

Dataset	Size	Features	RIPPER	BRS	IMLI	CRR
Parkinsons	195	51	88.75 3 5.32s	89.74 9 16.3s	92.3 6 1.44s	89.47 4 3.54s
Heart	303	31	78.69 7 5.27s	72.13 19 25.07s	72.13 13 1.8s	77.69 4.5 122.5s
Ionosphere	351	144	88.65 8 5.87s	91.43 4 75.53s	89.29 8.5 2.09s	91.43 20 5.59s
WDBC	569	88	95.22 7.5 5.7s	95.65 12 630.23s	93.91 7 1.38s	94.69 34.5 316.32s
Ilpd	583	14	71.55 1 5.07s	68.38 3 19.46s	71.55 0 1.51s	71.55 2 2.24s
Transfusion	748	6	76 1 5.1s	— — —	76 0 1.38s	76 2 1.99s
Pima	768	30	76.3 9.5 5.45s	73.38 3 24.58s	70.59 7 2.02s	74.51 6 11.06s
TicTacToe	958	27	96.88 25 5.66s	100 24 15.09s	84.33 6 194.36s	76.96 27 1002.04s
Titanic	1309	26	79.77 5 5.72s	78.54 2 15.33s	77.1 7 2.78s	77.48 13 3.72s
Banknote	1372	16	94.53 10 5.6s	81.09 2 11.02s	92.34 10 2.07s	94.89 9 3.31s
Compas	7210	19	67.65 19 7.38s	34.26 8 20.42s	65.19 3 4.16s	66.02 11 577.03s
Mushroom	8124	115	100 12 8.02s	99.91 20.5 35.82s	99.75 10 6.84s	100 17 720.13s
Magic	19020	79	84.04 115 15.86s	74.15 3 56.46s	71.97 24 141.2s	81.31 31 1012.6s
Tom's HW	28179	910	97.4 36 42.73s	— — —	95.88 30 92.65s	97.34 4 1071.58s
Credit	30000	110	81.68 38.5 14.52s	— — —	81.42 10 17.66s	82.04 32 1021.35s
Adult	32561	144	84.31 94 27.61s	— — —	82.08 23 11.91s	84.86 18 1016.36s
Twitter	49999	1511	95.74 179.5 170.87s	— — —	94.24 57 238.29s	95.16 12 1144.66s
Weather-AUS	107696	141	84.57 195 121.02s	— — —	82.83 7 366.12s	83.34 2 1115.27s
Skin	245057	119	98.32 725 1313.19s	— — —	98.92 201 103.8s	95.08 29 825.6s

Table 1: Comparisons of test accuracy, rule-size and training time among different rule-based classifiers. Every cell in the last eight columns contains the test accuracy in percentage (top value), rule size (middle value), and training time in seconds (bottom value). In the experiments, CRR shows higher test accuracy than IMLI and generates sparser rules than RIPPER.

Dataset	LR	SVC	RF	k -NN	CRR
Parkinsons	92.5	94.74	92.31	92.5	89.47
Heart	84.29	83.33	81.97	78.69	77.69
Ionosphere	94.29	91.43	92.96	91.43	91.43
WDBC	98.26	96.46	96.9	95.61	94.69
Ilpd	71.55	71.55	71.55	69.65	71.55
Transfusion	76	76	76	76.51	76
Pima	81.37	75.82	74.03	78.43	74.51
TicTacToe	98.95	98.95	98.69	92.75	76.96
Titanic	79.01	77.48	79.54	77.1	77.48
Banknote	93.8	94.89	94.89	93.25	94.89
Compas	68.03	65.6	67.82	67.13	66.02
Mushroom	100	100	100	100	100
Magic	85.15	84.45	85.3	77.9	81.31
Tom's HW	97.62	97.66	97.52	94.59	97.34
Credit	82.04	82.12	81.97	80.5	82.04
Adult	87.24	86.82	86.84	84.68	84.86
Twitter	96.28	96.34	96.37	—	95.16
Weather-AUS	85.71	—	85.63	—	83.34
Skin	97.21	—	99.81	—	95.08

Table 2: Comparisons of test accuracy among CRR and non rule-based classifiers. In the experiments, CRR achieves competitive prediction accuracy in spite of being a rule-based classifier.















