|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (DE is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 4.50560E-01 | 7.36426E-01 | 7.16850E-01 | 5.32330E-01 |
| PSO | Friedman Aligned | 1.31972E-02 | 4.07936E-02 | 4.07936E-02 | 4.00528E-02 |
| PSO | Quade | 9.99988E-01 | 1.0 | 1.0 | 9.99998E-01 |
| CWOA | Friedman | 4.50560E-01 | 7.36426E-01 | 7.16850E-01 | 5.32330E-01 |
| CWOA | Friedman Aligned | 2.07247E-05 | 3.82613E-05 | 3.82613E-05 | 3.82606E-05 |
| CWOA | Quade | 9.99988E-01 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 4.50560E-01 | 5.85271E-01 | 5.85271E-01 | 4.50560E-01 |
| WW | Friedman Aligned | 2.92524E-07 | 2.92524E-07 | 2.92524E-07 | 2.92524E-07 |
| WW | Quade | 9.99988E-01 | 1.0 | 1.0 | 9.99988E-01 |
| GOTLBO | Friedman | 5.52020E-01 | 1.0 | 1.0 | 9.15482E-01 |
| GOTLBO | Friedman Aligned | 7.67176E-01 | 1.0 | 1.0 | 9.95399E-01 |
| GOTLBO | Quade | 9.99988E-01 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 5.52020E-01 | 1.0 | 1.0 | 9.15482E-01 |
| NNA | Friedman Aligned | 6.53162E-04 | 1.65844E-03 | 1.65844E-03 | 1.65719E-03 |
| NNA | Quade | 9.99988E-01 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 5.52204E-01 | 1.0 | 1.0 | 9.48515E-01 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 9.99988E-01 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 8.42576E-01 | 1.0 | 1.0 | 9.99059E-01 |
| MABC | Friedman Aligned | 4.90703E-01 | 1.0 | 1.0 | 9.03246E-01 |
| MABC | Quade | 9.99988E-01 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 8.42576E-01 | 1.0 | 1.0 | 9.99059E-01 |
| IJAYA | Friedman Aligned | 9.62004E-01 | 1.0 | 1.0 | 9.99996E-01 |
| IJAYA | Quade | 9.99988E-01 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (EBLSHADE is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 1.30508E-05 | 2.46344E-05 | 2.46344E-05 | 2.46341E-05 |
| PSO | Friedman Aligned | 4.90853E-11 | 1.24601E-10 | 1.24601E-10 | 1.24601E-10 |
| PSO | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 8.40980E-01 |
| CWOA | Friedman | 1.30508E-05 | 2.35507E-05 | 2.35507E-05 | 2.35504E-05 |
| CWOA | Friedman Aligned | <1E-13 | <1E-13 | <1E-13 | <1E-13 |
| CWOA | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 8.86126E-01 |
| WW | Friedman | 1.30508E-05 | 1.30509E-05 | 1.30509E-05 | 1.30508E-05 |
| WW | Friedman Aligned | 8.76076E-10 | 3.03257E-09 | 3.03257E-09 | 3.03257E-09 |
| WW | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 7.93250E-01 |
| NNA | Friedman | 1.25380E-04 | 3.85802E-04 | 3.85802E-04 | 3.85735E-04 |
| NNA | Friedman Aligned | 1.73171E-09 | 6.52721E-09 | 6.52721E-09 | 6.52721E-09 |
| NNA | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| GOTLBO | Friedman | 1.26295E-04 | 4.37193E-04 | 4.37193E-04 | 4.37109E-04 |
| GOTLBO | Friedman Aligned | 5.58257E-11 | 1.71771E-10 | 1.71771E-10 | 1.71771E-10 |
| GOTLBO | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| ISCA | Friedman | 2.06680E-04 | 7.63167E-04 | 7.63167E-04 | 7.62912E-04 |
| ISCA | Friedman Aligned | 1.83740E-08 | 6.36024E-08 | 6.36024E-08 | 6.36024E-08 |
| ISCA | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| MABC | Friedman | 1.40828E-03 | 5.30987E-03 | 4.55132E-03 | 5.29780E-03 |
| MABC | Friedman Aligned | 3.00493E-12 | 5.54756E-12 | 5.54756E-12 | 5.54756E-12 |
| MABC | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| IJAYA | Friedman | 1.40828E-03 | 5.30987E-03 | 4.55132E-03 | 5.29780E-03 |
| IJAYA | Friedman Aligned | 8.76076E-10 | 3.10840E-09 | 3.10840E-09 | 3.10840E-09 |
