Some Answers on: Turing Machines

E1:
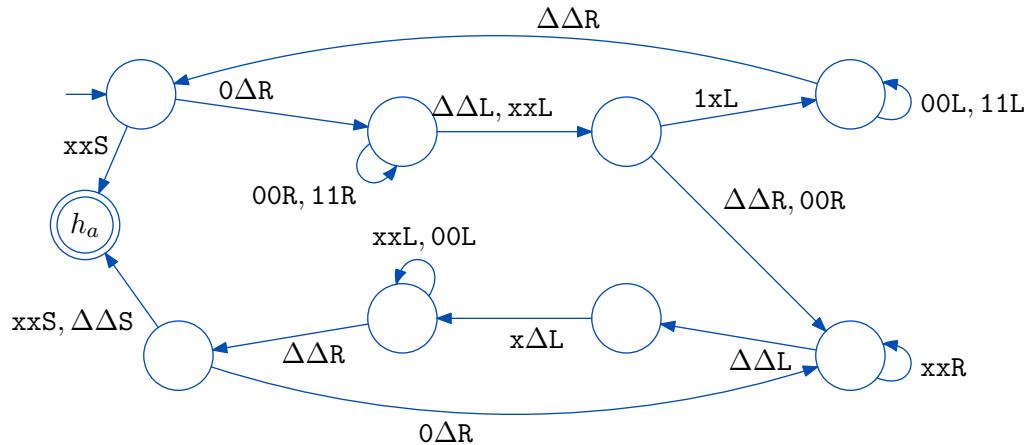
E2:
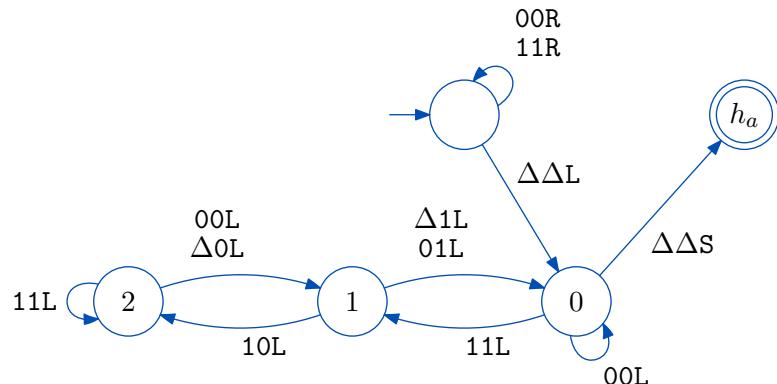
E3: The set of all binary strings where the blocks of the same character all have the same length, starting with a `0` and finishing with a `1`.

E4: The simplest idea is to first check that the length is a multiple of 3. Then feed it into a machine that checks for equal `0`'s and `1`'s.
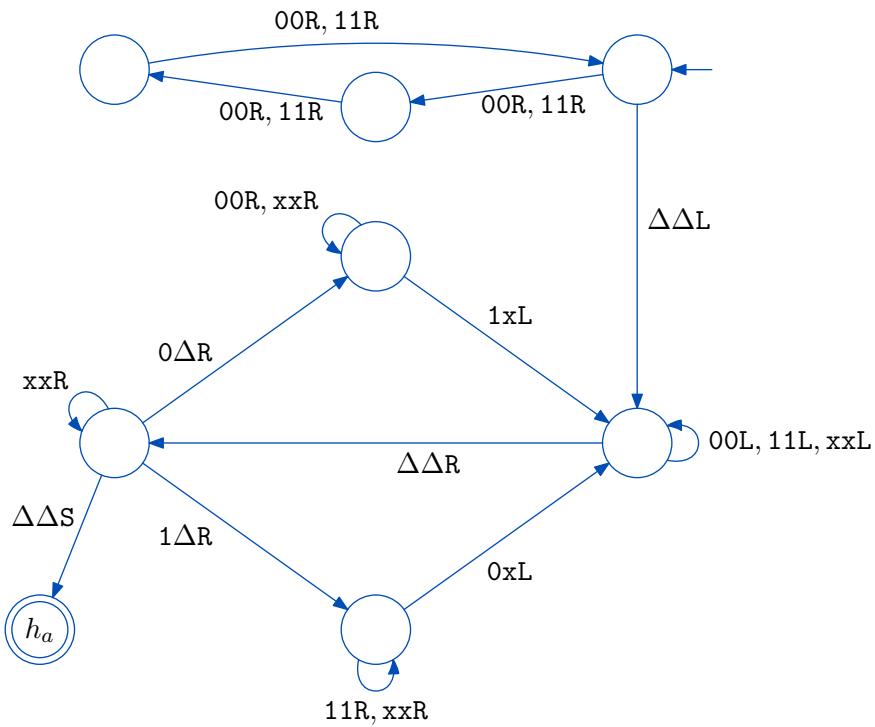
E5: (a) `aaaa`
   (b) `bbbb`
   (c) all strings of `a`'s and `b`'s such that every block of `b`'s has odd length.

E6: (a) `101`
   (b) `111`
   (c) all binary strings with a block of `0`'s of odd length surrounded by `1`'s.