Model: TMRModel

Place Attributes:				
Place Names	Initial Markings			
BadMajority	0			
CCFChannels	0			
Channel1	1			
Channel2	1			
Channel3	1			
ErraticChannels	0			
NoBadMajority	0			
SafeState	0			
SilentChannels	0			
UnsafeState	0			
Voters	2			

Timed Activity:	CCF
	Rate
Distribution Parameters	r_ccf
Activation Predicate	(none)
Reactivation Predicate	(none)
	case 1
	p_cd2d3
	case 2
Case Distributions	p_cc/2o/3
	case 3
	p_ccf2of3
	case 4
	1.3°n ccf2cf3

Timed Activity:	Channel1Failure			
	Rate			
Distribution Parameters	fr_asilB			
Activation Predicate	(none)			
Reactivation Predicate	(none)			
Case Distributions	case 1 p_channelsilent case 2			

Timed Activity:	Channel2Failure			
	Rate			
Distribution Parameters	fr_asilB			
Activation Predicate	(none)			
Reactivation Predicate	(none)			
Case Distributions	case 1 p_channelsilent Case 2 1-p_channelsilent			

Timed Activity:	Channel3Failure				
	Rate				
Distribution Parameters	fr_asilB				
Activation Predicate	(none)				
Reactivation Predicate	(none)				
	case 1				
Case Distributions	p_channelsient case 2				
	1-p_channelsilent				

Timed Activity:	votersFailure		
	Rate		
Distribution Parameters	fr_asiiD * Voters->Mark()		
Activation Predicate	(none)		

Reactivation Pre	edicate					(none)			
Instantaneous Activity: ErraticsOutput									
		case 1							
		n hada	ority						
Case Distribut	tions	p_badmajo	лцу						
	case 2								
		1-p_badma	ajority						
Instantaneous A	ctivity:	ity: SimultaneousFailuresType							
	Surity.	vity: SimultaneousFailuresType case 1							
Case Distribut	tions	p_channel:	silent						
		case 2							
		1-p_chann	elsilent						
						"			
Instantaneous A	ctivity:	case 1			prebi	ufferedMRM			
		0000 .							
Case Distribut	tions	1-p_MRM							
		case 2							
		p_MRM							
CatastrophicFailui	rο		Instantaneou	us Activ	ities With	out Cases:			
Odtastropriici diidi									
Input Gate	:				Check	c2of3Erratics			
Predicate									
Function			nnels->Mark()>=2						
Function		ErraticCha	nnels->Mark()=0;	:					
Input Gate):				CheckCat	astrophicFailure			
		SafeState-	>Mark()+UnsafeS	State->Ma					
Predicate	•	(BadMajor (SilentCh	rity->Mark()==1 annels->Mark()==	=2					
		&& Errati	icChannels->Mark	k()==1))					
Function		;							
Input Gate					heckNon	atastrophicFailure			
input Gate						audi opinor unute			
		(SilentCha	>Mark()+UnsafeS annels->Mark()==	state->Ma 3	rk()==0 &&				
Predicate	:	NoBadM	Mark()==0 ajority->Mark()==	1					
		I (SilentC	hannels->Mark()= Channels->Mark()	==1 &&					
Function		;							
						Ohennelet O			
Output Gat	e:					Channels12			
		l{	I1->Mark()+Chanr	nel2->Mar	k()==2)				
Function		Channel2-:	>Mark()=0; >Mark()=0;						
	CCFChanr }	nels->Mark()=2;							
Output Gat	e:				CCFC	Channels123			
		if (Channel	I1->Mark()+Chanr	nel2->Mar	k()+Channel3-	>>Mark()==3)			
Function		Channel2-	>Mark()=0; >Mark()=0;						
		Channel3-:	>Mark()=0; >Mark()=0; nels->Mark()=3;						
		}							
Output Gat	e:				CCF	Channels13			
		if (Chann-	I1->Mark()+Chanr	nel? - Mr					
Function		l{	n->Mark()+Chanr >Mark()=0;	o->iviar					
i unction		Channel3-:	>Mark()=0; >Mark()=0; nels->Mark()=2;						
		}							
Output Gat	e:				CCF	Channels23			
		if (Chann-	l3->Mark()+Chanr	nel2 - Mr					
Function		{ Channol3	- Mark()=0:	nei∠->Mar	n()==2)				
runction		Channel2-:	>Mark()=0; >Mark()=0; nels->Mark()=2;						
		}	юю->магк()=2;						
Output Gat	e:	SimultanaqueEvratiatEailurae							
		SimultaneousErratictFailures							
Function		ErraticCha CCFChanr	nnels->Mark()+=0 nels->Mark()=0;	UCFChan	nels->Mark();				
0.11.12					Diment.	oueCilentEeile			
Output Gat						ousSilentFailures			
Function		SilentChar CCFChanr	nnels->Mark()+=C nels->Mark()=0;	CFChann	els->Mark();				
	Set Study: TMRParameter:								
Experiment		iable	Type		'alue	1			
	fr_asilB		double	1.0E-7	-	1			
	fr_asiID		double	1.0E-8					
Evnovim+ 1	p_MRM	niorit :	double	0.95					
Experiment 1	p_badm p_ccf2ot		double double	0.1					
		elsilent	double	0.5		1			
r_ccf double 1.0E-9									
Dorform	nce Vari	ahlo Ma	del: TMRRev	vard					
		Child	Model Name		odel				
Top Level Model I	ntormati		l Type	SAN M					
			D/		inh!-	of cotate			
Affecting Models	TMRN	lodel	Performar	ice var	iabie : p_s	aiesidie			
Impulse Functions									
		ırd is ovo	er all Available	Model	5)				
(Reward is over all Available Models) Reward Function									
if (TMRModel->SafeState->Mark()==1) return 1;									
Туре			timate Mean						
				Bound o	n Interval E	stimate			
L	Option				stimate				
Simulator Statistic	s	Estimate out of Range Probabilities							
	Param	Confidence Level is Relative eters Start Time 1000.0,2000.0,3000.0,4000.0,5000.0,6000.0,7000.0,8000.0							
		Co	Confidence Level 0.95						
	Contid	dence Confidence Interval 0.1							
			Dorform	Va	hle · ~ · ·				
			Performano	o varia	יייי∈ . h_un	JuioJlato			

