0.444 (0.000)	0.013 (0.022)	0.076 (0.094)	- 0.058 (0.009)
Pen Digits	Fixed-k	0.328 (0.004)	0.280 (0.016)	- 0.354 (0.004)	- 0.275 (0.073)	0.248 (0.025)	- 0.174 (0.093)	- 0.350 (0.000)
	Random-k	0.412 (0.018)	0.392 (0.005)	- 0.083 (0.022)	- 0.247 (0.030)	0.399 (0.010)	0.054 (0.097)	- 0.104 (0.000)
Magic Gamma	Fixed-k	0.097 (0.015)	0.101 (0.011)	0.065 (0.033)	- 0.007 (0.102)	0.291 (0.119)	- 0.044 (0.353)	0.080 (0.007)
	Random-k	0.397 (0.102)	0.333 (0.078)	0.160 (0.148)	0.093 (0.028)	0.504 (0.223)	0.312 (0.297)	0.098 (0.156)

Table 27: Silhouette measures of examined matrices using AL as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.220 (0.083)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)
	Random-k	0.555 (0.055)	0.589 (0.059)	0.588 (0.064)	0.525 (0.082)	0.589 (0.059)	0.589 (0.059)	0.589 (0.059)
2-doughnut	Fixed-k	0.165 (0.071)	0.174 (0.081)	0.176 (0.113)	- 0.184 (0.000)	0.189 (0.096)	0.143 (0.111)	0.143 (0.111)
	Random-k	0.460 (0.031)	0.464 (0.025)	0.455 (0.064)	0.400 (0.081)	0.220 (0.010)	0.458 (0.079)	0.458 (0.078)
Difficult Doughnut	Fixed-k	0.207 (0.014)	0.218 (0.008)	0.190 (0.095)	0.236 (0.000)	0.127 (0.047)	0.178 (0.084)	0.195 (0.087)
	Random-k	0.343 (0.066)	0.354 (0.079)	0.328 (0.058)	0.236 (0.000)	0.113 (0.020)	0.302 (0.078)	0.302 (0.078)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	- 0.390 (0.266)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.859 (0.083)	0.867 (0.083)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)
Fence	Fixed-k	0.544 (0.077)	0.582 (0.075)	0.543 (0.134)	- 0.414 (0.218)	0.037 (0.051)	0.585 (0.039)	0.585 (0.039)
	Random-k	0.691 (0.059)	0.701 (0.037)	0.693 (0.070)	0.667 (0.063)	0.101 (0.043)	0.698 (0.035)	0.696 (0.035)
E.coli	Fixed-k	0.398 (0.012)	0.418 (0.049)	0.378 (0.033)	- 0.713 (0.006)	0.450 (0.128)	0.319 (0.044)	0.390 (0.039)
	Random-k	0.387 (0.020)	0.417 (0.062)	0.370 (0.042)	- 0.455 (0.149)	0.350 (0.037)	0.312 (0.075)	0.391 (0.058)
Ionosphere	Fixed-k	0.369 (0.057)	0.356 (0.067)	0.355 (0.043)	0.016 (0.158)	0.414 (0.091)	0.346 (0.054)	0.356 (0.028)
	Random-k	0.377 (0.044)	0.387 (0.042)	0.381 (0.042)	0.084 (0.163)	0.403 (0.082)	0.387 (0.034)	0.374 (0.048)
Iris	Fixed-k	0.603 (0.046)	0.619 (0.029)	0.575 (0.052)	0.610 (0.044)	0.580 (0.024)	0.600 (0.032)	0.590 (0.038)
	Random-k	0.617 (0.036)	0.626 (0.019)	0.624 (0.048)	0.613 (0.040)	0.596 (0.027)	0.632 (0.039)	0.633 (0.043)
Wine	Fixed-k	0.442 (0.010)	0.436 (0.014)	0.423 (0.022)	0.356 (0.038)	0.433 (0.008)	0.439 (0.005)	0.424 (0.023)
	Random-k	0.440 (0.008)	0.436 (0.008)	0.435 (0.019)	0.392 (0.033)	0.436 (0.012)	0.441 (0.008)	0.436 (0.016)
