Blog Entry © Tuesday 25, 2025, by James Pate Williams, Jr. Enumeration of the Tic-Tac-Toe Game Tree

Reference: 5.2 General Problem Solving Experiments with Tic-Tac-Toe page 180 start in "Evolutionary Computation Toward a New Philosophy of Machine Intelligence Second Edition" by David B. Fogel.

```
Rebuild started at 12:35 PM...
1>------ Rebuild All started: Project: EnumerateTicTacToe, Configuration: Release x64 ------
1>Board.cpp
1>main.cpp
1>Generating code
1>Previous IPDB not found, fall back to full compilation.
1>All 341 functions were compiled because no usable IPDB/IOBJ from previous compilation was found.
1>Finished generating code
1>EnumerateTicTacToe.vcxproj -> D:\EnumerateTicTacToe\x64\Release\EnumerateTicTacToe.exe
========== Rebuild All: 1 succeeded, 0 failed, 0 skipped ==========
========== Rebuild completed at 12:36 PM and took 01:03.515 minutes ==========
```

Files are in the cloud (OneDrive.com) and on an old USB solid-state thumb drive.

```
legal total = 5478
xWins total = 626
oWins total = 626
oxWin total = 1252
unique size = 765

1
xxx
xoo
oxo

2
xxx
xoo
o__
```

Etc. for a grand total of 765 unique boards. The first few states in the enumeration are:

```
764
___
_o_
___
```

765
___
___
x__

Start of game tree enumeration file:

xxxxoooxo
xxxxooo__
xxxxoo__o
xxxxo_o_o
xxxx_ooo_
xxxx_o_oo
xxxoxooxo
xxxoxoo__

End of the game tree file:

___x_____
___oxo_xo
___o_o_x_
____xo_x_
____x____
____o_xo_
____o____
_____x__