ACCESS
July 2001

bush fractal

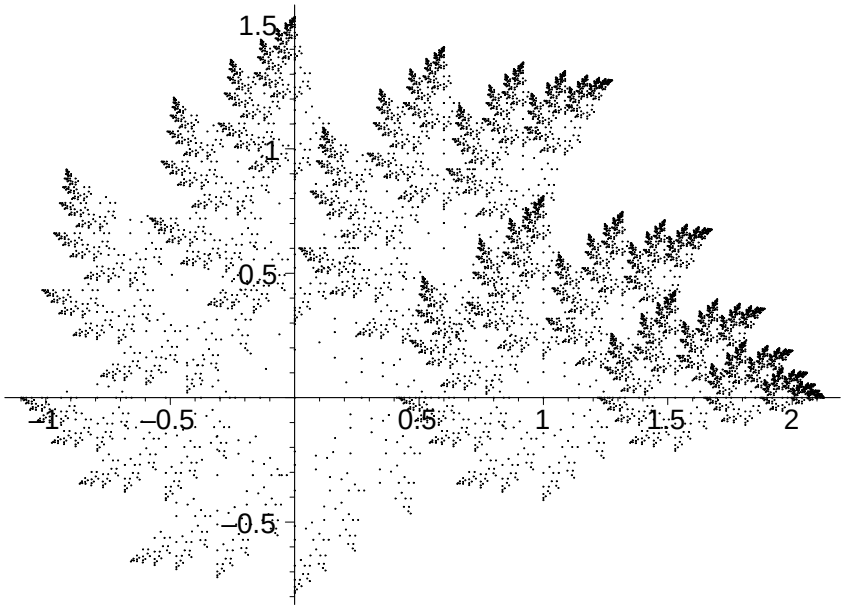
An example from the book "Fractals - Endlessly repeated geometric figures", by Hans Lauwerier, page 95.

```
> restart:
  with(plots):
Warning, the name changecoords has been redefined
> Digits:=4:
>
> AFFINE1:=proc(X,a,b,c,d,e,f)
  RETURN(evalf([a*X[1]+b*X[2]+e,
               c*X[1]+d*X[2]+f]));
  end:
>
> f1:=P->AFFINE1(P,.6,-.6,.6,.6,0,0);
      #A rotation (by Pi/4), an rescaling
  f2:=P->AFFINE1(P,.53,0,0,.53,1,0);
      #pure scaling by .53, with translation
```

$$f1 := P \rightarrow \mathrm{AFFINE1}(P, .6, -.6, .6, .6, 0, 0)$$

$$f2 := P \rightarrow \mathrm{AFFINE1}(P, .53, 0, 0, .53, 1, 0)$$

```
> S:={[0,0]}:
> for i from 1 to 13 do
  S1:=map(f1,S):
  S2:=map(f2,S):
  S:=‘union‘(S1,S2):
  od:
>
> pointplot(S,symbol=point,scaling=constrained,
     title=‘Figure 5.16 page 95 Lauwerier‘);
>
```


1.5
1
0.5
–1
–0.5
0.5
1
1.5
2
–0.5

>