Breast Cancer	Fixed-k	0.718 (0.014)	0.719 (0.011)	0.725 (0.027)	- 0.393 (0.000)	0.742 (0.075)	0.715 (0.017)	0.724 (0.011)
	Random-k	0.725 (0.006)	0.725 (0.007)	0.735 (0.013)	- 0.278 (0.443)	0.746 (0.008)	0.735 (0.016)	0.737 (0.015)
Optical Digits	Fixed-k	0.272 (0.010)	0.269 (0.006)	0.270 (0.010)	- 0.444 (0.000)	- 0.191 (0.006)	0.270 (0.009)	0.267 (0.000)
	Random-k	0.265 (0.029)	0.272 (0.017)	0.265 (0.031)	- 0.444 (0.000)	- 0.005 (0.022)	0.272 (0.029)	0.280 (0.091)
Pen Digits	Fixed-k	0.383 (0.011)	0.392 (0.015)	0.362 (0.039)	- 0.383 (0.060)	0.407 (0.000)	0.364 (0.038)	0.392 (0.012)
	Random-k	0.406 (0.003)	0.412 (0.026)	0.399 (0.029)	- 0.238 (0.089)	0.385 (0.007)	0.393 (0.023)	0.416 (0.007)
Magic Gamma	Fixed-k	0.533 (0.065)	0.576 (0.041)	0.521 (0.064)	- 0.163 (0.069)	0.646 (0.100)	0.529 (0.071)	0.565 (0.090)
	Random-k	0.576 (0.079)	0.673 (0.103)	0.520 (0.146)	0.203 (0.018)	0.722 (0.119)	0.564 (0.102)	0.584 (0.112)

Table 28: Silhouette measures of examined matrices using KM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.611 (0.009)	0.620 (0.000)	0.373 (0.148)	0.659 (0.112)	0.670 (0.102)	- 0.014 (0.211)	0.374 (0.122)
	Random-k	0.670 (0.060)	0.642 (0.032)	0.634 (0.057)	0.660 (0.084)	0.666 (0.092)	0.283 (0.267)	0.640 (0.084)
2-doughnut	Fixed-k	0.248 (0.055)	0.240 (0.039)	0.020 (0.109)	0.290 (0.078)	0.316 (0.080)	0.221 (0.153)	0.058 (0.110)
	Random-k	0.452 (0.081)	0.442 (0.070)	0.476 (0.084)	0.508 (0.081)	0.248 (0.017)	0.421 (0.094)	0.509 (0.102)
Difficult Doughnut	Fixed-k	0.127 (0.007)	0.131 (0.007)	0.014 (0.083)	0.209 (0.101)	0.118 (0.013)	0.050 (0.175)	0.071 (0.085)
	Random-k	0.149 (0.024)	0.169 (0.056)	0.145 (0.040)	0.208 (0.053)	0.127 (0.006)	0.257 (0.159)	0.135 (0.031)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.872 (0.050)	0.861 (0.047)	0.805 (0.080)	0.175 (0.155)	0.869 (0.046)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.882 (0.011)	0.868 (0.083)	0.827 (0.057)	0.310 (0.270)	0.885 (0.000)
Fence	Fixed-k	0.371 (0.052)	0.378 (0.083)	- 0.178 (0.195)	0.464 (0.076)	0.061 (0.038)	0.005 (0.202)	0.348 (0.088)
	Random-k	0.628 (0.065)	0.686 (0.039)	0.339 (0.267)	0.476 (0.125)	0.042 (0.015)	0.198 (0.310)	0.468 (0.110)
E.coli	Fixed-k	0.312 (0.027)	0.290 (0.030)	0.260 (0.040)	0.195 (0.028)	0.316 (0.017)	0.160 (0.080)	0.256 (0.038)
	Random-k	0.338 (0.060)	0.357 (0.080)	0.318 (0.035)	0.237 (0.031)	0.273 (0.007)	0.264 (0.074)	0.317 (0.023)
Ionosphere	Fixed-k	0.355 (0.078)	0.376 (0.030)	- 0.007 (0.050)	0.013 (0.000)	0.413 (0.071)	0.014 (0.112)	0.007 (0.050)
	Random-k	0.398 (0.036)	0.400 (0.020)	0.353 (0.077)	0.104 (0.050)	0.404 (0.042)	0.306 (0.072)	0.360 (0.054)
Iris	Fixed-k	0.431 (0.042)	0.407 (0.056)	0.465 (0.107)	0.546 (0.171)	0.534 (0.117)	0.287 (0.250)	0.406 (0.134)
