

1) Einfügen in Rot-Schwarz Baum (zeichnen)

Geben Sie Rot-Schwarz-Bäume an (mit allen Zwischenschritten), die beim Einfügen der Buchstaben HITCHHIKER entstehen.

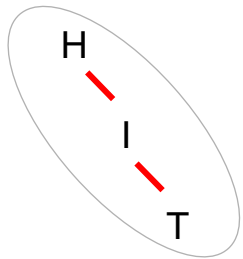


Einfügen von: HITCHHIKER

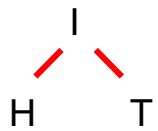
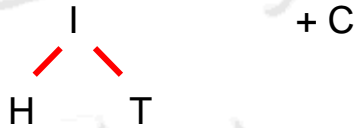
H + I

H + T

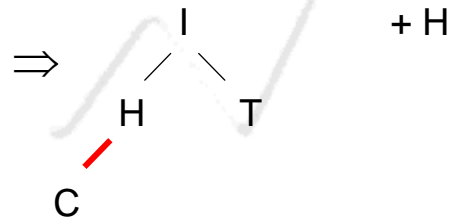
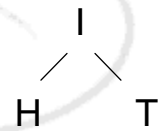

neuer Knoten wird immer über rote Kante angehängt



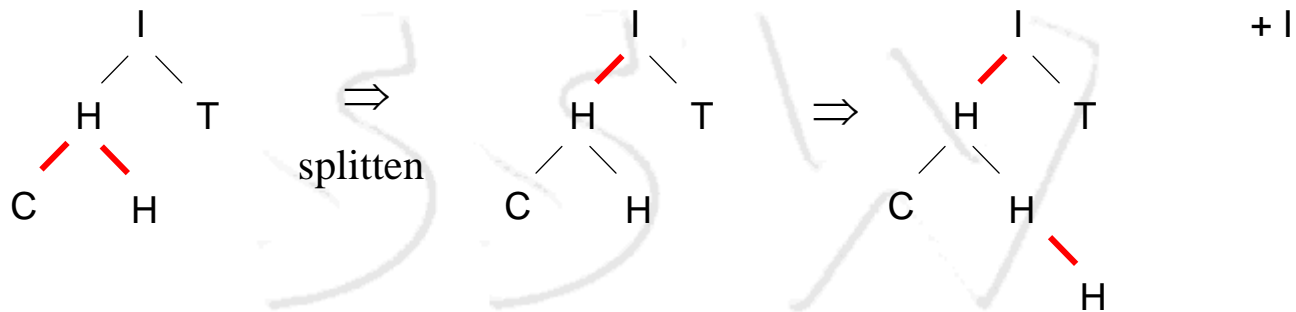
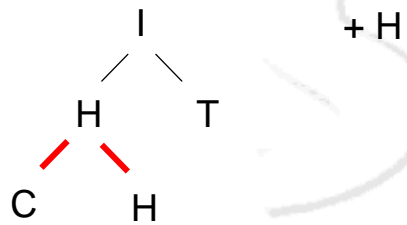
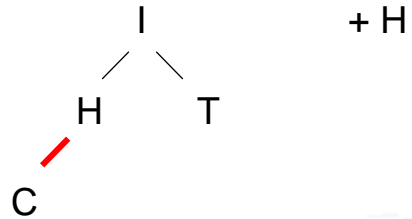
⇒
 1x rotieren



