

Chopsticks

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

Pieces and Board: This version of chopsticks is played with n hands and m fingers. Each hand has initially one finger up. Your implementation must be able to handle an arbitrary number of hands and fingers. The default game has three hands, each having five fingers, with one finger up on each hand and Left starting. (An example game is shown on the right.)

To Move: The example game begins with Figure 1. On the player's turn, she chooses one of her hands to add the number of fingers to one of the opponent's hands.

To Win: When the player adds enough fingers to exceed the max number of fingers that the hand can hold, then that hand is knocked out of the game. When a player has no more hands left, she loses.

Compulsory Rule Changes:

Misère Rules: The player who has all hands knocked out *wins*.

Wrap-Around Rule: In this rule, a hand must *equal* the max number of fingers to be knocked out. Otherwise, the excess number of fingers becomes the new number of fingers on the hand. E.g., If I have 4 fingers up on a 5-finger hand, and someone adds 1 to that hand, the hand is out. If someone were to add 2 to that hand that's 6, so the hand would wrap around to $6-5=1$.

Position Representation:

$-(P\ Lhand_1\ Lhand_2\ \dots\ Rhand_1\ Rhand_2\ \dots)$

The P represents the player (L or R). Each hand is a number that shows how many fingers are on that hand. E.g., here's position #7: (L 0 4 1 0 1 1)



Figure 1: default initial position

Example Game (L always starts):



Left's hand 1 to Right's hand 1



Right's hand 1 to Left's hand 2



Left's hand 2 to Right's hand 1



Right's hand 1 to Left's hand 1



Left's hand 3 to Right's hand 1



Right's hand 3 to Left's hand 2



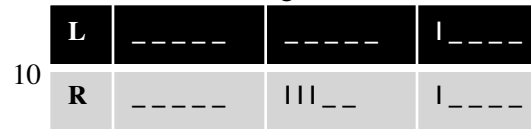
Left's hand 3 to Right's hand 2



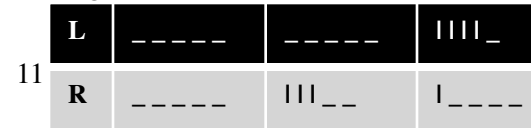
Right's hand 2 to Left's hand 2



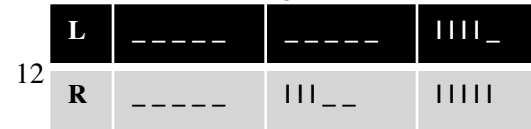
Left's hand 3 to Right's hand 2



Right's hand 2 to Left's hand 3



Left's hand 3 to Right's hand 3



Right's hand 3 to Left's hand 3



Left has no hands. Right wins