SysML Submission Team State-based Behavior Concepts

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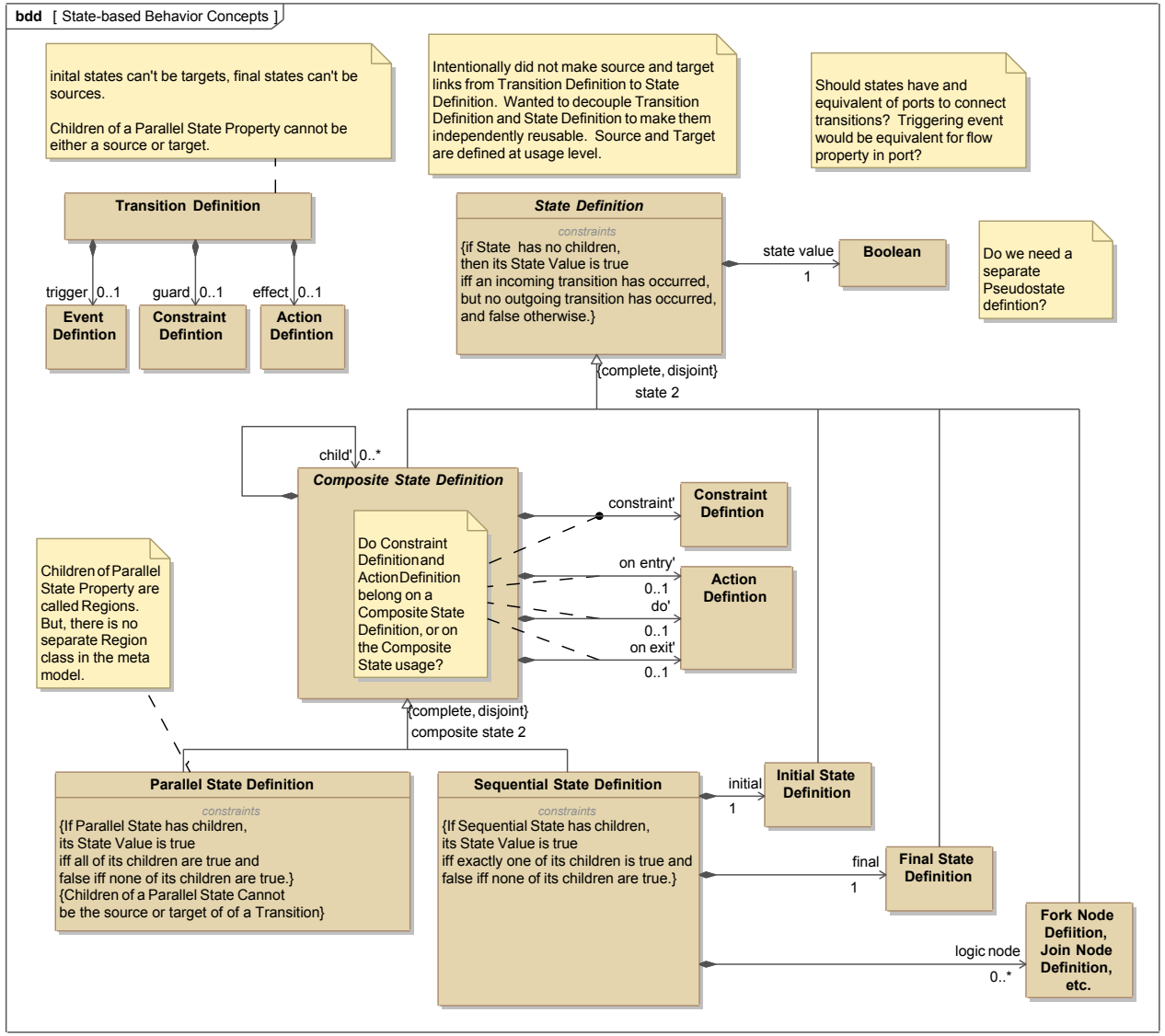
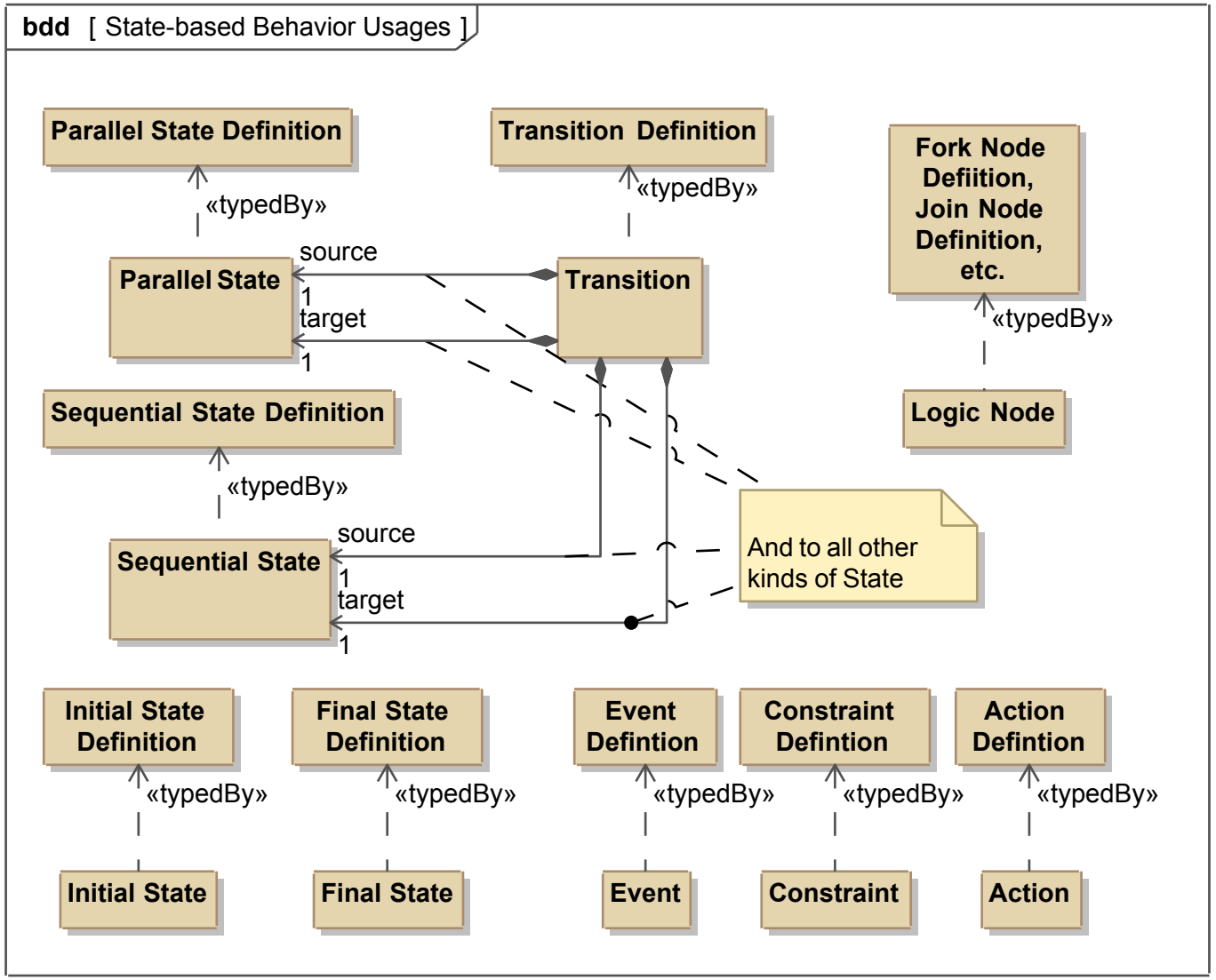
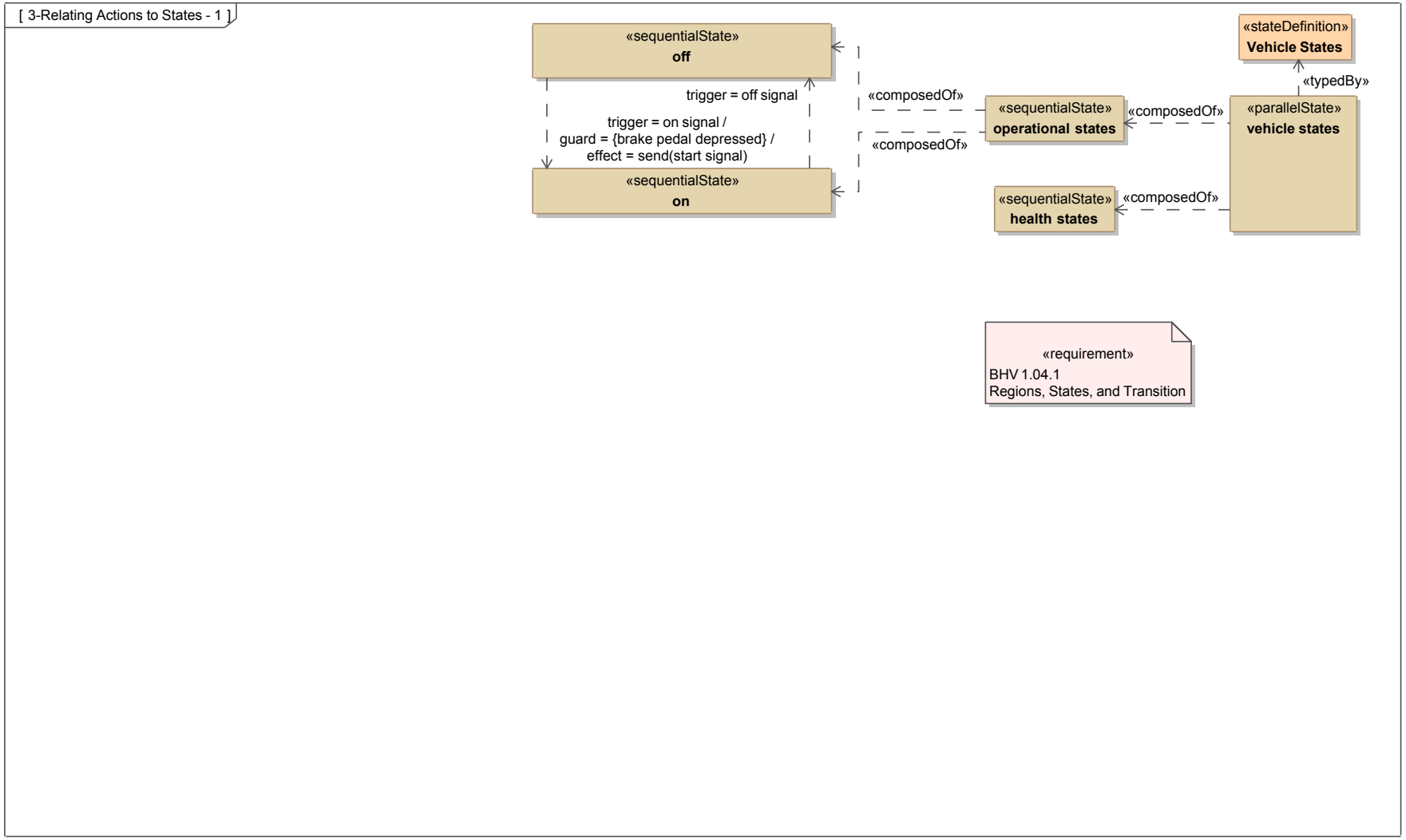
Update to States – Definitions 09/06/2018



Update to States – Usages 09/06/2018



State-based Behavior Example Usage Focused Modeling Approach