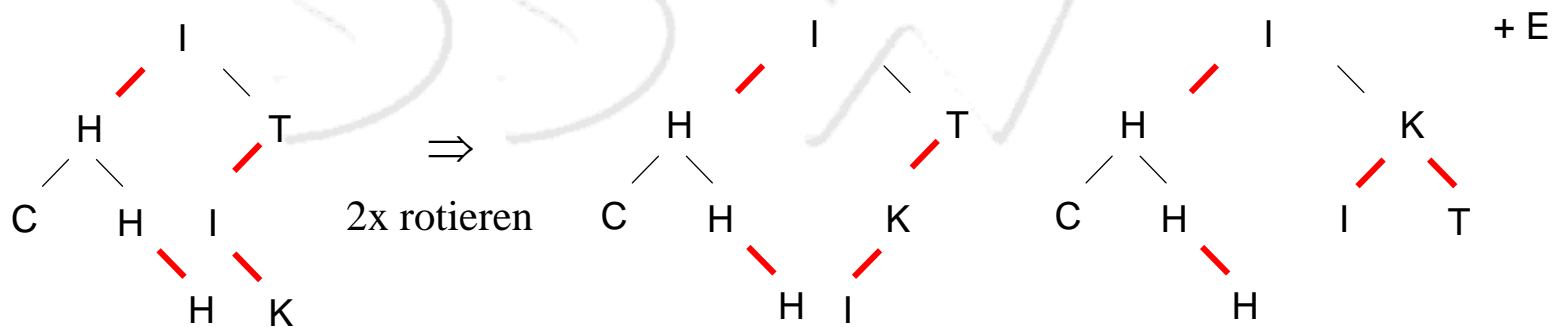
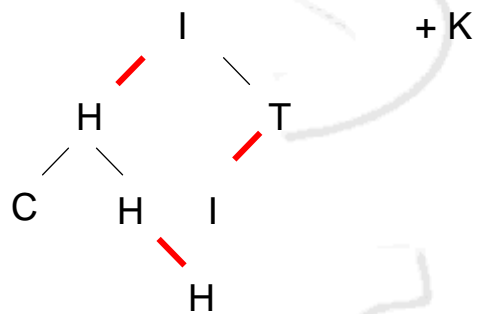
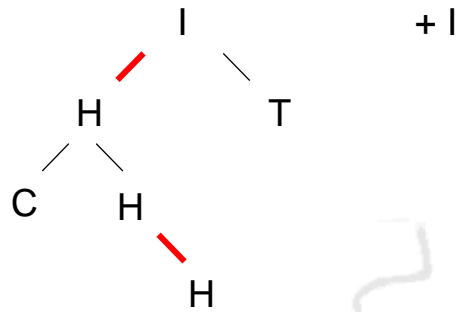
⇒
 splitten



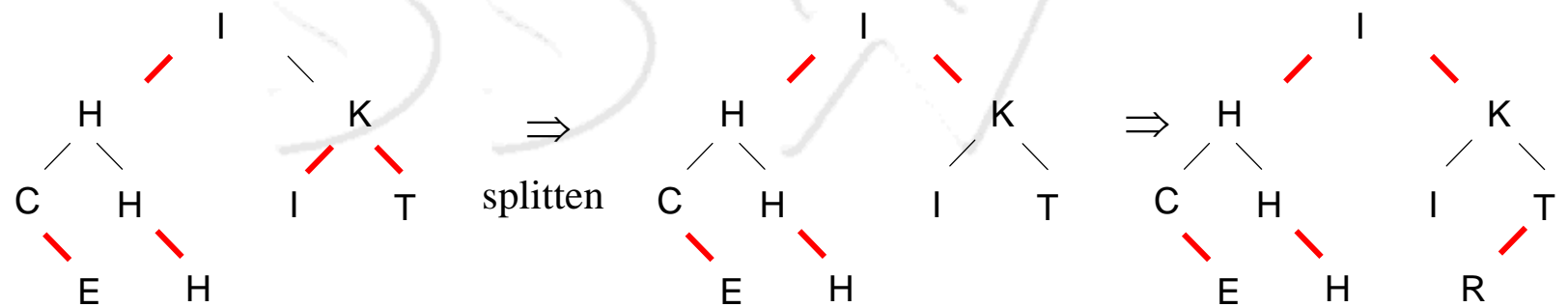
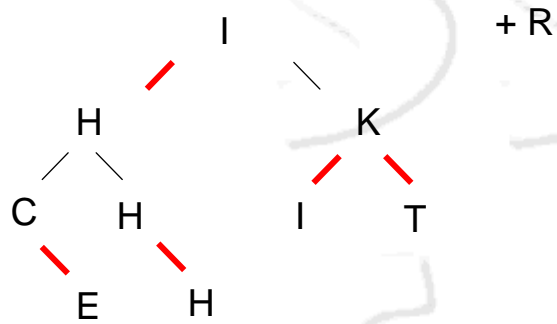
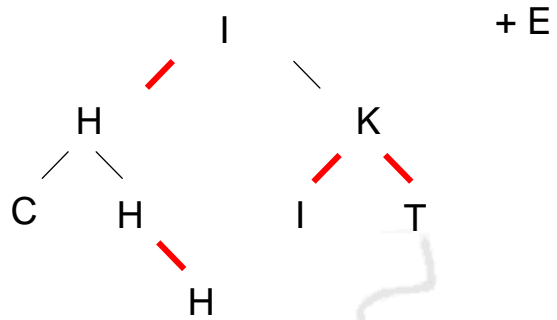
Einfügen von: HITCHHIKER