| IJAYA | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 5.62340E-03 | 1.94825E-02 | 1.94825E-02 | 1.93313E-02 |
| DE | Friedman Aligned | 2.45853E-09 | 9.07765E-09 | 9.07765E-09 | 9.07765E-09 |
| DE | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| NDE | Friedman | 2.09529E-02 | 6.46277E-02 | 6.46277E-02 | 6.30782E-02 |
| NDE | Friedman Aligned | 2.37713E-02 | 7.33451E-02 | 5.14343E-02 | 7.13523E-02 |
| NDE | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.19984E-01 |
| TLBO | Friedman | 3.98503E-01 | 1.0 | 4.07382E-01 | 7.24836E-01 |
| TLBO | Friedman Aligned | 2.88150E-02 | 7.33451E-02 | 5.14343E-02 | 7.15329E-02 |
| TLBO | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.77197E-01 |
| STLBO | Friedman | 3.98503E-01 | 1.0 | 4.07382E-01 | 7.24836E-01 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 7.98639E-01 | 1.0 | 7.98639E-01 | 9.77197E-01 |
| ADELI | Friedman | 4.07382E-01 | 1.0 | 4.07382E-01 | 7.24836E-01 |
| ADELI | Friedman Aligned | 2.88150E-02 | 7.33451E-02 | 5.14343E-02 | 7.15329E-02 |
| ADELI | Quade | 7.93250E-01 | 1.0 | 7.98639E-01 | 9.77197E-01 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (ADELI is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 6.31318E-04 | 1.04935E-03 | 1.04935E-03 | 1.04885E-03 |
| PSO | Friedman Aligned | 1.18842E-10 | 3.01677E-10 | 3.01677E-10 | 3.01677E-10 |
| PSO | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.76795E-01 |
| CWOA | Friedman | 6.31318E-04 | 1.02471E-03 | 1.02471E-03 | 1.02423E-03 |
| CWOA | Friedman Aligned | 4.50306E-12 | 8.31335E-12 | 8.31335E-12 | 8.31335E-12 |
| CWOA | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.87201E-01 |
| WW | Friedman | 6.31318E-04 | 6.31502E-04 | 6.31502E-04 | 6.31318E-04 |
| WW | Friedman Aligned | 4.21371E-10 | 1.29653E-09 | 1.29653E-09 | 1.29653E-09 |
| WW | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.62893E-01 |
| GOTLBO | Friedman | 3.28358E-03 | 1.09916E-02 | 1.09916E-02 | 1.09381E-02 |
| GOTLBO | Friedman Aligned | 1.53943E-05 | 5.68406E-05 | 5.68406E-05 | 5.68392E-05 |
| GOTLBO | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| NNA | Friedman | 3.28358E-03 | 1.01148E-02 | 1.01148E-02 | 1.00689E-02 |
| NNA | Friedman Aligned | 5.08038E-13 | 5.08038E-13 | 5.08038E-13 | 5.08038E-13 |
| NNA | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| ISCA | Friedman | 4.57816E-03 | 1.69249E-02 | 1.69249E-02 | 1.68001E-02 |
| ISCA | Friedman Aligned | 8.26661E-04 | 2.86188E-03 | 2.86188E-03 | 2.85861E-03 |
| ISCA | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| MABC | Friedman | 2.05485E-02 | 7.78229E-02 | 6.67054E-02 | 7.52749E-02 |
| MABC | Friedman Aligned | 1.46218E-06 | 5.06140E-06 | 5.06140E-06 | 5.06139E-06 |
| MABC | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| IJAYA | Friedman | 2.05485E-02 | 7.78229E-02 | 6.67054E-02 | 7.52749E-02 |
| IJAYA | Friedman Aligned | 1.09560E-04 | 4.12967E-04 | 4.12967E-04 | 4.12893E-04 |
| IJAYA | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 5.66909E-02 | 1.97993E-01 | 1.97993E-01 | 1.82921E-01 |
| DE | Friedman Aligned | 2.35433E-04 | 8.69330E-04 | 8.69330E-04 | 8.69015E-04 |
| DE | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| NDE | Friedman | 1.46638E-01 | 4.59328E-01 | 4.59328E-01 | 3.86093E-01 |
| NDE | Friedman Aligned | 9.58524E-01 | 1.0 | 1.0 | 9.99944E-01 |
| NDE | Quade | 9.62893E-01 | 1.0 | 1.0 | 9.93168E-01 |
| TLBO | Friedman | 9.45602E-01 | 1.0 | 1.0 | 9.99383E-01 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 9.49185E-01 | 1.0 | 1.0 | 9.99383E-01 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (NDE is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 1.55714E-01 | 2.24134E-01 | 2.20690E-01 | 2.02484E-01 |
| PSO | Friedman Aligned | 2.45681E-10 | 6.23651E-10 | 6.23651E-10 | 6.23651E-10 |
| PSO | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99926E-01 |
| CWOA | Friedman | 1.55714E-01 | 2.24134E-01 | 2.20690E-01 | 2.02484E-01 |
| CWOA | Friedman Aligned | 2.18658E-12 | 4.03677E-12 | 4.03677E-12 | 4.03677E-12 |
| CWOA | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99984E-01 |
| WW | Friedman | 1.55714E-01 | 1.68167E-01 | 1.68167E-01 | 1.55714E-01 |
| WW | Friedman Aligned | 2.49057E-10 | 7.66329E-10 | 7.66329E-10 | 7.66329E-10 |
| WW | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99775E-01 |
| GOTLBO | Friedman | 2.56546E-01 | 8.77639E-01 | 8.77639E-01 | 6.02847E-01 |
| GOTLBO | Friedman Aligned | 2.54839E-05 | 9.40951E-05 | 9.40951E-05 | 9.40913E-05 |
| GOTLBO | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99998E-01 |
| NNA | Friedman | 2.56546E-01 | 8.71786E-01 | 8.71786E-01 | 5.98341E-01 |
| NNA | Friedman Aligned | 1.12288E-12 | 1.12288E-12 | 1.12288E-12 | 1.12288E-12 |
| NNA | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99998E-01 |
| ISCA | Friedman | 2.68694E-01 | 1.0 | 1.0 | 6.85071E-01 |
| ISCA | Friedman Aligned | 1.22826E-03 | 4.25249E-03 | 4.25249E-03 | 4.24526E-03 |
| ISCA | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99998E-01 |
| MABC | Friedman | 5.32517E-01 | 1.0 | 1.0 | 9.43079E-01 |
| MABC | Friedman Aligned | 2.55400E-06 | 8.84079E-06 | 8.84079E-06 | 8.84076E-06 |
| MABC | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99998E-01 |
| IJAYA | Friedman | 5.32517E-01 | 1.0 | 1.0 | 9.43079E-01 |
| IJAYA | Friedman Aligned | 1.72659E-04 | 6.50817E-04 | 6.50817E-04 | 6.50635E-04 |
| IJAYA | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99998E-01 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 7.62590E-01 | 1.0 | 1.0 | 9.93109E-01 |
| DE | Friedman Aligned | 3.62802E-04 | 1.33967E-03 | 1.33967E-03 | 1.33892E-03 |
| DE | Quade | 9.99775E-01 | 1.0 | 1.0 | 9.99998E-01 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (MABC is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 8.30603E-01 | 1.0 | 1.0 | 8.84463E-01 |
| PSO | Friedman Aligned | 2.77918E-01 | 9.53341E-01 | 9.53341E-01 | 6.32817E-01 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 8.30603E-01 | 1.0 | 1.0 | 8.84463E-01 |
| CWOA | Friedman Aligned | 3.58148E-03 | 6.62200E-03 | 6.62200E-03 | 6.60193E-03 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 8.30603E-01 | 1.0 | 1.0 | 8.30603E-01 |
| WW | Friedman Aligned | 1.46115E-04 | 1.46124E-04 | 1.46124E-04 | 1.46115E-04 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 8.60298E-01 | 1.0 | 1.0 | 9.97657E-01 |
| GOTLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 8.60298E-01 | 1.0 | 1.0 | 9.99247E-01 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 8.60298E-01 | 1.0 | 1.0 | 9.97657E-01 |
| NNA | Friedman Aligned | 4.14291E-02 | 1.06884E-01 | 1.06884E-01 | 1.01840E-01 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (TLBO is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 9.92560E-04 | 1.62336E-03 | 1.62336E-03 | 1.62216E-03 |
| PSO | Friedman Aligned | 1.04019E-10 | 2.64048E-10 | 2.64048E-10 | 2.64048E-10 |
| PSO | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.76514E-01 |
| CWOA | Friedman | 9.92560E-04 | 1.58954E-03 | 1.58954E-03 | 1.58839E-03 |
| CWOA | Friedman Aligned | 5.11791E-12 | 9.44844E-12 | 9.44844E-12 | 9.44844E-12 |
| CWOA | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.87026E-01 |
| WW | Friedman | 9.92560E-04 | 9.93015E-04 | 9.93015E-04 | 9.92560E-04 |
| WW | Friedman Aligned | 4.62743E-10 | 1.42383E-09 | 1.42383E-09 | 1.42383E-09 |
| WW | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.62491E-01 |
| GOTLBO | Friedman | 4.77179E-03 | 1.58963E-02 | 1.58963E-02 | 1.57845E-02 |
| GOTLBO | Friedman Aligned | 1.40291E-05 | 5.17999E-05 | 5.17999E-05 | 5.17987E-05 |
| GOTLBO | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| NNA | Friedman | 4.77179E-03 | 1.47067E-02 | 1.47067E-02 | 1.46098E-02 |
| NNA | Friedman Aligned | 4.38760E-13 | 4.38760E-13 | 4.38760E-13 | 4.38760E-13 |
| NNA | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| ISCA | Friedman | 6.51265E-03 | 2.40890E-02 | 2.40890E-02 | 2.38367E-02 |
| ISCA | Friedman Aligned | 7.68321E-04 | 2.65989E-03 | 2.65989E-03 | 2.65706E-03 |
| ISCA | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| MABC | Friedman | 2.77009E-02 | 1.05088E-01 | 9.00750E-02 | 1.00471E-01 |
| MABC | Friedman Aligned | 1.31956E-06 | 4.56772E-06 | 4.56772E-06 | 4.56771E-06 |
| MABC | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| IJAYA | Friedman | 2.77009E-02 | 1.05088E-01 | 9.00750E-02 | 1.00471E-01 |
| IJAYA | Friedman Aligned | 1.00742E-04 | 3.79729E-04 | 3.79729E-04 | 3.79667E-04 |
| IJAYA | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 7.29030E-02 | 2.55281E-01 | 2.55281E-01 | 2.30511E-01 |
| DE | Friedman Aligned | 2.17370E-04 | 8.02629E-04 | 8.02629E-04 | 8.02360E-04 |
| DE | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| NDE | Friedman | 1.80006E-01 | 5.66315E-01 | 5.66315E-01 | 4.56998E-01 |
| NDE | Friedman Aligned | 9.48516E-01 | 1.0 | 1.0 | 9.99891E-01 |
| NDE | Quade | 9.62491E-01 | 1.0 | 1.0 | 9.93062E-01 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 9.92596E-01 | 1.0 | 1.0 | 9.99996E-01 |
| ADELI | Quade | 9.99595E-01 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (GOTLBO is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 9.98888E-01 | 1.0 | 1.0 | 9.99669E-01 |
| PSO | Friedman Aligned | 9.17453E-02 | 2.91753E-01 | 2.91753E-01 | 2.56282E-01 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 9.98888E-01 | 1.0 | 1.0 | 9.99669E-01 |
| CWOA | Friedman Aligned | 4.72107E-04 | 8.71757E-04 | 8.71757E-04 | 8.71408E-04 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 9.98888E-01 | 1.0 | 1.0 | 9.98888E-01 |
| WW | Friedman Aligned | 1.21443E-05 | 1.21444E-05 | 1.21444E-05 | 1.21443E-05 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 9.99965E-01 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman Aligned | 8.38840E-03 | 2.13627E-02 | 2.13627E-02 | 2.11564E-02 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 9.12281E-01 | 1.0 | 1.0 | 9.99780E-01 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (STLBO is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 8.87311E-04 | 1.45708E-03 | 1.45708E-03 | 1.45612E-03 |
| PSO | Friedman Aligned | 1.30579E-10 | 4.01781E-10 | 4.01781E-10 | 4.01781E-10 |
| PSO | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.53136E-01 |
| CWOA | Friedman | 8.87311E-04 | 1.42576E-03 | 1.42576E-03 | 1.42483E-03 |
| CWOA | Friedman Aligned | <1E-13 | <1E-13 | <1E-13 | <1E-13 |
| CWOA | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.71605E-01 |
| WW | Friedman | 8.87311E-04 | 8.87675E-04 | 8.87675E-04 | 8.87311E-04 |
