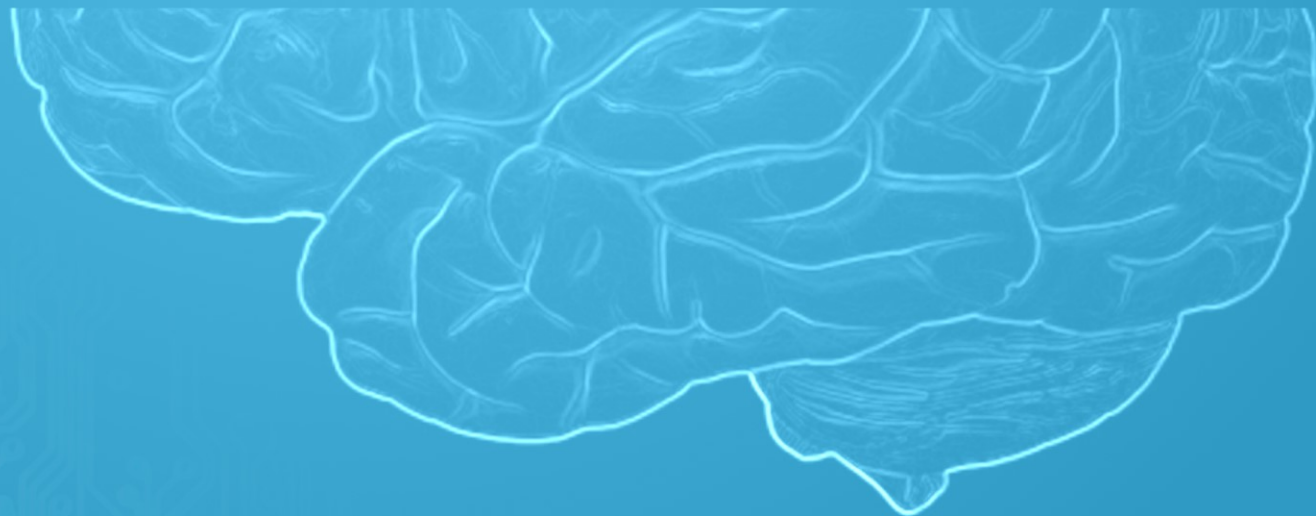




Structuri de date și algoritmi

Arbori - 2

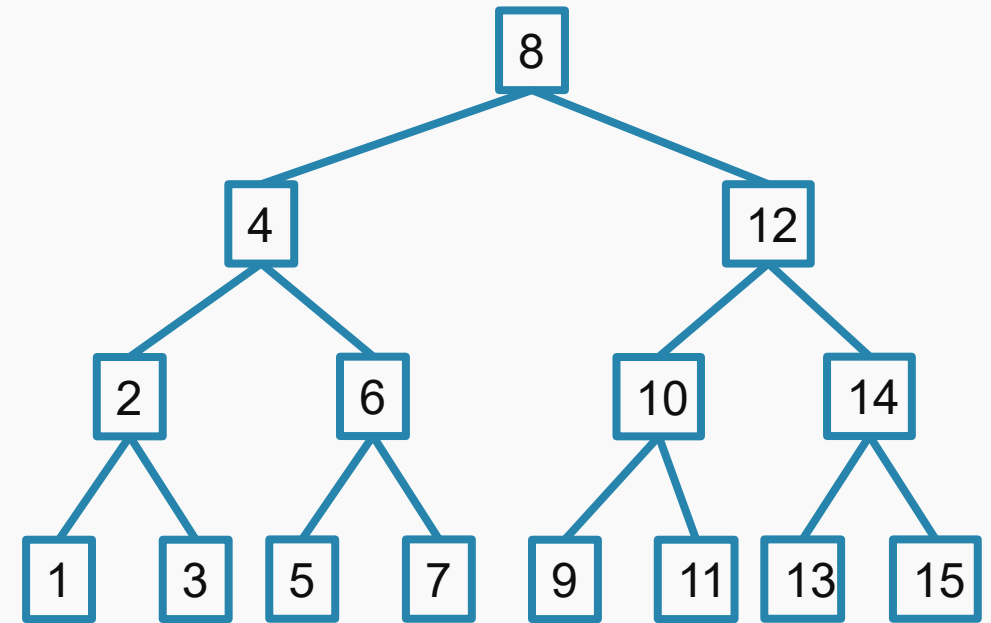
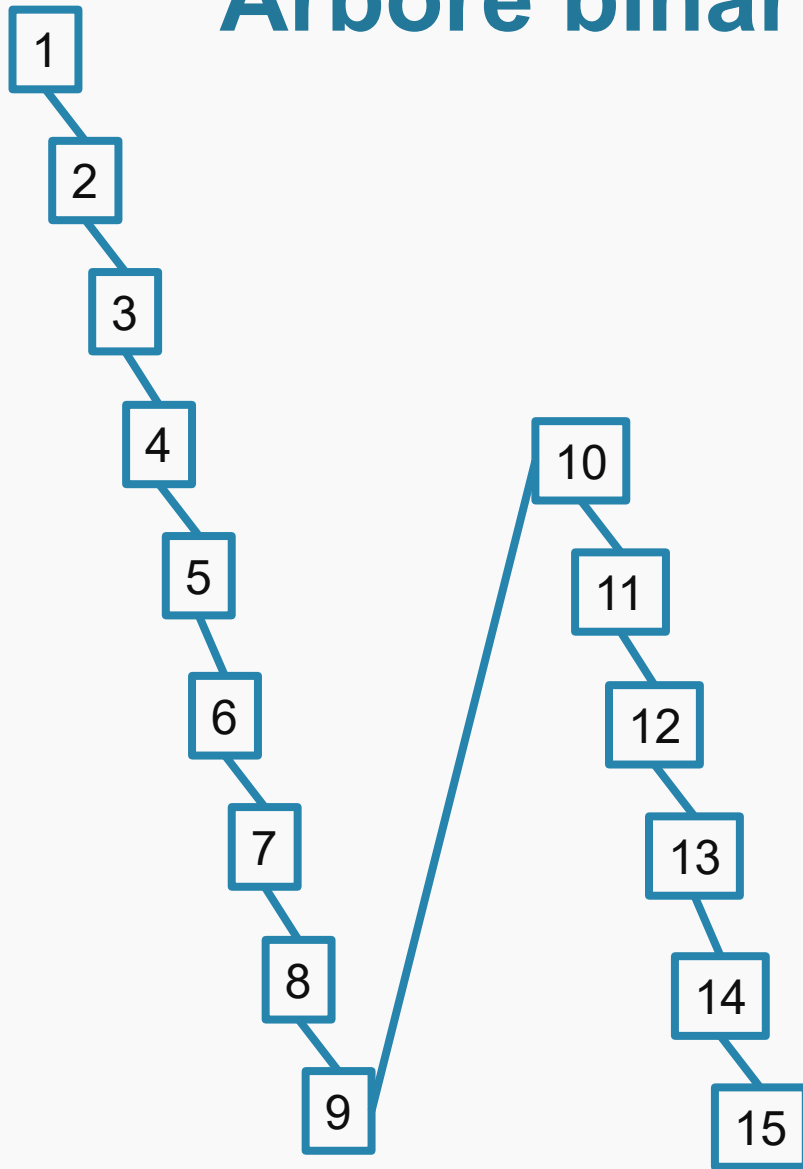
Lect. Dr. Ing. Cristian Chilipirea – cristian.chilipirea@mta.ro







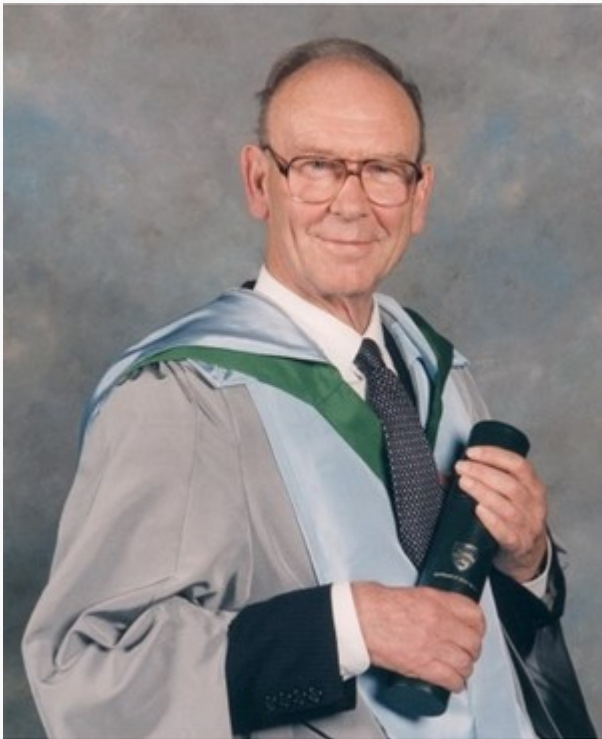
Arbore binar de căutare – înălțime



Dorim ca arborii să fie echilibrați.



