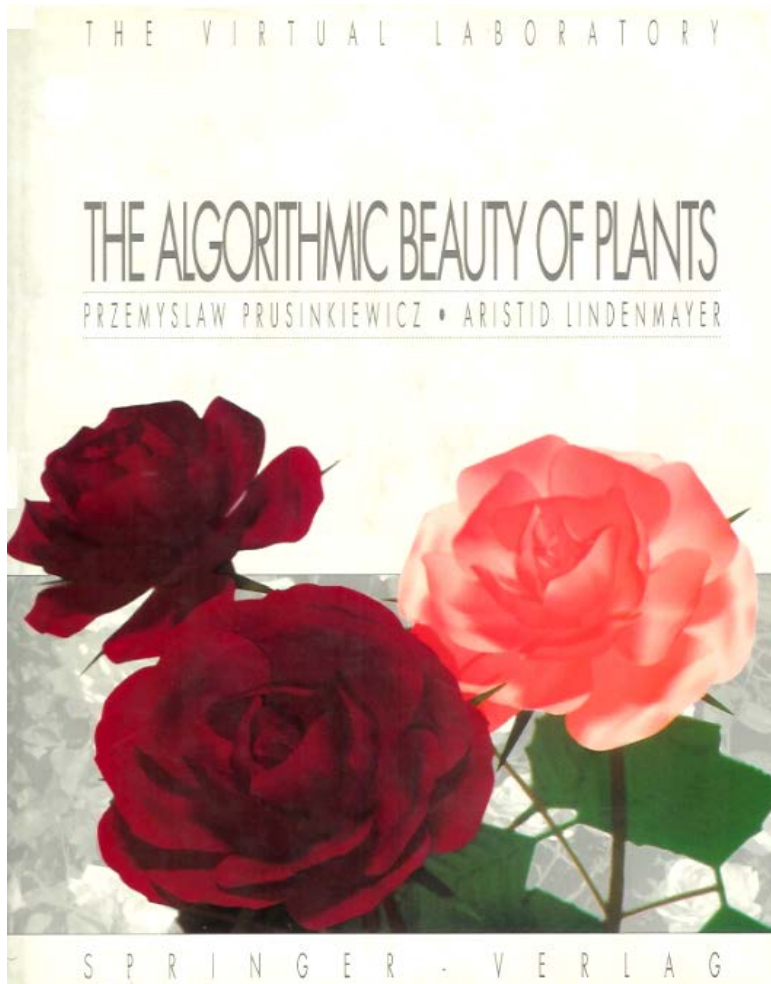


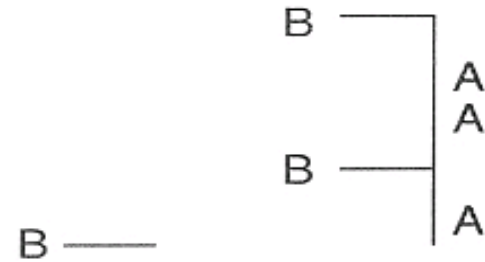
# L-System



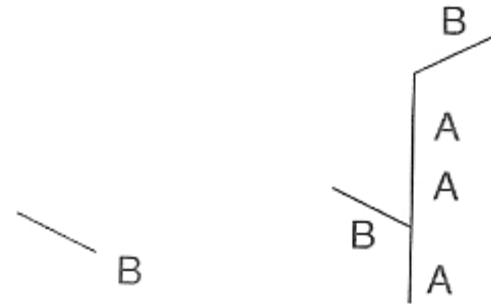
**Aristid Lindenmayer (1925-1989)**

# 식물체 성장모델링

- $A \rightarrow AA$   
 $B \rightarrow A[B]AA[B]$



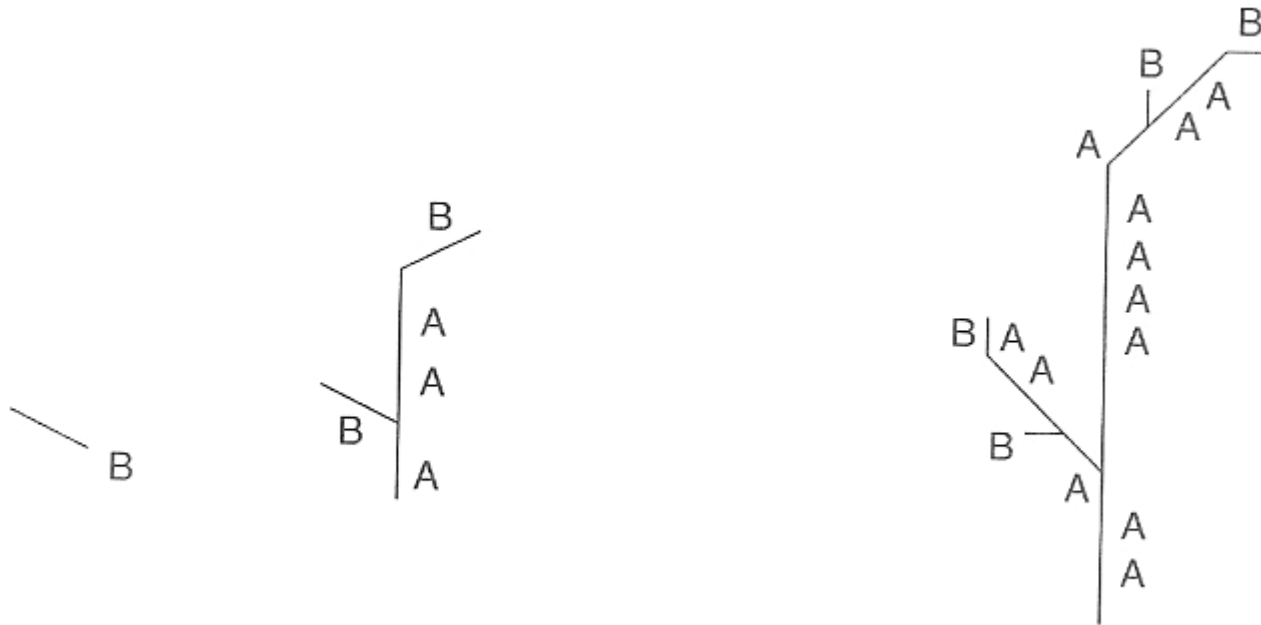
- $A \rightarrow AA$   
 $B \rightarrow A[B]AA(B)$



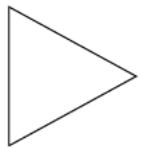
