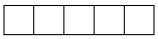
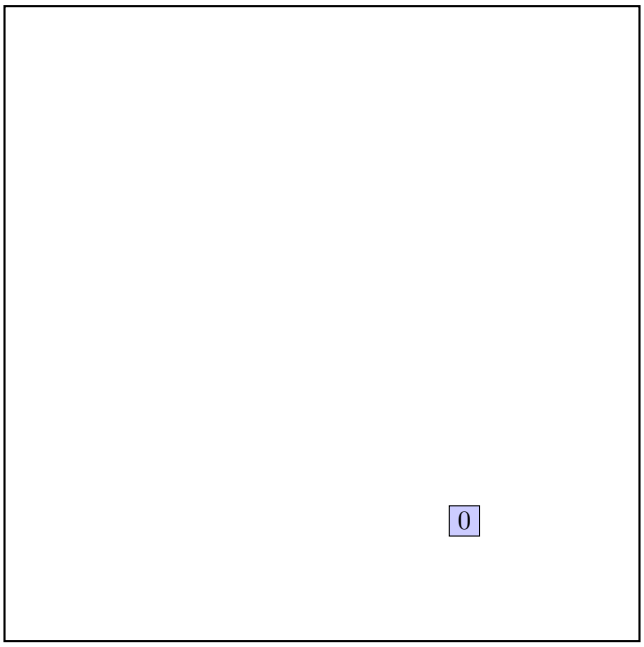
call INSERT R, `#S(P :X 1471/500 :Y 139/200)`

structure view:



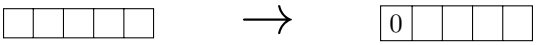
data view:



call CHOOSE-LEAF R, 0

a leaf is found: root
return from CHOOSE-LEAF

the leaf root is not full, add the record.

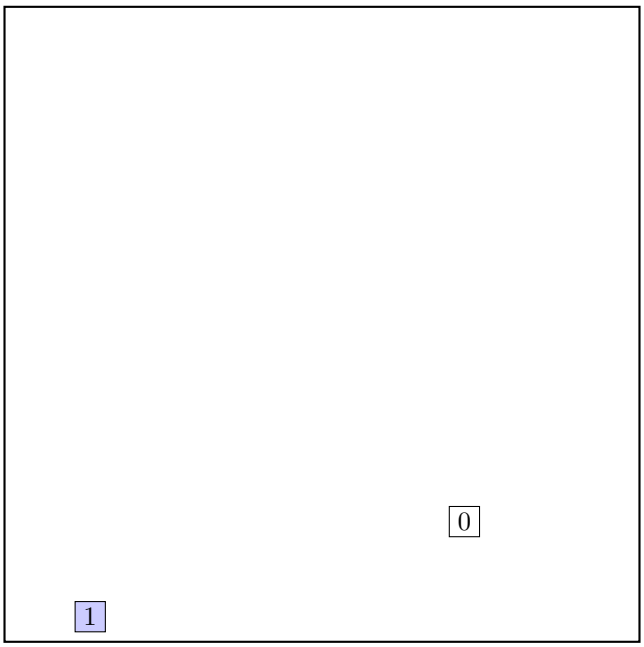


call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 467/1000 :Y 33/500)`

structure view:

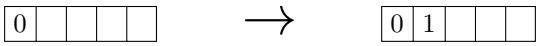
data view:



call CHOOSE-LEAF R, 1

a leaf is found: root
return from CHOOSE-LEAF

the leaf root is not full, add the record.

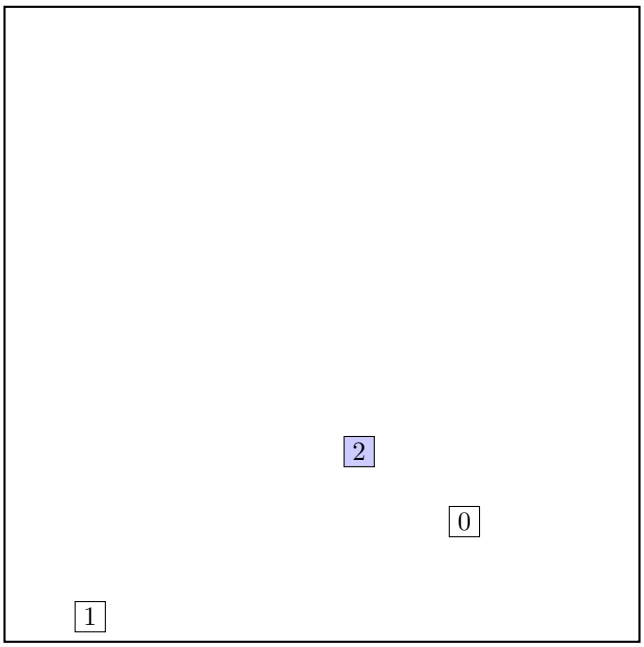


call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1123/500 :Y 579/500)`

structure view:

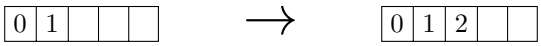
data view:



call CHOOSE-LEAF R, 2

a leaf is found: root
return from CHOOSE-LEAF

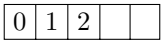
the leaf root is not full, add the record.



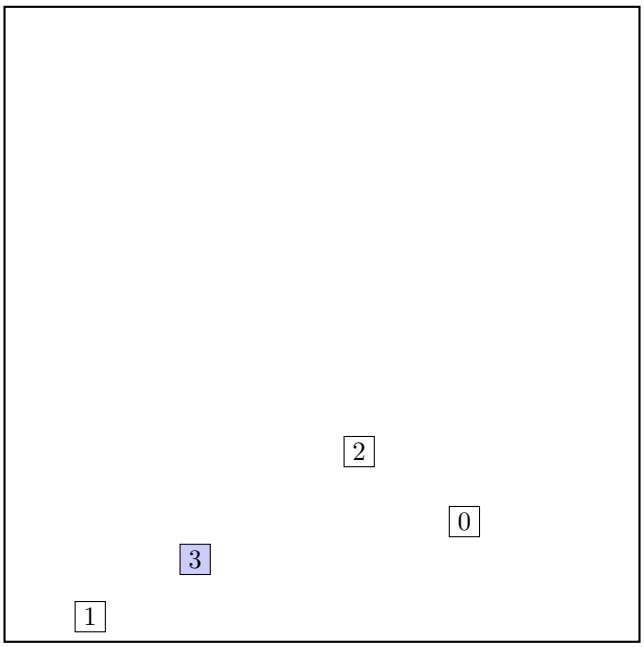
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1161/1000 :Y 89/200)`

structure view:



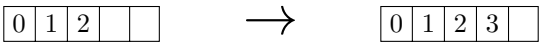
data view:



call CHOOSE-LEAF R, 3

a leaf is found: root
return from CHOOSE-LEAF

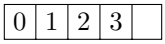
the leaf root is not full, add the record.



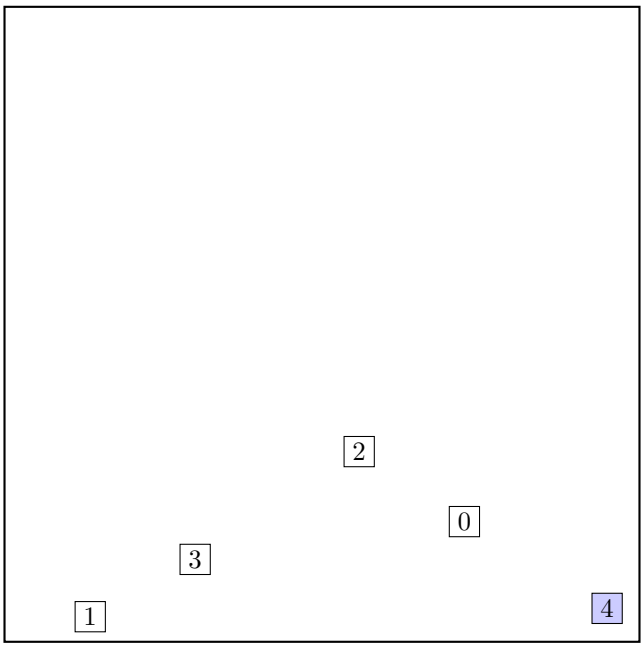
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1943/500 :Y 121/1000)`

structure view:



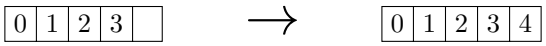
data view:



call CHOOSE-LEAF R, 4

a leaf is found: root
return from CHOOSE-LEAF

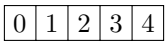
the leaf root is not full, add the record.



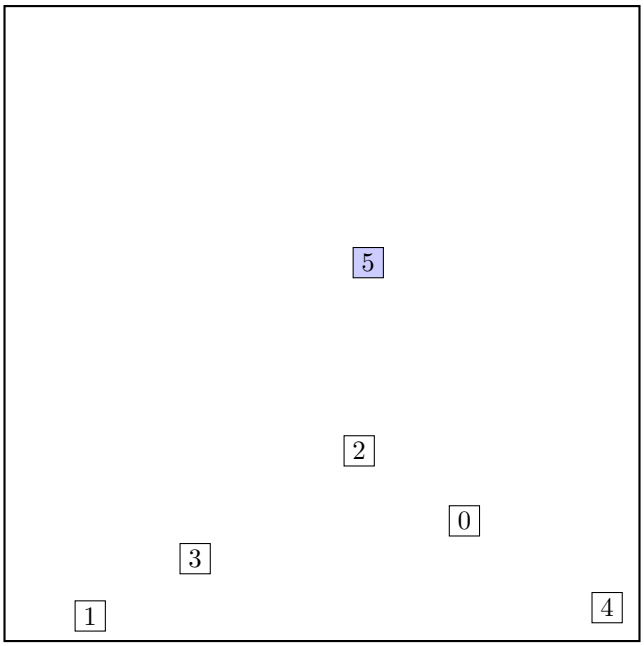
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1153/500 :Y 2403/1000)`

structure view:



data view:



call CHOOSE-LEAF R, 5

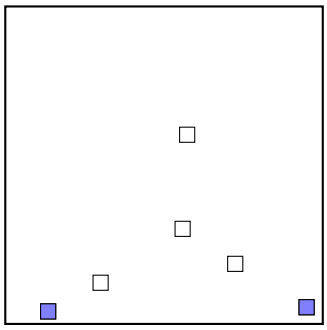
a leaf is found: root

return from CHOOSE-LEAF

call SPLIT-NODE R new node

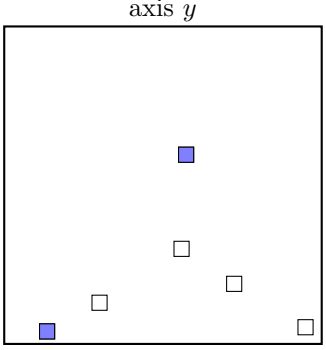
call PICK-SEEDS

axis x



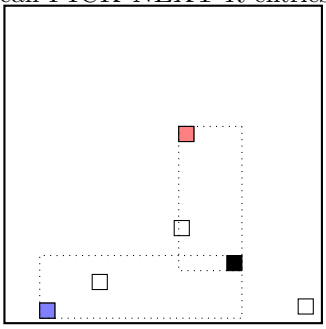
separation= 0.88947225

axis y



separation= 0.8423335

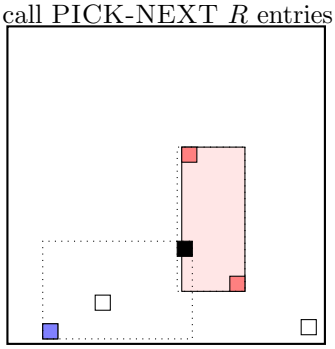
call PICK-NEXT R entries node



0: $\Delta d = -0.6224873$

maximal $|\Delta d|$ is for node 0.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

