

Tic Tac Toe Secret Message

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Think you know everything about Tic Tac Toe???

Think again!

Tic Tac Toe Secret Message

The greatest minds at GPN HQ have come up with a way to send a secret message using Tic Tac Toe boards!

Will you figure out the message before time runs out?

Tic Tac Toe Secret Message

First, let's learn about the seemingly simple Tic Tac Toe board!

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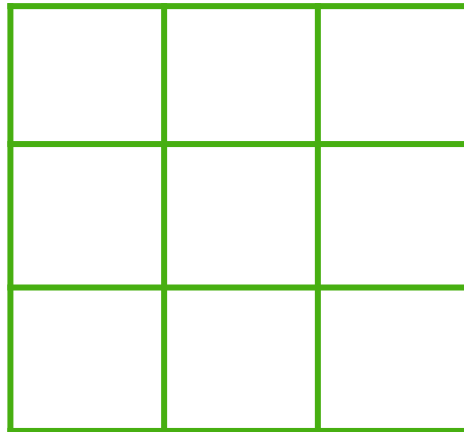


How many move options do we have at the start of a game?



Tic Tac Toe Secret Message

First, let's learn about the seemingly simple Tic Tac Toe board!



How many move options do we have at the start of a game? 9!



Tic Tac Toe Secret Message

Here are our 9 possible starting positions!

X		

	X	

		X

X		

	X	

		X

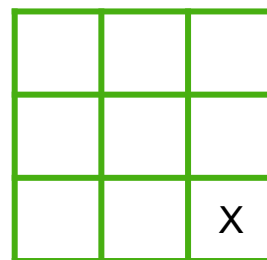
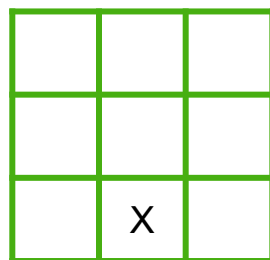
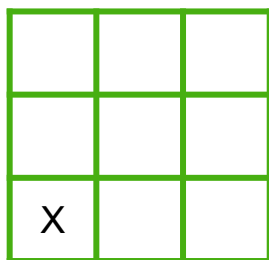
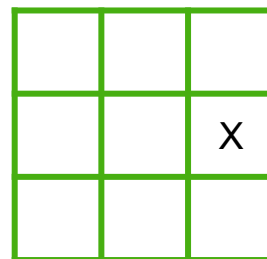
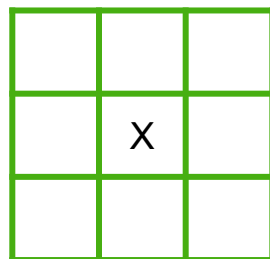
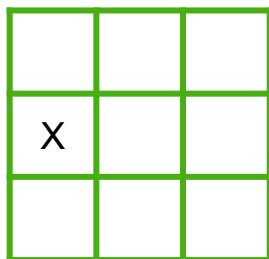
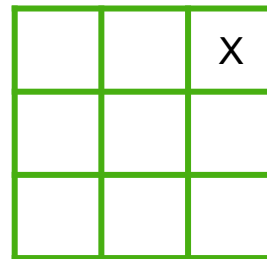
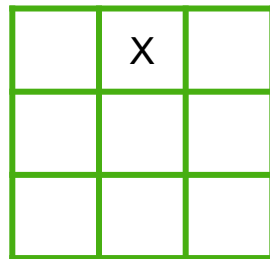
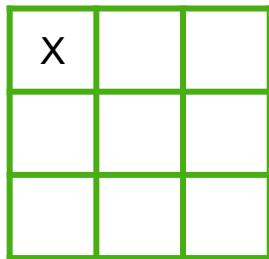
X		