Impulse Functions				
Reward Function	(Reward is over all Available Models)			
	if (TMRModel->U	nsafeState->Mark()==1) retur	n 1;	
	Туре	Instant of Time		
	l .	Estimate Mean		
		Include Lower Bound on Interval Estimate		
		Include Upper Bound on Interval Estimate		
Simulator Statistics		Estimate out of Range Probabilities		
		Confidence Level is Relative		
Parameters		Start Time	1000.0,2000.0,3000.0,4000.0,5000.0,6000.0,7000.0,8000.0,	
	Confidence	Confidence Level	0.95	
	Cormidence	Confidence Interval	0.1	

Performance Variable : mttf_safestate				
Affecting Models	TMRModel			
Impulse Functions				
Reward Function	(Reward is	over all Available Mode	ls)	
	if (TMRModel->SafeState->Mark()==0) return 1;			
	Туре	Interval of Time		
	Options	Estimate Mean		
		Include Lower Bound on Interval Estimate		
		Include Upper Bound on Interval Estimate		
Simulator Statistics		Estimate out of Range Probabilities		
Simulator Statistics		Confidence Level is Relative		
	Parameters	Start Time	0,	
		Stop Time	1000000000000,	
	Confidence	Confidence Level	0.95	
	Cormidence	Confidence Interval	0.1	

Performance Variable : mttf_unsafestate						
Affecting Models	TMRModel					
Impulse Functions						
Reward Function	(Reward is	over all Available Mode	els)			
	if (TMRModel->UnsafeState->Mark()==0) return 1;					
	Туре	Interval of Time				
	Options	Estimate Mean				
		Include Lower Bound on Interval Estimate				
		Include Upper Bound on Interval Estimate				
Simulator Statistics		Estimate out of Range Probabilities				
Simulator Statistics		Confidence Level is Relative				
	Parameters	Start Time	0.0,			
		Stop Time	1000000000000,			
	Confidence	Confidence Level	0.95			
		Confidence Interval	0.1			

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