Arborii AVL (Adelson-Velsky și Landis)





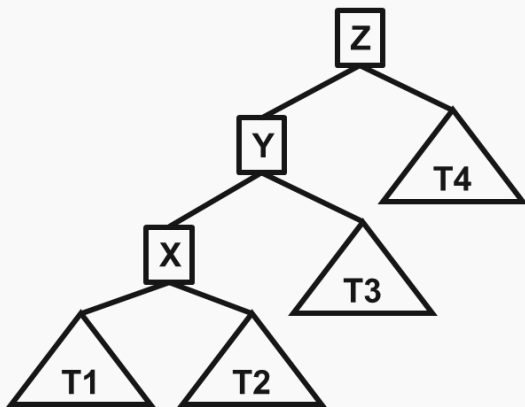
Arborii AVL (Adelson-Velsky și Landis)

**Un arbore binar de căutare este echilibrat dacă și numai dacă:
Înălțimea a celor 2 subarbori ai oricărui nod diferă cu cel mult 1.**

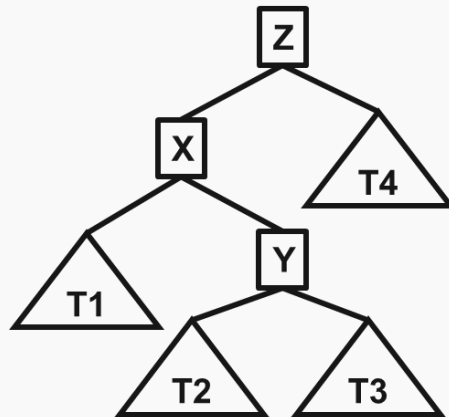


Cazuri dezechilibrare cu 2

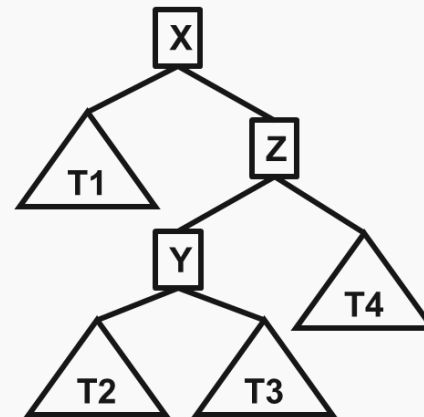
Left Left



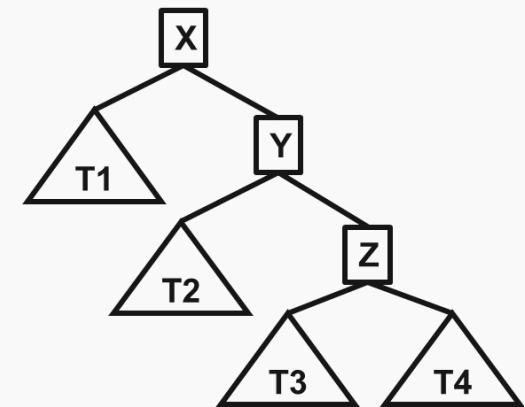
Left Right



Right Left



Right Right

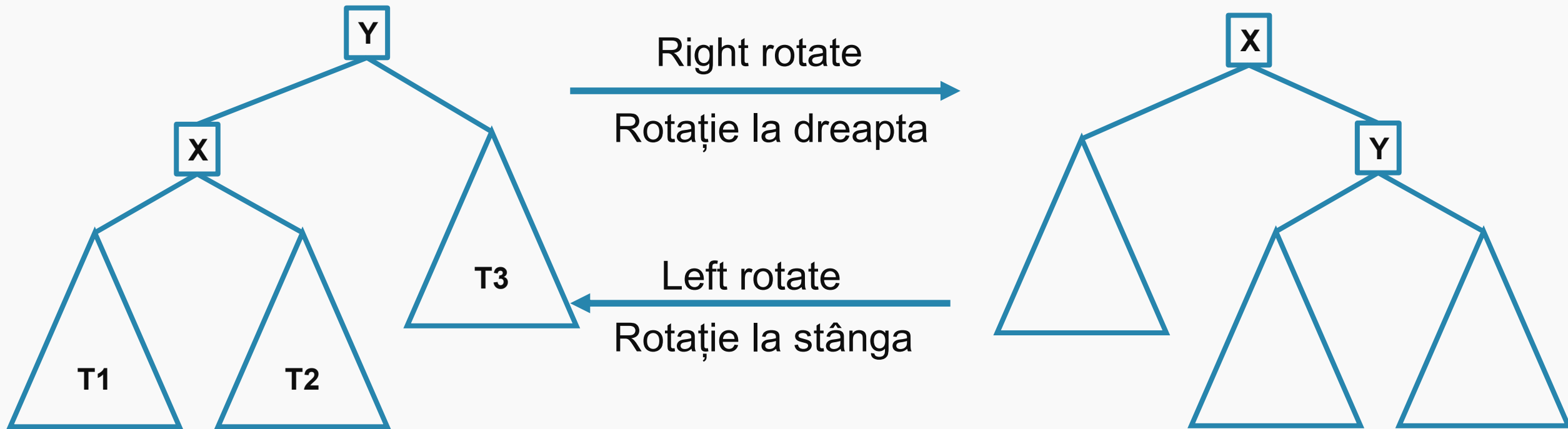


