

Wilcoxon Signed Ranks test.

KEEL non-parametric statistical module

May 9, 2011

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	
LR (1)	-	297.0	372.0	261.0	389.5	246.0	304.5	283.0	518.5	284.0	158.0	422.0	455.0	322.0	569.0	306.5	520.0	332.0	227.5	608.0	430.0	411.0	131.0	418.0	392.0	224.5	539.0	293.0	433.0	453.0	266.0
Amesoft (2)	523.0	-	548.0	466.5	564.0	446.0	583.0	440.0	737.0	427.0	332.0	612.0	656.0	582.0	712.0	548.0	669.0	592.0	459.0	726.0	564.5	661.0	417.5	634.0	606.0	484.0	727.0	600.0	364.0	541.0	285.0
Bayesian (3)	419.0	232.0	-	210.0	427.5	265.0	448.0	248.0	564.0	281.5	179.0	455.0	460.0	403.0	611.5	339.0	621.5	432.0	295.0	458.0	516.5	248.0	519.0	547.0	519.0	313.5	600.0	364.0	541.0	285.0	
CACC (4)	559.0	353.5	571.0	-	514.0	406.5	548.0	387.0	738.5	463.0	355.0	602.0	614.0	548.0	756.0	493.0	627.0	567.0	467.5	740.0	605.0	655.0	375.0	595.0	585.5	466.0	733.0	527.0	651.0	407.5	
CAOC (4)	403.5	236.0	361.5	236.0	361.5	224.0	350.5	224.0	494.5	236.5	115.5	408.5	430.0	338.5	529.0	330.5	483.0	345.0	146.0	564.0	374.0	438.0	138.0	422.5	384.0	307.5	523.0	281.0	432.0	236.0	
CAOC (5)	514.5	337.0	375.0	375.0	409.5	344.0	390.5	243.5	575.5	271.5	171.5	465.0	477.0	424.0	647.0	339.0	557.0	411.0	309.0	602.0	512.0	503.0	230.0	463.0	463.0	362.0	640.0	336.0	479.0	235.0	
ChMarsoc (8)	547.0	380.0	532.0	433.0	526.5	373.0	539.5	241.5	713.0	423.0	269.5	655.0	611.0	554.0	713.0	602.5	620.0	573.0	469.0	724.5	589.0	680.0	408.0	697.5	622.5	466.0	711.0	579.0	633.0	363.0	
CharacterAnalysis (9)	301.5	83.0	216.0	81.5	326.5	99.0	244.5	107.0	-	167.5	106.0	223.0	263.0	230.0	516.5	131.0	361.0	184.0	153.5	532.0	275.0	244.5	132.0	317.0	229.0	189.5	507.5	172.5	268.5	134.0	
DiBB (10)	629.0	488.0	608.0	465.0	704.5	489.0	567.5	510.5	714.0	620.0	-	697.5	646.0	632.5	667.0	592.0	674.0	589.5	536.0	719.0	632.0	643.5	517.0	650.5	654.0	541.0	704.0	610.0	655.0	534.0	
Distance (11)	398.0	208.0	328.0	218.0	411.5	194.0	315.0	165.0	597.0	228.5	102.5	337.5	347.5	280.0	492.0	315.5	218.0	618.5	418.0	541.0	418.0	174.0	73.5	430.0	375.0	294.0	591.5	289.5	430.0	397.0	
EqualFrequency (12)	488.0	388.0	417.0	272.0	481.5	258.0	398.5	226.0	560.0	344.0	187.5	472.5	467.0	353.0	549.0	338.0	550.0	423.0	283.5	604.0	469.0	501.0	238.5	547.5	404.0	379.5	616.5	365.0	438.0	257.0	
Exponential Ch2 (14)	498.0	238.0	417.0	272.0	481.5	258.0	398.5	226.0	560.0	344.0	187.5	472.5	467.0	353.0	549.0	338.0	550.0	423.0	283.5	604.0	469.0	501.0	238.5	547.5	404.0	379.5	616.5	365.0	438.0	257.0	
FFD (15)	214.0	108.0	208.5	84.0	251.0	122.0	173.0	109.0	363.5	176.5	113.0	173.5	190.0	185.5	-	91.0	370.0	176.0	150.5	390.5	269.5	175.0	116.0	179.0	154.0	164.0	392.0	167.0	244.0	121.0	
FUSINTER (16)	478.5	272.0	481.0	284.0	444.5	271.0	480.5	277.5	649.0	315.0	228.0	500.0	567.0	432.0	689.0	-	617.0	502.0	394.5	721.0	584.0	470.0	292.0	363.5	532.0	372.5	697.0	387.0	609.0	284.5	
HDD (17)	309.0	151.0	198.5	153.0	337.0	144.5	243.0	160.0	422.0	182.0	106.0	291.0	298.0	270.0	450.0	163.0	-	267.5	200.0	474.0	265.0	319.0	157.0	306.5	245.0	240.0	475.0	237.0	317.5	166.0	
HellingerBD (18)	448.0	228.0	388.0	253.0	475.0	235.0	409.0	247.0	596.0	312.0	230.5	504.5	514.5	397.0	644.0	318.0	522.5	-	277.5	651.5	495.0	512.0	252.5	486.0	436.0	320.5	651.5	299.0	502.0	243.0	
HellingerCh2 (19)	341.0	157.0	216.0	157.0	283.5	131.0	176.0	109.0	363.5	176.5	113.0	173.5	190.0	185.5	-	91.0	370.0	176.0	150.5	390.5	269.5	175.0	116.0	179.0	154.0	164.0	392.0	167.0	244.0	121.0	
IDS (20)	312.0	157.0	216.0	157.0	283.5	131.0	176.0	109.0	363.5	176.5	113.0	173.5	190.0	185.5	-	91.0	370.0	176.0	150.5	390.5	269.5	175.0	116.0	179.0	154.0	164.0	392.0	167.0	244.0	121.0	
IDS (21)	381.0	215.5	362.0	215.0	417.0	193.0	307.5	191.0	505.0	226.0	155.0	365.0	400.0	351.0	610.5	326.0	555.0	325.0	251.0	623.0	423.0	370.0	145.0	208.0	470.0	417.0	283.0	603.0	307.0	432.0	182.0
IDS (22)	342.0	159.0	303.5	165.0	345.0	149.0	277.0	140.0	575.5	185.5	136.5	306.0	392.0	319.0	605.0	196.0	461.0	268.0	174.0	630.5	383.5	-	145.0	435.0	305.0	228.0	618.5	432.0	387.0	150.0	
IDS (23)	636.0	402.5	572.0	405.0	639.0	371.0	589.5	372.0	688.0	515.0	303.0	646.5	614.0	503.5	664.0	528.0	663.0	567.5	497.0	700.0	612.0	635.0	-	598.5	584.5	485.0	693.0	533.5	625.5	402.0	
Modified Ch2 (24)	365.5	186.0	236.0	185.0	397.5	168.0	264.0	172.5	463.0	253.0	134.5	331.0	346.0	272.5	601.0	196.5	513.5	334.0	229.5	612.5	313.0	385.0	186.5	-	280.0	282.5	541.0	254.0	367.5	201.0	
Model (25)	428.0	214.0	301.0	234.5	419.0	215.0	357.0	197.5	597.0	289.0	166.0	445.0	450.0	379.0	606.0	231.0	575.0	384.0	289.0	627.0	403.0	475.0	235.5	510.0	503.5	340.0	692.0	316.0	432.0	225.0	
Model (26)	448.0	214.0	301.0	234.5	419.0	215.0	357.0	197.5	597.0	289.0	166.0	445.0	450.0	379.0	606.0	231.0	575.0	384.0	289.0	627.0	403.0	475.0	235.5	510.0	503.5	340.0	692.0	316.0	432.0	225.0	
PKDD (27)	241.0	93.0	180.0	87.0	254.0	108.0	109.0	312.5	158.0	116.0	62.0	228.5	204.5	163.5	428.0	83.0	345.0	168.5	140.0	394.0	177.0	201.0	127.0	239.0	128.0	188.0	632.0	146.0	244.0	128.0	
UCPD (28)	487.0	282.5	456.0	293.0	499.0	264.5	444.0	241.0	647.5	322.0	210.0	530.5	581.0	415.0	653.0	393.0	543.0	521.0	365.0	676.0	513.0	598.0	246.5	526.0	504.0	367.0	684.0	588.0	-	511.0	248.5
USD (29)	367.0	185.0	279.0	169.0	388.0	153.5	301.0	147.0	551.5	220.0	125.0	380.0	348.0	322.0	576.0	171.0	502.5	318.0	226.0	604.0	328.0	433.0	194.5	452.5	368.0	291.0	586.0	269.0	-	187.0	
Zeta (30)	564.0	424.0	535.0	412.5	584.0	428.0	585.0	457.0	686.0	452.0	286.0	623.0	610.0	563.0	699.0	535.5	614.0	475.0	447.0	692.0	598.0	670.0	378.0	619.0	595.0	506.0	692.0	571.5	593.0	-	

