

15-150

Quiz 5 on Friday

Deterministic

Perfect Info

Finitely Branching

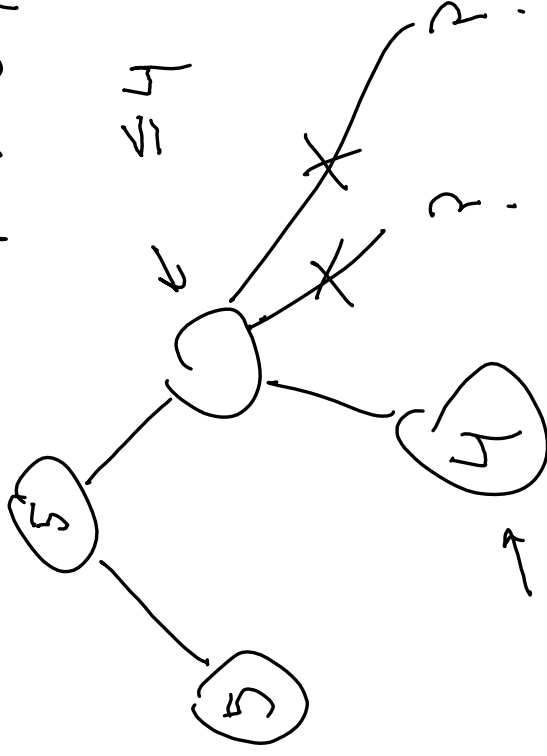
Zero Sum

2 player

$$\max(5, \leq 4) = 5$$

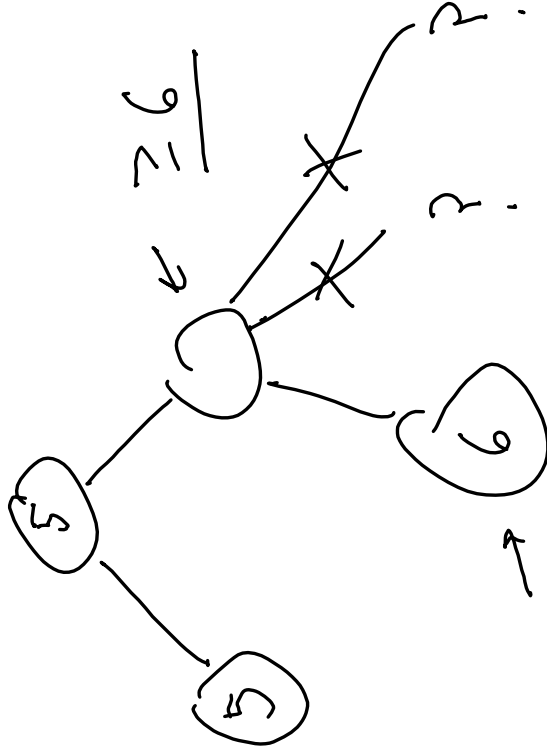
max

min



$$\min(5, \geq 6) = 5$$

min



max

maxil  $\rightarrow (\alpha, \beta)$  minie

$\text{Int. min Int}$

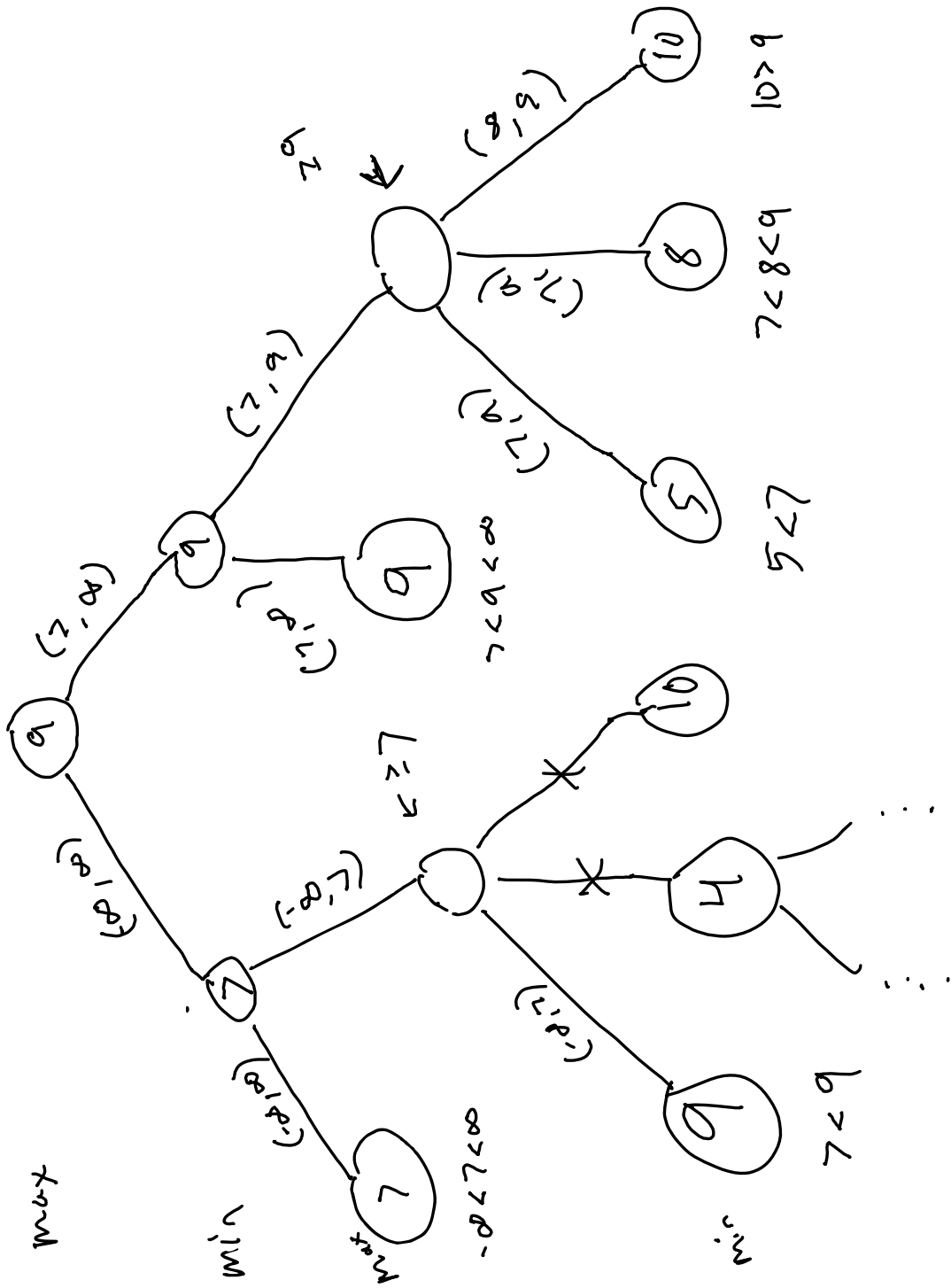
$\text{datatype } t = \text{Int of int}$

$| \text{Inf}$

$| \text{Neg Inf}$

$(\alpha, \beta)$

|     |                 |                      |                |
|-----|-----------------|----------------------|----------------|
|     | $X \leq \alpha$ | $\alpha < X < \beta$ | $\beta \leq X$ |
| max | ignore          | update $\alpha$      | prune          |
| min | prune           | update $\beta$       | ignore         |



Best case minmax

$\alpha - \beta$

$O(\sqrt{b^2})$

work  $O(n) = O(b^d)$

$O(\sqrt{b^4})$

span  $O(d)$

$= O(b^{d/2})$

$b_{1/2} : b^q$

$b = 10$

$10^{10} : 10^{10}$

$100 = 7$

$\frac{1}{O(\sqrt{b^2})}$

$10^{50} \times 10^{10}$  ;  
jerk

$$N_{ex}(0) = 1$$

$$N_{ex}(p) = N_{ex}(p-1) + (p-1) N_{bo}(p-1) \quad p \geq 1$$

$$N_{bo}(0) = 1$$

$$N_{bo}(p) = N_{ex}(p-1) \quad p \geq 1$$

$$N_{ex}(0) = 1$$

$$N_{ex}(d) = N_{ex}(d-1) + (b-1) N_{b_0}(d-1)$$

$$\stackrel{d \geq 1}{N_{ex}(d-1)} + (b-1) N_{ex}(d-2)$$

$$\left( N_{ex}(d-2) + (b-1) N_{ex}(\overbrace{d-3}^{d-2}) \right) + (b-1) N_{ex}(d-2)$$

$$\leq b * N_{ex}(d-2) + (b-1) N_{ex}(d-2)$$

$$\leq \overline{2b} N_{ex}(d-2)$$

$$\sqrt{2b}$$

$$O\left(\frac{h_{01}}{p^q}\right)$$

