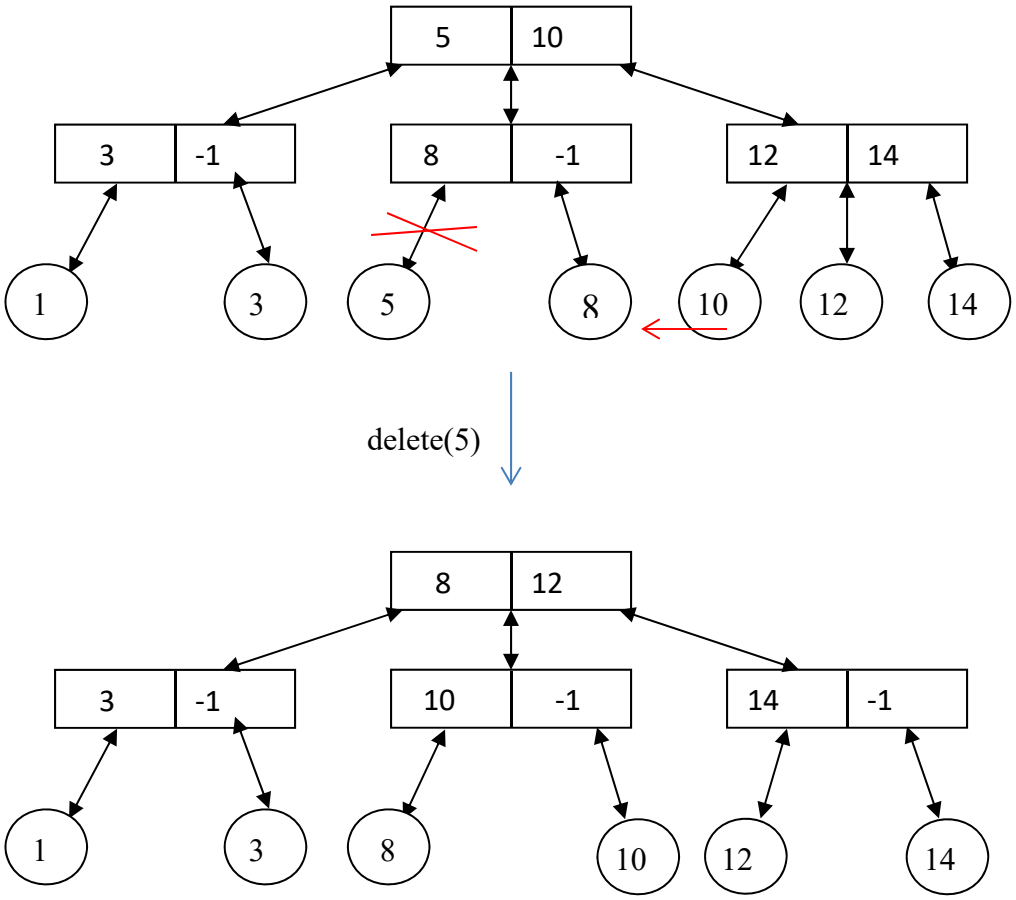
Resolving ambiguity in 2-3 trees during delete operations:

After removing a child from a parent node N, if N becomes a 1-node, do

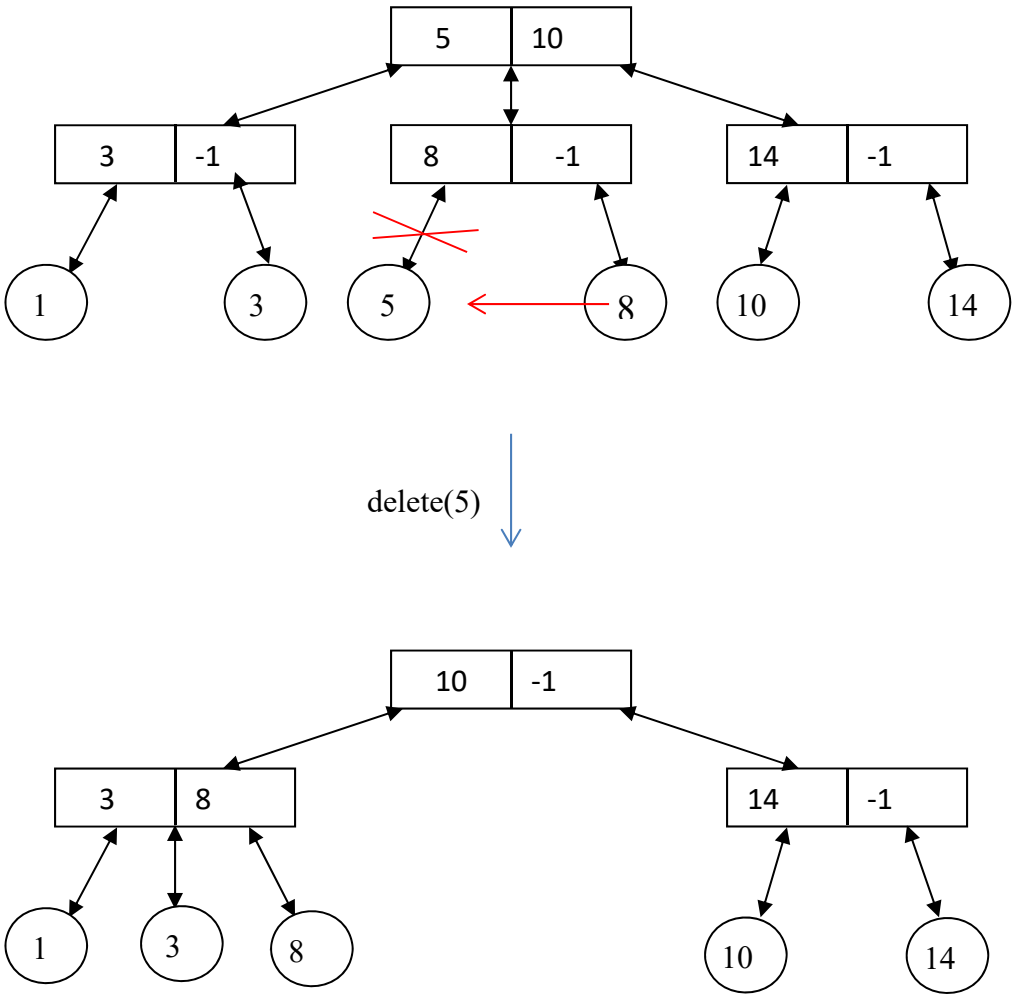
1. Adopt a child from its immediate neighbor (sibling) before giving up its only child.
2. If ambiguity, always operate from left to right.
3. Never shift a node beyond its immediate sibling.

Examples:

(1) Adopt before being adopted:

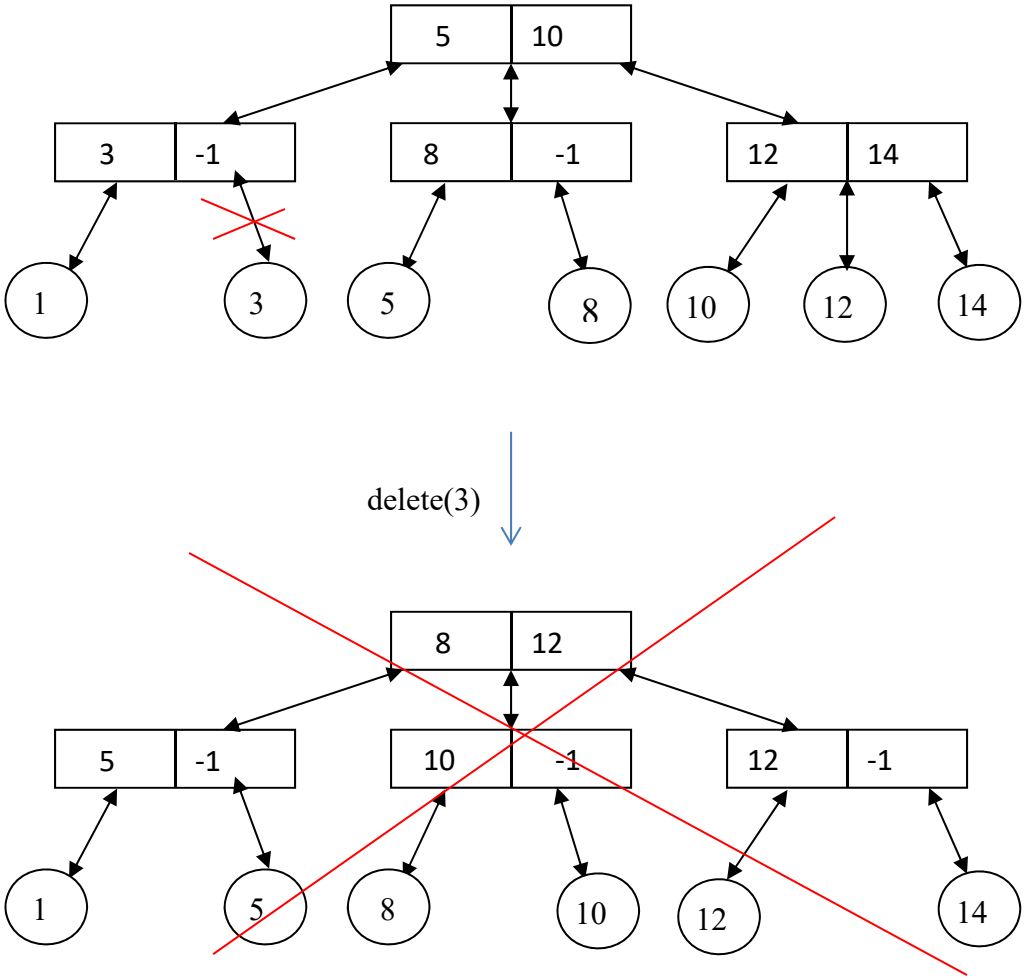


(2) Always operate from left to right:



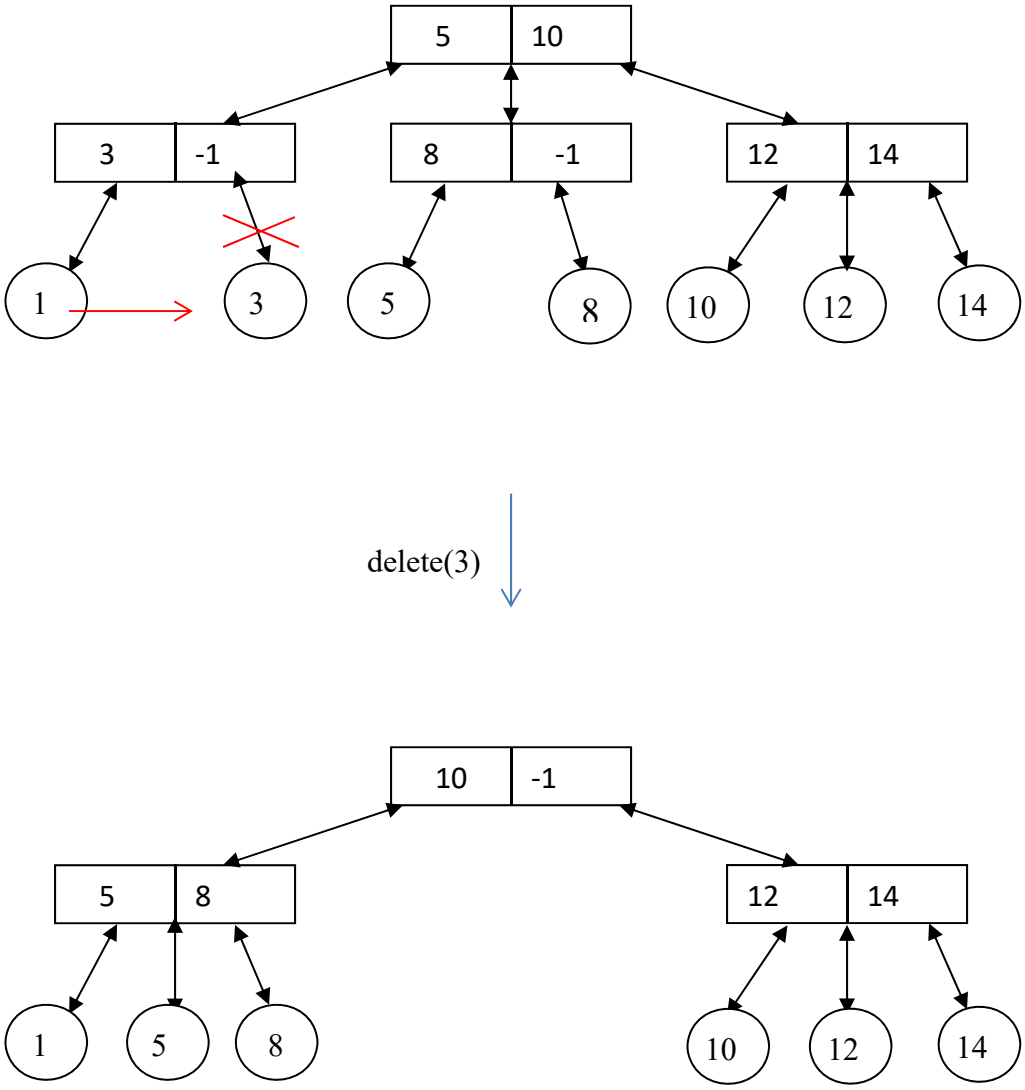
(3) Never shift a node beyond its immediate sibling:

(a) (i) Wrong delete(3):



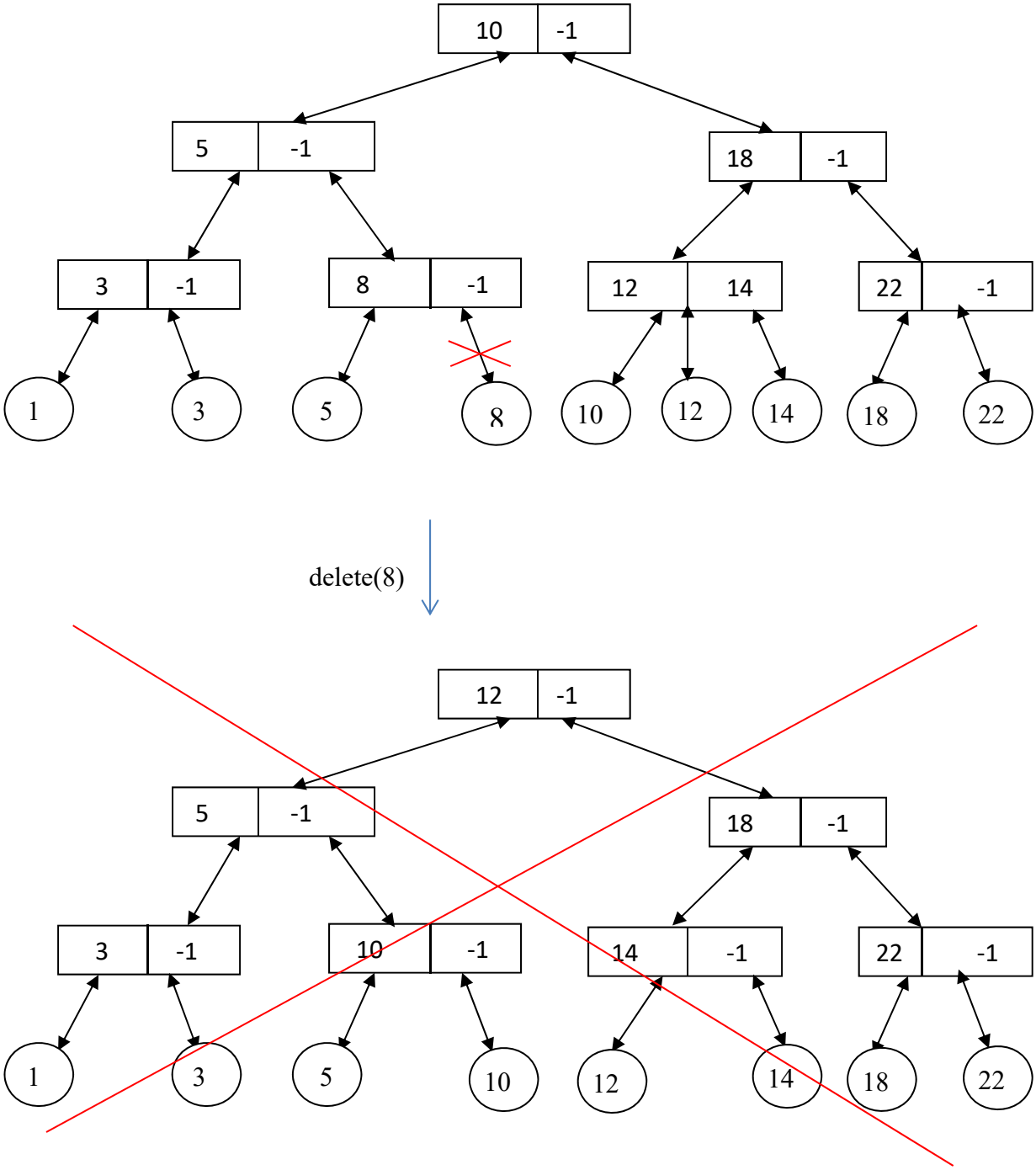
Remark: The above delete(3) operation is incorrect.