	Random-k	0.592 (0.042)	0.602 (0.051)	0.561 (0.110)	0.607 (0.062)	0.597 (0.077)	0.571 (0.117)	0.524 (0.137)
Wine	Fixed-k	0.455 (0.008)	0.446 (0.028)	0.423 (0.026)	0.442 (0.009)	0.408 (0.007)	0.245 (0.108)	0.419 (0.031)
	Random-k	0.439 (0.017)	0.429 (0.019)	0.345 (0.140)	0.436 (0.036)	0.416 (0.012)	0.404 (0.081)	0.436 (0.013)
Breast Cancer	Fixed-k	0.674 (0.112)	0.686 (0.106)	0.031 (0.049)	- 0.027 (0.002)	0.755 (0.100)	0.283 (0.345)	0.006 (0.034)
	Random-k	0.721 (0.081)	0.736 (0.008)	0.227 (0.214)	0.456 (0.308)	0.753 (0.101)	0.540 (0.272)	0.564 (0.233)
Optical Digits	Fixed-k	0.239 (0.024)	0.249 (0.018)	0.233 (0.019)	- 0.413 (0.000)	0.246 (0.053)	0.233 (0.019)	0.193 (0.005)
	Random-k	0.258 (0.018)	0.253 (0.023)	0.258 (0.022)	- 0.413 (0.000)	0.216 (0.011)	0.238 (0.022)	0.266 (0.020)
Pen Digits	Fixed-k	0.331 (0.018)	0.339 (0.040)	0.323 (0.042)	- 0.025 (0.000)	0.350 (0.047)	0.323 (0.042)	0.306 (0.000)
	Random-k	0.381 (0.003)	0.394 (0.007)	0.371 (0.017)	0.076 (0.054)	0.379 (0.004)	0.371 (0.017)	0.394 (0.010)
Magic Gamma	Fixed-k	0.313 (0.046)	0.301 (0.029)	- 0.115 (0.166)	0.265 (0.000)	0.452 (0.083)	- 0.115 (0.166)	- 0.187 (0.012)
	Random-k	0.359 (0.060)	0.312 (0.042)	0.077 (0.191)	0.262 (0.002)	0.428 (0.072)	0.077 (0.191)	0.019 (0.028)

Table 29: Silhouette measures of examined matrices using PAM as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.576 (0.080)	0.592 (0.055)	- 0.017 (0.200)	0.635 (0.075)	0.624 (0.063)	0.022 (0.082)	- 0.002 (0.225)
	Random-k	0.610 (0.055)	0.597 (0.040)	0.561 (0.157)	0.629 (0.058)	0.631 (0.042)	0.535 (0.183)	0.592 (0.116)
2-doughnut	Fixed-k	0.214 (0.043)	0.199 (0.037)	0.014 (0.183)	0.224 (0.025)	0.268 (0.052)	- 0.022 (0.161)	0.244 (0.166)
	Random-k	0.436 (0.056)	0.455 (0.062)	0.465 (0.075)	0.464 (0.050)	0.285 (0.033)	0.487 (0.023)	0.464 (0.052)
Difficult Doughnut	Fixed-k	0.218 (0.037)	0.242 (0.021)	0.118 (0.204)	0.319 (0.113)	0.110 (0.008)	- 0.047 (0.021)	0.139 (0.184)
	Random-k	0.317 (0.062)	0.334 (0.058)	0.327 (0.123)	0.359 (0.060)	0.127 (0.018)	0.119 (0.062)	0.173 (0.056)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.215 (0.119)	0.884 (0.006)	0.885 (0.000)	0.161 (0.138)	0.035 (0.130)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.845 (0.093)	0.885 (0.000)	0.885 (0.000)	0.858 (0.053)	0.535 (0.293)
Fence	Fixed-k	0.531 (0.098)	0.575 (0.100)	- 0.067 (0.082)	0.622 (0.091)	0.171 (0.010)	0.051 (0.076)	- 0.252 (0.170)
	Random-k	0.714 (0.081)	0.750 (0.046)	0.451 (0.186)	0.755 (0.053)	0.147 (0.007)	0.384 (0.171)	0.339 (0.151)
E.coli	Fixed-k	0.320 (0.032)	0.307 (0.052)	0.193 (0.059)	0.327 (0.019)	0.384 (0.105)	0.146 (0.051)	0.096 (0.065)
