

Alpha - Beta Pruning - Alpha beta pruning is a modified version of the min max algorithm. It is an optimization technique for the minmax algom.

- $\text{Alpha}(\alpha)$ = The best (high - Value)
= Initial value of alpha is $-\infty$

- $\text{Beta}(\beta)$ = The best (highest Value)
= initial Value is beta is $+\infty$

- Rules & Conditions:

1) The max player will only update the Value of alpha.

2) The min player will only update the Value of β .

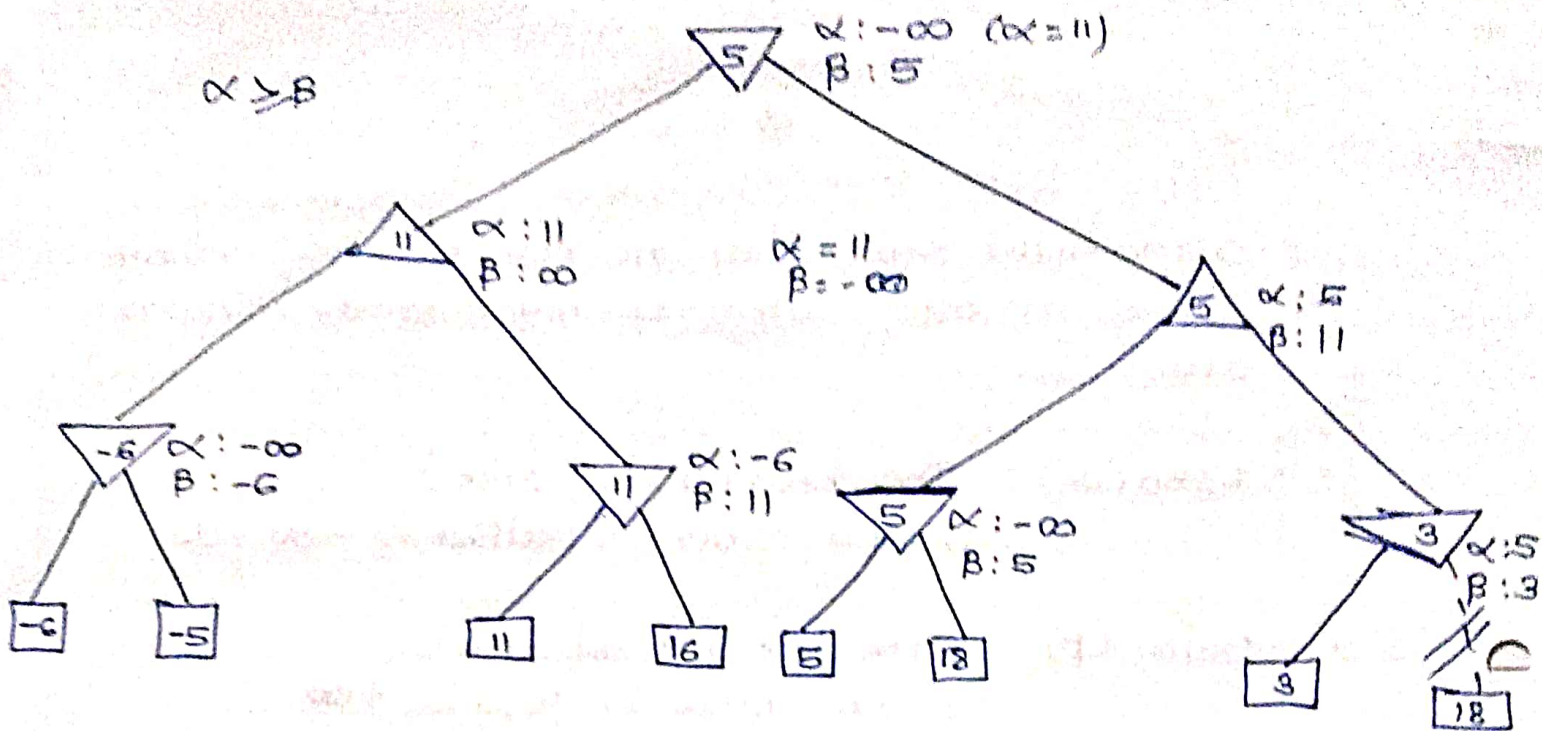
3) we will only pass the alpha beta Values to the child nodes.

4) Node Values will be passed to upper nodes instead of Values of alpha and beta.

- Condition to prune: $\alpha \geq \beta$ or $\beta \leq \alpha$

- when alpha is greater than or equal to beta.

$\alpha \geq \beta$



[illegible]

1) $\alpha(-\infty, -6) = -6$

$$\alpha(-\infty, -5) = -5$$

$$\alpha(-6, -5) = -6$$

— Max (Bottom-left)

$$2) \quad \beta(m, 11) = 11$$

$$- \min(\text{left})$$

3) $\alpha(-\infty, 11) = 11$

- main (Top)

$$\alpha(-\infty, 16) = 16$$

- max(right)

$$\alpha(11, 16) = 11$$

- max (bottom left)

4) $\alpha(-\infty, 11) = 11$

$$\alpha(-6, 5) = 5$$

— min (Top)

$$5) \propto (11)$$

$$p(-\infty, 5) = 5$$

— max (bottom Top)

6) $\alpha(-\infty, 5) = 5$

- max (bottom left node)

$$\propto (-\infty, 18) = 18$$

$$\alpha(5, 18) = 18$$

- max (bottom right) node

7) ~~AG-Bo. 285 p. 3~~

- ~~max2 (bottom left node)~~

$$\beta(\text{CO}, 5) = 5$$

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$\beta = 5.$

$$\therefore \alpha \in B \quad \text{7) } \alpha(3, 18) = 18 \quad \therefore \alpha = (-\infty, 3) = 3$$

$$\text{or } B(\cos 2) = 3 \quad B = \infty$$

$\therefore \alpha > \beta$ So the next node is pruned.

$$\therefore \alpha = 3$$

$$\beta = \infty$$

$$\alpha(3, 11) = 11 \quad \text{Sol}^n.$$