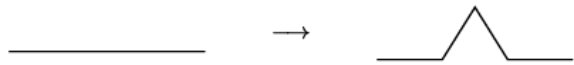
# 식물체 성장모델링

$$B \Rightarrow A[B]AA(B)$$

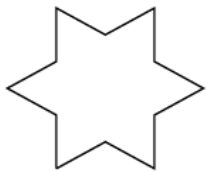
$$\Rightarrow AA[A[B]AA(B)]AAAA(A[B]AA(B))$$



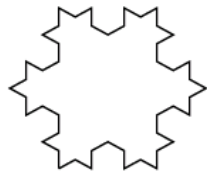
# 문법기반 모델링



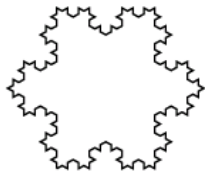
n = 0



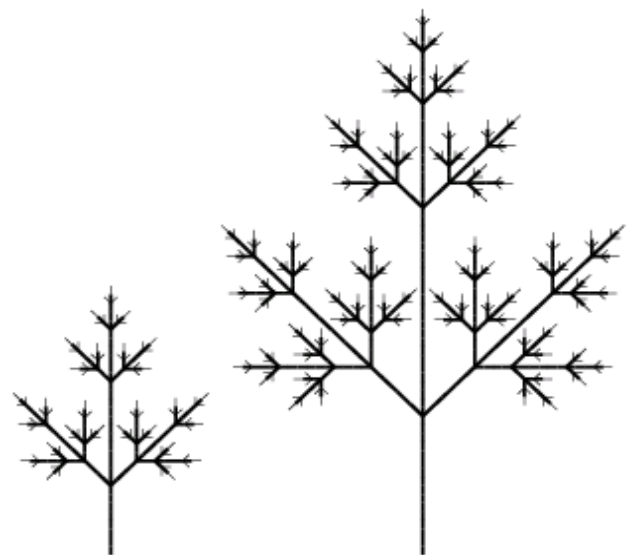
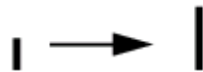
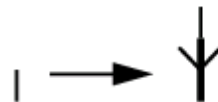
n = 1