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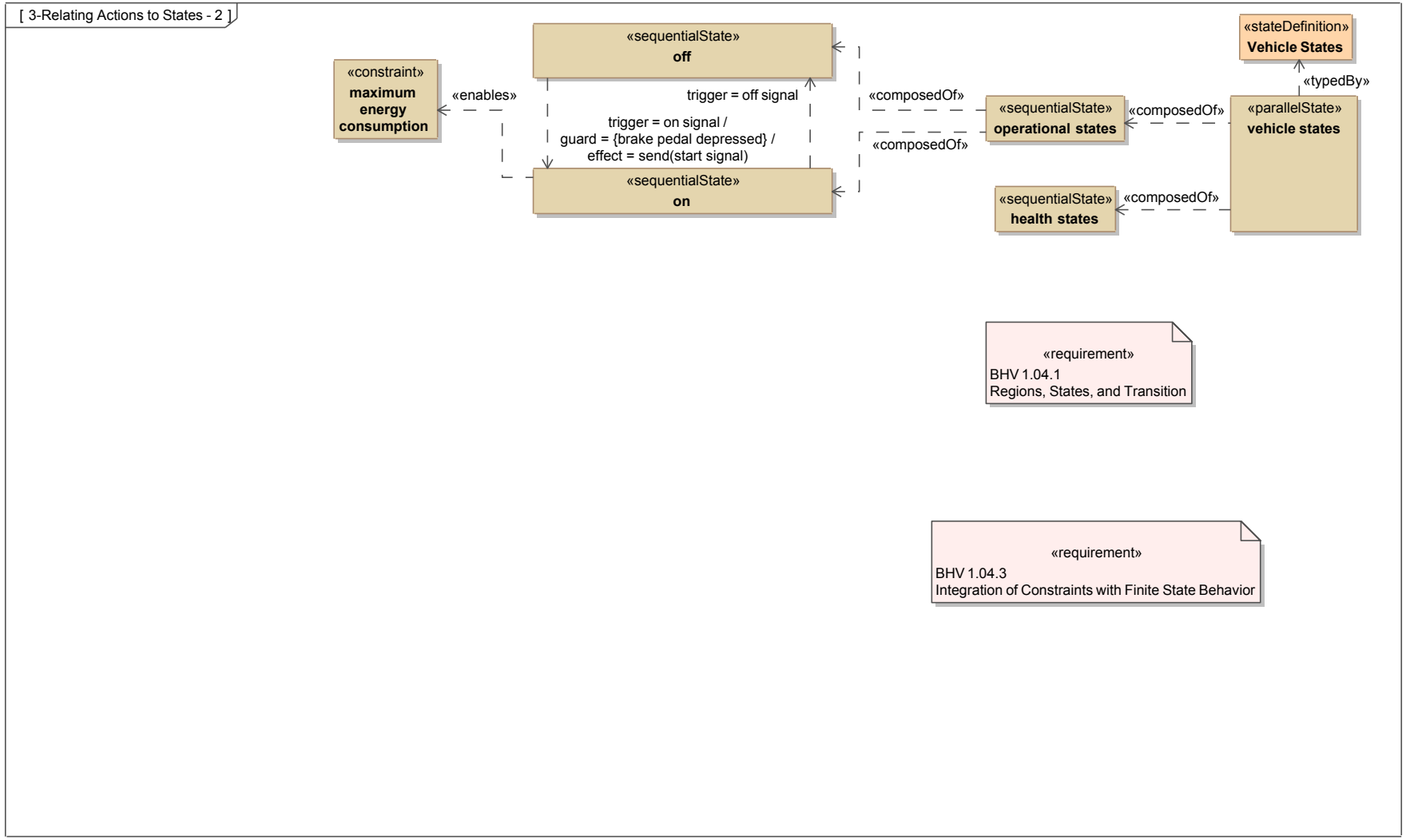

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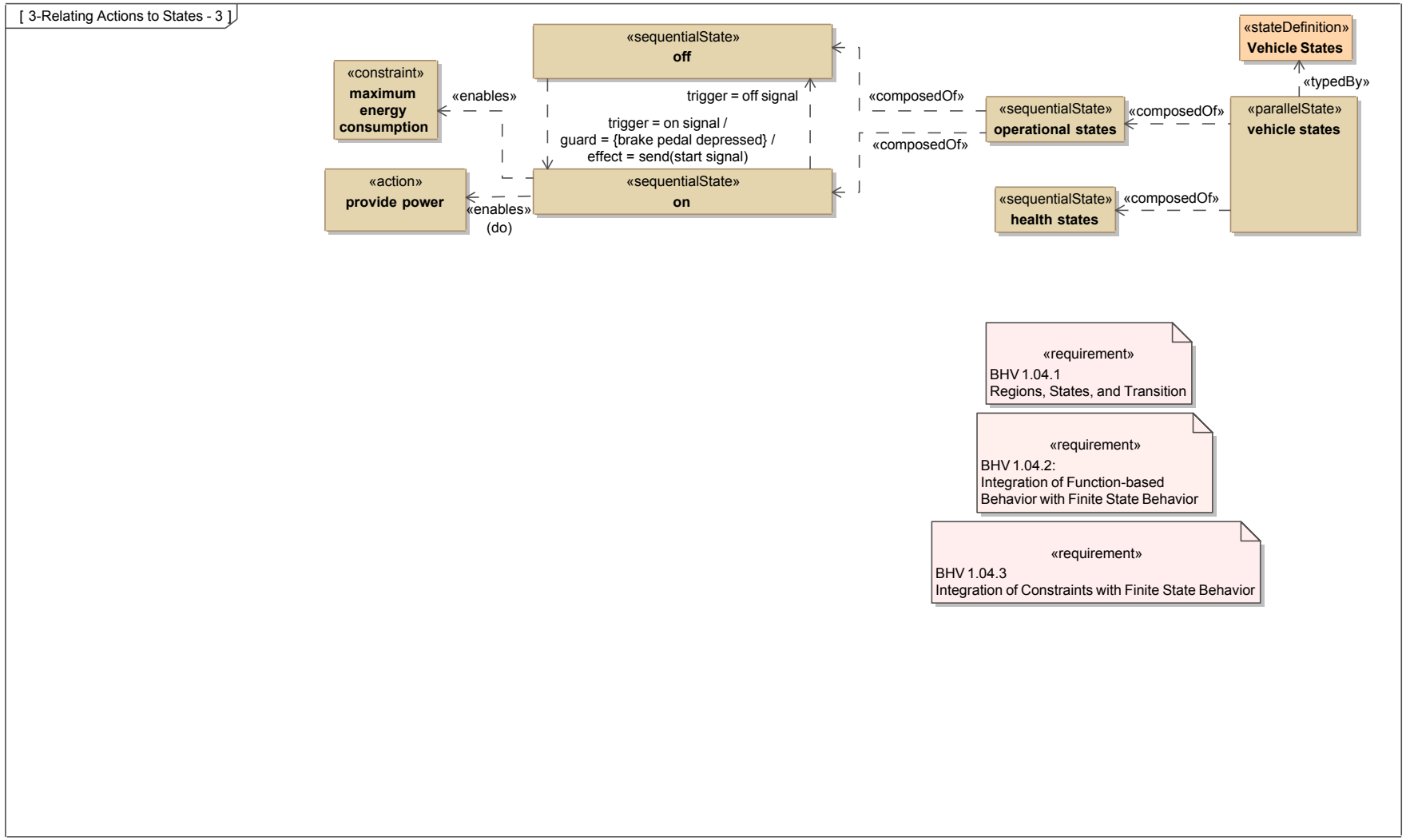

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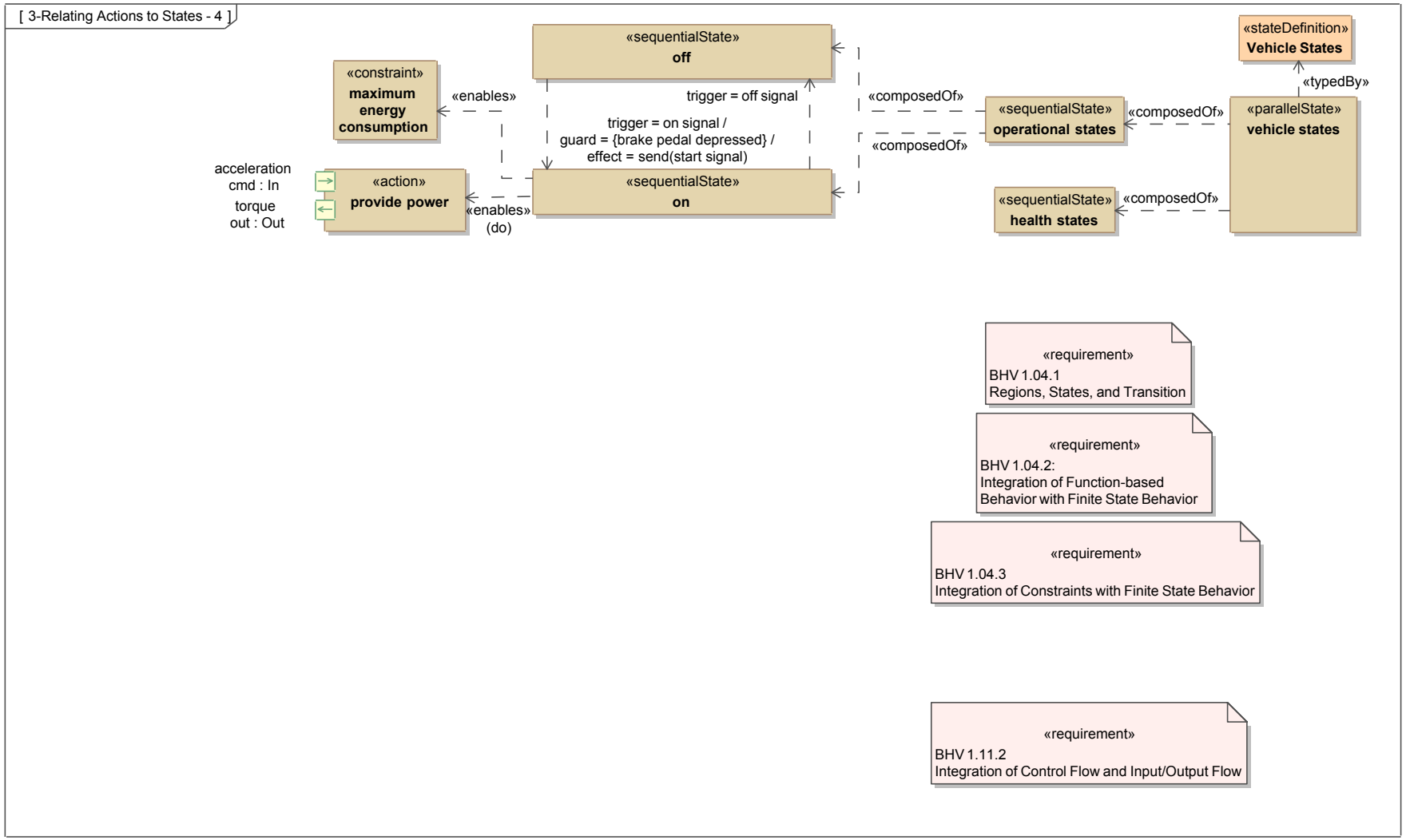