	X	

		X

Tic Tac Toe Secret Message

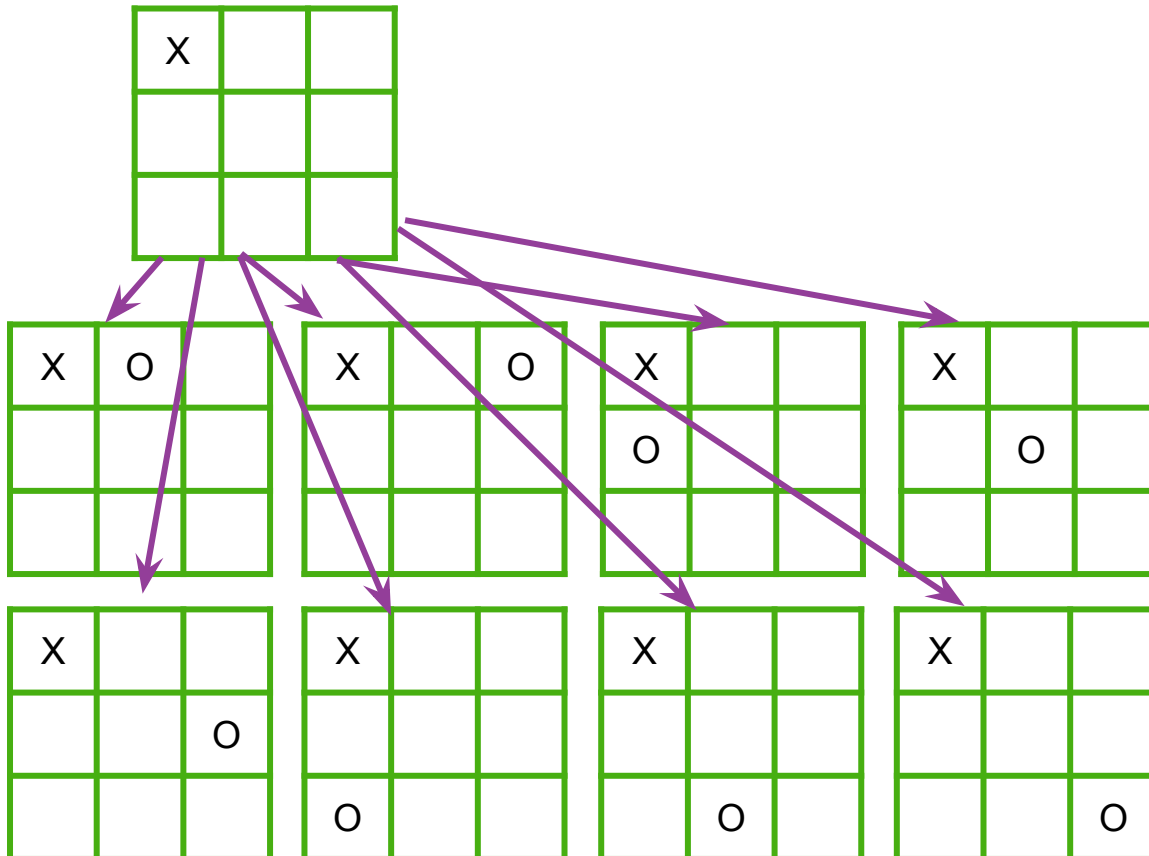
Here are our 9 possible starting positions!



How many options are there for O after X makes their first move?

Tic Tac Toe Secret Message

Here are our 9 possible starting positions!



How many options are there for O after X makes their first move? 8!

Tic Tac Toe Secret Message

Here are our 9 possible starting positions!

X		

	X	

		X

X		

	X	

		X

X		

	X	

		X

How many options are there for O after X makes their first move? 8!

How many total options are there for the possible ways the board could look after the second move?

Tic Tac Toe Secret Message

Here are our 9 possible starting positions!

X		

	X	

		X

X		

	X	

		X

X		

	X	

		X

How many options are there for O after X makes their first move? 8!

How many total options are there for the possible ways the board could look after the second move?

$$8 \times 9 = 72$$

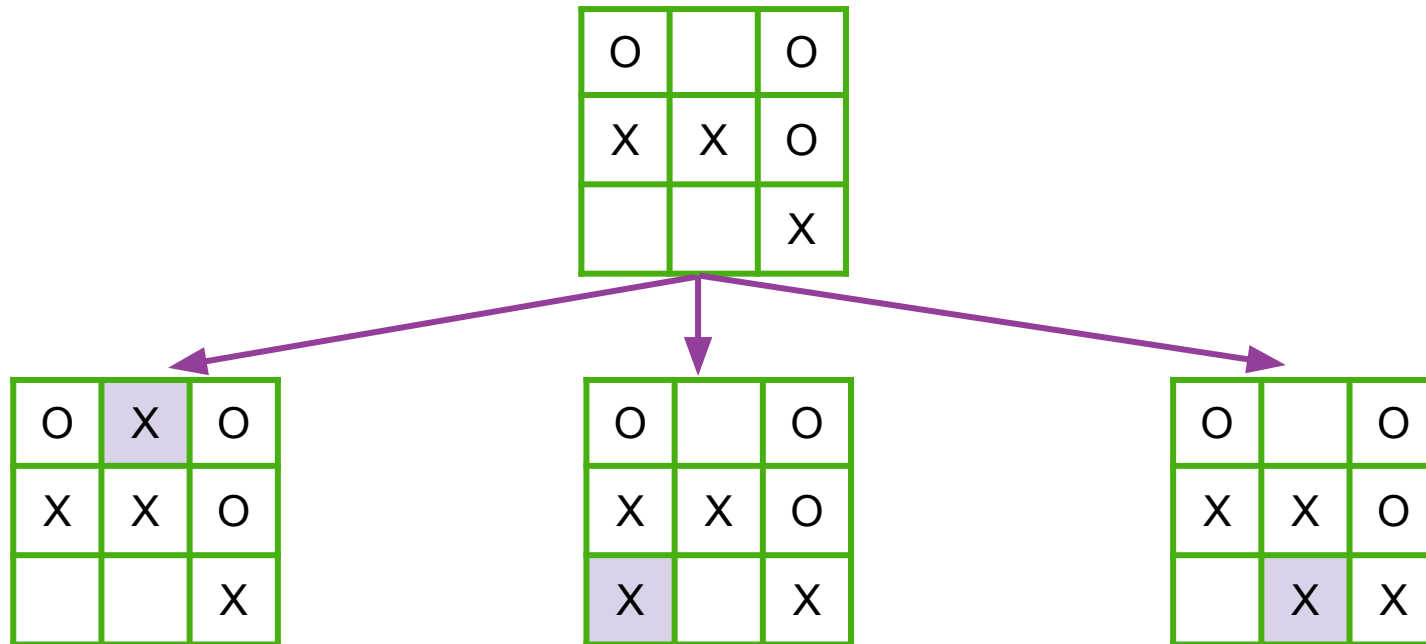
There are 362,880 possible games of Tic Tac Toe

