

Summary

Sink States:0(0×10^0)

Table 1: Pulse Analysis Summary

Classes	Methods	States	Unsatisfiable Clauses	Unreachable States	Possible concurrent Methods	Total. no. of pairs	No. of concurrent pairs	Percentage of concurrent Methods
Activator	8	1	3	0	7	36	15	42
SampleAction	5	1	0	0	4	15	7	47
JMLAnnotatedJavaClass	6	1	0	0	5	21	5	24
PluralParser	34	1	0	0	34	595	127	21
EJmlSpecification	12	1	0	0	10	78	10	13
EGhost	6	1	0	0	5	21	12	57
Time	2	1	0	0	0	3	0	0
FileReader	2	1	0	0	1	3	1	33
UserSelectedClassesAnalysis	12	1	0	0	10	78	34	44
EVMDDSMCGenerator	11	1	0	0	8	66	35	53
EPackage	6	1	0	0	5	21	12	57
EGeneratedPluralSpecification	3	1	0	0	0	6	0	0
ESMCModel	60	1	0	0	59	1830	339	19
WorkspaceUtilities	9	1	0	0	8	45	30	67
EClass	24	1	0	0	23	300	221	74
EGrarphWriter	5	1	0	0	4	15	4	27
EState	10	1	0	0	9	55	35	64
EOutputLatex	22	1	0	0	19	253	19	8
EMethod	22	1	0	0	21	253	126	50
SMCVisitor	6	1	0	0	5	21	14	67
PulseSettings	11	1	0	0	10	66	40	61
EField	11	1	0	0	10	66	27	41
ESpecification	8	1	0	0	7	36	18	50
EParameter	9	1	0	0	8	45	26	58
EInvariant	11	1	0	0	10	66	40	61
EBoolInvariant	3	1	0	0	2	6	3	50
EDim	5	1	0	0	4	15	7	47
specificationStruct	1	1	0	0	0	1	0	0
Clause	1	1	0	0	0	1	0	0
Signature	1	1	0	0	0	1	0	0
MethodFindVisitor	2	1	0	0	0	3	0	0
GAPHandler	7	1	0	0	6	28	18	64
GAPIFileAction	5	1	1	0	4	15	4	27
Main	5	1	0	0	4	15	7	47

TypestateReturn	1	1	0	0	0	1	0	0
AtApPermissionReturn	1	1	0	0	0	1	0	0
AccesspermissionReturn	1	1	0	0	0	1	0	0
PluralLexer	63	1	0	0	62	2016	1952	97
DFA7	2	1	0	0	1	3	1	33
EAPTypeState	5	1	0	0	0	15	0	0
Total Classes=40	418	40	4	0	365	6116	3189	52

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1 Activator

Table 2: Methods Requires Clause Satisfiability

Method	Satisfiability
Activator	✓
start	✓
stop	✓
getDefault	✓
start	✗
stop	✗
getDefault	✗
getImageDescriptor	✓

Table 3: State Transition Matrix

	alive
alive	↑

Table 4: Methods Concurrency Matrix

	Activator	start	stop	getDefault	start	stop	getDefault	getImageDescriptor
Activator	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
start	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
stop	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getDefault	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
start	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
stop	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getDefault	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getImageDescriptor	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

2 SampleAction

Table 5: Methods Requires Clause Satisfiability

Method	Satisfiability
SampleAction	✓
run	✓
selectionChanged	✓
dispose	✓
init	✓

Table 6: State Transition Matrix

	alive
alive	↑

Table 7: Methods Concurrency Matrix

	SampleAction	run	selectionChanged	dispose	init
SampleAction	⌘	⌘	⌘	⌘	⌘
run	⌘	⌘			⌘
selectionChanged	⌘				
dispose	⌘				
init	⌘	⌘			⌘

3 JMLAnnotatedJavaClass

Table 8: Methods Requires Clause Satisfiability

Method	Satisfiability
JMLAnnotatedJavaClass	✓
translateJMLAnnotationsToPlural	✓
translateClassSpecifications	✓
parseAndStoreJMLAnnotation	✓
translateMethodSpecification	✓
readFileAsString	✓

Table 9: State Transition Matrix

	alive
alive	↑

Table 10: Methods Concurrency Matrix

	JMLAnnotatedJavaClass	translateJMLAnnotationsToPlural	translateClassSpecifications	parseAndStoreJMLAnnotation	translateMethodSpecification	readFileAsString
JMLAnnotatedJavaClass	⌘	⌘	⌘	⌘	⌘	⌘
translateJMLAnnotationsToPlural	⌘	⌘	⌘	⌘	⌘	⌘
translateClassSpecifications	⌘	⌘	⌘	⌘	⌘	⌘
parseAndStoreJMLAnnotation	⌘	⌘	⌘	⌘	⌘	⌘
translateMethodSpecification	⌘	⌘	⌘	⌘	⌘	⌘
readFileAsString	⌘	⌘	⌘	⌘	⌘	⌘

4 PluralParser

Table 11: Methods Requires Clause Satisfiability

Method	Satisfiability
PluralParser	✓
jmlSpecifications	✓
jmlClassSpecifications	✓
jmlGhostDeclaration	✓
jmlMethodSpecification	✓
jmlRequires	✓
jmlReq	✓
jmlLessThanEqualReq	✓
jmlEnsures	✓
jmlEns	✓
getTokenNames	✓
getGrammarFileName	✓
jmlOldEns	✓
specifications	✓
perm	✓
requiresensuresClause	✓
requiresClause	✓
reaccesspermissionTypestates	✓
accesspermission	✓
typestate	✓
attype	✓
atpermission	✓
usevalue	✓
classstates	✓
startClassstates	✓
state	✓
endclassstates	✓
refine	✓
states	✓
dimension	✓
item	✓
invariant	✓
condition	✓
other	✓

Table 12: State Transition Matrix

	alive
alive	↑

Table 13: Methods Concurrency Matrix

	PluralParser	jmlSpecifications	jmlClassSpecifications	jmlGhostDeclaration	jmlMethodSpecification	jmlRequires	jmlReq	jmlLessThanEqualReq	jmlEnsures	jmlEns	getTokenNames	getGrammarFileName	jmlOldEns	specifications	perm	requiresensuresClause	requiresClause	reaccesspermissionTypestates	accesspermission	typestate
PluralParser	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlSpecifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlClassSpecifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlGhostDeclaration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlMethodSpecification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlRequires	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlReq	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlLessThanEqualReq	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlEnsures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlEns	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
getTokenNames	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
getGrammarFileName	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
jmlOldEns	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
perm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
requiresensuresClause	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
requiresClause	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
reaccesspermissionTypestates	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
accesspermission	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
typestate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
attype	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
atappermision	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
usevalue	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
classtates	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
startClasstates	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
state	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
endclasstates	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
refine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
states	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
dimension	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
item	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
invariant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
condition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
other	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

5 EJmlSpecification

Table 14: Methods Requires Clause Satisfiability

Method	Satisfiability
EJmlSpecification	✓
setDimensionName	✓
setEnsures	✓
setPerm	✓
addRequires	✓
reset	✓
JmlClassSpec2PluralClassSpec	✓
noRequires	✓
getPerm	✓
determineEnsures	✓
oneRequires	✓
moreRequires	✓

Table 15: State Transition Matrix

	alive
alive	↑

Table 16: Methods Concurrency Matrix

	EJmlSpecification	setDimensionName	setEnsures	setPerm	addRequires	reset	JmlClassSpec2PluralClassSpec	noRequires	getPerm	determineEnsures	oneRequires	moreRequires
EJmlSpecification	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setDimensionName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setEnsures	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setPerm	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addRequires	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
reset	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
JmlClassSpec2PluralClassSpec	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
noRequires	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getPerm	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
determineEnsures	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
oneRequires	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
moreRequires	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

6 EGhost

Table 17: Methods Requires Clause Satisfiability

Method	Satisfiability
EGhost	✓
setDimensionName	✓
setDimensionValues	✓
getDimensionName	✓
getLowValueofInv	✓
getHighValueofInv	✓

Table 18: State Transition Matrix

	alive
alive	↑

Table 19: Methods Concurrency Matrix

	EGhost	setDimensionName	setDimensionValues	getDimensionName	getLowValueofInv	getHighValueofInv
EGhost	⌘	⌘	⌘	⌘	⌘	⌘
setDimensionName	⌘	⌘	⌘			
setDimensionValues	⌘	⌘	⌘			
getDimensionName	⌘					
getLowValueofInv	⌘					
getHighValueofInv	⌘					

7 Time

Table 20: Methods Requires Clause Satisfiability

Method	Satisfiability
Time	✓
toString	✓

Table 21: State Transition Matrix

	alive
alive	↑

Table 22: Methods Concurrency Matrix

	Time	toString
Time	⧻	⧻
toString	⧻	⧻

8 FileReader

Table 23: Methods Requires Clause Satisfiability

Method	Satisfiability
FileReader	✓
readFile	✓

Table 24: State Transition Matrix

	alive
alive	↑

Table 25: Methods Concurrency Matrix

	FileReader	readFile
FileReader	⌈	⌈
readFile	⌈	

9 UserSelectedClassesAnalysis

Table 26: Methods Requires Clause Satisfiability

Method	Satisfiability
UserSelectedClassesAnalysis	✓
getCompilationUnit	✓
analyzeFromCommandLine	✓
analyzeFromPlugin	✓
callModelCheckerThroughCommandLine	✓
getTime	✓
CreatePdfSummary_CommandLine	✓
callModelCheckerThroughPlugin	✓
createPdfSummaryPlugin	✓
makePdfCommandLine	✓
makePdfPlugin	✓
printMethodMetrics	✓

Table 27: State Transition Matrix

	alive
alive	↑

Table 28: Methods Concurrency Matrix

	UserSelectedClassesAnalysis	getCompilationUnit	analyzeFromCommandLine	analyzeFromPlugin	callModelCheckerThroughCommandLine	getTime	CreatePdfSummary_CommandLine	callModelCheckerThroughPlugin	createPdfSummaryPlugin	makePdfCommandLine	makePdfPlugin	printMethodMetrics
UserSelectedClassesAnalysis	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getCompilationUnit	⌘						⌘					
analyzeFromCommandLine	⌘		⌘	⌘	⌘	⌘	⌘	⌘				⌘
analyzeFromPlugin	⌘		⌘	⌘	⌘	⌘	⌘	⌘				⌘
callModelCheckerThroughCommandLine	⌘		⌘	⌘	⌘	⌘	⌘	⌘				⌘
getTime	⌘		⌘	⌘	⌘	⌘	⌘	⌘				⌘
CreatePdfSummary_CommandLine	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
callModelCheckerThroughPlugin	⌘		⌘	⌘	⌘	⌘	⌘	⌘				⌘
createPdfSummaryPlugin	⌘						⌘					
makePdfCommandLine	⌘						⌘					

makePdfPlugin	⌘						⌘					
printMethodMetrics	⌘		⌘	⌘	⌘	⌘	⌘	⌘				⌘

10 EVMDDSMCGenerator

Table 29: Methods Requires Clause Satisfiability

Method	Satisfiability
EVMDDSMCGenerator	✓
reset	✓
addBoolStateInvariant	✓
getPkgObject	✓
modifyConstructorSpecifications	✓
addState	✓
addRequiresParam_AP_TS	✓
addEnsuresParamAPTS	✓
addStateInvariant	✓
addDimensionValue	✓
addEnsuresAPTS	✓

Table 30: State Transition Matrix

	alive
alive	↑

Table 31: Methods Concurrency Matrix

	EVMDDSMCGenerator	reset	addBoolStateInvariant	getPkgObject	modifyConstructorSpecifications	addState	addRequiresParam_AP_TS	addEnsuresParamAPTS	addStateInvariant	addDimensionValue	addEnsuresAPTS
EVMDDSMCGenerator	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
reset	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addBoolStateInvariant	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getPkgObject	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
modifyConstructorSpecifications	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addState	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addRequiresParam_AP_TS	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addEnsuresParamAPTS	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addStateInvariant	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addDimensionValue	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addEnsuresAPTS	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

11 EPackage

Table 32: Methods Requires Clause Satisfiability

Method	Satisfiability
EPackage	✓
getClasses	✓
getTotalReachableStates	✓
getName	✓
getTotalStates	✓
getSinkStates	✓

Table 33: State Transition Matrix

	alive
alive	↑

Table 34: Methods Concurrency Matrix

	EPackage	getClasses	getTotalReachableStates	getName	getTotalStates	getSinkStates
EPackage	⌘	⌘	⌘	⌘	⌘	⌘
getClasses	⌘					
getTotalReachableStates	⌘					
getName	⌘			⌘	⌘	
getTotalStates	⌘			⌘	⌘	
getSinkStates	⌘					