| WW | Friedman Aligned | 1.11147E-09 | 4.18940E-09 | 4.18940E-09 | 4.18940E-09 |
| WW | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.30369E-01 |
| GOTLBO | Friedman | 4.35052E-03 | 1.45102E-02 | 1.45102E-02 | 1.44170E-02 |
| GOTLBO | Friedman Aligned | 1.44695E-11 | 3.67302E-11 | 3.67302E-11 | 3.67302E-11 |
| GOTLBO | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| NNA | Friedman | 4.35052E-03 | 1.34064E-02 | 1.34064E-02 | 1.33258E-02 |
| NNA | Friedman Aligned | 3.90710E-09 | 1.44262E-08 | 1.44262E-08 | 1.44262E-08 |
| NNA | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| ISCA | Friedman | 5.96940E-03 | 2.20764E-02 | 2.20764E-02 | 2.18643E-02 |
| ISCA | Friedman Aligned | 4.50262E-09 | 1.55860E-08 | 1.55860E-08 | 1.55860E-08 |
| ISCA | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| MABC | Friedman | 2.57340E-02 | 9.75806E-02 | 8.36406E-02 | 9.35933E-02 |
| MABC | Friedman Aligned | 5.23914E-13 | 9.67226E-13 | 9.67226E-13 | 9.67226E-13 |
| MABC | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| IJAYA | Friedman | 2.57340E-02 | 9.75806E-02 | 8.36406E-02 | 9.35933E-02 |
| IJAYA | Friedman Aligned | 2.18045E-10 | 7.54772E-10 | 7.54772E-10 | 7.54772E-10 |
| IJAYA | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 6.85289E-02 | 2.39794E-01 | 2.39794E-01 | 2.17870E-01 |
| DE | Friedman Aligned | 7.42368E-10 | 2.74105E-09 | 2.74105E-09 | 2.74105E-09 |
| DE | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| NDE | Friedman | 1.71181E-01 | 5.37924E-01 | 5.37924E-01 | 4.38814E-01 |
| NDE | Friedman Aligned | 1.22573E-02 | 3.77682E-02 | 2.72258E-02 | 3.72367E-02 |
| NDE | Quade | 9.30369E-01 | 1.0 | 1.0 | 9.83227E-01 |
| TLBO | Friedman | 9.89408E-01 | 1.0 | 1.0 | 9.99990E-01 |
| TLBO | Friedman Aligned | 1.52045E-02 | 3.86414E-02 | 2.72258E-02 | 3.81458E-02 |
| TLBO | Quade | 9.44870E-01 | 1.0 | 1.0 | 9.99362E-01 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 8.12763E-01 | 8.12763E-01 | 8.12763E-01 | 8.12763E-01 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.52045E-02 | 3.86414E-02 | 2.72258E-02 | 3.81458E-02 |
| ADELI | Quade | 9.44870E-01 | 1.0 | 1.0 | 9.99362E-01 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (PSO is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman Aligned | 8.54143E-01 | 1.0 | 1.0 | 9.92455E-01 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman Aligned | 3.93493E-01 | 8.88533E-01 | 8.88533E-01 | 6.02734E-01 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman Aligned | 8.06951E-02 | 8.38658E-02 | 8.38658E-02 | 8.06951E-02 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (IJAYA is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 8.30603E-01 | 1.0 | 1.0 | 8.84463E-01 |
| PSO | Friedman Aligned | 2.55584E-02 | 7.93472E-02 | 7.93472E-02 | 7.65731E-02 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 8.30603E-01 | 1.0 | 1.0 | 8.84463E-01 |
| CWOA | Friedman Aligned | 5.81546E-05 | 1.07365E-04 | 1.07365E-04 | 1.07360E-04 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 8.30603E-01 | 1.0 | 1.0 | 8.30603E-01 |
| WW | Friedman Aligned | 9.75209E-07 | 9.75209E-07 | 9.75209E-07 | 9.75209E-07 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 8.60298E-01 | 1.0 | 1.0 | 9.97657E-01 |
| GOTLBO | Friedman Aligned | 8.87840E-01 | 1.0 | 1.0 | 9.99690E-01 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 8.60298E-01 | 1.0 | 1.0 | 9.99247E-01 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 8.60298E-01 | 1.0 | 1.0 | 9.97657E-01 |
