



**Universität
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Introduction to Artificial Intelligence Exercise Sheet 5

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For example: Player 1 takes 1 coin from Stack 1, Player 2 takes 1 coin from Stack 1, Player 1 takes 1 coin from Stack 2, Player 2 can win the game by taking the remaining 3 coins from Stack 1 and so on for all the other game possibilities.

children. As the root node is MAX we choose the node with the highest utility, which is the node to the left with value 16. From there we have no expanded nodes. Therefore we pick the unexpanded left child and follow to the right by default policy until utility node 6.

We update the value of the lefthand root child to $16 + (6-16)/3 = 38/3$ and the root value to $15 + (6-15)/3 = 12$.

4.Iteration: The root node still has two expanded children but the root and lefthand side were updated with different values, therefore we again have to choose the successor for our root node.

As the root node is MAX we choose the node with the highest utility, which is the node to the right with value 14. From there we have no expanded nodes. We pick the unexpanded left child and follow to the right by default policy until utility node 12.

We update the value of the righthand root child to $14 + (12-14)/4 = 13.5$ and the root value to $12 + (12-12)/4 = 12$.

Consider the full Tree below:

