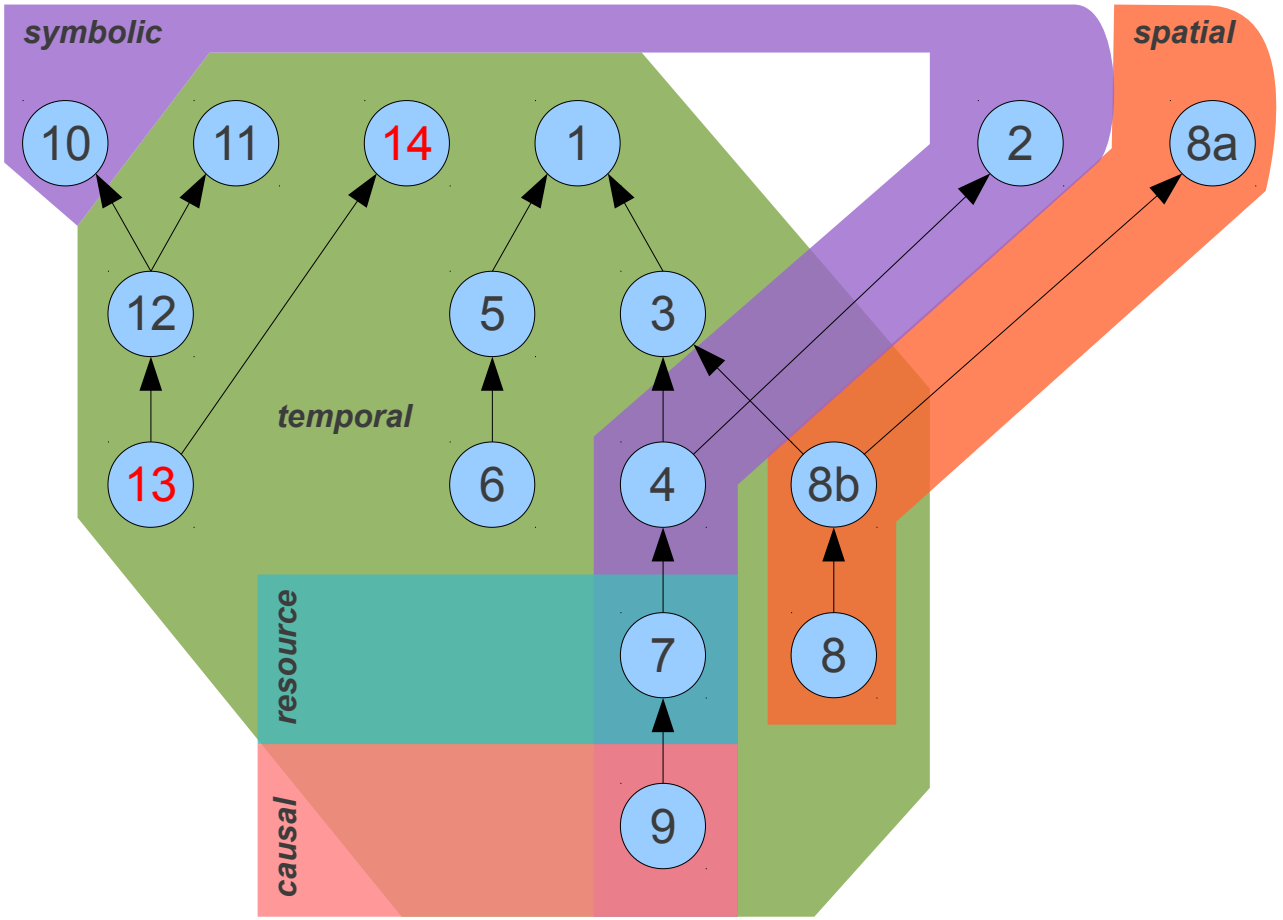
symbolic
spatial
temporal
resource
causal
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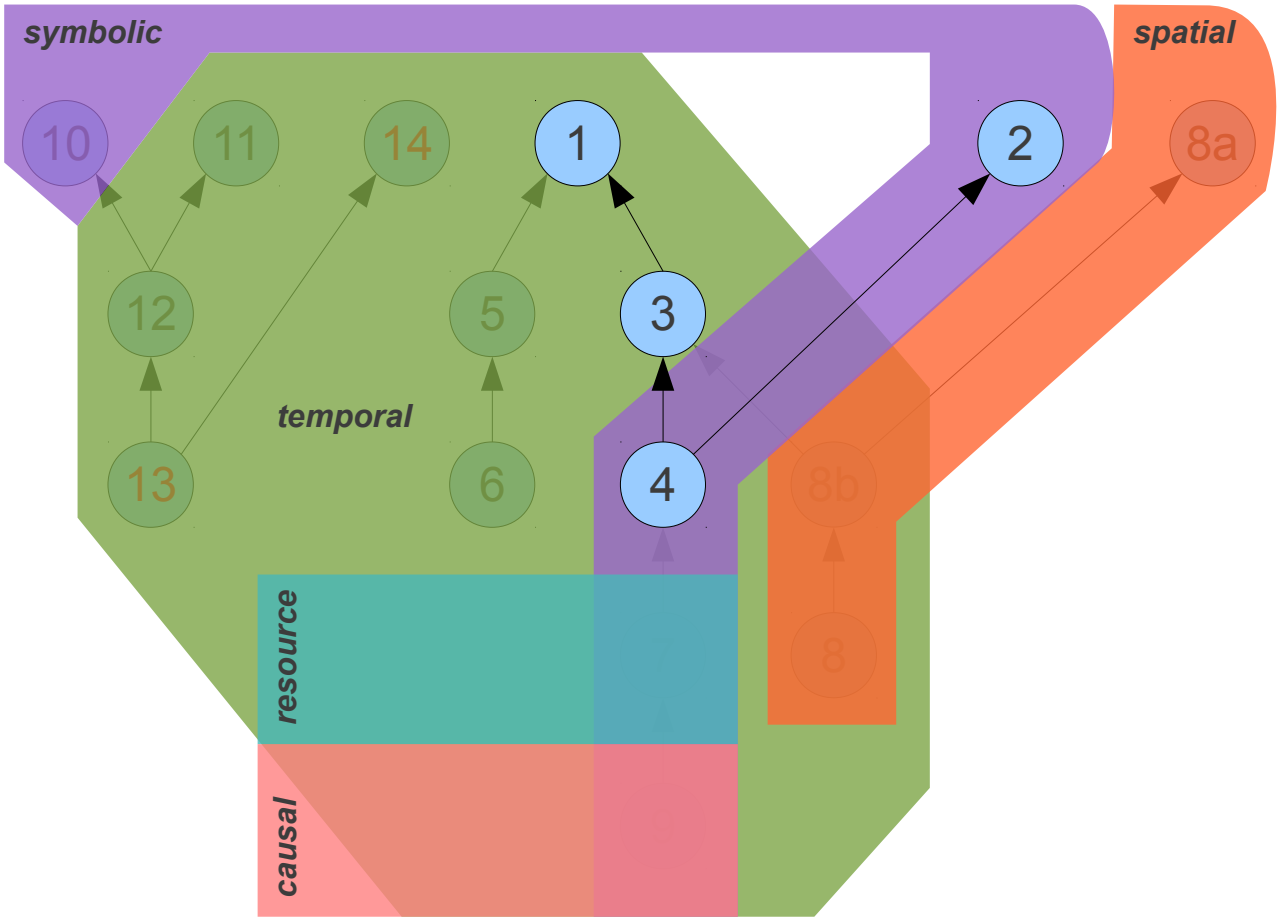
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resource
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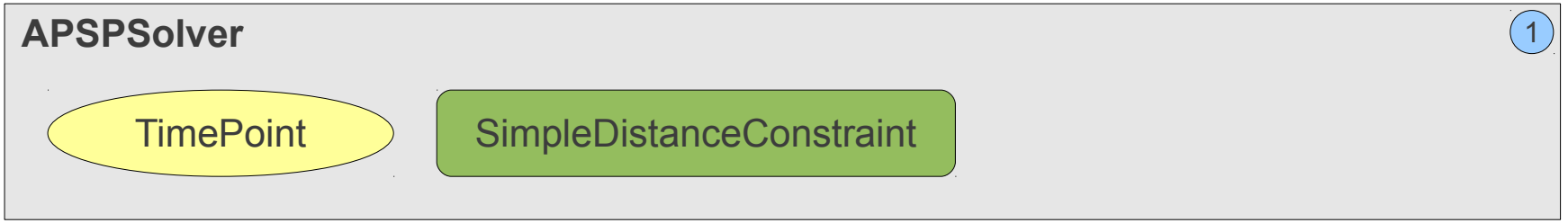
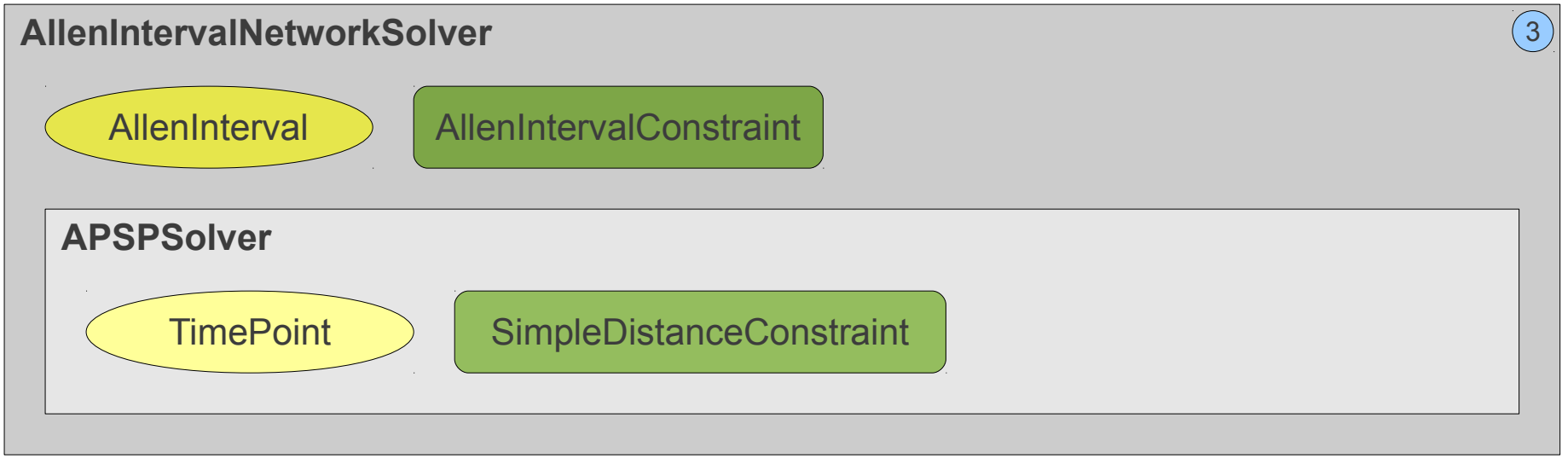
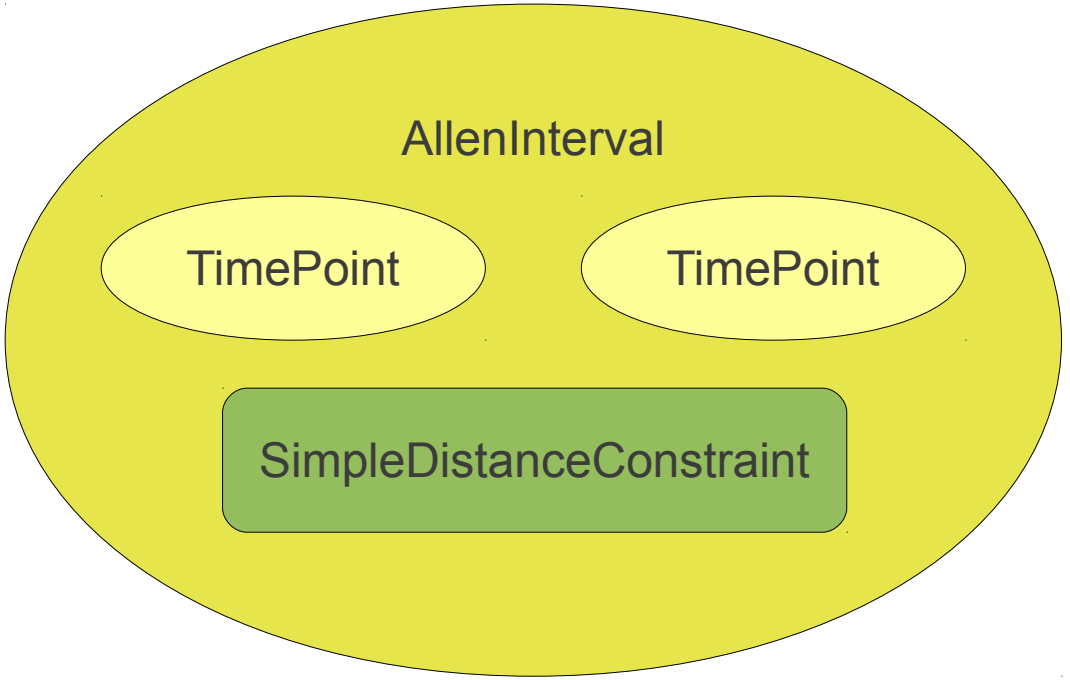
Decision variable: *a point in time*
Domain: *an interval*
Constraint: *bounds* $[l, u]$ *on the distance between two points in time*
Problem: *Simple Temporal Problem (STP)*



