

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)																															
Amesoft (2)	546.0	-	613.0	620.5	698.0	326.5	451.0	351.0	465.0	679.5	598.0	281.0	358.0	217.0	173.5	211.0	485.5	433.0	744.0	477.0	503.0	239.5	467.0	300.0	329.0	633.0	137.0	575.5	409.0	521.5	
Bayesian (3)	376.0	207.0	-	296.5	698.0	175.0	238.0	172.0	186.0	431.0	356.0	117.0	173.0	307.0	91.0	171.0	208.0	203.0	630.0	200.0	286.0	141.0	277.0	76.0	514.0	74.0	306.0	79.0	276.0		
CACC (4)	416.0	196.5	528.5	-	723.0	227.0	270.5	240.0	289.0	484.0	368.0	166.5	222.0	375.0	129.0	165.0	393.0	275.0	707.5	352.0	367.0	155.0	263.0	120.0	139.0	500.0	96.5	378.0	319.5	330.5	
CADD (5)	56.5	57.0	87.0	37.0	-	43.0	33.0	32.0	32.0	116.0	81.0	29.0	32.0	108.5	15.0	20.0	55.0	17.0	363.0	69.0	38.0	14.0	50.0	16.0	100.0	13.0	78.0	52.0	50.0		
CH2 (6)	546.0	369.0	682.0	582.0	777.0	320.0	500.0	320.0	406.0	669.0	526.0	279.5	354.0	699.0	344.0	488.0	400.0	788.0	453.0	514.0	384.0	477.0	397.0	654.0	132.5	552.0	452.5	627.0	675.0		
CHMfreq (8)	590.0	432.0	648.0	580.0	787.0	440.0	500.0	-	507.0	667.0	669.0	365.0	501.0	543.5	349.0	386.0	522.0	499.0	788.0	526.0	572.0	393.0	551.0	335.0	406.5	693.0	244.0	615.0	494.0	470.5	
CharacterAnalysis (9)	466.0	355.0	594.0	531.0	748.0	310.5	314.0	273.0	-	611.5	502.0	200.5	266.0	474.0	170.5	323.5	517.0	375.0	742.0	487.5	420.0	264.0	436.0	239.5	323.0	651.0	132.5	547.0	448.0	470.5	
DIBD (10)	332.5	140.5	389.0	336.0	654.0	143.0	187.0	113.0	168.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5	-	327.5
Distance (11)	379.0	222.0	464.0	412.0	699.0	181.5	254.0	111.0	278.0	465.5	-	115.0	192.0	402.0	104.0	127.5	363.0	170.0	710.0	334.0	315.0	105.0	201.5	102.0	174.0	448.0	74.5	377.0	306.0	317.5	
EqualFrequency (12)	646.5	539.0	608.0	619.5	700.0	480.5	530.5	455.0	619.5	746.0	665.0	611.0	591.5	623.0	377.0	506.0	611.0	591.5	762.0	580.5	632.0	409.5	621.0	379.5	538.0	672.0	276.5	524.0	609.0	599.0	
Entropy (13)	554.0	387.0	617.0	595.0	808.0	409.0	411.0	361.0	406.0	712.0	650.0	228.5	348.0	527.0	206.0	396.0	500.0	280.0	744.0	452.0	404.0	221.0	370.0	192.0	222.0	605.0	187.0	456.0	431.0	598.0	
ExhaustiveCH2 (14)	423.0	263.0	513.0	445.0	711.5	216.0	211.0	236.5	306.0	465.0	418.0	157.0	249.0	574.0	155.0	244.5	312.0	233.0	645.0	361.0	368.0	211.0	317.0	125.5	214.0	560.0	101.0	421.0	277.0	340.5	
FFD (15)	667.5	574.5	689.0	691.0	805.0	478.0	568.0	471.0	649.5	792.0	716.0	443.0	561.5	665.0	-	522.0	626.0	577.0	805.0	660.5	681.5	374.5	617.0	503.0	731.0	221.5	769.5	648.0	640.5	640.5	
FUSINTER (16)	599.0	483.0	615.0	615.0	800.0	438.0	436.0	394.0	496.5	733.0	692.5	314.0	396.0	538.5	298.0	-	525.5	454.0	753.0	554.5	592.0	295.5	585.5	310.0	384.0	687.0	176.5	653.0	510.5	586.0	
HDD (17)	468.0	334.5	612.0	427.0	765.0	331.5	258.0	331.5	258.0	303.0	527.0	457.0	169.0	253.5	468.0	154.0	254.5	-	280.0	744.0	452.0	404.0	221.0	370.0	192.0	222.0	605.0	187.0	456.0	431.0	598.0
