Results

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1 Tables of Friedman, Bonferroni-Dunn, Holm, Hochberg and Hommel Tests

Table 1: Average Rankings of the algorithms

Algorithm	Ranking
Eley2007	1.2727272727272727
Burke2008	4.409090909090909
Pillay2010	1.909090909090909
Demeester2012	4.863636363636363
Abdullah2013	2.8181818181818175
Leite2014	6.045454545454545
cMA	6.681818181818182

Friedman statistic considering reduction performance (distributed according to chi-square with 6 degrees of freedom: 60.09740259740255.
P-value computed by Friedman Test: 1.0524647819920574E-10.

Iman and Davenport statistic considering reduction performance (distributed according to F-distribution with 6 and 60 degrees of freedom: 101.81518151815091.

P-value computed by Iman and Daveport Test: 1.4515555920007258E-29.

Table 2: Holm / Hochberg Table for $\alpha = 0.05$

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel
6	cMA	5.872218877515938	4.3000049171181805E-9	0.008333333333333333
5	Leite2014	5.181369597808181	2.2026255198632744E-7	0.01
4	Demeester2012	3.8983637926366312	9.684484941072518E-5	0.0125
3	Burke2008	3.404900021416805	6.618828140013914E-4	0.016666666666666666
2	Abdullah2013	1.6777768221474103	0.09339067572681041	0.025
1	Pillay2010	0.6908492797077573	0.4896602630171414	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value ≤ 0.025.
Hochberg's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.025.

Table 3: Holm / Hochberg Table for $\alpha = 0.10$

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel
6	cMA	5.872218877515938	4.3000049171181805E-9	0.016666666666666666
5	Leite2014	5.181369597808181	2.2026255198632744E-7	0.02
4	Demeester2012	3.8983637926366312	9.684484941072518E-5	0.025
3	Burke2008	3.404900021416805	6.618828140013914E-4	0.03333333333333333
2	Abdullah2013	1.6777768221474103	0.09339067572681041	0.05
1	Pillay2010	0.6908492797077573	0.4896602630171414	0.1

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Holm's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.03333333333333333.
Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.025.
Nemenyi's procedure rejects those hypotheses that have a p-value $\leq 0.002380952380952381$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.004166666666666667$.

Table 4: Adjusted p-values

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	cMA	4.3000049171181805E-9	2.5800029502709083E-8	2.5800029502709083E-8	2.5800029502709083E-8	2.5800029502709083E
2	Leite2014	2.2026255198632744E-7	1.3215753119179646E-6	1.1013127599316373E-6	1.1013127599316373E-6	1.1013127599316373E
3	Demeester2012	9.684484941072518E-5	5.810690964643511E-4	3.8737939764290074E-4	3.8737939764290074E-4	3.8737939764290074E
4	Burke2008	6.618828140013914E-4	0.003971296884008348	0.001985648442004174	0.001985648442004174	0.0019856484420041
5	Abdullah2013	0.09339067572681041	0.5603440543608624	0.18678135145362082	0.18678135145362082	0.186781351453620
6	Pillay2010	0.4896602630171414	2.9379615781028483	0.4896602630171414	0.4896602630171414	0.489660263017141