12 EGeneratedPluralSpecification

Table 35: Methods Requires Clause Satisfiability

Method	Satisfiability
EGeneratedPluralSpecification	✓
createFromCommandLine	✓
createFromPlugin	✓

Table 36: State Transition Matrix

	alive
alive	↑

Table 37: Methods Concurrency Matrix

	EGeneratedPluralSpecification	createFromCommandLine	createFromPlugin
EGeneratedPluralSpecification	⌘	⌘	⌘
createFromCommandLine	⌘	⌘	⌘
createFromPlugin	⌘	⌘	⌘

13 ESMCModel

Table 38: Methods Requires Clause Satisfiability

Method	Satisfiability
ESMCMModel	✓
setK	✓
declarationsAndinitializations	✓
initialize	✓
comment	✓
modelAlias	✓
isClassExist	✓
Transitions	✓
createInstanceInModel	✓
modelPrimePCandMethod	✓
startMethod	✓
modelPCConstructor	✓
modelAPs	✓
modelPCMethod	✓
startAPTSPARAM	✓
startPrimeTSPARAM	✓
modelPrimeConstructor	✓
modelInheritance	✓
modelPrimeAPStateInvariants	✓
starPrimeAP	✓
modelPrimeAP	✓
getAPIId	✓
modelEndPCMethod	✓
endMethod	✓
modelEndPCConstructor	✓
modelendConstructor	✓
updateBoolStateInvariants	✓
endPrimeAPTS	✓
endPrimeAPTSPARAM	✓
updateState	✓
updateStateInvariants	✓
modelBoolStateInvariants	✓
startAPTS	✓
modelState	✓
modelStateInvariants	✓
methodsReachability	✓
modelAP	✓
getObjectIndex	✓
updateTokens	✓
modelPrimePCCConstructor	✓
modelPrimePC	✓
defineKVariables	✓
defineVariables	✓
initilizeKVariables	✓
initilizeVariables	✓
createAlias	✓
isPrivateAndIndexEqualToZero	✓

getClass	✓
getDimensionIndex	✓
addIndexes	✓
createDimensionsObject	✓
createDimensionAsField	✓
createParentAsField	✓
createParentObject	✓
setInvariantVariableType	✓
addInvariantStateIndex	✓
Spec	✓
concurrentMethods	✓
statesAdjancyMatrix	✓
generateSMCmodelPlugin	✓

Table 39: State Transition Matrix

	alive
alive	↑

	ESMCMModel	setK	declarationsAndinitializations	initialize	comment	modelAlias	isClassExist	Transitions	createInstanceInModel	modelPrimePCandMethod	startMethod	modelPCCConstructor	modelAPs	modelPCMethod	startAPTSPARAM	startPrimeTSPARAM	modelPrimeConstructor	modelInheritance	modelPrimeAPStateInvariants	starPrimeAP	modelPrimeAP	...
ESMCMModel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
setK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
declarationsAndinitializations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
initialize	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
comment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelAlias	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
isClassExist	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transitions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
createInstanceInModel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelPrimePCandMethod	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
startMethod	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelPCCConstructor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelAPs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelPCMethod	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
startAPTSPARAM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
startPrimeTSPARAM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelPrimeConstructor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelInheritance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelPrimeAPStateInvariants	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
starPrimeAP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
modelPrimeAP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

14 WorkspaceUtilities

Table 41: Methods Requires Clause Satisfiability

Method	Satisfiability
WorkspaceUtilities	✓
getASTNodeFromCompilationUnit	✓
scanForCompilationUnits	✓
collectCompilationUnits	✓
findCompilationUnits	✓
getWorkspaceRelativeName	✓
parseCompilationUnits	✓
scanForMethodDeclarations	✓
scanForMethodDeclarationsFromAST	✓

Table 42: State Transition Matrix

	alive
alive	↑

Table 43: Methods Concurrency Matrix

	WorkspaceUtilities	getASTNodeFromCompilationUnit	scanForCompilationUnits	collectCompilationUnits	findCompilationUnits	getWorkspaceRelativeName	parseCompilationUnits	scanForMethodDeclarations	scanForMethodDeclarationsFromAST
WorkspaceUtilities	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getASTNodeFromCompilationUnit	⌘								
scanForCompilationUnits	⌘		⌘	⌘	⌘				
collectCompilationUnits	⌘		⌘	⌘	⌘				
findCompilationUnits	⌘		⌘	⌘	⌘				
getWorkspaceRelativeName	⌘								
parseCompilationUnits	⌘								
scanForMethodDeclarations	⌘								
scanForMethodDeclarationsFromAST	⌘								

15 EClass

Table 44: Methods Requires Clause Satisfiability

Method	Satisfiability
EClass	✓
getName	✓
getTransitions	✓
getReachableStates	✓
getStates	✓
getMethods	✓
getSuperClassName	✓
findStateIndex	✓
getIndex	✓
getFields	✓
getVariablesOfBooleanInvariants	✓
getDimensions	✓
createObject	✓
getConstructor	✓
setSuperClassName	✓
getTotalStates	✓
getTotalReachableStates	✓
addMethod	✓
addField	✓
addState	✓
getLastObjectIndex	✓
addDimension	✓
hasMoreThanOneDimension	✓
addClassStatesSpecifications	✓

Table 45: State Transition Matrix

	alive
alive	↑

Table 46: Methods Concurrency Matrix

	EClass	getName	getTransitions	getReachableStates	getStates	getMethods	getSuperClassName	findStateIndex	getIndex	getFields	getVariablesOfBooleanInvariants	getDimensions	createObject	getConstructor	setSuperClassName	getTotalStates	getTotalReachableStates	addMethod	addField
EClass	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

getName	✓	✓												✓	✓	✓	✓		✓	✓
getTransitions	✓													✓					✓	✓
getReachableStates	✓													✓					✓	✓
getStates	✓													✓					✓	✓
getMethods	✓													✓					✓	✓
getSuperClassName	✓													✓					✓	✓
findStateIndex	✓													✓					✓	✓
getIndex	✓													✓					✓	✓
getFields	✓													✓					✓	✓
getVariablesOfBooleanInvariants	✓													✓					✓	✓
getDimensions	✓													✓					✓	✓
createObject	✓	✓												✓	✓	✓	✓		✓	✓
getConstructor	✓	✓												✓	✓	✓	✓		✓	✓
setSuperClassName	✓	✓												✓	✓	✓	✓		✓	✓
getTotalStates	✓	✓												✓	✓	✓	✓		✓	✓
getTotalReachableStates	✓													✓	✓	✓	✓		✓	✓
addMethod	✓	✓												✓	✓	✓	✓		✓	✓
addField	✓	✓												✓	✓	✓	✓		✓	✓
addState	✓	✓												✓	✓	✓	✓		✓	✓
getLastObjectIndex	✓													✓					✓	✓
addDimension	✓	✓												✓	✓	✓	✓		✓	✓
hasMoreThanOneDimension	✓	✓												✓	✓	✓	✓		✓	✓
addClassStatesSpecifications	✓													✓					✓	✓

16 EGrarphWriter

Table 47: Methods Requires Clause Satisfiability

Method	Satisfiability
EGrarphWriter	✓
addTrnsitions	✓
createGraph	✓
setNumberOfUnReachableMethods	✓
getNumberOfUnReachableMethods	✓

Table 48: State Transition Matrix

	alive
alive	↑

Table 49: Methods Concurrency Matrix

	EGrarphWriter	addTrnsitions	createGraph	setNumberOfUnReachableMethods	getNumberOfUnReachableMethods
EGrarphWriter	⚡	⚡	⚡	⚡	⚡
addTrnsitions	⚡	⚡	⚡	⚡	⚡
createGraph	⚡	⚡	⚡	⚡	⚡
setNumberOfUnReachableMethods	⚡	⚡	⚡	⚡	⚡
getNumberOfUnReachableMethods	⚡	⚡	⚡	⚡	⚡

17 EState

Table 50: Methods Requires Clause Satisfiability

Method	Satisfiability
EState	✓
isReachable	✓
getName	✓
setReachability	✓
getInvariants	✓
getStateIndex	✓
getBoolInvariants	✓
addBoolInvariant	✓
setIndex	✓
isReachableState	✓

Table 51: State Transition Matrix

	alive
alive	↑

Table 52: Methods Concurrency Matrix

	EState	isReachable	getName	setReachability	getInvariants	getStateIndex	getBoolInvariants	addBoolInvariant	setIndex	isReachableState
EState	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
isReachable	⌘									
getName	⌘									
setReachability	⌘			⌘				⌘	⌘	⌘
getInvariants	⌘									
getStateIndex	⌘									
getBoolInvariants	⌘									
addBoolInvariant	⌘			⌘				⌘	⌘	⌘
setIndex	⌘			⌘				⌘	⌘	⌘
isReachableState	⌘			⌘				⌘	⌘	⌘

18 EOutputLatex

Table 53: Methods Requires Clause Satisfiability

Method	Satisfiability
EOutputLatex	✓
create_CommandLine	✓
addUsePackages	✓
writeToLatex	✓
WriteSummary	✓
addSummaryTableHeaders	✓
addSummaryTableRows	✓
writeStateTransitionMatrix	✓
addSTMColumnsHeaders	✓
writeMethodConcurrencyMatrix	✓
addConcurrencyMatrixHeaders	✓
writeAbbervations	✓
setText	✓
parseTransitions	✓
parseSinkStates	✓
create_Plugin	✓
addConcurrencyMatrixRows	✓
getConcurrencyValue	✓
addSummaryTableColumns	✓
addSTMNumberOfColumns	✓
getStateReachabilityValue	✓
getMethod	✓

Table 54: State Transition Matrix

	alive
alive	↑

Table 55: Methods Concurrency Matrix

	EOutputLatex	create_CommandLine	addUsePackages	writeToLatex	WriteSummary	addSummaryTableHeaders	addSummaryTableRows	writeStateTransitionMatrix	addSTMColumnsHeaders	writeMethodConcurrencyMatrix	addConcurrencyMatrixHeaders	writeAbbervations	setText	parseTransitions	parseSinkStates	create_Plugin	addConcurrencyMatrixRows	getConcurrencyValue	addSummaryTableColumns
EOutputLatex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
create_CommandLine	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addUsePackages	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

writeToLatex	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
WriteSummary	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addSummaryTableHeaders	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addSummaryTableRows	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
writeStateTransitionMatrix	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addSTMColumnsHeaders	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
writeMethodConcurrencyMatrix	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addConcurrencyMatrixHeaders	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
writeAbbervations	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
setText	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
parseTransitions	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
parseSinkStates	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
create_Plugin	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addConcurrencyMatrixRows	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
getConcurrencyValue	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addSummaryTableColumns	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
addSTMNumberOfColumns	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
getStateReachabilityValue	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈
getMethod	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈	⌈

19 EMethod

Table 56: Methods Requires Clause Satisfiability

Method	Satisfiability
EMethod	✓
getRequiresClauseSatisfiability	✓
setReturnType	✓
setIdentifier	✓
getName	✓
getEnsuresAPTS	✓
isConcurrentMethod	✓
setJMLPermission	✓
getJMLPermission	✓
getCaseNumber	✓
setCaseNumber	✓
setName	✓
getReturnType	✓
getIdentifier	✓
addParameter	✓
getRequiresAPTS	✓
getParameters	✓
setIndex	✓
getIndex	✓
setRequiresClauseSatisfiability	✓
setConcurrentMethod	✓
addSpecifications	✓

Table 57: State Transition Matrix

	alive
alive	↑

Table 58: Methods Concurrency Matrix

	EMethod	getRequiresClauseSatisfiability	setReturnType	setIdentifier	getName	getEnsuresAPTS	isConcurrentMethod	setJMLPermission	getJMLPermission	getCaseNumber	setCaseNumber	setName	getReturnType	getIdentifier	addParameter	getRequiresAPTS	getParameters	setIndex	getIndex	setRequiresClauseSatisfiability
EMethod	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getRequiresClauseSatisfiability	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setReturnType	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setIdentifier	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

getName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getEnsuresAPTS	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
isConcurrentMethod	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setJMLPermission	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getJMLPermission	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getCaseNumber	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setCaseNumber	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getReturnType	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getIdentifier	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addParameter	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getRequiresAPTS	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getParameters	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setRequiresClauseSatisfiability	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setConcurrentMethod	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addSpecifications	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

20 SMCVisitor

Table 59: Methods Requires Clause Satisfiability

Method	Satisfiability
SMCVisitor	✓
addUnparsedSpecifications	✓
postVisit	✓
visit	✓
endVisit	✓
callParser	✓