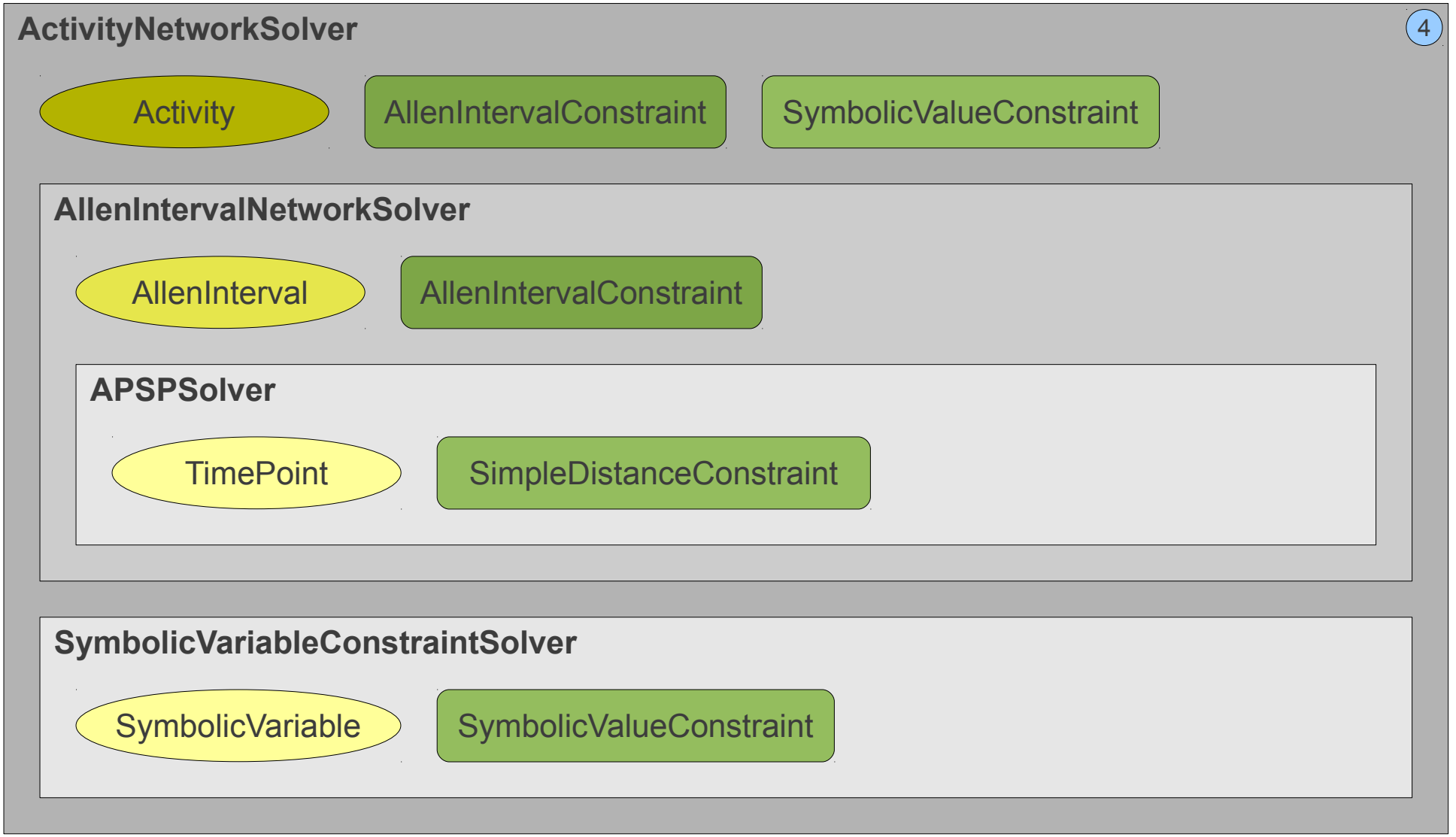
Decision variable: *a state variable*
Domain: *finite set of symbols*
Constraint: *relations among symbols (e.g., EQUALS and DIFFERENT)*
Problem: *find an assignment of symbols that is consistent wrt the constraints*

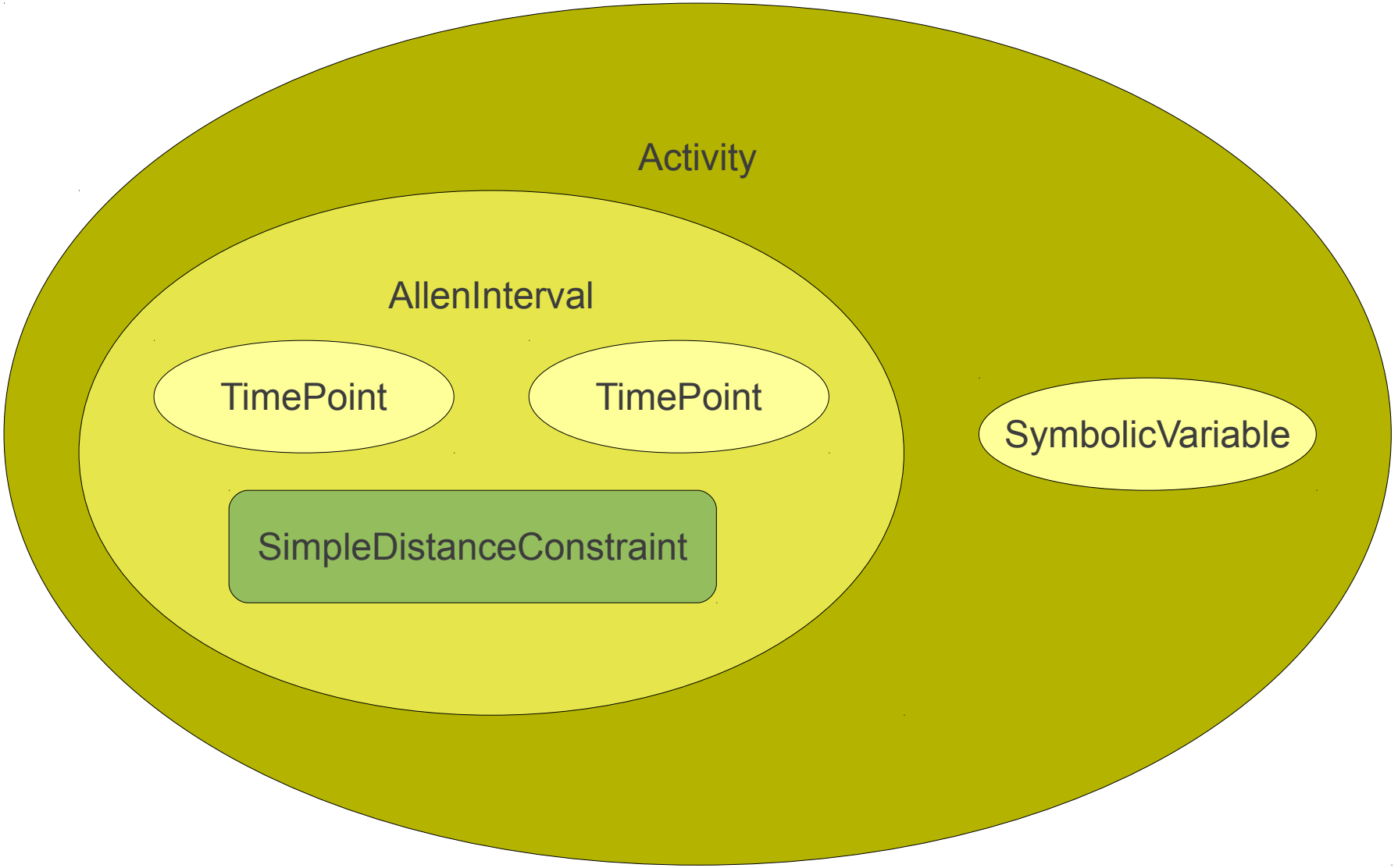
Decision variable: *a flexible temporal interval*
Domain: *two intervals, one for the start time and one for the end time*
Constraint: *quantified Allen's relations*
Problem: *find start/end times that respects all constraints*

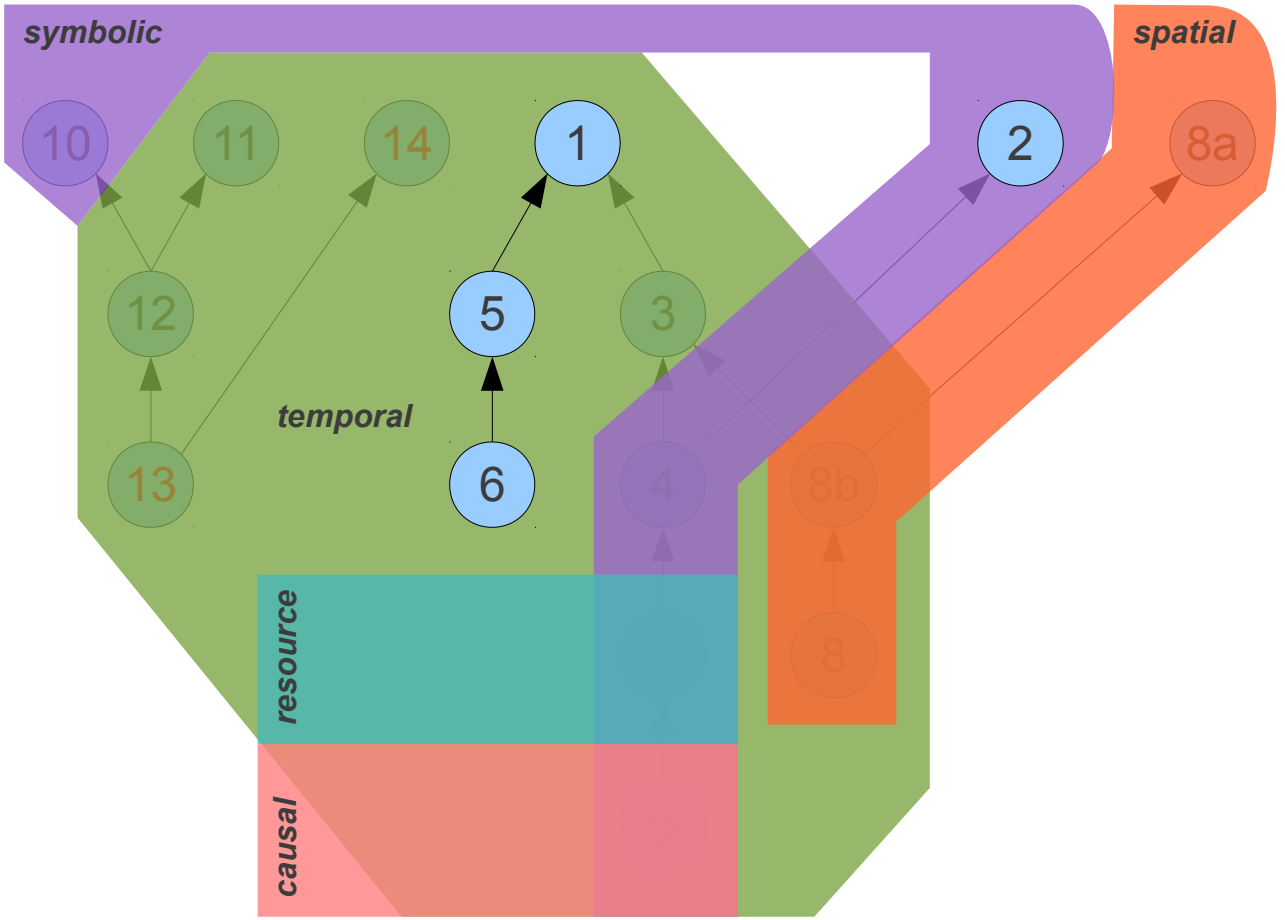



AllenInterval
TimePoint
TimePoint
SimpleDistanceConstraint

Decision variable: *an activity (state of a state variable in time)*
Domain: *a flexible temporal interval and a symbol*
Constraint: *quantified Allen's relations*
Constraint: *relations among symbols (e.g., EQUALS and DIFFERENT)*
Problem: *find start/end times and an assignment of symbols that respect all constraints*