	Random-k	0.340 (0.016)	0.329 (0.020)	0.332 (0.028)	0.292 (0.042)	0.276 (0.027)	0.245 (0.051)	0.300 (0.035)
Ionosphere	Fixed-k	0.390 (0.067)	0.428 (0.033)	0.058 (0.133)	0.400 (0.090)	0.416 (0.071)	0.133 (0.031)	0.087 (0.116)
	Random-k	0.392 (0.031)	0.404 (0.011)	0.380 (0.052)	0.369 (0.008)	0.399 (0.022)	0.337 (0.063)	0.358 (0.061)
Iris	Fixed-k	0.533 (0.032)	0.559 (0.077)	0.066 (0.166)	0.601 (0.091)	0.574 (0.037)	0.320 (0.118)	0.107 (0.264)
	Random-k	0.624 (0.034)	0.640 (0.025)	0.546 (0.158)	0.630 (0.023)	0.611 (0.008)	0.630 (0.023)	0.633 (0.022)
Wine	Fixed-k	0.436 (0.007)	0.432 (0.009)	0.194 (0.097)	0.440 (0.031)	0.435 (0.024)	0.268 (0.086)	0.247 (0.133)
	Random-k	0.445 (0.006)	0.445 (0.006)	0.434 (0.037)	0.445 (0.004)	0.431 (0.004)	0.436 (0.012)	0.329 (0.135)
Breast Cancer	Fixed-k	0.678 (0.105)	0.690 (0.125)	- 0.101 (0.058)	0.694 (0.020)	0.709 (0.081)	- 0.027 (0.054)	- 0.110 (0.126)
	Random-k	0.746 (0.007)	0.746 (0.007)	0.065 (0.094)	0.749 (0.062)	0.753 (0.011)	0.166 (0.099)	0.400 (0.347)
Optical Digits	Fixed-k	0.192 (0.063)	0.187 (0.057)	- 0.046 (0.041)	- 0.084 (0.047)	0.187 (0.023)	- 0.037 (0.032)	- 0.105 (0.004)
	Random-k	0.239 (0.040)	0.247 (0.028)	0.165 (0.054)	- 0.002 (0.017)	0.242 (0.034)	0.181 (0.052)	0.154 (0.011)
Pen Digits	Fixed-k	0.273 (0.027)	0.286 (0.001)	- 0.237 (0.053)	- 0.028 (0.028)	0.307 (0.083)	- 0.169 (0.012)	- 0.310 (0.000)
	Random-k	0.358 (0.060)	0.371 (0.054)	0.251 (0.008)	0.069 (0.016)	0.361 (0.042)	0.356 (0.060)	0.397 (0.000)
Magic Gamma	Fixed-k	0.213 (0.025)	0.241 (0.019)	- 0.060 (0.311)	0.269 (0.094)	0.344 (0.108)	- 0.261 (0.168)	- 0.225 (0.080)
	Random-k	0.388 (0.080)	0.406 (0.036)	0.112 (0.217)	0.264 (0.014)	0.429 (0.058)	0.077 (0.242)	0.124 (0.128)

Table 30: Silhouette measures of examined matrices using SPC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA_{WCT}	RA_{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.582 (0.036)	0.591 (0.025)	0.520 (0.000)	0.174 (0.481)	0.669 (0.092)	0.520 (0.000)	0.520 (0.000)
	Random-k	0.675 (0.057)	0.664 (0.040)	0.633 (0.061)	0.662 (0.029)	0.666 (0.002)	0.626 (0.060)	0.626 (0.060)
2-doughnut	Fixed-k	0.195 (0.092)	0.200 (0.091)	0.190 (0.120)	0.223 (0.090)	0.242 (0.047)	0.172 (0.126)	0.123 (0.070)
	Random-k	0.453 (0.054)	0.428 (0.043)	0.482 (0.055)	0.463 (0.078)	0.299 (0.019)	0.502 (0.077)	0.502 (0.077)
Difficult Doughnut	Fixed-k	0.234 (0.004)	0.255 (0.036)	0.238 (0.079)	0.047 (0.065)	0.127 (0.015)	0.266 (0.072)	0.231 (0.064)
