

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)	-	333.0	520.5	128.0	752.5	92.0	114.0	113.0	381.0	175.0	102.0	176.0	201.0	243.0	208.0	46.0	334.0	163.0	544.0	433.0	472.0	117.0	107.0	132.0	137.0	388.0	307.0	37.0	380.0	422.0	
Amesat (2)	687.0	-	752.0	538.0	812.0	402.0	450.0	436.0	701.0	641.0	417.5	550.0	609.0	544.0	676.5	358.0	614.5	536.0	793.0	721.0	757.5	536.0	407.5	511.0	510.0	711.0	674.0	472.0	705.0	449.5	
Bayesian (3)	299.5	68.0	-	115.0	726.5	40.0	46.0	23.0	348.0	145.0	91.0	112.0	143.0	146.0	189.0	13.0	308.5	117.0	565.5	437.0	268.5	101.0	281.0	428.5	463.0	606.0	586.0	398.0	78.0	203.5	
CACC (4)	694.0	282.0	705.0	-	792.0	350.5	371.0	323.5	650.5	542.0	308.5	431.0	531.0	469.5	604.0	222.0	546.5	515.0	779.5	671.0	705.0	472.0	281.0	428.5	463.0	606.0	586.0	398.0	624.0	333.0	
CAOC (5)	32.5	8.0	38.5	38.5	-	0.0	71.5	38.5	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	
CAOD (6)	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0	385.0
Ch2 (7)	766.0	374.0	734.0	449.0	818.5	377.0	443.0	388.0	693.0	578.0	326.5	517.0	648.0	529.0	722.0	300.0	720.0	660.0	760.0	760.0	760.0	528.0	312.0	539.0	432.0	633.0	681.0	415.5	711.0	405.0	
ChMarsoc (8)	707.0	347.0	797.0	406.5	820.5	403.0	472.0	-	772.0	614.0	411.0	551.0	643.0	621.0	713.0	428.0	704.0	594.0	788.0	774.0	583.0	412.0	532.0	534.0	740.0	734.5	490.5	737.0	492.5		
CharacterAnalysis (9)	399.0	119.0	432.0	169.5	748.5	54.0	87.0	48.0	-	226.0	126.0	54.0	194.0	168.5	198.0	20.0	313.0	147.0	617.5	440.0	383.0	102.0	109.0	72.0	125.0	407.5	251.5	92.0	316.0	59.0	
DiBB (10)	605.0	179.0	635.0	278.0	774.0	208.0	242.0	206.0	594.0	-	169.0	354.0	407.0	380.0	486.0	174.0	485.0	384.0	714.0	613.0	648.0	342.0	215.0	309.0	281.0	540.0	504.0	176.0	545.0	252.0	
Distance (11)	718.0	362.5	729.0	511.5	809.0	385.0	493.5	369.0	694.0	651.0	-	543.0	547.0	642.0	641.5	317.0	641.5	537.0	781.0	696.0	732.0	561.0	394.0	527.5	525.0	613.0	637.0	491.0	617.0	428.0	
EqualFrequency (12)	644.0	230.0	708.0	349.0	780.0	233.0	243.0	229.0	706.0	486.0	277.0	526.0	423.0	451.0	623.0	228.0	592.0	437.5	717.0	705.0	679.0	423.0	293.5	359.5	368.0	548.0	639.0	296.0	604.0	288.5	
Exponential (13)	577.0	276.0	674.0	350.5	753.0	265.0	254.0	199.0	651.5	440.0	273.0	339.0	443.0	486.0	486.0	209.0	565.0	397.0	693.5	660.5	617.0	403.0	308.0	417.0	361.0	532.0	554.5	289.0	571.5	368.0	
FFD (15)	522.0	143.5	591.0	216.0	800.5	90.0	98.0	107.0	622.0	334.0	138.0	160.0	268.0	294.0	-	32.0	441.5	203.0	699.5	653.5	562.0	109.5	123.0	130.5	170.0	470.0	433.5	135.0	505.5	34.0	
FUSINTER (16)	775.0	462.0	807.0	558.0	820.0	453.0	520.0	392.0	800.0	646.0	503.0	592.0	703.0	611.0	748.0	-	724.0	654.0	890.0	801.0	777.0	640.0	535.5	588.0	575.0	710.5	786.0	550.0	711.0	476.5	
HDD (17)	486.0	165.5	511.5	278.5	746.5	94.0	169.0	76.0	467.0	335.0	178.5	228.0	322.5	215.0	338.0	96.0	-	293.5	621.0	503.0	477.0	243.5	154.5	209.0	188.5	489.0	358.5	197.0	369.0	141.5	
