

## CSC466: Artificial Intelligence 2

### Tic Tac Toe: Visualization, Analysis, and Statistics

Ace DeSiena - Feb 2015

#### Demo:

```
* (demo-random-random)
NW N NE
W C E
SW S SE
Begin random player move ...
randomly selected SW for my move
End random player move ...
NW N NE
W C E
X1 S SE
Begin random player move ...
randomly selected S for my move
End random player move ...
NW N NE
W C E
X1 O2 SE
Begin random player move ...
randomly selected N for my move
End random player move ...
NW X3 NE
W C E
X1 O2 SE
Begin random player move ...
randomly selected E for my move
End random player move ...
NW X3 NE
W C O4
X1 O2 SE
Begin random player move ...
randomly selected NE for my move
End random player move ...
NW X3 X5
W C O4
X1 O2 SE
Begin random player move ...
randomly selected C for my move
End random player move ...
NW X3 X5
W O6 O4
X1 O2 SE
Begin random player move ...
randomly selected W for my move
End random player move ...
NW X3 X5
X7 O6 O4
```

X1 02 SE  
Begin random player move ...  
randomly selected NW for my move  
End random player move ...  
08 X3 X5  
X7 06 04  
X1 02 SE  
Begin random player move ...  
randomly selected SE for my move  
End random player move ...  
(SW S N E NE C W NW SE)  
08 X3 X5  
X7 06 04  
X1 02 X9  
D  
NIL  
\* (demo-random-random)  
NW N NE  
W C E  
SW S SE  
Begin random player move ...  
randomly selected NW for my move  
End random player move ...  
X1 N NE  
W C E  
SW S SE  
Begin random player move ...  
randomly selected SE for my move  
End random player move ...  
X1 N NE  
W C E  
SW S 02  
Begin random player move ...  
randomly selected E for my move  
End random player move ...  
X1 N NE  
W C X3  
SW S 02  
Begin random player move ...  
randomly selected NE for my move  
End random player move ...  
X1 N 04  
W C X3  
SW S 02  
Begin random player move ...  
randomly selected C for my move  
End random player move ...  
X1 N 04  
W X5 X3  
SW S 02

```
Begin random player move ...
randomly selected W for my move
End random player move ...
X1 N 04
06 X5 X3
SW S 02
Begin random player move ...
randomly selected SW for my move
End random player move ...
X1 N 04
06 X5 X3
X7 S 02
Begin random player move ...
randomly selected S for my move
End random player move ...
X1 N 04
06 X5 X3
X7 08 02
Begin random player move ...
randomly selected N for my move
End random player move ...
(NW SE E NE C W SW S N)
X1 X9 04
06 X5 X3
X7 08 02
D
NIL
* (demo-random-random)
NW N NE
W C E
SW S SE
Begin random player move ...
randomly selected S for my move
End random player move ...
NW N NE
W C E
SW X1 SE
Begin random player move ...
randomly selected NE for my move
End random player move ...
NW N 02
W C E
SW X1 SE
Begin random player move ...
randomly selected W for my move
End random player move ...
NW N 02
X3 C E
SW X1 SE
Begin random player move ...
```

```
randomly selected NW for my move
End random player move ...
04 N 02
X3 C E
SW X1 SE
Begin random player move ...
randomly selected C for my move
End random player move ...
04 N 02
X3 X5 E
SW X1 SE
Begin random player move ...
randomly selected N for my move
End random player move ...
(S NE W NW C N)
04 06 02
X3 X5 E
SW X1 SE
L
NIL
* (demo-random-random)
NW N NE
W C E
SW S SE
Begin random player move ...
randomly selected N for my move
End random player move ...
NW X1 NE
W C E
SW S SE
Begin random player move ...
randomly selected W for my move
End random player move ...
NW X1 NE
02 C E
SW S SE
Begin random player move ...
randomly selected SE for my move
End random player move ...
NW X1 NE
02 C E
SW S X3
Begin random player move ...
randomly selected NE for my move
End random player move ...
NW X1 04
02 C E
SW S X3
Begin random player move ...
randomly selected SW for my move
```

```
End random player move ...
NW X1 04
02 C E
X5 S X3
Begin random player move ...
randomly selected NW for my move
End random player move ...
06 X1 04
02 C E
X5 S X3
Begin random player move ...
randomly selected C for my move
End random player move ...
06 X1 04
02 X7 E
X5 S X3
Begin random player move ...
randomly selected E for my move
End random player move ...
06 X1 04
02 X7 08
X5 S X3
Begin random player move ...
randomly selected S for my move
End random player move ...
(N W SE NE SW NW C E S)
06 X1 04
02 X7 08
X5 X9 X3
W
NIL
* (demo-random-random)
NW N NE
W C E
SW S SE
Begin random player move ...
randomly selected NW for my move
End random player move ...
X1 N NE
W C E
SW S SE
Begin random player move ...
randomly selected SW for my move
End random player move ...
X1 N NE
W C E
02 S SE
Begin random player move ...
randomly selected E for my move
End random player move ...
```

