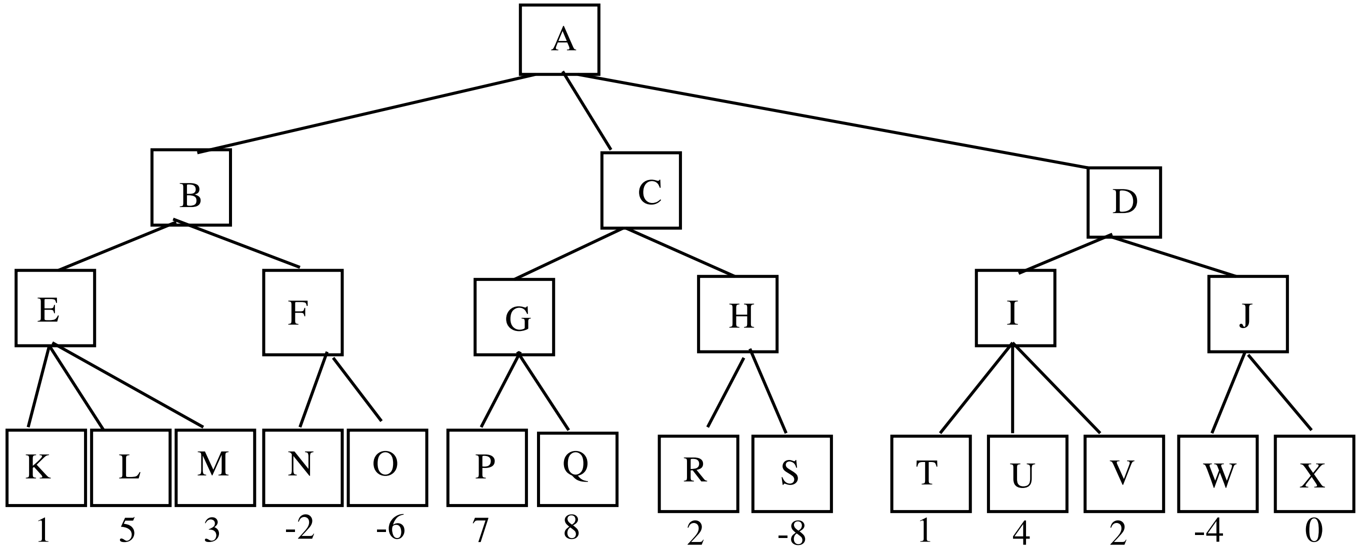
Exercise – min-max and alfa-beta cuts

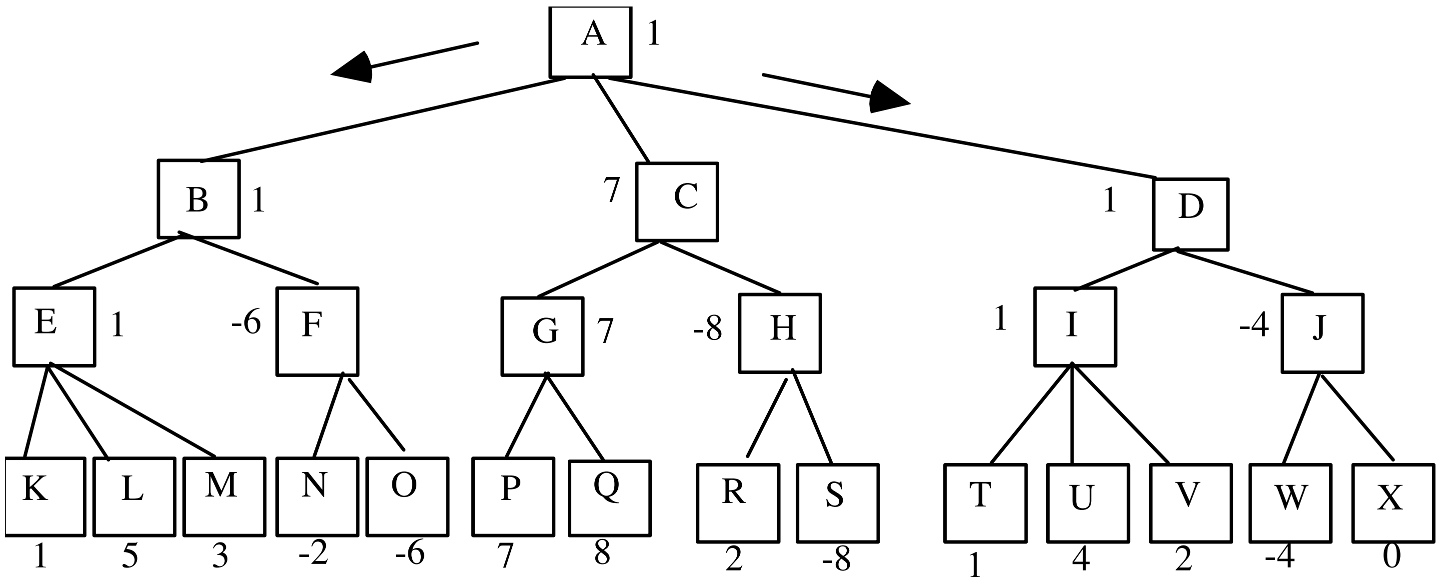
- Consider the following search tree representing a game. The evaluation of the leaves has been given by the first player.



- Suppose that the first player is MIN, which move is the most convenient? First you have to apply the MIN-MAX algorithm. Then alfa beta cuts should be identified

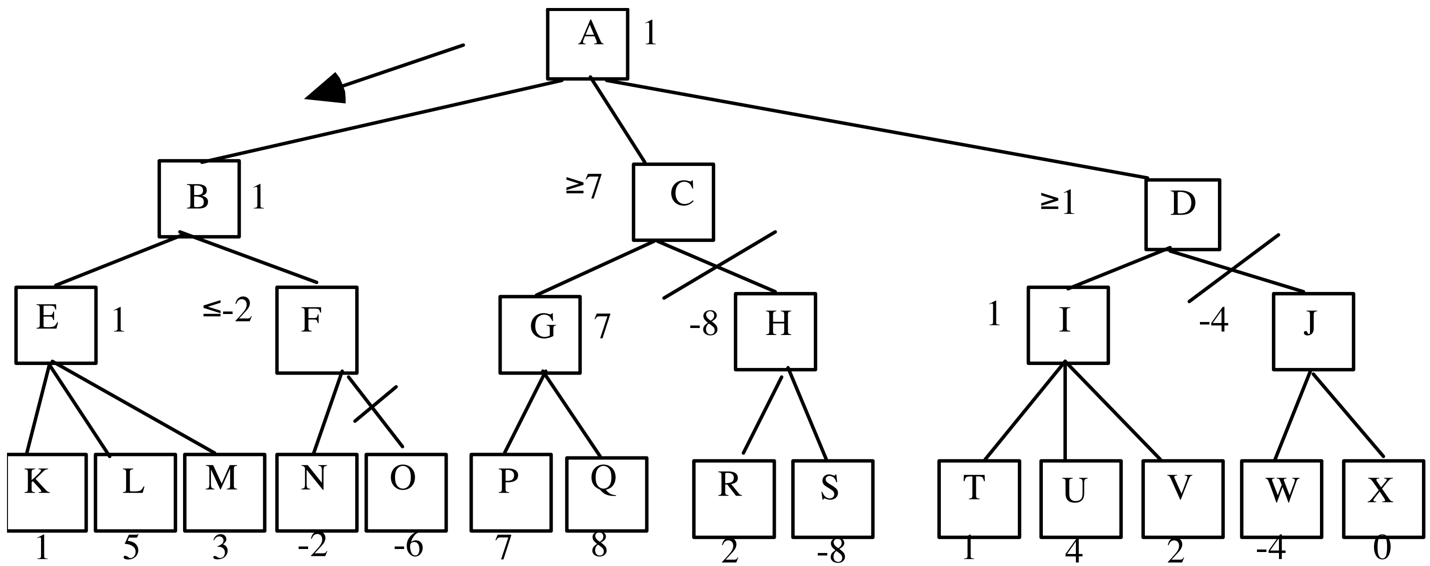
Exercise – min-max and alfa-beta cuts

- Min-Max:



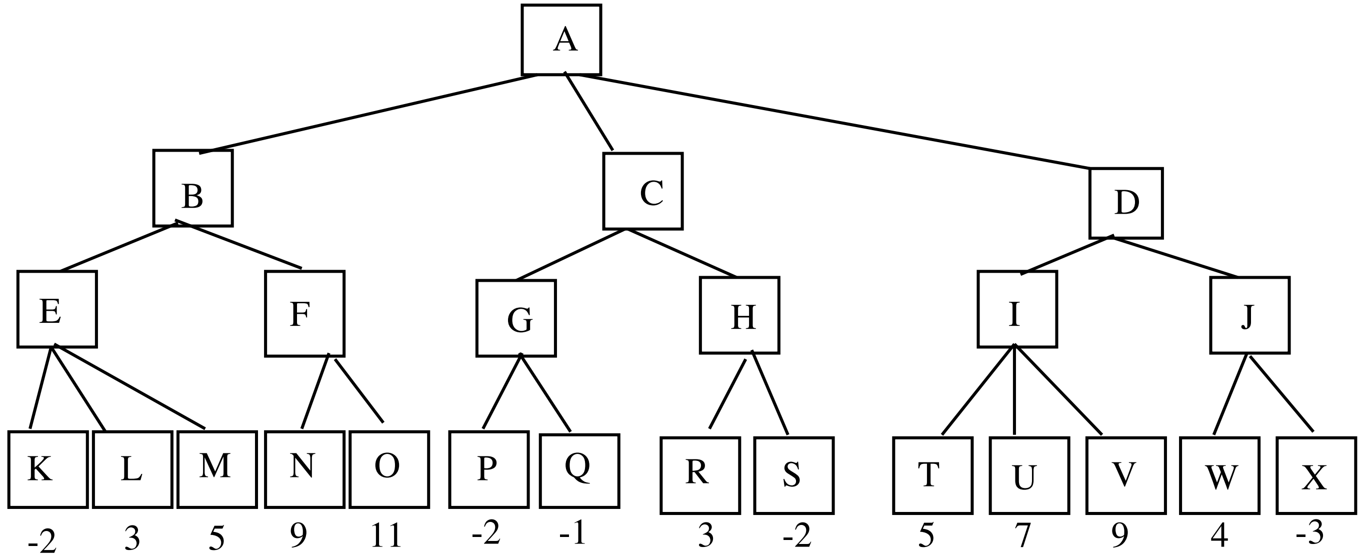
Exercise – min-max and alfa-beta cuts

- Alfa-beta cuts



Exercise – min-max and alfa-beta cuts

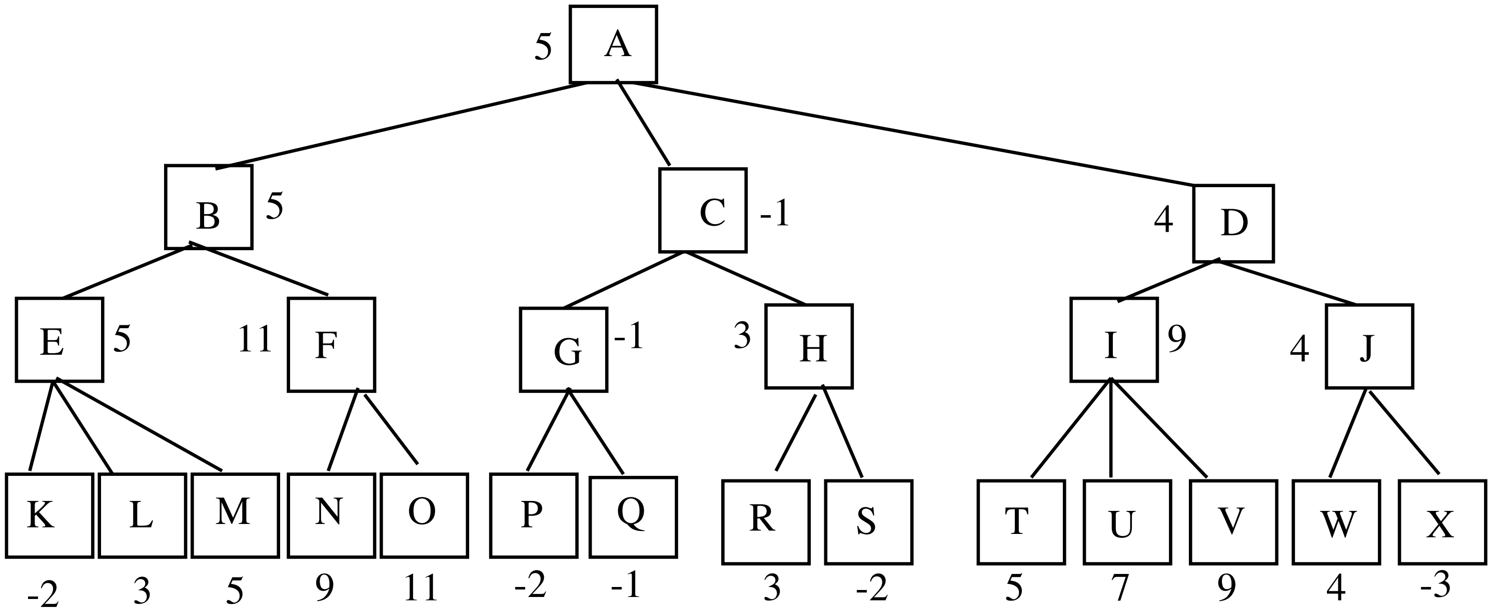
- Consider the following search tree representing a game. The evaluation of the leaves has been given by the first player.