(ii) Correct delete(3):



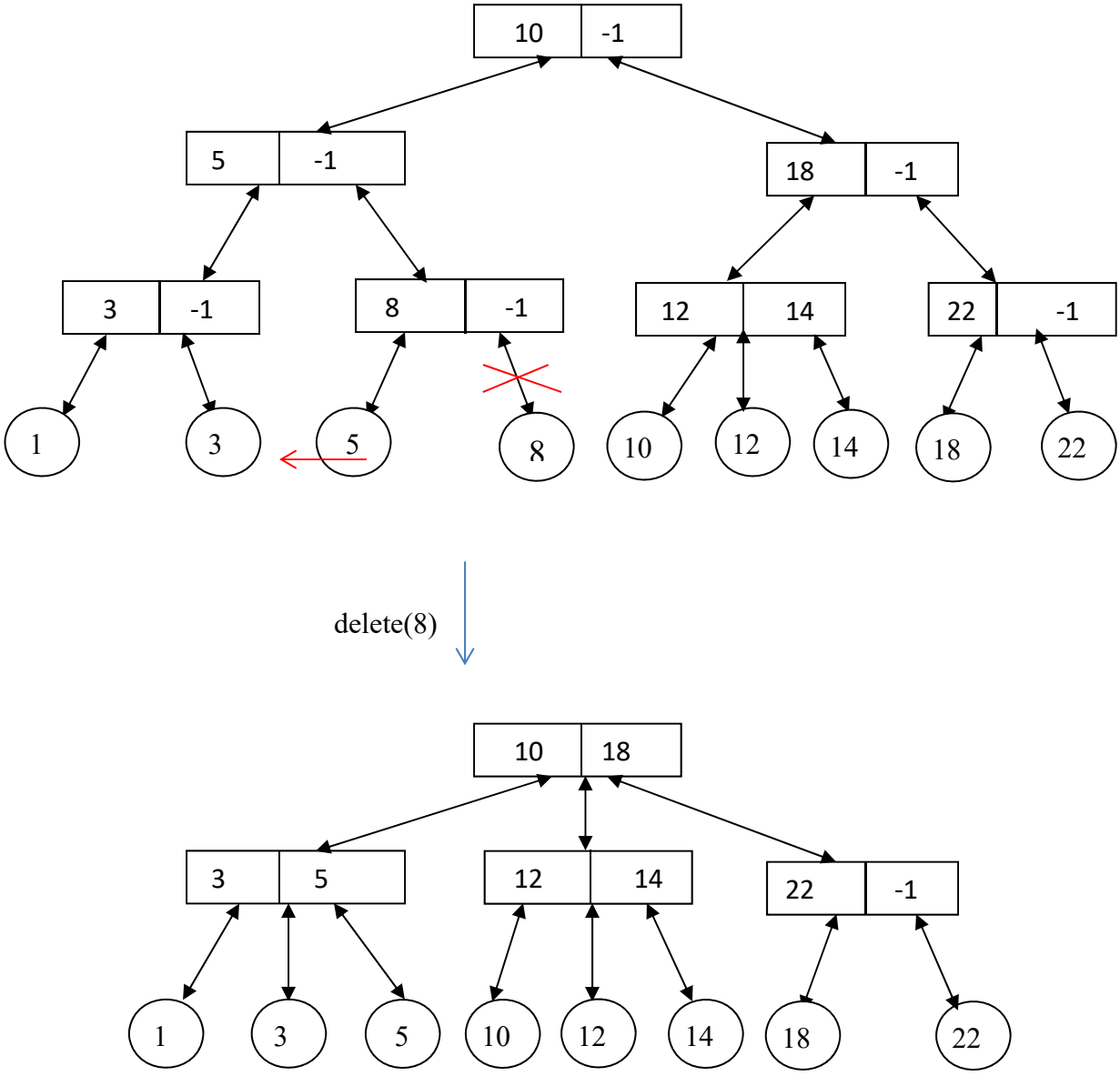
Remark: The above delete(3) operation is correct.

(b) (i) Wrong delete(8):



Remark: The above delete(8) operation is incorrect.

(ii) Correct delete(8):



Remark: The above delete(8) operation is correct.