X1 N NE  
W C X3  
02 S SE  
Begin random player move ...  
randomly selected SE for my move  
End random player move ...  
X1 N NE  
W C X3  
02 S 04  
Begin random player move ...  
randomly selected C for my move  
End random player move ...  
X1 N NE  
W X5 X3  
02 S 04  
Begin random player move ...  
randomly selected W for my move  
End random player move ...  
X1 N NE  
06 X5 X3  
02 S 04  
Begin random player move ...  
randomly selected S for my move  
End random player move ...  
X1 N NE  
06 X5 X3  
02 X7 04  
Begin random player move ...  
randomly selected NE for my move  
End random player move ...  
X1 N 08  
06 X5 X3  
02 X7 04  
Begin random player move ...  
randomly selected N for my move  
End random player move ...  
(NW SW E SE C W S NE N)  
X1 X9 08  
06 X5 X3  
02 X7 04  
W  
NIL  
\* (demo-random-random)  
NW N NE  
W C E  
SW S SE  
Begin random player move ...  
randomly selected NE for my move  
End random player move ...  
NW N X1

W C E  
SW S SE  
Begin random player move ...  
randomly selected E for my move  
End random player move ...  
NW N X1  
W C 02  
SW S SE  
Begin random player move ...  
randomly selected C for my move  
End random player move ...  
NW N X1  
W X3 02  
SW S SE  
Begin random player move ...  
randomly selected W for my move  
End random player move ...  
NW N X1  
04 X3 02  
SW S SE  
Begin random player move ...  
randomly selected N for my move  
End random player move ...  
NW X5 X1  
04 X3 02  
SW S SE  
Begin random player move ...  
randomly selected S for my move  
End random player move ...  
NW X5 X1  
04 X3 02  
SW 06 SE  
Begin random player move ...  
randomly selected NW for my move  
End random player move ...  
(NE E C W N S NW)  
X7 X5 X1  
04 X3 02  
SW 06 SE  
W  
NIL  
\* (demo-random-human)  
NW N NE  
W C E  
SW S SE  
Begin random player move ...  
randomly selected NW for my move  
End random player move ...  
X1 N NE  
W C E

SW S SE  
Begin human player move ...  
Please select a move from (N NE W C E SW S SE)  
c  
End human player move  
X1 N NE  
W 02 E  
SW S SE  
Begin random player move ...  
randomly selected W for my move  
End random player move ...  
X1 N NE  
X3 02 E  
SW S SE  
Begin human player move ...  
Please select a move from (N NE E SW S SE)  
sw  
End human player move  
X1 N NE  
X3 02 E  
04 S SE  
Begin random player move ...  
randomly selected SE for my move  
End random player move ...  
X1 N NE  
X3 02 E  
04 S X5  
Begin human player move ...  
Please select a move from (N NE E S)  
ne  
End human player move  
(NW C W SW SE NE)  
X1 N 06  
X3 02 E  
04 S X5  
L  
NIL  
\* (demo-random-human)  
NW N NE  
W C E  
SW S SE  
Begin random player move ...  
randomly selected C for my move  
End random player move ...  
NW N NE  
W X1 E  
SW S SE  
Begin human player move ...  
Please select a move from (NW N NE W E SW S SE)  
se



```
End human player move
NW N NE
W X1 E
SW S O2
Begin random player move ...
randomly selected N for my move
End random player move ...
NW X3 NE
W X1 E
SW S O2
Begin human player move ...
Please select a move from (NW NE W E SW S)
nw
End human player move
O4 X3 NE
W X1 E
SW S O2
Begin random player move ...
randomly selected W for my move
End random player move ...
O4 X3 NE
X5 X1 E
SW S O2
Begin human player move ...
Please select a move from (NE E SW S)
ne
End human player move
O4 X3 O6
X5 X1 E
SW S O2
Begin random player move ...
randomly selected SW for my move
End random player move ...
O4 X3 O6
X5 X1 E
X7 S O2
Begin human player move ...
Please select a move from (E S)
s
End human player move
O4 X3 O6
X5 X1 E
X7 O8 O2
Begin random player move ...
randomly selected E for my move
End random player move ...
(C SE N NW W NE SW S E)
O4 X3 O6
X5 X1 X9
X7 O8 O2
```

W  
NIL  
\* (demo-random-human)  
NW N NE  
W C E  
SW S SE  
Begin random player move ...  
randomly selected N for my move  
End random player move ...  
NW X1 NE  
W C E  
SW S SE  
Begin human player move ...  
Please select a move from (NW NE W C E SW S SE)  
c  
End human player move  
NW X1 NE  
W 02 E  
SW S SE  
Begin random player move ...  
randomly selected E for my move  
End random player move ...  
NW X1 NE  
W 02 X3  
SW S SE  
Begin human player move ...  
Please select a move from (NW NE W SW S SE)  
ne  
End human player move  
NW X1 04  
W 02 X3  
SW S SE  
Begin random player move ...  
randomly selected W for my move  
End random player move ...  
NW X1 04  
X5 02 X3  
SW S SE  
Begin human player move ...  
Please select a move from (NW SW S SE)  
nw  
End human player move  
06 X1 04  
X5 02 X3  
SW S SE  
Begin random player move ...  
randomly selected SW for my move  
End random player move ...  
06 X1 04  
X5 02 X3

X7 S SE  
Begin human player move ...  
Please select a move from (S SE)  
s  
End human player move  
06 X1 04  
X5 02 X3  
X7 08 SE  
Begin random player move ...  
randomly selected SE for my move  
End random player move ...  
(N C E NE W NW SW S SE)  
06 X1 04  
X5 02 X3  
X7 08 X9  
D  
NIL  
\*