Northcott's Game

Pieces and Board: Northcott's Game is played on an rectangular *n* rows by *m* columns board. The default game has 3 rows of 6 columns with the configuration of Figure 1. In a given row, L may not be placed to the right of R. Your implementation must handle an arbitrary number of rows and columns.

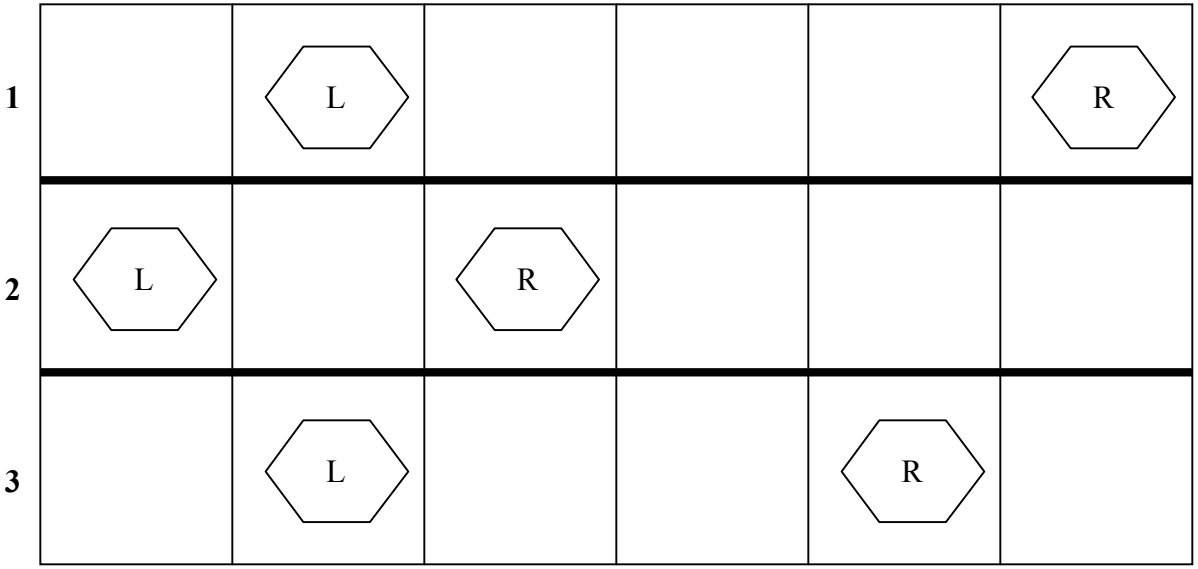
To Move: The players, Left and Right, alternate turns moving as many spaces horizontally forward (towards opponent) without jumping over the opponent. Pieces never leave the row (I.e., they never move vertically).

To Win: The player who has no moves remaining *loses*. (I.e., the last to move wins)

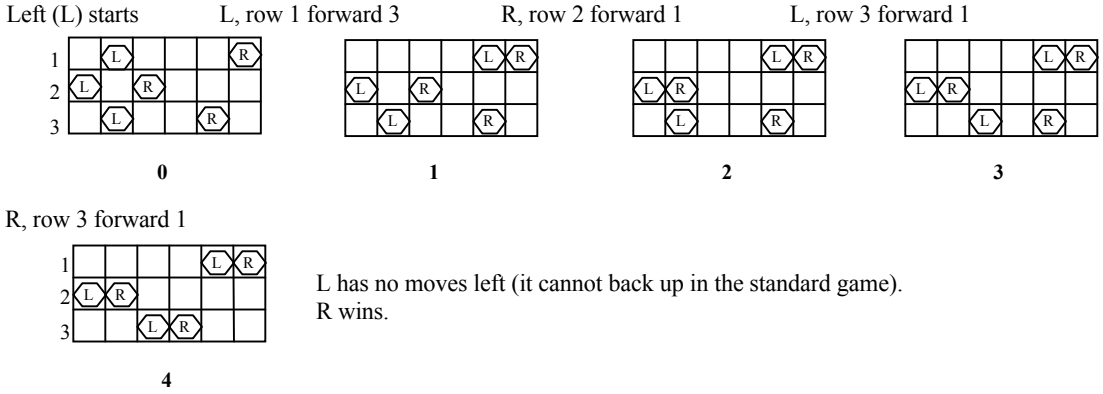
Compulsory Rule Changes:
• Misére Rules: The player who has no moves remaining *wins*. (I.e., the last to move loses)
• A player may move both forward (towards the opponent) and back (away from the opponent).

Position Representation:
• (*T row row row row* …)
T stores whose turn it is (`L` or `R`). Each *row* is a word in the form $\#_1 L \#_2 R \#_3$ where $\#_1$ represents the number of spaces to the left of player L, $\#_2$ the number of spaces between the two players, and $\#_3$ the number of spaces to the right of R. E.g. The row "`- - L - R- - -`" is the word "`2L1R3`". The number of *row*'s in the position indicates the number of rows. In each *row*, the sum of $\#_1$, $\#_2$, $\#_3$, plus 2 (for the pieces) indicates the number of columns.

Figure 1



Example game:



L has no moves left (it cannot back up in the standard game).
R wins.

Representations for initial position (see Figure 1): `(L 1L3R0 0L1R3 1L2R1)`
Representations for position mid-game (see board 1 above): `(R 4L0R0 0L1R3 1L2R1)`

If you choose to implement this game, you cannot get above a "B" in CS3.