‾‾ ‾‾ ‾‾ ‾‾ ‾‾   ‾‾ ‾‾ ‾‾ ‾‾ ‾‾

R   R   R   R   R   R   R   R   R   R

5/11 there are at least 3/5 of the balls on the right.

(2k + 1)/(5k + 1), where k = 2 in this example

End probability is (4k + 2)/(5k + 1), we want the minimum integer k such that this is < 321/400.

HHHHxxxx = 16 sequences these all work. (start 4h)

HHHTHHxx = 4 sequence that work.   (start 3h)

HHHTTHHH = 1 sequence that works.

HHHTHTHH = 1 sequence that works

HHT (oops looks like lots of casework)

New idea…

If we have 2Ts, 1 T or 0Ts → automatically going work

C(8, 0) + C(8, 1) + C(8, 2) + 1 + 4 + 4 = 1 + 8 + 28 + 9 =46

Count sequences with 3 Ts or 4 Ts that work

4tails HHHHTTTT (1 sequence)
HHHH(TTTH) → 4 sequences
HHHTHHTT → 4 sequences
HHTHHHTT
HTHHHHTT
THHHHHTT total of 46/256 = 23/128

Picture from rotation question on 2016A (Q 14):

1 [ ] 7
8   2

6 [ ] 4   4 [ ] 6
3   5   5   3

1 [ ] 6   1 [ ] 5
8   3   8   4

7 [ ] 4   4 [ ] 7
2   5   5   2