$$h(T1) \approx h(T2) \approx h(T3) \approx h(T4)$$

$$T1 < X < T2 < Y < T3 < Z < T4$$

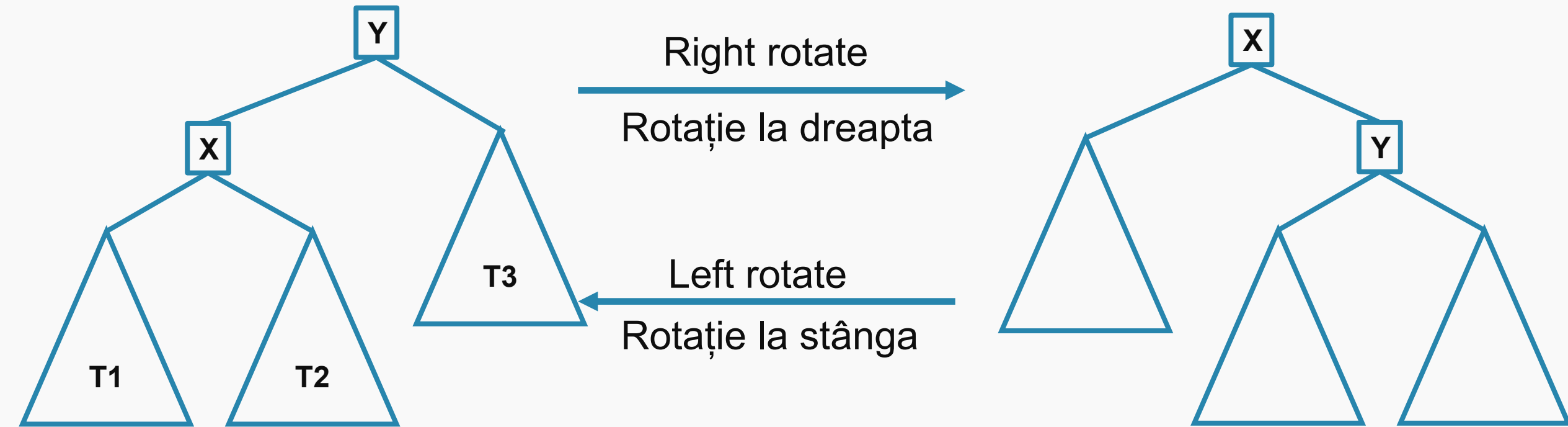


Rotații în arbore binar căutare





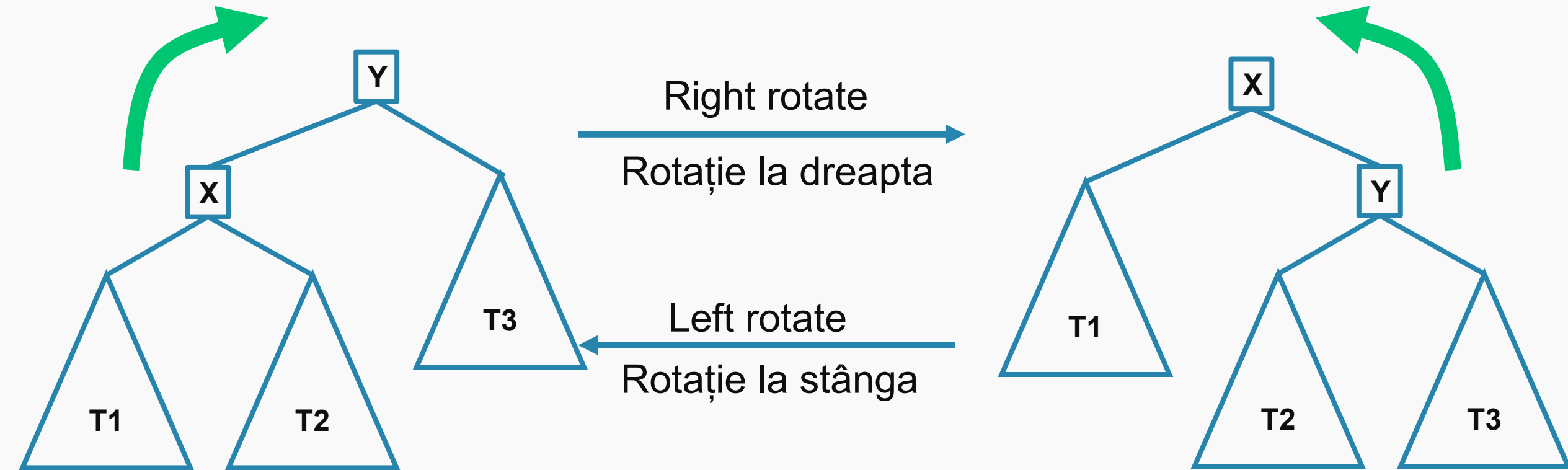
Rotații în arbore binar căutare



Proprietate Arbore Binar Căutare: $T1 < X < T2 < Y < T3$