Table 5: Holm / Shaffer Table for $\alpha = 0.05$

i	algorithms	$z = (R_0 - R_i)/SE$	p	Holm	Shaffer
21	Eley2007 vs. cMA	5.872218877515938	4.3000049171181805E-9	0.002380952380952381	0.002380952380952381
20	Eley2007 vs. Leite2014	5.181369597808181	2.2026255198632744E-7	0.0025	0.003333333333333335
19	Pillay2010 vs. cMA	5.181369597808181	2.2026255198632744E-7	0.002631578947368421	0.003333333333333335
18	Pillay2010 vs. Leite2014	4.4905203181004225	7.104939683990589E-6	0.002777777777777778	0.003333333333333335
17	Abdullah2013 vs. cMA	4.194442055368528	2.735440640775932E-5	0.0029411764705882353	0.003333333333333335
16	Eley2007 vs. Demeester2012	3.8983637926366312	9.684484941072518E-5	0.003125	0.003333333333333335
15	Abdullah2013 vs. Leite2014	3.50359277566077	4.590267265743911E-4	0.0033333333333333335	0.003333333333333335
14	Eley2007 vs. Burke2008	3.404900021416805	6.618828140013914E-4	0.0035714285714285718	0.004545454545454546
13	Pillay2010 vs. Demeester2012	3.2075145129288734	0.0013388730496827113	0.0038461538461538464	0.004545454545454546
12	Burke2008 vs. Pillay2010	2.7140507417090474	0.006646598468138471	0.004166666666666667	0.004545454545454546
11	Burke2008 vs. cMA	2.4673188560991335	0.013612907831869468	0.004545454545454546	0.004545454545454546
10	Demeester2012 vs. Abdullah2013	2.220586970489221	0.0263789491129314	0.005	0.005
9	Demeester2012 vs. cMA	1.9738550848793073	0.04839822318129835	0.005555555555555556	0.005555555555555556
8	Burke2008 vs. Leite2014	1.7764695763913756	0.07565555213290082	0.00625	0.00625
7	Burke2008 vs. Abdullah2013	1.7271231992693945	0.08414553996842593	0.007142857142857143	0.007142857142857143
6	Eley2007 vs. Abdullah2013	1.6777768221474103	0.09339067572681041	0.008333333333333333	0.008333333333333333
5	Demeester2012 vs. Leite2014	1.2830058051715494	0.19949004226970665	0.01	0.01
4	Pillay2010 vs. Abdullah2013	0.9869275424396529	0.3236781609070167	0.0125	0.0125
3	Leite2014 vs. cMA	0.6908492797077578	0.48966026301714116	0.016666666666666666	0.016666666666666666
2	Eley2007 vs. Pillay2010	0.6908492797077573	0.4896602630171414	0.025	0.025
1	Burke2008 vs. Demeester2012	0.4934637712198263	0.6216849323610449	0.05	0.05

Shaffer's procedure rejects those hypotheses that have a p-value $\leq 0.002380952380952381$.
Bergmann's procedure rejects these hypotheses:

- Eley2007 vs. Burke2008
- Eley2007 vs. Demeester2012
- Eley2007 vs. Leite2014
- Eley2007 vs. cMA
- Burke2008 vs. Pillay2010
- Pillay2010 vs. Demeester2012
- Pillay2010 vs. Leite2014
- Pillay2010 vs. cMA
- Abdullah2013 vs. Leite2014
- Abdullah2013 vs. cMA

Nemenyi's procedure rejects those hypotheses that have a p-value $\leq 0.004761904761904762$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.009090909090909092$.
Shaffer's procedure rejects those hypotheses that have a p-value $\leq 0.004761904761904762$.
Bergmann's procedure rejects these hypotheses:

- Eley2007 vs. Burke2008
- Eley2007 vs. Demeester2012
- Eley2007 vs. Leite2014

Table 6: Holm / Shaffer Table for $\alpha = 0.10$

i	algorithms	$z = (R_0 - R_i)/SE$	p	Holm	Shaffer
21	Eley2007 vs. cMA	5.872218877515938	4.3000049171181805E-9	0.004761904761904762	0.004761904761904762
20	Eley2007 vs. Leite2014	5.181369597808181	2.2026255198632744E-7	0.005	0.006666666666666667
19	Pillay2010 vs. cMA	5.181369597808181	2.2026255198632744E-7	0.005263157894736842	0.006666666666666667
18	Pillay2010 vs. Leite2014	4.4905203181004225	7.104939683990589E-6	0.005555555555555556	0.006666666666666667
17	Abdullah2013 vs. cMA	4.194442055368528	2.735440640775932E-5	0.005882352941176471	0.006666666666666667
16	Eley2007 vs. Demeester2012	3.898363792636631 2	9.684848941072518E-5	0.00625	0.006666666666666667
15	Abdullah2013 vs. Leite2014	3.50359277566077	4.590267265743911E-4	0.006666666666666667	0.006666666666666667
14	Eley2007 vs. Burke2008	3.404900021416805	6.618828140013914E-4	0.007142857142857143 5	0.009090909090909092
13	Pillay2010 vs. Demeester2012	3.2075145129288734	0.0013388730496827113	0.007692307692307693	0.009090909090909092
12	Burke2008 vs. Pillay2010	2.7140507417090474	0.006646598468138471	0.008333333333333333	0.009090909090909092
11	Burke2008 vs. cMA	2.4673188560991335	0.013612907831869468	0.009090909090909092	0.009090909090909092
10	Demeester2012 vs. Abdullah2013	2.220586970489221	0.0263789491129314	0.01	0.01
9	Demeester2012 vs. cMA	1.9738550848793073	0.04839822318129835	0.011111111111111112	0.011111111111111112
8	Burke2008 vs. Leite2014	1.7764695763913756	0.07565555213290082	0.0125	0.0125
7	Burke2008 vs. Abdullah2013	1.7271231992693945	0.08414553996842593	0.014285714285714287	0.014285714285714287
6	Eley2007 vs. Abdullah2013	1.6777768221474103	0.09339067572681041	0.016666666666666666	0.016666666666666666
5	Demeester2012 vs. Leite2014	1.2830058051715494	0.19949004226970665	0.02	0.02
4	Pillay2010 vs. Abdullah2013	0.9869275424396529	0.3236781609070167	0.025	0.025
3	Leite2014 vs. cMA	0.6908492797077578	0.48966026301714116	0.03333333333333333	0.03333333333333333
2	Eley2007 vs. Pillay2010	0.690849279707757 3	0.4896602630171414	0.05	0.05
1	Burke2008 vs. Demeester2012	0.4934637712198263	0.6216849323610449	0.1	0.1