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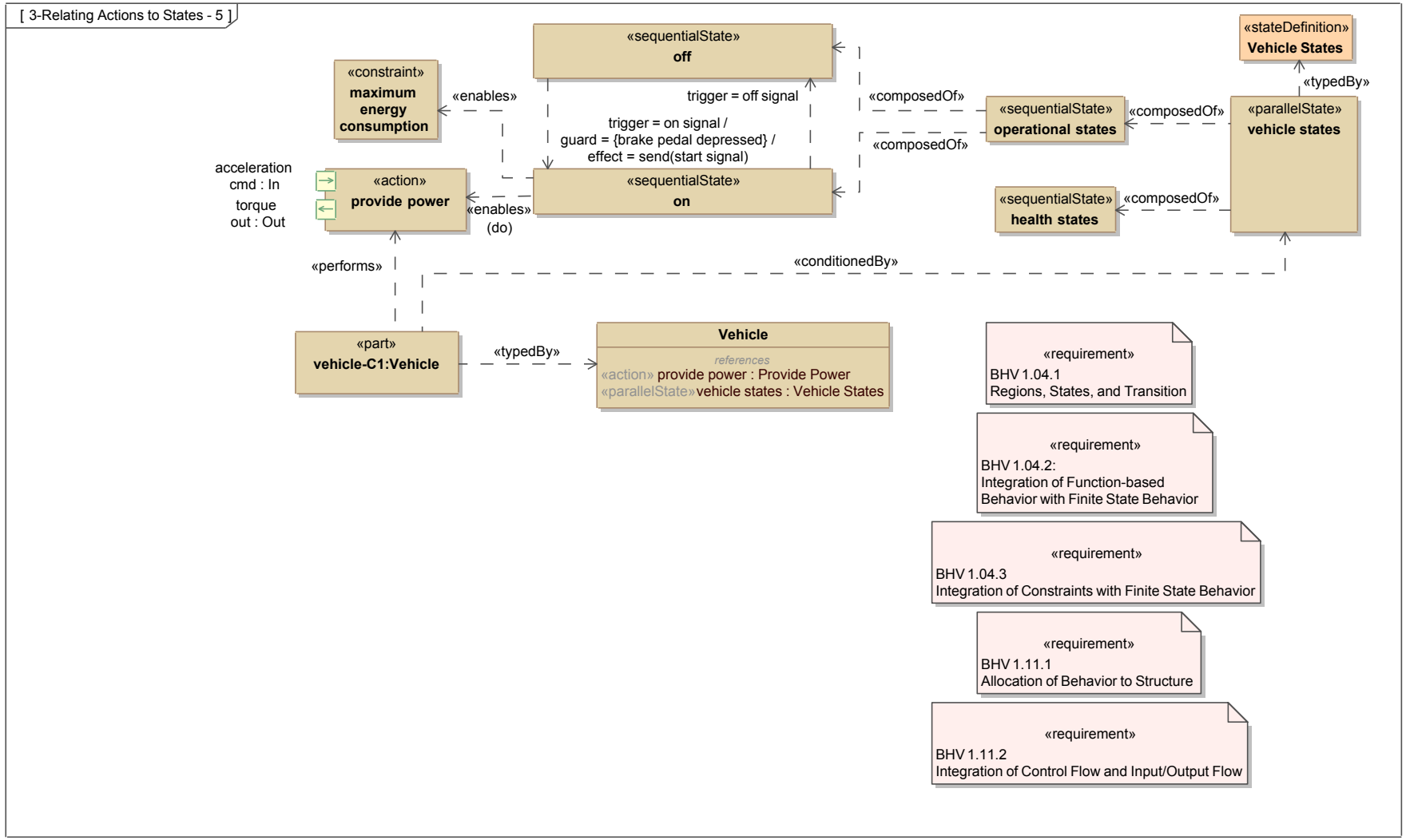

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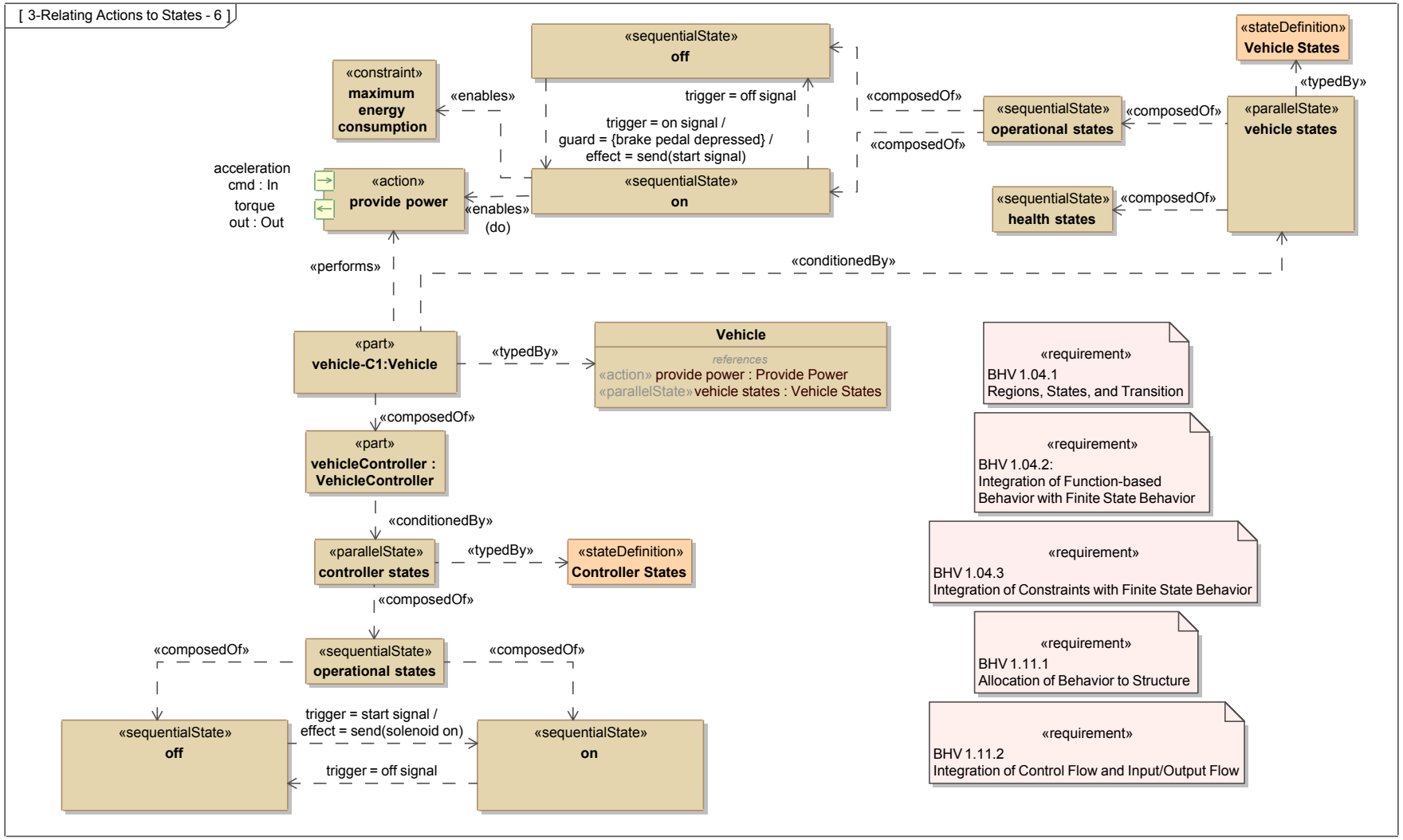
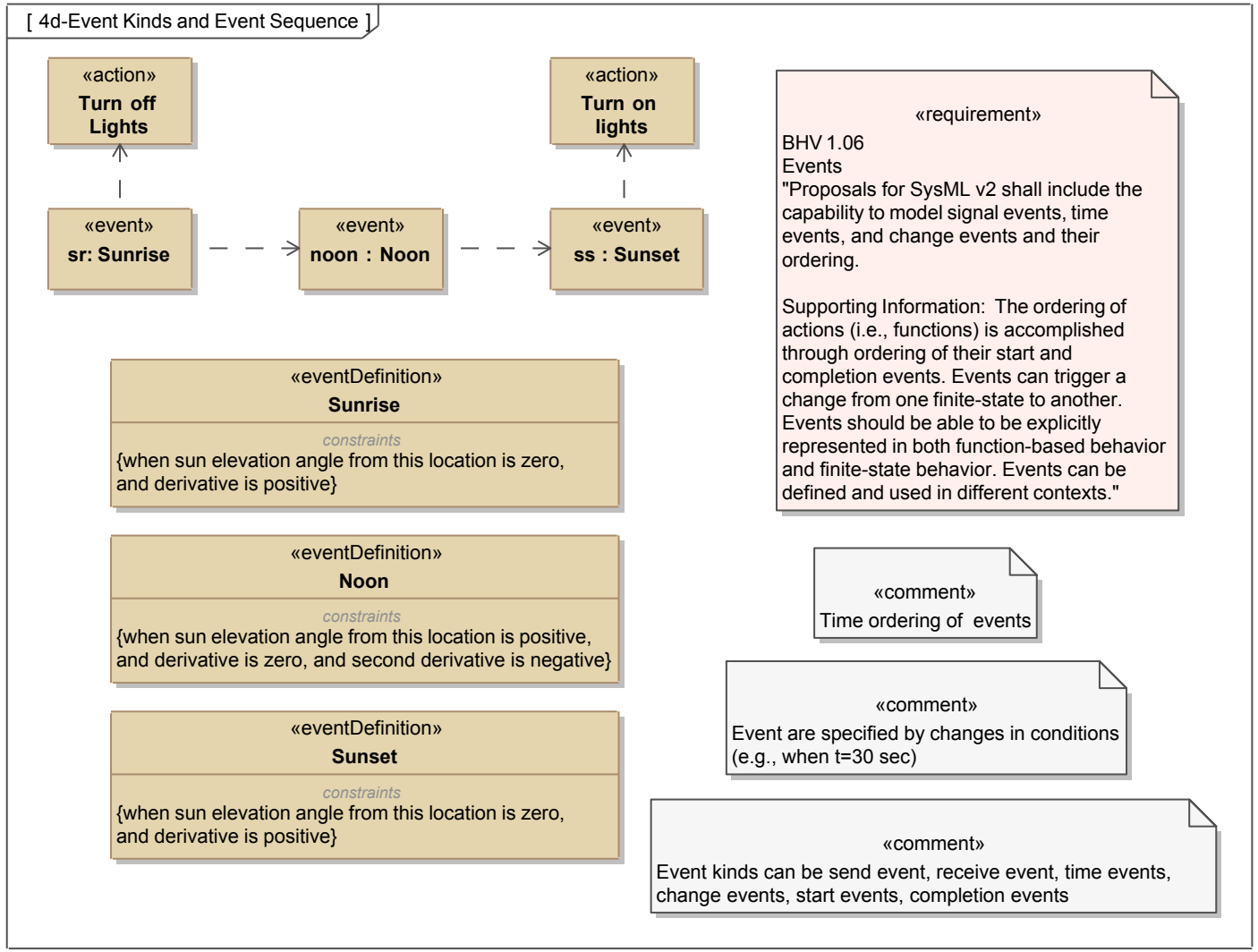
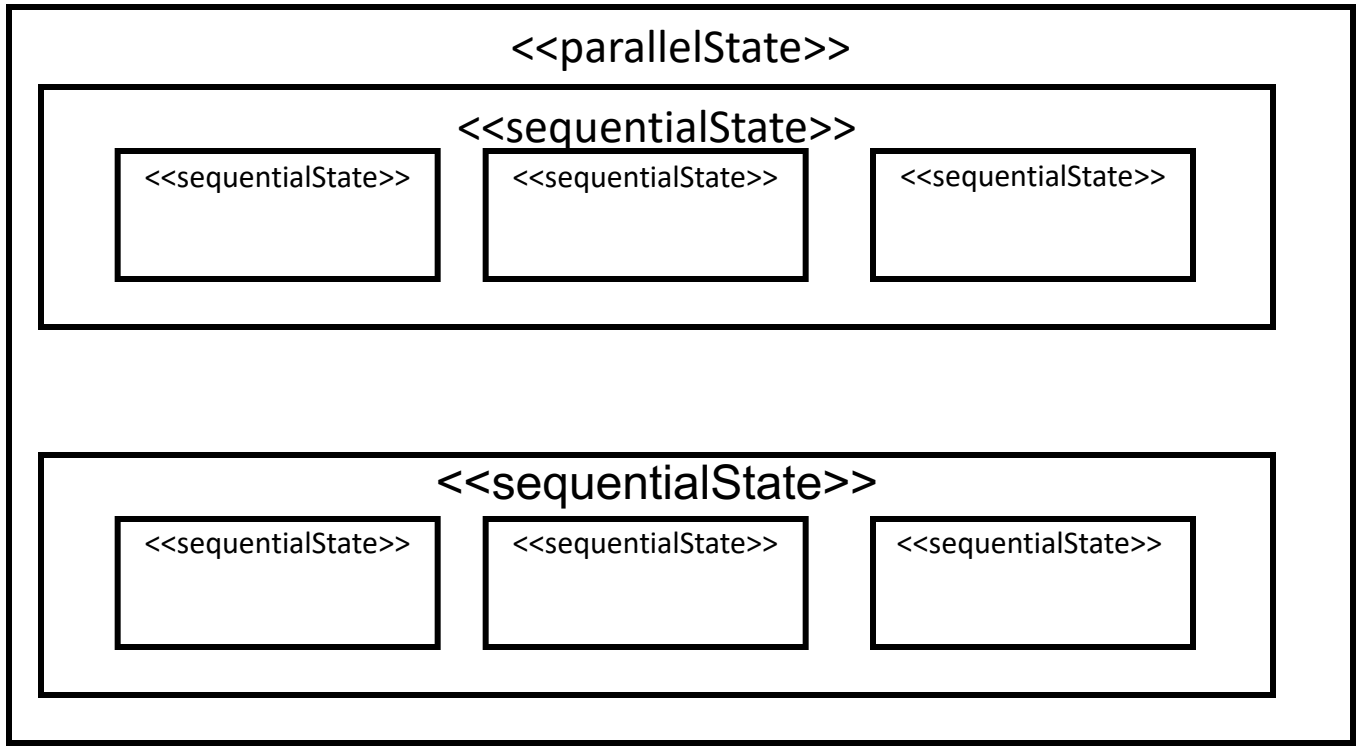


Events


[4d-Event Kinds and Event Sequence]
«action»
Turn off Lights
«action»
Turn on lights
«event»
sr: Sunrise
