A KNOWLEDGE BASE APPROACH TO LAZY CLASSIFICATION WITH PATTERN STRUCTURES

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1 Results

Table 1. Lazy Classification Results.

Exp *min_df*	Accuracy	Precision	Recall	F1 (100)	saved effort (100)
1 0.01	88.5	100	97.6	**98.8**	**88.8**
2 0.02	82.3	100	94.9	97.3	82.4
3 0.03	80.9	100	91.2	89.4	81.0
4 0.04	78.7	100	91.3	95.5	78.7
5 0.05	78.9	100	89.7	94.5	78.9

Table 2. Relaxed Lazy Classification Results.

α	Exp , *min_df*	F1 (100)	saved effort (100)
75	1 0.01	98.0	**92.5**
	2 0.02	97.9	89.1
	3 0.03	97.6	87.4
	4 0.04	97.0	86.5
	5 0.05	96.4	85.4
80	1 0.01	98.0	92.2
	2 0.02	97.9	89.1
	3 0.03	97.6	87.4
	4 0.04	97.0	86.5
	5 0.05	96.4	85.4
85	1 0.01	98.3	91.7
	2 0.02	98.1	88.7
	3 0.03	97.8	87.0
	4 0.04	97.2	86.1
	5 0.05	96.6	85.0
90	1 0.01	**98.6**	90.9
	2 0.02	98.1	87.8
	3 0.03	97.7	86.0
	4 0.04	96.7	84.3
	5 0.05	96.2	83.5
95	1 0.01	98.4	89.8
	2 0.02	97.8	86.9
	3 0.03	97.1	84.8
	4 0.04	96.2	83.2
	5 0.05	95.5	82.0

Table 3. Interval Lazy Classification Results.

Exp , *min_df*	F1 (100)	saved effort (100)
1 0.01	**88.0**	**87.7**
2 0.02	78.4	79.8
3 0.03	76.1	70.6
4 0.04	70.4	65.8
5 0.05	66.5	61.3

Table 4. Max Lazy Classification Results.

Exp , *min_df*	F1 (100)	saved effort (100)
1 0.01	**84.3**	**87.8**
2 0.02	76.0	81.1
3 0.03	68.9	72.3
4 0.04	58.8	67.0
5 0.05	59.9	64.5

Table 5. Min Lazy Classification Results.

Exp , *min_df*	F1 (100)	saved effort (100)
1 0.01	**89.7**	**87.6**
2 0.02	69.5	65.3
3 0.03	75.9	74.9
4 0.04	54.0	59.7
5 0.05	65.7	62.2

Table 6. Relaxed Interval Lazy Classification Results.

α	Exp , *min_df*	F1 (100)	saved effort (100)
75	1 0.01	80.8	**94.1**
	2 0.02	89.8	87.1
	3 0.03	94.1	81.2
	4 0.04	91.8	76.7
	5 0.05	88.0	70.6
80	1 0.01	83.0	93.7
	2 0.02	90.0	87.0
	3 0.03	**94.2**	81.1
	4 0.04	91.8	76.5
	5 0.05	88.1	70.5
85	1 0.01	86.4	93.3
	2 0.02	91.9	86.9
	3 0.03	94.1	81.1
	4 0.04	91.6	76.5
	5 0.05	88.1	70.8
90	1 0.01	83.5	92.9
	2 0.02	91.1	86.7
	3 0.03	93.5	81.2
	4 0.04	92.1	76.7
	5 0.05	87.9	70.5
95	1 0.01	84.7	92.6
	2 0.02	91.3	86.6
	3 0.03	93.8	80.8
	4 0.04	91.6	76.4
	5 0.05	87.8	70.6

Table 7. Relaxed Max Lazy Classification Results.

α	Exp , min_df	F1 (100)	saved effort (100)
75	1 0.01	78.2	94.5
	2 0.02	85.9	87.8
	3 0.03	90.0	82.0
	4 0.04	87.3	76.8
	5 0.05	85.0	70.4
80	1 0.01	80.7	94.4
	2 0.02	85.5	87.5
	3 0.03	90.5	81.6
	4 0.04	88.8	76.9
	5 0.05	86.0	70.6
85	1 0.01	78.0	**94.5**
	2 0.02	83.7	87.4
	3 0.03	90.2	81.4
	4 0.04	89.0	76.7
	5 0.05	86.0	70.6
90	1 0.01	79.7	**94.5**
	2 0.02	86.0	87.4
	3 0.03	90.5	81.8
	4 0.04	89.4	76.3
	5 0.05	86.3	70.6
95	1 0.01	81.8	**94.5**
	2 0.02	84.9	87.5
	3 0.03	**91.7**	81.4
	4 0.04	89.0	76.5
	5 0.05	86.0	70.6

Table 8. Relaxed Min Lazy Classification Results.

α	Exp , min_df	F1 (100)	saved effort (100)
75	1 0.01	84.9	**94.2**
	2 0.02	89.1	87.3
	3 0.03	**94.1**	81.4
	4 0.04	91.3	76.7
	5 0.05	87.4	70.6
80	1 0.01	82.9	**94.2**
	2 0.02	90.1	87.4
	3 0.03	93.7	81.4
	4 0.04	91.1	76.7
	5 0.05	87.5	70.2
85	1 0.01	85.8	93.8
	2 0.02	91.7	87.1
	3 0.03	94.0	81.2
	4 0.04	91.7	76.8
	5 0.05	87.4	70.6
90	1 0.01	84.6	93.2
	2 0.02	90.9	87.1
	3 0.03	93.5	81.4
	4 0.04	91.5	76.7
	5 0.05	87.6	70.3
95	1 0.01	84.9	92.8
	2 0.02	90.8	87.1
	3 0.03	93.4	80.8
	4 0.04	91.6	76.7
	5 0.05	87.4	70.6

Table 9. Comparing Lazy Classification to knowledge Base.

Experiment	Highest F1 (100)	Average time (ms)	Highest F1 using KB (100)	Average Time with KB (ms)
FCA-based classification	98.8	10.4	97.0	0.03
Interval Representation	94.2	1188	93.9	0.04
One-sided Interval (Max)	94.2	1268	93.0	0.04
One-sided Interval (Min)	91.7	1340	91.0	0.04