1 Denial Constraints Discovered

Table 1: Denial constraints, their metrics on discovery and F1-Score with window size of $w = 800$ and degree of approximation of 1×10^{-5}.

Denial Constraint	F1-Score	Coverage	Length	Batches without fault	Batches with fault
t0.IA <= t1.IA, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9974	0.8333	5	300	4
t0.VC <= t1.VC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9939	0.8333	4	300	27
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.VA <= t1.VA, t0.IB >= t1.IB	0.9897	0.7500	6	145	0
t0.VC <= t1.VC, t0.IC >= t1.IC, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9897	0.7500	6	155	1
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.VA <= t1.VA, t0.IA <= t1.IA	0.9829	0.7500	6	500	62
t0.IA <= t1.IA, t0.VA >= t1.VA, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9819	0.7500	6	200	102
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.IB >= t1.IB, t0.VB >= t1.VB	0.9814	0.7500	6	88	32
t0.VC <= t1.VC, t0.IC >= t1.IC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9814	0.7500	6	112	50
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.IA <= t1.IA, t0.VB >= t1.VB	0.9723	0.7500	6	500	168
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9702	0.7500	6	200	148
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IB >= t1.IB, t0.VB <= t1.VB	0.9297	0.7500	6	145	63
t0.IC >= t1.IC, t0.VB >= t1.VB, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9297	0.7500	6	155	21
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IA <= t1.IA, t0.VB <= t1.VB	0.9067	0.7500	5	500	239
t0.VC <= t1.VC, t0.IA <= t1.IA, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9063	0.7500	5	200	293
t0.IC <= t1.IC, t0.IA <= t1.IA, t0.IB <= t1.IB	0.7098	0.8333	4	500	1975
t0.VC <= t1.VC, t0.VA <= t1.VA, t0.VB <= t1.VB	0.3273	0.8333	4	500	3386
t0.IA = t1.IA	0.0001	1,0000	2	200	4122
t0.IA <= t1.IA, t0.VC = t1.VC, t0.VA >= t1.VA	0.0000	0.6667	6	200	184
t0.IA <= t1.IA, t0.VC = t1.VC, t0.VB <= t1.VB	0.0000	0.6667	5	200	255
t0.IB = t1.IB	0.0000	1,0000	2	300	4211
t0.IB = t1.IB, t0.VB = t1.VB	0.0000	0.5000	3	200	202
t0.IC = t1.IC	0.0000	1,0000	2	200	4178
t0.IC <= t1.IC, t0.IA <= t1.IA, t0.VA = t1.VA	0.0000	0.6667	5	200	252
t0.IC <= t1.IC, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.6667	5	100	133
t0.IC <= t1.IC, t0.IA = t1.IA, t0.VB >= t1.VB	0.0000	0.6667	6	100	117
t0.IC <= t1.IC, t0.IA >= t1.IA, t0.VB = t1.VB	0.0000	0.6667	6	95	172

Denial Constraint	F1-Score	Coverage	Length	Batches without fault	Batches with fault
t0.IC >= t1.IC, t0.IA <= t1.IA, t0.VB = t1.VB	0.0000	0.6667	6	105	53
t0.IC <= t1.IC, t0.IA <= t1.IA, t0.VC = t1.VC	0.0000	0.6667	5	200	254
t0.IC = t1.IC, t0.IB = t1.IB	0.0000	0.5000	3	200	152
t0.IC <= t1.IC, t0.IB >= t1.IB, t0.VA = t1.VA	0.0000	0.6667	6	57	75
t0.IC = t1.IC, t0.IB <= t1.IB, t0.VA >= t1.VA	0.0000	0.6667	6	200	172
t0.IC <= t1.IC, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.6667	5	400	465
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IA = t1.IA	0.0000	0.6667	5	300	338
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IB = t1.IB	0.0000	0.6667	5	200	236
t0.IC >= t1.IC, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.6667	6	143	158
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.VB = t1.VB	0.0000	0.6667	5	400	463
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.VC = t1.VC	0.0000	0.6667	5	500	548
t0.IC = t1.IC, t0.VB = t1.VB	0.0000	0.5000	3	300	252
t0.IC <= t1.IC, t0.VB >= t1.VB, t0.IB = t1.IB	0.0000	0.6667	6	200	223
t0.IC = t1.IC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.0000	0.6667	5	100	134
t0.IC <= t1.IC, t0.VB >= t1.VB, t0.VA = t1.VA	0.0000	0.6667	6	200	216
t0.IC = t1.IC, t0.VB <= t1.VB, t0.VA >= t1.VA	0.0000	0.6667	6	100	61
t0.IC <= t1.IC, t0.VB >= t1.VB, t0.VC = t1.VC	0.0000	0.6667	6	500	525
t0.IC = t1.IC, t0.VC = t1.VC	0.0000	0.5000	3	300	250
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.IA = t1.IA	0.0000	0.6667	6	200	214
t0.IC <= t1.IC, t0.VC <= t1.VC, t0.IB = t1.IB	0.0000	0.6667	5	200	239
t0.IC <= t1.IC, t0.VC = t1.VC, t0.IB <= t1.IB	0.0000	0.6667	5	500	549
t0.IC <= t1.IC, t0.VC <= t1.VC, t0.VA = t1.VA	0.0000	0.6667	5	200	233
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.VB = t1.VB	0.0000	0.6667	6	400	435
t0.VA <= t1.VA, t0.IA <= t1.IA, t0.IC = t1.IC	0.0000	0.6667	5	200	185
t0.VA <= t1.VA, t0.IA <= t1.IA, t0.VB = t1.VB	0.0000	0.6667	5	200	233
t0.VA <= t1.VA, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.6667	5	100	153
t0.VA = t1.VA, t0.IB = t1.IB	0.0000	0.5000	3	200	200
t0.VA >= t1.VA, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.6667	6	500	529
t0.VA = t1.VA, t0.IC = t1.IC	0.0000	0.5000	3	300	250
t0.VA <= t1.VA, t0.IC = t1.IC, t0.VB <= t1.VB	0.0000	0.6667	5	100	194
t0.VA = t1.VA, t0.VB = t1.VB	0.0000	0.5000	3	500	503
t0.VA <= t1.VA, t0.VB <= t1.VB, t0.IB = t1.IB	0.0000	0.6667	5	200	263

Denial Constraint	F1-Score	Coverage	Length	Batches without fault	Batches with fault
t0.VA = t1.VA, t0.VC = t1.VC	0.0000	0.5000	3	500	502
t0.VB >= t1.VB, t0.IA = t1.IA, t0.IB <= t1.IB	0.0000	0.6667	6	100	118
t0.VB >= t1.VB, t0.IC = t1.IC, t0.IB <= t1.IB	0.0000	0.6667	6	200	168
t0.VB >= t1.VB, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.6667	6	500	529
t0.VC <= t1.VC, t0.IA = t1.IA, t0.IB <= t1.IB	0.0000	0.6667	5	200	226
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.IB = t1.IB	0.0000	0.6667	6	200	215
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.IC = t1.IC	0.0000	0.6667	6	200	169
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.VA = t1.VA	0.0000	0.6667	6	443	467
t0.VC <= t1.VC, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.6667	5	200	232
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.VB = t1.VB	0.0000	0.6667	6	200	217
t0.VC >= t1.VC, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.6667	6	49	77
t0.VC = t1.VC, t0.IB = t1.IB	0.0000	0.5000	3	200	200
t0.VC = t1.VC, t0.IB <= t1.IB, t0.IA >= t1.IA	0.0000	0.6667	6	145	163
t0.VC <= t1.VC, t0.IB = t1.IB, t0.VA >= t1.VA	0.0000	0.6667	6	200	223
t0.VC = t1.VC, t0.IB <= t1.IB, t0.VA >= t1.VA	0.0000	0.6667	6	500	515
t0.VC <= t1.VC, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.6667	5	200	537
t0.VC <= t1.VC, t0.IC = t1.IC, t0.IB <= t1.IB	0.0000	0.6667	5	200	188
t0.VC <= t1.VC, t0.IC = t1.IC, t0.VB <= t1.VB	0.0000	0.6667	5	200	188
t0.VC <= t1.VC, t0.VA <= t1.VA, t0.IA = t1.IA	0.0000	0.6667	5	200	250
t0.VC <= t1.VC, t0.VA = t1.VA, t0.IA >= t1.IA	0.0000	0.6667	6	57	79
t0.VC <= t1.VC, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.6667	5	500	550
t0.VC <= t1.VC, t0.VA <= t1.VA, t0.IC = t1.IC	0.0000	0.6667	5	100	93
t0.VC = t1.VC, t0.VB = t1.VB	0.0000	0.5000	3	500	501
t0.VC <= t1.VC, t0.VB >= t1.VB, t0.IA = t1.IA	0.0000	0.6667	6	51	60
t0.VC <= t1.VC, t0.VB <= t1.VB, t0.IB = t1.IB	0.0000	0.6667	5	100	236
t0.VC = t1.VC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.0000	0.6667	5	200	508
t0.IA = t1.IA, t0.IB = t1.IB	0.0000	0.5000	3	100	103
t0.IA <= t1.IA, t0.IB = t1.IB, t0.VA >= t1.VA	0.0000	0.6667	6	100	226
t0.IA = t1.IA, t0.IB <= t1.IB, t0.VA >= t1.VA	0.0000	0.6667	6	100	316
t0.IA <= t1.IA, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.6667	5	200	243
t0.IA <= t1.IA, t0.IB >= t1.IB, t0.VC = t1.VC	0.0000	0.6667	6	55	77
t0.IA = t1.IA, t0.IC = t1.IC	0.0000	0.5000	3	200	154

Denial Constraint	F1-Score	Coverage	Length	Batches without fault	Batches with fault
t0.IA <= t1.IA, t0.IC = t1.IC, t0.VB <= t1.VB	0.0000	0.6667	5	200	183
t0.IA = t1.IA, t0.VA = t1.VA	0.0000	0.5000	3	300	301
t0.IA <= t1.IA, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.6667	5	200	551
t0.IA <= t1.IA, t0.VA = t1.VA, t0.VB <= t1.VB	0.0000	0.6667	5	500	545
t0.IA = t1.IA, t0.VB = t1.VB	0.0000	0.5000	3	300	301
t0.IA <= t1.IA, t0.VB <= t1.VB, t0.IB = t1.IB	0.0000	0.6667	5	200	240
t0.IA = t1.IA, t0.VB <= t1.VB, t0.IB <= t1.IB	0.0000	0.6667	5	100	136
t0.IA <= t1.IA, t0.VB >= t1.VB, t0.IC = t1.IC	0.0000	0.6667	6	100	113
t0.IA = t1.IA, t0.VB <= t1.VB, t0.VA >= t1.VA	0.0000	0.6667	6	100	111
t0.IA = t1.IA, t0.VC = t1.VC	0.0000	0.5000	3	300	300

2 Denial Constraints and their Performance Metrics for Fault Detection

Table 2: Denial constraints and its performance metrics with window size of $w = 800$ and degree of approximation of 1×10^{-5}.

Denial Constraint	F1-Score	Precision	Recall	Accuracy	Samples 1[a] Detection	No Fault Detected
t0.IA <= t1.IA, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9974	1.0000	0.9948	0.9950	12.3820	0
t0.VC <= t1.VC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9939	1.0000	0.9878	0.9883	11.9510	0
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.VA <= t1.VA, t0.IB >= t1.IB	0.9897	1.0000	0.9795	0.9803	10.8840	0
t0.VC <= t1.VC, t0.IC >= t1.IC, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9897	1.0000	0.9795	0.9803	10.8840	0
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.VA <= t1.VA, t0.IA <= t1.IA	0.9829	1.0000	0.9664	0.9676	22.8070	0
t0.IA <= t1.IA, t0.VA >= t1.VA, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9819	1.0000	0.9644	0.9657	19.5090	0
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.IB >= t1.IB, t0.VB >= t1.VB	0.9814	1.0000	0.9634	0.9648	22.7340	0
t0.VC <= t1.VC, t0.IC >= t1.IC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9814	1.0000	0.9634	0.9648	22.7330	0
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.IA <= t1.IA, t0.VB >= t1.VB	0.9723	1.0000	0.9461	0.9482	32.0750	0
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9702	1.0000	0.9422	0.9444	37.4210	0
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IB >= t1.IB, t0.VB <= t1.VB	0.9297	1.0000	0.8686	0.8736	11.6340	0
t0.IC >= t1.IC, t0.VB >= t1.VB, t0.IB <= t1.IB, t0.VA >= t1.VA	0.9297	1.0000	0.8686	0.8736	11.6340	0
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IA <= t1.IA, t0.VB <= t1.VB	0.9067	1.0000	0.8294	0.8359	37.0410	0
t0.VC <= t1.VC, t0.IA <= t1.IA, t0.VB <= t1.VB, t0.IB <= t1.IB	0.9063	1.0000	0.8286	0.8351	36.1750	0
t0.IC <= t1.IC, t0.IA <= t1.IA, t0.IB <= t1.IB	0.7098	1.0000	0.5501	0.5672	18.1483	400
t0.VC <= t1.VC, t0.VA <= t1.VA, t0.VB <= t1.VB	0.3273	1.0000	0.1957	0.2263	18.4600	400
t0.IA = t1.IA	0.0001	1.0000	0.0000	0.0381	259.0000	999
t0.IA <= t1.IA, t0.VC = t1.VC, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.VC = t1.VC, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IB = t1.IB, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.IA <= t1.IA, t0.VA = t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.IA = t1.IA, t0.VB >= t1.VB	0.0000	0.0000	0.0000	0.0381		1000

Denial Constraint	F1-Score	Precision	Recall	Accuracy	Samples 1[a] Detection	No Fault Detected
t0.IC <= t1.IC, t0.IA >= t1.IA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC >= t1.IC, t0.IA <= t1.IA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.IA <= t1.IA, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.IB >= t1.IB, t0.VA = t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC, t0.IB <= t1.IB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IA = t1.IA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC >= t1.IC, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VA <= t1.VA, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VB >= t1.VB, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VB >= t1.VB, t0.VA = t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC, t0.VB <= t1.VB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VB >= t1.VB, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000
t0.IC = t1.IC, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.IA = t1.IA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VC <= t1.VC, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VC = t1.VC, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VC <= t1.VC, t0.VA = t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IC <= t1.IC, t0.VC >= t1.VC, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA <= t1.VA, t0.IA <= t1.IA, t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.VA <= t1.VA, t0.IA <= t1.IA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA <= t1.VA, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA = t1.VA, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA >= t1.VA, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA = t1.VA, t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.VA <= t1.VA, t0.IC = t1.IC, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000

Denial Constraint	F1-Score	Precision	Recall	Accuracy	Samples 1[a] Detection	No Fault Detected
t0.VA = t1.VA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA <= t1.VA, t0.VB <= t1.VB, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VA = t1.VA, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000
t0.VB >= t1.VB, t0.IA = t1.IA, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VB >= t1.VB, t0.IC = t1.IC, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VB >= t1.VB, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.IA = t1.IA, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.VA = t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC >= t1.VC, t0.IA <= t1.IA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC >= t1.VC, t0.IA = t1.IA, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC = t1.VC, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC = t1.VC, t0.IB <= t1.IB, t0.IA >= t1.IA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.IB = t1.IB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC = t1.VC, t0.IB <= t1.IB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.IC = t1.IC, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.IC = t1.IC, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.VA <= t1.VA, t0.IA = t1.IA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.VA = t1.VA, t0.IA >= t1.IA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.VA <= t1.VA, t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.VC = t1.VC, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.VB >= t1.VB, t0.IA = t1.IA	0.0000	0.0000	0.0000	0.0381		1000
t0.VC <= t1.VC, t0.VB <= t1.VB, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.VC = t1.VC, t0.VB <= t1.VB, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.IB = t1.IB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.IB <= t1.IB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000

Denial Constraint	F1-Score	Precision	Recall	Accuracy	Samples 1[a] Detection	No Fault Detected
t0.IA <= t1.IA, t0.IB <= t1.IB, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.IB >= t1.IB, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.IC = t1.IC, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.VA = t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.VA = t1.VA, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.VA = t1.VA, t0.VB <= t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.VB = t1.VB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.VB <= t1.VB, t0.IB = t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.VB <= t1.VB, t0.IB <= t1.IB	0.0000	0.0000	0.0000	0.0381		1000
t0.IA <= t1.IA, t0.VB >= t1.VB, t0.IC = t1.IC	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.VB <= t1.VB, t0.VA >= t1.VA	0.0000	0.0000	0.0000	0.0381		1000
t0.IA = t1.IA, t0.VC = t1.VC	0.0000	0.0000	0.0000	0.0381		1000