Table 60: State Transition Matrix

	alive
alive	↑

Table 61: Methods Concurrency Matrix

	SMCVisitor	addUnparsedSpecifications	postVisit	visit	endVisit	callParser
SMCVisitor	⌘	⌘	⌘	⌘	⌘	⌘
addUnparsedSpecifications	⌘					
postVisit	⌘					
visit	⌘			⌘		
endVisit	⌘					
callParser	⌘					

21 PulseSettings

Table 62: Methods Requires Clause Satisfiability

Method	Satisfiability
PulseSettings	✓
getInheritance	✓
getFullModel	✓
getInvariants	✓
setInvariants	✓
setAliasPerObject	✓
setFullModel	✓
setDimensions	✓
setInheritance	✓
getAliasPerObject	✓
getDimensions	✓

Table 63: State Transition Matrix

	alive
alive	↑

Table 64: Methods Concurrency Matrix

	PulseSettings	getInheritance	getFullModel	getInvariants	setInvariants	setAliasPerObject	setFullModel	setDimensions	setInheritance	getAliasPerObject	getDimensions
PulseSettings	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getInheritance	⌘										
getFullModel	⌘										
getInvariants	⌘										
setInvariants	⌘				⌘	⌘	⌘	⌘	⌘		
setAliasPerObject	⌘				⌘	⌘	⌘	⌘	⌘		
setFullModel	⌘				⌘	⌘	⌘	⌘	⌘		
setDimensions	⌘				⌘	⌘	⌘	⌘	⌘		
setInheritance	⌘				⌘	⌘	⌘	⌘	⌘		
getAliasPerObject	⌘										
getDimensions	⌘										

22 EField

Table 65: Methods Requires Clause Satisfiability

Method	Satisfiability
EField	✓
setName	✓
setType	✓
setModifier	✓
getObjectIndex	✓
getModifier	✓
setClassIndex	✓
getName	✓
getType	✓
setObjectIndex	✓
getClassIndex	✓

Table 66: State Transition Matrix

	alive
alive	↑

Table 67: Methods Concurrency Matrix

	EField	setName	setType	setModifier	getObjectIndex	getModifier	setClassIndex	getName	getType	setObjectIndex	getClassIndex
EField	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setType	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setModifier	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getObjectIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getModifier	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setClassIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getType	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setObjectIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getClassIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

23 ESpecification

Table 68: Methods Requires Clause Satisfiability

Method	Satisfiability
ESpecification	✓
getParentClass	✓
getTS	✓
getAP	✓
clone	✓
setAPTS	✓
setAP	✓
getFieldName	✓

Table 69: State Transition Matrix

	alive
alive	↑

Table 70: Methods Concurrency Matrix

	ESpecification	getParentClass	getTS	getAP	clone	setAPTS	setAP	getFieldName
ESpecification	✗	✗	✗	✗	✗	✗	✗	✗
getParentClass	✗							
getTS	✗		✗	✗		✗	✗	
getAP	✗		✗	✗		✗	✗	
clone	✗							
setAPTS	✗		✗	✗		✗	✗	
setAP	✗		✗	✗		✗	✗	
getFieldName	✗							

24 EParameter

Table 71: Methods Requires Clause Satisfiability

Method	Satisfiability
EParameter	✓
getRequiresAPTS	✓
setNumber	✓
getNumber	✓
setName	✓
setType	✓
getType	✓
getName	✓
getEnsuresAPTS	✓

Table 72: State Transition Matrix

	alive
alive	↑

Table 73: Methods Concurrency Matrix

	EParameter	getRequiresAPTS	setNumber	getNumber	setName	setType	getType	getName	getEnsuresAPTS
EParameter	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getRequiresAPTS	⌘								
setNumber	⌘		⌘		⌘	⌘		⌘	
getNumber	⌘								
setName	⌘		⌘		⌘	⌘		⌘	
setType	⌘		⌘		⌘	⌘		⌘	
getType	⌘								
getName	⌘		⌘		⌘	⌘		⌘	
getEnsuresAPTS	⌘								

25 EInvariant

Table 74: Methods Requires Clause Satisfiability

Method	Satisfiability
EInvariant	✓
getVariableType	✓
getStateName	✓
setVariableType	✓
setStateIndex	✓
setAP	✓
setVariable	✓
setState	✓
getAP	✓
getVariable	✓
getStateInvariants	✓

Table 75: State Transition Matrix

	alive
alive	↑

Table 76: Methods Concurrency Matrix

	EInvariant	getVariableType	getStateName	setVariableType	setStateIndex	setAP	setVariable	setState	getAP	getVariable	getStateInvariants
EInvariant	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getVariableType	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getStateName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setVariableType	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setStateIndex	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setAP	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setVariable	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
setState	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getAP	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getVariable	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
getStateInvariants	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘

26 EBoolInvariant

Table 77: Methods Requires Clause Satisfiability

Method	Satisfiability
EBoolInvariant	✓
getVariable	✓
getValue	✓

Table 78: State Transition Matrix

	alive
alive	↑

Table 79: Methods Concurrency Matrix

	EBoolInvariant	getVariable	getValue
EBoolInvariant	⧻	⧻	⧻
getVariable	⧻		
getValue	⧻		

27 EDim

Table 80: Methods Requires Clause Satisfiability

Method	Satisfiability
EDim	✓
getValues	✓
setName	✓
getName	✓
addValue	✓

Table 81: State Transition Matrix

	alive
alive	↑

Table 82: Methods Concurrency Matrix

	EDim	getValues	setName	getName	addValue
EDim	✗	✗	✗	✗	✗
getValues	✗				
setName	✗		✗		✗
getName	✗				
addValue	✗		✗		✗

28 `specificationStruct`

Table 83: Methods Requires Clause Satisfiability

Method	Satisfiability
<code>specificationStruct</code>	✓

Table 84: State Transition Matrix

	alive
alive	↑

29 Clause

Table 85: Methods Requires Clause Satisfiability

Method	Satisfiability
Clause	✓

Table 86: State Transition Matrix

	alive
alive	↑

30 **Signature**

Table 87: Methods Requires Clause Satisfiability

Method	Satisfiability
Signature	✓

Table 88: State Transition Matrix

	alive
alive	↑

31 MethodFindVisitor

Table 89: Methods Requires Clause Satisfiability

Method	Satisfiability
MethodFindVisitor	✓
visit	✓

Table 90: State Transition Matrix

	alive
alive	↑

Table 91: Methods Concurrency Matrix

	MethodFindVisitor	visit
MethodFindVisitor	⌘	⌘
visit	⌘	⌘

32 GAPHandler

Table 92: Methods Requires Clause Satisfiability

Method	Satisfiability
GAPHandler	✓
addHandlerListener	✓
dispose	✓
execute	✓
extractSettings	✓
isHandled	✓
removeHandlerListener	✓

Table 93: State Transition Matrix

	alive
alive	↑

Table 94: Methods Concurrency Matrix

	GAPHandler	addHandlerListener	dispose	execute	extractSettings	isHandled	removeHandlerListener
GAPHandler	⌘	⌘	⌘	⌘	⌘	⌘	⌘
addHandlerListener	⌘						
dispose	⌘						
execute	⌘			⌘	⌘		
extractSettings	⌘			⌘	⌘		
isHandled	⌘						
removeHandlerListener	⌘						

33 GAPIFileAction

Table 95: Methods Requires Clause Satisfiability

Method	Satisfiability
GAPIFileAction	✓
selectionChanged	✓
setActivePart	✓
run	✓
run	✗

Table 96: State Transition Matrix

	alive
alive	↑

Table 97: Methods Concurrency Matrix

	GAPIFileAction	selectionChanged	setActivePart	run	run
GAPIFileAction	✗	✗	✗	✗	✗
selectionChanged	✗	✗		✗	✗
setActivePart	✗				
run	✗	✗		✗	✗
run	✗	✗		✗	✗

34 Main

Table 98: Methods Requires Clause Satisfiability

Method	Satisfiability
Main	✓
main	✓
testRead	✓
seprateJavaFile	✓
anTest	✓

Table 99: State Transition Matrix

	alive
alive	↑

Table 100: Methods Concurrency Matrix

	Main	main	testRead	seprateJavaFile	anTest
Main	⌈	⌈	⌈	⌈	⌈
main	⌈	⌈	⌈	⌈	⌈
testRead	⌈	⌈	⌈	⌈	⌈
seprateJavaFile	⌈	⌈	⌈	⌈	⌈
anTest	⌈	⌈	⌈	⌈	⌈

35 **TypestateReturn**

Table 101: Methods Requires Clause Satisfiability

Method	Satisfiability
TypestateReturn	✓

Table 102: State Transition Matrix

	alive
alive	↑

36 **AtApPermissionReturn**

Table 103: Methods Requires Clause Satisfiability

Method	Satisfiability
AtApPermissionReturn	✓

Table 104: State Transition Matrix

	alive
alive	↑

37 AccesspermissionReturn

Table 105: Methods Requires Clause Satisfiability

Method	Satisfiability
AccesspermissionReturn	✓

Table 106: State Transition Matrix

	alive
alive	↑

38 PluralLexer

Table 107: Methods Requires Clause Satisfiability

Method	Satisfiability
PluralLexer	✓
getGrammarFileName	✓
mATFULL	✓
mATPURE	✓
mATIMMUTABLE	✓
mATSHARE	✓
mATUNIQUE	✓
mPUBLICBEHAVIOR	✓
mFULL	✓
mPURE	✓
mIMMUTABLE	✓
mSHARE	✓
mUNIQUE	✓
mNONE	✓
mLSBRACKET	✓
mRSBRACKET	✓
mPERM	✓
mEQUAL	✓
mEQUALOPERATOR	✓
mIN	✓
mTHIS	✓
mRESULT	✓
mPARAM	✓
mREQUIRES	✓
mENSURES	✓
mQUOTE	✓
mAND	✓
mUSE	✓
mUSEFIELDS	✓
mPUNCTUATION	✓
mCASES	✓
mLCBRACKET	✓
mRCBRACKET	✓
mCLASSSTATES	✓
mREFINE	✓
mVALUE	✓
mSTATE	✓
mSTATES	✓
mDIM	✓
mNAME	✓
mINV	✓
mOPERATOR	✓
mSEMICOLON	✓
mLESS	✓
mLESSTHANEQUAL	✓
mGREATER	✓
mGREATERTHANEQUAL	✓

mANDD	✓
mOR	✓
mJMLSTART	✓
mJMLEND	✓
mPLUSMINUSOPERATOR	✓
mASSIGNABLE	✓
mNOTHING	✓
mEVERYTHING	✓
mGHOST	✓
mINT	✓
mINVARIANT	✓
mOLD	✓
mID	✓
mNUMBERS	✓
mWS	✓
mTokens	✓

Table 108: State Transition Matrix

	alive
alive	↑

	PluralLexer	getGrammarFileName	mATFULL	mATPURE	mATIMMUTABLE	mATSHARE	mATUNIQUE	mPUBLICBEHAVIOR	mFULL	mPURE	mIMMUTABLE	mSHARE	mUNIQUE	mNONE	mLSBRACKET	mRSBRACKET	mPERM	mEQUAL	mEQUALOPERATOR	mIN	mTHIS	mRESULT
PluralLexer	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
getGrammarFileName	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mATFULL	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mATPURE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mATIMMUTABLE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mATSHARE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mATUNIQUE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mPUBLICBEHAVIOR	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mFULL	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mPURE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mIMMUTABLE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mSHARE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mUNIQUE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mNONE	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	
mLSBRACKET	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘	

39 **DFA7**

Table 110: Methods Requires Clause Satisfiability

Method	Satisfiability
DFA7	✓
getDescription	✓

Table 111: State Transition Matrix

	alive
alive	↑

Table 112: Methods Concurrency Matrix

	DFA7	getDescription
DFA7	✗	✗
getDescription	✗	✓

40 EAPTypeState

Table 113: Methods Requires Clause Satisfiability

Method	Satisfiability
EAPTypeState	✓
setAP	✓
getAP	✓
setTS	✓
getTS	✓

Table 114: State Transition Matrix

	alive
alive	↑

Table 115: Methods Concurrency Matrix

	EAPTypeState	setAP	getAP	setTS	getTS
EAPTypeState	⧻	⧻	⧻	⧻	⧻
setAP	⧻	⧻	⧻	⧻	⧻
getAP	⧻	⧻	⧻	⧻	⧻
setTS	⧻	⧻	⧻	⧻	⧻
getTS	⧻	⧻	⧻	⧻	⧻

41 Abbreviation

Table 116: Used Abbreviation

Symbol	Meaning
✓	requires clause of the method is satisfiable
✗	requires clause of the method is unsatisfiable
↑	The row-state can be transitioned to the column-state
✕	The row-state cannot be transitioned to the column-state
	The row-method can be possibly executed parallel with the column-method
⋈	The row-method cannot be executed parallel with the column-method