Rotații în arbore binar căutare

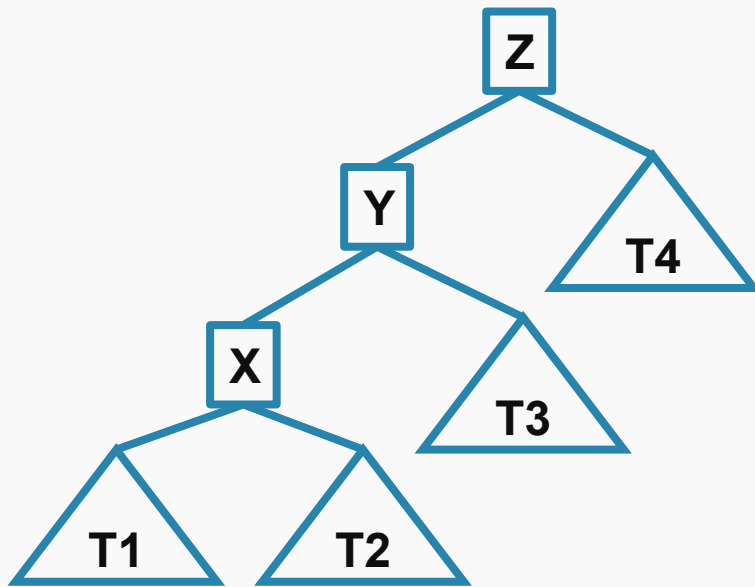


Proprietate Arbore Binar Căutare: $T1 < X < T2 < Y < T3$

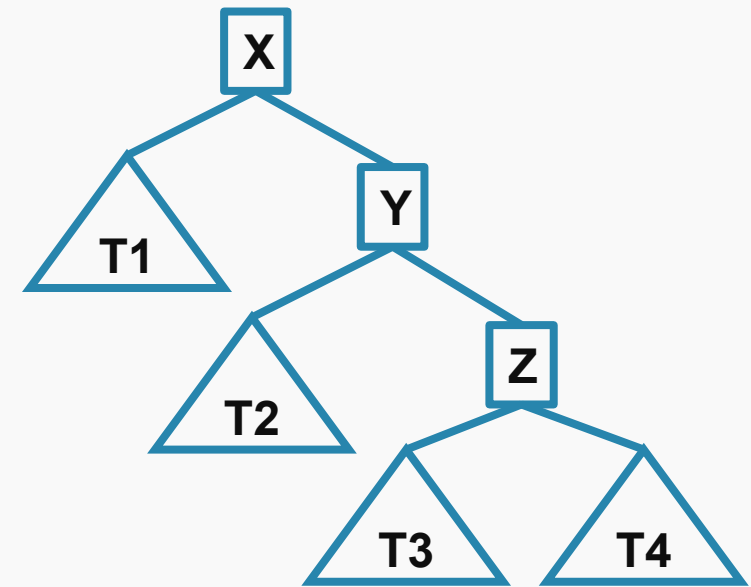


Cazuri dezechilibrare cu 2

Left Left

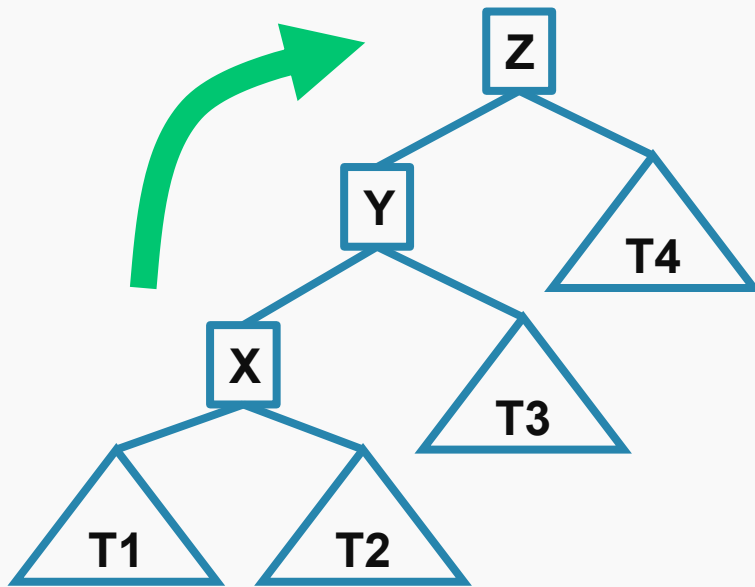