Tic Tac Toe Secret Message

We're going to figure out how to take a game that's already started and work out what the best move is for a player!

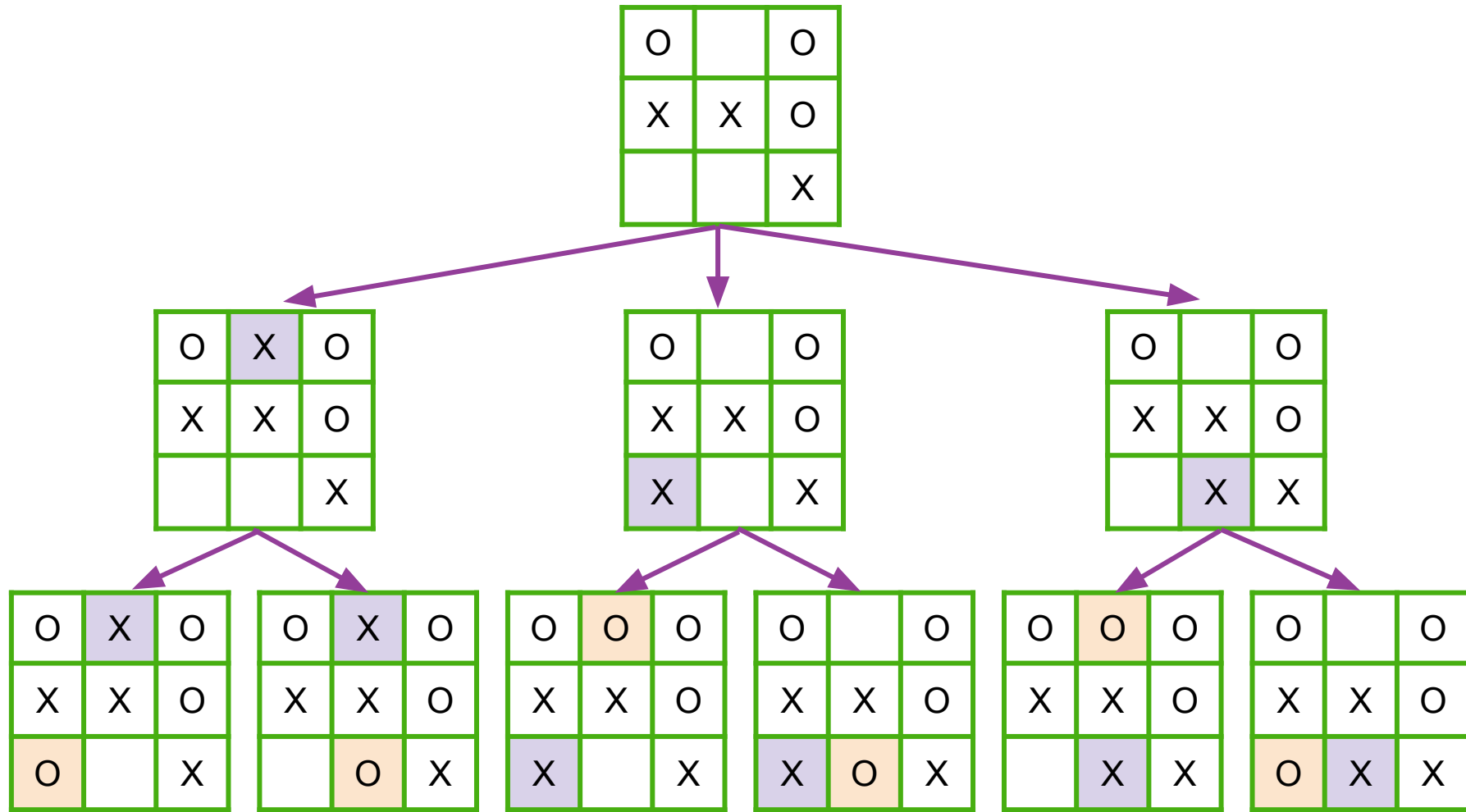
O		O
X	X	O
		X

X's Turn



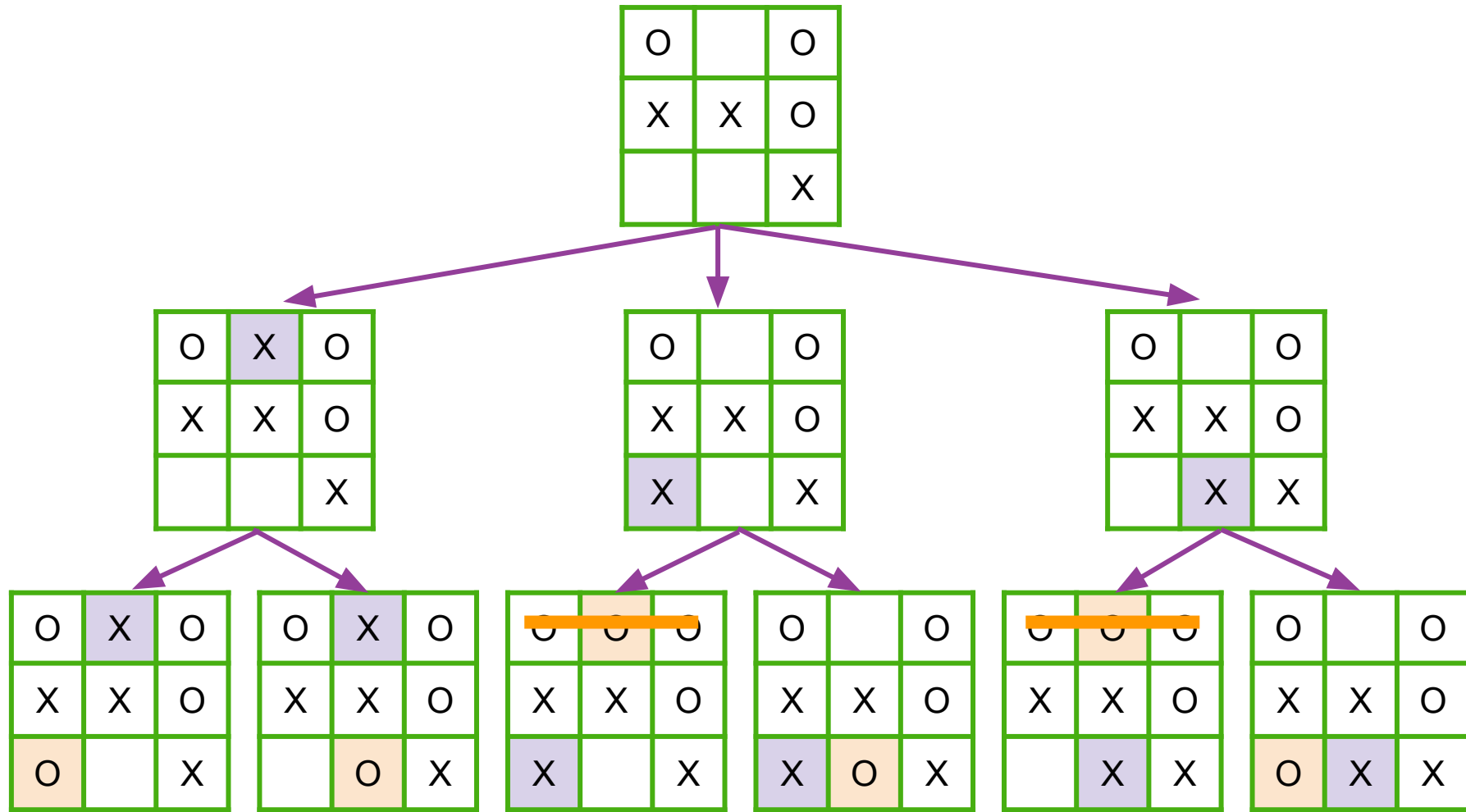
X's Turn