Table 1: Ranks computed by the Wilcoxon test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	
IR (1)	-																														
Anova (2)		-																													
Bayesian (3)			-																												
CACC (4)				-																											
CADD (5)					-																										
CAM (6)						-																									
Chi2 (7)							-																								
ChiMerge (8)								-																							
ClusterAnalysis (9)									-																						
DIPL (10)										-																					
Distance (11)											-																				
EqualFrequency (12)												-																			
EqualWidth (13)													-																		
Extended Chi2 (14)														-																	
FFD (15)															-																
FUSINTER (16)																-															
HDD (17)																	-														
HellingerBD (18)																		-													
Heter-Disc (19)																			-												
ID3 (20)																				-											
IDD (21)																					-										
Khops (22)																						-									
MDLP (23)																							-								
Modified Chi2 (24)																								-							
MODL (25)																									-						
MVD (26)																										-					
PKID (27)																											-				
UCPD (28)																												-			
USD (29)																														-	
Zeta (30)																															-

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  $\alpha = 0.95$

Method	$\alpha = 0.9$		$\alpha = 0.95$	
	+	$\pm$	+	$\pm$
1R	3	23	3	23
Ameva	19	29	17	29
Bayesian	7	23	5	26
CACC	19	29	16	29
CADD	3	22	1	22
CAIM	19	29	16	29
Chi2	5	25	4	26
ChiMerge	18	28	18	29
ClusterAnalysis	1	9	0	12
DIBD	9	29	8	29
Distance	20	29	16	29
EqualFrequency	3	20	3	21
EqualWidth	4	17	2	18
Extended Chi2	4	23	4	26
FFD	0	4	0	5
FUSINTER	10	26	9	29
HDD	0	13	0	14
HellingerBD	5	21	4	22
Heter-Disc	10	29	9	29
ID3	0	3	0	5
IDD	4	23	3	23
Khiops	4	16	3	18
MDLP	14	29	14	29
Modified Chi2	3	19	3	21
MODL	5	22	5	23
MVD	7	29	5	29
PKID	0	5	0	6
UCPD	9	24	7	26
USD	3	17	3	19
Zeta	19	28	17	29

Table 3: Wilcoxon test summary results