

# Extension of paper: On Modifications Towards Improvement of the Exploitation Phase for SOMA Algorithm with Clustering-aided Migration and Adaptive Perturbation Vector Control

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$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	✓	×	✓	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	×	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	✓	✓	✓	$O$	-	×	×	×
$M1$	-	-	✓	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE I: Holm-Bonferroni procedure for parametrization vector  $C=1$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	✓	×	✓	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	✓	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	✓	✓	✓	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE II: Holm-Bonferroni procedure for parametrization vector  $C=2$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	✓	✓	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	✓
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	✓
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	×	×	✓	$O$	-	✓	✓	×
$M1$	-	-	×	✓	$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	✓	✓
$M2$	-	-	-	✓	$M2$	-	-	-	✓	$M2$	-	-	-	✓	$M2$	-	-	-	✓
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	✓	✓	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE III: Holm-Bonferroni procedure for parametrization vector  $C=3$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	✓	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	✓	✓	✓
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	✓	✓
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$															
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$												
$O$	-	✓	✓	✓	$O$	-	✓	×	✓										
$M1$	-	-	✓	✓	$M1$	-	-	×	×										
$M2$	-	-	-	✓	$M2$	-	-	-	×										
$M3$	-	-	-	-	$M3$	-	-	-	-										

TABLE IV: Holm-Bonferroni procedure for parametrization vector  $C=4$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	✓	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	×	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	✓	✓	✓
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	✓	✓
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	✓
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$															
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$												
$O$	-	✓	✓	×	$O$	-	×	×	×										
$M1$	-	-	×	✓	$M1$	-	-	×	×										
$M2$	-	-	-	✓	$M2$	-	-	-	×										
$M3$	-	-	-	-	$M3$	-	-	-	-										

TABLE V: Holm-Bonferroni procedure for parametrization vector  $C=5$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	✓	✓	$M1$	-	-	×	✓
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	✓
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$															
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$												
$O$	-	✓	✓	✓	$O$	-	×	×	×										
$M1$	-	-	×	✓	$M1$	-	-	×	×										
$M2$	-	-	-	✓	$M2$	-	-	-	×										
$M3$	-	-	-	-	$M3$	-	-	-	-										

TABLE VI: Holm-Bonferroni procedure for parametrization vector  $C=6$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	✓	×	×	$O$	-	✓	✓	✓
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	✓	✓	×	$O$	-	×	×	×
$M1$	-	-	✓	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE VII: Holm-Bonferroni procedure for parametrization vector  $C=7$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	✓	×
$M1$	-	-	✓	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	✓	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	✓	✓	×	$O$	-	×	×	×
$M1$	-	-	✓	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE VIII: Holm-Bonferroni procedure for parametrization vector  $C=8$  on 10D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	✓	✓	✓	$O$	-	×	×	×	$O$	-	✓	×	✓	$O$	-	×	✓	×
$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	✓	✓	$M1$	-	-	×	×
$M2$	-	-	-	✓	$M2$	-	-	-	×	$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	✓	$O$	-	✓	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	✓	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	✓	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE IX: Holm-Bonferroni procedure for parametrization vector  $C=1$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$								
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$					
$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	√	×	×	√	$O$	-	√	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	√	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$									
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$						
$O$	-	×	×	×	×	$O$	-	×	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×		
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×		
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-		

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE X: Holm-Bonferroni procedure for parametrization vector  $C=2$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	√	√	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	√
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	×	$O$	-	√	×	×	$O$	-	√	√	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	√	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	√	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	×	×	√	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	√	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE XI: Holm-Bonferroni procedure for parametrization vector  $C=3$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	√	√	√	$O$	-	√	×	×	$O$	-	√	×	×	$O$	-	×	×	×
$M1$	-	-	√	√	$M1$	-	-	×	×	$M1$	-	-	√	√	$M1$	-	-	×	×
$M2$	-	-	-	√	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	√	×	√	$O$	-	×	×	×	$O$	-	×	×	√	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	√	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	√	$M2$	-	-	-	√	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-

  

$f_9$				$f_{10}$					
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$		
$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-