	Random-k	0.314 (0.091)	0.339 (0.079)	0.344 (0.046)	0.049 (0.065)	0.119 (0.013)	0.331 (0.053)	0.319 (0.055)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.755 (0.205)	0.870 (0.060)	0.885 (0.000)	0.885 (0.000)	0.677 (0.154)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.809 (0.117)	0.885 (0.000)	0.885 (0.000)	0.819 (0.101)	0.661 (0.164)
Fence	Fixed-k	0.563 (0.067)	0.557 (0.102)	0.547 (0.221)	- 0.089 (0.044)	0.182 (0.022)	0.623 (0.135)	0.394 (0.256)
	Random-k	0.690 (0.049)	0.718 (0.039)	0.694 (0.104)	0.422 (0.282)	0.155 (0.003)	0.680 (0.080)	0.494 (0.236)
E.coli	Fixed-k	0.336 (0.060)	0.358 (0.058)	0.377 (0.041)	0.078 (0.022)	0.357 (0.066)	0.284 (0.065)	0.211 (0.075)
	Random-k	0.342 (0.044)	0.334 (0.053)	0.335 (0.048)	0.124 (0.029)	0.248 (0.036)	0.297 (0.041)	0.184 (0.133)
Ionosphere	Fixed-k	0.391 (0.031)	0.380 (0.024)	0.373 (0.045)	- 0.155 (0.031)	0.416 (0.070)	0.400 (0.058)	0.386 (0.031)
	Random-k	0.389 (0.040)	0.391 (0.041)	0.385 (0.040)	0.007 (0.055)	0.400 (0.033)	0.394 (0.034)	0.370 (0.043)
Iris	Fixed-k	0.572 (0.056)	0.593 (0.060)	0.593 (0.042)	0.516 (0.048)	0.590 (0.088)	0.603 (0.071)	0.558 (0.124)
	Random-k	0.610 (0.036)	0.622 (0.025)	0.625 (0.030)	0.623 (0.018)	0.637 (0.052)	0.645 (0.063)	0.525 (0.211)
Wine	Fixed-k	0.436 (0.007)	0.439 (0.008)	0.434 (0.015)	0.404 (0.005)	0.439 (0.003)	0.444 (0.014)	0.437 (0.007)
	Random-k	0.440 (0.008)	0.446 (0.007)	0.448 (0.005)	0.409 (0.006)	0.444 (0.008)	0.446 (0.010)	0.426 (0.070)
Breast Cancer	Fixed-k	0.762 (0.064)	0.737 (0.008)	0.739 (0.034)	- 0.393 (0.000)	0.756 (0.041)	0.740 (0.029)	0.739 (0.005)
	Random-k	0.749 (0.007)	0.751 (0.004)	0.750 (0.007)	0.428 (0.350)	0.759 (0.011)	0.749 (0.009)	0.752 (0.005)
Optical Digits	Fixed-k	0.197 (0.022)	0.203 (0.017)	0.196 (0.055)	- 0.019 (0.002)	0.205 (0.003)	0.195 (0.055)	0.148 (0.011)
	Random-k	0.195 (0.051)	0.211 (0.017)	0.172 (0.053)	- 0.016 (0.002)	0.164 (0.062)	0.172 (0.053)	0.211 (0.038)
Pen Digits	Fixed-k	0.284 (0.040)	0.282 (0.049)	0.287 (0.015)	- 0.025 (0.008)	0.335 (0.148)	0.217 (0.077)	0.321 (0.100)
	Random-k	0.288 (0.019)	0.307 (0.030)	0.330 (0.038)	0.050 (0.046)	0.311 (0.071)	0.313 (0.120)	0.275 (0.001)
Magic Gamma	Fixed-k	0.262 (0.031)	0.218 (0.029)	0.451 (0.176)	0.323 (0.107)	0.372 (0.124)	0.441 (0.187)	0.422 (0.122)
	Random-k	0.403 (0.036)	0.385 (0.054)	0.452 (0.090)	0.286 (0.024)	0.461 (0.104)	0.480 (0.153)	0.523 (0.155)

Table 31: Silhouette measures of examined matrices using METIS as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.520 (0.000)	0.089 (0.107)	0.520 (0.000)
	Random-k	0.665 (0.064)	0.620 (0.010)	0.608 (0.075)	0.670 (0.045)	0.666 (0.062)	0.485 (0.252)	0.619 (0.074)
2-doughnut	Fixed-k	0.132 (0.000)	0.132 (0.000)	0.182 (0.085)	0.143 (0.004)	0.369 (0.015)	0.132 (0.000)	0.158 (0.062)