Right Right

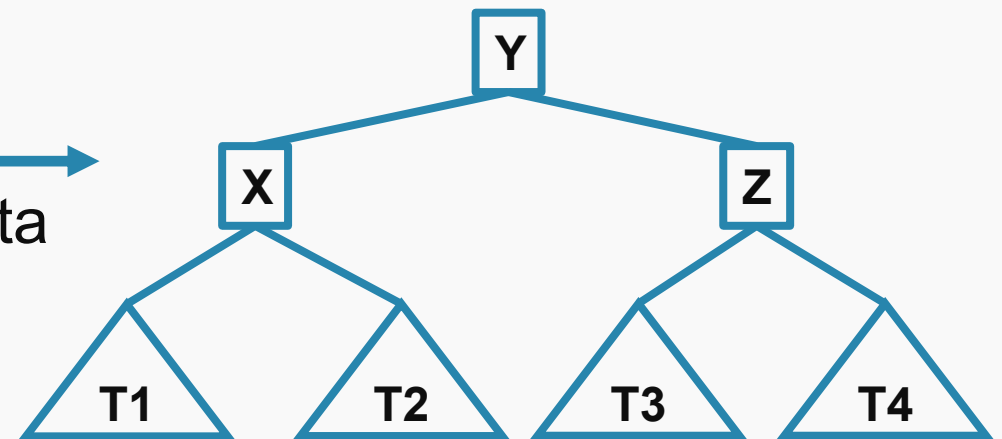




Left Left

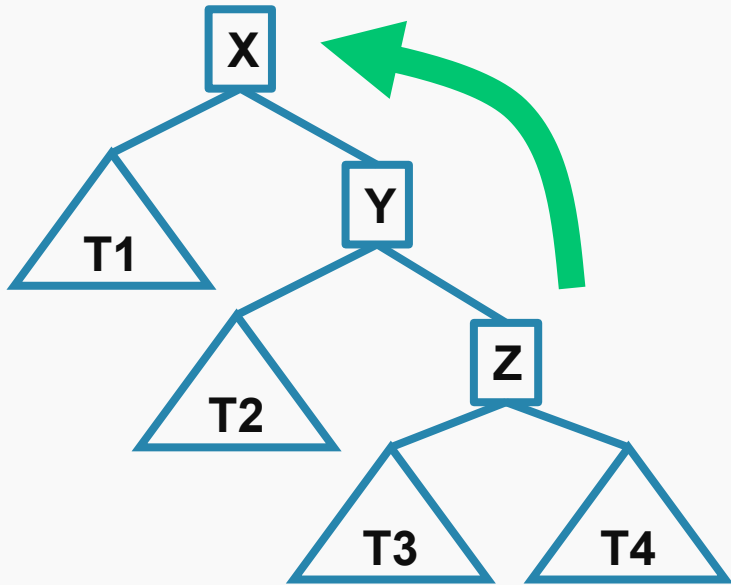


Right rotate
Rotație la dreapta

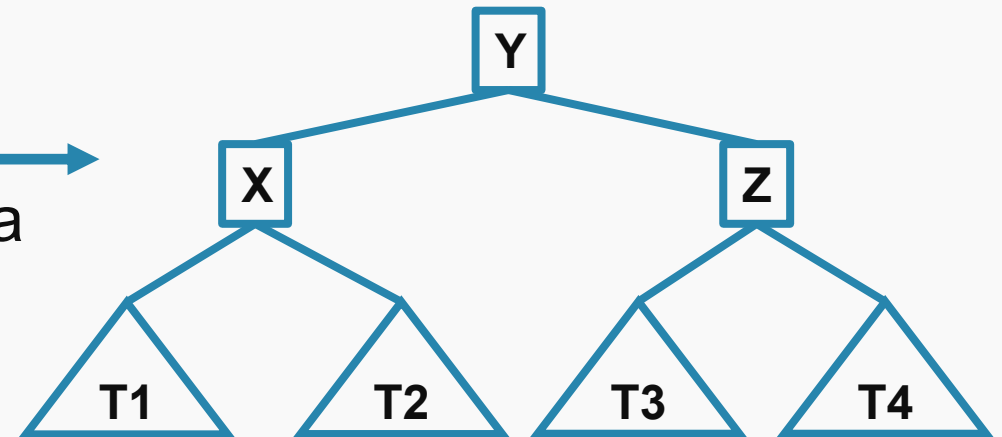




Right Right



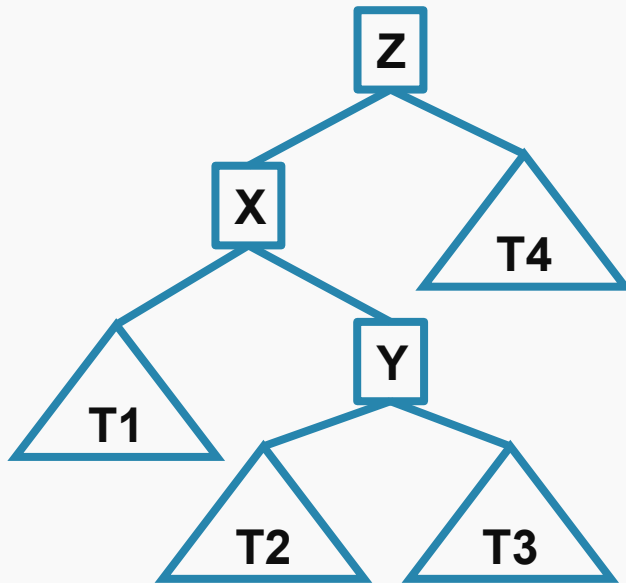
Left rotate