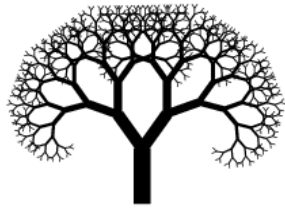
n = 2



n = 3



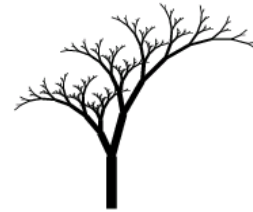
# 다양한 형태의 나무 모델링



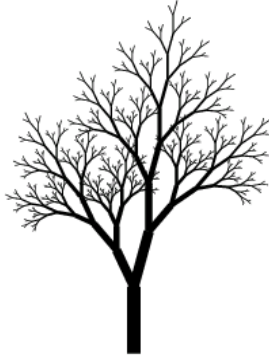
a



b



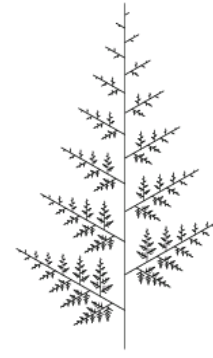
c



d



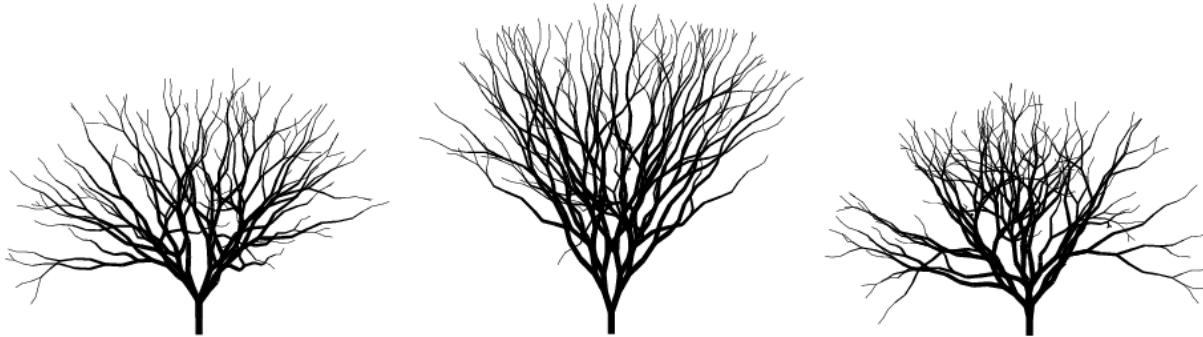
e



f



# 다양한 형태의 나무 모델링



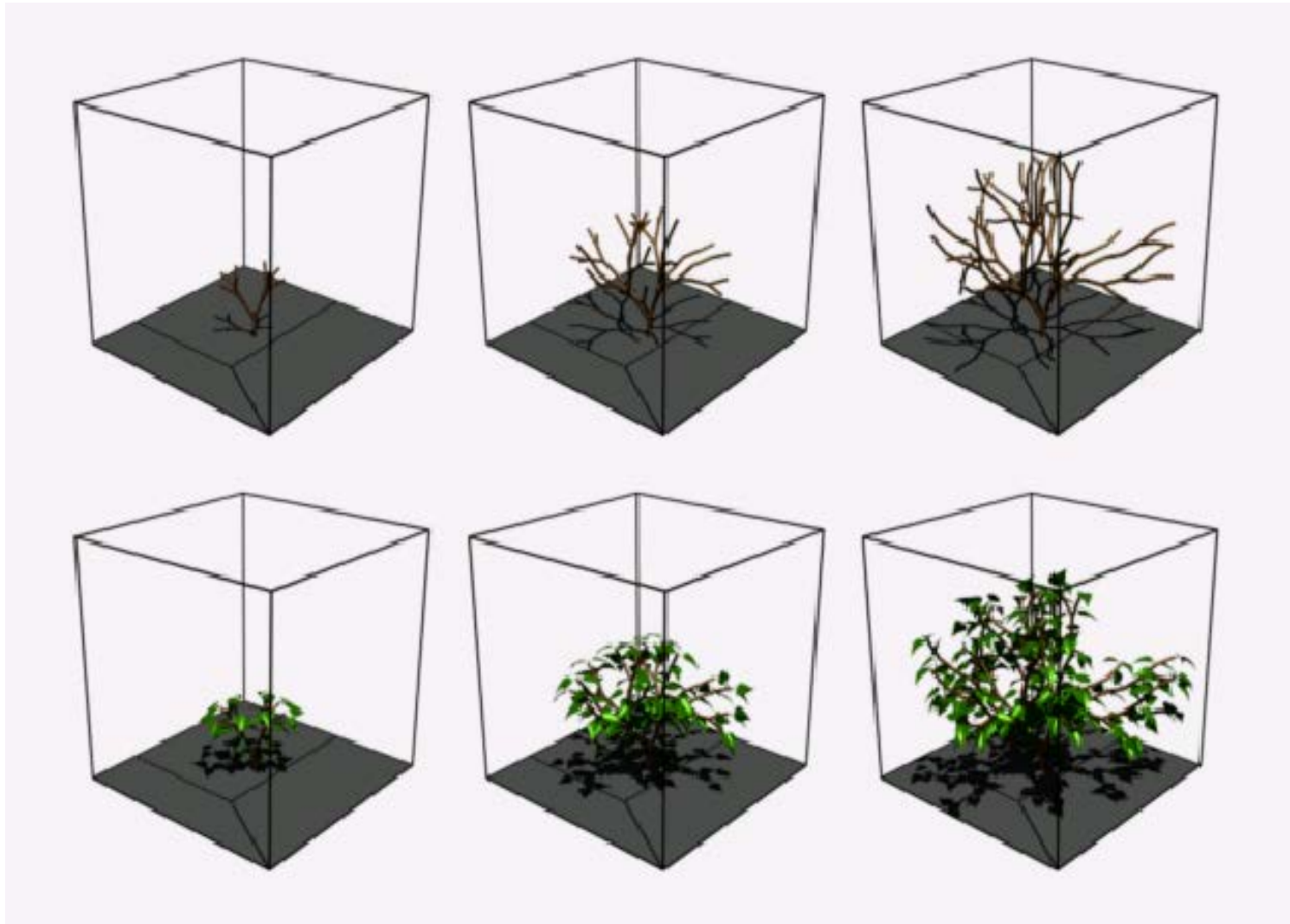
# 식물 모델링 프로그램



```
#define S          /* seed shape */  
#define R          /* ray floret shape */  
#include M N O P  /* petal shapes */
```

