

Supplementary Materials 2:
 p -values of the relative performances
of 11 normalization methods

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1 Bladder cancer data set

1.1 *sigma*

	seg	seg+2dLoess	none	2dLoess	adjSeg	adjSeg+2dLoess	block	block+2dLoess	ptl	ptl+movMed	mnNorm
seg	seg	1	1	1	1	1	1	1	1	1	1
seg+2dLoess	0.00079		1	1	1	1	1	1	1	1	1
none	1.6e-15	1.1e-08		0.48	1	1	1	1	1	1	1
2dLoess	4.2e-15	4.9e-14	0.44		1	1	1	1	1	1	1
adjSeg	7.3e-17	5.1e-14	4.5e-16	1.5e-11	1	1	1	1	1	1	1
adjSeg+2dLoess	1.3e-18	1.4e-17	1.2e-17	4.5e-17	5.4e-05		1	1	1	1	1
block	8.9e-57	4.2e-64	1.1e-58	5.3e-73	9.9e-31	1.2e-32	0.98	0.98	1	1	1
block+2dLoess	7.3e-52	1.8e-63	1.5e-47	1.8e-65	3e-25	2.8e-28	0.014		1	1	1
ptl	2.8e-31	1.3e-33	1.3e-28	4.6e-31	5.2e-25	3.7e-26	3.1e-16	1e-16	1	1	1
ptl+movMed	7.1e-33	3.3e-35	7.1e-31	3.5e-33	2.4e-28	1.2e-29	1.5e-21	2.5e-22	2.4e-35		1
mnNorm	3.7e-40	7.4e-42	2.3e-39	6.5e-41	2e-38	1.7e-39	8.9e-36	1.3e-36	2.2e-41	1.5e-39	

Table 1: sigma

1.2 smt

	seg+2dLoess	block+2dLoess	2dLoess	adjSeg+2dLoess	nmNorm	ptl+movMed	ptl	seg	block	adjSeg	none
seg+2dLoess		0.65	1	1	1	1	1	1	1	1	1
block+2dLoess	0.048		0.91	1	1	1	1	1	1	1	1
2dLoess	8.1e-06	0.057		1	1	1	1	1	1	1	1
adjSeg+2dLoess	3e-12	6.2e-06	5e-09		0.5	1	1	1	1	1	1
nmNorm	3.3e-07	2.4e-06	9.4e-05	0.044		1	1	1	1	1	1
ptl+movMed	3.9e-09	1e-11	3.2e-07	0.00029	2.8e-11		1	1	0.84	1	1
ptl	4.5e-19	3.6e-22	1.1e-17	2.2e-12	1.4e-19	1.4e-14		0.83	0.97	0.99	1
seg	1e-32	5.4e-30	2e-28	1.9e-20	4.9e-13	1.7e-09	0.00094		0.96	1	1
block	3.4e-28	5.3e-31	3.9e-27	9.1e-22	1.5e-13	1.3e-08	6e-05	0.0091		0.23	1
adjSeg	7.3e-36	5.3e-35	2.4e-33	2.2e-23	1.2e-15	3.4e-12	1e-05	4.2e-07	0.44		1
none	7.7e-35	3.9e-36	6.1e-34	6.2e-32	1.2e-19	1e-16	1.1e-11	5.4e-14	1.1e-12	1.7e-13	

Table 2: smt

1.3 *dyn*

	seg+2dLoess	2dLoess	block+2dLoess	adjSeg+2dLoess	seg	adjSeg	block	nmNorm	none	ptl+movMed	ptl
seg+2dLoess		1	1	1	1	1	1	1	1	1	1
2dLoess	0.0083		0.85	1	1	1	1	1	1	1	1
block+2dLoess	0.039	0.52		0.97	1	1	1	1	1	1	1
adjSeg+2dLoess	2.4e-12	0.001	0.31		1	1	1	1	1	1	1
seg	9.8e-40	2.1e-32	1.7e-13	1.9e-17		1	1	1	1	0.98	1
adjSeg	6.5e-48	9e-42	2.4e-18	6.7e-27	1.3e-06		0.98	1	1	1	1
block	2.2e-38	3.3e-35	4.8e-35	2.6e-27	0.00044	0.064		0.98	1	0.97	1
nmNorm	8.5e-18	2.3e-15	8.8e-16	6.9e-12	0.35	0.44	0.74		0.95	0.99	0.99
none	4.2e-48	4.8e-45	1.1e-22	1.3e-36	1.6e-15	6.6e-13	0.22	0.9		0.97	0.97
ptl+movMed	1.3e-23	1.4e-21	8e-22	1.1e-16	0.039	0.086	0.3	0.11	0.76		0.81
ptl	6.2e-25	2.6e-23	9.8e-25	2.9e-18	0.0081	0.056	0.092	0.17	0.64	0.57	

