Figure 16.1:

1 = CAN conjecture aperiodic
0 = CANNOT conjecture aperiodic

PVA = [p 17 26] is XCA

veloc

acc	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9 ...
001:	1																																						
002:	0	1																																					
003:	1	1	1																																				
004:	0	0	0	1																																			
005:	1	1	1	1	1																																		
006:	0	1	0	1	0	1																																	
007:	1	1	1	1	1	1	1																																
008:	0	0	0	0	0	0	0	1																															
009:	1	1	1	1	1	1	1	1	1																														
010:	0	1	0	1	0	1	0	1	0	1																													
011:	1	1	1	1	1	1	1	1	1	1	1																												
012:	0	0	0	1	0	0	0	1	0	0	0	1																											
013:	1	1	1	1	1	1	1	1	1	1	1	1	1																										
014:	0	1	0	1	0	1	0	1	0	1	0	1	0	1																									
015:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																								
016:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1																							
017:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																						
018:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1																					
019:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																				
020:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1																			
021:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																		
022:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1																	
023:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																
024:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1															
025:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1														
026:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1													
027:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1												
028:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1											
029:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										
030:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1									
031:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
032:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1							
033:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
034:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1					
035:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
036:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1			
037:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
038:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	
039:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
040:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
041:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
042:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
043:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
044:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
045:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
046:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
047:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
048:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
049:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
050:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
051:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
052:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
053:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
054:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
055:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
056:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
057:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
058:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
059:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
060:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
061:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
062:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
063:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
064:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
065:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
066:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
067:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
068:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0

Figure 16.2:

xform 0

001:	1				
002:	0	1			
003:	1	1	1		
004:	0	0	0	1	
005:	1	1	1	1	1
006:	0	1	0	1	0 1

- FOR acc 2^1 = 2: all 0 then 1
- FOR acc 2^1 + 1 to 2^2 – 1: duplicate acc 1 to 2^1 -1 & extend

Figure 16.3:

xform 1

001:	1						
002:	0	1					
003:	1	1	1				
004:	0	0	0	1			
005:	1	1	1	1	1		
006:	0	1	0	1	0	1	
007:	1	1	1	1	1	1	1
008:	0	0	0	0	0	0	0 1
009:	1	1	1	1	1	1	1 1 1
010:	0	1	0	1	0	1	0 1 0 1

- FOR acc 2^2 = 4: all 0 then 1
- FOR acc 2^2 + 1 to 2^3 – 1: duplicate acc 1 to 2^2 -1 & extend

Figure 16.4:

xform 2

001:	1							
002:	0	1						
003:	1	1	1					
004:	0	0	0	1				
005:	1	1	1	1	1			
006:	0	1	0	1	0	1		
007:	1	1	1	1	1	1	1	
008:	0	0	0	0	0	0	0	1
009:	1	1	1	1	1	1	1	1 1
010:	0	1	0	1	0	1	0	1 0 1
011:	1	1	1	1	1	1	1	1 1 1 1
012:	0	0	0	1	0	0	0	1 0 0 0 1
013:	1	1	1	1	1	1	1	1 1 1 1 1 1
014:	0	1	0	1	0	1	0	1 0 1 0 1
015:	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1
016:	0	0	0	0	0	0	0	0 0 0 0 0 0 0 0 1
017:	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1
018:	0	1	0	1	0	1	0	1 0 1 0 1 0 1 0 1
019:	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1 1

- FOR acc 2^3 = 8: all 0 then 1
- FOR acc 2^3 + 1 to 2^4 – 1: duplicate acc 1 to 2^3 -1 & extend

Figure 16.5:

xform 3

001:	1															
002:	0	1														
003:	1	1	1													
004:	0	0	0	1												
005:	1	1	1	1	1											
006:	0	1	0	1	0	1										
007:	1	1	1	1	1	1	1									
008:	0	0	0	0	0	0	0	1								
009:	1	1	1	1	1	1	1	1	1							
010:	0	1	0	1	0	1	0	1	0	1						
011:	1	1	1	1	1	1	1	1	1	1	1					
012:	0	0	0	1	0	0	0	1	0	0	0	1				
013:	1	1	1	1	1	1	1	1	1	1	1	1	1			
014:	0	1	0	1	0	1	0	1	0	1	0	1	0	1		
015:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
016:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
017:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1
018:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1 0 1
019:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1
020:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1 0 0 0 1
021:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1
022:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1 0 1 0 1
023:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1
024:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1 0 0 0 0 0 0 1
025:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1
026:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1 0 1 0 1 0 1 0 1
027:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1
028:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1 0 0 0 1 0 0 0 1
029:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1
030:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1 0 1 0 1 0 1 0 1 0 1
031:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1
032:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
033:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
034:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1 0 1 0 1 0 1 0 1 0 1 0 1
035:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
036:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1 0 0 0 1 0 0 0 1 0 0 0 1

- FOR acc 2^4 = 16: all 0 then 1
- FOR acc 2^4 + 1 to 2^5 – 1: duplicate acc 1 to 2^4 -1 & extend

Figure 16.6:

- FOR acc 2^5 = 32: all 0 then 1
- FOR acc 2^5 + 1 to 2^6 – 1: duplicate acc 1 to 2^5 -1 & extend

xform 4

001:	1																															
002:	0	1																														
003:	1	1	1																													
004:	0	0	0	1																												
005:	1	1	1	1	1																											
006:	0	1	0	1	0	1																										
007:	1	1	1	1	1	1	1																									
008:	0	0	0	0	0	0	0	1																								
009:	1	1	1	1	1	1	1	1	1																							
010:	0	1	0	1	0	1	0	1	0	1																						
011:	1	1	1	1	1	1	1	1	1	1	1																					
012:	0	0	0	1	0	0	0	1	0	0	0	1																				
013:	1	1	1	1	1	1	1	1	1	1	1	1	1																			
014:	0	1	0	1	0	1	0	1	0	1	0	1	0	1																		
015:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																	
016:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1																
017:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
018:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1														
019:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1													
020:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1												
021:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
022:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1										
023:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
024:	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1								
025:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
026:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1						
027:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
028:	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1				
029:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
030:	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1		
031:	1	1	1