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Ttt Lm: Preliminary Play Method With Interpretation

Code

```
1. ;SELECT
2. (defun select (lst)
3.    (nth (random (length lst)) lst)
4. )
5.
6. ;SNOC
7. (defun snoc (obj lst)
8.    (append lst (list obj))
9. )
10.
11.;PLAY
12.(defmethod play (&aux play avail move)
13.   (setf play())
14.   (setf avail '(nw n ne w c e sw s se))
15.   (dolist (player '(x o x o x o x o x))
16.      (cond
17.         ((eq player 'x)
18.            (setf move (select avail))
19.            (setf avail (remove move avail))
20.            (setf play (snoc move play))
21.         )
22.         ((eq player 'o)
23.            (setf move (select avail))
24.            (setf avail (remove move avail))
25.            (setf play (snoc move play))
26.         )
27.      )
28.   )
29.   play
30.)
```

Demo

```
CSC466 harryscells$ clisp -i ttt1.l
  i i i i i i i       ooooo    o        ooooooo   ooooo   ooooo
  I I I I I I I      8     8   8           8     8     o  8    8
  I  \ `+' /  I      8         8           8     8        8    8
   \  `-+-'  /       8         8           8      ooooo   8oooo
    `-__|__-'        8         8           8           8  8
        |            8     o   8           8     o     8  8
  ------+------       ooooo    8ooooooo  ooo8ooo   ooooo   8

Welcome to GNU CLISP 2.49 (2010-07-07) <http://clisp.cons.org/>

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Type :h and hit Enter for context help.

;; Loading file ttt1.l ...
;; Loaded file ttt1.l

Break 1 [2]> (play)
(SE C E N S SW NW NE W)
Break 1 [2]> (play)
(N SE NW W C E S NE SW)
Break 1 [2]> (play)
(SW NE NW W C SE N E S)
Break 1 [2]> (play)
(S E W C N NE SE NW SW)
Break 1 [2]> (play)
(NW SW S E NE W N C SE)
Break 1 [2]> (bye)
Bye.
```

Analysis

Run 1

(SE C E N S SW NW NE W) - L

X8	O4	O7
X9	O2	X3
O6	X5	X1

Run 2

(N SE NW W C E S NE SW) - W

X9	X1	X8
O4	O5	X6
X3	O7	O2

Run 3

(SW NE NW W C SE N E S) - L

X3	X7	O2
O4	X5	O8
X1	X9	O6

Run 4

(S E W C N NE SE NW SW) - W

O8	X5	O6
X3	O4	O2
X9	X1	X7

Run 5

(NW SW S E NE W N C SE) - W

X1	X7	X5
O6	O8	O4
O2	X3	X9

Results

With the random selection of placement, “X” won 3 times out of 5. For a small sample size, it would seem that this method of playing could be a plausible strategy for winning. As there is a finite number of states the board can have, and because player “X” will always move first, it is possible to predict the outcome (Win, Loose, Draw) based on the first few moves. The number of states that player “X” will win on is a smaller pool that the total number of states possible in the game. Knowing these two things means it is possible for player “X” to play towards one of the states in which it will win. If one player knows all the states in which it will win, then it can be predicted that if that player plays in such a way that it tries to match the game it is playing to the closest possible winning state, then it should have a higher chance of winning.