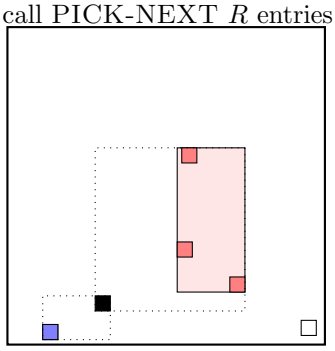
call PICK-NEXT R entries node



2: $\Delta d = -2.4023884$

maximal $|\Delta d|$ is for node 2.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

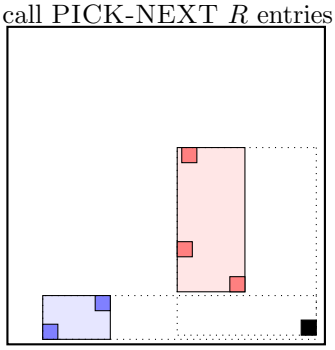
call PICK-NEXT R entries node



3: $\Delta d = 2.0878043$

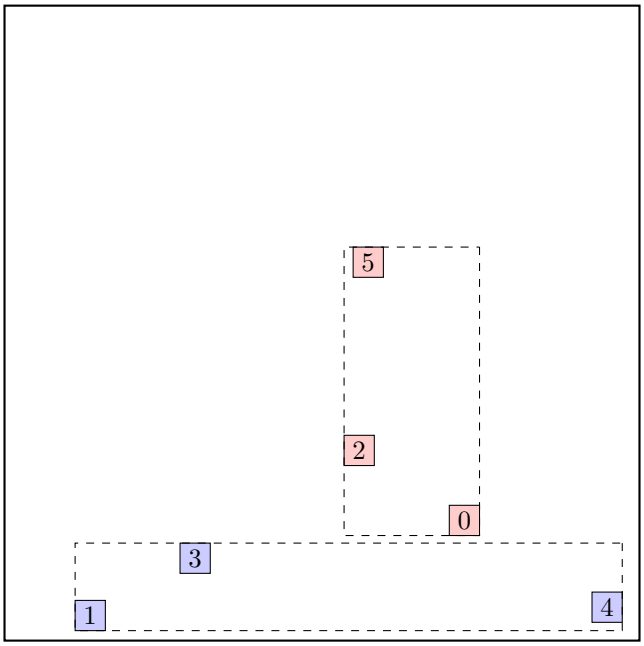
maximal $|\Delta d|$ occurs for node 3.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

call PICK-NEXT R entries node



4: $\Delta d = 1.2795372$

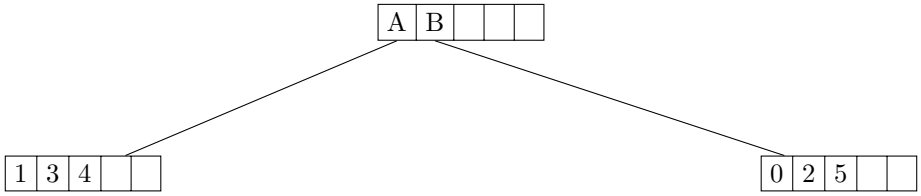
maximal $|\Delta d|$ occurs for node 4.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group
. . . the final split is:



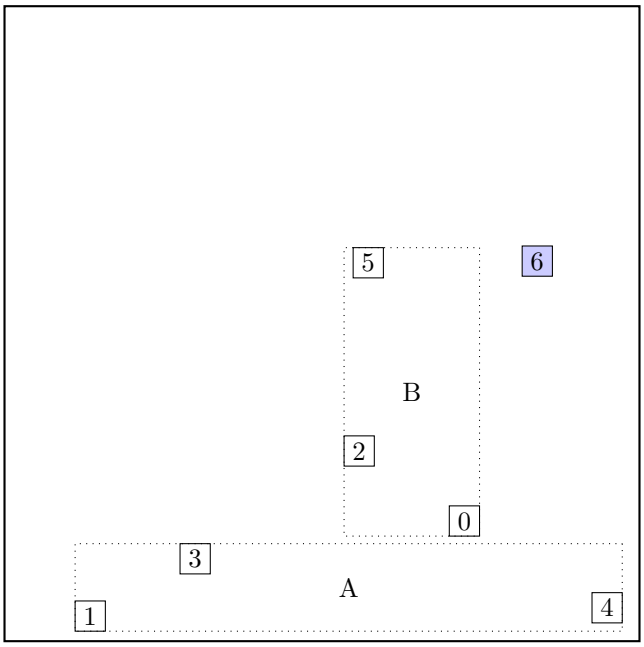
call ADJUST-TREE with R, node A and the new node
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 428/125 :Y 1207/500)`

structure view:

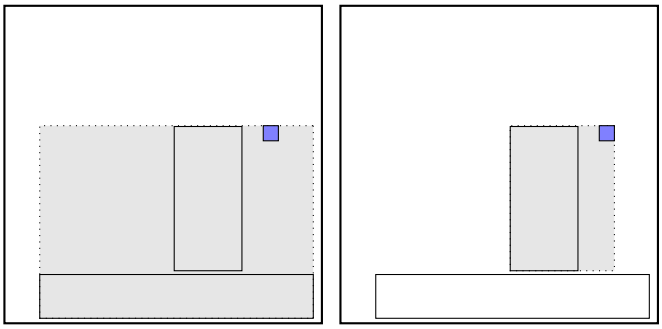


data view:



call CHOOSE-LEAF R, 6

choose among children:



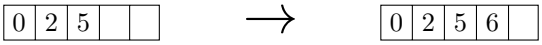
A	B
old area: 2.0954008	old area: 1.7095673
new area: 9.2212105	new area: 2.6443816
extension: 7.1258097	extension: 0.9348142

selected B

a leaf is found: B

return from CHOOSE-LEAF

the leaf B is not full, add the record.



call ADJUST-TREE with R, node B

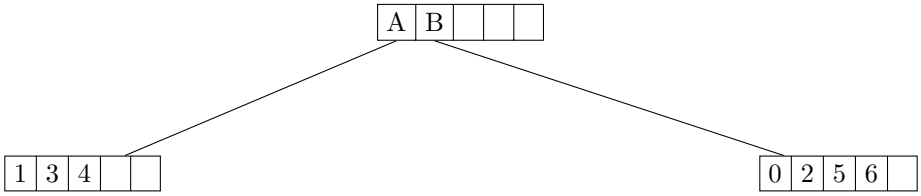
update MBR of node B.

continue by adjusting the parent node root

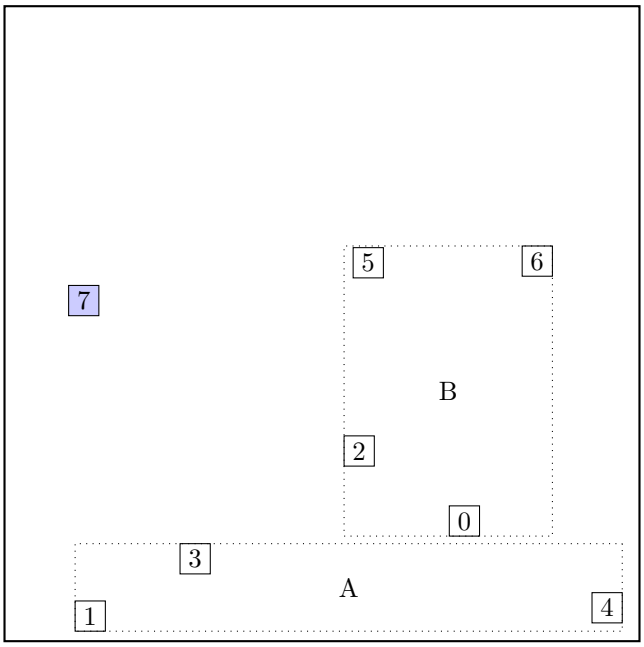
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 53/125 :Y 2153/1000)`

structure view:

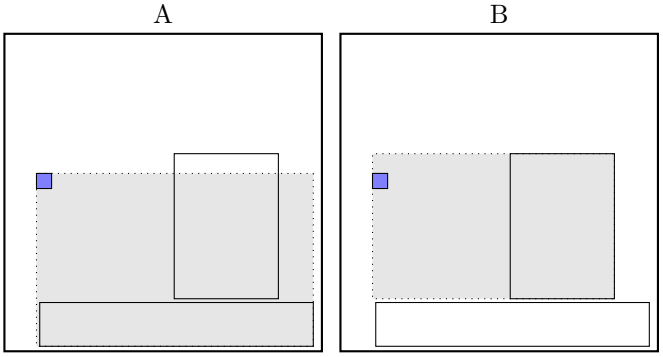


data view:



call CHOOSE-LEAF R, 7

choose among children:



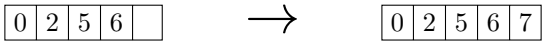
A	B
old area: 2.0954008	old area: 2.6443816
new area: 8.374993	new area: 6.1407995
extension: 6.2795925	extension: 3.496418

selected B

a leaf is found: B

return from CHOOSE-LEAF

the leaf B is not full, add the record.



call ADJUST-TREE with R, node B

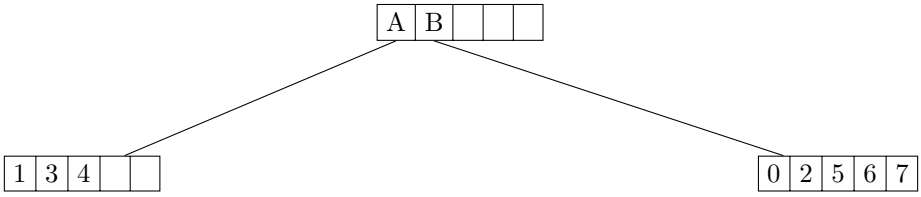
update MBR of node B.

continue by adjusting the parent node root

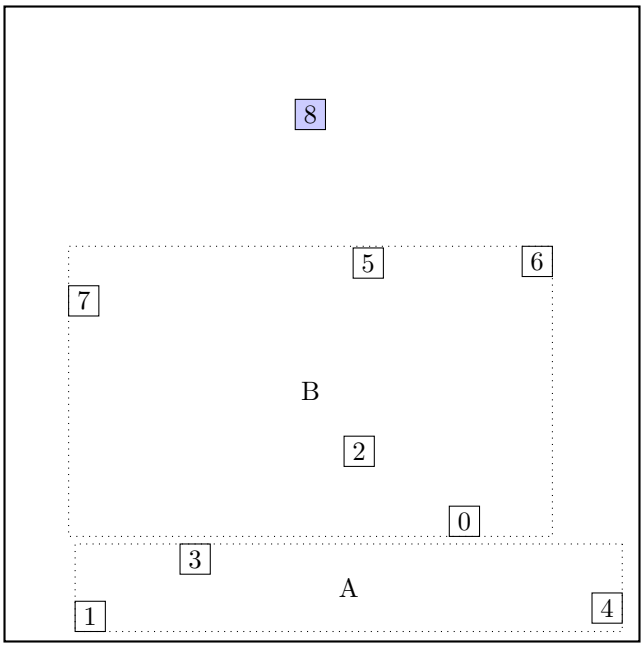
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1923/1000 :Y 1693/500)`

structure view:

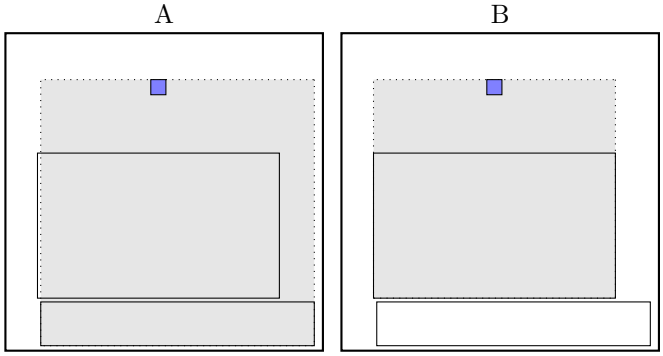


data view:



call CHOOSE-LEAF R, 8

choose among children:



A	B
old area: 2.0954008	old area: 6.1407995
new area: 12.738878	new area: 9.251199
extension: 10.643477	extension: 3.1103993

selected B

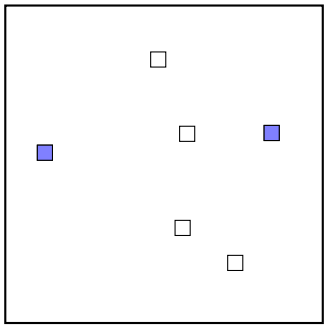
a leaf is found: B

return from CHOOSE-LEAF

call SPLIT-NODE R new node

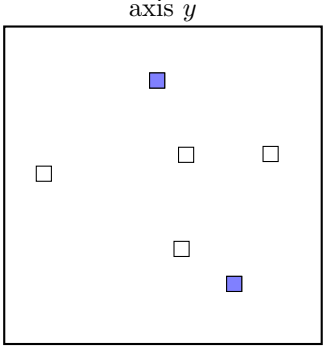
call PICK-SEEDS

axis x



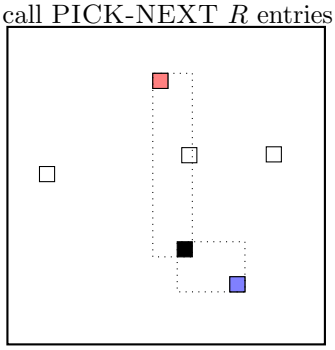
separation= 0.8750001

axis y



separation= 0.8616396

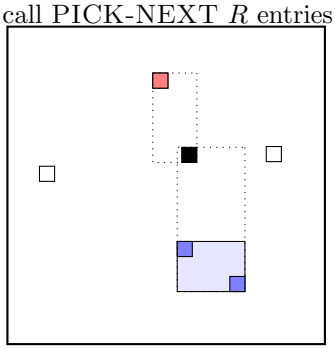
call PICK-NEXT R entries node



2: $\Delta d = 0.6757961$

maximal $|\Delta d|$ occurs for node 2.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

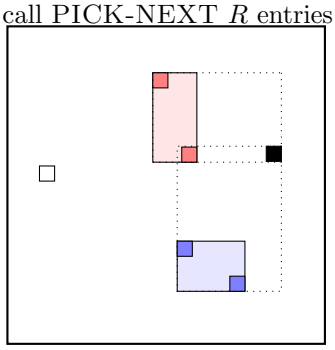
call PICK-NEXT R entries node



5: $\Delta d = -0.4658308$

maximal $|\Delta d|$ is for node 5.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

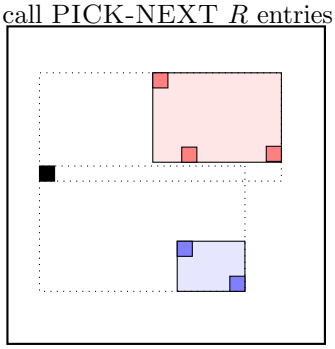
call PICK-NEXT R entries node



6: $\Delta d = -0.72774005$

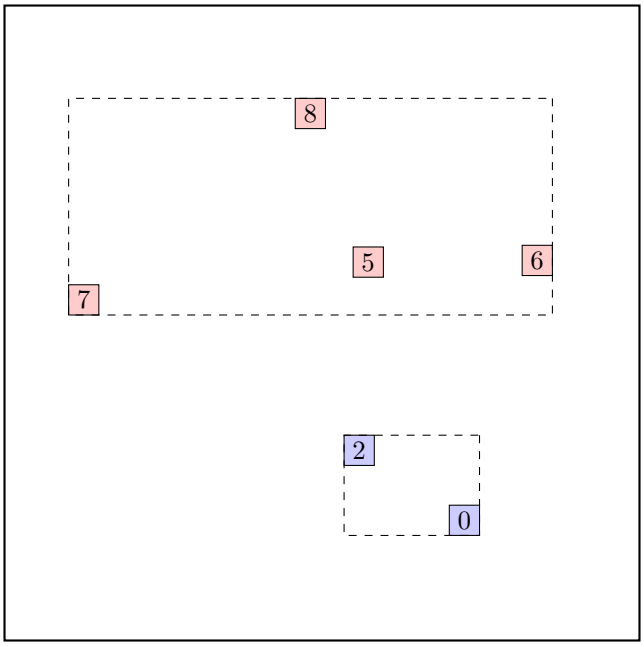
maximal $|\Delta d|$ is for node 6.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

call PICK-NEXT R entries node



7: $\Delta d = -1.3390801$

maximal $|\Delta d|$ is for node 7.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group
the rest of rectangles must be put to the blue group.
. . . the final split is:

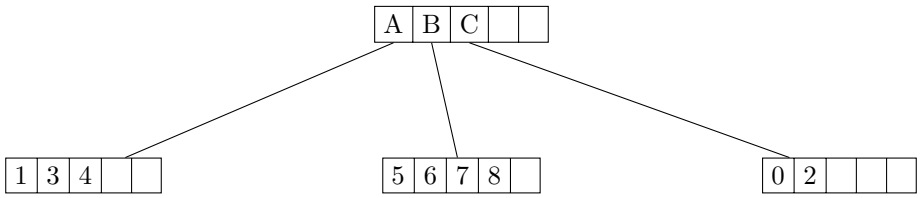


call ADJUST-TREE with R, node B and the new node
update MBR of node B.
add the new node to the parent node root

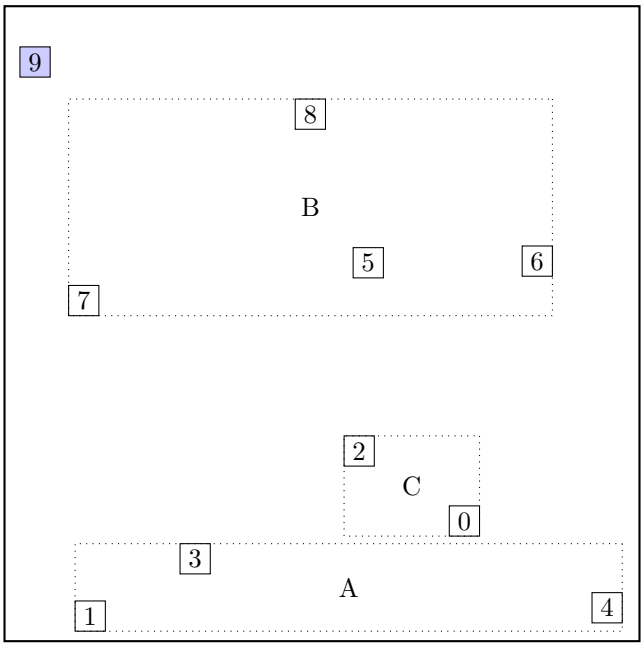
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 51/500 :Y 3731/1000)`

structure view:

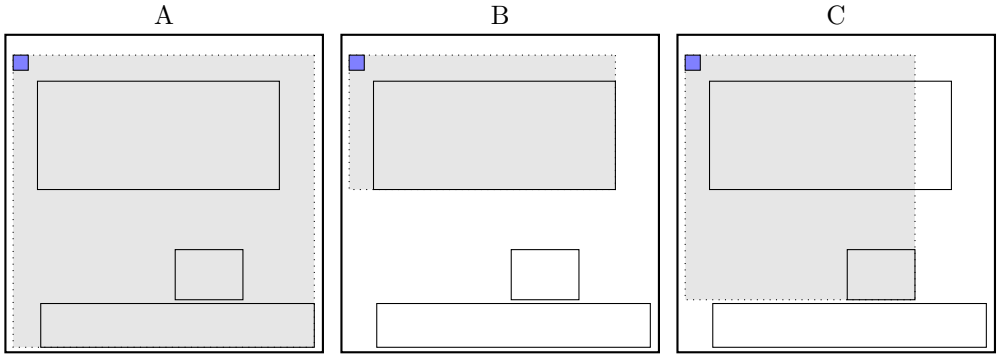


data view:



call CHOOSE-LEAF R, 9

choose among children:



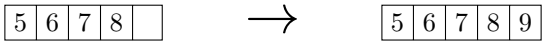
A	B	C
old area: 2.0954008	old area: 4.5855985	old area: 0.59404785
new area: 15.398158	new area: 6.2621145	new area: 9.837439
extension: 13.302757	extension: 1.676516	extension: 9.243391

selected B

a leaf is found: B

return from CHOOSE-LEAF

the leaf B is not full, add the record.



call ADJUST-TREE with R, node B

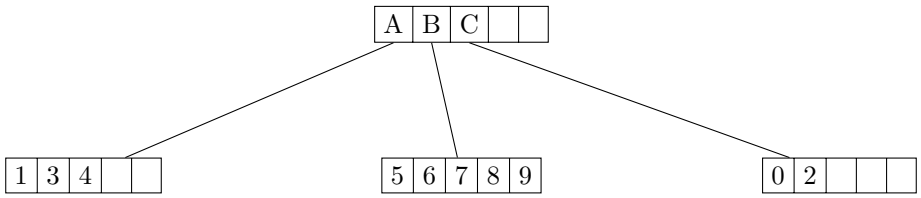
update MBR of node B.

continue by adjusting the parent node root

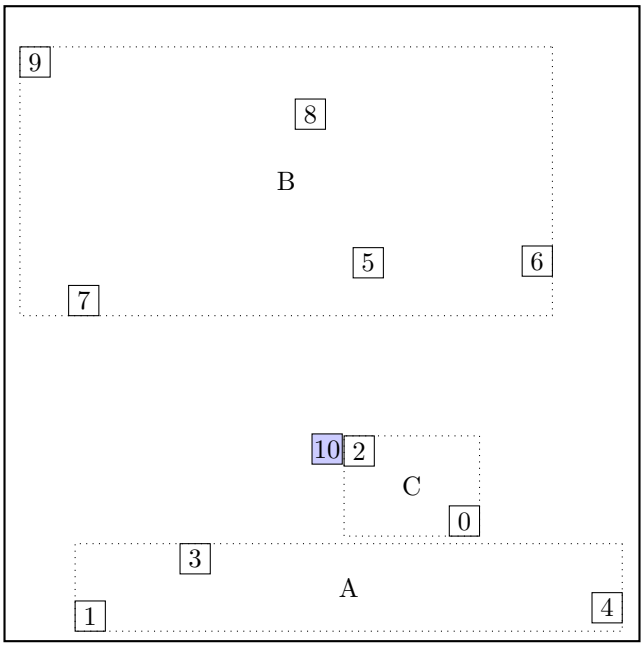
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1017/500 :Y 1171/1000)`

structure view:

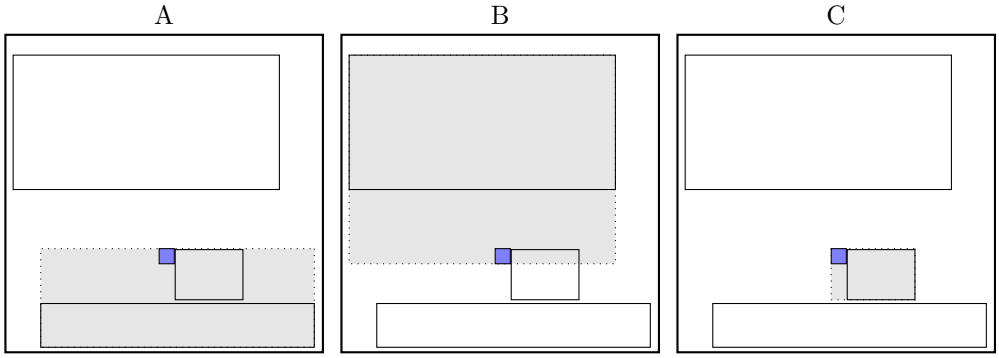


data view:



call CHOOSE-LEAF R, 10

choose among children:



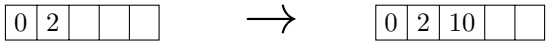
A	B	C
old area: 2.0954008	old area: 6.2621145	old area: 0.59404785
new area: 4.722795	new area: 9.720718	new area: 0.749008
extension: 2.6273942	extension: 3.4586039	extension: 0.15496016

selected C

a leaf is found: C

return from CHOOSE-LEAF

the leaf C is not full, add the record.



call ADJUST-TREE with R, node C

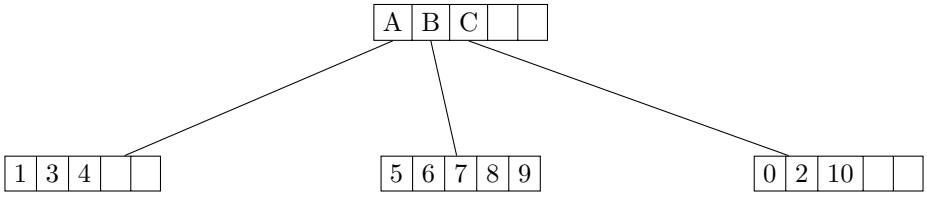
update MBR of node C.

continue by adjusting the parent node root

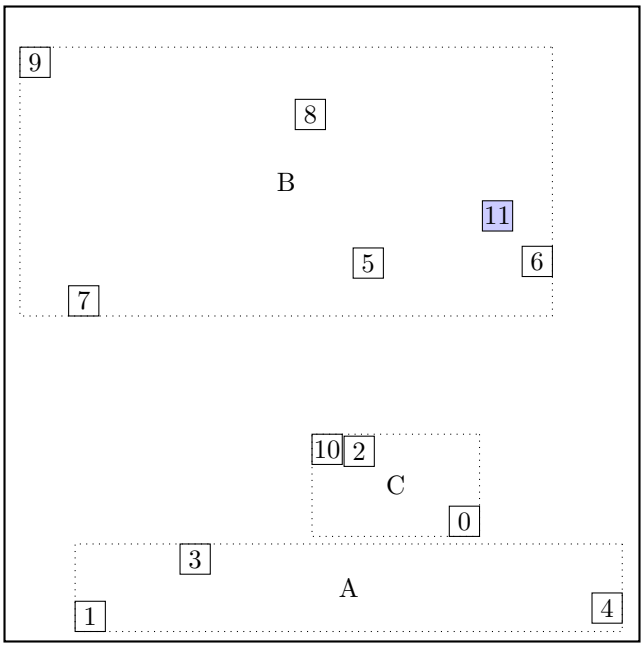
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 3161/1000 :Y 543/200)`

structure view:

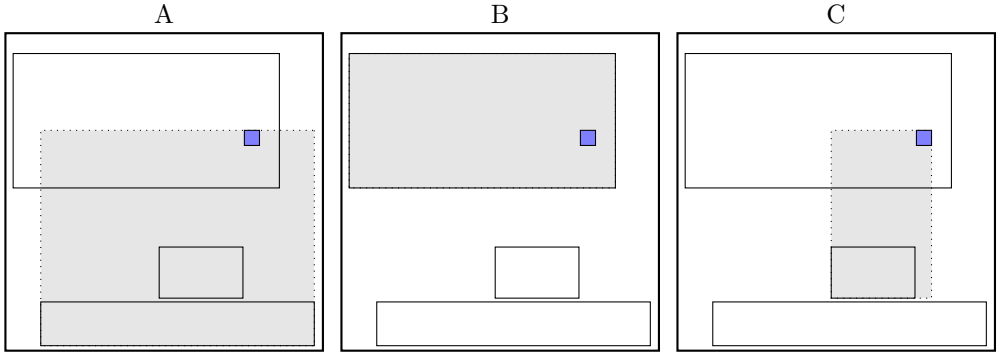


data view:



call CHOOSE-LEAF R, 11

choose among children:



A	B	C
old area: 2.0954008	old area: 6.2621145	old area: 0.749008
new area: 10.31053	new area: 6.2621145	new area: 2.9459398
extension: 8.215129	extension: 0.0	extension: 2.1969319

selected B

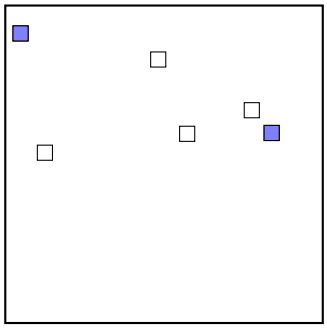
a leaf is found: B

return from CHOOSE-LEAF

call SPLIT-NODE R new node

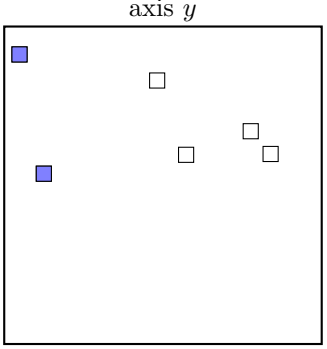
call PICK-SEEDS

axis x



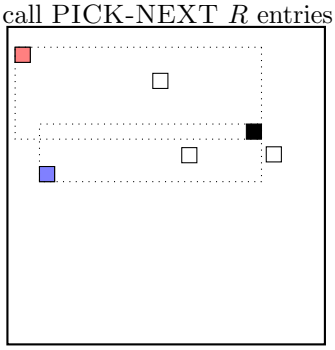
separation= 0.8864283

axis y



separation= 0.7750283

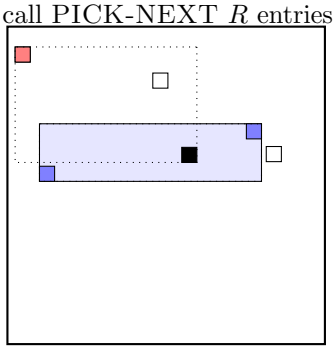
call PICK-NEXT R entries node



11: $\Delta d = 1.7249506$

maximal $|\Delta d|$ occurs for node 11.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

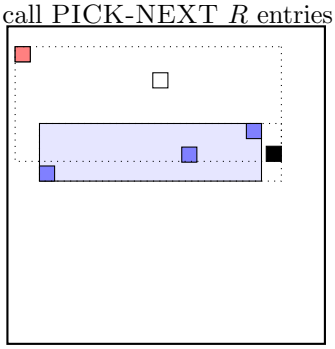
call PICK-NEXT R entries node



5: $\Delta d = 3.6333108$

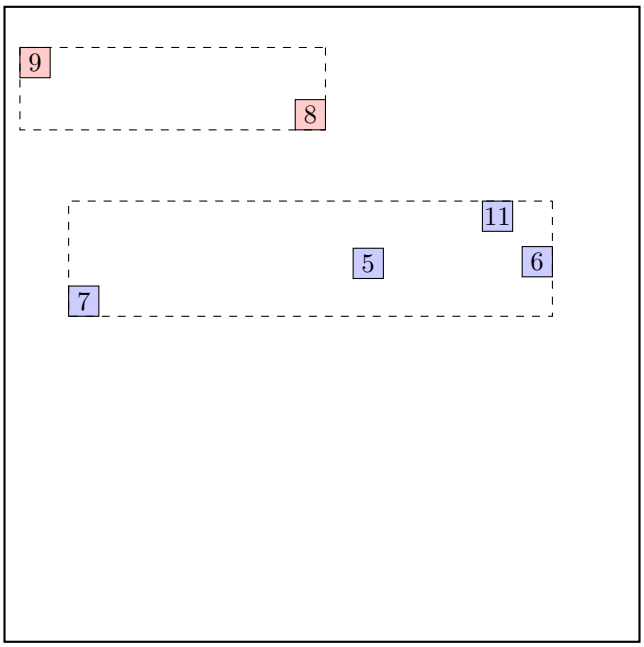
maximal $|\Delta d|$ occurs for node 5.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

call PICK-NEXT R entries node



6: $\Delta d = 5.1024666$

maximal $|\Delta d|$ occurs for node 6.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group
the rest of rectangles must be put to the red group group.
. . . the final split is:

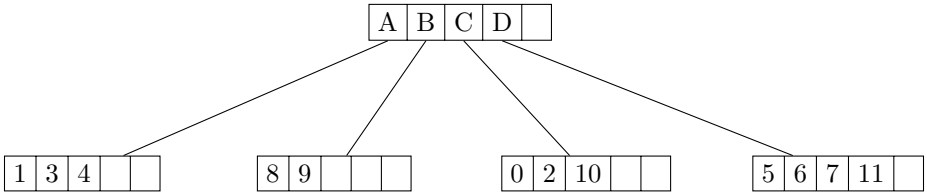


call ADJUST-TREE with R, node B and the new node
update MBR of node B.
add the new node to the parent node root

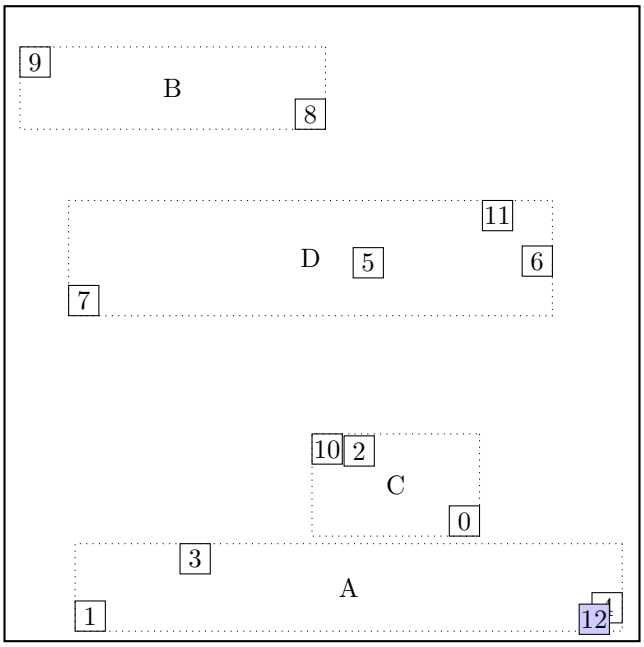
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 3801/1000 :Y 9/200)`

structure view:

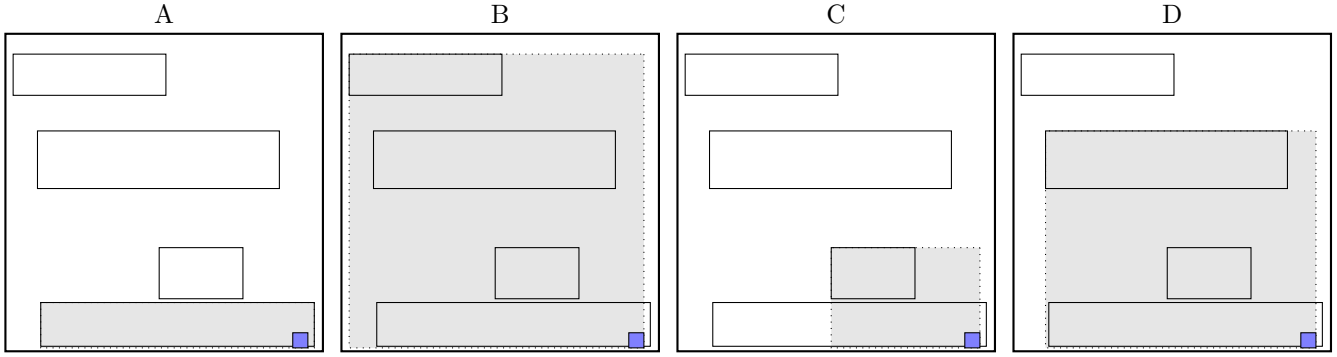


data view:



call CHOOSE-LEAF R, 12

choose among children:



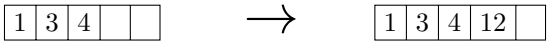
A	B	C	D
old area: 2.0954008	old area: 1.1014446	old area: 0.749008	old area: 2.4383986
new area: 2.1713999	new area: 15.151513	new area: 2.608242	new area: 10.26599
extension: 0.07599902	extension: 14.050069	extension: 1.8592341	extension: 7.827592

selected A

a leaf is found: A

return from CHOOSE-LEAF

the leaf A is not full, add the record.



call ADJUST-TREE with R, node A

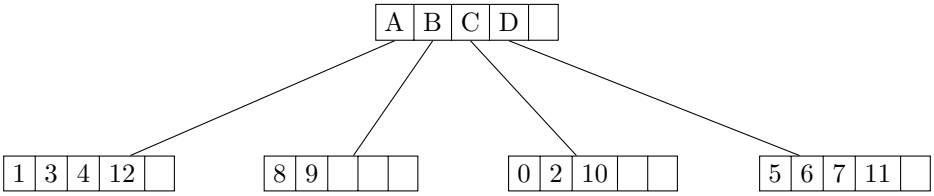
update MBR of node A.

continue by adjusting the parent node root

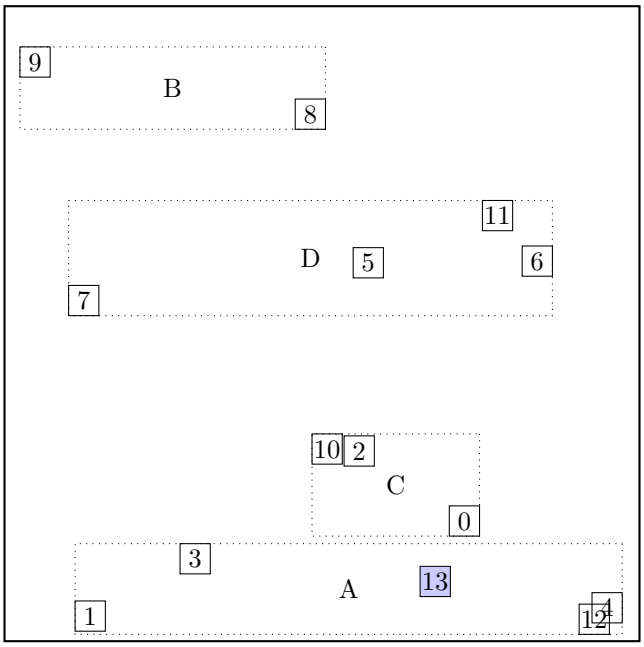
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 2749/1000 :Y 59/200)`

structure view:

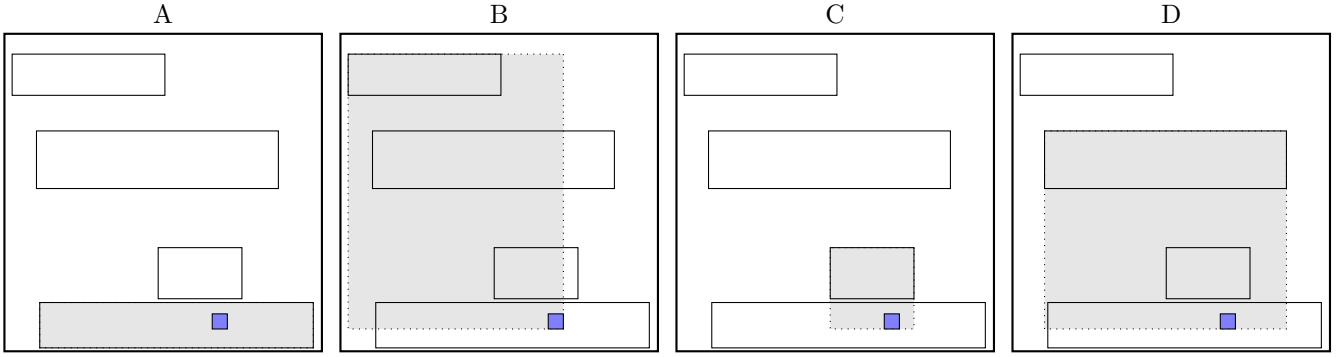


data view:



call CHOOSE-LEAF R, 13

choose among children:



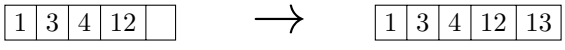
A	B	C	D
old area: 2.1713999	old area: 1.1014446	old area: 0.749008	old area: 2.4383986
new area: 2.1713999	new area: 10.351691	new area: 1.1922079	new area: 8.383999
extension: 0.0	extension: 9.250247	extension: 0.44319993	extension: 5.9456005

selected A

a leaf is found: A

return from CHOOSE-LEAF

the leaf A is not full, add the record.



call ADJUST-TREE with R, node A

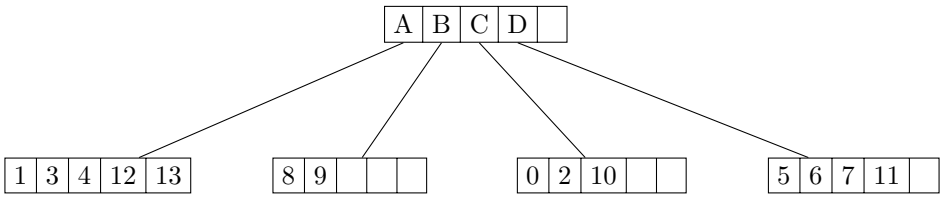
update MBR of node A.

continue by adjusting the parent node root

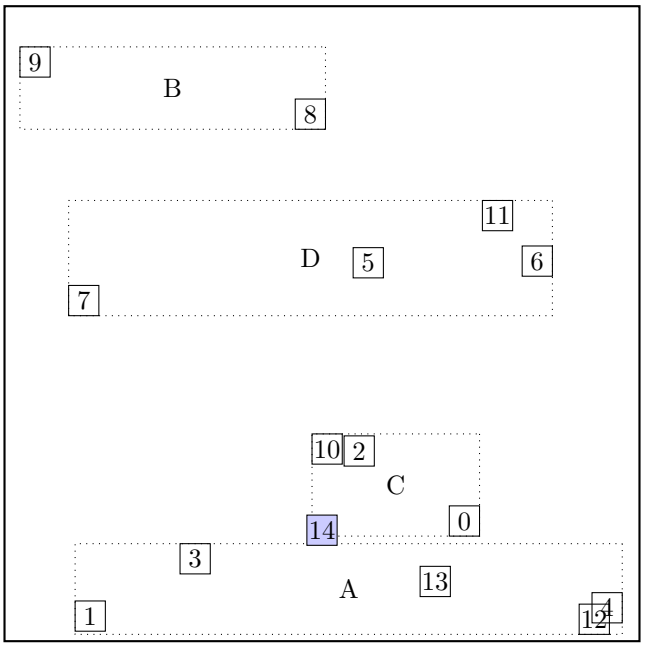
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 2 :Y 317/500)`

structure view:

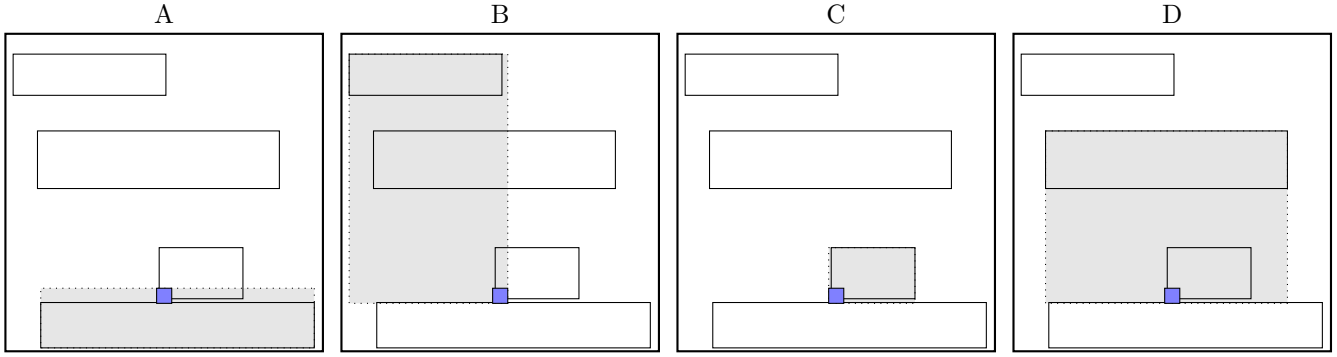


data view:



call CHOOSE-LEAF R, 14

choose among children:



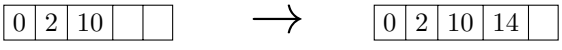
A	B	C	D
old area: 2.1713999	old area: 1.1014446	old area: 0.749008	old area: 2.4383986
new area: 2.8553908	new area: 6.917105	new area: 0.84165395	new area: 7.299199
extension: 0.68399096	extension: 5.8156605	extension: 0.09264594	extension: 4.8608008

selected C

a leaf is found: C

return from CHOOSE-LEAF

the leaf C is not full, add the record.



call ADJUST-TREE with R, node C

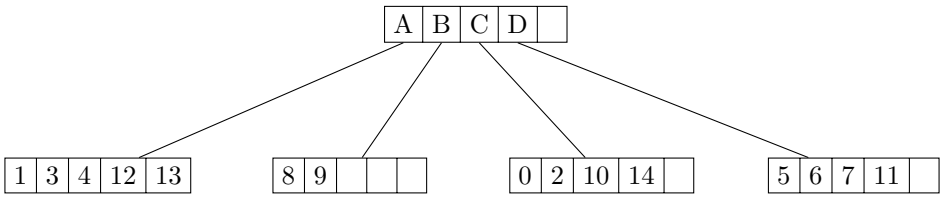
update MBR of node C.