	Random-k	0.397 (0.068)	0.474 (0.089)	0.502 (0.098)	0.487 (0.109)	0.253 (0.000)	0.494 (0.120)	0.490 (0.095)
Difficult Doughnut	Fixed-k	0.109 (0.002)	0.110 (0.003)	0.113 (0.017)	- 0.004 (0.000)	0.115 (0.029)	0.111 (0.012)	0.113 (0.028)
	Random-k	0.109 (0.002)	0.109 (0.002)	0.107 (0.003)	- 0.004 (0.000)	0.122 (0.029)	0.109 (0.002)	0.108 (0.004)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	0.884 (0.001)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	0.881 (0.027)
Fence	Fixed-k	0.477 (0.026)	0.468 (0.032)	0.424 (0.131)	0.424 (0.066)	0.100 (0.019)	0.233 (0.091)	0.427 (0.124)
	Random-k	0.543 (0.035)	0.498 (0.018)	0.437 (0.090)	0.402 (0.073)	0.099 (0.007)	0.404 (0.113)	0.452 (0.090)
E.coli	Fixed-k	0.175 (0.020)	0.175 (0.014)	0.182 (0.046)	0.175 (0.005)	0.197 (0.028)	0.129 (0.057)	0.181 (0.042)
	Random-k	0.186 (0.017)	0.178 (0.022)	0.158 (0.024)	0.186 (0.012)	0.175 (0.013)	0.154 (0.032)	0.160 (0.024)
Ionosphere	Fixed-k	0.361 (0.004)	0.362 (0.002)	0.315 (0.080)	0.374 (0.022)	0.377 (0.030)	0.168 (0.032)	0.315 (0.079)
	Random-k	0.384 (0.009)	0.391 (0.005)	0.384 (0.003)	0.384 (0.000)	0.386 (0.000)	0.374 (0.010)	0.379 (0.011)
Iris	Fixed-k	0.521 (0.018)	0.527 (0.011)	0.529 (0.010)	0.630 (0.118)	0.585 (0.116)	0.587 (0.075)	0.525 (0.013)
	Random-k	0.562 (0.017)	0.576 (0.030)	0.540 (0.013)	0.614 (0.071)	0.606 (0.085)	0.588 (0.047)	0.531 (0.056)
Wine	Fixed-k	0.428 (0.004)	0.425 (0.002)	0.426 (0.004)	0.431 (0.008)	0.421 (0.009)	0.404 (0.057)	0.427 (0.010)
	Random-k	0.430 (0.005)	0.426 (0.003)	0.428 (0.010)	0.429 (0.003)	0.424 (0.004)	0.430 (0.008)	0.429 (0.009)
Breast Cancer	Fixed-k	0.483 (0.006)	0.474 (0.012)	0.174 (0.104)	0.412 (0.001)	0.480 (0.020)	0.323 (0.157)	0.222 (0.151)
	Random-k	0.461 (0.016)	0.462 (0.007)	0.404 (0.102)	0.457 (0.021)	0.460 (0.031)	0.327 (0.164)	0.378 (0.127)
Optical Digits	Fixed-k	0.276 (0.007)	0.265 (0.013)	0.264 (0.016)	- 0.037 (0.004)	- 0.025 (0.005)	0.102 (0.025)	0.249 (0.013)
	Random-k	0.263 (0.008)	0.255 (0.019)	0.252 (0.016)	0.046 (0.030)	0.198 (0.003)	0.225 (0.023)	0.245 (0.008)
Pen Digits	Fixed-k	0.297 (0.001)	0.304 (0.020)	0.280 (0.022)	- 0.234 (0.209)	0.342 (0.105)	0.084 (0.023)	0.302 (0.077)
	Random-k	0.316 (0.001)	0.304 (0.005)	0.297 (0.003)	- 0.009 (0.140)	0.337 (0.091)	0.300 (0.007)	0.294 (0.005)
Magic Gamma	Fixed-k	0.362 (0.003)	0.363 (0.006)	0.316 (0.062)	0.370 (0.020)	0.365 (0.009)	0.085 (0.069)	0.349 (0.006)
	Random-k	0.366 (0.008)	0.377 (0.001)	0.308 (0.077)	0.372 (0.030)	0.370 (0.090)	0.374 (0.326)	0.237 (0.110)

Table 32: Silhouette measures of examined matrices using gSPEC as a consensus function. Note that the corresponding standard deviation values are given in parentheses.