- Suppose that the first player is MAX, which move is the most convenient? First you have to apply the MIN-MAX algorithm. Then alfa beta cuts should be identified

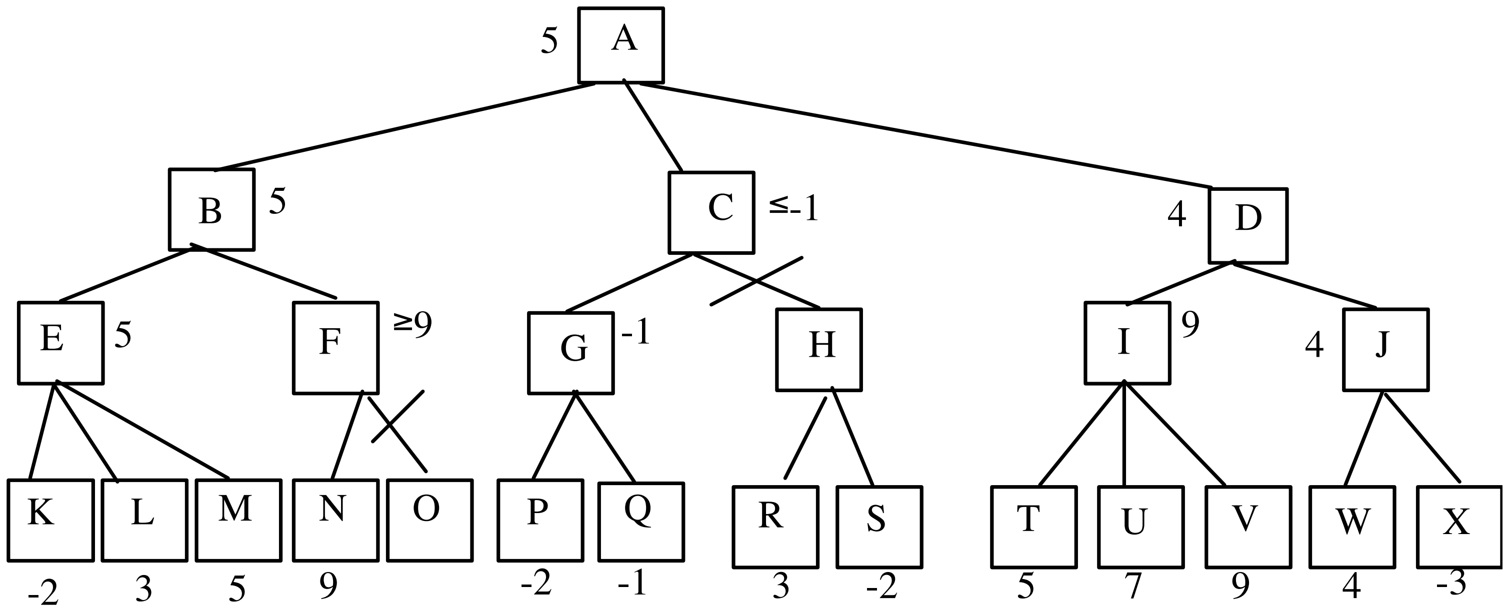
Exercise – min-max and alfa-beta cuts

- Min-Max:

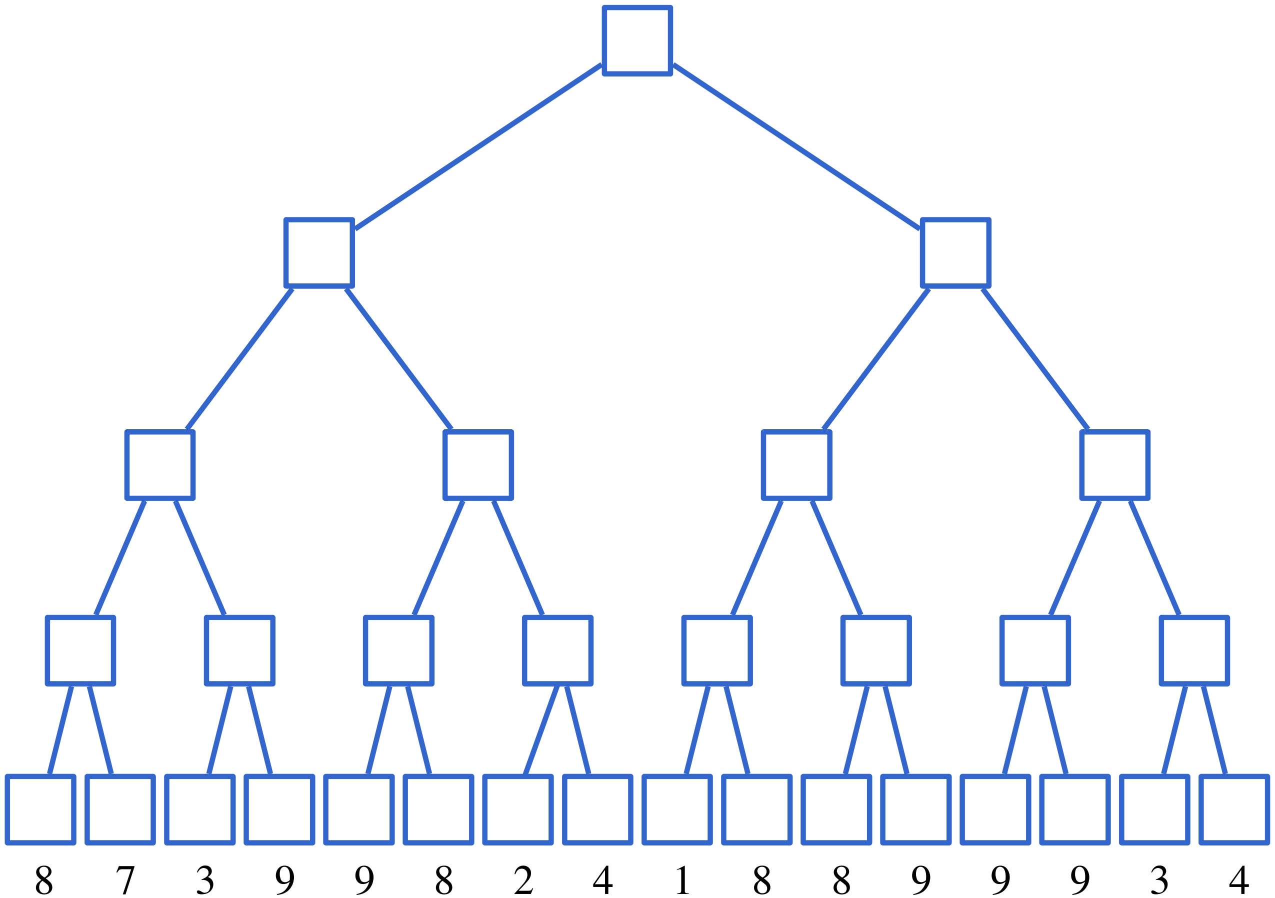


Exercise – min-max and alfa-beta cuts

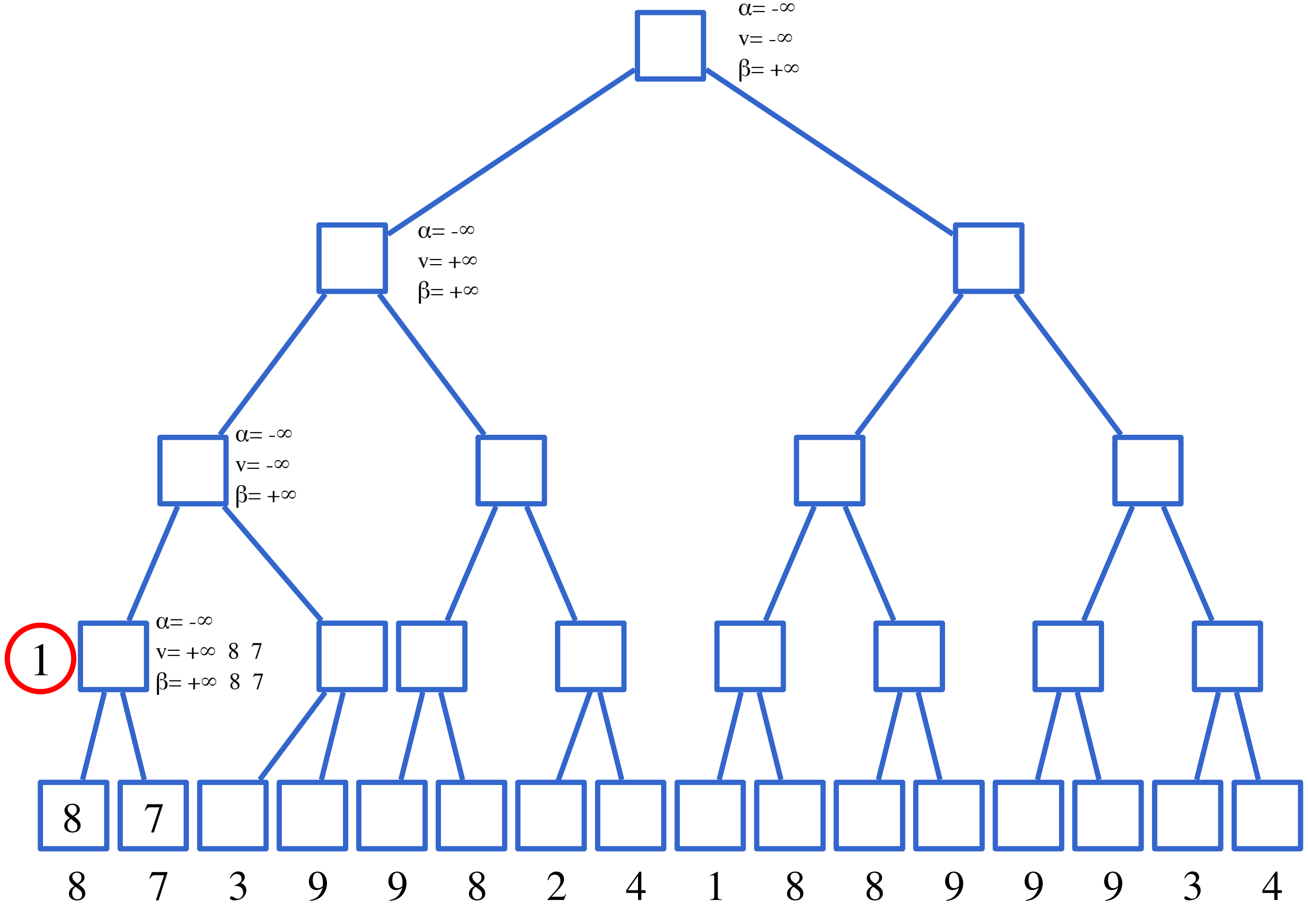
- Alfa-beta cuts:



Exam 21/12/2011



Exam 21/12/2011



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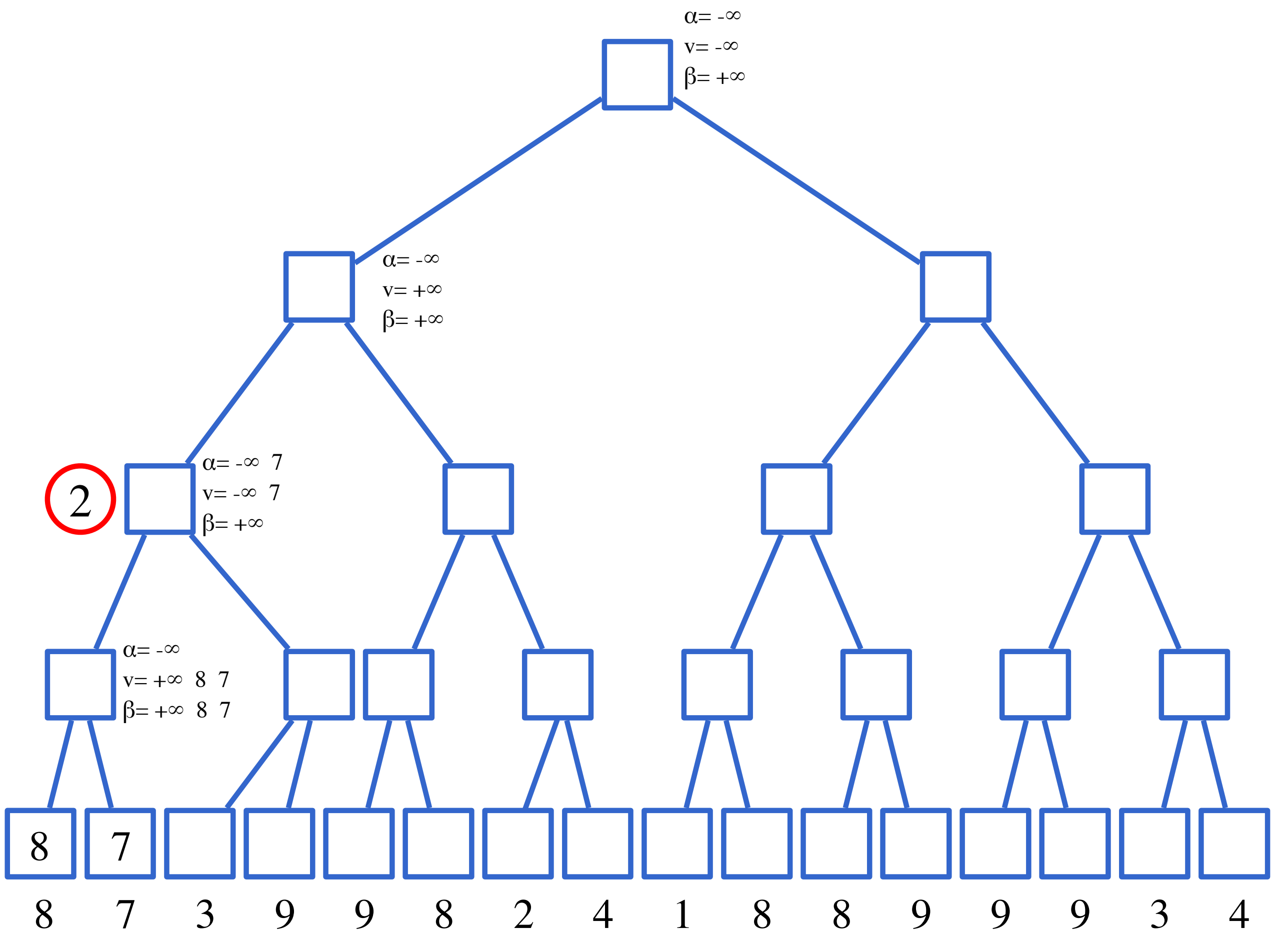

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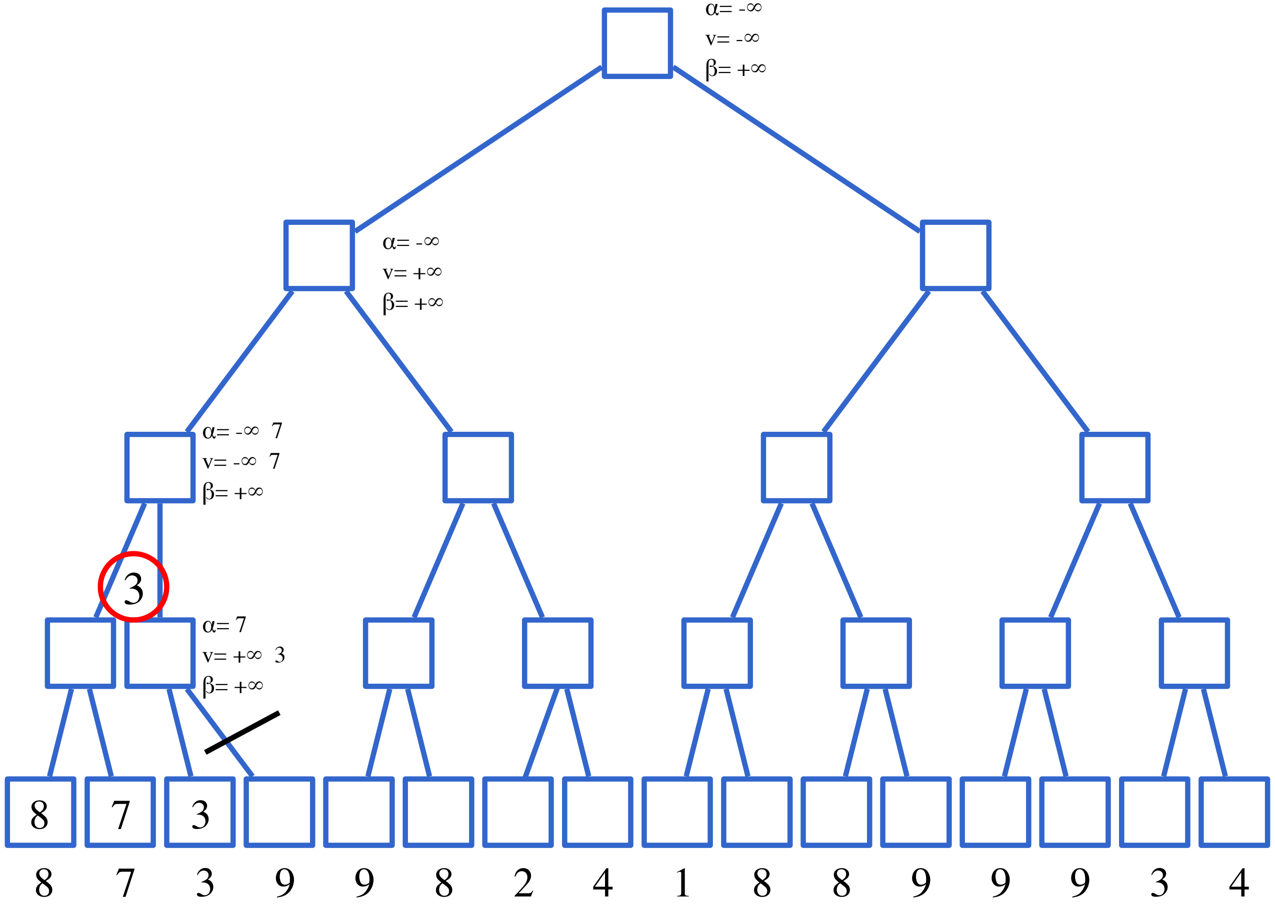

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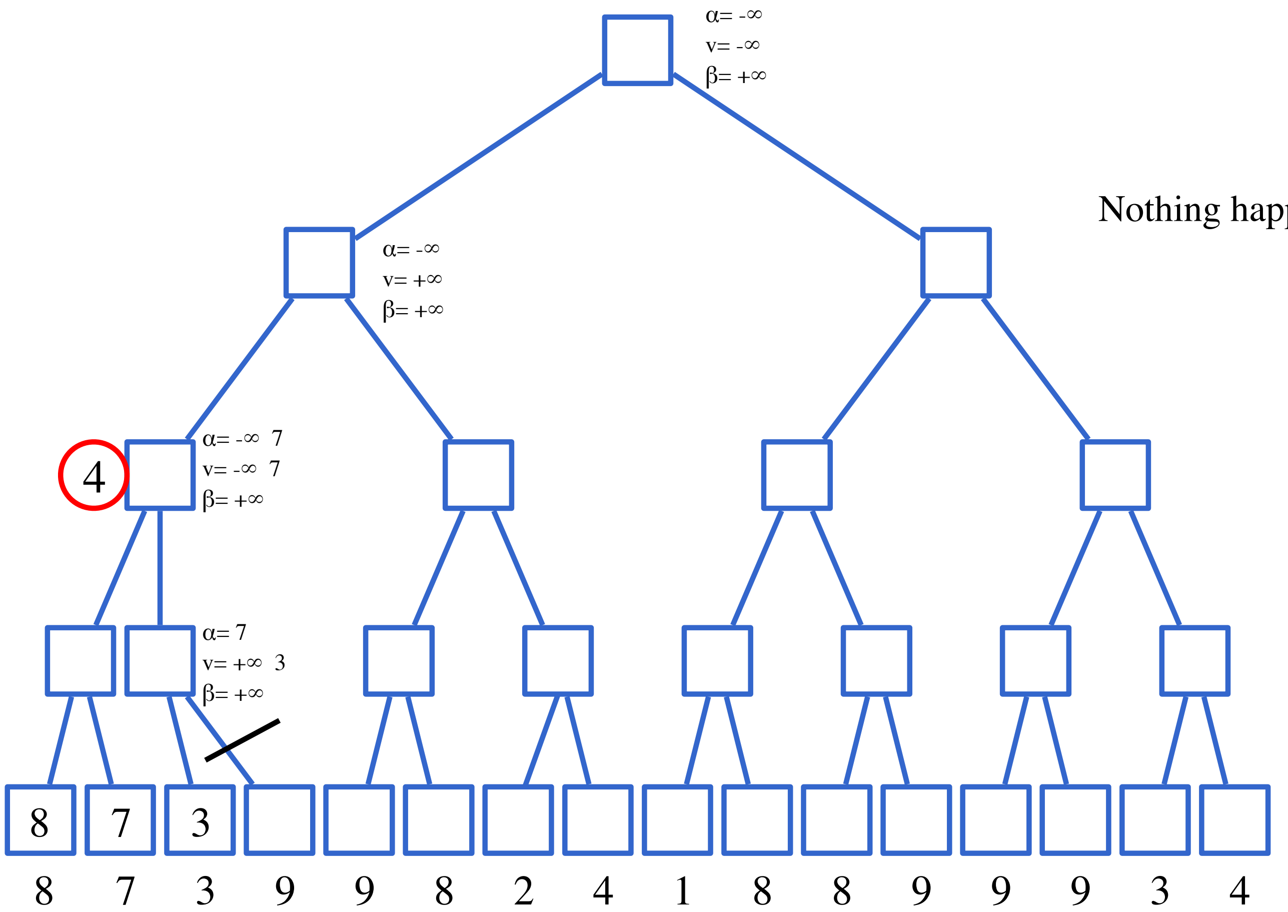
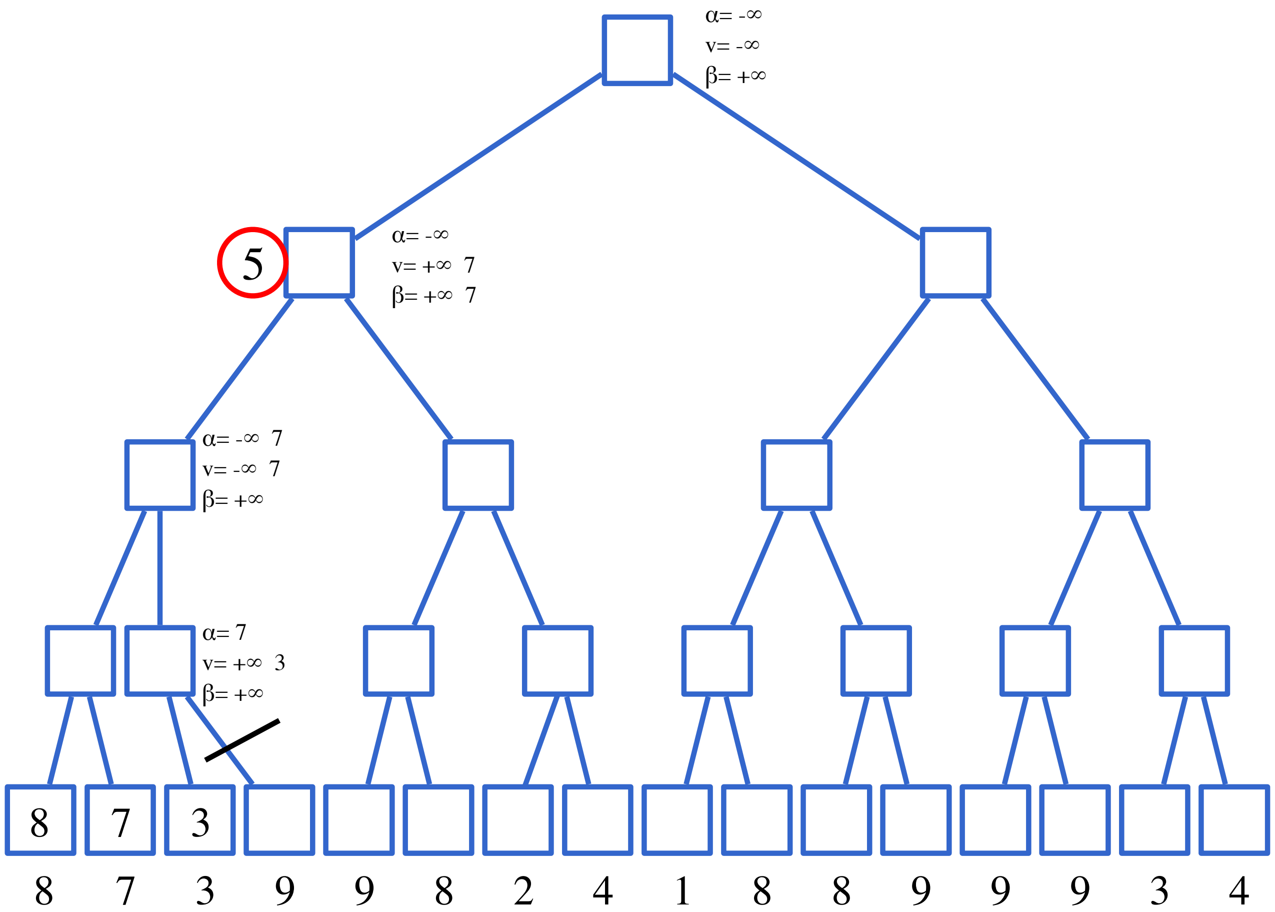