Rotație la stânga



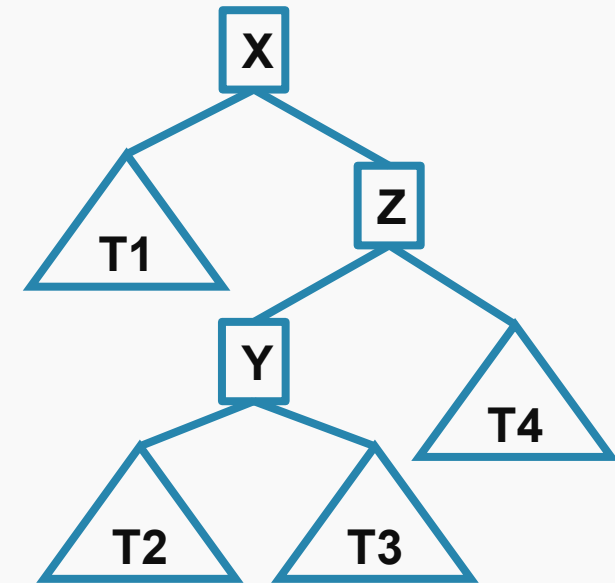


Cazuri dezechilibrare cu 2

Left Right

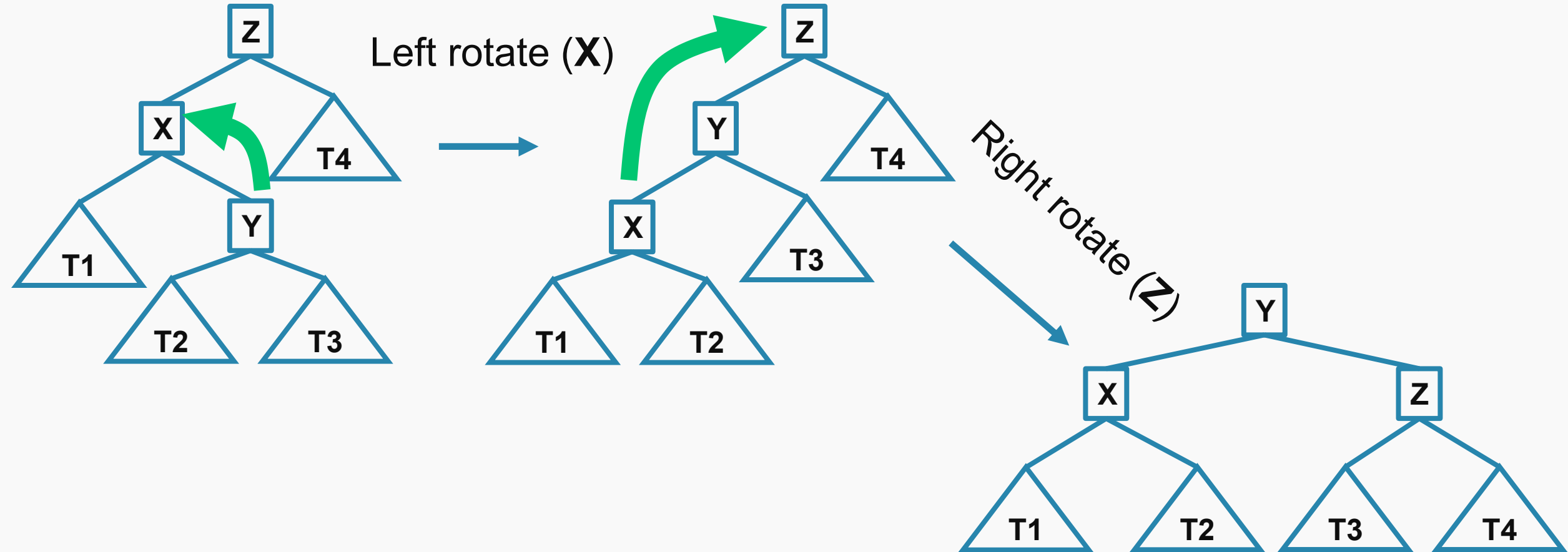


Right Left



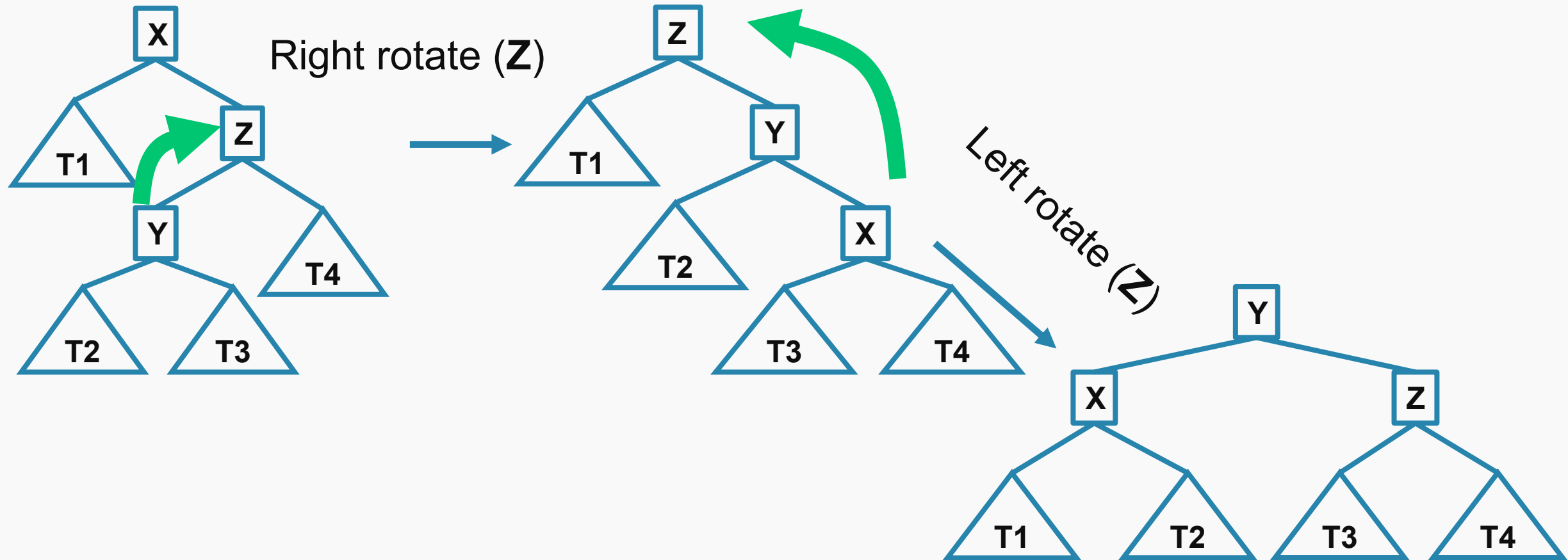


Left Right





Right Left





De ce nu aplicăm prima oară Right?