HallgraberHD (18)	554.0	387.0	617.0	595.0	808.0	409.0	411.0	361.0	406.0	712.0	650.0	228.5	348.0	527.0	206.0	396.0	500.0	280.0	744.0	452.0	404.0	221.0	370.0	192.0	222.0	605.0	187.0	456.0	431.0	598.0	
IDS (19)	463.0	347.0	580.0	428.0	755.0	290.0	327.0	294.0	292.0	545.0	446.0	190.0	258.0	439.0	153.0	235.5	368.5	346.5	702.0	414.5	404.0	174.0	331.0	185.0	232.0	615.5	83.5	434.0	240.5	409.0	
ID3 (21)	473.0	370.0	494.0	465.0	735.0	272.0	306.0	248.0	360.0	559.5	505.0	188.0	285.5	432.0	138.5	228.0	416.0	301.0	659.0	416.0	404.0	174.0	331.0	185.0	232.0	615.5	83.5	434.0	240.5	409.0	
Kilobits (22)	670.0	540.5	639.0	665.0	806.0	494.5	536.0	481.0	556.0	769.0	715.0	410.5	509.0	569.0	405.5	484.5	559.0	520.5	806.0	561.0	646.0	-	593.5	449.0	721.0	269.0	679.0	505.0	600.0	600.0	
MIDP (23)	444.0	480.0	744.0	700.0	804.0	466.0	552.0	485.0	580.5	745.0	678.0	340.5	495.0	694.5	273.5	470.0	628.0	537.0	784.0	654.0	595.0	346.5	583.0	-	489.0	679.5	197.0	656.0	618.0	597.0	
Modified CH2 (24)	657.0	451.0	747.0	681.0	804.0	377.0	423.0	413.5	497.0	719.0	646.0	252.0	433.0	506.0	277.0	436.0	558.0	477.5	797.0	588.0	563.5	331.0	500.0	294.0	480.0	680.0	216.5	601.0	568.0	515.0	
MODEL (25)	391.0	451.0	547.0	483.0	666.0	366.0	446.0	446.0	547.0	666.0	666.0	366.0	446.0	446.0	366.0	446.0	366.0	446.0	666.0	666.0	366.0	446.0	366.0	446.0	366.0	446.0	366.0	446.0	366.0	446.0	366.0
PKDD (26)	717.0	643.0	746.0	723.5	807.0	629.0	647.5	536.0	687.5	797.0	745.5	508.5	652.0	719.0	598.5	693.5	693.0	686.0	797.0	736.5	752.0	511.0	689.0	623.0	693.5	776.0	441.0	646.0	680.0	710.5	
UCPD (28)	417.0	244.5	514.0	442.0	742.0	200.0	268.0	200.0	273.0	627.5	443.0	96.0	224.0	399.0	50.5	107.0	364.0	218.5	753.0	346.0	360.0	101.0	338.0	124.0	219.0	559.0	39.0	-	322.0	339.0	
USD (29)	504.0	351.0	741.0	505.0	768.0	293.0	367.5	326.0	372.0	593.5	474.0	211.0	284.0	503.0	172.0	309.5	493.5	389.0	723.0	330.0	423.5	255.0	398.0	202.0	232.0	631.0	131.0	498.0	-	424.5	
Zeta (30)	454.5	258.5	504.0	440.5	730.0	148.5	363.0	147.5	349.5	567.0	502.5	184.0	245.0	470.5	174.0	234.0	381.0	282.0	712.0	401.0	430.0	180.0	391.0	183.0	305.0	536.0	109.5	441.0	355.5	-	

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)									-																						
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	2	16	2	19
Ameva	11	26	8	26
Bayesian	2	11	2	12
CACC	2	16	2	18
CADD	0	1	0	1
CAIM	13	28	11	28
Chi2	10	25	6	27
ChiMerge	14	28	13	28
ClusterAnalysis	6	24	5	24
DIBD	2	8	2	9
Distance	2	16	2	17
EqualFrequency	20	29	18	29
EqualWidth	13	28	11	28
Extended Chi2	3	17	3	19
FFD	20	28	20	28
FUSINTER	14	28	12	28
HDD	5	20	4	23
HellingerBD	11	25	7	26
Heter-Disc	0	2	0	2
ID3	5	21	5	22
IDD	4	20	4	21
Khiops	19	28	18	29
MDLP	6	19	3	22
Modified Chi2	18	28	17	28
MODL	14	27	14	28
MVD	1	7	1	8
PKID	28	29	27	29
UCPD	4	15	4	17
USD	6	23	6	23
Zeta	4	18	4	20

Table 3: Wilcoxon test summary results