Nothing happens as 3<7…

Exam 21/12/2011



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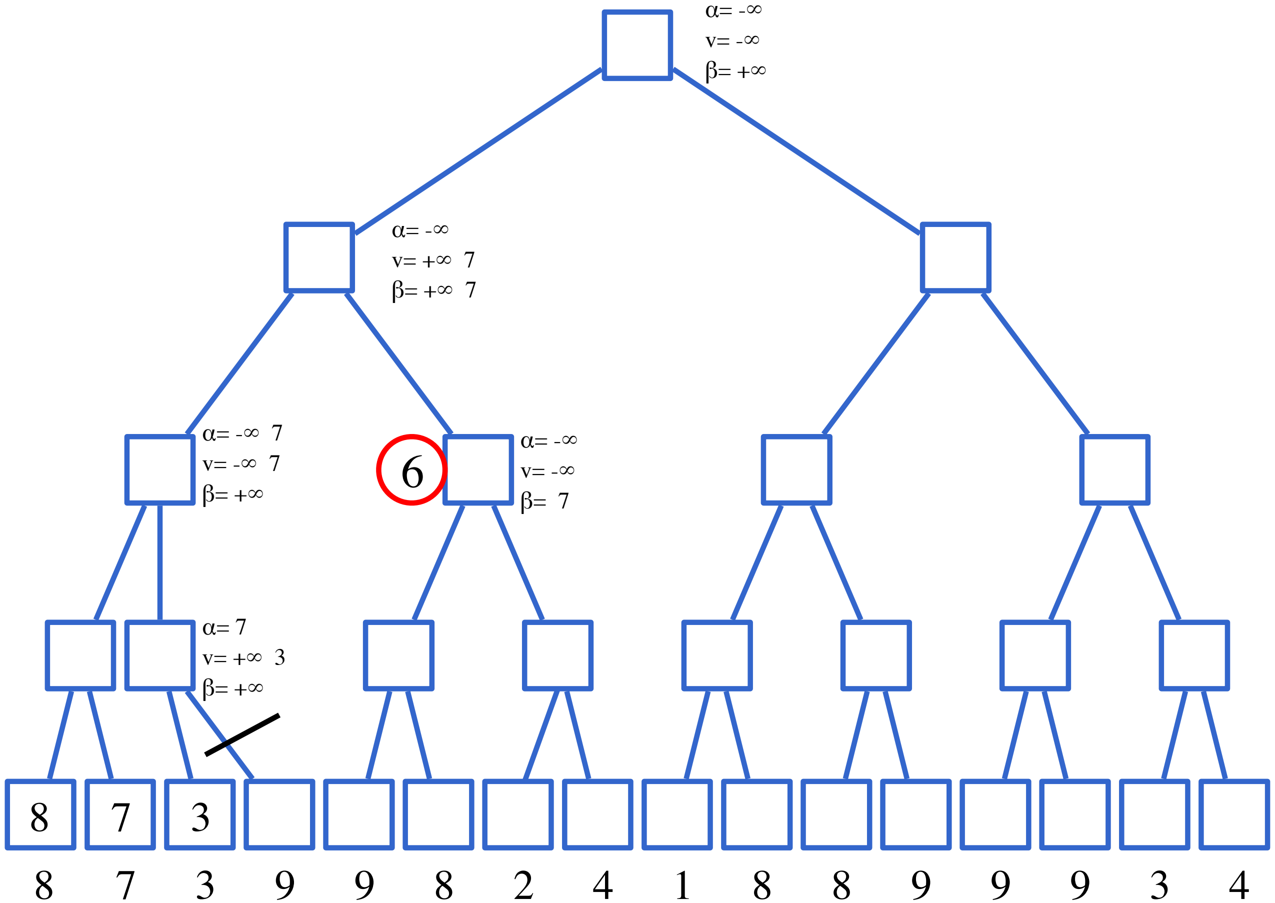

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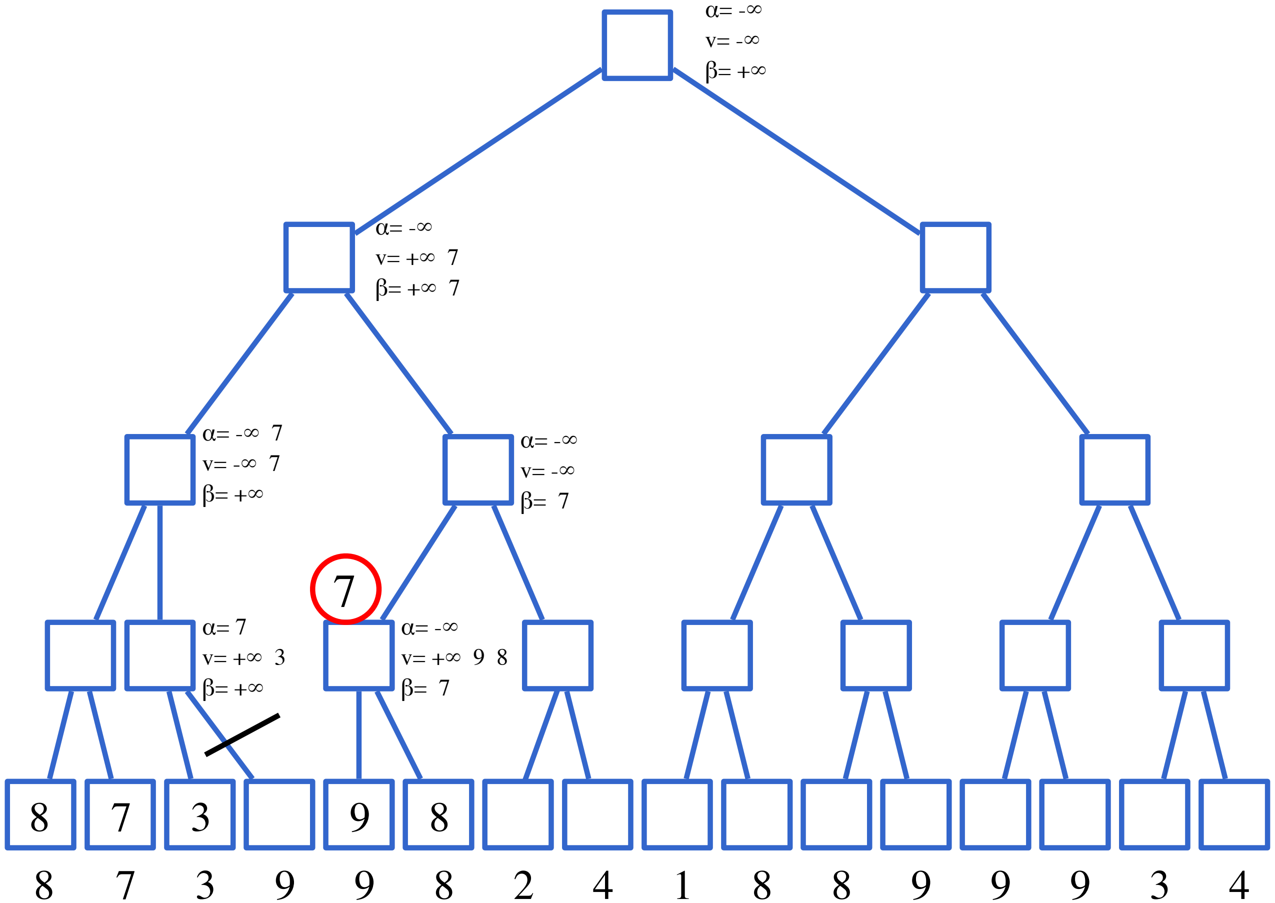