- Eley2007 vs. cMA
- Burke2008 vs. Pillay2010
- Pillay2010 vs. Demeester2012
- Pillay2010 vs. Leite2014
- Pillay2010 vs. cMA
- Abdullah2013 vs. Leite2014
- Abdullah2013 vs. cMA

Table 7: Adjusted p-values

i	hypothesis	unadjusted p	p_{Neme}	p_{Holm}	p_{Shaf}	p_{Berg}
1	Eley2007 vs .cMA	4.3000049171181805E-9	9.030010325948179E-8	9.030010325948179E-8	9.030010325948179E-8	9.030010325948179E-8
2	Eley2007 vs .Leite2014	2.2026255198632744E-7	4.625513591712876E-6	4.405251039726549E-6	3.3039382797949115E-6	3.3039382797949115E-6
3	Pillay2010 vs .cMA	2.2026255198632744E-7	4.625513591712876E-6	4.405251039726549E-6	3.3039382797949115E-6	3.3039382797949115E-6
4	Pillay2010 vs .Leite2014	7.104939683990589E-6	1.492037333638023 7E-4	1.278889143118306E-4	1.0657409525985884E-4	7.104939683990589E-5
5	Abdullah2013 vs .cMA	2.735440640775932E-5	5.744425345629458E-4	4.6502490893190844E-4	4.103160961163898E-4	3.008984704853525E-4
6	Eley2007 vs .Demeester2012	9.684484941072518E-5	0.0020337418376252287	0.001549517590571603	0.0014526727411608778	0.001065293343517977
7	Abdullah2013 vs .Leite2014	4.590267265743911E-4	0.009639561258062214	0.0068854008986158665	0.0068854008986158665	0.0032131870860207376
8	Eley2007 vs .Burke2008	6.618828140013914E-4	0.013899539094029219	0.009266359396019 48	0.007280710954015305	0.0059569453260125225
9	Pillay2010 vs .Demeester2012	0.0013388730496827113	0.028116334043336938	0.017405349645875246	0.014727603546509824	0.009372111347778978
10	Burke2008 vs .Pillay2010	0.006646598468138471	0.13957856783090788	0.07975918161766166	0.07311258314952318	0.03987959080883083
11	Burke2008 vs .cMA	0.013612907831869468	0.2858710644692588	0.14974198615056414	0.14974198615056414	0.12251617048682521
12	Demeester2012 vs .Abdullah2013	0.026378949 1129314	0.5539579313715594	0.263789491129314	0.263789491129314	0.131894745564657
13	Demeester2012 vs .cMA	0.04839822318129835	1.0163626868072653	0.4355840086316851	0.4355840086316851	0.2903893390877901
14	Burke2008 vs .Leite2014	0.07565555213290082	1.588766594790917	0.6052444170632065	0.5295888649303058	0.4539333127974049
15	Burke2008 vs .Abdullah2013	0.08414553996842593	1.7670563393369445	0.6052444170632065	0.5890187797789815	0.4539333127974049
16	Eley2007 vs .Abdullah2013	0.09339067572681041	1.9612041902630186	0.6052444170632065	0.5890187797789815	0.46695337863405206
17	Demeester2012 vs .Leite2014	0.19949004226970665	4.18929088766384	0.9974502113485333	0.9974502113485333	0.46695337863405206
18	Pillay2010 vs .Abdullah2013	0.3236781609070167	6.7972413790473505	1.2947126436280667	1.2947126436280667	0.97103448272105
19	Leite2014 vs .cMA	0.48966026301714116	10.282865523359964	1.4689807890514235	1.4689807890514235	1.4689807890514235
20	Eley2007 vs .Pillay2010	0.4896602630171414	10.28286552335997	1.4689807890514235	1.4689807890514235	1.4689807890514235
21	Burke2008 vs .Demeester2012	0.6216849323610449	13.055383579581944	1.4689807890514235	1.4689807890514235	1.4689807890514235