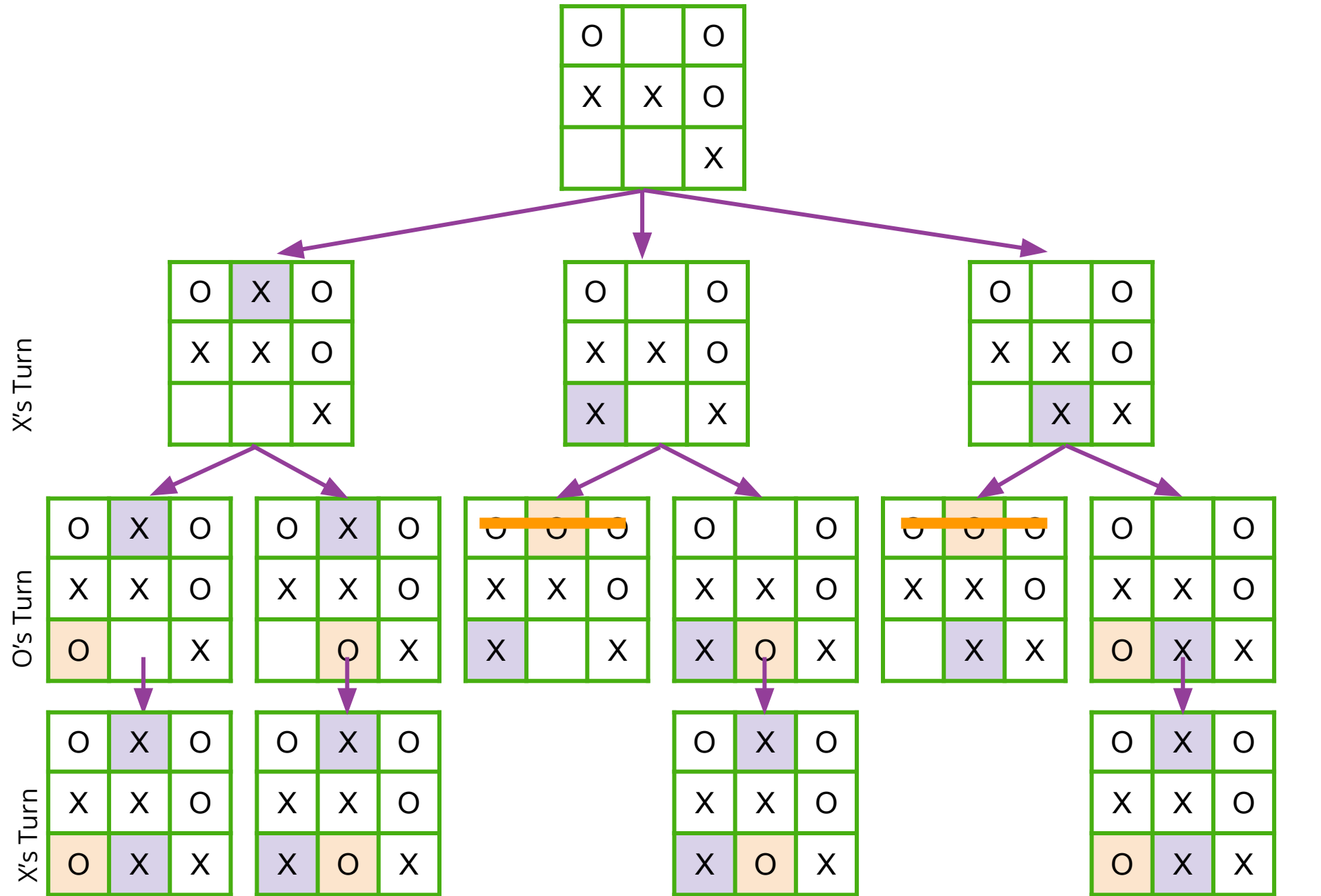
O's Turn



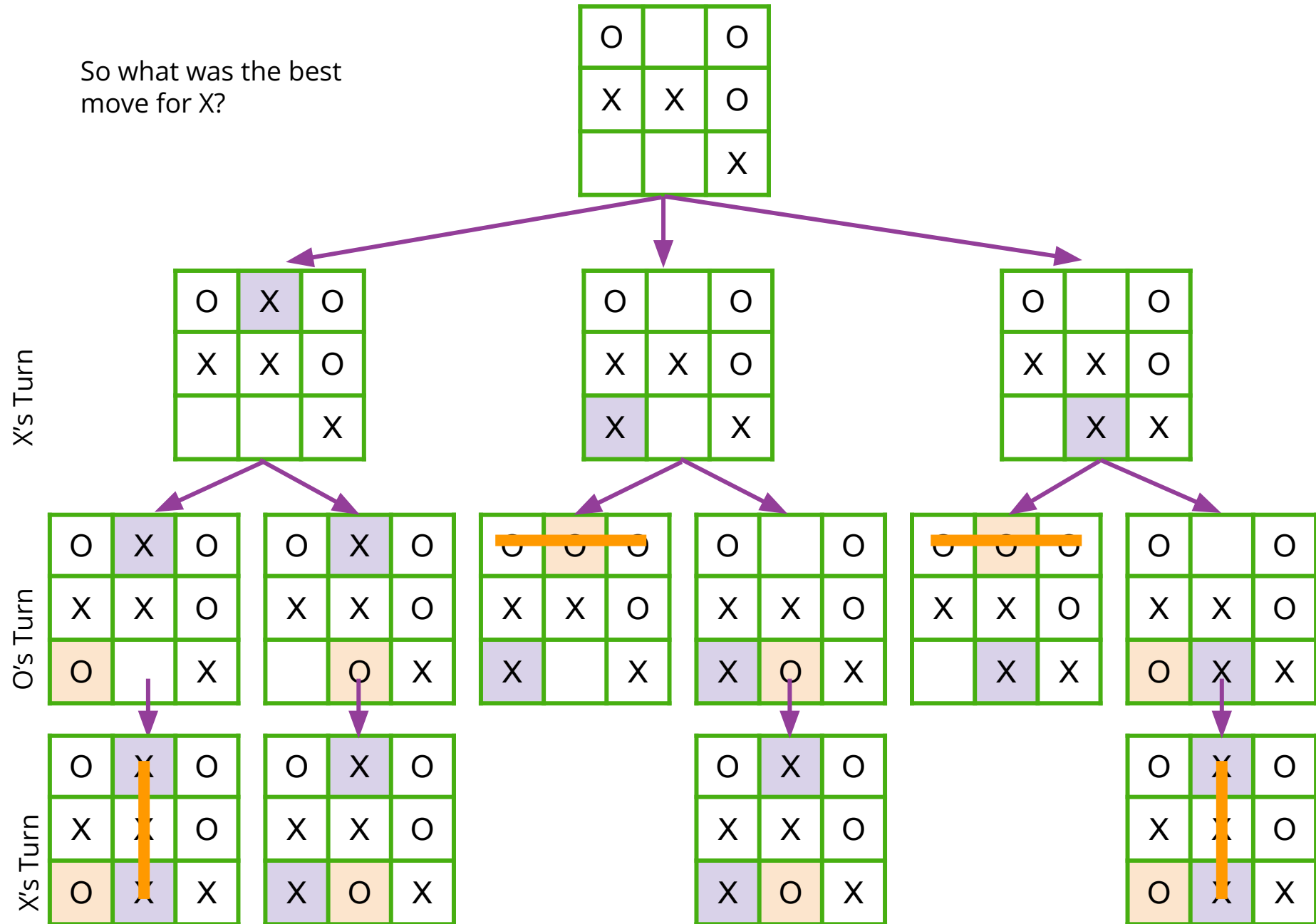
X's Turn

O's Turn

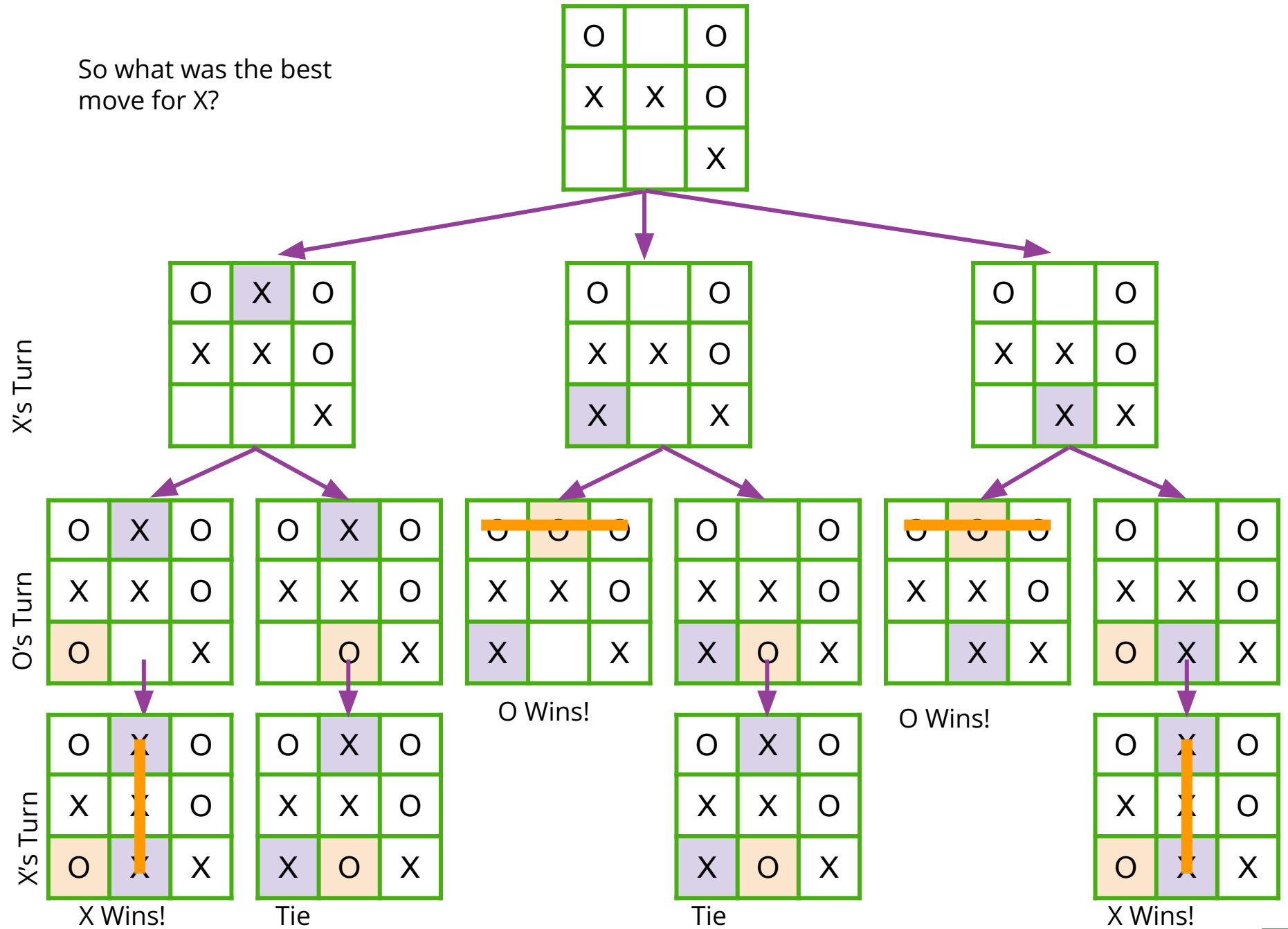




So what was the best move for X?



So what was the best move for X?



So what was the best move for X?

Best Case:
X wins

Best Case:
Tie

Best Case:
X wins

O		O
X	X	O
		X

O	X	O
X	X	O
		X

O		O
X	X	O
X		X

O		O
X	X	O
	X	X

O	X	O
X	X	O
O		X

O	X	O
X	X	O
	O	X

O	O	O
X	X	O
X		X

O		O
X	X	O
X	O	X

O	O	O
X	X	O
	X	X

O		O
X	X	O
O	X	X

O	X	O
X	X	O
O	X	X

O	X	O
X	X	O
X	O	X

O	X	O
X	X	O
X	O	X

O	X	O
X	X	O
O	X	X

X Wins!

Tie

Tie

X Wins!

O Wins!

O Wins!



So what was the best move for X?

Best Case:
X wins
Worst Case:
Tie

Best Case:
Tie
Worst Case:
O Wins

Best Case:
X wins
Worst Case:
O Wins

O		O
X	X	O
		X

O	X	O
X	X	O
		X

O		O
X	X	O
X		X

O		O
X	X	O
	X	X

O	X	O
X	X	O
O		X

O	X	O
X	X	O
	O	X

O	O	O
X	X	O
X		X

O		O
X	X	O
X	O	X

O	O	O
X	X	O
	X	X

O		O
X	X	O
O	X	X

O	X	O
X	X	O
O	X	X

O	X	O
X	X	O
X	O	X

O	X	O
X	X	O
X	O	X

O	X	O
X	X	O
O	X	X

X Wins!

Tie

Tie

X Wins!

O Wins!

O Wins!



So what was the best move for X?

