

Let  $\text{growth}^{t_0, t_1}(\text{view}, \Delta, T) = 1$  iff the following two properties hold:

- **(consistent length)** for all rounds  $r \leq |\text{view}| - \Delta$ ,  $r + \Delta \geq r' \leq |\text{view}|$ , for every two players  $i, j$  such that in view  $i$  is honest at  $r$  and  $j$  is honest at  $r'$ , we have that  $|\text{extract}_j^{r'}(\text{view})| \geq |\text{extract}_i^r(\text{view})|$

- **(chain growth lower bound)** for every round  $r \leq |\text{view}| - t$ , we have

$$\text{min-chain-increase}_{r, t_0}(\text{view}) \geq T.$$

- **(chain growth upper bound)** for every round  $r \leq |\text{view}| - t$ , we have

$$\text{max-chain-increase}_{r, t_1}(\text{view}) \leq T.$$