Our heuristic returns a score based on the current board state. We check every (x,y) position of the board, and per position, we check the consecutive 4 pieces in the horizon, vertical, left diagonal, and right diagonal directions. The total board state score is based off the sum of these consecutive scores based off the criteria:

If next consecutive piece is not ours, +0

If there are 1 blank(s) and 3 piece(s), +300 / -300

If there are 2 blank(s) and 2 piece(s), +100 / -100

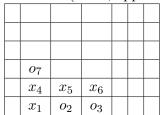
If there are 3 blank(s) and 1 piece(s), +10 / -10

If the current state is game over, +25,000 / -25,000

If the current position we are checking belongs to the opponent, then the score is a sum of the negative values above.

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totalScore = \sum (hScore + vScore + rdScore + ldScore) \\ hScore = sum(f(n)) \quad vScore = sum(f(n)) \\ rdScore = sum(f(n)) \quad ldScore = sum(f(n)) \\ f(n) = 0 \text{ if mismatched consecutive pieces or a blank} \\ f(n) = 300 \mid -300 \text{ if 1 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 100 \mid -100 \text{ if 2 blank and 2 pieces; us} \mid \text{opponent} \\ f(n) = 10 \mid -10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \mid -10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \mid -10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \mid -10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \mid -10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \mid -10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 1 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{opponent} \\ f(n) = 10 \text{ if 3 blank and 3 pieces; us} \mid \text{oppone
```

For board state (us: x, opponent: o)



Our State Score = 410

$$totalScore = \\ + (hScore = (0_1 - 100_2 - 10_3 + 300_4 + 100_5 + 10_6 - 10_7)) \\ + (vScore = (0_1 - 0_2 - 0_3 + 0_4 + 10_5 + 10_6 - 10_7)) \\ + (rdScore = (100_1 - 0_2 - 10_3 + 10_4 + 10_5 + 10_6 - 10_7)) \\ + (ldScore = (0_1 - 0_2 - 0_3 + 0_4 + 0_5 + 10_6 - 0_7))$$