Algorithms and Data Structures 1

TIN060

Jan Hric

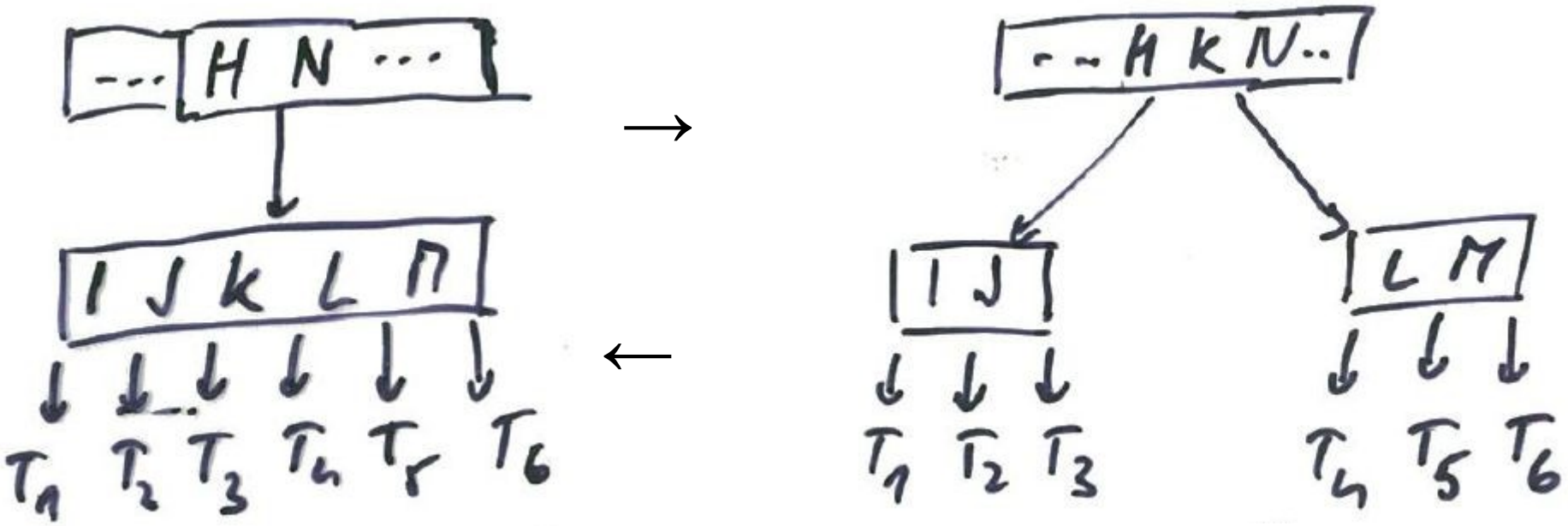
Lectures, (part 3), v. 18.5.2015_c

(B-trees)

- (Temporarily) skipped
  - B-trees are included also elsewhere (Data structures)
- Nonbinary trees
  - Used in database indices, have nodes at disk pages
  - In some sense: a generalization of R-B trees
    - Each leaf has the same depth
    - A black node with red nodes below ~ a node in B-tree
  - A node can have a variable number of keys and children
    - In a B-tree: between n/2 and n → a reserve in space allows spliting and joining nodes (at the same level)

