This miniproject asks you prove a conjecture involving bits.

Suppose that five ones and six zeros are arranged around a circle. Between any two equal bits you insert a 0 and between any two unequal bits you insert a 1 to produce eleven new bits. Then you erase the eleven original bits. Show that when you iterate this procedure, you can never get eleven zeros. [Hint: Work backward, assuming that you did end up with eleven zeros.]