Activity
AllenInterval
TimePoint
TimePoint
SymbolicVariable
SimpleDistanceConstraint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temporal
resource
causal
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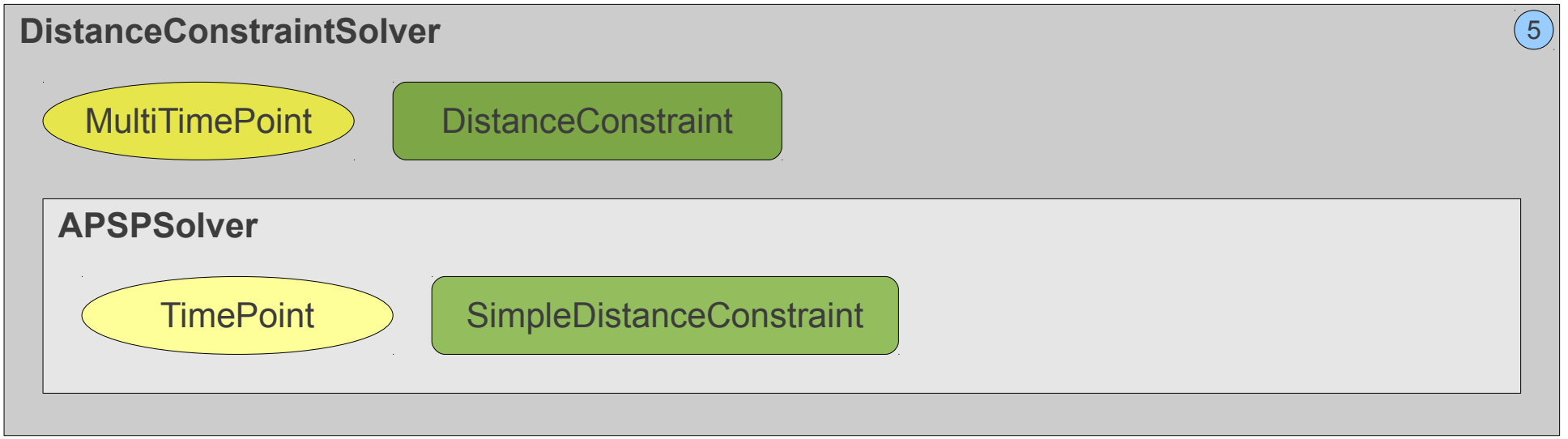
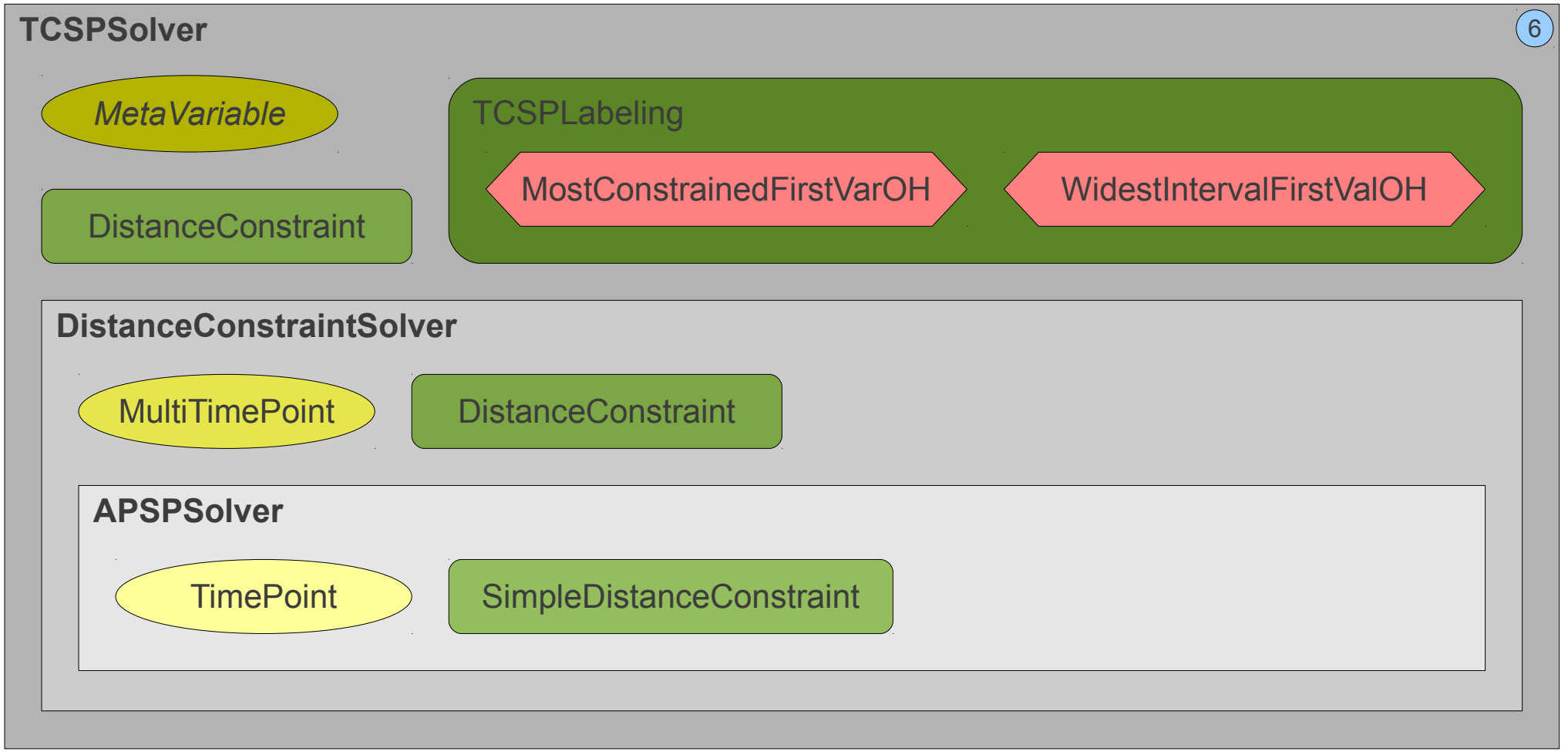
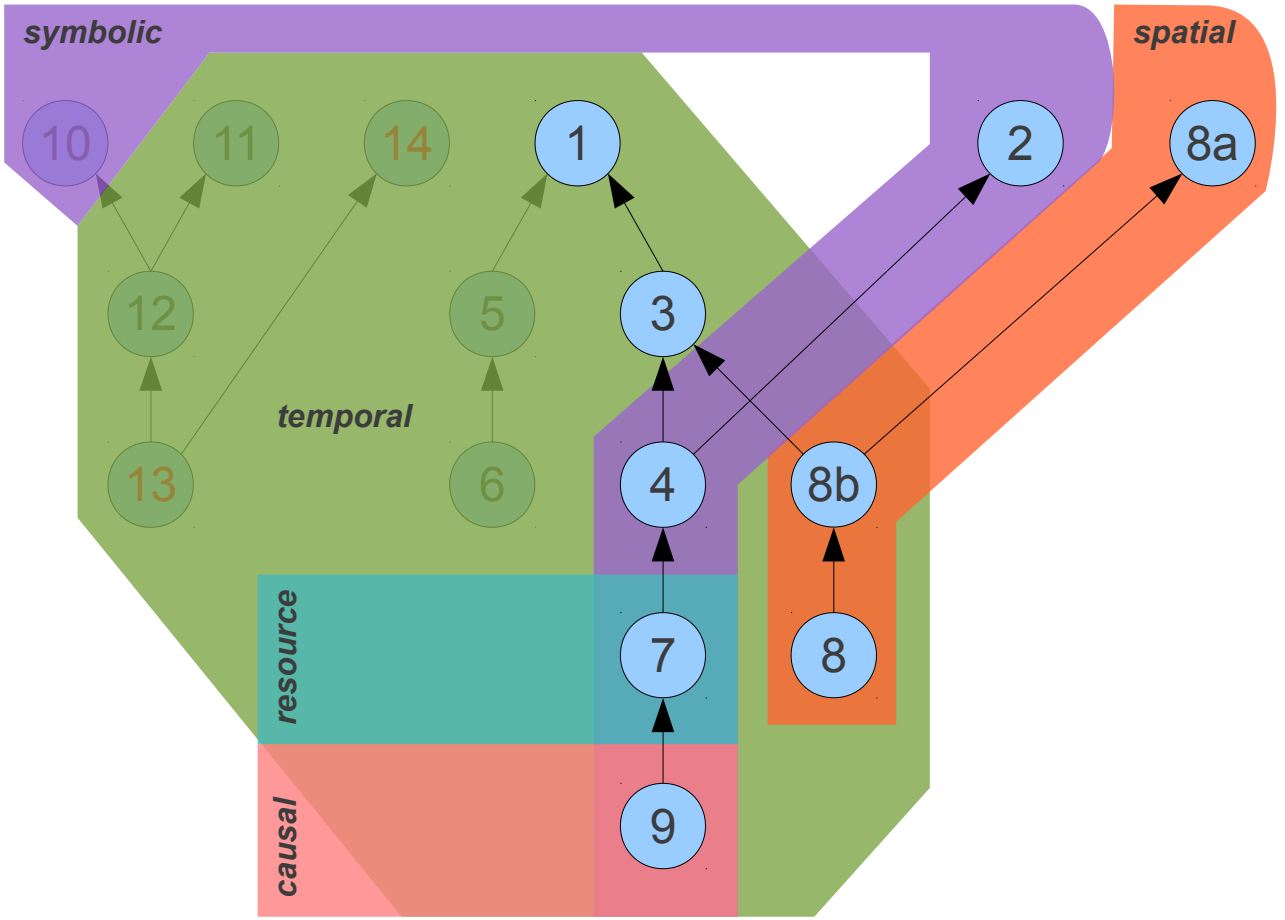
Decision variable: *a point in time*
Domain: *one or more intervals*
Constraint: *disjunction of bounds* $\{[l_1, u_1] \vee \ldots \vee [l_n, u_n]\}$ *between two points in time*
Problem: *Temporal Constraint Satisfaction Problem (TCSP)*



Decision variable: *an edge of the TCSP*
Domain: *the disjuncts on the edge*
Constraint: *"the assignment should constitute a solvable STP"*
Problem: *select one disjunct per edge such that the resulting STP is solvable*