TABLE XII: Holm-Bonferroni procedure for parametrization vector  $C=4$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$										
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$							
$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×			
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×			
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×			
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-			
$f_5$				$f_6$				$f_7$				$f_8$										
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$							
$O$	-	√	×	×	×	$O$	-	√	√	×	×	$O$	-	√	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	×	$M1$	-	-	×	×	×	$M1$	-	-	×	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$																		
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$															
$O$	-	×	×	×	√	$O$	-	×	×	×												
$M1$	-	-	×	×	√	$M1$	-	-	×	×												
$M2$	-	-	-	×	√	$M2$	-	-	-	×												
$M3$	-	-	-	-	-	$M3$	-	-	-	-												

TABLE XIII: Holm-Bonferroni procedure for parametrization vector  $C=5$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$										
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$							
$O$	-	×	×	×	×	$O$	-	×	×	×	×	$O$	-	√	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	×	$M1$	-	-	×	×	×	$M1$	-	-	√	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-
$f_5$				$f_6$				$f_7$				$f_8$										
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$							
$O$	-	√	×	×	√	$O$	-	×	×	×	×	$O$	-	×	×	×	√	$O$	-	×	×	×
$M1$	-	-	×	×	×	$M1$	-	-	×	×	×	$M1$	-	-	×	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	×	$M2$	-	-	-	×	×	$M2$	-	-	-	√	×	$M2$	-	-	-	×
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$																		
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$															
$O$	-	×	×	×	×	$O$	-	×	×	×	×											
$M1$	-	-	×	×	×	$M1$	-	-	×	×	×											
$M2$	-	-	-	×	×	$M2$	-	-	-	×	×											
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-											

TABLE XIV: Holm-Bonferroni procedure for parametrization vector  $C=6$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$										
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$							
$O$	-	×	×	×	√	$O$	-	×	×	×	×	$O$	-	×	×	×	$O$	-	√	×	×	
$M1$	-	-	×	×	√	$M1$	-	-	×	×	×	$M1$	-	-	×	×	×	$M1$	-	-	×	×
$M2$	-	-	-	√	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×	×	$M2$	-	-	-	×
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-
$f_5$				$f_6$				$f_7$				$f_8$										
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$							
$O$	-	×	×	×	×	$O$	-	√	×	×	×	$O$	-	×	×	×	√	$O$	-	×	×	×
$M1$	-	-	√	×	×	$M1$	-	-	√	×	×	$M1$	-	-	×	×	√	$M1$	-	-	×	×
$M2$	-	-	-	√	×	$M2$	-	-	-	×	×	$M2$	-	-	-	√	×	$M2$	-	-	-	×
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$																		
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$															
$O$	-	×	×	×	√	$O$	-	√	×	×	×											
$M1$	-	-	×	×	√	$M1$	-	-	√	√	√											
$M2$	-	-	-	√	√	$M2$	-	-	-	×	×											
$M3$	-	-	-	-	-	$M3$	-	-	-	-	-											

TABLE XV: Holm-Bonferroni procedure for parametrization vector  $C=7$  on 20D.

$f_1$				$f_2$				$f_3$				$f_4$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_5$				$f_6$				$f_7$				$f_8$							
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$				
$O$	-	√	×	√	$O$	-	√	×	×	$O$	-	×	×	√	$O$	-	×	×	×
$M1$	-	-	×	×	$M1$	-	-	√	×	$M1$	-	-	×	×	$M1$	-	-	×	×
$M2$	-	-	-	×	$M2$	-	-	-	×	$M2$	-	-	-	√	$M2$	-	-	-	×
$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-	$M3$	-	-	-	-
$f_9$				$f_{10}$															
$O$	$M1$	$M2$	$M3$	$O$	$M1$	$M2$	$M3$												
$O$	-	×	×	√	$O$	-	√	×	×										
$M1$	-	-	×	×	$M1$	-	-	√	√										
$M2$	-	-	-	√	$M2$	-	-	-	×										
$M3$	-	-	-	-	$M3$	-	-	-	-										

TABLE XVI: Holm-Bonferroni procedure for parametrization vector  $C=8$  on 20D.