Table 3: *dyn*

2 Breast cancer data set

2.1 σ

	seg+2dLoess	block+2dLoess	2dLoess	adjSeg+2dLoess	ptl+movMed	ptl	mnNorm	block	seg	none	adjSeg
seg+2dLoess		0.99	1	1	1	1	1	1	1	1	1
block+2dLoess	0.00023		0.99	1	1	1	1	1	1	1	1
2dLoess	6.2e-13	0.014		1	1	1	1	1	1	1	1
adjSeg+2dLoess	1.3e-12	0.0019	0.0022		1	1	1	1	1	1	1
ptl+movMed	2.2e-13	2.3e-13	5.5e-08	1e-06		1	1	1	1	1	1
ptl	2.1e-20	3.3e-22	7.8e-16	1.7e-14	6.2e-25		1	1	1	1	1
mnNorm	1.4e-25	1.2e-27	2.9e-21	7.4e-20	2.8e-27	4.4e-11		1	1	1	1
block	3.5e-28	5.8e-29	1.3e-26	6.4e-26	6.2e-27	1.1e-23	2.9e-21		0.48	0.99	1
seg	1e-29	7.4e-28	1.1e-27	5.6e-27	9.1e-25	4.2e-21	1.3e-18	0.24		1	1
none	1.7e-31	2.8e-30	4.1e-30	1.9e-29	1.2e-27	4.1e-24	1.1e-21	0.013	3.4e-08		0.96
adjSeg	1.4e-31	2.1e-30	3e-30	1.2e-29	1.1e-27	3.5e-24	9.8e-22	0.0084	1.1e-09	0.029	

Table 4: σ

2.2 smt

	seg+2dLoess	2dLoess	adjSeg+2dLoess	block+2dLoess	ptl+movMed	ptl	mnNorm	seg	adjSeg	none	block
seg+2dLoess		1	1	1	1	1	1	1	1	1	1
2dLoess	2.4e-08		1	0.96	1	1	1	1	1	1	1
adjSeg+2dLoess	1.3e-09	0.0017		0.47	1	1	1	1	1	1	1
block+2dLoess	1.4e-08	0.017	0.38		1	1	1	1	1	1	1
ptl+movMed	4.7e-10	9.1e-08	1.3e-06	1.1e-06		1	1	1	1	1	1
ptl	7.5e-22	1.6e-20	7.6e-20	4.8e-20	2.5e-28		1	1	1	1	1
mnNorm	3.6e-23	4.3e-22	1.6e-21	2.3e-21	3.1e-31	0.00024		1	1	1	1
seg	7.5e-25	5e-23	2.3e-23	5.2e-23	4e-24	2e-21	1.7e-21		1	1	0.77
adjSeg	2.4e-24	7.7e-24	2.3e-24	1.1e-23	1.4e-25	4.6e-23	6.3e-24	1e-06		1	0.99
none	8.8e-24	7.3e-24	1.1e-24	2.3e-23	2.1e-25	2.1e-23	1.1e-23	3.5e-05	0.004		0.87
block	5.5e-24	1.7e-24	1.6e-24	4.5e-24	2.7e-26	1.5e-24	1.1e-24	0.0014	0.002	0.06	

Table 5: smt

2.3 d_{dyn}

	seg+2dLoess	2dLoess	adjSeg+2dLoess	block+2dLoess	ptl+movMed	nmNorm	ptl	seg	adjSeg	none	block
seg+2dLoess		1	1	1	1	1	1	1	1	1	1
2dLoess	5.3e-07		1	0.96	1	1	1	1	1	1	1
adjSeg+2dLoess	1.5e-07	0.0064		0.64	1	1	1	1	1	1	1
block+2dLoess	1.1e-05	0.1	0.53		1	1	1	1	1	1	1
ptl+movMed	2e-26	3.5e-23	1.4e-22	6.8e-25		1	1	1	1	1	1
nmNorm	7e-41	3.3e-39	4.3e-38	1.3e-40	1.7e-16		0.94	1	1	1	1
ptl	2.4e-42	9e-40	2.9e-38	2.7e-41	5.9e-22	0.13		1	1	1	1
seg	2.1e-52	2.2e-49	3.8e-50	1.2e-49	6.1e-23	3.6e-17	3.5e-16		1	1	1
adjSeg	2.8e-55	3.2e-53	1.3e-53	3.9e-52	3.8e-25	1.5e-19	6.4e-18	0.00078		0.99	1
none	4.6e-56	1.3e-54	1.6e-54	4.4e-54	9.9e-26	3e-20	4.1e-19	2.3e-05	0.0089		0.99
block	6.1e-61	1.1e-60	3.2e-59	1.2e-60	5e-33	5.2e-27	5.3e-25	0.17	0.0016	0.015	