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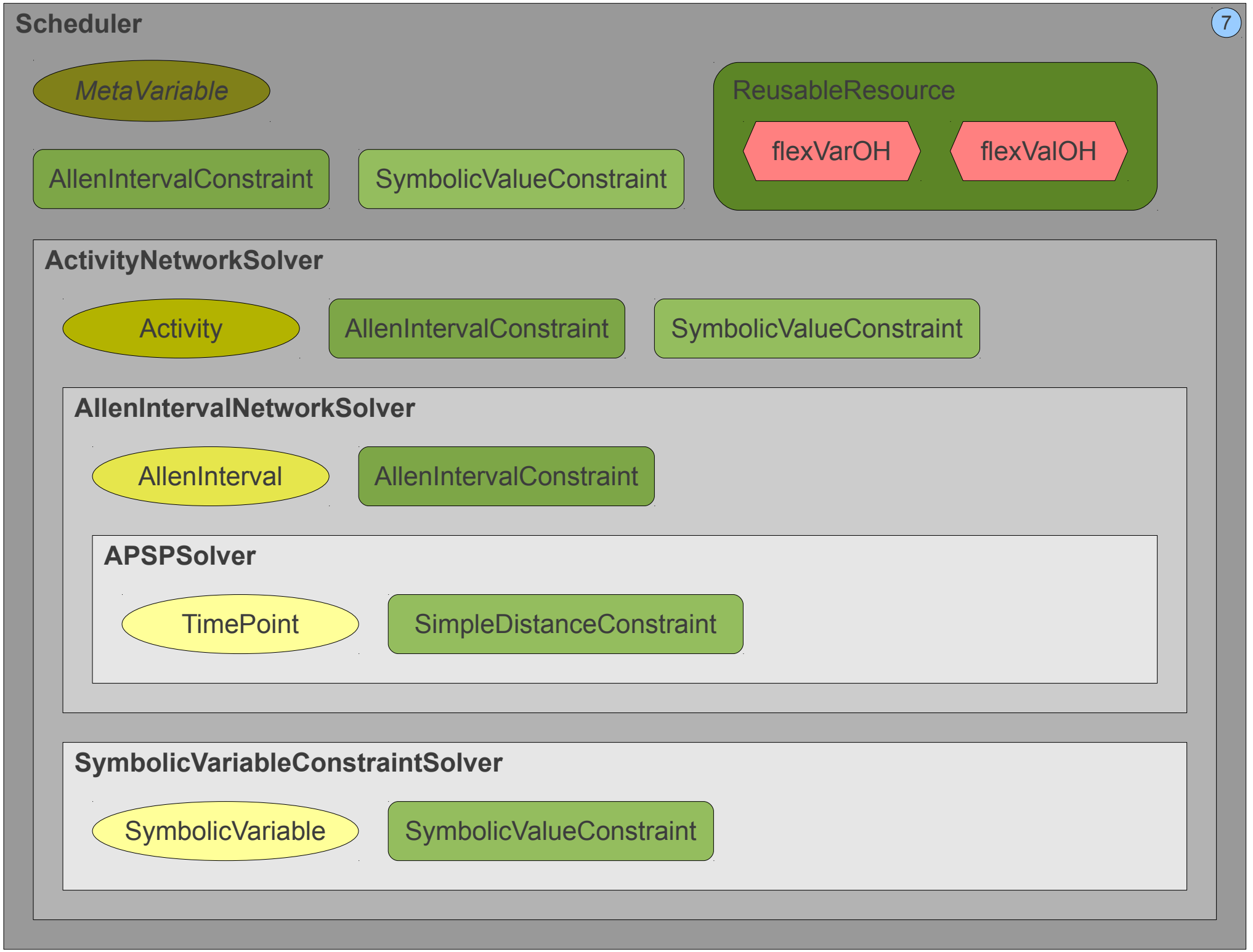
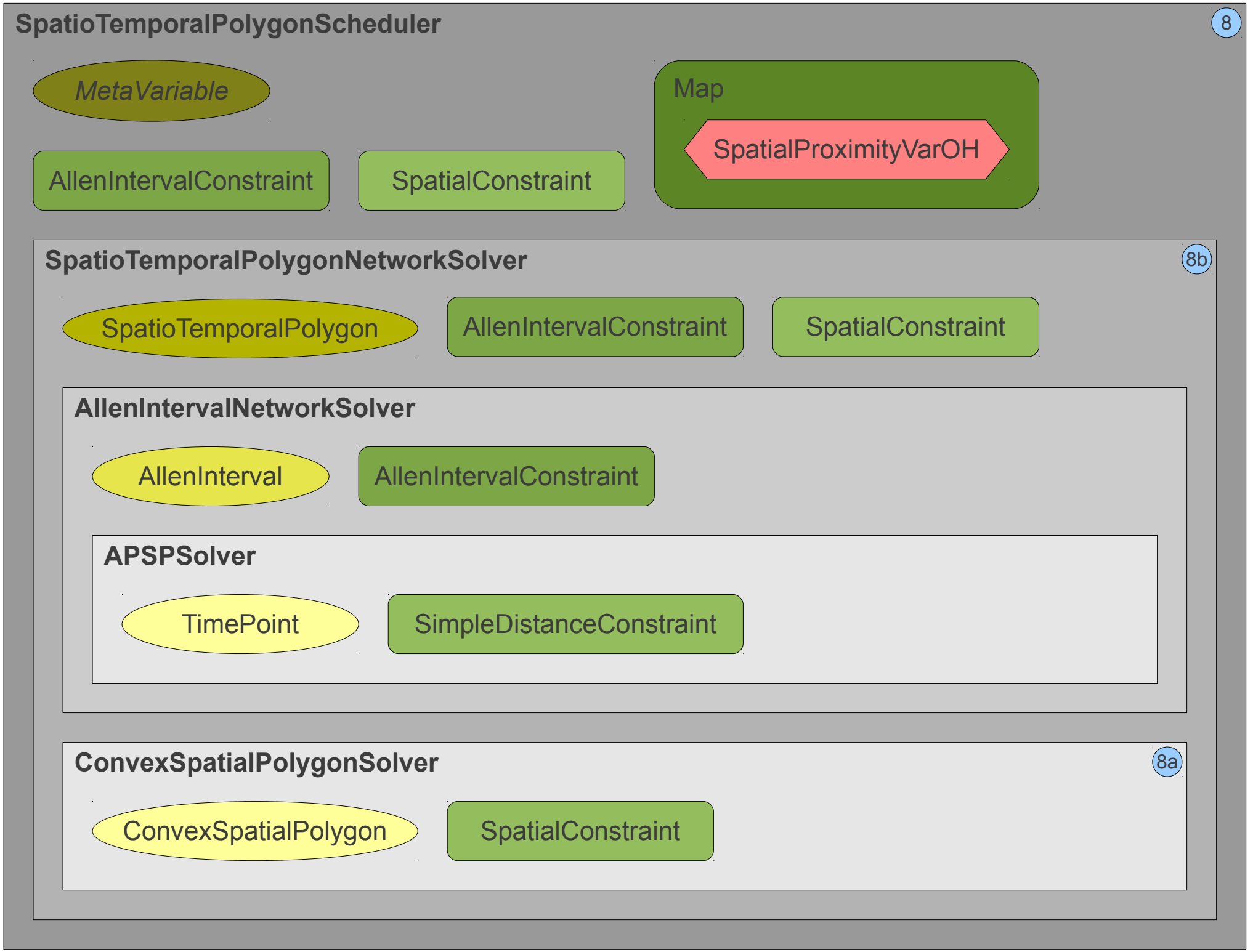
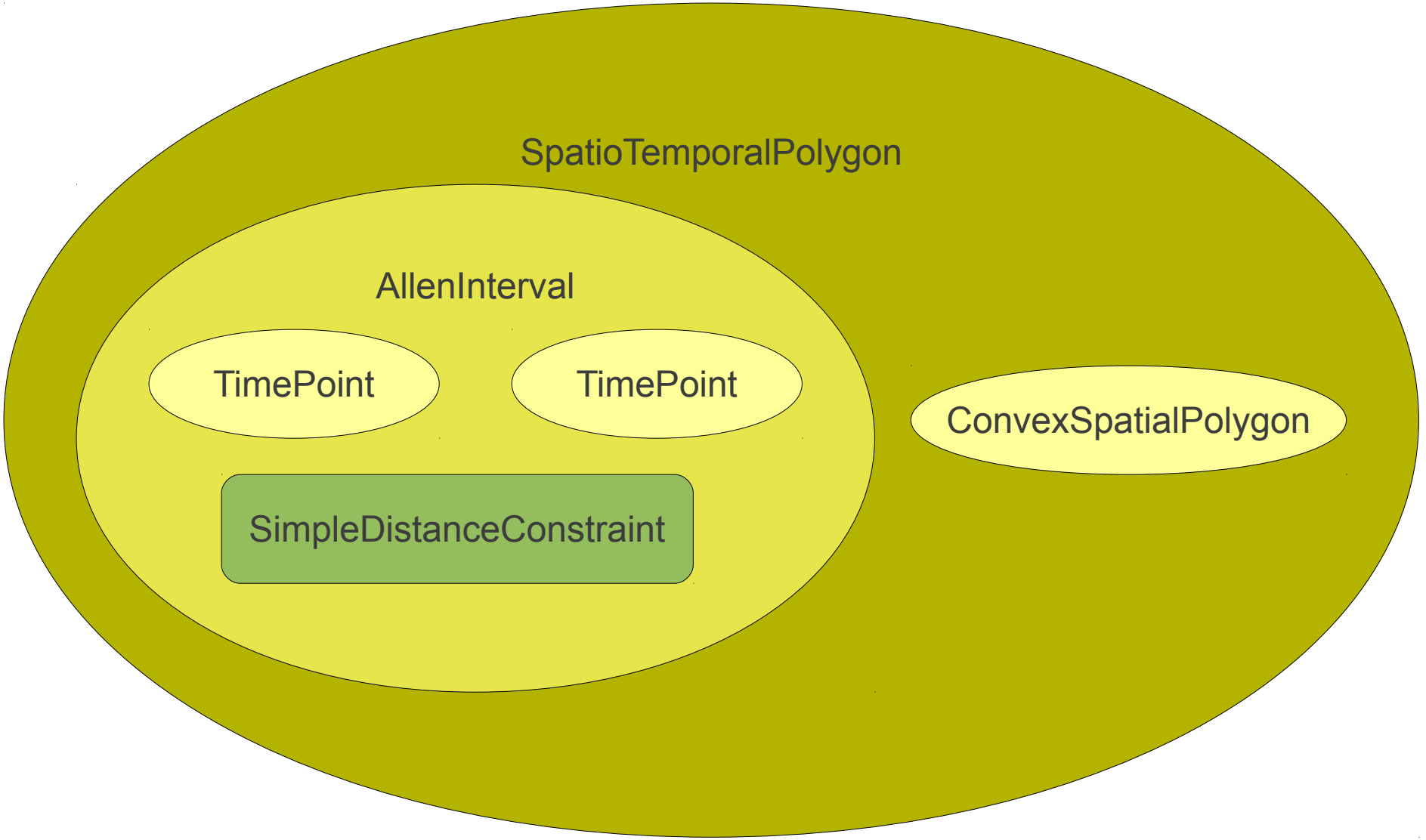
Decision variable: “*a set of activities that together over-consume a resource”*
Domain: “*possible ways to sequence the activities so the don't over-consume the resource”*
Constraint: *“capacities of resources”*
Problem: *Resource Constrained Project Scheduling Problem (RCPSP)*