| NNA | Friedman Aligned | 1.53028E-03 | 3.88684E-03 | 3.88684E-03 | 3.87999E-03 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 6.38258E-01 | 1.0 | 1.0 | 9.70394E-01 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (ISCA is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 9.93692E-01 | 1.0 | 1.0 | 9.97469E-01 |
| PSO | Friedman Aligned | 4.05630E-03 | 1.24985E-02 | 1.24985E-02 | 1.24284E-02 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 9.93692E-01 | 1.0 | 1.0 | 9.97469E-01 |
| CWOA | Friedman Aligned | 3.47277E-06 | 6.41127E-06 | 6.41127E-06 | 6.41126E-06 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 9.93692E-01 | 1.0 | 1.0 | 9.93692E-01 |
| WW | Friedman Aligned | 3.59568E-08 | 3.59568E-08 | 3.59568E-08 | 3.59568E-08 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 9.96887E-01 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman Aligned | 5.31817E-01 | 1.0 | 1.0 | 9.39316E-01 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 9.96887E-01 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman Aligned | 1.47184E-04 | 3.73641E-04 | 3.73641E-04 | 3.73578E-04 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 8.75367E-01 | 1.0 | 1.0 | 9.99542E-01 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 2.80474E-01 | 1.0 | 1.0 | 6.79991E-01 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 7.88732E-01 | 1.0 | 1.0 | 9.97148E-01 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (NNA is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 9.99446E-01 | 1.0 | 1.0 | 9.99855E-01 |
| PSO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 9.99446E-01 | 1.0 | 1.0 | 9.99855E-01 |
| CWOA | Friedman Aligned | 9.57624E-01 | 1.0 | 1.0 | 9.97079E-01 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 9.99446E-01 | 1.0 | 1.0 | 9.99446E-01 |
| WW | Friedman Aligned | 6.15608E-01 | 9.21781E-01 | 9.21781E-01 | 6.15608E-01 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (CWOA is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| PSO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| WW | Friedman Aligned | 9.96187E-01 | 1.0 | 1.0 | 9.96187E-01 |
| WW | Quade | 1.0 | 1.0 | 1.0 | 1.0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S3.** Adjusted *p*-values for multiple comparisons 1×*N* tests in single-IV case (WW is the control algorithm, Comp parameter). | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| DE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| DE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| EBLSHADE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ADELI | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NDE | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| MABC | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| TLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| GOTLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| STLBO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| **Table S3** (*continued*) | | | | | |
| Algorithm | Test | post-hoc procedure | | | |
| Finner | Holm | Hochberg | Holland |
| PSO | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| PSO | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| PSO | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| IJAYA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| ISCA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| NNA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Friedman Aligned | 1.0 | 1.0 | 1.0 | 1.0 |
| CWOA | Quade | 1.0 | 1.0 | 1.0 | 1.0 |