Table 6: d_{dyn}

3 Neuroblastoma data set

3.1 *sigma*

	seg+2dLoess	block+2dLoess	adjSeg+2dLoess	2dLoess	ptl+movMed	ptl	mnNorm	seg	block	adjSeg	none
seg+2dLoess		0.95	0.97	0.98	1	1	1	1	1	1	1
block+2dLoess	0.048		0.95	0.98	0.99	1	1	1	1	1	1
adjSeg+2dLoess	0.029	0.049		0.48	0.99	1	1	1	1	1	1
2dLoess	0.016	0.019	0.51		0.98	1	1	1	1	1	1
ptl+movMed	0.0024	0.0052	0.012	0.014		1	1	1	1	1	1
ptl	4e-06	2.2e-06	5.1e-06	1.1e-05	7.3e-06		1	1	1	1	1
mnNorm	2e-07	1.7e-07	3.8e-07	7.7e-07	3.7e-07	2.9e-06		1	1	1	1
seg	5.5e-05	9.4e-05	0.00011	0.00011	0.00015	0.00031	0.00047		0.62	0.98	0.96
block	5.6e-05	9e-05	1e-04	1e-04	0.00014	0.00029	0.00044	0.37		0.84	0.95
adjSeg	4.7e-05	7.7e-05	8.6e-05	8.9e-05	0.00012	0.00025	0.00038	0.02	0.16		0.81
none	4.5e-05	7.4e-05	8.2e-05	8.5e-05	0.00012	0.00023	0.00036	0.044	0.051	0.19	

Table 7: sigma

3.2 smt

	seg+2dLoess	adjSeg+2dLoess	2dLoess	ptl+movMed	block+2dLoess	ptl	mnNorm	seg	adjSeg	none	block
seg+2dLoess		0.72	0.98	0.8	0.98	1	1	1	1	1	1
adjSeg+2dLoess	0.26		0.96	0.78	0.97	1	1	1	1	1	1
2dLoess	0.023	0.042		0.71	0.83	1	1	1	1	1	1
ptl+movMed	0.11	0.13	0.17		0.23	1	1	1	1	1	1
block+2dLoess	0.019	0.03	0.16	0.63		1	1	1	1	1	1
ptl	0.00039	0.00049	0.00081	0.00031	0.0011		0.91	1	1	1	1
mnNorm	7.6e-05	9.1e-05	0.00016	8.5e-05	0.00046	0.07		1	1	1	1
seg	6.4e-09	8.1e-09	9.6e-09	1.3e-07	1.6e-08	2.5e-08	1.4e-07		0.93	0.94	0.98
adjSeg	5.2e-09	6.1e-09	7.1e-09	1e-07	1.2e-08	1.6e-08	8.8e-08	0.076		0.92	0.96
none	3.9e-09	4.2e-09	5.1e-09	7.8e-08	8.4e-09	7.6e-09	4.4e-08	0.072	0.085		0.86
block	2.1e-09	2.4e-09	3.1e-09	2.3e-08	3.7e-09	4.5e-09	7.9e-09	0.02	0.034	0.12	

Table 8: smt

3.3 *dyn*

	adjSeg+2dLoess	seg+2dLoess	2dLoess	block+2dLoess	ptl+movMed	mnNorm	ptl	seg	adjSeg	none	block
adjSeg+2dLoess		0.9	0.97	0.99	1	1	1	1	1	1	1
seg+2dLoess	0.1		0.6	0.92	1	1	1	1	1	1	1
2dLoess	0.026	0.41		0.94	1	1	1	1	1	1	1
block+2dLoess	0.014	0.081	0.062		1	1	1	1	1	1	1
ptl+movMed	1e-05	1e-05	2e-05	1.3e-05		0.99	1	1	1	1	1
mnNorm	6e-09	4.8e-09	1.1e-08	7.8e-08	0.015		0.74	1	1	1	1
ptl	1.3e-08	1.1e-08	4.4e-08	3.5e-08	0.0014	0.32		1	1	1	1
seg	7.7e-12	6.7e-12	8.2e-12	8.2e-11	1.2e-05	3.1e-05	2.9e-05		0.93	0.9	0.96
adjSeg	6.5e-12	5.7e-12	7.1e-12	7.3e-11	9.8e-06	2.5e-05	2.2e-05	0.067		0.87	0.95
none	4.5e-12	4e-12	5.2e-12	5.5e-11	8.8e-06	1.4e-05	1.4e-05	0.093	0.12		0.87
block	8.9e-13	7.8e-13	1.2e-12	2.9e-12	7.1e-07	7.9e-07	2.1e-06	0.048	0.063	0.15	

Table 9: *dyn*