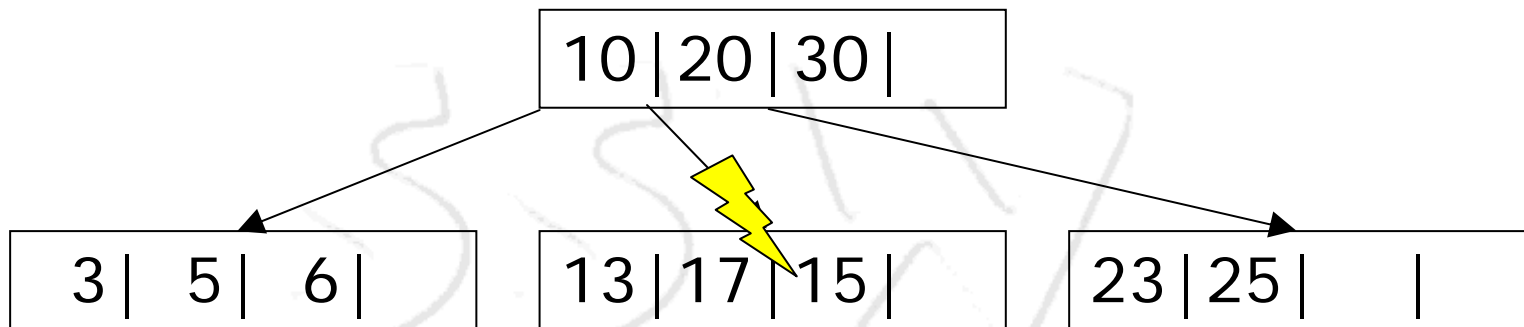
Einfügen von: HITCHHIKER



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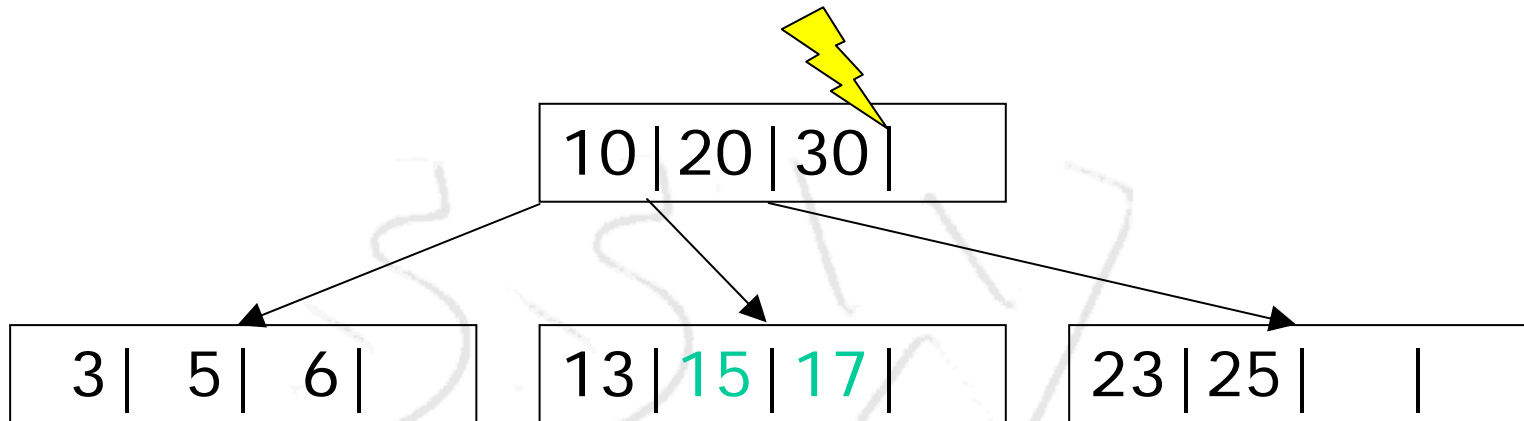
- Ist folgender Mehrwegbaum vom Grad 2?



Nein!

