# Wilcoxon Signed Ranks test.

KEEL non-parametric statistical module

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| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| SVRC (1) | - | 175.0 | 154.0 | 179.0 | 161.0 | 140.0 | 161.0 | 162.0 | 155.0 |
| SVR (2) | 15.0 | - | 61.0 | 175.0 | 152.0 | 134.0 | 152.0 | 151.0 | 144.0 |
| SVRRC (3) | 36.0 | 129.0 | - | 178.0 | 154.0 | 136.0 | 150.0 | 152.0 | 148.0 |
| MORF (4) | 11.0 | 15.0 | 12.0 | - | 23.0 | 44.0 | 38.0 | 35.0 | 20.0 |
| ST (5) | 29.0 | 38.0 | 36.0 | 167.0 | - | 92.0 | 90.5 | 112.0 | 55.0 |
| MTS (6) | 50.0 | 56.0 | 54.0 | 146.0 | 98.0 | - | 73.0 | 82.5 | 62.5 |
| MTSC (7) | 29.0 | 38.0 | 40.0 | 152.0 | 99.5 | 117.0 | - | 76.5 | 57.0 |
| ERC (8) | 28.0 | 39.0 | 38.0 | 155.0 | 78.0 | 107.5 | 113.5 | - | 66.5 |
| ERCC (9) | 35.0 | 46.0 | 42.0 | 170.0 | 135.0 | 127.5 | 133.0 | 123.5 | - |

Table 1: Ranks computed by the Wilcoxon test

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| SVRC (1) | - | ● | ● | ● | ● | ● | ● | ● | ● |
| SVR (2) | ○ | - | | ● | ● | | ● | ● | ● |
| SVRRC (3) | ○ | | - | ● | ● | | ● | ● | ● |
| MORF (4) | ○ | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ |
| ST (5) | ○ | ○ | ○ | ● | - | | | | |
| MTS (6) | | | | ● | | - | | | |
| MTSC (7) | ○ | ○ | ○ | ● | | | - | | |
| ERC (8) | ○ | ○ | ○ | ● | | | | - | |
| ERCC (9) | ○ | ○ | ○ | ● | | | | | - |

Table 2: Summary of the Wilcoxon test. ●= the method in the row improves the method of the column. ○= the method in the column improves the method of the row. Upper diagonal of level significance $\alpha = 0.9$,Lower diagonal level of significance $\alpha = 0.95$

| | $\alpha = 0.9$ | | $\alpha = 0.95$ | |
|---|---|---|---|---|
| Method | + | ± | + | ± |
| SVRC | 8 | 8 | 7 | 8 |
| SVR | 5 | 7 | 5 | 7 |
| SVRRC | 5 | 7 | 5 | 7 |
| MORF | 0 | 0 | 0 | 0 |
| ST | 1 | 5 | 1 | 5 |
| MTS | 1 | 7 | 1 | 8 |
| MTSC | 1 | 5 | 1 | 5 |
| ERC | 1 | 5 | 1 | 5 |
| ERCC | 1 | 5 | 1 | 5 |

Table 3: Wilcoxon test summary results