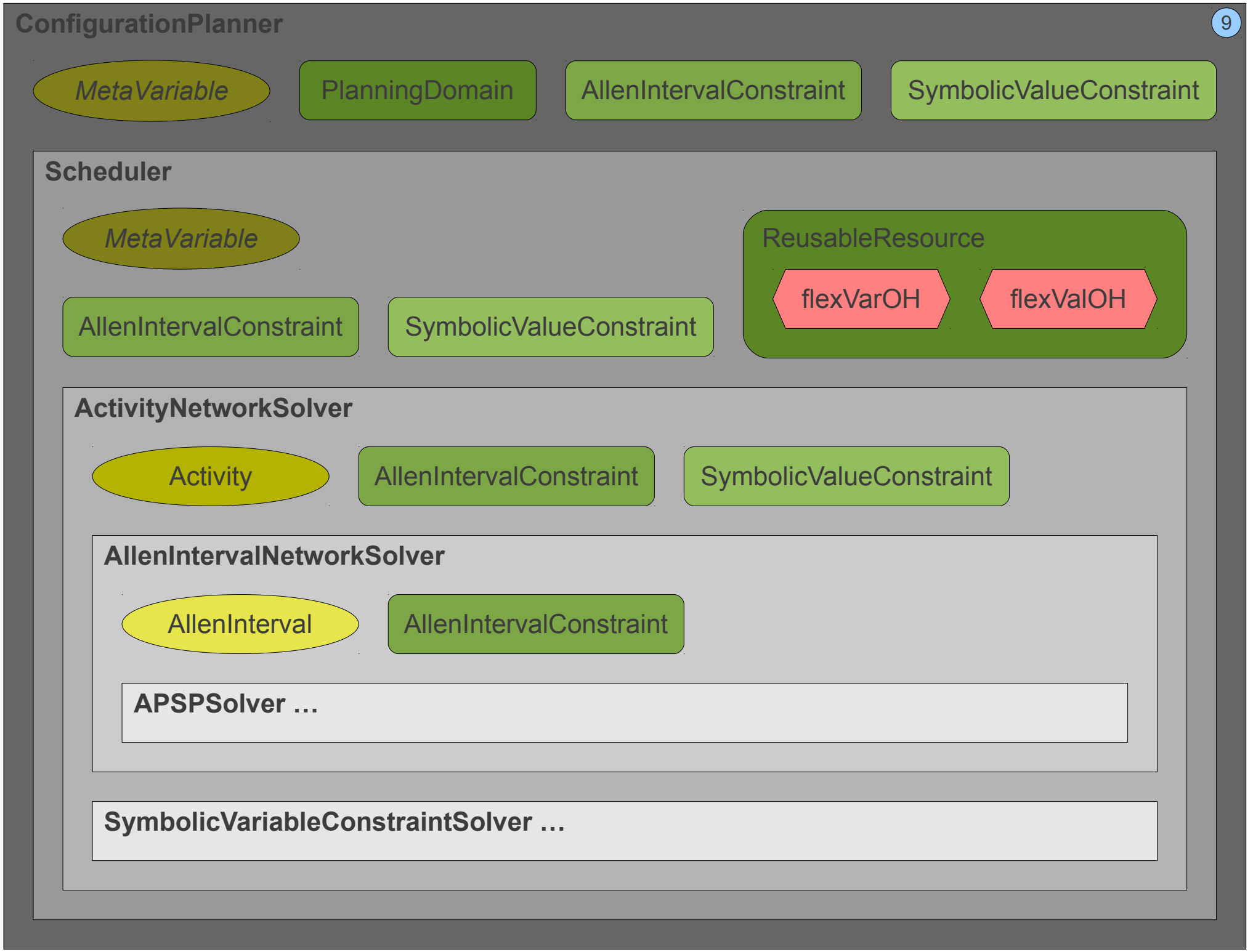

Scheduler
MetaVariable
ReusableResource
flexVarOH
flexValOH
AllenIntervalConstraint
SymbolicValueConstraint
ActivityNetworkSolver
Activity
AllenIntervalConstraint
SymbolicValueConstraint
AllenIntervalNetworkSolver
AllenInterval
AllenIntervalConstraint
APSPSolver
TimePoint
SimpleDistanceConstraint
SymbolicVariableConstraintSolver
SymbolicVariable
SymbolicValueConstraint

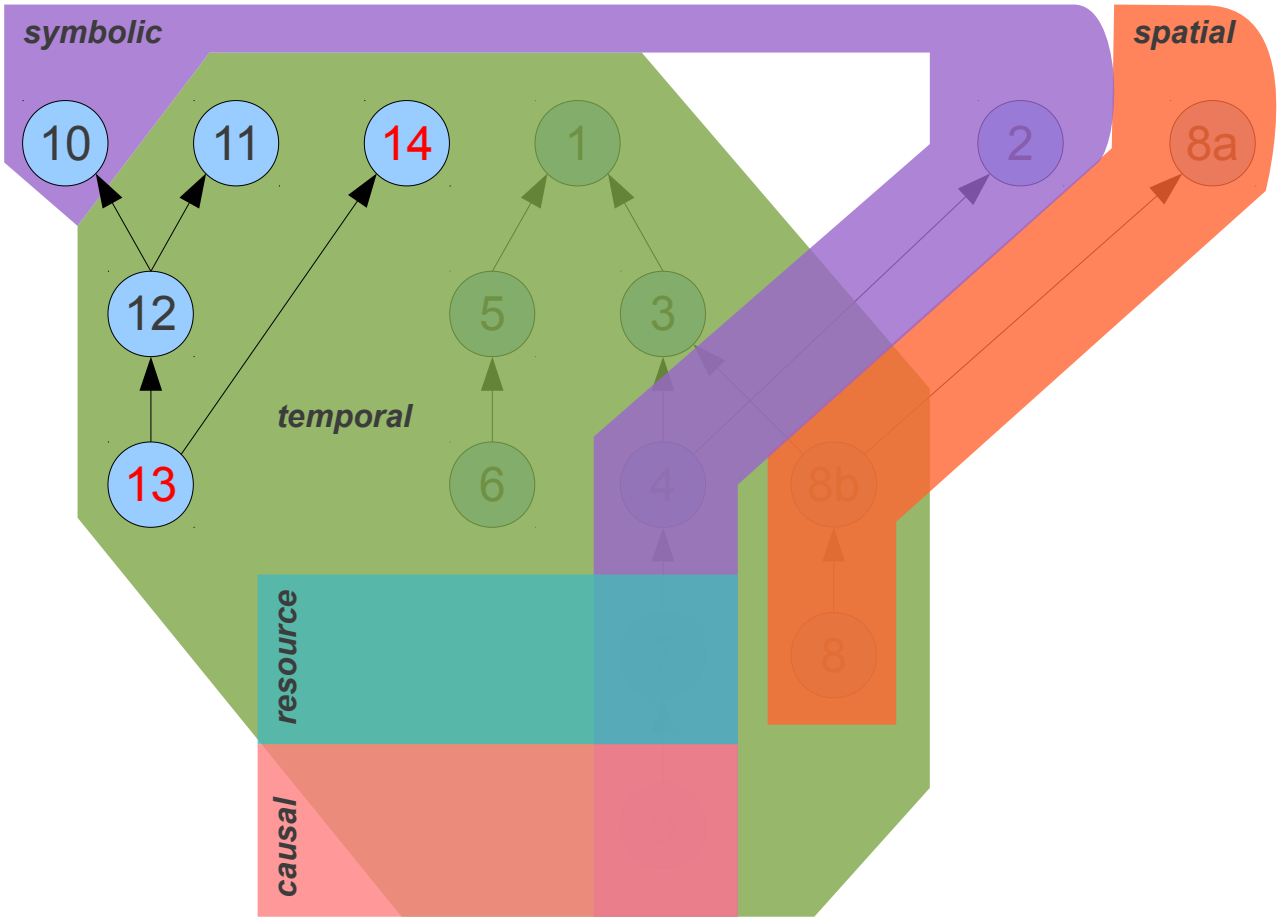
Decision variable: *“spatially and temporally intersecting polygons”*
Domain: “ways to eliminate the intersection*”*
Constraint: *“2D map”*
Problem: *Vehicle trajectory scheduling*