42 Annotated Version of Sequential Java Program generated by Sip4j

```
1 package outputs;
2 import edu.cmu.cs.plural.annot.*;
3
4 @ClassStates({@State(name = "alive")})
5 class Activator {
6   @Perm(ensures="unique(this) in alive")
7   Activator() { }
8
9   @Perm(requires="full(this) in alive",
10  ensures="full(this) in alive")
11   public void start(BundleContext context) {
12   }
13   @Perm(requires="unique(this) in alive",
14  ensures="unique(this) in alive")
15   public void stop(BundleContext context) {
16   }
17   @Perm(requires="pure(this) in alive",
18  ensures="pure(this) in alive")
19   Activator getDefault() {
20     return null;
21   }
22   @Perm(requires="full(this) in alive",
23  ensures="full(this) in alive")
24   public void start(BundleContext context) {
25   }
26   @Perm(requires="unique(this) in alive",
27  ensures="unique(this) in alive")
28   public void stop(BundleContext context) {
29   }
30   @Perm(requires="pure(this) in alive",
31  ensures="pure(this) in alive")
32   Activator getDefault() {
33     return null;
34   }
35
36   ImageDescriptor getImageDescriptor(String path) {
37     return null;
38   }
39
40 }ENDOFCLASS
41
42 @ClassStates({@State(name = "alive")})
43
44 class SampleAction {
45   @Perm(ensures="unique(this) in alive")
46   SampleAction() { }
47
48   @Perm(requires="full(this) in alive",
49  ensures="full(this) in alive")
50   public void run(IAction action) {
51   }
52
53   public void selectionChanged(IAction action, ISelection selection) {
54   }
55
56   public void dispose() {
57   }
58   @Perm(requires="full(this) in alive",
59  ensures="full(this) in alive")
60   public void init(IWorkbenchWindow window) {
61   }
62
63 }ENDOFCLASS
64
65 @ClassStates({@State(name = "alive")})
66
67 class JMLAnnotatedJavaClass {
68   @Perm(ensures="unique(this) in alive")
69   JMLAnnotatedJavaClass() { }
70
71   @Perm(requires="unique(this) in alive",
72  ensures="unique(this) in alive")
73   public String translateJMLAnnotationsToPlural(String JProgram) {
74     return null;
75   }
76 }
```

```

76 @Perm(requires="full(this) in alive",
77 ensures="full(this) in alive")
78 private String translateClassSpecifications(String JProgram) {
79     return null;
80 }
81 @Perm(requires="full(this) in alive",
82 ensures="full(this) in alive")
83 private void parseAndStoreJMLAnnotation(String JMLAnnotation) {
84 }
85 @Perm(requires="unique(this) in alive",
86 ensures="unique(this) in alive")
87 private String translateMethodSpecification(String JProgram) {
88     return null;
89 }
90
91 public String readFileAsString(String filePath) {
92     return null;
93 }
94
95 }ENDOFCLASS
96
97 @ClassStates({@State(name = "alive")})
98
99 class PluralParser {
100 @Perm(ensures="unique(this) in alive")
101 PluralParser() { }
102
103 @Perm(requires="full(this) in alive",
104 ensures="full(this) in alive")
105 void jmlSpecifications() {
106 }
107 @Perm(requires="full(this) in alive",
108 ensures="full(this) in alive")
109 void jmlClassSpecifications() {
110 }
111 @Perm(requires="full(this) in alive",
112 ensures="full(this) in alive")
113 void jmlGhostDeclaration() {
114 }
115 @Perm(requires="full(this) in alive",
116 ensures="full(this) in alive")
117 void jmlMethodSpecification() {
118 }
119 @Perm(requires="full(this) in alive",
120 ensures="full(this) in alive")
121 void jmlRequires() {
122 }
123 @Perm(requires="full(this) in alive",
124 ensures="full(this) in alive")
125 void jmlReq() {
126 }
127 @Perm(requires="full(this) in alive",
128 ensures="full(this) in alive")
129 void jmlLessThanEqualReq() {
130 }
131 @Perm(requires="full(this) in alive",
132 ensures="full(this) in alive")
133 void jmlEnsures() {
134 }
135 @Perm(requires="full(this) in alive",
136 ensures="full(this) in alive")
137 void jmlEns() {
138 }
139 @Perm(ensures="none(this) in alive")
140 public String[] getTokenNames() {
141     return null;
142 }
143
144 public String getGrammarFileName() {
145     return null;
146 }
147 @Perm(requires="full(this) in alive",
148 ensures="full(this) in alive")
149 void jmlOldEns() {
150 }
151 @Perm(requires="full(this) in alive",
152 ensures="full(this) in alive")
153 void specifications() {
154 }
155 @Perm(requires="full(this) in alive",
156 ensures="full(this) in alive")

```

```

157 void perm() {
158 }
159 @Perm(requires="full(this) in alive",
160 ensures="full(this) in alive")
161 void requiresensuresClause() {
162 }
163 @Perm(requires="full(this) in alive",
164 ensures="full(this) in alive")
165 void requiresClause() {
166 }
167 @Perm(requires="full(this) in alive",
168 ensures="full(this) in alive")
169 void reaccesspermissionTypestates() {
170 }
171 @Perm(requires="pure(this) in alive",
172 ensures="pure(this) in alive")
173 AccesspermissionReturn accesspermission() {
174 return null;
175 }
176 @Perm(requires="full(this) in alive",
177 ensures="full(this) in alive")
178 TypestateReturn typestate() {
179 return null;
180 }
181 @Perm(requires="full(this) in alive",
182 ensures="full(this) in alive")
183 void attype() {
184 }
185 @Perm(requires="pure(this) in alive",
186 ensures="pure(this) in alive")
187 AtApPermissionReturn atappermission() {
188 return null;
189 }
190 @Perm(requires="full(this) in alive",
191 ensures="full(this) in alive")
192 void usevalue() {
193 }
194 @Perm(requires="full(this) in alive",
195 ensures="full(this) in alive")
196 void classstates() {
197 }
198 @Perm(requires="full(this) in alive",
199 ensures="full(this) in alive")
200 void startClassstates() {
201 }
202 @Perm(requires="full(this) in alive",
203 ensures="full(this) in alive")
204 void state() {
205 }
206 @Perm(requires="full(this) in alive",
207 ensures="full(this) in alive")
208 void endclassstates() {
209 }
210 @Perm(requires="full(this) in alive",
211 ensures="full(this) in alive")
212 void refine() {
213 }
214 @Perm(requires="full(this) in alive",
215 ensures="full(this) in alive")
216 void states() {
217 }
218 @Perm(requires="full(this) in alive",
219 ensures="full(this) in alive")
220 void dimension() {
221 }
222 @Perm(requires="full(this) in alive",
223 ensures="full(this) in alive")
224 void item() {
225 }
226 @Perm(requires="full(this) in alive",
227 ensures="full(this) in alive")
228 void invariant() {
229 }
230 @Perm(requires="full(this) in alive",
231 ensures="full(this) in alive")
232 void condition() {
233 }
234 @Perm(requires="full(this) in alive",
235 ensures="full(this) in alive")
236 void other() {
237 }

```



```

239 }ENDOFCLASS
241 @ClassStates({@State(name = "alive")})
243 class EJmlSpecification {
244   @Perm(ensures="unique(this) in alive")
245   EJmlSpecification() { }
247   @Perm(requires="full(this) in alive",
248     ensures="full(this) in alive")
249   void setDimensionName(String str) {
250   }
251   @Perm(requires="full(this) in alive",
252     ensures="full(this) in alive")
253   void setEnsures(String str) {
254   }
255   @Perm(requires="full(this) in alive",
256     ensures="full(this) in alive")
257   void setPerm(String str) {
258   }
259   @Perm(requires="full(this) in alive",
260     ensures="full(this) in alive")
261   void addRequires(String str) {
262   }
263   @Perm(requires="unique(this) in alive",
264     ensures="unique(this) in alive")
265   void reset() {
266   }
267   @Perm(requires="full(this) in alive",
268     ensures="full(this) in alive")
269   String JmlClassSpec2PluralClassSpec() {
270     return null;
271   }
272   @Perm(requires="full(this) in alive",
273     ensures="full(this) in alive")
274   String noRequires() {
275     return null;
276   }
277   @Perm(requires="pure(this) in alive",
278     ensures="pure(this) in alive")
279   String getPerm() {
280     return null;
281   }
282   @Perm(requires="full(this) in alive",
283     ensures="full(this) in alive")
284   String determineEnsures(String req) {
285     return null;
286   }
287   @Perm(requires="full(this) in alive",
288     ensures="full(this) in alive")
289   String oneRequires() {
290     return null;
291   }
292   @Perm(requires="full(this) in alive",
293     ensures="full(this) in alive")
294   String moreRequires() {
295     return null;
296   }
298 }ENDOFCLASS
300 @ClassStates({@State(name = "alive")})
302 class EGhost {
303   @Perm(ensures="unique(this) in alive")
304   EGhost() { }
306   @Perm(requires="full(this) in alive",
307     ensures="full(this) in alive")
308   public void setDimensionName(String str) {
309   }
310   @Perm(requires="full(this) in alive",
311     ensures="full(this) in alive")
312   public void setDimensionValues(int low, int high) {
313   }
314   @Perm(requires="pure(this) in alive",
315     ensures="pure(this) in alive")
316   public String getDimensionName() {
317     return null;
318   }

```

```

319 @Perm(requires="pure(this) in alive",
320 ensures="pure(this) in alive")
321 public int getLowValueofInv() {
322     return 0;
323 }
324 @Perm(requires="pure(this) in alive",
325 ensures="pure(this) in alive")
326 public int getHighValueofInv() {
327     return 0;
328 }
329
330 }ENDOFCLASS
331
332 @ClassStates({@State(name = "alive")})
333
334 class Time {
335 @Perm(ensures="unique(this) in alive")
336 Time() { }
337
338 @Perm(requires="full(this) in alive",
339 ensures="full(this) in alive")
340 public String toString() {
341     return null;
342 }
343
344 }ENDOFCLASS
345
346 @ClassStates({@State(name = "alive")})
347
348 class FileReader {
349 @Perm(ensures="unique(this) in alive")
350 FileReader() { }
351
352 String readFile(String pathname) {
353     return null;
354 }
355
356 }ENDOFCLASS
357
358 @ClassStates({@State(name = "alive")})
359
360 class UserSelectedClassesAnalysis {
361 @Perm(ensures="unique(this) in alive")
362 UserSelectedClassesAnalysis() { }
363
364 private CompilationUnit getCompilationUnit(String prog) {
365     return null;
366 }
367
368 @Perm(requires="unique(this) in alive",
369 ensures="unique(this) in alive")
370 void analyzeFromCommandLine(LinkedList<String> inputFiles, String strType, String strK) {
371 }
372
373 @Perm(requires="unique(this) in alive",
374 ensures="unique(this) in alive")
375 public void analyzeFromPlugin(List<ICompilationUnit> compilationUnitList, int test) {
376 }
377
378 @Perm(requires="unique(this) in alive",
379 ensures="unique(this) in alive")
380 void callModelCheckerThroughCommandLine() {
381 }
382
383 @Perm(requires="full(this) in alive",
384 ensures="full(this) in alive")
385 Time getTime() {
386     return null;
387 }
388
389 @Perm(requires="unique(this) in alive",
390 ensures="unique(this) in alive")
391 void CreatePdfSummary_CommandLine(Time starttime2, Time endtime2) {
392 }
393
394 @Perm(requires="full(this) in alive",
395 ensures="full(this) in alive")
396 void callModelCheckerThroughPlugin() {
397 }
398
399 void createPdfSummaryPlugin(Time starttime2, Time endtime2) {
400 }
401
402 void makePdfCommandLine() {
403 }