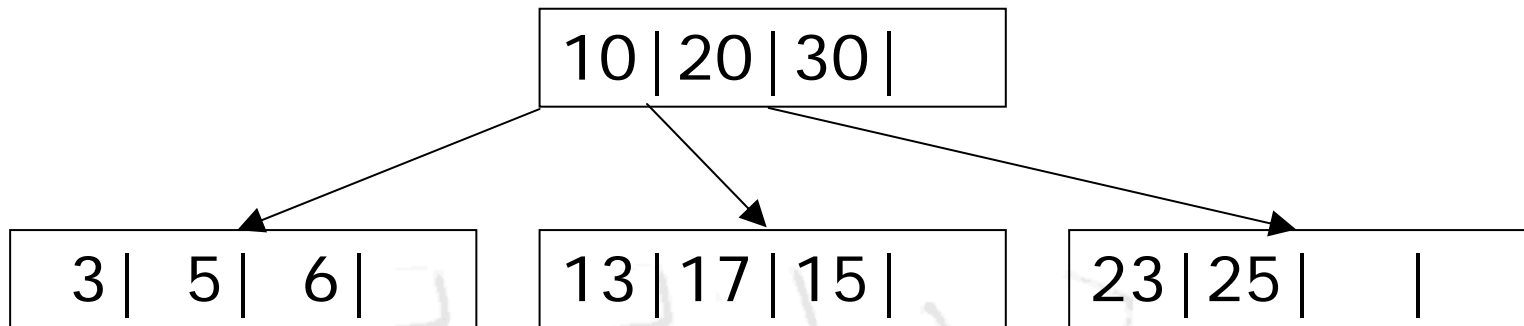
Die Schlüssel müssen in jedem Knoten aufsteigend sortiert sein.

- Ist folgender Mehrwegbaum vom Grad 2?

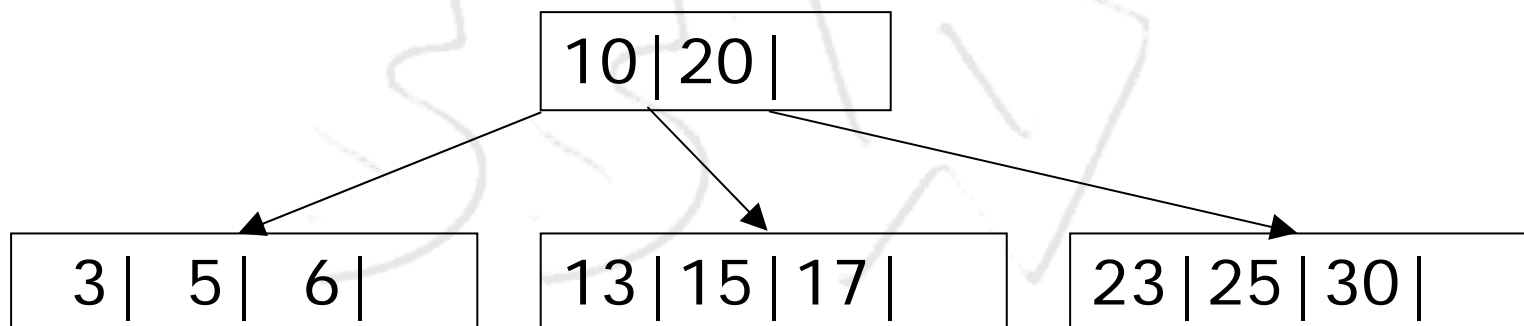


Nein!

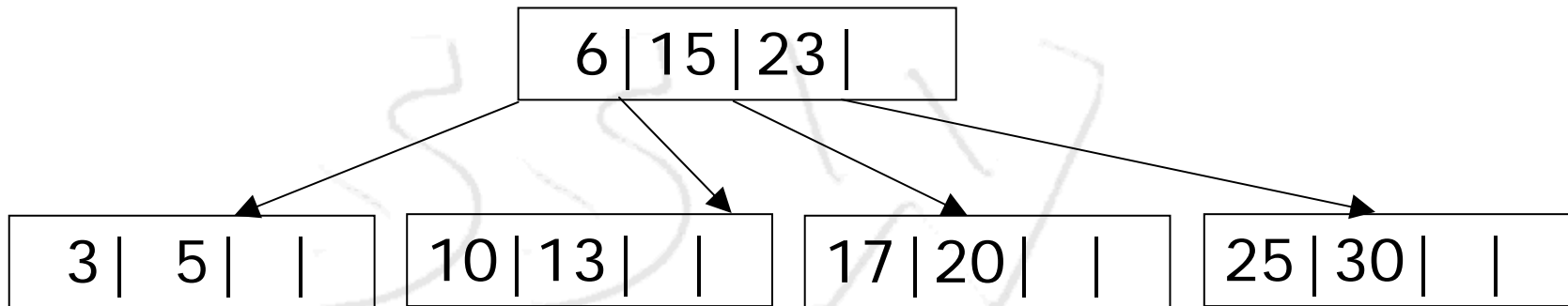
Der linke und rechte Teilbaum eines Schlüssels darf nicht leer sein.