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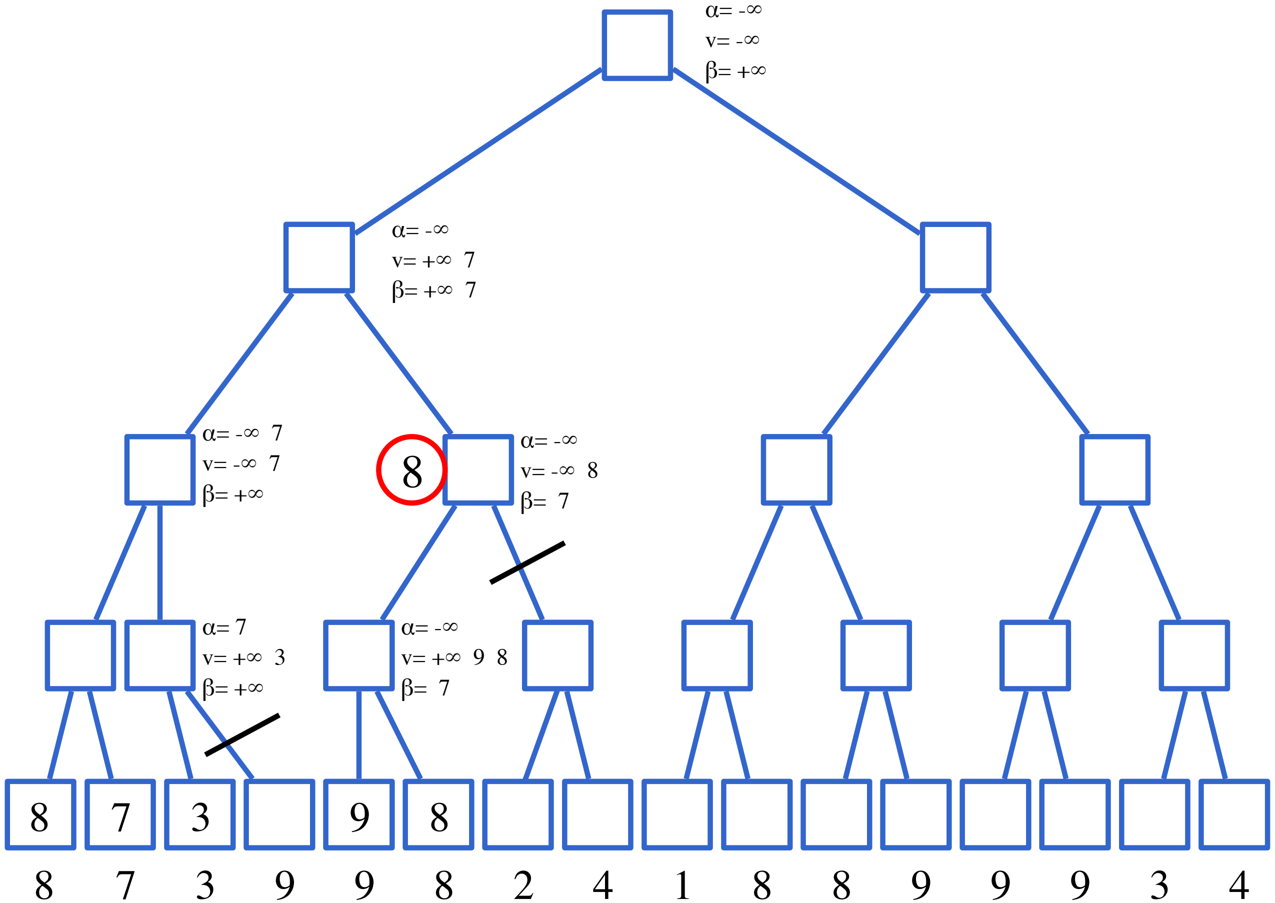
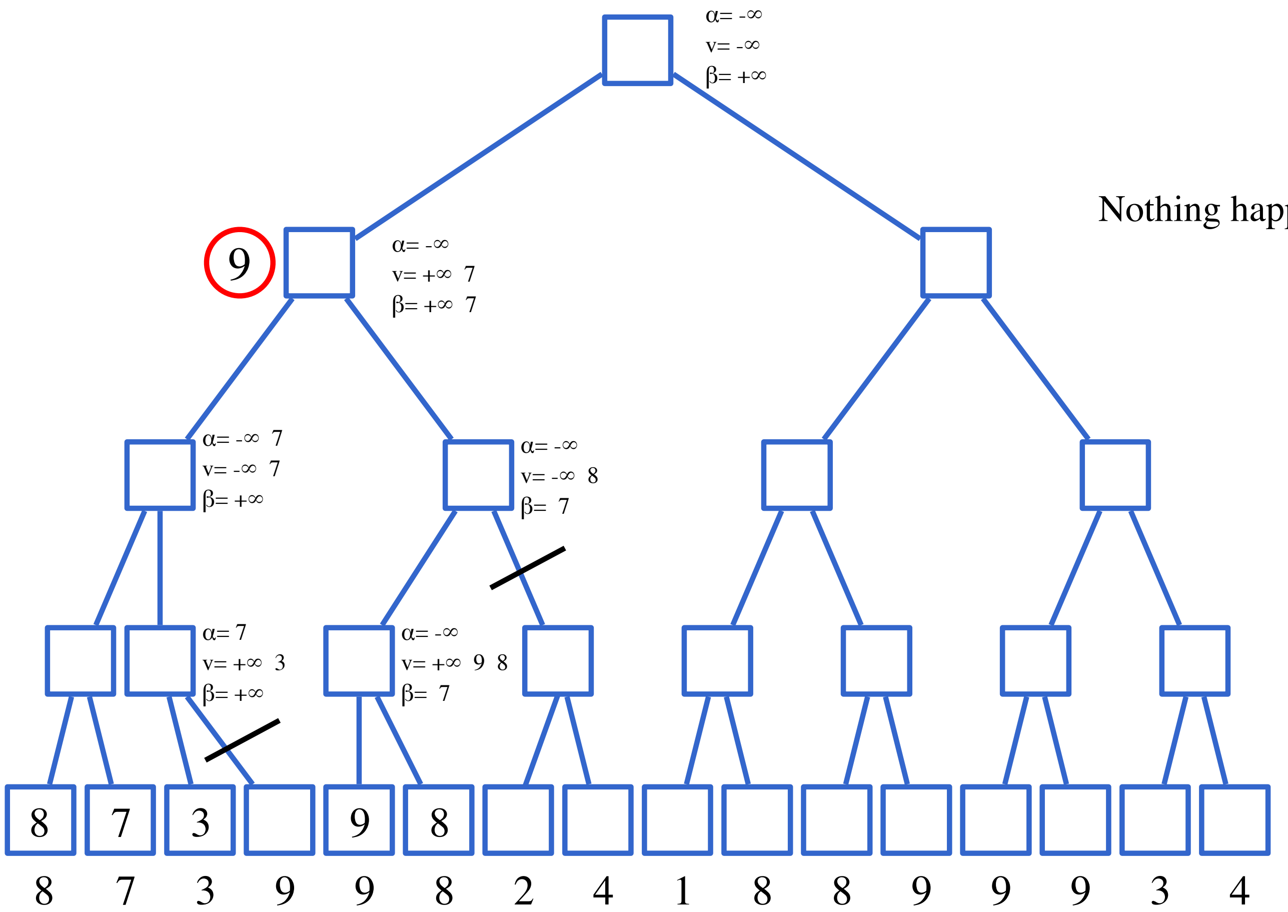
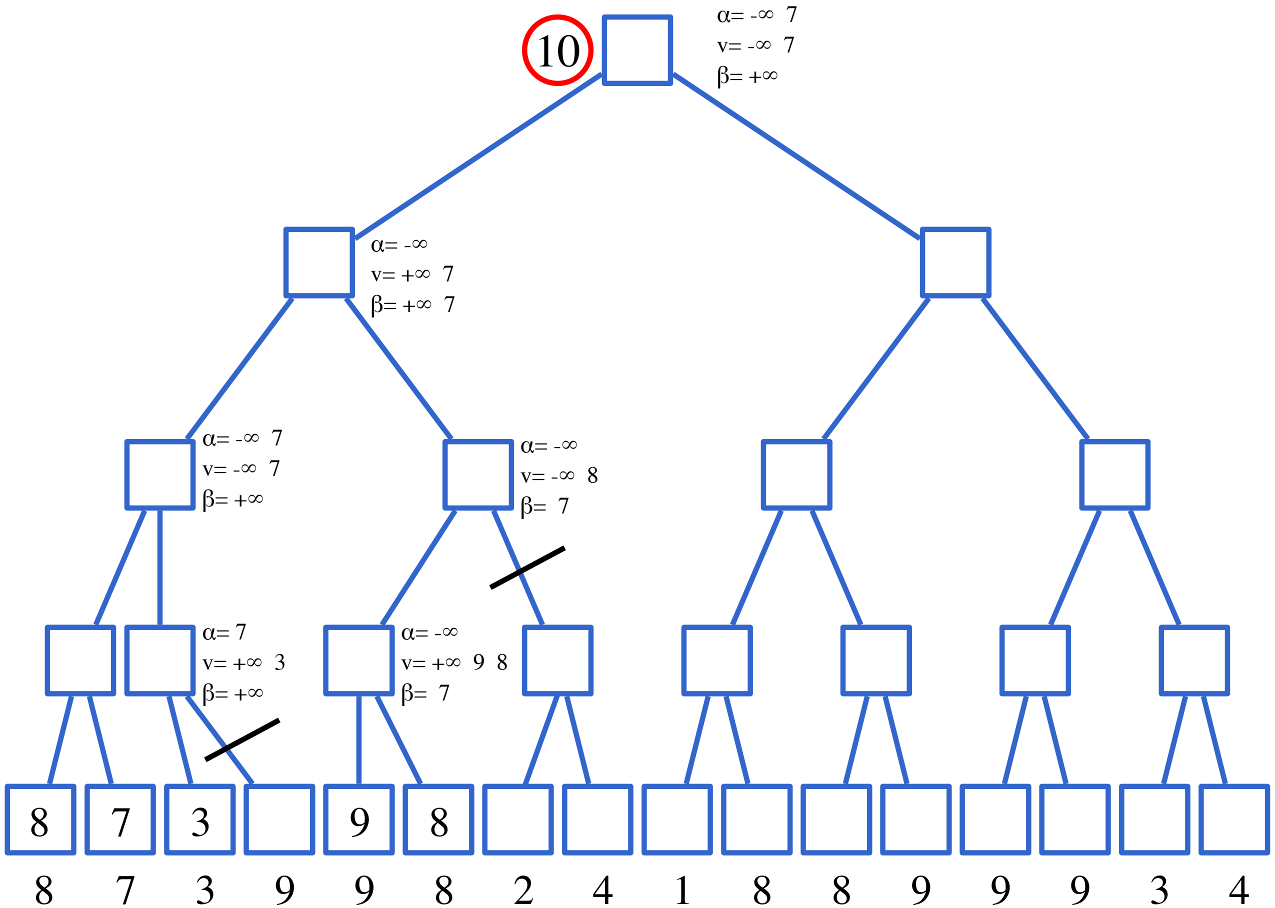


Exam 21/12/2011



Nothing happens as 8>7…

Exam 21/12/2011



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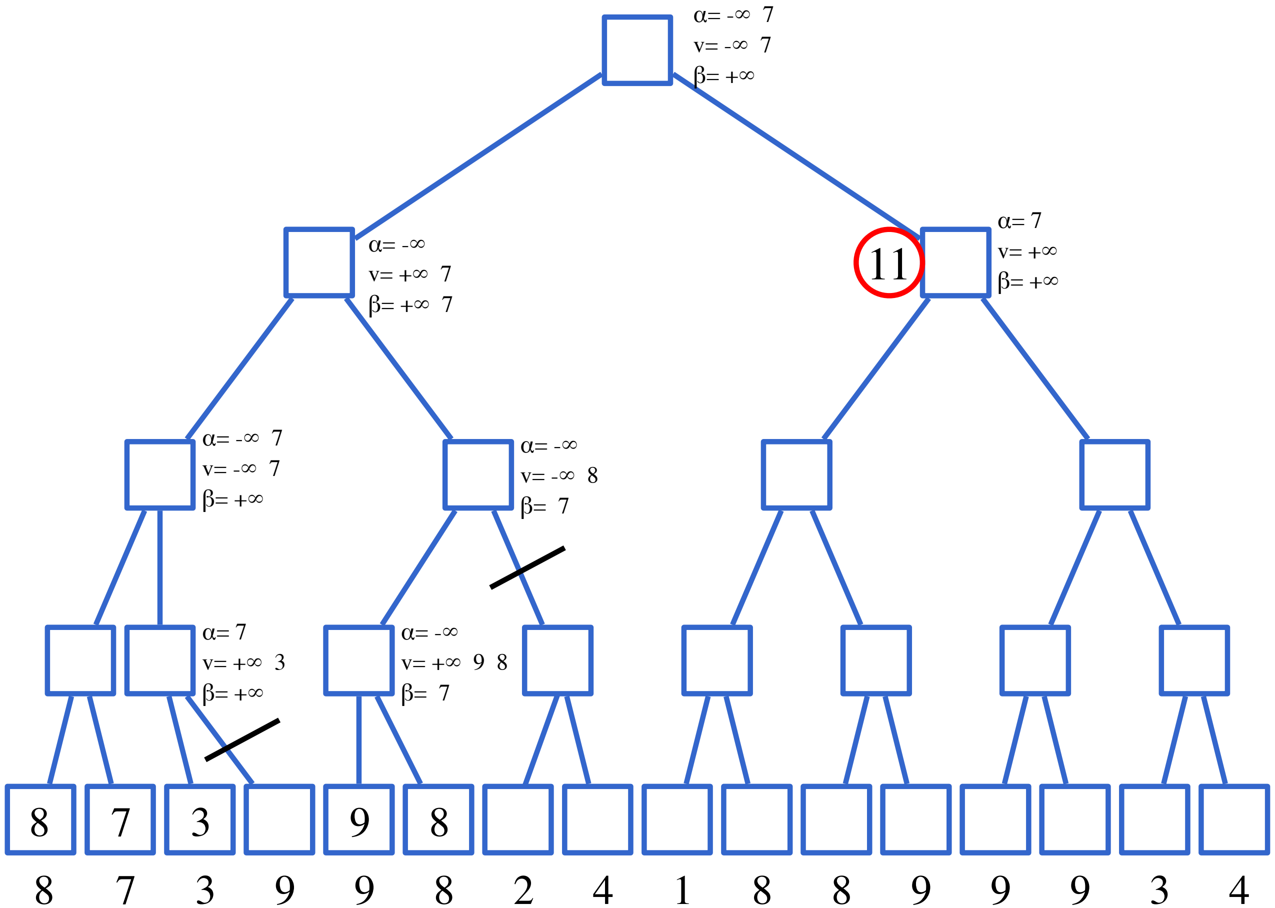
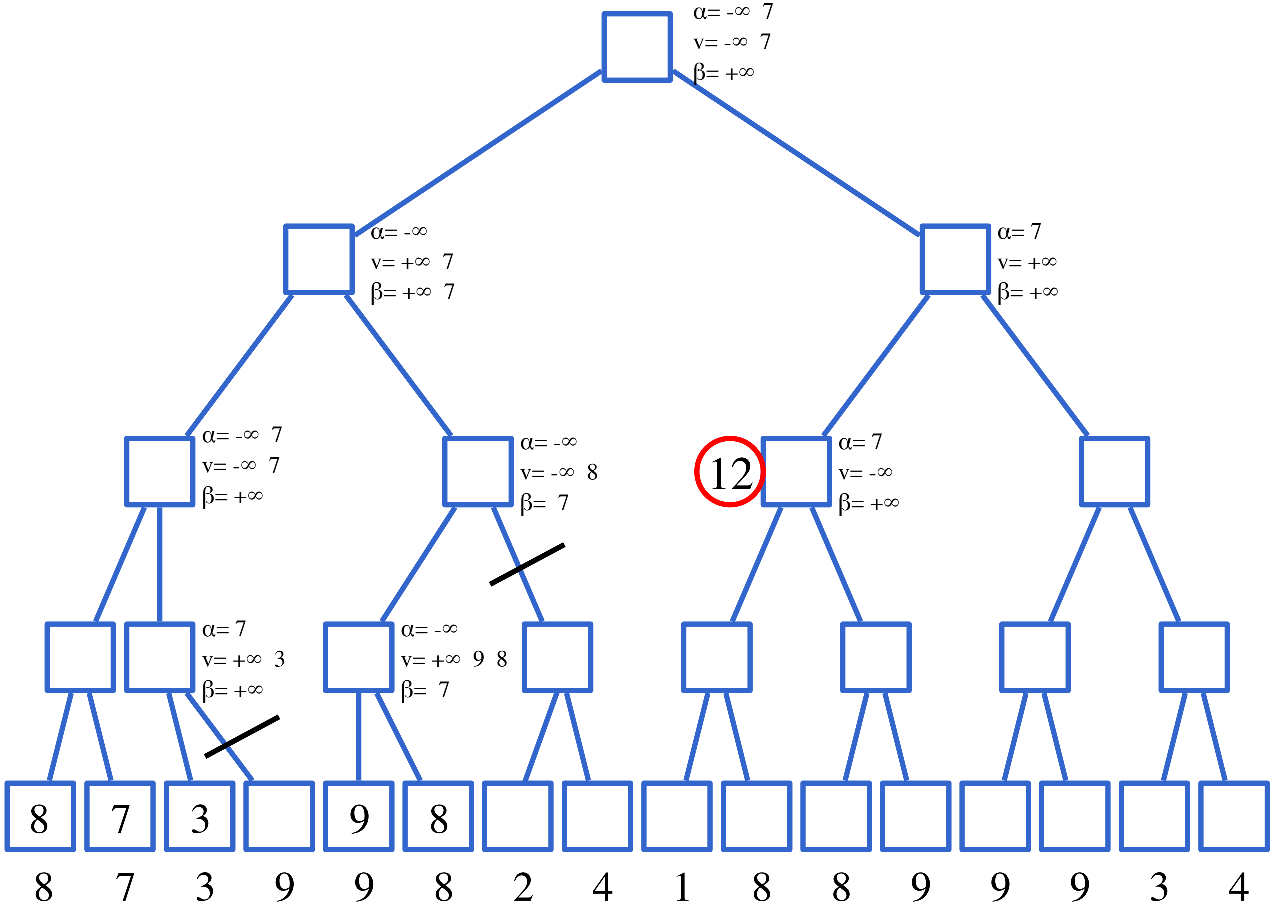
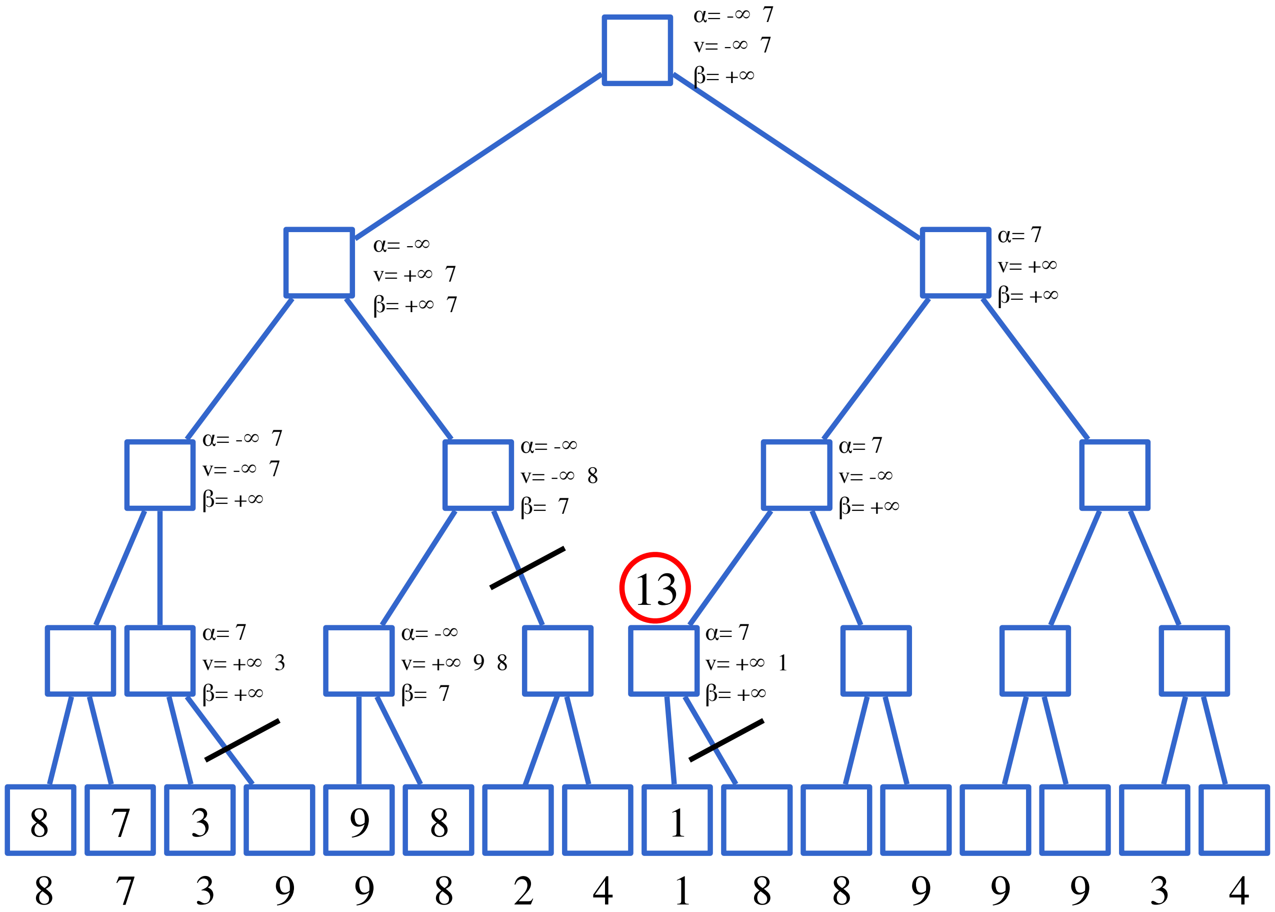