```

```

401 void makePdfPlugin() {
402 }
403 @Perm(requires="full(this) in alive",
404 ensures="full(this) in alive")
405 void printMethodMetrics() {
406 }
407
408 }ENDOFCLASS
409
410 @ClassStates({@State(name = "alive")})
411
412 class EVMDDSMCGenerator {
413 @Perm(ensures="unique(this) in alive")
414 EVMDDSMCGenerator() { }
415
416 @Perm(requires="unique(this) in alive",
417 ensures="unique(this) in alive")
418 void reset() {
419 }
420 @Perm(requires="pure(this) in alive",
421 ensures="pure(this) in alive")
422 void addBoolStateInvariant(String variable, String operator, String value) {
423 }
424 @Perm(requires="pure(this) in alive",
425 ensures="pure(this) in alive")
426 EPackage getPkgObject() {
427 return null;
428 }
429 @Perm(requires="full(this) in alive",
430 ensures="full(this) in alive")
431 String modifyConstructorSpecifications(String prog) {
432 return null;
433 }
434 @Perm(requires="pure(this) in alive",
435 ensures="pure(this) in alive")
436 void addState(String stateName) {
437 }
438 @Perm(requires="pure(this) in alive",
439 ensures="pure(this) in alive")
440 void addRequiresParam_APTs(String ap, String ts, String argumentNumber) {
441 }
442 @Perm(requires="pure(this) in alive",
443 ensures="pure(this) in alive")
444 void addEnsuresParam_APTs(String ap, String ts, String argumentNumber) {
445 }
446 @Perm(requires="pure(this) in alive",
447 ensures="pure(this) in alive")
448 void addStateInvariant(String accessPermission, String variable, String state) {
449 }
450 @Perm(requires="pure(this) in alive",
451 ensures="pure(this) in alive")
452 void addDimensionValue(String value) {
453 }
454 @Perm(requires="pure(this) in alive",
455 ensures="pure(this) in alive")
456 void addEnsures_APTs(String ap, String ts) {
457 }
458
459 }ENDOFCLASS
460
461 @ClassStates({@State(name = "alive")})
462
463 class EPackage {
464 @Perm(ensures="unique(this) in alive")
465 EPackage() { }
466
467 @Perm(requires="pure(this) in alive",
468 ensures="pure(this) in alive")
469 public LinkedList<EClass> getClasses() {
470 return null;
471 }
472 @Perm(requires="pure(this) in alive",
473 ensures="pure(this) in alive")
474 public int getTotalReachableStates() {
475 return 0;
476 }
477 @Perm(requires="full(this) in alive",
478 ensures="full(this) in alive")
479 public String getName() {
480 return null;

```

```

481 }
482 @Perm(requires="full(this) in alive",
483 ensures="full(this) in alive")
484 public int getTotalStates() {
485     return 0;
486 }
487 @Perm(requires="pure(this) in alive",
488 ensures="pure(this) in alive")
489 public String getSinkStates() {
490     return null;
491 }
492
493 }ENDOFCLASS
494
495 @ClassStates({@State(name = "alive")})
496
497 class EGeneratedPluralSpecification {
498     @Perm(ensures="unique(this) in alive")
499     EGeneratedPluralSpecification() { }
500
501     @Perm(requires="unique(this) in alive",
502     ensures="unique(this) in alive")
503     void createFromCommandLine(String prog, String className) {
504     }
505     @Perm(requires="unique(this) in alive",
506     ensures="unique(this) in alive")
507     void createFromPlugin(String prog, String className) {
508     }
509
510 }ENDOFCLASS
511
512 @ClassStates({@State(name = "alive")})
513
514 class ESMCModel {
515     @Perm(ensures="unique(this) in alive")
516     ESMCModel() { }
517
518     @Perm(requires="full(this) in alive",
519     ensures="full(this) in alive")
520     void setK(int k) {
521     }
522     @Perm(requires="full(this) in alive",
523     ensures="full(this) in alive")
524     void declarationsAndinitializations() {
525     }
526     @Perm(requires="full(this) in alive",
527     ensures="full(this) in alive")
528     void initialize(LinkedList<EClass> _listClasses) {
529     }
530     @Perm(requires="pure(this) in alive",
531     ensures="pure(this) in alive")
532     String comment(String str) {
533         return null;
534     }
535     @Perm(requires="full(this) in alive",
536     ensures="full(this) in alive")
537     void modelAlias(String className, Integer objectIndex, Integer refIndex) {
538     }
539     @Perm(requires="full(this) in alive",
540     ensures="full(this) in alive")
541     boolean isClassExist(String className) {
542         return 0;
543     }
544     @Perm(requires="full(this) in alive",
545     ensures="full(this) in alive")
546     void Transitions() {
547     }
548     @Perm(requires="full(this) in alive",
549     ensures="full(this) in alive")
550     void createInstanceInModel(EClass _class, String name, int objectIndex, int J) {
551     }
552     @Perm(requires="full(this) in alive",
553     ensures="full(this) in alive")
554     void modelPrimePCandMethod(EClass _class, EMethod _method, Integer objectIndex, Integer refIndex) {
555     }
556     @Perm(requires="full(this) in alive",
557     ensures="full(this) in alive")
558     void startMethod(EClass _class, EMethod _method, Integer objectIndex, Integer refIndex) {
559     }
560     @Perm(requires="full(this) in alive",
561     ensures="full(this) in alive")

```

```

562 void modelPCCConstructor(EClass _class, Integer objectIndex, Integer refIndex, EClass _currentClass) {
563 }
564 @Perm(requires="full(this) in alive",
565 ensures="full(this) in alive")
566 void modelAPs(EClass _class, Integer objectIndex, Integer refIndex) {
567 }
568 @Perm(requires="full(this) in alive",
569 ensures="full(this) in alive")
570 void modelPCMethod(EClass _class, Integer objectIndex, Integer refIndex) {
571 }
572 @Perm(requires="full(this) in alive",
573 ensures="full(this) in alive")
574 void startAPTSPARAM(EMethod _method, Integer J) {
575 }
576 @Perm(requires="full(this) in alive",
577 ensures="full(this) in alive")
578 void startPrimeTSPARAM(EMethod method, Integer refIndex) {
579 }
580 @Perm(requires="full(this) in alive",
581 ensures="full(this) in alive")
582 void modelPrimeConstructor(EClass _class, Integer objectIndex, Integer refIndex) {
583 }
584 @Perm(requires="full(this) in alive",
585 ensures="full(this) in alive")
586 void modelInheritance(EClass _class, Integer objectIndex, Integer refIndex) {
587 }
588 @Perm(requires="full(this) in alive",
589 ensures="full(this) in alive")
590 void modelPrimeAPStateInvariants(EClass _class, Integer refIndex, String stateName) {
591 }
592 @Perm(requires="full(this) in alive",
593 ensures="full(this) in alive")
594 void starPrimeAP(String ap, EClass _class, Integer objectIndex, Integer refIndex, String stateName) {
595 }
596 @Perm(requires="full(this) in alive",
597 ensures="full(this) in alive")
598 void modelPrimeAP(String ap, String className, Integer objectIndex, Integer refIndex) {
599 }
600 @Perm(requires="pure(this) in alive",
601 ensures="pure(this) in alive")
602 int getAPId(String ap) {
603     return 0;
604 }
605 @Perm(requires="full(this) in alive",
606 ensures="full(this) in alive")
607 void modelEndPCMethod(EClass _class, EMethod _method, Integer objectIndex, Integer refIndex) {
608 }
609 @Perm(requires="full(this) in alive",
610 ensures="full(this) in alive")
611 void endMethod(EClass _class, EMethod _method, Integer objectIndex, Integer refIndex) {
612 }
613 @Perm(requires="full(this) in alive",
614 ensures="full(this) in alive")
615 void modelEndPCCConstructor(EClass _class, EMethod _method, Integer objectIndex, Integer refIndex,
616                             EClass _currentClass) {
617 }
618 @Perm(requires="full(this) in alive",
619 ensures="full(this) in alive")
620 void modelendConstructor(EClass _class, EMethod _method, Integer refIndex) {
621 }
622 @Perm(requires="full(this) in alive",
623 ensures="full(this) in alive")
624 void updateBoolStateInvariants(EClass _class, String methodName, String stateName, Integer objectIndex)
625 {
626 }
627 @Perm(requires="full(this) in alive",
628 ensures="full(this) in alive")
629 void endPrimeAPTS(EClass _class, String methodName, String ap, String stateName, Integer objectIndex,
630                  Integer refIndex) {
631 }
632 @Perm(requires="full(this) in alive",
633 ensures="full(this) in alive")
634 void endPrimeAPTSPARAM(EMethod method, Integer refIndex) {
635 }
636 @Perm(requires="full(this) in alive",
637 ensures="full(this) in alive")
638 void updateState(String methodName, String state, EClass _class, Integer objectIndex) {
639 }
640 @Perm(requires="full(this) in alive",
641 ensures="full(this) in alive")
642 void updateStateInvariants(EClass _class, String methodName, String stateName, Integer refIndex) {

```

```

640 }
641 @Perm(requires="full(this) in alive",
642 ensures="full(this) in alive")
643 void modelBoolStateInvariants(EClass _class, Integer objectIndex, String stateName) {
644 }
645 @Perm(requires="full(this) in alive",
646 ensures="full(this) in alive")
647 void startAPTS(EClass _class, EMethod _method, String ap, String stateName, Integer objectIndex,
648 Integer refIndex) {
649 }
650 @Perm(requires="full(this) in alive",
651 ensures="full(this) in alive")
652 void modelState(EClass _class, Integer objectIndex, EMethod _method, String stateName) {
653 }
654 @Perm(requires="full(this) in alive",
655 ensures="full(this) in alive")
656 void modelStateInvariants(EClass _class, int refIndex, EMethod _method, String stateName) {
657 }
658 @Perm(requires="full(this) in alive",
659 ensures="full(this) in alive")
660 void methodsReachability(EClass _class, Integer objectIndex, Integer refIndex) {
661 }
662 @Perm(requires="full(this) in alive",
663 ensures="full(this) in alive")
664 void modelAP(EClass _class, Integer objectIndex, Integer refIndex, String ap) {
665 }
666 @Perm(requires="pure(this) in alive",
667 ensures="pure(this) in alive")
668 int getObjectIndex(EClass _class, String variable) {
669 return 0;
670 }
671 @Perm(requires="full(this) in alive",
672 ensures="full(this) in alive")
673 void updateTokens(String ap, String className, Integer objectIndex, Integer refIndex) {
674 }
675 @Perm(requires="full(this) in alive",
676 ensures="full(this) in alive")
677 void modelPrimePCCConstructor(EClass _class, EMethod _method, Integer objectIndex, Integer refIndex,
678 EClass _currentClass) {
679 }
680 @Perm(requires="full(this) in alive",
681 ensures="full(this) in alive")
682 void modelPrimePC(EClass _class, Integer objectIndex, Integer refIndex) {
683 }
684 @Perm(requires="full(this) in alive",
685 ensures="full(this) in alive")
686 void defineKVariables(String className, int objectIndex, EClass _class, int K) {
687 }
688 @Perm(requires="full(this) in alive",
689 ensures="full(this) in alive")
690 void defineVariables(String className, int objectIndex, EClass _class, int modifier) {
691 }
692 @Perm(requires="full(this) in alive",
693 ensures="full(this) in alive")
694 void initilizeKVariables(String className, int objectIndex, int K) {
695 }
696 @Perm(requires="full(this) in alive",
697 ensures="full(this) in alive")
698 void initilizeVariables(String className, int objectIndex, EClass _class, int modifier) {
699 }
700 @Perm(requires="full(this) in alive",
701 ensures="full(this) in alive")
702 void createAlias() {
703 }
704 @Perm(requires="pure(this) in alive",
705 ensures="pure(this) in alive")
706 boolean isPrivateAndIndexEqualToZero(int refIndex, EField _field) {
707 return 0;
708 }
709 @Perm(requires="full(this) in alive",
710 ensures="full(this) in alive")
711 EClass getClass(String className) {
712 return null;
713 }
714 @Perm(requires="pure(this) in alive",
715 ensures="pure(this) in alive")
716 int getDimensionIndex(EClass _class, String ts) {
717 return 0;
718 }
719 @Perm(requires="full(this) in alive",
720 ensures="full(this) in alive")

```

```

719 void addIndexes() {
720 }
721 @Perm(requires="pure(this) in alive",
722 ensures="pure(this) in alive")
723 void createDimensionsObject(EClass _class) {
724 }
725 @Perm(requires="full(this) in alive",
726 ensures="full(this) in alive")
727 void createDimensionAsField(EClass _class, EDim _dim, int count) {
728 }
729 @Perm(requires="full(this) in alive",
730 ensures="full(this) in alive")
731 void createParentAsField(EClass _class, EClass _currentClass) {
732 }
733 @Perm(requires="full(this) in alive",
734 ensures="full(this) in alive")
735 void createParentObject(EClass _class) {
736 }
737 @Perm(requires="full(this) in alive",
738 ensures="full(this) in alive")
739 void setInvariantVariableType(EClass _class, EInvariant inv) {
740 }
741 @Perm(requires="full(this) in alive",
742 ensures="full(this) in alive")
743 void addInvariantStateIndex(EClass _class) {
744 }
745 @Perm(requires="full(this) in alive",
746 ensures="full(this) in alive")
747 void Spec() {
748 }
749 @Perm(requires="full(this) in alive",
750 ensures="full(this) in alive")
751 void concurrentMethods(EClass _class, Integer objectIndex, Integer refIndex) {
752 }
753 @Perm(requires="full(this) in alive",
754 ensures="full(this) in alive")
755 void statesAdjacencyMatrix(EClass _class, Integer objectIndex) {
756 }
757 @Perm(requires="full(this) in alive",
758 ensures="full(this) in alive")
759 void generateSMCmodelPlugin(EPackage _pkg, int testType) {
760 }
761 }ENDOFCLASS
762
763 @ClassStates({@State(name = "alive")})
764
765 class WorkspaceUtilities {
766 @Perm(ensures="unique(this) in alive")
767 WorkspaceUtilities() { }
768
769
770 ASTNode getASTNodeFromCompilationUnit(ICompilationUnit compUnit) {
771 return null;
772 }
773
774 @Perm(requires="full(this) in alive",
775 ensures="full(this) in alive")
776 List<ICompilationUnit> scanForCompilationUnits() {
777 return null;
778 }
779
780 @Perm(requires="full(this) in alive",
781 ensures="full(this) in alive")
782 List<ICompilationUnit> collectCompilationUnits(IJavaElement javaElement) {
783 return null;
784 }
785
786 @Perm(requires="full(this) in alive",
787 ensures="full(this) in alive")
788 List<ICompilationUnit> findCompilationUnits(List<String> files) {
789 return null;
790 }
791
792 String getWorkspaceRelativeName(IJavaElement element) {
793 return null;
794 }
795
796 Map<ICompilationUnit,ASTNode> parseCompilationUnits(List<ICompilationUnit> compilationUnits) {
797 return null;
798 }
799
800 List<MethodDeclaration> scanForMethodDeclarations(Map<ICompilationUnit,ASTNode>
      compilationUnitToASTNode) {

```

```

799     return null;
800 }

802 List<MethodDeclaration> scanForMethodDeclarationsFromAST(ASTNode node) {
803     return null;
804 }

806 }ENDOFCLASS

808 @ClassStates({@State(name = "alive")})

810 class EClass {
811     @Perm(ensures="unique(this) in alive")
812     EClass() { }

814     @Perm(requires="full(this) in alive",
815     ensures="full(this) in alive")
816     public String getName() {
817         return null;
818     }
819     @Perm(requires="pure(this) in alive",
820     ensures="pure(this) in alive")
821     public LinkedList<String> getTransitions() {
822         return null;
823     }
824     @Perm(requires="pure(this) in alive",
825     ensures="pure(this) in alive")
826     public LinkedList<EState> getReachableStates() {
827         return null;
828     }
829     @Perm(requires="pure(this) in alive",
830     ensures="pure(this) in alive")
831     public LinkedList<EState> getStates() {
832         return null;
833     }
834     @Perm(requires="pure(this) in alive",
835     ensures="pure(this) in alive")
836     public LinkedList<EMethod> getMethods() {
837         return null;
838     }
839     @Perm(requires="pure(this) in alive",
840     ensures="pure(this) in alive")
841     public String getSuperClassName() {
842         return null;
843     }
844     @Perm(requires="pure(this) in alive",
845     ensures="pure(this) in alive")
846     public int findStateIndex(String st) {
847         return 0;
848     }
849     @Perm(requires="pure(this) in alive",
850     ensures="pure(this) in alive")
851     public int getIndex() {
852         return 0;
853     }
854     @Perm(requires="pure(this) in alive",
855     ensures="pure(this) in alive")
856     public LinkedList<EField> getFields() {
857         return null;
858     }
859     @Perm(requires="pure(this) in alive",
860     ensures="pure(this) in alive")
861     public ArrayList<String> getVariablesOfBooleanInvariants() {
862         return null;
863     }
864     @Perm(requires="pure(this) in alive",
865     ensures="pure(this) in alive")
866     public LinkedList<EDim> getDimensions() {
867         return null;
868     }
869     @Perm(requires="full(this) in alive",
870     ensures="full(this) in alive")
871     public void createObject() {
872     }
873     @Perm(requires="full(this) in alive",
874     ensures="full(this) in alive")
875     public EMethod getConstructor() {
876         return null;
877     }
878     @Perm(requires="full(this) in alive",
879     ensures="full(this) in alive")

```



```

880 public void setSuperClassName(String str) {
881 }
882 @Perm(requires="full(this) in alive",
883 ensures="full(this) in alive")
884 public int getTotalStates() {
885     return 0;
886 }
887 @Perm(requires="pure(this) in alive",
888 ensures="pure(this) in alive")
889 public int getTotalReachableStates() {
890     return 0;
891 }
892 @Perm(requires="full(this) in alive",
893 ensures="full(this) in alive")
894 public void addMethod(EMethod method) {
895 }
896 @Perm(requires="full(this) in alive",
897 ensures="full(this) in alive")
898 public void addField(EField field) {
899 }
900 @Perm(requires="full(this) in alive",
901 ensures="full(this) in alive")
902 public void addState(EState state) {
903 }
904 @Perm(requires="pure(this) in alive",
905 ensures="pure(this) in alive")
906 public int getLastObjectIndex() {
907     return 0;
908 }
909 @Perm(requires="full(this) in alive",
910 ensures="full(this) in alive")
911 public void addDimension(EDim dim) {
912 }
913 @Perm(requires="full(this) in alive",
914 ensures="full(this) in alive")
915 public boolean hasMoreThanOneDimension() {
916     return 0;
917 }
918 @Perm(requires="pure(this) in alive",
919 ensures="pure(this) in alive")
920 public void addClassStatesSpecifications(String annotation) {
921 }
922 }ENDOFCLASS
923
924 @ClassStates({@State(name = "alive")})
925
926 class EGraphWriter {
927 @Perm(ensures="unique(this) in alive")
928 EGraphWriter() { }
929
930 @Perm(requires="full(this) in alive",
931 ensures="full(this) in alive")
932 void addTrnsitions(String str) {
933 }
934
935 @Perm(requires="full(this) in alive",
936 ensures="full(this) in alive")
937 void createGraph() {
938 }
939 @Perm(requires="full(this) in alive",
940 ensures="full(this) in alive")
941 void setNumberOfUnReachableMethods() {
942 }
943 @Perm(requires="pure(this) in alive",
944 ensures="pure(this) in alive")
945 int getNumberOfUnReachableMethods() {
946     return 0;
947 }
948 }ENDOFCLASS
949
950 @ClassStates({@State(name = "alive")})
951
952 class EState {
953 @Perm(ensures="unique(this) in alive")
954 EState() { }
955
956 @Perm(requires="pure(this) in alive",
957 ensures="pure(this) in alive")
958 public int isReachable() {
959     return 0;
960 }

```

```

961 }
962 @Perm(requires="pure(this) in alive",
963 ensures="pure(this) in alive")
964 public String getName() {
965     return null;
966 }
967 @Perm(requires="full(this) in alive",
968 ensures="full(this) in alive")
969 public void setReachability(int value) {
970 }
971 @Perm(requires="pure(this) in alive",
972 ensures="pure(this) in alive")
973 public LinkedList<EInvariant> getInvariants() {
974     return null;
975 }
976 @Perm(requires="pure(this) in alive",
977 ensures="pure(this) in alive")
978 public int getStateIndex() {
979     return 0;
980 }
981 @Perm(requires="pure(this) in alive",
982 ensures="pure(this) in alive")
983 public LinkedList<EBoolInvariant> getBoolInvariants() {
984     return null;
985 }
986 @Perm(requires="full(this) in alive",
987 ensures="full(this) in alive")
988 public void addBoolInvariant(EBoolInvariant inv) {
989 }
990 @Perm(requires="full(this) in alive",
991 ensures="full(this) in alive")
992 public void setIndex(int stateIndex) {
993 }
994 @Perm(requires="full(this) in alive",
995 ensures="full(this) in alive")
996 public Boolean isReachableState(String str) {
997     return null;
998 }
999
1000 }ENDOFCLASS
1001
1002 @ClassStates({@State(name = "alive")})
1003
1004 class EOutputLatex {
1005     @Perm(ensures="unique(this) in alive")
1006     EOutputLatex() { }
1007
1008     @Perm(requires="unique(this) in alive",
1009     ensures="unique(this) in alive")
1010     void create_CommandLine() {
1011     }
1012     @Perm(requires="full(this) in alive",
1013     ensures="full(this) in alive")
1014     void addUsePackages() {
1015     }
1016     @Perm(requires="full(this) in alive",
1017     ensures="full(this) in alive")
1018     void writeToLatex() {
1019     }
1020     @Perm(requires="full(this) in alive",
1021     ensures="full(this) in alive")
1022     void WriteSummary() {
1023     }
1024     @Perm(requires="full(this) in alive",
1025     ensures="full(this) in alive")
1026     void addSummaryTableHeaders() {
1027     }
1028     @Perm(requires="full(this) in alive",
1029     ensures="full(this) in alive")
1030     void addSummaryTableRows() {
1031     }
1032     @Perm(requires="full(this) in alive",
1033     ensures="full(this) in alive")
1034     void writeStateTransitionMatrix(EClass _class) {
1035     }
1036     @Perm(requires="full(this) in alive",
1037     ensures="full(this) in alive")
1038     void addSTMColumnsHeaders(EClass _class) {
1039     }
1040     @Perm(requires="full(this) in alive",
1041     ensures="full(this) in alive")

```

```

1042 void writeMethodConcurrencyMatrix(EClass _class) {
1043 }
1044 @Perm(requires="full(this) in alive",
1045 ensures="full(this) in alive")
1046 void addConcurrencyMatrixHeaders(EClass _class) {
1047 }
1048 @Perm(requires="full(this) in alive",
1049 ensures="full(this) in alive")
1050 void writeAbbervations() {
1051 }
1052 @Perm(requires="full(this) in alive",
1053 ensures="full(this) in alive")
1054 void setText(String str) {
1055 }
1056 @Perm(requires="full(this) in alive",
1057 ensures="full(this) in alive")
1058 void parseTransitions(String str) {
1059 }
1060 @Perm(requires="full(this) in alive",
1061 ensures="full(this) in alive")
1062 void parseSinkStates(String str) {
1063 }
1064 @Perm(requires="unique(this) in alive",
1065 ensures="unique(this) in alive")
1066 void create_Plugin() {
1067 }
1068 @Perm(requires="full(this) in alive",
1069 ensures="full(this) in alive")
1070 void addConcurrencyMatrixRows(EClass _class) {
1071 }
1072 @Perm(requires="full(this) in alive",
1073 ensures="full(this) in alive")
1074 String getConcurrencyValue(EMethod _method, EMethod __method) {
1075 return null;
1076 }
1077 @Perm(requires="full(this) in alive",
1078 ensures="full(this) in alive")
1079 void addSummaryTableColumns() {
1080 }
1081 @Perm(requires="full(this) in alive",
1082 ensures="full(this) in alive")
1083 void addSTMNumberOfColumns(EClass _class) {
1084 }
1085 @Perm(requires="pure(this) in alive",
1086 ensures="pure(this) in alive")
1087 String getStateReachabilityValue(EState _state, EState __state) {
1088 return null;
1089 }
1090 @Perm(requires="full(this) in alive",
1091 ensures="full(this) in alive")
1092 EMethod getMethod(String className, String methodName) {
1093 return null;
1094 }
1095
1096 }ENDOFCLASS
1097
1098 @ClassStates({@State(name = "alive")})
1099
1100 class EMethod {
1101 @Perm(ensures="unique(this) in alive")
1102 EMethod() { }
1103
1104 @Perm(requires="pure(this) in alive",
1105 ensures="pure(this) in alive")
1106 public boolean getRequiresClauseSatisfiability() {
1107 return 0;
1108 }
1109 @Perm(requires="full(this) in alive",
1110 ensures="full(this) in alive")
1111 public void setReturnType(String str) {
1112 }
1113 @Perm(requires="full(this) in alive",
1114 ensures="full(this) in alive")
1115 public void setIdentifier(String str) {
1116 }
1117 @Perm(requires="full(this) in alive",
1118 ensures="full(this) in alive")
1119 public String getName() {
1120 return null;
1121 }
1122 @Perm(requires="pure(this) in alive",

```

```

1123 ensures="pure(this) in alive")
1124 public LinkedList<ESpecification> getEnsuresAPTS() {
1125     return null;
1126 }
1127 @Perm(requires="full(this) in alive",
1128 ensures="full(this) in alive")
1129 public boolean isConcurrentMethod(String str) {
1130     return 0;
1131 }
1132 @Perm(requires="full(this) in alive",
1133 ensures="full(this) in alive")
1134 public void setJMLPermission(String Permission) {
1135 }
1136 @Perm(requires="full(this) in alive",
1137 ensures="full(this) in alive")
1138 public String getJMLPermission() {
1139     return null;
1140 }
1141 @Perm(requires="pure(this) in alive",
1142 ensures="pure(this) in alive")
1143 public int getCaseNumber() {
1144     return 0;
1145 }
1146 @Perm(requires="full(this) in alive",
1147 ensures="full(this) in alive")
1148 public void setCaseNumber(int x) {
1149 }
1150 @Perm(requires="full(this) in alive",
1151 ensures="full(this) in alive")
1152 public void setName(String str) {
1153 }
1154 @Perm(requires="full(this) in alive",
1155 ensures="full(this) in alive")
1156 public String getReturnType() {
1157     return null;
1158 }
1159 @Perm(requires="full(this) in alive",
1160 ensures="full(this) in alive")
1161 public String getIdentifier() {
1162     return null;
1163 }
1164 @Perm(requires="full(this) in alive",
1165 ensures="full(this) in alive")
1166 public void addParameter(EParameter parameter) {
1167 }
1168 @Perm(requires="pure(this) in alive",
1169 ensures="pure(this) in alive")
1170 public LinkedList<ESpecification> getRequiresAPTS() {
1171     return null;
1172 }
1173 @Perm(requires="pure(this) in alive",
1174 ensures="pure(this) in alive")
1175 public LinkedList<EParameter> getParameters() {
1176     return null;
1177 }
1178 @Perm(requires="full(this) in alive",
1179 ensures="full(this) in alive")
1180 public void setIndex(int methodIndex) {
1181 }
1182 @Perm(requires="pure(this) in alive",
1183 ensures="pure(this) in alive")
1184 public int getIndex() {
1185     return 0;
1186 }
1187 @Perm(requires="full(this) in alive",
1188 ensures="full(this) in alive")
1189 public void setRequiresClauseSatisfiability(Boolean flag) {
1190 }
1191 @Perm(requires="full(this) in alive",
1192 ensures="full(this) in alive")
1193 public void setConcurrentMethod(String toMethod) {
1194 }
1196 public void addSpecifications(String annotation) {
1197 }
1199 }ENDOFCLASS
1201 @ClassStates({@State(name = "alive")})
1203 class SMCVisitor {

```

```

1204 @Perm(ensures="unique(this) in alive")
1205 SMCVisitor() { }

1207 @Perm(requires="pure(this) in alive",
1208 ensures="pure(this) in alive")
1209 private void addUnparsedSpecifications(String annotation) {
1210 }

1212 public void postVisit(ASTNode node) {
1213 }
1214 @Perm(requires="full(this) in alive",
1215 ensures="full(this) in alive")
1216 public boolean visit(PackageDeclaration node) {
1217     return 0;
1218 }

1220 public void endVisit(PackageDeclaration node) {
1221 }

1223 private void callParser(String annotation) {
1224 }

1226 }ENDOFCLASS

1228 @ClassStates({@State(name = "alive")})

1230 class PulseSettings {
1231     @Perm(ensures="unique(this) in alive")
1232     PulseSettings() { }

1234     @Perm(requires="pure(this) in alive",
1235 ensures="pure(this) in alive")
1236     int getInheritance() {
1237         return 0;
1238     }
1239     @Perm(requires="pure(this) in alive",
1240 ensures="pure(this) in alive")
1241     int getFullModel() {
1242         return 0;
1243     }
1244     @Perm(requires="pure(this) in alive",
1245 ensures="pure(this) in alive")
1246     int getInvariants() {
1247         return 0;
1248     }
1249     @Perm(requires="full(this) in alive",
1250 ensures="full(this) in alive")
1251     void setInvariants(int x) {
1252     }
1253     @Perm(requires="full(this) in alive",
1254 ensures="full(this) in alive")
1255     void setAliasPerObject(int x) {
1256     }
1257     @Perm(requires="full(this) in alive",
1258 ensures="full(this) in alive")
1259     void setFullModel(int x) {
1260     }
1261     @Perm(requires="full(this) in alive",
1262 ensures="full(this) in alive")
1263     void setDimensions(int x) {
1264     }
1265     @Perm(requires="full(this) in alive",
1266 ensures="full(this) in alive")
1267     void setInheritance(int x) {
1268     }
1269     @Perm(requires="pure(this) in alive",
1270 ensures="pure(this) in alive")
1271     int getAliasPerObject() {
1272         return 0;
1273     }
1274     @Perm(requires="pure(this) in alive",
1275 ensures="pure(this) in alive")
1276     int getDimensions() {
1277         return 0;
1278     }
1279 }

1280 }ENDOFCLASS

1282 @ClassStates({@State(name = "alive")})

1284 class EField {

```

```

1285 @Perm(ensures="unique(this) in alive")
1286 EField() { }

1288 @Perm(requires="full(this) in alive",
1289 ensures="full(this) in alive")
1290 public void setName(String str) {
1291 }
1292 @Perm(requires="full(this) in alive",
1293 ensures="full(this) in alive")
1294 public void setType(String str) {
1295 }
1296 @Perm(requires="full(this) in alive",
1297 ensures="full(this) in alive")
1298 public void setModifier(int mod) {
1299 }
1300 @Perm(requires="pure(this) in alive",
1301 ensures="pure(this) in alive")
1302 public int getObjectIndex() {
1303     return 0;
1304 }
1305 @Perm(requires="pure(this) in alive",
1306 ensures="pure(this) in alive")
1307 public int getModifier() {
1308     return 0;
1309 }
1310 @Perm(requires="full(this) in alive",
1311 ensures="full(this) in alive")
1312 public void setClassIndex(int classIndex) {
1313 }
1314 @Perm(requires="full(this) in alive",
1315 ensures="full(this) in alive")
1316 public String getName() {
1317     return null;
1318 }
1319 @Perm(requires="full(this) in alive",
1320 ensures="full(this) in alive")
1321 public String getType() {
1322     return null;
1323 }
1324 @Perm(requires="full(this) in alive",
1325 ensures="full(this) in alive")
1326 public void setObjectIndex(int objectIndex) {
1327 }
1328 @Perm(requires="pure(this) in alive",
1329 ensures="pure(this) in alive")
1330 public int getClassIndex() {
1331     return 0;
1332 }

1334 }ENDOFCLASS

1336 @ClassStates({@State(name = "alive")})

1338 class ESpecification {
1339 @Perm(ensures="unique(this) in alive")
1340 ESpecification() { }

1342 @Perm(requires="pure(this) in alive",
1343 ensures="pure(this) in alive")
1344 public EClass getParentClass() {
1345     return null;
1346 }
1347 @Perm(requires="full(this) in alive",
1348 ensures="full(this) in alive")
1349 public String getTS() {
1350     return null;
1351 }
1352 @Perm(requires="full(this) in alive",
1353 ensures="full(this) in alive")
1354 public String getAP() {
1355     return null;
1356 }

1358 public Object clone() {
1359     return null;
1360 }
1361 @Perm(requires="full(this) in alive",
1362 ensures="full(this) in alive")
1363 public void setAPTS(String ap, String ts) {
1364 }
1365 @Perm(requires="full(this) in alive",

```

```

1366 ensures="full(this) in alive")
1367 public void setAP(String ap) {
1368 }
1369 @Perm(requires="pure(this) in alive",
1370 ensures="pure(this) in alive")
1371 public String getFieldname() {
1372     return null;
1373 }
1375 }ENDOFCLASS
1377 @ClassStates({@State(name = "alive")})
1379 class EParameter {
1380 @Perm(ensures="unique(this) in alive")
1381 EParameter() { }
1383 @Perm(requires="pure(this) in alive",
1384 ensures="pure(this) in alive")
1385 public LinkedList<ESpecification> getRequiresAPTS() {
1386     return null;
1387 }
1388 @Perm(requires="full(this) in alive",
1389 ensures="full(this) in alive")
1390 public void setNumber(int n) {
1391 }
1392 @Perm(requires="pure(this) in alive",
1393 ensures="pure(this) in alive")
1394 public int getNumber() {
1395     return 0;
1396 }
1397 @Perm(requires="full(this) in alive",
1398 ensures="full(this) in alive")
1399 public void setName(String str) {
1400 }
1401 @Perm(requires="full(this) in alive",
1402 ensures="full(this) in alive")
1403 public void setType(String str) {
1404 }
1405 @Perm(requires="pure(this) in alive",
1406 ensures="pure(this) in alive")
1407 public String getType() {
1408     return null;
1409 }
1410 @Perm(requires="full(this) in alive",
1411 ensures="full(this) in alive")
1412 public String getName() {
1413     return null;
1414 }
1415 @Perm(requires="pure(this) in alive",
1416 ensures="pure(this) in alive")
1417 public LinkedList<ESpecification> getEnsuresAPTS() {
1418     return null;
1419 }
1421 }ENDOFCLASS
1423 @ClassStates({@State(name = "alive")})
1425 class EInvariant {
1426 @Perm(ensures="unique(this) in alive")
1427 EInvariant() { }
1429 @Perm(requires="pure(this) in alive",
1430 ensures="pure(this) in alive")
1431 public String getVariableType() {
1432     return null;
1433 }
1434 @Perm(requires="pure(this) in alive",
1435 ensures="pure(this) in alive")
1436 public String getStateName() {
1437     return null;
1438 }
1439 @Perm(requires="full(this) in alive",
1440 ensures="full(this) in alive")
1441 public void setVariableType(String type) {
1442 }
1444 public void setStateIndex(int stateIndex) {
1445 }
1446 @Perm(requires="full(this) in alive",

```

```

1447 ensures="full(this) in alive")
1448 public void setAP(String str) {
1449 }
1450 @Perm(requires="full(this) in alive",
1451 ensures="full(this) in alive")
1452 public void setVariable(String str) {
1453 }
1454 @Perm(requires="full(this) in alive",
1455 ensures="full(this) in alive")
1456 public void setState(String str) {
1457 }
1458 @Perm(requires="pure(this) in alive",
1459 ensures="pure(this) in alive")
1460 public String getAP() {
1461     return null;
1462 }
1463 @Perm(requires="pure(this) in alive",
1464 ensures="pure(this) in alive")
1465 public String getVariable() {
1466     return null;
1467 }
1468 @Perm(requires="full(this) in alive",
1469 ensures="full(this) in alive")
1470 public LinkedList<Invariant> getStateInvariants(EPackage _pkg) {
1471     return null;
1472 }
1473 }ENDOFCLASS
1474
1475 @ClassStates({@State(name = "alive")})
1476
1477 class EBoolInvariant {
1478 @Perm(ensures="unique(this) in alive")
1479 EBoolInvariant() { }
1480
1481 @Perm(requires="pure(this) in alive",
1482 ensures="pure(this) in alive")
1483 public String getVariable() {
1484     return null;
1485 }
1486 }
1487 @Perm(requires="pure(this) in alive",
1488 ensures="pure(this) in alive")
1489 public String getValue() {
1490     return null;
1491 }
1492 }ENDOFCLASS
1493
1494 @ClassStates({@State(name = "alive")})
1495
1496 class EDim {
1497 @Perm(ensures="unique(this) in alive")
1498 EDim() { }
1499
1500 @Perm(requires="pure(this) in alive",
1501 ensures="pure(this) in alive")
1502 public ArrayList<String> getValues() {
1503     return null;
1504 }
1505 }
1506 @Perm(requires="full(this) in alive",
1507 ensures="full(this) in alive")
1508 public void setName(String str) {
1509 }
1510 @Perm(requires="pure(this) in alive",
1511 ensures="pure(this) in alive")
1512 public String getName(String str) {
1513     return null;
1514 }
1515 @Perm(requires="full(this) in alive",
1516 ensures="full(this) in alive")
1517 public void addValue(String str) {
1518 }
1519 }ENDOFCLASS
1520
1521 @ClassStates({@State(name = "alive")})
1522
1523 class specificationStruct {
1524 @Perm(ensures="unique(this) in alive")
1525 specificationStruct() { }