continue by adjusting the parent node root

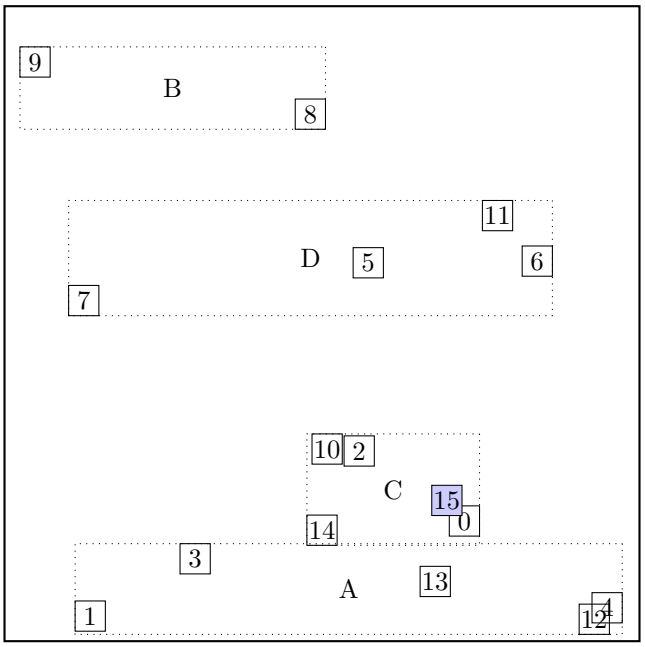
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1413/500 :Y 831/1000)`

structure view:

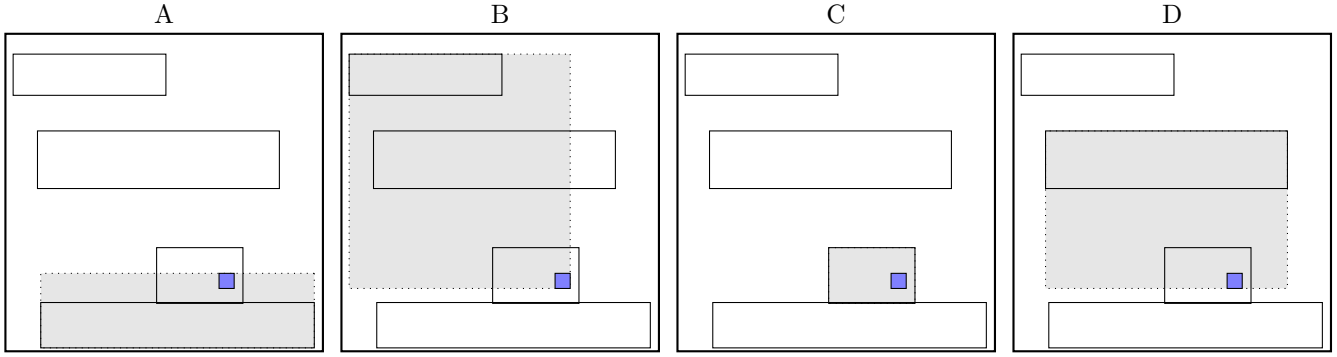


data view:



call CHOOSE-LEAF R, 15

choose among children:



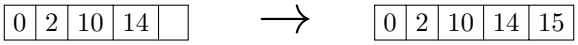
A	B	C	D
old area: 2.1713999	old area: 1.1014446	old area: 0.84165395	old area: 2.4383986
new area: 3.5683337	new area: 9.064399	new area: 0.84165395	new area: 6.6687994
extension: 1.3969338	extension: 7.962954	extension: 0.0	extension: 4.230401

selected C

a leaf is found: C

return from CHOOSE-LEAF

the leaf C is not full, add the record.



call ADJUST-TREE with R, node C

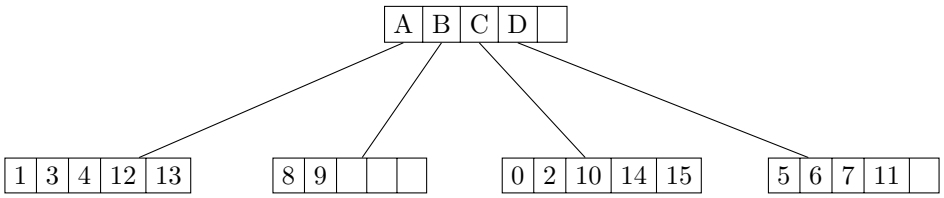
update MBR of node C.

continue by adjusting the parent node root

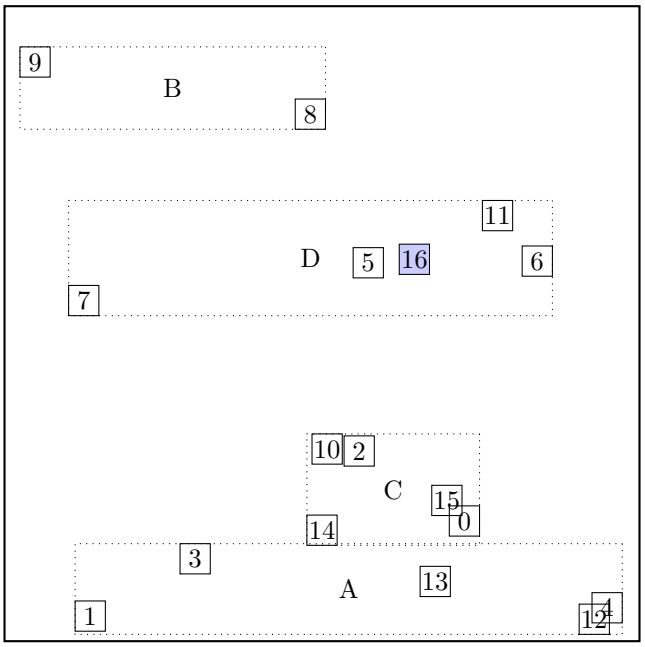
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 2611/1000 :Y 1213/500)`

structure view:

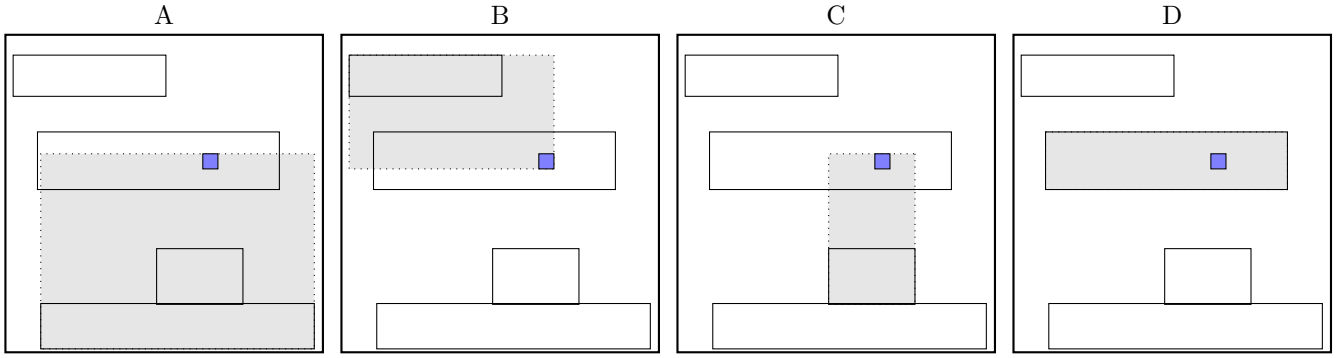


data view:



call CHOOSE-LEAF R, 16

choose among children:



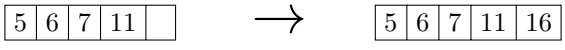
A	B	C	D
old area: 2.1713999	old area: 1.1014446	old area: 0.84165395	old area: 2.4383986
new area: 9.340638	new area: 4.077044	new area: 2.2748638	new area: 2.4383986
extension: 7.169238	extension: 2.9755993	extension: 1.4332098	extension: 0.0

selected D

a leaf is found: D

return from CHOOSE-LEAF

the leaf D is not full, add the record.



call ADJUST-TREE with R, node D

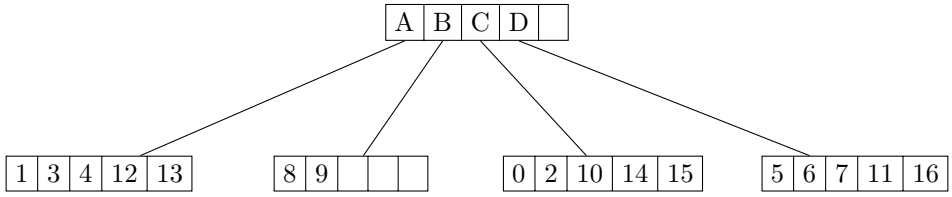
update MBR of node D.

continue by adjusting the parent node root

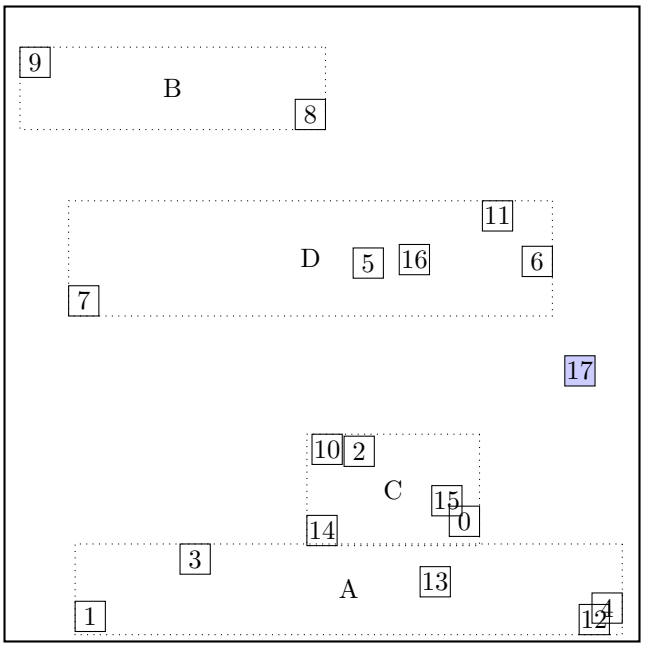
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 1853/500 :Y 169/100)`

structure view:

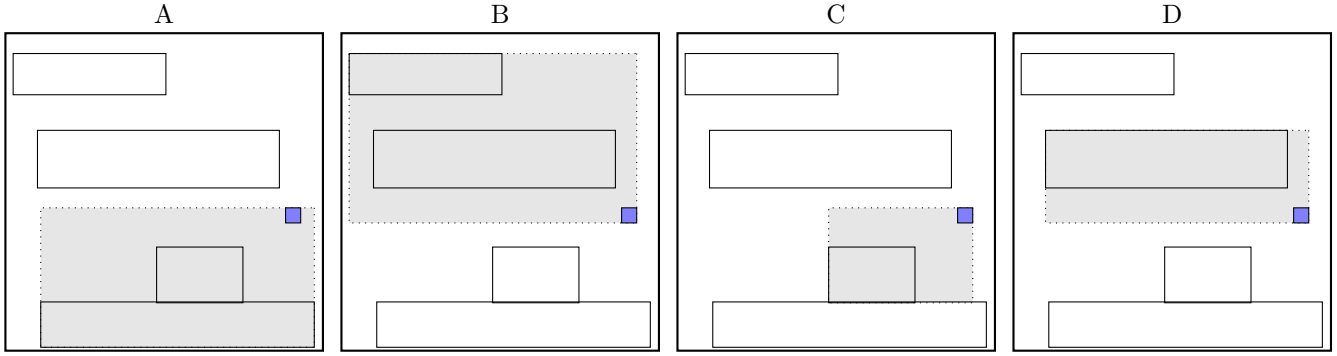


data view:



call CHOOSE-LEAF R, 17

choose among children:



A	B	C	D
old area: 2.1713999	old area: 1.1014446	old area: 0.84165395	old area: 2.4383986
new area: 6.6770544	new area: 8.524763	new area: 2.3939362	new area: 4.265449
extension: 4.5056543	extension: 7.4233184	extension: 1.5522822	extension: 1.8270505

selected C

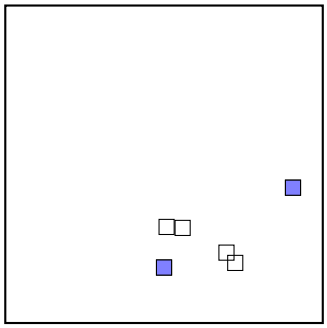
a leaf is found: C

return from CHOOSE-LEAF

call SPLIT-NODE R new node

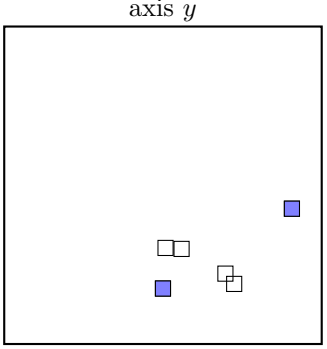
call PICK-SEEDS

axis x



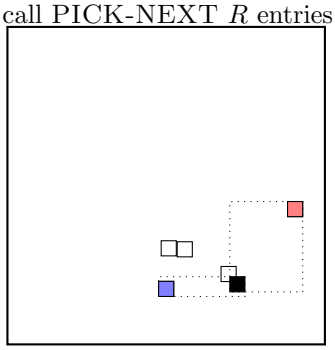
separation= 0.7901366

axis y



separation= 0.6815286

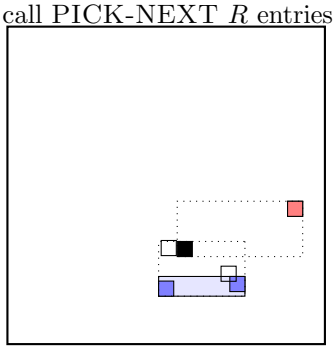
call PICK-NEXT R entries node



0: $\Delta d = 0.8539182$

maximal $|\Delta d|$ occurs for node 0.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

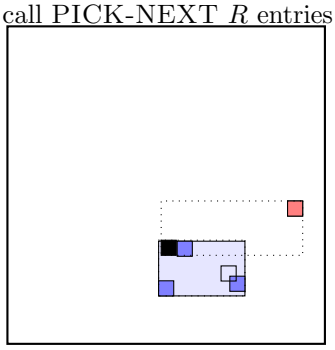
call PICK-NEXT R entries node



2: $\Delta d = 0.6463742$

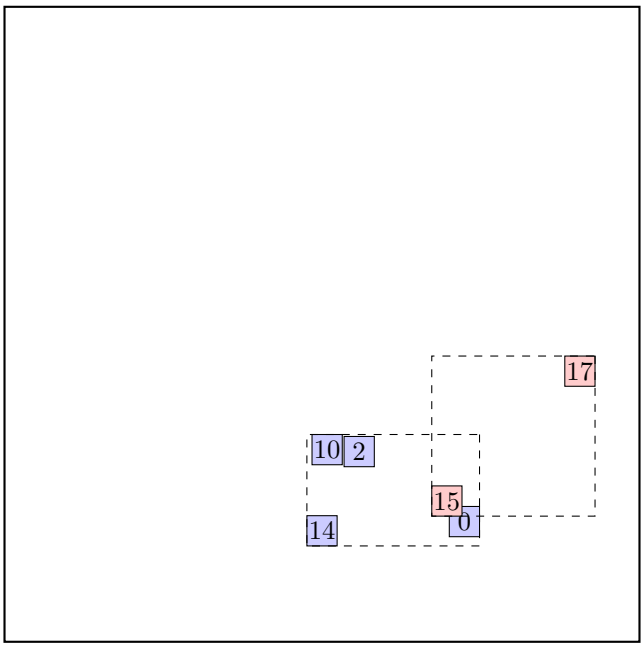
maximal $|\Delta d|$ occurs for node 2.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

call PICK-NEXT R entries node



10: $\Delta d = 1.2911222$

maximal $|\Delta d|$ occurs for node 10.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group
the rest of rectangles must be put to the red group group.
. . . the final split is:

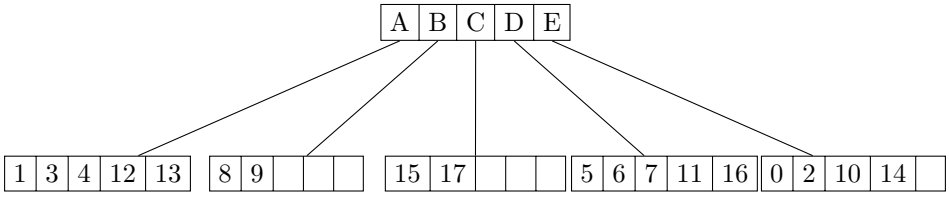


call ADJUST-TREE with R, node C and the new node
update MBR of node C.
add the new node to the parent node root

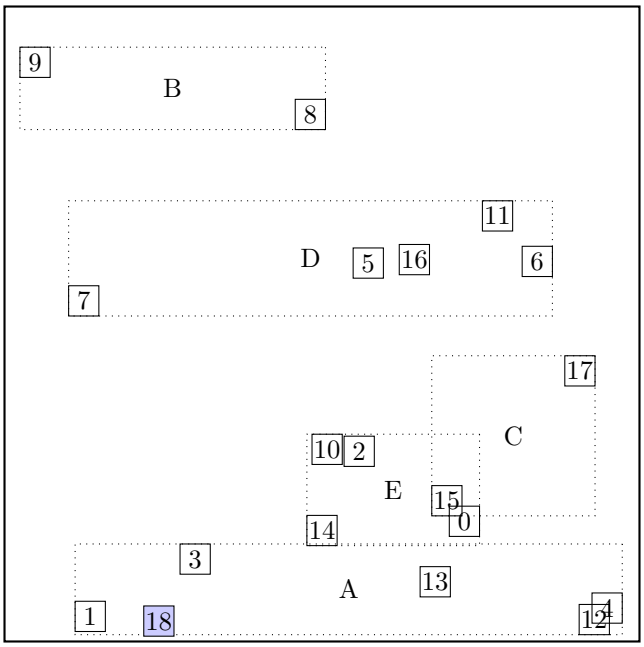
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 921/1000 :Y 7/200)`

structure view:

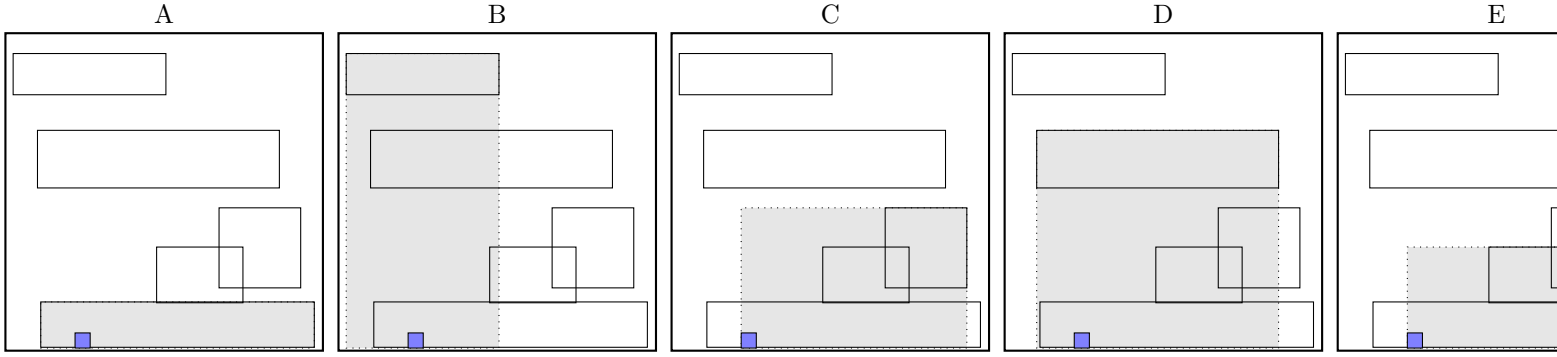


data view:



call CHOOSE-LEAF R, 18

choose among children:



A	B	C	D	E
old area: 2.1713999	old area: 1.1014446	old area: 1.14372	old area: 2.4383986	old area: 0.8416
new area: 2.2075899	new area: 7.8738155	new area: 5.537175	new area: 9.215999	new area: 2.967
extension: 0.036190033	extension: 6.772371	extension: 4.393455	extension: 6.7776003	extension: 2.125

selected A

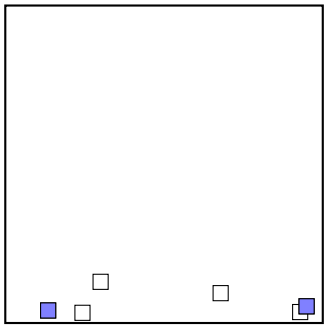
a leaf is found: A

return from CHOOSE-LEAF

call SPLIT-NODE R new node

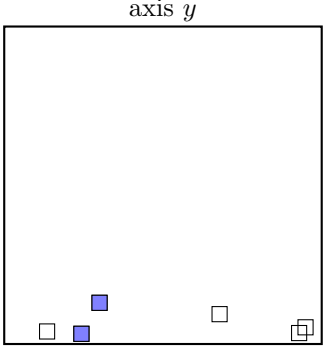
call PICK-SEEDS

axis x



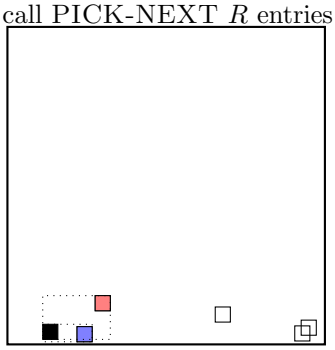
separation= 0.88947225

axis y



separation= 0.34426227

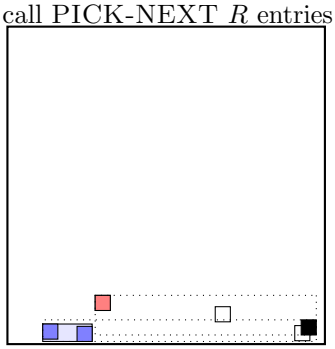
call PICK-NEXT R entries node



1: $\Delta d = 0.36655203$

maximal $|\Delta d|$ occurs for node 1.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