Exam 21/12/2011



Exam 21/12/2011



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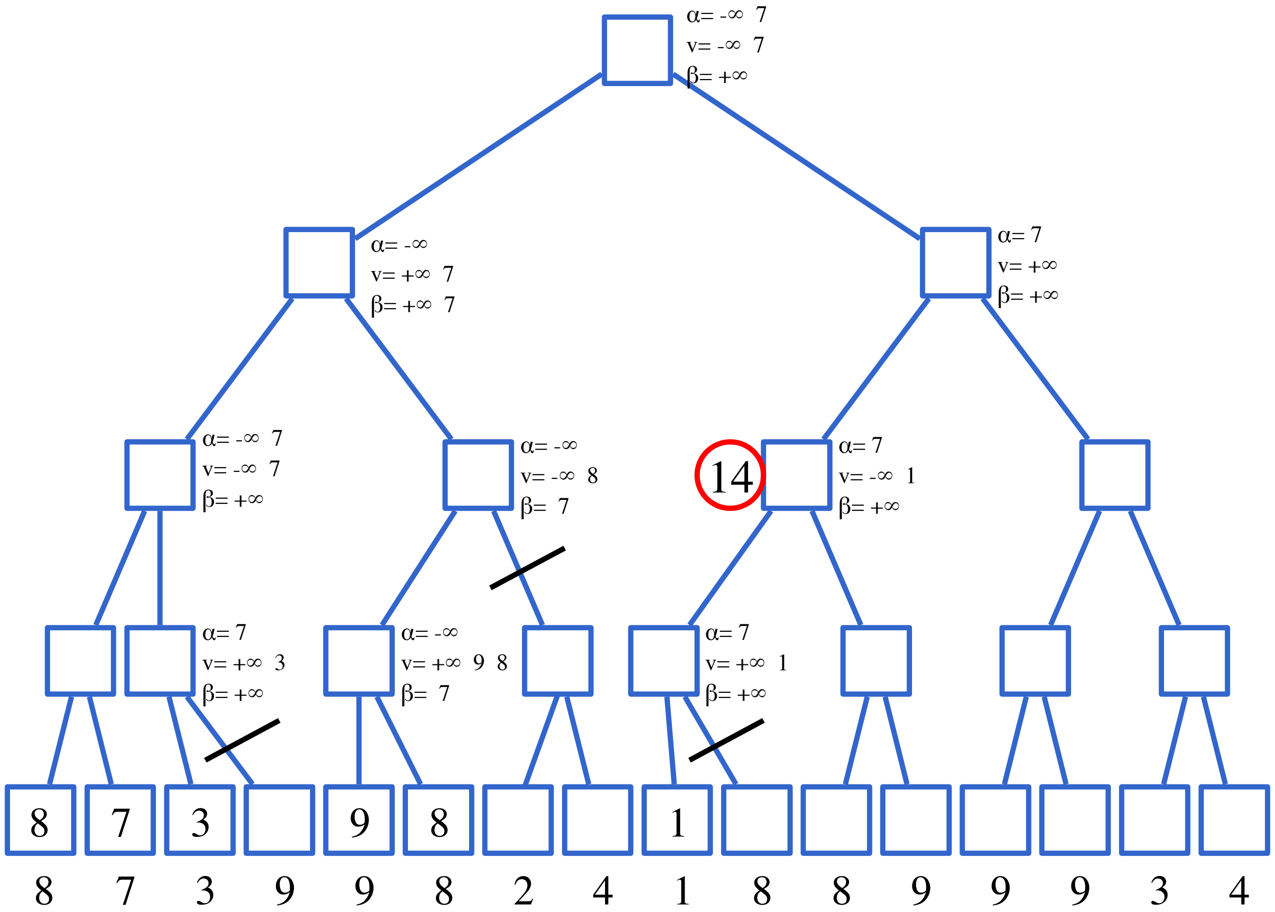

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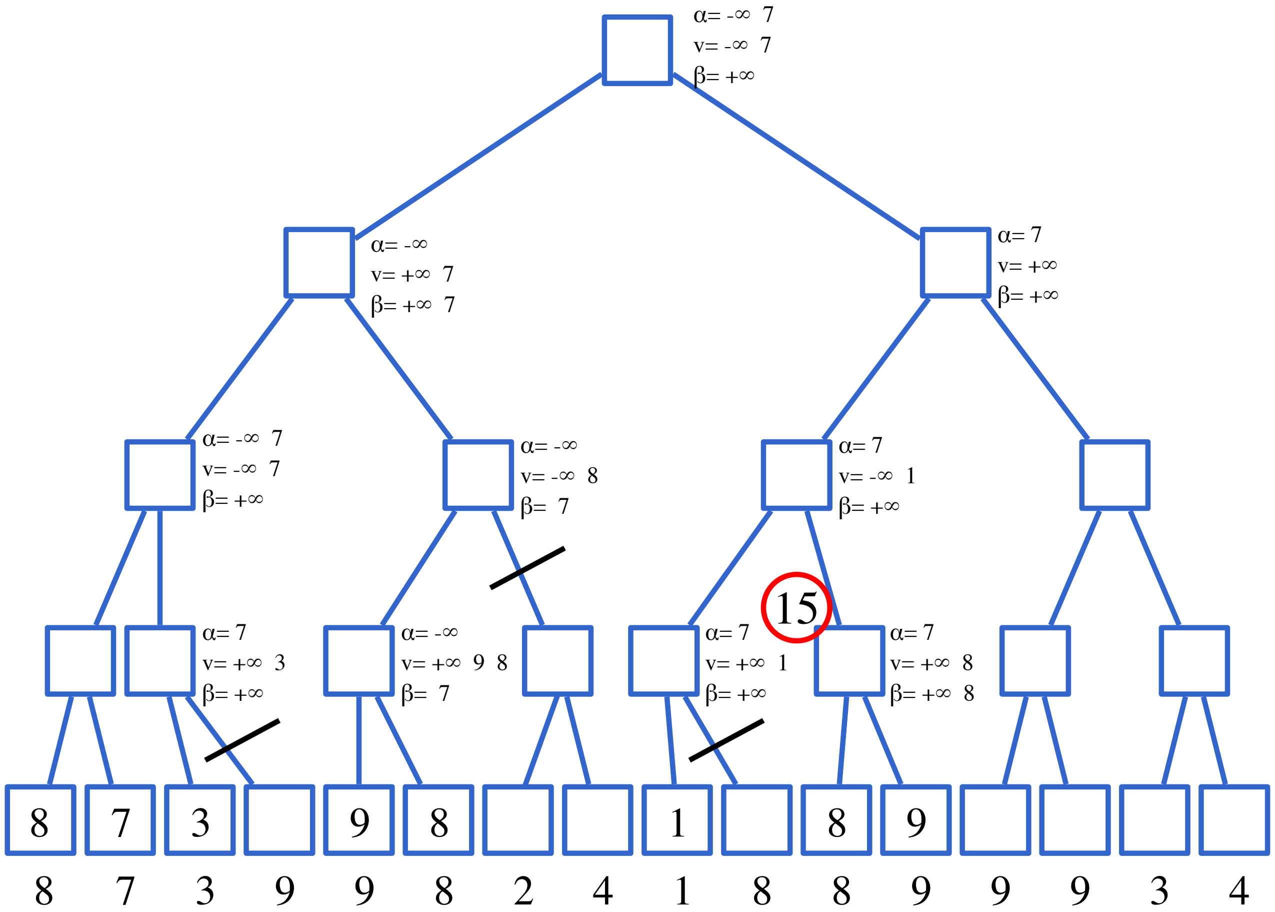

