El juego de la vida

May 13, 2018

In [29]:
```
def vecinos(N,(n,m)):
    return [(n-1%N,m%N),(n%N,(m-1)%N),((n+1)%N,m%N),(n%N,(m+1)%N),\
            ((n-1)%N,(m-1)%N),((n-1)%N,(m+1)%N),\
            ((n+1)%N,(m+1)%N),((n+1)%N,(m-1)%N)]


def siguiente(M):
    M2 = M;
    for p in xsrange(len(M)):
        for q in xsrange(len(M)):
            L = vecinos(len(M),(p,q))
            vivos = len([1 for par in L if M[par[0],par[1]] == 1])
            if vivos < 2 and M[p,q] == 1:
                M2[p,q] = 0
            elif (vivos == 2 or vivos == 3) and M[p,q] == 1:
                M2[p,q] = 1
            elif vivos > 3 and M[p,q] == 1:
                M2[p,q] = 0
            elif vivos == 3 and M[p,q] == 0:
                M2[p,q] = 1
            else:
                M2[p,q] = 0
    return M2

def iterar_hasta(siguiente,M,T):
    L = [M]
    for int in xsrange(T):
        M = siguiente(M)
        L.append(M)
    return L
```

In [30]:
```
M = [[randint(0,1) for int in xsrange(30)] for int in xsrange(30)]
print siguiente(M) + "\n" + M
```

```
TypeError                                 Traceback (most recent call last)

<ipython-input-30-3743bc1aaf25> in <module>()
  1 M = [[randint(Integer(0),Integer(1)) for int in xsrange(Integer(30))] for int in xs
----> 2 print siguiente(M) + "\n" + M


<ipython-input-29-e0e4c5d281a0> in siguiente(M)
  8         for q in xsrange(len(M)):
  9             L = vecinos(len(M),(p,q))
---> 10             vivos = len([Integer(1) for par in L if M[par[Integer(0)],par[Integer(
 11             if vivos < Integer(2) and M[p,q] == Integer(1):
 12                 M2[p,q] = Integer(0)


TypeError: list indices must be integers, not tuple
```

```
In [22]: L = (0,4)
         print L[0]
```

```
0
```