

operation			action types																	cascaded action classification	DTMC asset module		PCTL properties
name	asset	action	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14	c15	c16	c17		action_id	last_action_id	
operation_1a	ARDrone1	HoverAction1		c2																default_singleton	actn1	null	d1=0
operation_1d	ARDrone1	HoverAction1	c1																	default	actn1		
		HoverAction2			c3															default_terminal	actn2	null	d2=0
operation_1g	Hummingbird1	HoverAction1	c1																	default	actn1		
		HoverAction2	c1																	default	actn2		
		HoverAction3			c3															default_terminal	actn3	null	d3=0
operation_2a	ARDrone1	HoverAction1	c1																	default	actn1		
		HoverAction2			c3															default_terminal	actn2	null	d2=0
	Hummingbird1	HoverAction3		c2																default_singleton	actn3	null	d3=0
operation_2b	ARDrone1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10	c11							terminal_observer	actn2	null	d2=0
	Hummingbird1	HoverAction3								c8										singleton_subject	asst1	asst1	
operation_2e	ARDrone1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10	c11							terminal_observer	actn2	null	d2=0
	Hummingbird1	HoverAction3								c8										singleton_subject	asst1	asst1	
	Hummingbird2	HoverAction4								c8										singleton_subject	asst1	asst1	
operation_2g	Hummingbird1	HoverAction1					c5	c6	c7											leading_subject	actn1		
		HoverAction2					c5											c16		subject_constraint	asst1		
		HoverAction3										c10	c11	c12				c16	c17	terminal_subject_constraint	asst1	asst1	d3=0
	ARDrone1	HoverAction4						c6				c10			c13					observer_and_constrained_subject	asst1		
		HoverAction5																c16	c17	terminal_subject_constraint	asst1	asst1	d5=0
operation_2j	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2					c5													observer_precondition	asst1		
		HoverAction3										c10	c11							terminal_observer	actn3	null	d3=0
	Hummingbird2	HoverAction4				c4														subject_precondition	asst1		
		HoverAction5								c9										terminal_subject	asst1	asst1	
operation_2m	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2					c5													observer_precondition	asst1		
		HoverAction3										c10	c11	c12						terminal_constrained_observer	asst1	asst1	d3=0
	Hummingbird2	HoverAction4				c4														subject_precondition	asst1		
		HoverAction5						c6												constrained_subject	asst1		
		HoverAction6																c16	c17	terminal_subject_constraint	asst1	asst1	d6=0
operation_2p	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2					c5													observer_precondition	asst1		
		HoverAction3										c10	c11	c12						terminal_constrained_observer	asst1	asst1	d3=0
	Hummingbird2	HoverAction4				c4		c6												constrained_subject	asst1		
		HoverAction5						c6										c16		subject_constraint	asst1		
		HoverAction6																c16	c17	terminal_subject_constraint	asst1	asst1	d6=0
operation_2r	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10	c11							terminal_observer	actn2	null	d2=0
	Hummingbird2	HoverAction3				c4	c5													observer_precondition	asst1		
		HoverAction4									c9	c10	c11				c15			observer_and_terminal_subject	asst1	asst1	
	Hummingbird3	HoverAction5								c8										singleton_subject	asst1	asst1	
operation_2u	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10								default_observer	actn2		
		HoverAction3			c3															default_terminal	actn3	null	d3=0
	Hummingbird2	HoverAction4				c4	c5													observer_precondition	asst1		
		HoverAction5									c9	c10	c11				c15			observer_and_terminal_subject	asst1	asst1	
	Hummingbird3	HoverAction6								c8										singleton_subject	asst1	asst1	
operation_2v	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10	c11	c12						terminal_constrained_observer	asst1	asst1	d2=0
	Hummingbird2	HoverAction3				c4	c5													observer_precondition	asst1		
		HoverAction4						c6				c10			c13					observer_and_constrained_subject	asst1		
		HoverAction5																c16	c17	terminal_subject_constraint	asst1	asst1	d5=0
	Hummingbird3	HoverAction6								c8										singleton_subject	asst1	asst1	
operation_2w	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10	c11	c12						terminal_constrained_observer	asst1	asst1	d2=0
	Hummingbird2	HoverAction3				c4	c5													observer_precondition	asst1		
		HoverAction4						c6				c10			c13					observer_and_constrained_subject	asst1		
		HoverAction5																c16		subject_constraint	asst1		
	Hummingbird3	HoverAction6																c16	c17	terminal_subject_constraint	asst1	asst1	d6=0
		HoverAction7								c8										singleton_subject	asst1	asst1	
operation_2x	Hummingbird1	HoverAction1					c5													observer_precondition	asst1		
		HoverAction2										c10	c11	c12						terminal_constrained_observer	asst1	asst1	d2=0
	Hummingbird2	HoverAction3				c4	c5													observer_precondition	asst1		
		HoverAction4					c5	c6												constrained_subject	asst1		
		HoverAction5					c5											c16		subject_constraint	asst1		
		HoverAction6										c10	c11					c16	c17	terminal_subject_constraint	asst1	asst1	d6=0
	Hummingbird3	HoverAction7								c8										singleton_subject	asst1	asst1	

		DTMC asset module		PCTL
class ID	class description	action_id	last_action_id	property id
c1	default	action.id		
c2	default_singleton	action.id	null	action.id
c3	default_terminal	action.id	null	action.id
c4	subject_precondition	primary_asset.id		
c5	observer_precondition	primary_asset.id		
c6	constrained_subject	primary_asset.id		
c7	leading_subject	action.id		
c8	singleton_subject	primary_asset.id	primary_asset.id	
c9	terminal_subject	primary_asset.id	primary_asset.id	
c10	default_observer	action.id		
c11	terminal_observer	action.id	null	action.id
c12	terminal_constrained_observer	asset.id	asset.id	action.id
c13	observer_and_constrained_subject	primary_asset.id		
c14	observer_and_singleton_subject	primary_asset.id	primary_asset.id	
c15	observer_and_terminal_subject	primary_asset.id	primary_asset.id	
c16	subject_constraint	primary_asset.id		
c17	terminal_subject_constraint	primary_asset.id	primary_asset.id	action.id