Dataset	Ensemble Type	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
2-banana	Fixed-k	0.620 (0.000)	0.620 (0.000)	0.376 (0.172)	0.657 (0.070)	0.670 (0.082)	0.295 (0.207)	0.311 (0.183)
	Random-k	0.638 (0.040)	0.638 (0.040)	0.622 (0.106)	0.664 (0.077)	0.666 (0.102)	0.277 (0.251)	0.638 (0.040)
2-doughnut	Fixed-k	0.249 (0.062)	0.245 (0.049)	0.139 (0.104)	0.277 (0.100)	0.307 (0.122)	0.166 (0.167)	0.138 (0.108)
	Random-k	0.486 (0.083)	0.456 (0.053)	0.487 (0.064)	0.510 (0.092)	0.261 (0.016)	0.426 (0.100)	0.509 (0.102)
Difficult Doughnut	Fixed-k	0.134 (0.006)	0.141 (0.022)	0.051 (0.106)	- 0.002 (0.010)	0.117 (0.014)	0.069 (0.093)	0.077 (0.107)
	Random-k	0.183 (0.062)	0.203 (0.051)	0.257 (0.089)	- 0.001 (0.013)	0.126 (0.006)	0.190 (0.090)	0.221 (0.082)
5-gaussian	Fixed-k	0.885 (0.000)	0.885 (0.000)	0.634 (0.251)	0.885 (0.000)	0.885 (0.000)	0.683 (0.185)	0.440 (0.265)
	Random-k	0.885 (0.000)	0.885 (0.000)	0.885 (0.000)	0.885 (0.001)	0.885 (0.000)	0.577 (0.080)	0.728 (0.200)
Fence	Fixed-k	0.535 (0.033)	0.582 (0.079)	0.265 (0.116)	0.094 (0.069)	0.158 (0.046)	0.034 (0.102)	0.105 (0.191)
	Random-k	0.630 (0.045)	0.677 (0.033)	0.582 (0.145)	0.612 (0.119)	0.187 (0.072)	0.329 (0.228)	0.534 (0.184)
E. coli	Fixed-k	0.321 (0.033)	0.351 (0.044)	0.247 (0.041)	0.240 (0.018)	0.372 (0.061)	0.206 (0.052)	0.195 (0.086)
	Random-k	0.371 (0.032)	0.353 (0.048)	0.336 (0.028)	0.244 (0.027)	0.370 (0.048)	0.234 (0.058)	0.238 (0.121)
Ionosphere	Fixed-k	0.392 (0.023)	0.410 (0.020)	0.209 (0.011)	0.057 (0.000)	0.401 (0.042)	0.197 (0.057)	0.209 (0.011)
	Random-k	0.409 (0.008)	0.405 (0.013)	0.390 (0.044)	0.163 (0.060)	0.402 (0.033)	0.251 (0.154)	0.402 (0.005)
Iris	Fixed-k	0.586 (0.026)	0.613 (0.037)	0.534 (0.123)	0.648 (0.100)	0.614 (0.093)	0.400 (0.155)	0.556 (0.068)
	Random-k	0.601 (0.040)	0.613 (0.036)	0.590 (0.075)	0.648 (0.003)	0.644 (0.000)	0.408 (0.222)	0.604 (0.037)
Wine	Fixed-k	0.435 (0.007)	0.429 (0.009)	0.432 (0.015)	0.433 (0.002)	0.440 (0.021)	0.426 (0.039)	0.420 (0.054)
	Random-k	0.452 (0.006)	0.449 (0.007)	0.444 (0.006)	0.439 (0.006)	0.447 (0.008)	0.368 (0.099)	0.415 (0.097)
Breast Cancer	Fixed-k	0.728 (0.003)	0.733 (0.005)	0.036 (0.040)	- 0.180 (0.030)	0.719 (0.020)	0.268 (0.196)	0.029 (0.019)
	Random-k	0.716 (0.085)	0.740 (0.006)	0.106 (0.129)	0.220 (0.320)	0.742 (0.071)	0.247 (0.194)	0.146 (0.218)
Optical Digits	Fixed-k	0.224 (0.030)	0.233 (0.034)	0.154 (0.058)	- 0.107 (0.020)	0.228 (0.040)	0.148 (0.048)	0.163 (0.072)
	Random-k	0.258 (0.025)	0.240 (0.029)	0.213 (0.053)	0.100 (0.002)	0.224 (0.044)	0.203 (0.046)	0.170 (0.046)
Pen Digits	Fixed-k	0.340 (0.042)	0.365 (0.000)	0.198 (0.026)	0.133 (0.015)	0.367 (0.014)	0.056 (0.020)	0.123 (0.002)