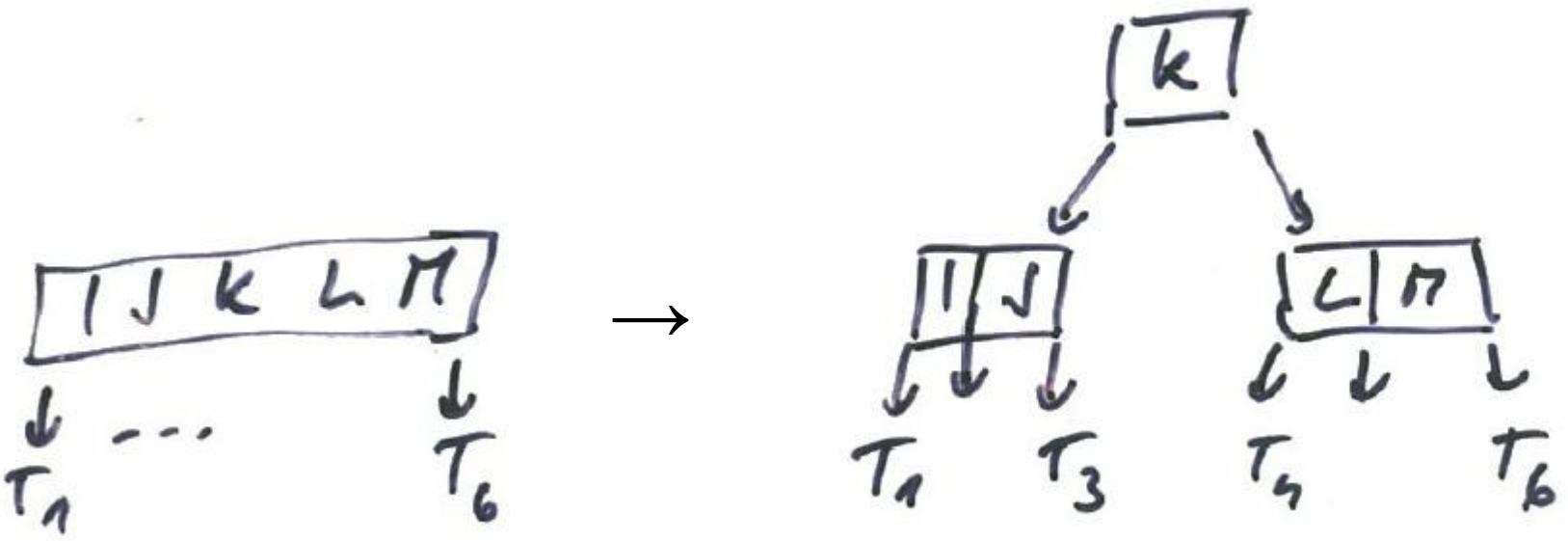
B-trees, a split

- A split of a vertex, t=3



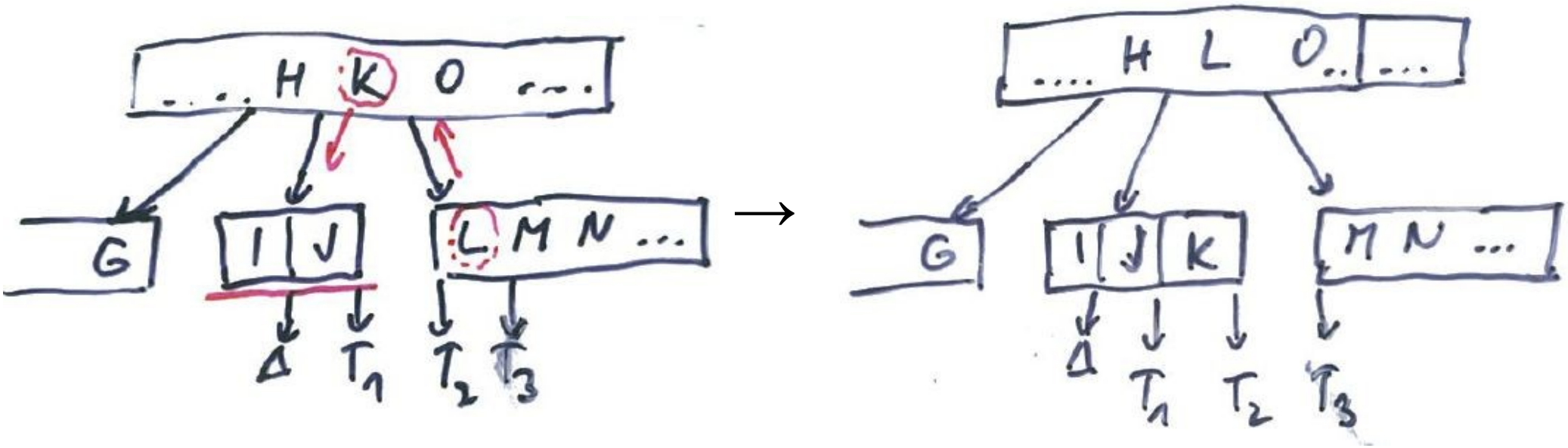
B-trees, a new root

- A split of a root
  - A height increases



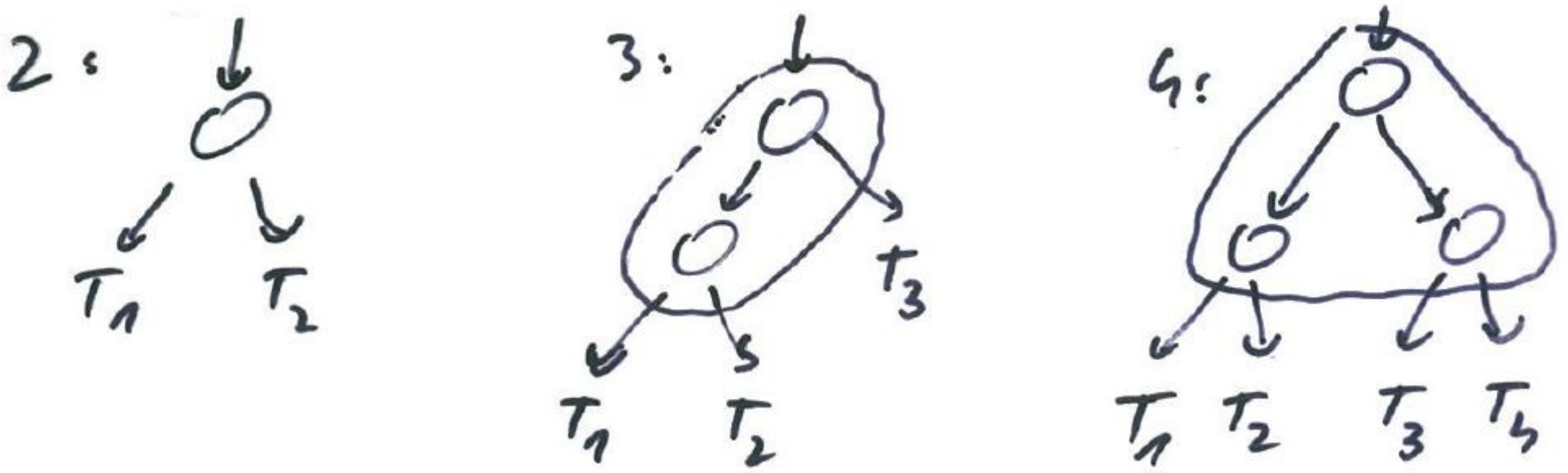
B-trees, pictures

- A transfer of a vertex through a parent



B-trees

- A relation of R-B trees to 2-4-trees
  - A black vertex with its red children corresponds to a vertex in a 2-4-tree



To do / skipped

-
- Algebraic alg. (LUP decomposition)
- B-trees
-

∈ ∪