

Remodeled tree structure

1. Possibilities with the new tree structure

The move tree has been remodeled. It is possible to jump to any board state and there is more flexibility than before, which was done by reordering and extending the array fields. This enables the possibilities to:

- 1) Comments in the sgf. (Was already implemented, but didn't work.)
- 2) End a correct sequence on an opponent move.
- 3) End an incorrect sequence on a player move. *
- 4) Compare board states to look for recurring cases. *
- 5) Review forward and backward buttons. *
- 6) Comment on a specific move in the sequence outside of the sgf. *

**Not yet implemented.*

To show the structure, Easy Life 97 (modified) is used:

<https://tsumego-hero.com/tsumegos/play/10403>



The nodes are saved as double moves (black and white), so the tree has 10 nodes.

2. Fields

Each node in the tree consists of 10 entries:

- [0] Player move x (0-18)
- [1] Player move y (0-18)
- [2] Depth
- [3] Parent identifier
- [4] Opponent move x (0-18 or empty)
- [5] Opponent move y (0-18 or empty)
- [6] Identifier
- [7] Comment/debugging
- [8] End node or not ("+", "w" or empty) "+" if it is a correct end node, "w" if it is an incorrect end node, otherwise empty.
- [9] Board state (This contains all played moves as string. The moves are ordered alphabetically for comparison. Does not contain the initial board position, that gets saved elsewhere.)

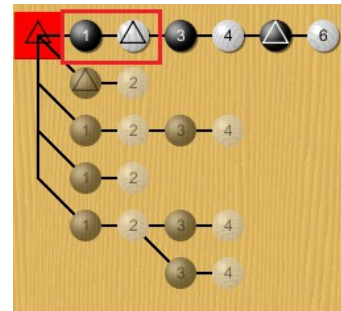


Each node has an identifier (A to EB) and a depth (0-1-2)

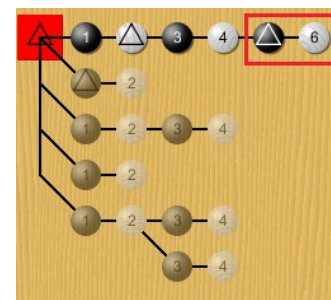
3. Example array

```
[0] => Array
(
    [0] => 1
    [1] => 0
    [2] => 0
    [3] =>
    [4] => 2
    [5] => 1
    [6] => A
    [7] => hello world
    [8] =>
    [9] => B-1-0;W-2-1;
)
[1] => Array
(
    [0] => 2
    [1] => 2
    [2] => 1
    [3] => A
    [4] => 1
    [5] => 1
    [6] => A
    [7] => 0-5
    [8] =>
    [9] => B-1-0;B-2-2;W-1-1;W-2-1;
)
[2] => Array
(
    [0] => 0
    [1] => 1
    [2] => 2
    [3] => A
    [4] => 4
    [5] => 3
    [6] => A
    [7] => this is correct
    [8] => +
    [9] => B-0-1;B-1-0;B-2-2;W-1-1;W-2-1;W-4-3;
)
[3] => Array
(
    [0] => 2
    [1] => 1
    [2] => 0
    [3] =>
    [4] => 1
    [5] => 0
    [6] => B
    [7] => this is wrong
    [8] => w
    [9] => B-2-1;W-1-0;
)
[4] => Array
(
    [0] => 2
    [1] => 2
    [2] => 0
```

[0] =>
 [0], [1] Player move coordinates
 [2] Depth 0
 [3] Has no parent (empty)
 [4], [5] Opponent move coordinates
 [6] Identifier A
 [7] The comment "hello world" is written on the white move, could also be written on the black move.
 [8] Not an ending node (empty)
 [9] The board state is those two stones plus the initial position.



[2] =>
 [0], [1] Player move coordinates
 [2] Depth 2
 [3] Parent A
 [4], [5] Opponent move coordinates (Normally, here are no coordinates, but if there are, an opponent move is played after ending correctly.)
 [6] Identifier A (no need to distinguish, because of the depth.)
 [7] On the black move it is written "+this is correct", which means correct sequence, followed by a comment.
 [8] "+" means correct ending node.
 [9] The board state contains 6 moves and is sorted alphabetically. (Plus initial position.)



```

[3] =>
[4] => 1
[5] => 1
[6] => C
[7] => 2-0
[8] =>
[9] => B-2-2;W-1-1;
)
[5] => Array
(
[0] => 1
[1] => 0
[2] => 1
[3] => C
[4] => 0
[5] => 1
[6] => C
[7] => 2-5
[8] => w
[9] => B-1-0;B-2-2;W-0-1;W-1-1;
)
[6] => Array
(
[0] => 0
[1] => 1
[2] => 0
[3] =>
[4] => 1
[5] => 0
[6] => D
[7] => 3-0
[8] => w
[9] => B-0-1;W-1-0;
)
[7] => Array
(
[0] => 1
[1] => 1
[2] => 0
[3] =>
[4] => 2
[5] => 2
[6] => E
[7] => 4-0
[8] =>
[9] => B-1-1;W-2-2;
)

[8] => Array
(
[0] => 2
[1] => 1
[2] => 1

```

```

[3] => E
[4] => 1
[5] => 0
[6] => EA
[7] => 4-5
[8] => w
[9] => B-1-1;B-2-1;W-1-0;W-2-2;
)
[9] => Array
(
  [0] => 2
  [1] => 0
  [2] => 1
  [3] => E
  [4] => 2
  [5] => 1
  [6] => EB
  [7] => 4-11
  [8] => w
  [9] => B-1-1;B-2-0;W-2-1;W-2-2;
)

```

[9] =>

[0], [1] Player move coordinates

[2] Depth 1

[3] Parent E

[4], [5] Opponent move coordinates

[6] Identifier EB

[7] If there is no comment, there is debugging code that gets deleted in the front end.

[8] "w" means incorrect ending node.

[9] The board state contains 4 moves and is sorted alphabetically. (Plus initial position.)