HellingerBD (18)	657.0	284.0	703.0	305.0	820.0	173.0	292.0	226.0	633.0	436.0	243.0	362.5	483.0	423.0	580.0	196.0	526.5	-	744.0	686.0	703.0	348.5	227.0	318.0	303.0	591.0	572.0	270.0	581.0	237.0	
Histogram (19)	367.0	99.0	348.0	149.0	653.5	51.0	36.5	31.0	332.0	207.0	84.0	78.0	152.0	159.0	131.5	30.0	288.5	97.0	232.5	366.0	336.0	182.0	26.0	46.0	48.0	381.0	140.0	140.0	137.5	39.0	
ID3 (20)	348.0	62.5	551.5	115.0	774.0	40.0	51.0	46.0	397.0	132.0	88.0	141.0	179.0	203.0	258.0	43.0	343.0	117.0	537.0	484.0	366.0	110.0	76.0	39.0	86.0	358.5	261.0	70.0	386.0	63.0	
Kilobps (22)	663.0	284.0	719.0	348.0	820.0	207.0	292.0	231.0	718.0	478.0	219.0	408.0	490.0	417.0	710.5	180.0	576.5	471.5	766.0	790.5	710.0	-	215.0	339.0	340.0	533.0	677.0	308.0	615.0	273.0	
MIDI (23)	713.0	372.5	725.0	499.0	813.0	395.0	508.0	368.0	711.0	665.0	389.0	526.5	581.0	512.0	657.0	284.5	665.5	553.0	776.0	698.0	744.0	565.0	-	506.0	505.5	611.0	680.0	470.5	651.5	425.5	
Modified Chi2 (24)	668.0	267.0	755.0	351.5	777.0	259.0	244.0	228.0	708.0	511.0	292.5	423.5	530.0	363.0	689.5	192.0	574.0	462.0	754.0	773.5	721.0	441.0	277.0	-	331.0	587.0	675.5	314.5	644.0	279.0	
Naïve (25)	633.0	310.0	743.0	357.0	815.0	335.0	388.0	286.0	695.0	539.0	295.0	452.0	545.0	439.0	610.0	208.0	631.5	517.0	732.0	722.0	734.0	450.0	314.5	439.0	623.0	635.0	329.0	631.0	371.0		
Naïve (26)	446.0	146.0	446.0	146.0	446.0	146.0	146.0	146.0	446.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	446.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0	146.0
PKDD (27)	473.0	146.0	612.0	194.0	790.0	80.5	99.0	85.5	568.5	316.0	143.0	124.0	240.0	265.5	331.5	34.0	426.5	211.0	656.0	627.0	550.0	106.0	100.0	144.5	185.0	473.5	146.0	470.0	75.0		
UCPD (28)	723.0	308.0	742.0	422.0	817.0	374.0	404.5	329.5	728.0	644.0	329.0	524.0	591.0	531.0	685.0	270.0	623.0	510.0	812.0	722.0	750.0	512.0	349.5	505.5	491.0	627.0	678.0	-	699.0	382.0	
USD (29)	440.0	115.0	579.5	196.0	718.0	76.0	109.0	63.0	504.0	275.0	163.0	176.0	256.0	248.5	314.5	69.0	414.0	199.0	694.0	651.5	434.0	165.0	168.5	139.0	129.0	470.0	310.0	151.0	-	103.5	
Zeta (30)	688.0	376.5	789.0	447.0	820.0	331.0	405.0	327.5	761.0	568.0	392.0	531.5	599.0	512.0	686.0	343.5	678.5	543.0	788.0	741.0	757.0	507.0	394.5	541.0	449.0	671.0	705.0	438.0	716.5	-	

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)									-																						
DIBL (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	1	11	1	11
Ameva	19	29	15	29
Bayesian	2	8	1	8
CACC	12	28	11	28
CADD	0	1	0	1
CAIM	19	29	17	29
Chi2	16	29	14	29
ChiMerge	20	29	19	29
ClusterAnalysis	2	9	2	10
DIBD	9	18	8	20
Distance	17	29	16	29
EqualFrequency	11	24	11	25
EqualWidth	9	18	7	20
Extended Chi2	10	23	10	27
FFD	6	14	6	14
FUSINTER	23	29	21	29
HDD	2	16	2	17
HellingerBD	11	21	11	23
Heter-Disc	0	5	0	6
ID3	1	8	1	8
IDD	1	9	1	9
Khiops	12	23	11	24
MDLP	16	28	16	29
Modified Chi2	13	25	12	27
MODL	14	27	12	28
MVD	1	11	1	12
PKID	6	14	5	14
UCPD	15	28	14	29
USD	4	11	4	13
Zeta	15	29	15	29

Table 3: Wilcoxon test summary results