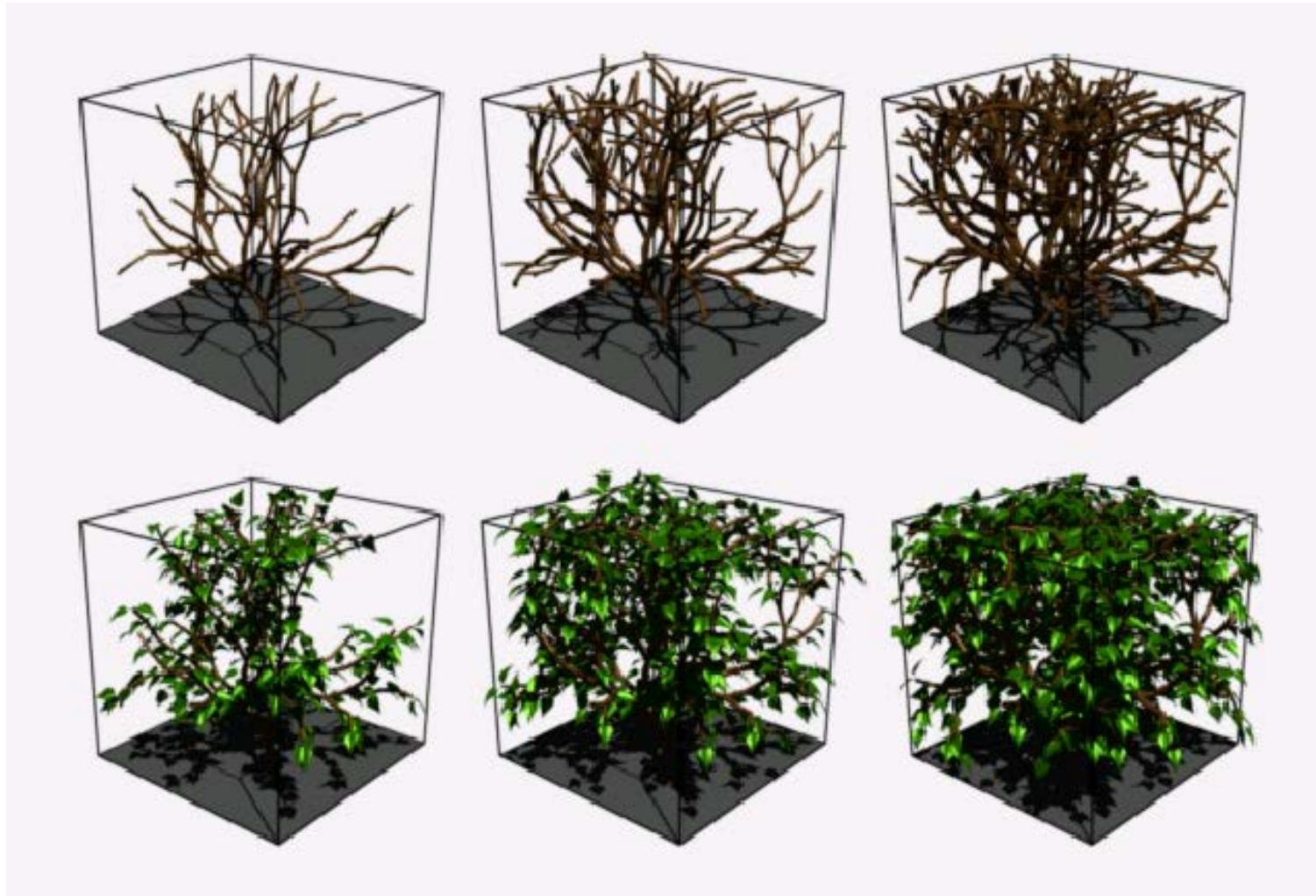
```
 $\omega$  : A(0)  
p1 : A(n) : *  $\rightarrow$  +(137.5) [f(n0.5)C(n)]A(n+1)  
p2 : C(n) : n  $\leq$  440  $\rightarrow$  ~S  
p3 : C(n) : 440 < n & n  $\leq$  565  $\rightarrow$  ~R  
p4 : C(n) : 565 < n & n  $\leq$  580  $\rightarrow$  ~M  
p5 : C(n) : 580 < n & n  $\leq$  595  $\rightarrow$  ~N  
p6 : C(n) : 595 < n & n  $\leq$  610  $\rightarrow$  ~O  
p7 : C(n) : 610 < n  $\rightarrow$  ~P
```