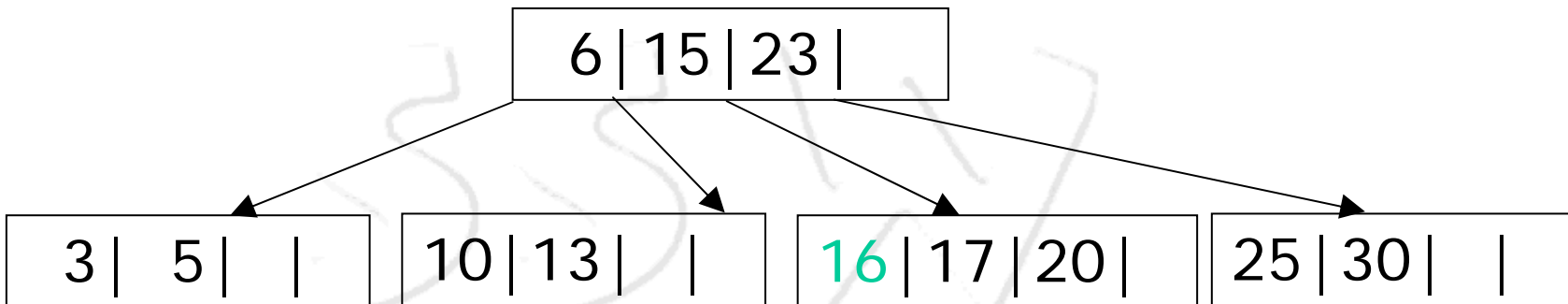
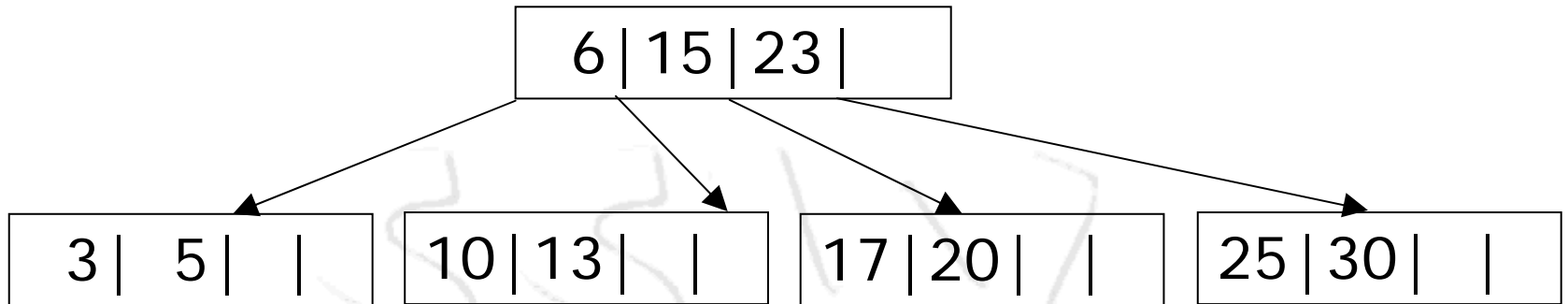
- Gültiger B-Baum mit gleichen Werten:



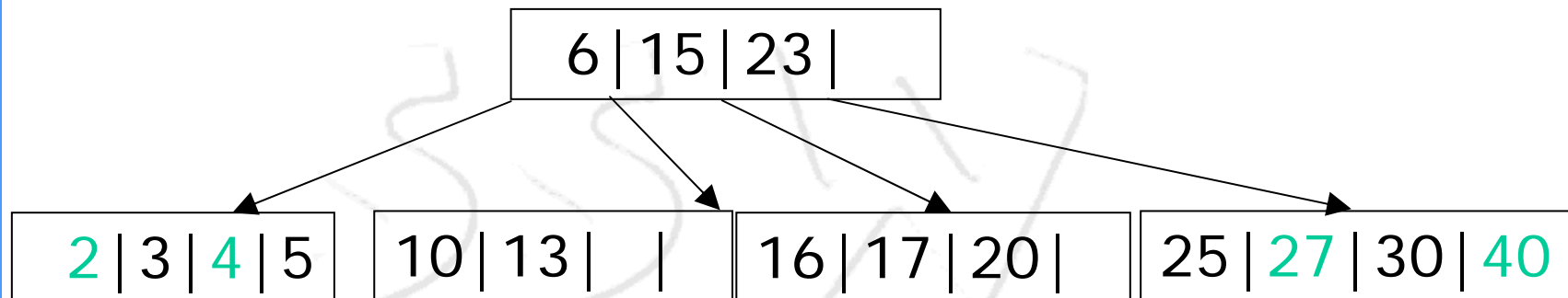
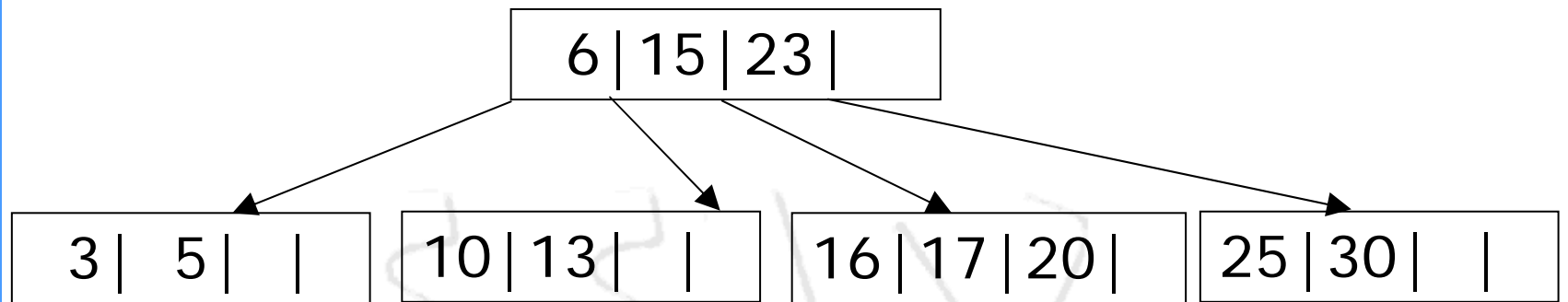
- Einfügen von: 16, 27, 40, 2, 4, 1
- Löschen von: 17, 10



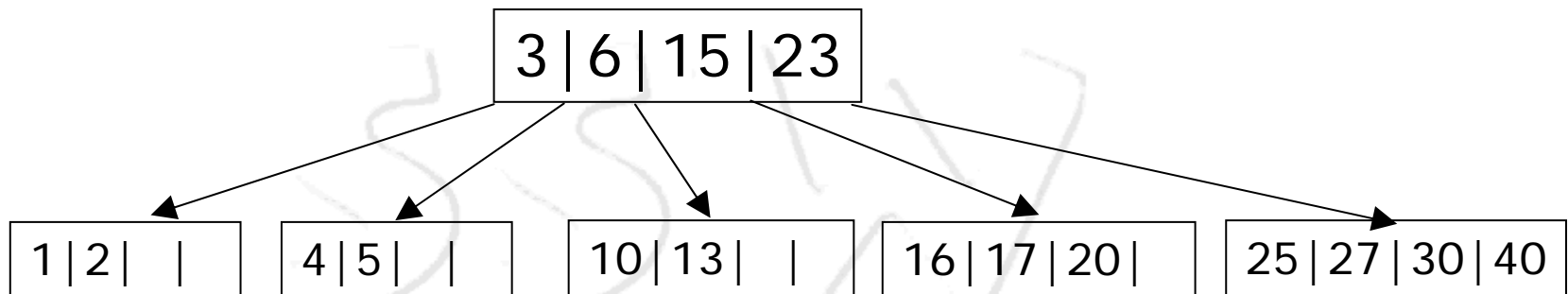
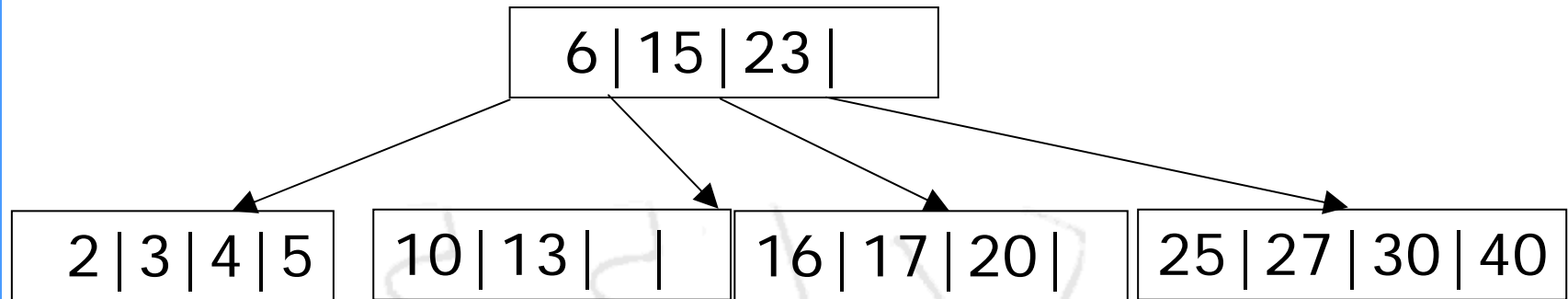
- Einfügen von: 16