	Random-k	0.293 (0.038)	0.324 (0.031)	0.331 (0.090)	0.201 (0.040)	0.322 (0.070)	0.257 (0.015)	0.269 (0.030)
Magic Gamma	Fixed-k	0.298 (0.020)	0.326 (0.012)	0.271 (0.040)	0.298 (0.000)	0.374 (0.104)	- 0.065 (0.029)	0.232 (0.019)
	Random-k	0.351 (0.027)	0.344 (0.014)	0.340 (0.053)	0.298 (0.000)	0.381 (0.091)	0.135 (0.153)	0.292 (0.039)

Table 33: The statistics of better (B) and worse (W) performance of each information matrix according to Jaccard index, categorized with respect to the consensus function. These are summarized across datasets and ensemble types.

Con.Fn.	Better							Worse						
	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
SL	48	38	40	16	27	33	27	9	11	16	95	69	20	9
CL	104	92	23	38	77	22	23	18	25	72	79	46	68	71
AL	68	54	33	28	50	31	31	15	25	39	101	64	25	26
KM	80	72	35	40	45	28	37	19	25	49	72	73	63	36
PAM	92	93	22	51	70	32	27	25	25	85	72	52	67	61
SPC	65	70	38	22	54	42	40	30	22	42	106	62	30	39
METIS	67	60	40	34	32	35	46	19	26	26	72	90	49	32
gSPEC	98	87	32	37	67	30	26	17	23	59	90	50	81	57
Total	622	566	263	266	422	253	257	152	182	388	687	506	403	331

Table 34: The statistics of better (B) and worse (W) performance of each information matrix according to Dunn index, categorized with respect to the consensus function. These are summarized across datasets and ensemble types.

Con.Fn.	Better							Worse						
	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
SL	51	57	36	15	44	38	27	12	11	23	86	57	34	45
CL	86	77	33	53	74	43	38	25	35	80	79	40	70	75
AL	39	65	35	28	66	37	49	40	26	32	107	48	36	30
KM	66	67	28	69	94	33	40	42	41	72	55	40	78	69
PAM	84	84	25	79	81	22	23	29	19	84	43	35	91	97
SPC	56	57	46	22	63	41	35	29	24	30	107	41	25	64
METIS	73	74	42	53	69	23	36	31	27	51	68	48	90	55
gSPEC	87	91	48	43	82	11	35	18	13	53	84	31	125	73
Total	542	572	293	362	573	248	283	226	196	425	629	340	549	508

Table 35: The statistics of better (B) and worse (W) performance of each information matrix according to Silhouette index, categorized with respect to the consensus function. These are summarized across datasets and ensemble types.

Con.Fn.	Better							Worse						
	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO	RA _{WCT}	RA _{WTQ}	BA	FCM	WDM	TMB	CO
SL	55	55	21	58	60	24	27	28	30	48	49	44	53	48
CL	99	93	27	60	74	27	34	21	20	88	72	56	79	78
AL	40	57	30	37	47	36	41	29	12	34	90	62	36	25
KM	81	83	30	72	71	19	42	24	25	72	49	58	101	69
PAM	77	83	22	73	76	25	33	24	14	93	35	38	101	84
SPC	50	55	49	15	63	52	34	29	22	26	113	35	28	65
METIS	70	64	36	53	65	27	29	26	27	57	51	43	82	58
gSPEC	87	91	46	42	84	16	21	20	14	57	76	27	109	84
Total	559	581	261	410	540	226	261	201	164	475	535	363	589	511