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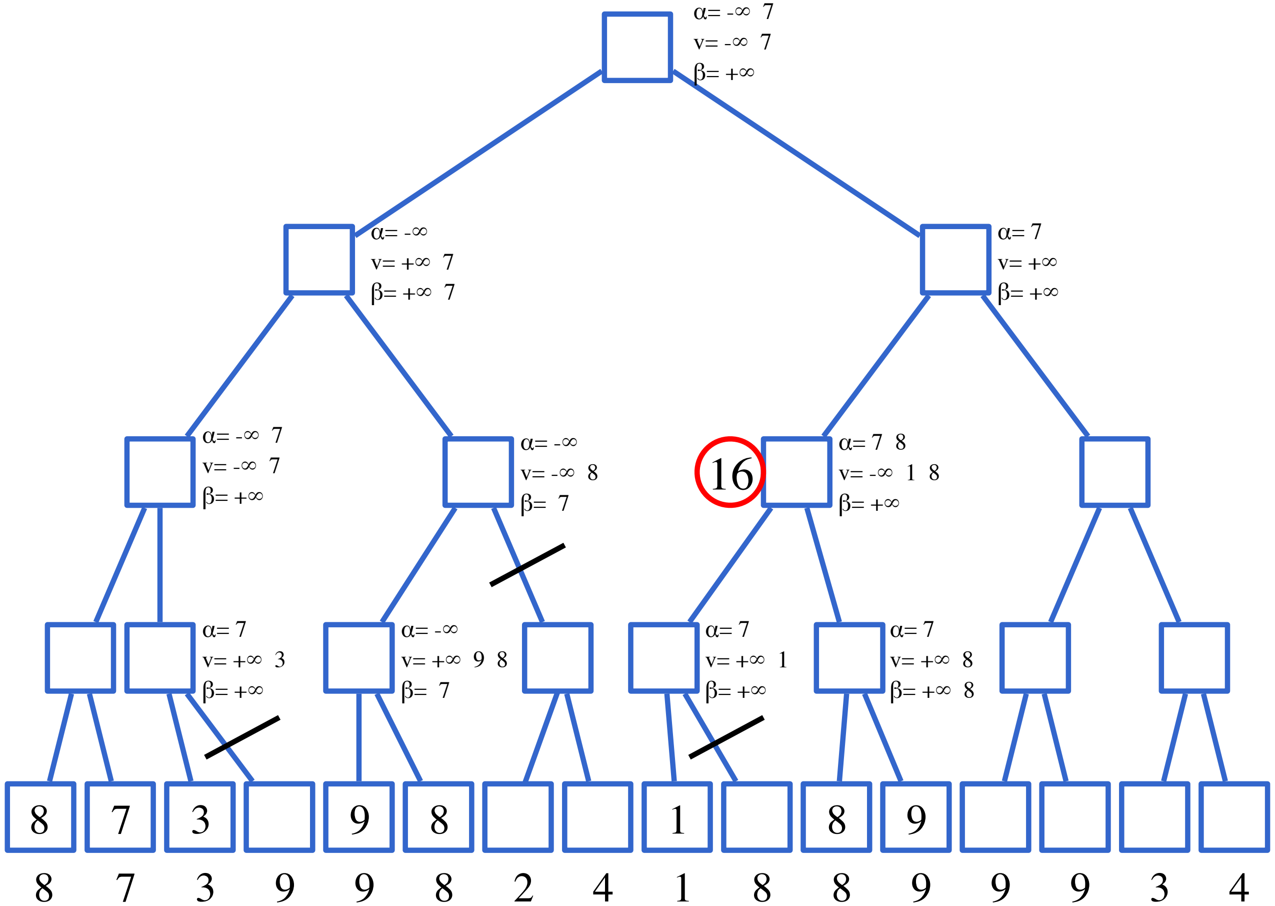
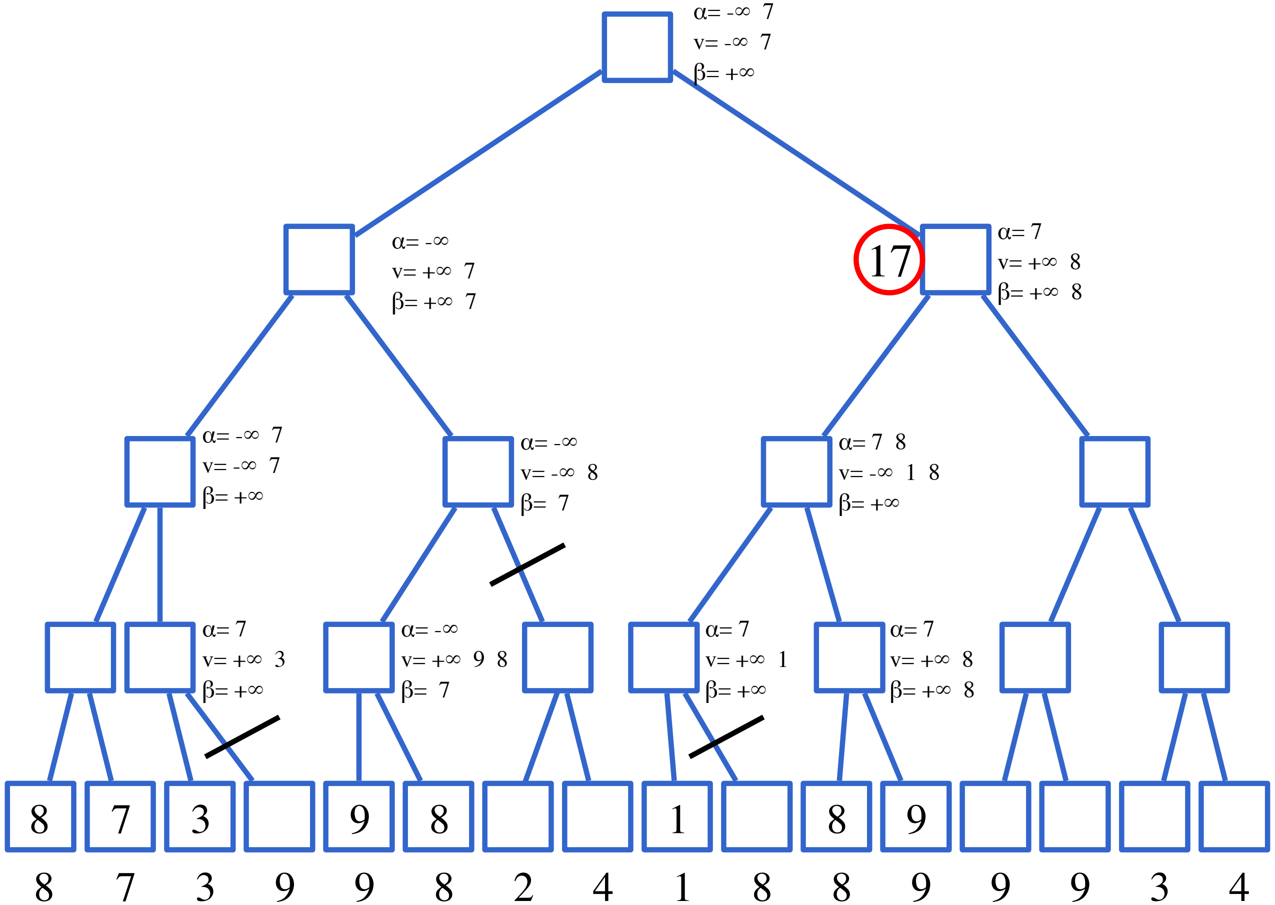


Exam 21/12/2011



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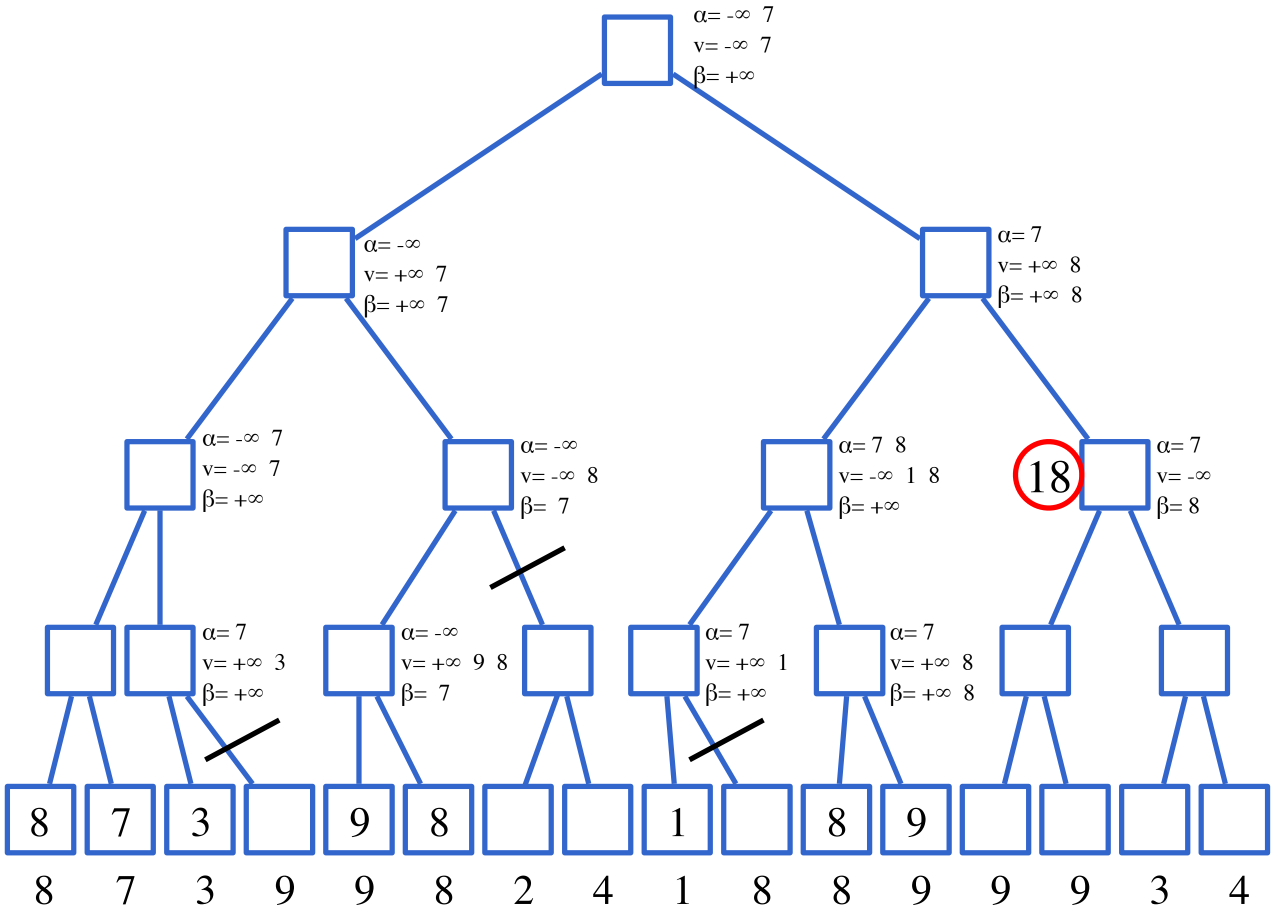

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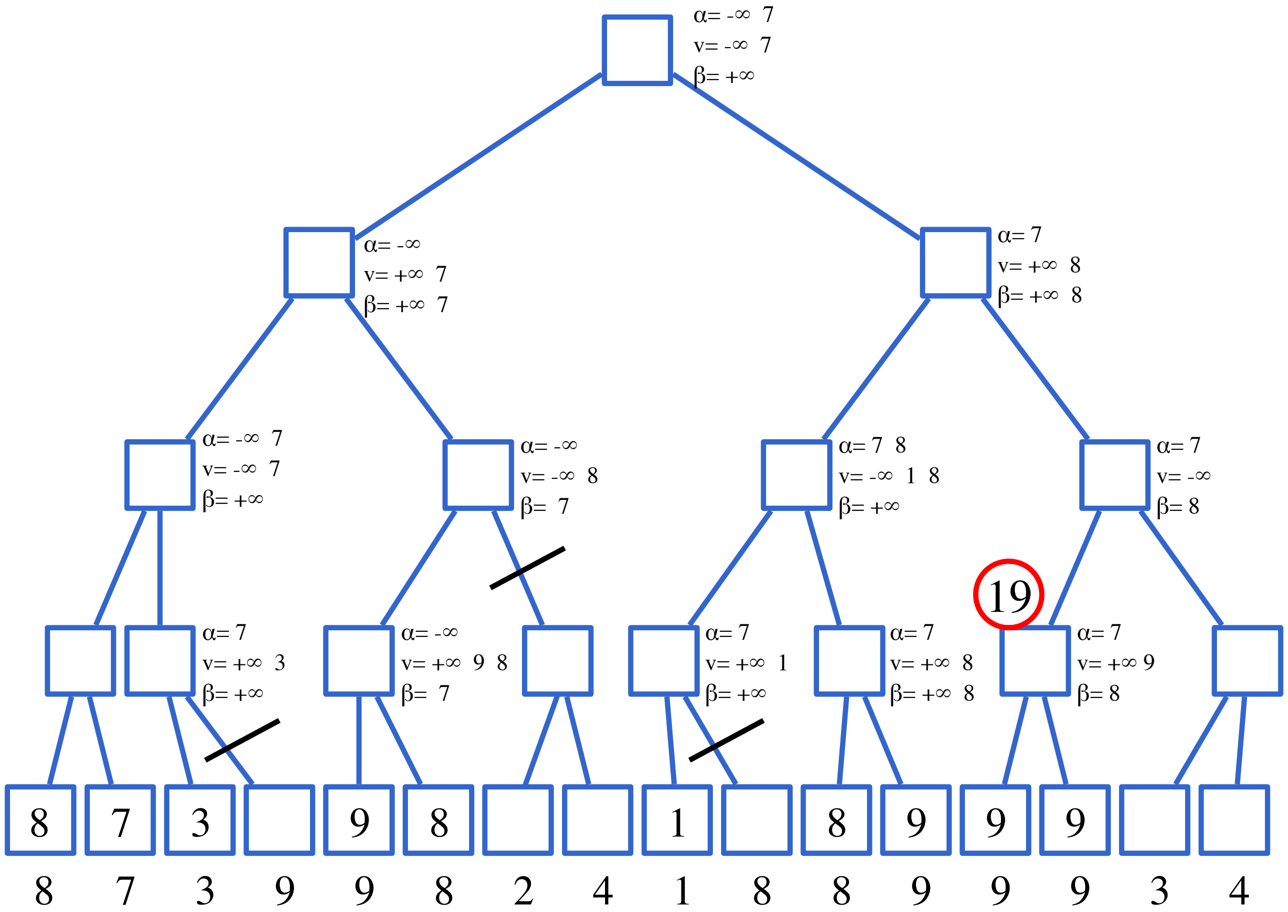