SpatioTemporalPolygonScheduler
8
MetaVariable
Map
SpatialProximityVarOH
AllenIntervalConstraint
SpatialConstraint
SpatioTemporalPolygonNetworkSolver
8b
SpatioTemporalPolygon
AllenIntervalConstraint
SpatialConstraint
AllenIntervalNetworkSolver
AllenInterval
AllenIntervalConstraint
APSPSolver
TimePoint
SimpleDistanceConstraint
ConvexSpatialPolygonSolver
8a
ConvexSpatialPolygon
SpatialConstraint


SpatioTemporalPolygon
AllenInterval
TimePoint
TimePoint
SimpleDistanceConstraint
ConvexSpatialPolygon

Decision variable: *“a complex operation which needs to be achieved”*
Domain: *“temporal and resource requirements for the operation”*
Constraint: *“operators partially achieving the requirements”*
Problem: *Configuration planning with time and resources*


ConfigurationPlanner
MetaVariable
PlanningDomain
AllenIntervalConstraint
SymbolicValueConstraint
Scheduler
MetaVariable
ReusableResource
flexVarOH
flexValOH
AllenIntervalConstraint
SymbolicValueConstraint
ActivityNetworkSolver
Activity
AllenIntervalConstraint
SymbolicValueConstraint
AllenIntervalNetworkSolver
AllenInterval
AllenIntervalConstraint
APSPSolver …
SymbolicVariableConstraintSolver …


symbolic
spatial
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temporal
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8b
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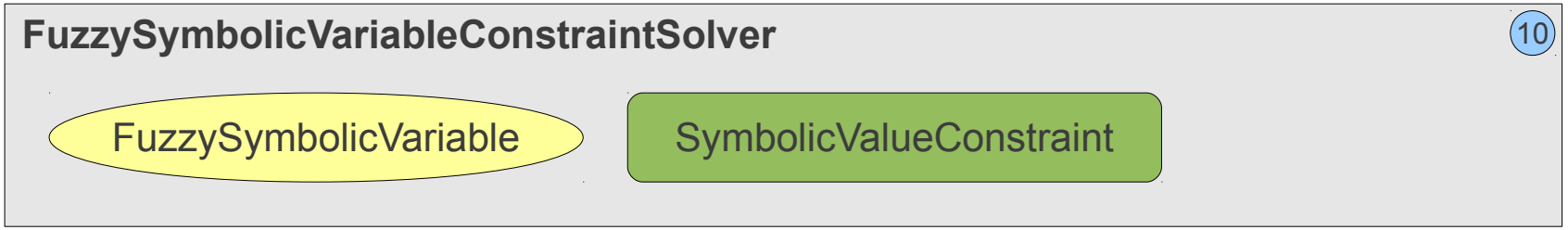
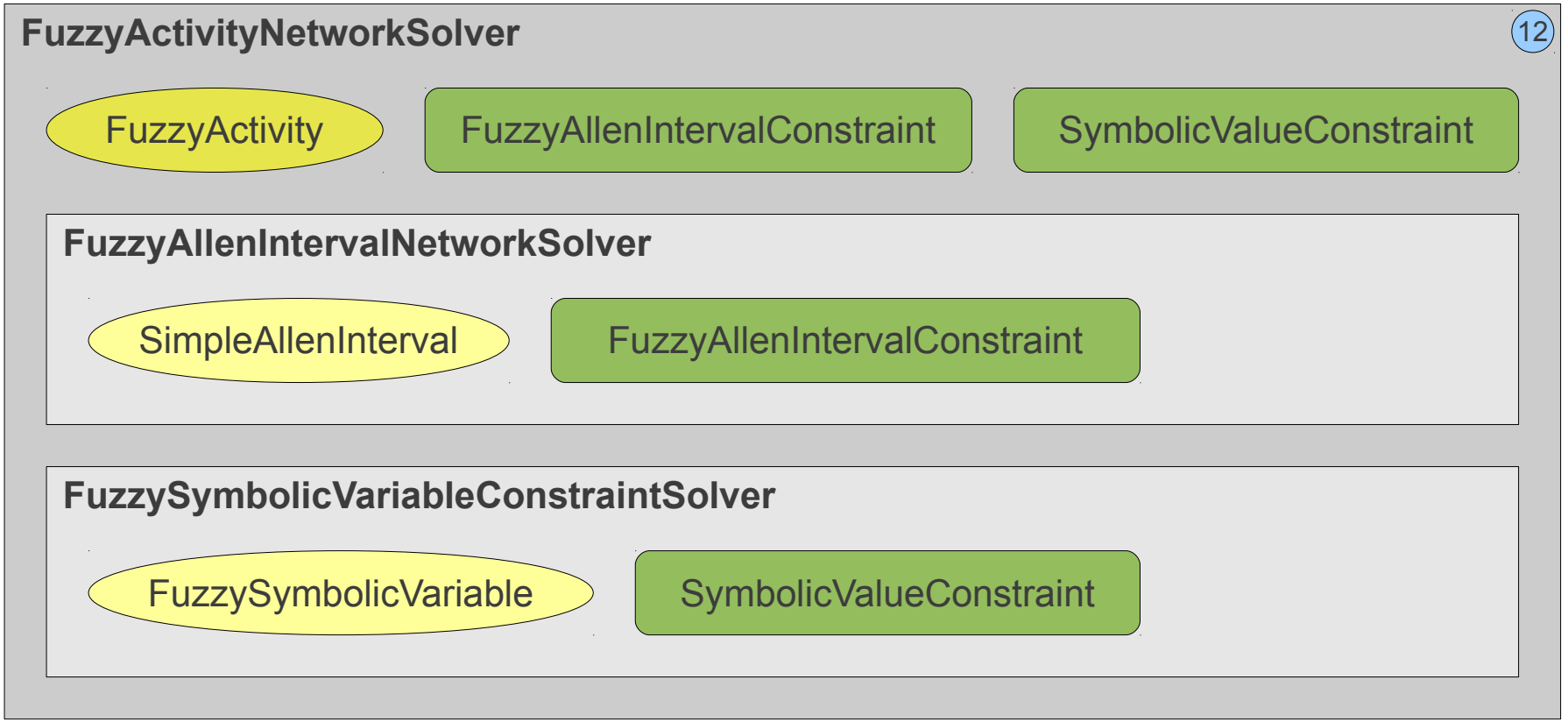
resource
causal

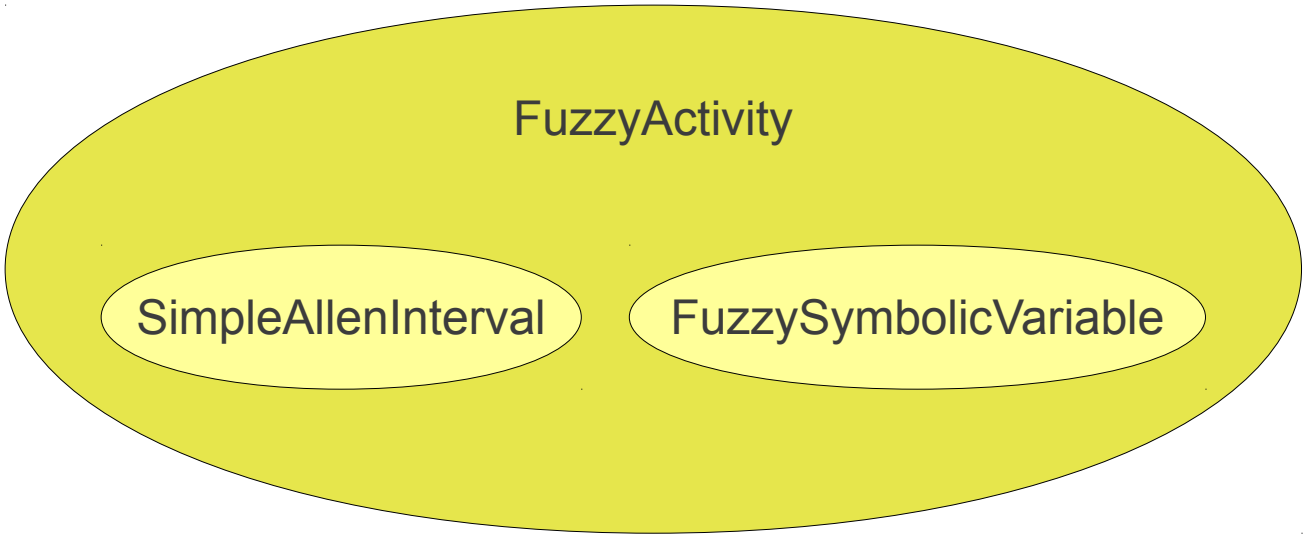
Decision variable: *a state variable*
Domain: *finite set of symbols*
Constraint: *relations among symbols (e.g., EQUALS and DIFFERENT)*
Problem: *find the assignment of symbols that is "most possible" given the constraints*



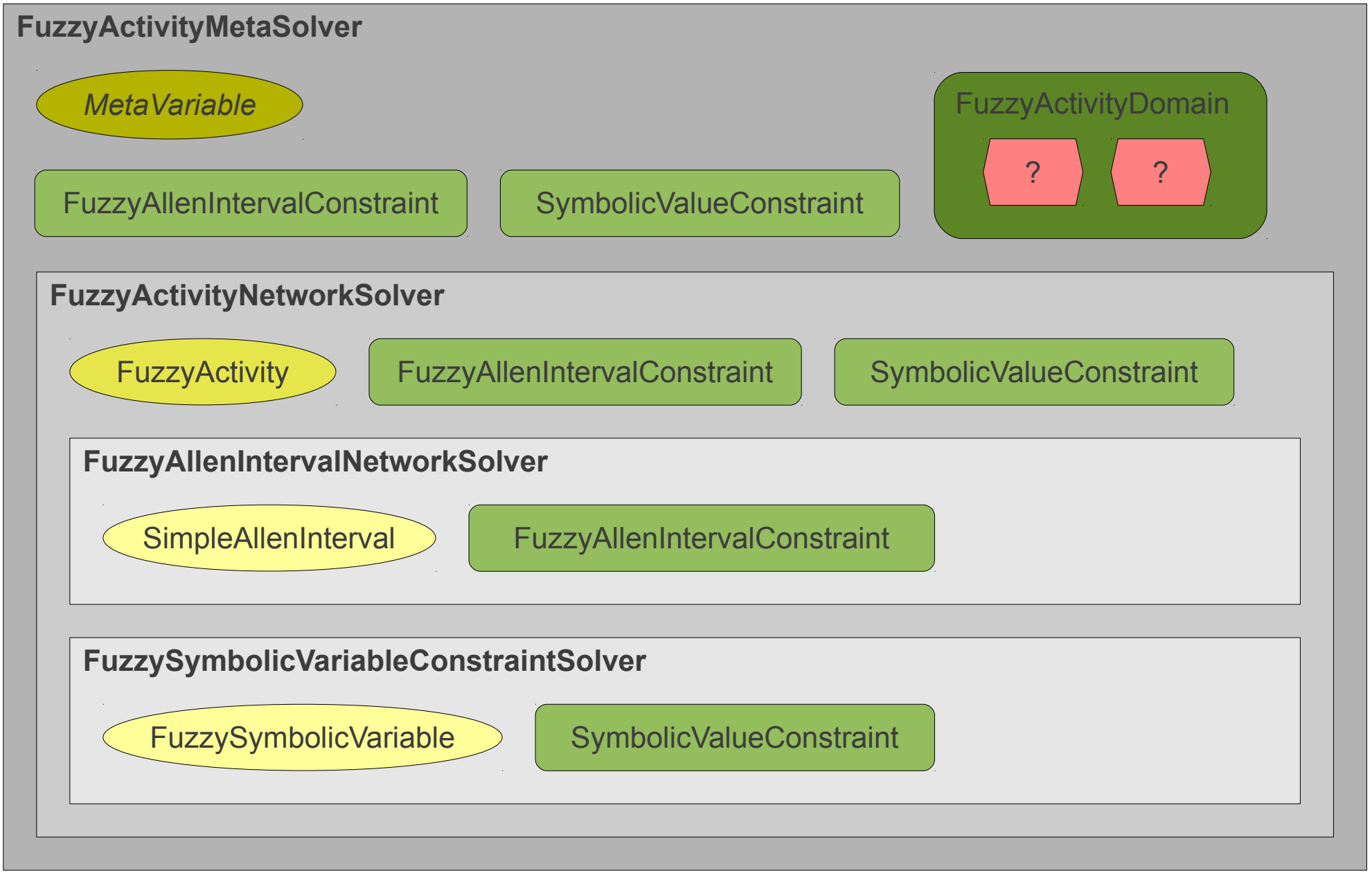
Decision variable: *a temporal interval*
Domain: *start/end times of the interval*
Constraint: *disjunction of Allen's relations*
Problem: *find the assignment that is “most possible” given the constraints*

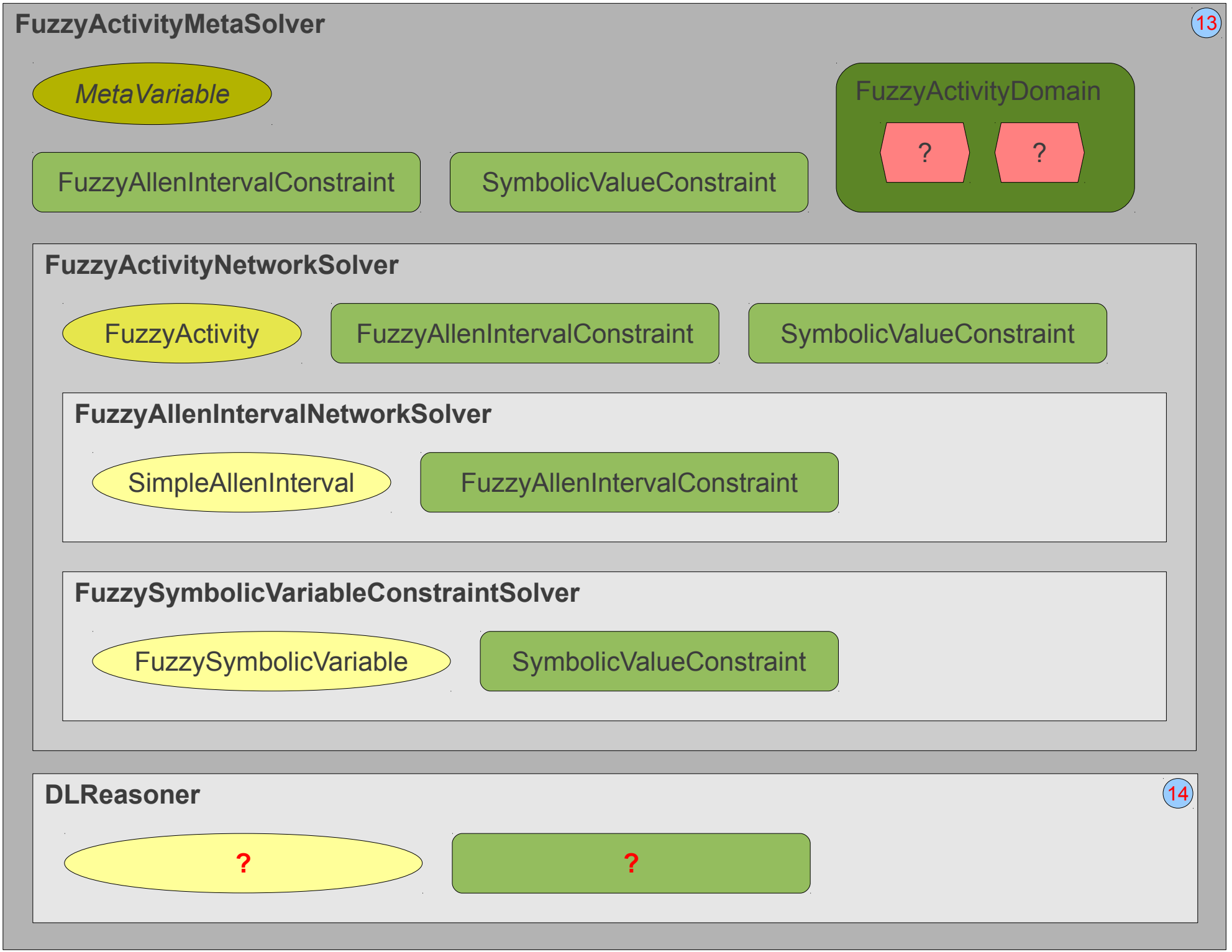
Decision variable: *an activity (state of a state variable in time)*
Domain: *a temporal interval and a symbol*
Constraint: *disjunctions of Allen's relations*
Constraint: *relations among symbols (e.g., EQUALS and DIFFERENT)*
Problem: *find the "most possible" combinations of symbols and start/end times given the constraints*




FuzzyActivity
SimpleAllenInterval
FuzzySymbolicVariable

Decision variable: *"hypothesis on the behavior of a monitored person"*
Domain: "*possible sensory evidence of the behavior*"
Constraint: *"temporal and value requirements in support of hypotheses"*
Problem: *"find the most possible context of the monitored person"*




FuzzyActivityMetaSolver
13
MetaVariable
FuzzyActivityDomain
?
?
FuzzyAllenIntervalConstraint
SymbolicValueConstraint
FuzzyActivityNetworkSolver
FuzzyActivity
FuzzyAllenIntervalConstraint
SymbolicValueConstraint
FuzzyAllenIntervalNetworkSolver
SimpleAllenInterval
FuzzyAllenIntervalConstraint
FuzzySymbolicVariableConstraintSolver
FuzzySymbolicVariable
SymbolicValueConstraint
DLReasoner
14
?
?