Best Case:
X wins
Worst Case:
Tie

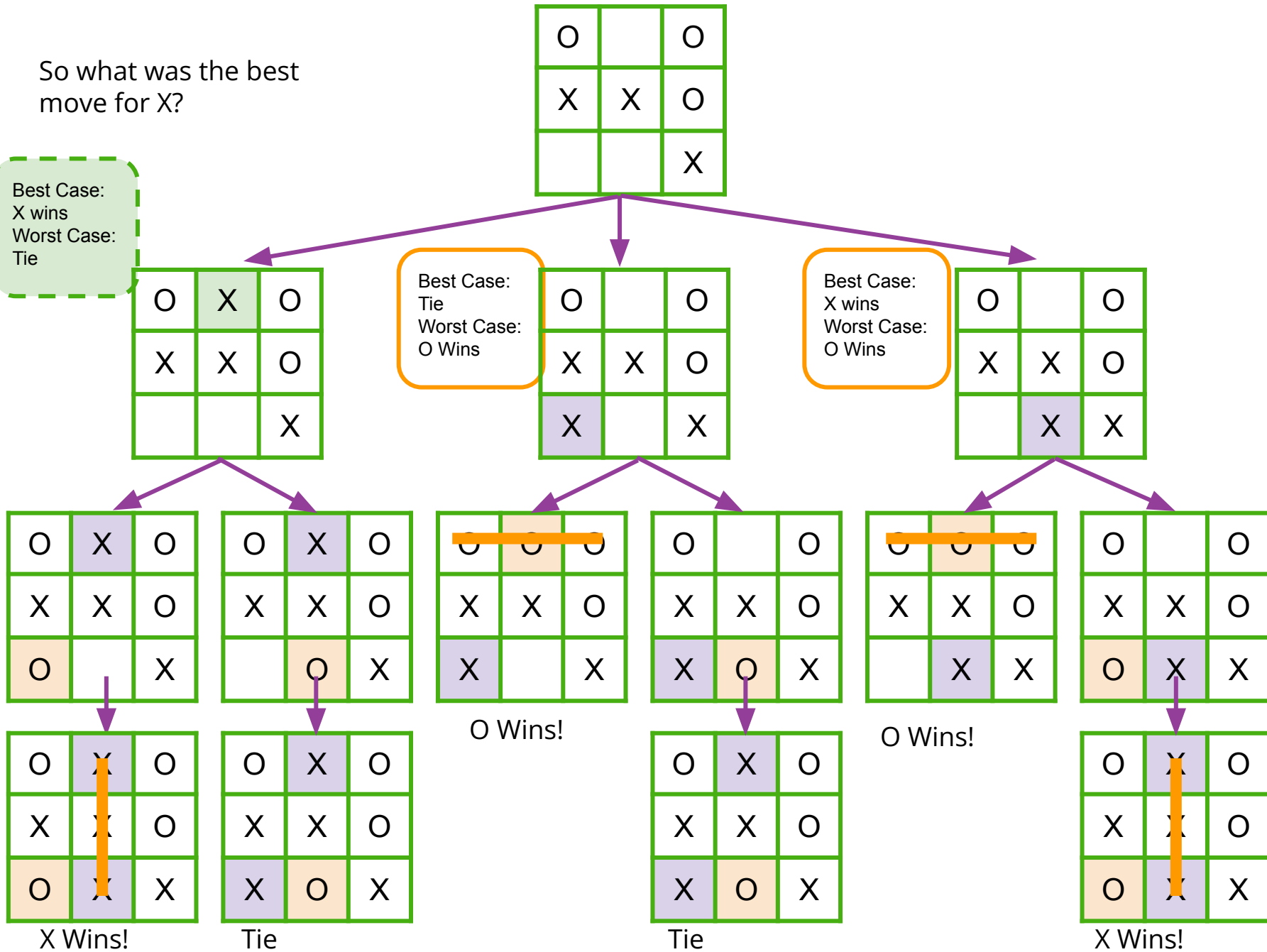
Best Case:
Tie
Worst Case:
O Wins

Best Case:
X wins
Worst Case:
O Wins

X's Turn

O's Turn

X's Turn



Tic Tac Toe Secret Message

Once you find the best possible move, you then need to look up what letter that matches up with on the posters around the Lunch area!

O		O
X	X	O
		X



O	X	O
X	X	O
		X

A		

	B	

		E

	G	

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Once you find the best possible move, you then need to look up what letter that matches up with on the posters around the Lunch area!

O		O
X	X	O
		X



O	X	O
X	X	O
		X

A		

	B	

		E

	G	

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Once you find the best possible move, you then need to look up what letter that matches up with on the posters around the Lunch area!

O		O
X	X	O
		X



O	X	O
X	X	O
		X

In our example
this move = G

A		

	B	

		E

	G	

Tic Tac Toe Secret Message

Use your templates to go through each possible move to find the best one for each board, then find the matching letter!

When you find the Secret Message, come and tell me at the front for a special treat!

(Don't forget to check for diagonal wins!)