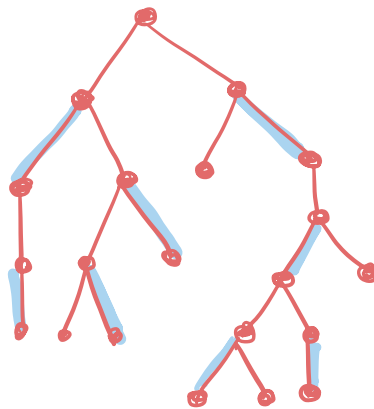


DP on Trees questions

- max matching on trees with arb number of children
- max weighted matching on arb-degree/binary trees with weighted edges. (including negative edges?)

Theorem: For an unweighted binary tree, $\exists$ a max matching that saturates the root.

Proof: Let M be any max matching in binary tree T . and suppose M does not saturate the root



Then we can create a new matching M' that slides a topmost edge e in the right (or left) subtree up the tree so it saturates root.

Since it is topmost on some root- e path,

there are no M -edges incident with the path including at e 's new location. $\square$

Does this theorem have an analogue for weighted trees?