```



```

1529 }ENDOFCLASS
1531 @ClassStates({@State(name = "alive")})
1533 class Clause {
1534   @Perm(ensures="unique(this) in alive")
1535   Clause() { }
1537 }ENDOFCLASS
1540 @ClassStates({@State(name = "alive")})
1542 class Signature {
1543   @Perm(ensures="unique(this) in alive")
1544   Signature() { }
1546 }ENDOFCLASS
1549 @ClassStates({@State(name = "alive")})
1551 class MethodFindVisitor {
1552   @Perm(ensures="unique(this) in alive")
1553   MethodFindVisitor() { }
1555   @Perm(requires="full(this) in alive",
1556         ensures="full(this) in alive")
1557   public boolean visit(MethodDeclaration methodDeclaration) {
1558     return 0;
1559   }
1561 }ENDOFCLASS
1563 @ClassStates({@State(name = "alive")})
1565 class GAPHandler {
1566   @Perm(ensures="unique(this) in alive")
1567   GAPHandler() { }
1569   public void addHandlerListener(IHandlerListener handlerListener) {
1570   }
1572   public void dispose() {
1573   }
1575   @Perm(requires="full(this) in alive",
1576         ensures="full(this) in alive")
1577   public Object execute(ExecutionEvent event) {
1578     return null;
1579   }
1581   @Perm(requires="full(this) in alive",
1582         ensures="full(this) in alive")
1583   private void extractSettings(ExecutionEvent event) {
1584   }
1586   public boolean isHandled() {
1587     return 0;
1588   }
1590   public void removeHandlerListener(IHandlerListener handlerListener) {
1591   }
1593 }ENDOFCLASS
1596 @ClassStates({@State(name = "alive")})
1598 class GAPIFileAction {
1599   @Perm(ensures="unique(this) in alive")
1600   GAPIFileAction() { }
1602   @Perm(requires="full(this) in alive",
1603         ensures="full(this) in alive")
1604   public void selectionChanged(IAction action, ISelection selection) {
1605   }
1607   public void setActivePart(IAction action, IWorkbenchPart targetPart) {
1608   }
1610   @Perm(requires="full(this) in alive",
1611         ensures="full(this) in alive")

```

```

1609 public void run(IAction action) {
1610 }
1612 }ENDOFCLASS
1614 @ClassStates({@State(name = "alive")})
1616 class {
1617   @Perm(ensures="unique(this) in alive")
1618   () { }
1620   @Perm(requires="unique(this) in alive",
1621     ensures="unique(this) in alive")
1622   protected IStatus run(IProgressMonitor monitor) {
1623     return null;
1624   }
1626 }ENDOFCLASS
1628 @ClassStates({@State(name = "alive")})
1630 class Main {
1631   @Perm(ensures="unique(this) in alive")
1632   Main() { }
1634   @Perm(requires="unique(this) in alive",
1635     ensures="unique(this) in alive")
1636   void main(String[] args) {
1637   }
1639   String testRead(String file) {
1640     return null;
1641   }
1642   @Perm(requires="full(this) in alive",
1643     ensures="full(this) in alive")
1644   void seprateJavaFile(String str) {
1645   }
1647   void anTest() {
1648   }
1650 }ENDOFCLASS
1652 @ClassStates({@State(name = "alive")})
1654 class TypestateReturn {
1655   @Perm(ensures="unique(this) in alive")
1656   TypestateReturn() { }
1659 }ENDOFCLASS
1661 @ClassStates({@State(name = "alive")})
1663 class AtApPermissionReturn {
1664   @Perm(ensures="unique(this) in alive")
1665   AtApPermissionReturn() { }
1668 }ENDOFCLASS
1670 @ClassStates({@State(name = "alive")})
1672 class AccesspermissionReturn {
1673   @Perm(ensures="unique(this) in alive")
1674   AccesspermissionReturn() { }
1677 }ENDOFCLASS
1679 @ClassStates({@State(name = "alive")})
1681 class PluralLexer {
1682   @Perm(ensures="unique(this) in alive")
1683   PluralLexer() { }
1686   public String getGrammarFileName() {
1687     return null;
1688   }
1689   @Perm(requires="pure(this) in alive",

```

```

1690 ensures="pure(this) in alive")
1691 void mATFULL() {
1692 }
1693 @Perm(requires="pure(this) in alive",
1694 ensures="pure(this) in alive")
1695 void mATPURE() {
1696 }
1697 @Perm(requires="pure(this) in alive",
1698 ensures="pure(this) in alive")
1699 void mATIMMUTABLE() {
1700 }
1701 @Perm(requires="pure(this) in alive",
1702 ensures="pure(this) in alive")
1703 void mATSHARE() {
1704 }
1705 @Perm(requires="pure(this) in alive",
1706 ensures="pure(this) in alive")
1707 void mATUNIQUE() {
1708 }
1709 @Perm(requires="pure(this) in alive",
1710 ensures="pure(this) in alive")
1711 void mPUBLICBEHAVIOR() {
1712 }
1713 @Perm(requires="pure(this) in alive",
1714 ensures="pure(this) in alive")
1715 void mFULL() {
1716 }
1717 @Perm(requires="pure(this) in alive",
1718 ensures="pure(this) in alive")
1719 void mPURE() {
1720 }
1721 @Perm(requires="pure(this) in alive",
1722 ensures="pure(this) in alive")
1723 void mIMMUTABLE() {
1724 }
1725 @Perm(requires="pure(this) in alive",
1726 ensures="pure(this) in alive")
1727 void mSHARE() {
1728 }
1729 @Perm(requires="pure(this) in alive",
1730 ensures="pure(this) in alive")
1731 void mUNIQUE() {
1732 }
1733 @Perm(requires="pure(this) in alive",
1734 ensures="pure(this) in alive")
1735 void mNONE() {
1736 }
1737 @Perm(requires="pure(this) in alive",
1738 ensures="pure(this) in alive")
1739 void mLSBRACKET() {
1740 }
1741 @Perm(requires="pure(this) in alive",
1742 ensures="pure(this) in alive")
1743 void mRSBRACKET() {
1744 }
1745 @Perm(requires="pure(this) in alive",
1746 ensures="pure(this) in alive")
1747 void mPERM() {
1748 }
1749 @Perm(requires="pure(this) in alive",
1750 ensures="pure(this) in alive")
1751 void mEQUAL() {
1752 }
1753 @Perm(requires="pure(this) in alive",
1754 ensures="pure(this) in alive")
1755 void mEQUALOPERATOR() {
1756 }
1757 @Perm(requires="pure(this) in alive",
1758 ensures="pure(this) in alive")
1759 void mIN() {
1760 }
1761 @Perm(requires="pure(this) in alive",
1762 ensures="pure(this) in alive")
1763 void mTHIS() {
1764 }
1765 @Perm(requires="pure(this) in alive",
1766 ensures="pure(this) in alive")
1767 void mRESULT() {
1768 }
1769 @Perm(requires="pure(this) in alive",
1770 ensures="pure(this) in alive")

```

```

1771 void mPARAM() {
1772 }
1773 @Perm(requires="pure(this) in alive",
1774 ensures="pure(this) in alive")
1775 void mREQUIRES() {
1776 }
1777 @Perm(requires="pure(this) in alive",
1778 ensures="pure(this) in alive")
1779 void mENSURES() {
1780 }
1781 @Perm(requires="pure(this) in alive",
1782 ensures="pure(this) in alive")
1783 void mQUOTE() {
1784 }
1785 @Perm(requires="pure(this) in alive",
1786 ensures="pure(this) in alive")
1787 void mAND() {
1788 }
1789 @Perm(requires="pure(this) in alive",
1790 ensures="pure(this) in alive")
1791 void mUSE() {
1792 }
1793 @Perm(requires="pure(this) in alive",
1794 ensures="pure(this) in alive")
1795 void mUSEFIELDS() {
1796 }
1797 @Perm(requires="pure(this) in alive",
1798 ensures="pure(this) in alive")
1799 void mPUNCTUATION() {
1800 }
1801 @Perm(requires="pure(this) in alive",
1802 ensures="pure(this) in alive")
1803 void mCASES() {
1804 }
1805 @Perm(requires="pure(this) in alive",
1806 ensures="pure(this) in alive")
1807 void mLCBRACKET() {
1808 }
1809 @Perm(requires="pure(this) in alive",
1810 ensures="pure(this) in alive")
1811 void mRCBRACKET() {
1812 }
1813 @Perm(requires="pure(this) in alive",
1814 ensures="pure(this) in alive")
1815 void mCLASSSTATES() {
1816 }
1817 @Perm(requires="pure(this) in alive",
1818 ensures="pure(this) in alive")
1819 void mREFINE() {
1820 }
1821 @Perm(requires="pure(this) in alive",
1822 ensures="pure(this) in alive")
1823 void mVALUE() {
1824 }
1825 @Perm(requires="pure(this) in alive",
1826 ensures="pure(this) in alive")
1827 void mSTATE() {
1828 }
1829 @Perm(requires="pure(this) in alive",
1830 ensures="pure(this) in alive")
1831 void mSTATES() {
1832 }
1833 @Perm(requires="pure(this) in alive",
1834 ensures="pure(this) in alive")
1835 void mDIM() {
1836 }
1837 @Perm(requires="pure(this) in alive",
1838 ensures="pure(this) in alive")
1839 void mName() {
1840 }
1841 @Perm(requires="pure(this) in alive",
1842 ensures="pure(this) in alive")
1843 void mINV() {
1844 }
1845 @Perm(requires="pure(this) in alive",
1846 ensures="pure(this) in alive")
1847 void mOPERATOR() {
1848 }
1849 @Perm(requires="pure(this) in alive",
1850 ensures="pure(this) in alive")
1851 void mSEMICOLON() {

```

```

1852 }
1853 @Perm(requires="pure(this) in alive",
1854 ensures="pure(this) in alive")
1855 void mLESS() {
1856 }
1857 @Perm(requires="pure(this) in alive",
1858 ensures="pure(this) in alive")
1859 void mLESSTHANEQUAL() {
1860 }
1861 @Perm(requires="pure(this) in alive",
1862 ensures="pure(this) in alive")
1863 void mGREATER() {
1864 }
1865 @Perm(requires="pure(this) in alive",
1866 ensures="pure(this) in alive")
1867 void mGREATERTHANEQUAL() {
1868 }
1869 @Perm(requires="pure(this) in alive",
1870 ensures="pure(this) in alive")
1871 void mANDD() {
1872 }
1873 @Perm(requires="pure(this) in alive",
1874 ensures="pure(this) in alive")
1875 void mOR() {
1876 }
1877 @Perm(requires="pure(this) in alive",
1878 ensures="pure(this) in alive")
1879 void mJMLSTART() {
1880 }
1881 @Perm(requires="pure(this) in alive",
1882 ensures="pure(this) in alive")
1883 void mJMLEND() {
1884 }
1885 @Perm(requires="pure(this) in alive",
1886 ensures="pure(this) in alive")
1887 void mPLUSMINUSOPERATOR() {
1888 }
1889 @Perm(requires="pure(this) in alive",
1890 ensures="pure(this) in alive")
1891 void mASSIGNABLE() {
1892 }
1893 @Perm(requires="pure(this) in alive",
1894 ensures="pure(this) in alive")
1895 void mNOTHING() {
1896 }
1897 @Perm(requires="pure(this) in alive",
1898 ensures="pure(this) in alive")
1899 void mEVERYTHING() {
1900 }
1901 @Perm(requires="pure(this) in alive",
1902 ensures="pure(this) in alive")
1903 void mGHOST() {
1904 }
1905 @Perm(requires="pure(this) in alive",
1906 ensures="pure(this) in alive")
1907 void mINT() {
1908 }
1909 @Perm(requires="pure(this) in alive",
1910 ensures="pure(this) in alive")
1911 void mINVARIANT() {
1912 }
1913 @Perm(requires="pure(this) in alive",
1914 ensures="pure(this) in alive")
1915 void mOLD() {
1916 }
1917 @Perm(requires="pure(this) in alive",
1918 ensures="pure(this) in alive")
1919 void mID() {
1920 }
1921 @Perm(requires="pure(this) in alive",
1922 ensures="pure(this) in alive")
1923 void mNUMBERS() {
1924 }
1925 @Perm(requires="pure(this) in alive",
1926 ensures="pure(this) in alive")
1927 void mWS() {
1928 }
1929 @Perm(requires="full(this) in alive",
1930 ensures="full(this) in alive")
1931 public void mTokens() {
1932 }

```

```

1934 }ENDOFCLASS
1936 @ClassStates({@State(name = "alive")})
1938 class DFA7 {
1939     @Perm(ensures="unique(this) in alive")
1940     DFA7() { }
1942
1943     public String getDescription() {
1944         return null;
1945     }
1947 }ENDOFCLASS
1949 @ClassStates({@State(name = "alive")})
1951 class EAPTypeState {
1952     @Perm(ensures="unique(this) in alive")
1953     EAPTypeState() { }
1955     @Perm(requires="full(this) in alive",
1956         ensures="full(this) in alive")
1957     public void setAP(String str) {
1958     }
1959     @Perm(requires="full(this) in alive",
1960         ensures="full(this) in alive")
1961     public String getAP(String str) {
1962         return null;
1963     }
1964     @Perm(requires="full(this) in alive",
1965         ensures="full(this) in alive")
1966     public void setTS(String str) {
1967     }
1968     @Perm(requires="full(this) in alive",
1969         ensures="full(this) in alive")
1970     public String getTS() {
1971         return null;
1972     }
1974 }ENDOFCLASS

```