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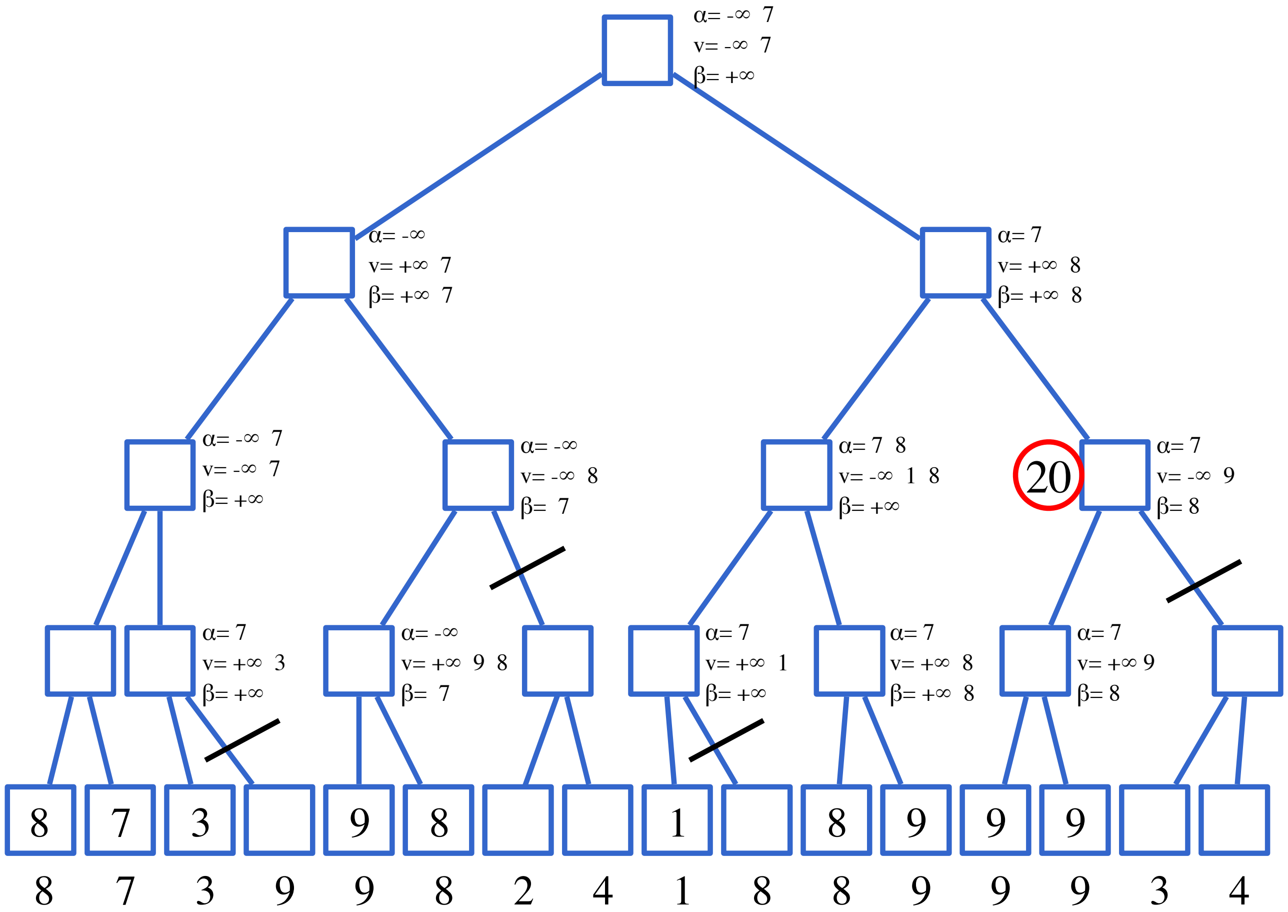

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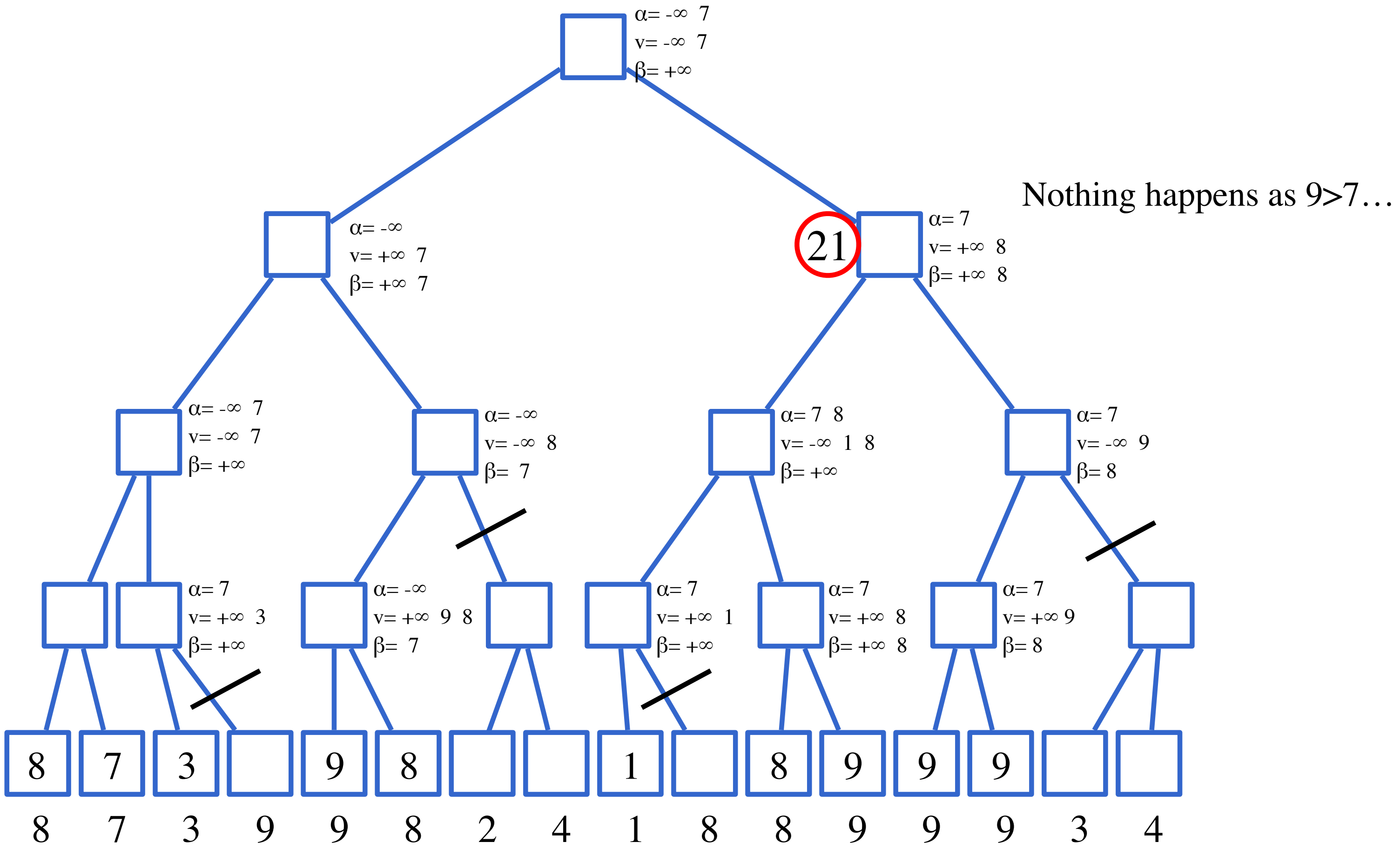

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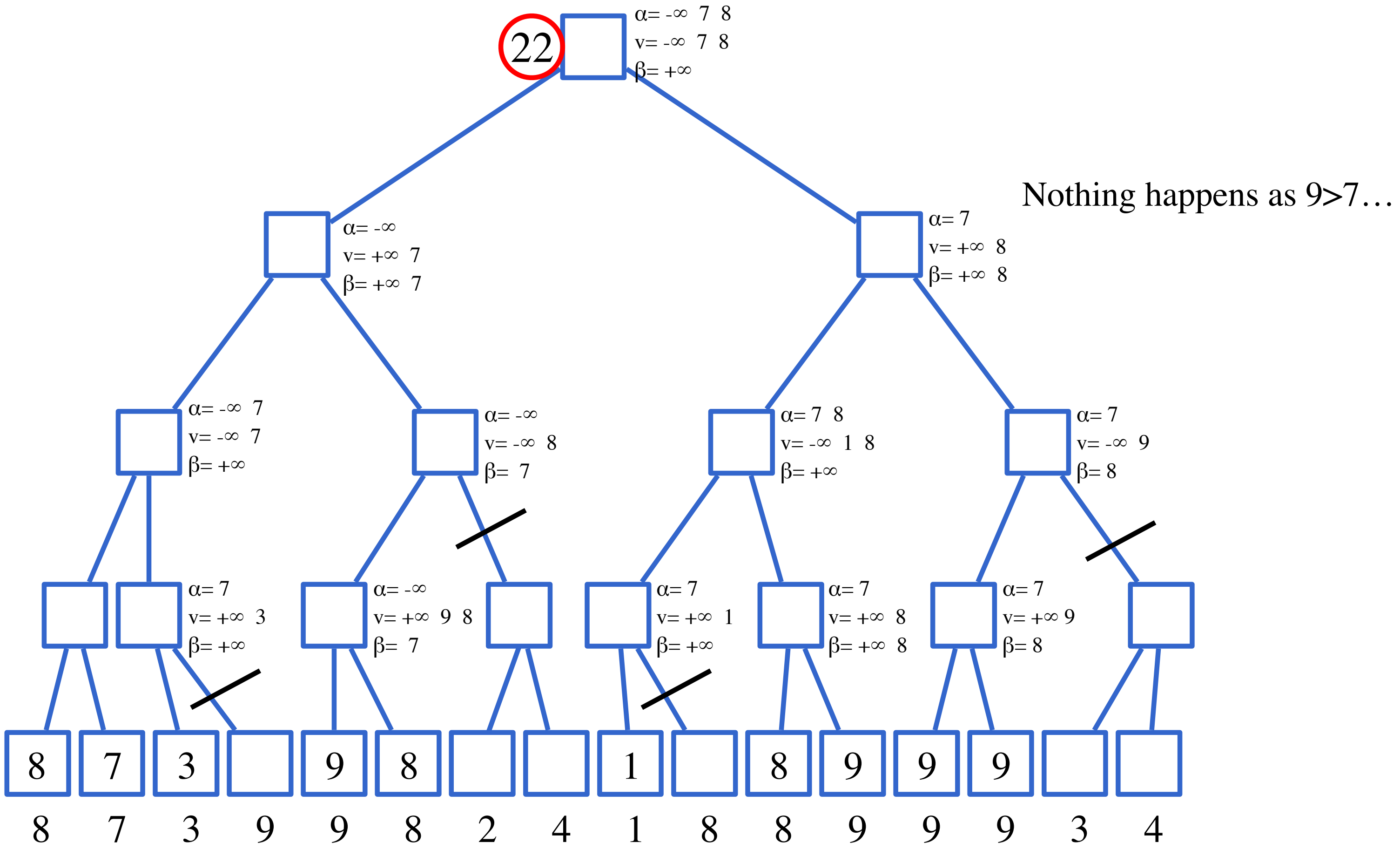

Exercise – min-max

Consider the following game:

- Two players have a single shared pile of coins
- A pile can be divided only if the two resulting piles have a different number of coins.
- The game ends when in each pile we have either one or two coins. At this point the player that cannot move loses.

- Build a MIN-MAX search tree in case MIN starts with a single pile of 7 coins.
- Notation: each node of the search space is a list of numbers. Each number represents a pile and the number of coins in the corresponding pile

Exercise – min-max

- Min-Max: