Una dimension

May 13, 2018

```
In [32]: def vecinos(k,L):
             return tuple((L[(k-1)%len(L)],L[(k)%len(L)],L[(k+1)%len(L)]))
```

```
In [33]: def lista(k):
             L = []
             for i in xsrange(2^k):
                 L.append(tuple(i.digits(base=2,padto=k)))
             return L
```

```
In [34]: def diccionario(k):
             C = zip(lista(3),(k).digits(base=2,padto=8))
             return dict(C)
```

```
In [35]: d = diccionario(10)
```

```
In [36]: def siguiente(L,k):
             Ret = []
             dic = diccionario(k)
             for i in xsrange(len(L)):
                 vec = vecinos(i,L)
                 Ret.append(dic[vec])
             return Ret
```

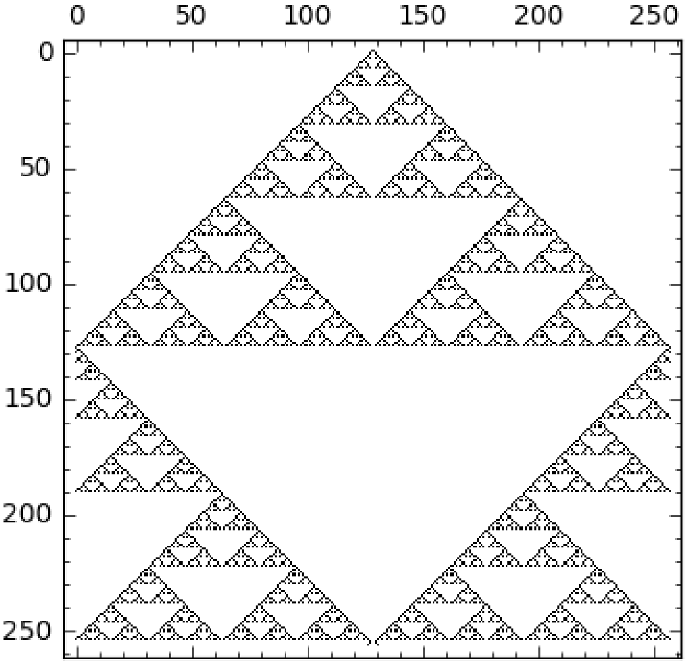
```
In [37]: def evolucion(L,k,N):
             ret = [L]
             for int in xsrange(N):
                 L = siguiente(L,k)
                 ret.append(L)
             return ret
```

```
In [39]: R = [randint(0,1) for int in xsrange(10)]
         print evolucion(R,5,15)
```

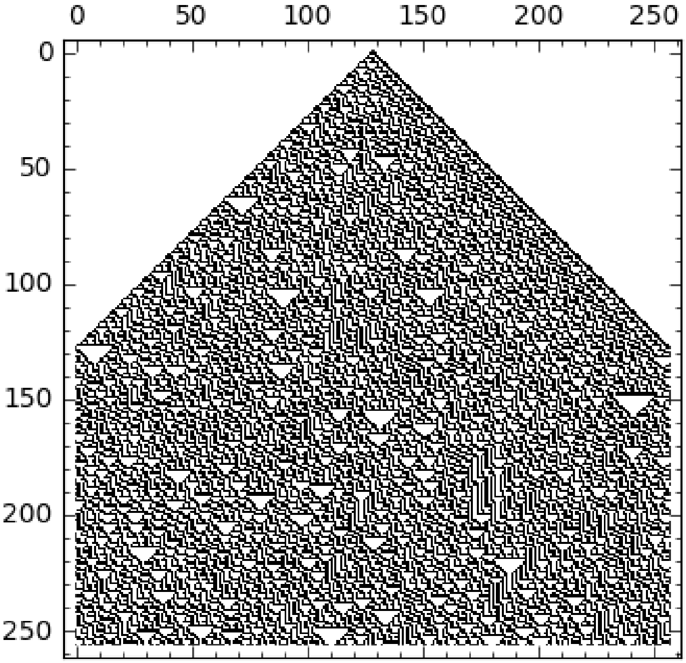
```
[[1, 0, 0, 1, 1, 1, 1, 1, 0, 0], [1, 0, 0, 0, 0, 0, 0, 0, 0, 0], [1, 0, 1, 1, 1, 1, 1, 1, 1, 0
```

```
In [48]: for k in [18,30,50,110]:
             print "El valor de k es",k
             matrix_plot(matrix(ZZ,evolucion([0]*128+[1]+[0]*128,k,256))).show(figsize=5)
```

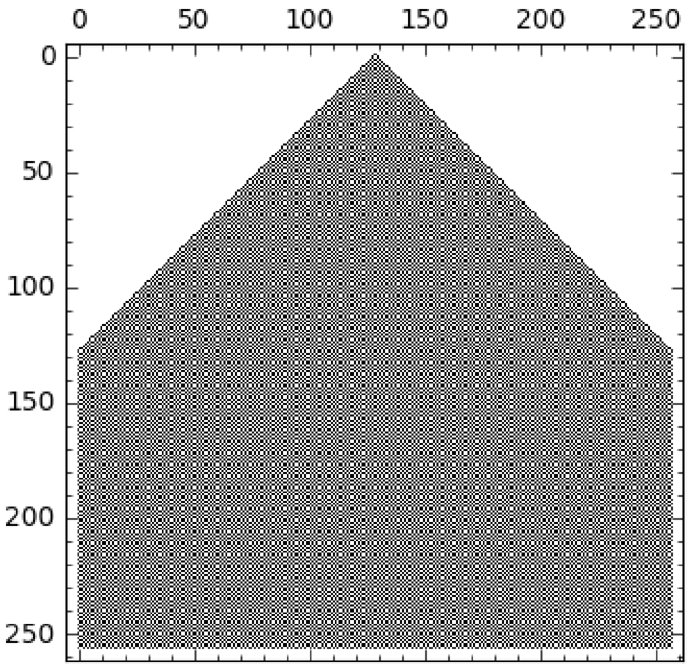
```
El valor de k es 18
```



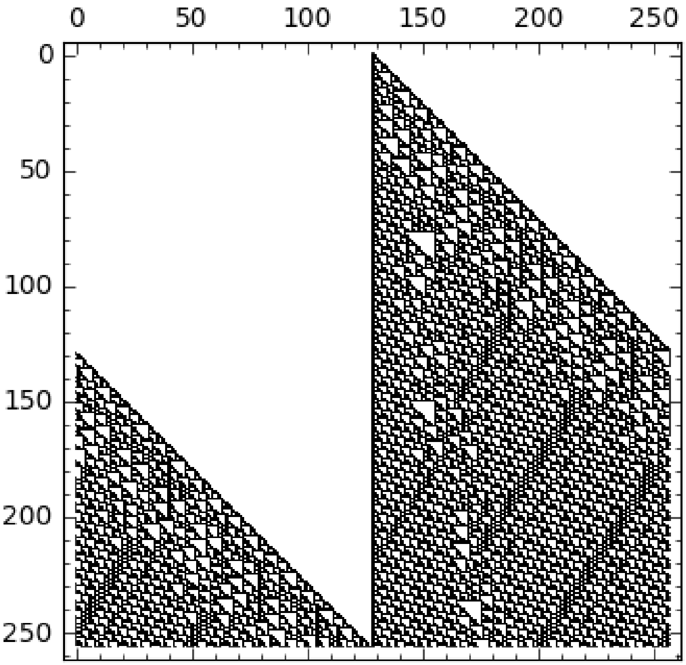
```
El valor de k es 30
```



```
El valor de k es 50
```



```
El valor de k es 110
```



```
In [ ]:
```