«event»
noon : Noon
«event»
ss : Sunset
«eventDefinition»
Sunrise
constraints
{when sun elevation angle from this location is zero, and derivative is positive}
«eventDefinition»
Noon
constraints
{when sun elevation angle from this location is positive, and derivative is zero, and second derivative is negative}
«eventDefinition»
Sunset
constraints
{when sun elevation angle from this location is zero, and derivative is positive}
«requirement»
BHV 1.06
Events
"Proposals for SysML v2 shall include the capability to model signal events, time events, and change events and their ordering.
Supporting Information: The ordering of actions (i.e., functions) is accomplished through ordering of their start and completion events. Events can trigger a change from one finite-state to another. Events should be able to be explicitly represented in both function-based behavior and finite-state behavior. Events can be defined and used in different contexts."
«comment»
Time ordering of events
«comment»
Event are specified by changes in conditions (e.g., when t=30 sec)
«comment»
Event kinds can be send event, receive event, time events, change events, start events, completion events

Parallel and Sequential States



Trace Matrix

		Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Slide 9	Slide 10
BHV 1.04.1	Regions, States, and Transitions	X	X	X	X	X	X	
BHV 1.04.2	Integration of Function-based Behavior with Finite State Behavior			X	X	X	X	
BHV 1.04.3	Integration of Constraints with Finite State Behavior		X	X	X	X	X	
BHV 1.06	Events							X
BHV 1.09	*State History*							
BHV 1.10	*Behavior Execution*							
BHV 1.11.1	Integration between Structure and Behavior					X	X	
BHV 1.11.2	Allocation of Behavior to Structure				X	X	X	