

Results

June 18, 2010

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

1

Table 1: Average Rankings of the algorithms

Algorithm	Ranking
DE	2.710526315789474
CHC	0.9999999999999996
VXQR1	2.289473684210525

Friedman statistic considering reduction performance (distributed according to chi-square with 2 degrees of freedom: 30.184210526315706.
 Inman and Davenport statistic considering reduction performance (distributed according to F-distribution with 2 and 36 degrees of
 freedom: 69.51515151515058.

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

i	algorithm	$z = (R_0 - R_i) / SE$	p	Holm/Hochberg/Hommel
2	DE	5.272196186749785	1.3480086707903467E-7	0.025
1	VXQR1	3.97442481770368	7.054954254317046E-5	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value ≤ 0.025 .
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.05 .
Hommel's procedure rejects all hypotheses.

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

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel
2	DE	5.272196186749785	1.3480086707903467E-7	0.05
1	VXQR1	3.97442481770368	7.054954254317046E-5	0.1

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value ≤ 0.05 .
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.1 .
Hommel's procedure rejects all hypotheses.

Table 4: Adjusted p-values

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Hommel}
1	DE	1.3480086707903467E-7	2.6960173415806934E-7	2.6960173415806934E-7	2.6960173415806934E-7	2.6960173415806934E-7
2	VXQR1	7.054954254317046E-5	1.410990850863409E-4	7.054954254317046E-5	7.054954254317046E-5	7.054954254317046E-5

2

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

i	algorithms	$z = (R_0 - R_i)/SE$	p	Holm	Shaffer
3	DE vs. CHC	5.272196186749785	1.3480086707903467E-7	0.016666666666666666	0.016666666666666666
2	CHC vs. VXQR1	3.97442481770368	7.054954254317046E-5	0.025	0.05
1	DE vs. VXQR1	1.2977713690461044	0.19436591080310775	0.05	0.05

Nemenyi'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 .
Shaffer's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Bergmann's procedure rejects these hypotheses:

- DE vs. CHC

- CHC vs. VXQR1

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

i	algorithms	$z = (R_0 - R_i) / SE$	p	Holm	Shaffer
3	DE vs. CHC	5.272196186749785	1.3480086707903467E-7	0.03333333333333333333	0.03333333333333333333
2	CHC vs. VXQR1	3.97442481770368	7.054954254317046E-5	0.05	0.1
1	DE vs. VXQR1	1.2977713690461044	0.19436591080310775	0.1	0.1

Nemenyi's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.

Holm's procedure rejects those hypotheses that have a p-value ≤ 0.1 .

Shaffer's procedure rejects those hypotheses that have a p-value $\leq 0.033333333333333333$.

Bergmann's procedure rejects these hypotheses:

- DE vs. CHC
- CHC vs. VXQR1

Table 7: Adjusted p-values

i	hypothesis	unadjusted p	p_{Nemen}	p_{Holm}	p_{Shaf}	p_{Bergr}
1	DE vs. CHC	1.3480086707903467E-7	4.04402601237104E-7	4.04402601237104E-7	4.04402601237104E-7	4.04402601237104E-7
2	CHC vs. VXQR1	7.054954254317046E-5	2.1164862762951137E-4	1.410990850863409E-4	7.054954254317046E-5	7.054954254317046E-5
3	DE vs. VXQR1	0.19436591080310775	0.5830977324093233	0.19436591080310775	0.19436591080310775	0.19436591080310775