

the block of n 1s, in a block to the right of the block of n 1s) it moves to the right until it finds a zero, and in moving to state 6, writes a 1. It moves back to the leftmost 1 in the block, and one more space in state 6. If the original block of n 1s is erased it moves on to state 9, and there moves right to the leftmost of the block of $n/2$ 1s.

~~If~~ the machine stops in state 9 ~~then~~ ^{if} n is even. ✓

If there are some of the n 1s left the machine ^{passes to state 8} moves to ^{the} left of the depleted block of n 1s and left one space in state 8, and in moving to state 1 moves right to the leftmost of the ~~block~~ n 1s.

The cycle now repeats.

The machine will eventually find, in state 2, that it is reading a zero, so n is odd. It will have erased all the n 1s from the left, and will ^{then} move right one space to read the leftmost of $(n-1)/2$ ones, or in state 7, that it is reading a zero (n is even, and ^{having} added another one to the rightmost of the string of $n/2$ ones, in moving between states 5 and 6, it will move onto, and stop in state 9 in