# 식물성장 모델링

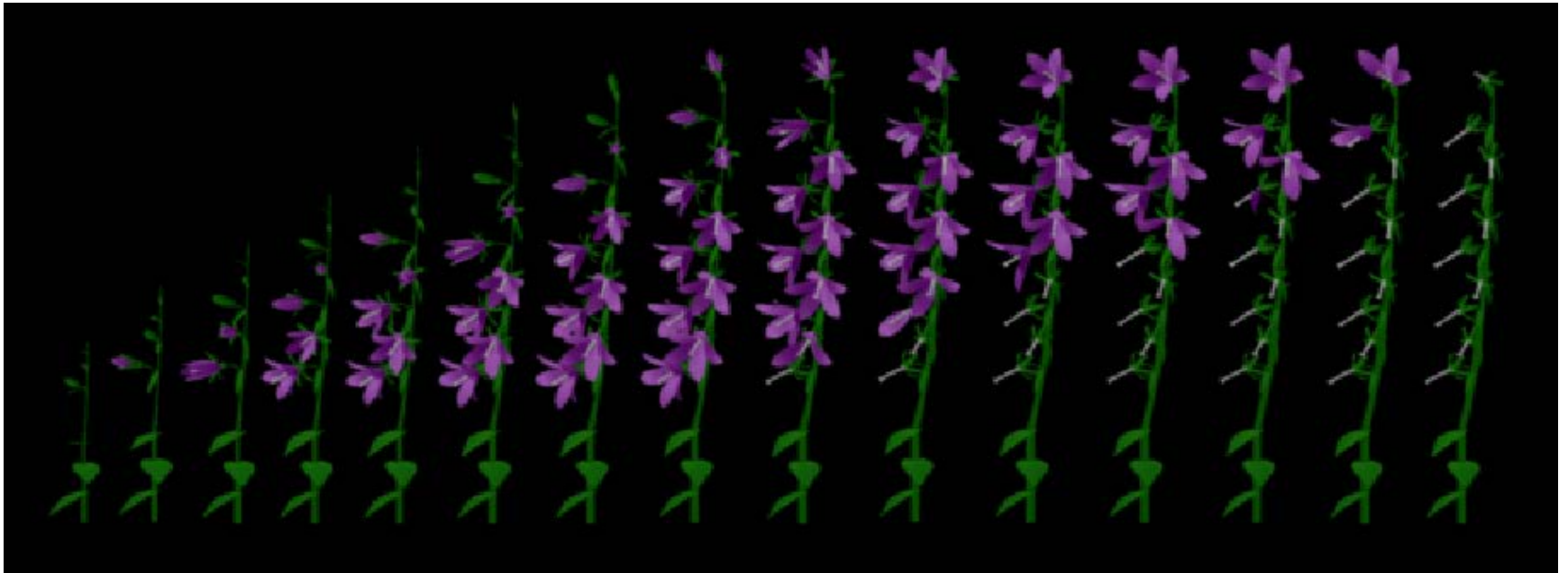




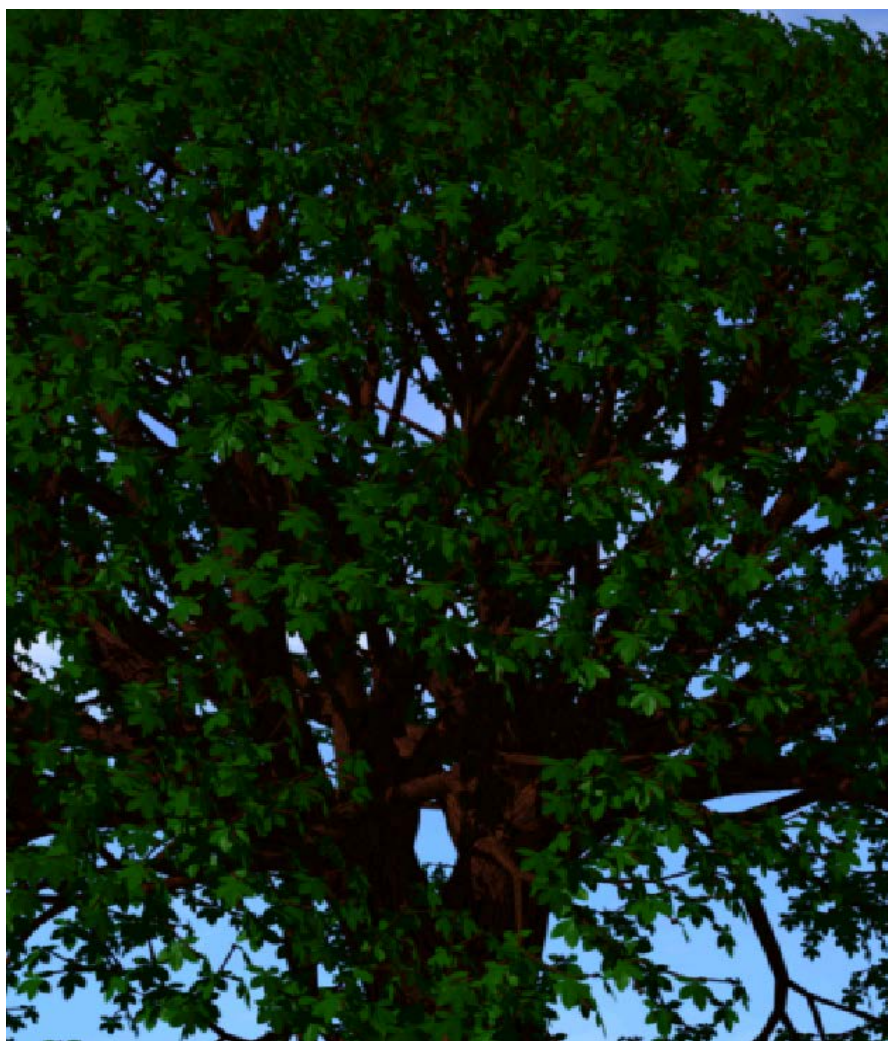
# 식물성장 모델링



# 식물성장 모델링



# 나무 모델링 및 렌더링



# 식물체 모델링 및 렌더링