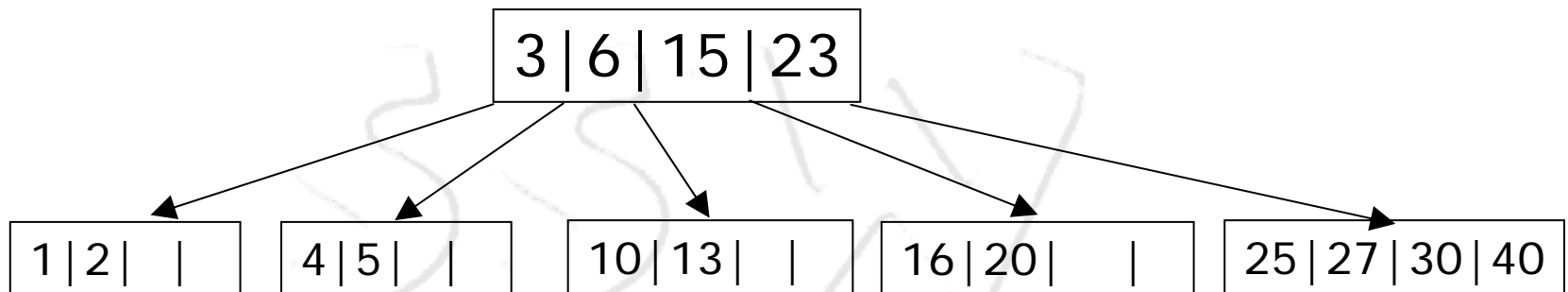
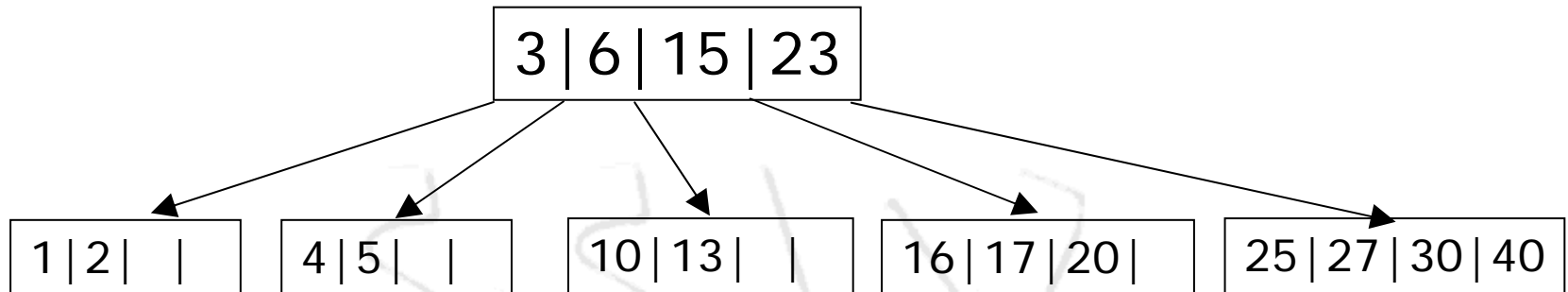
- Einfügen von: 27, 40, 2, 4



- Einfügen von: 1



- Löschen von: 17



- Löschen von: 10