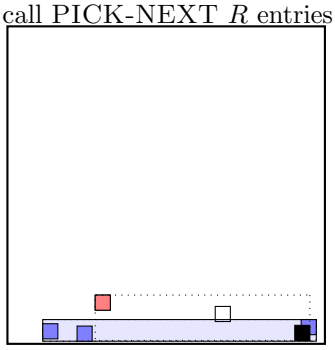
call PICK-NEXT R entries node



4: $\Delta d = 0.60874004$

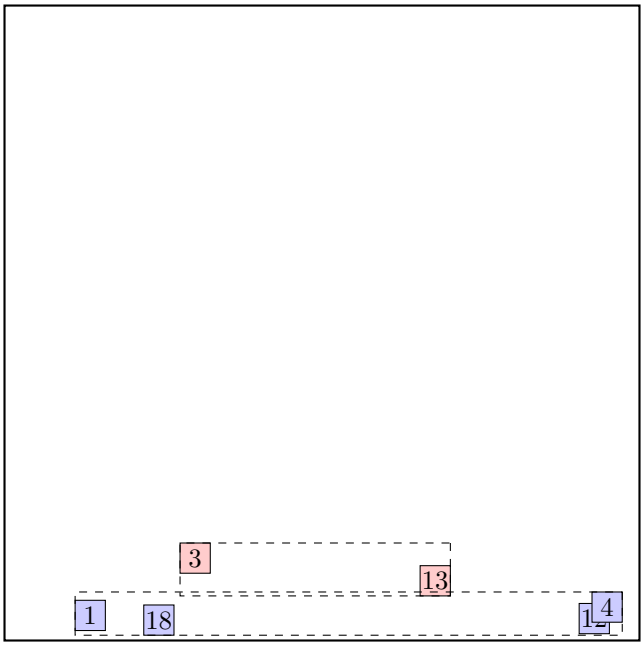
maximal $|\Delta d|$ occurs for node 4.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group

call PICK-NEXT R entries node



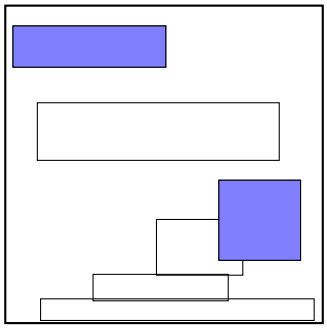
12: $\Delta d = 1.6640002$

maximal $|\Delta d|$ occurs for node 12.
add the node to the blue group ($\Delta d \geq 0$)
update MBR of the blue group group
the rest of rectangles must be put to the red group group.
. . . the final split is:



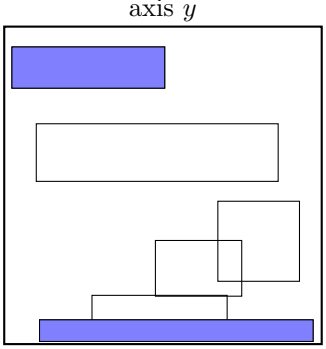
call ADJUST-TREE with R, node A and the new node
update MBR of node A.
add the new node to the parent node root
Parent node root is full, promote split (create a new parent)
call SPLIT-NODE R new node
call PICK-SEEDS

axis x



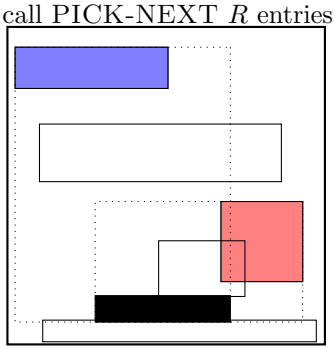
separation= 0.17645586

axis y



separation= 0.78670437

call PICK-NEXT R entries node

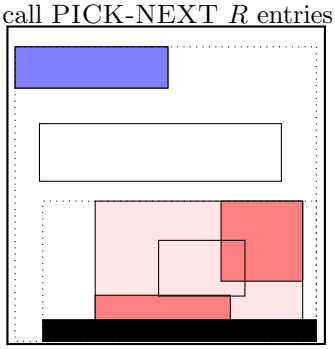


NIL: $\Delta d = -6.015692$

maximal $|\Delta d|$ is for node NIL.

add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

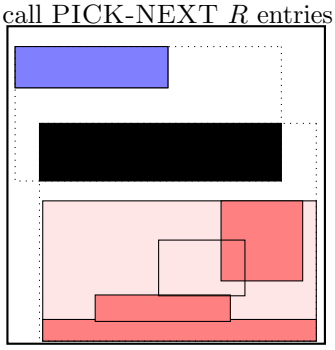
call PICK-NEXT R entries node



NIL: $\Delta d = -12.085249$

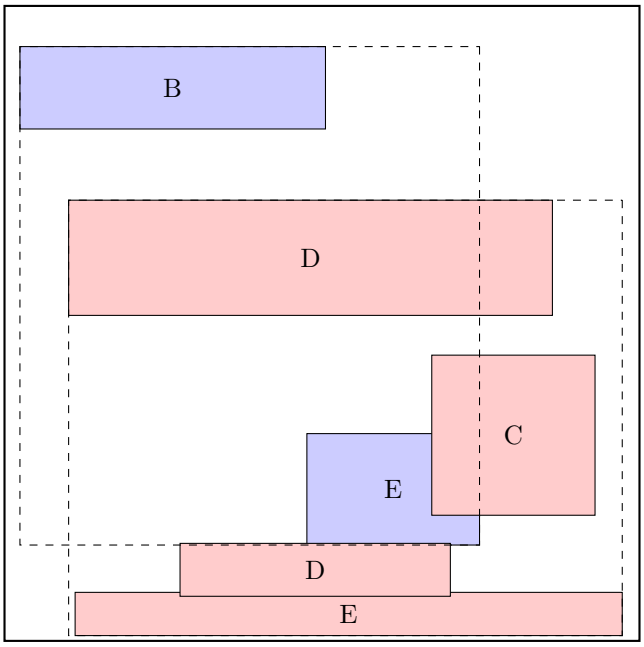
maximal $|\Delta d|$ is for node NIL.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

call PICK-NEXT R entries node



D: $\Delta d = -1.3273559$

maximal $|\Delta d|$ is for node D.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group
the rest of rectangles must be put to the blue group.
. . . the final split is:

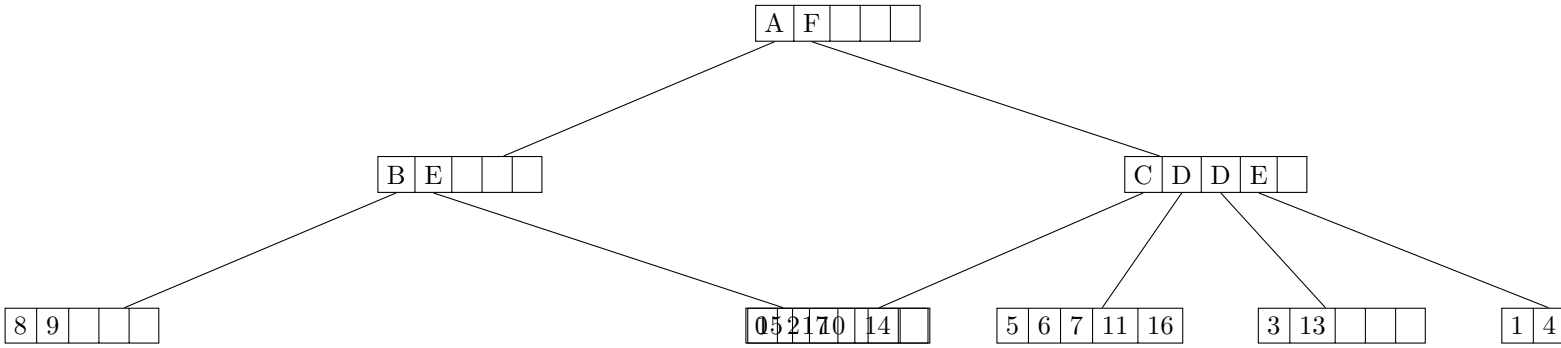


continue by adjusting the parent node NIL, the new parent

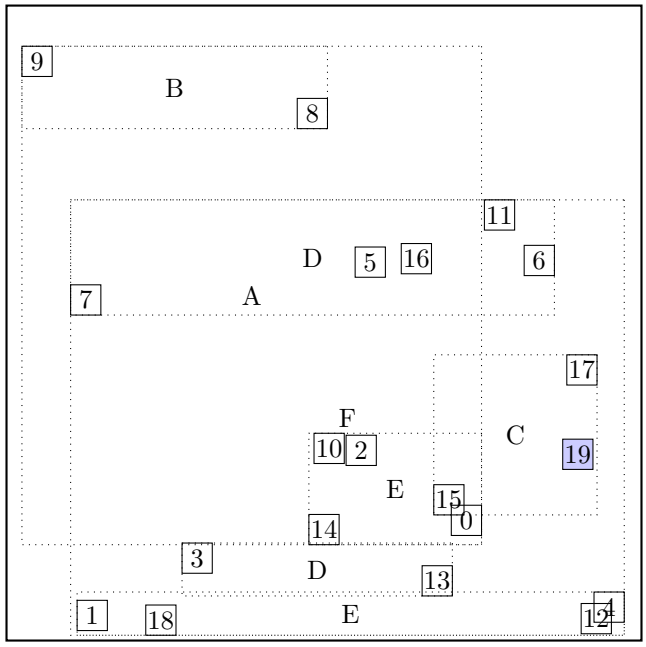
call ADJUST-TREE with R, node A and the new node
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 3679/1000 :Y 283/250)`

structure view:

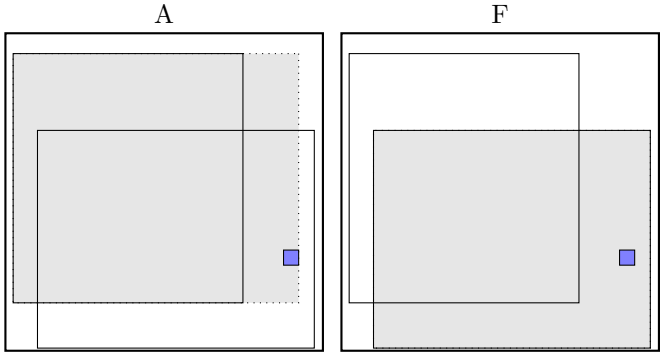


data view:



call CHOOSE-LEAF R, 19

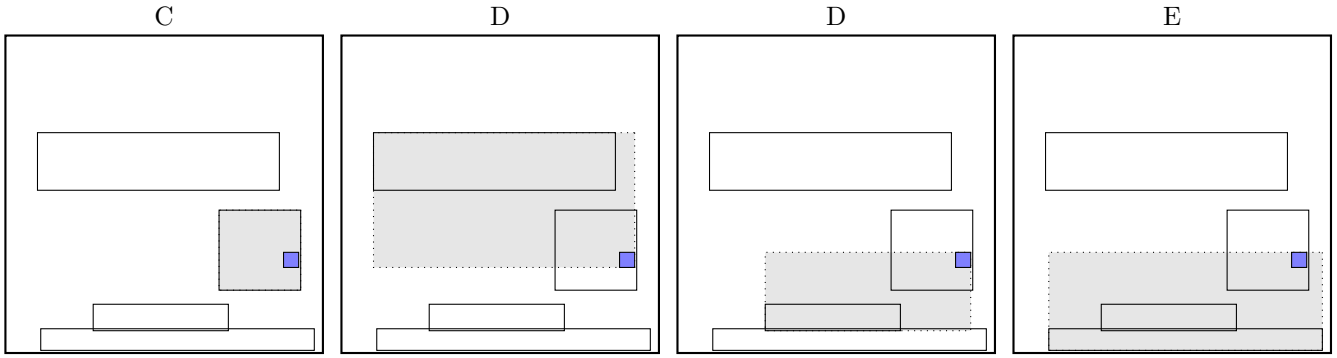
choose among children:



A	F
old area: 10.022879	old area: 10.546558
new area: 12.452767	new area: 10.546558
extension: 2.4298888	extension: 0.0

selected F

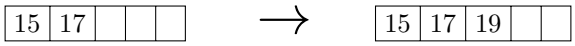
choose among children:



C	D	D	E
old area: 1.14372	old area: 2.4383986	old area: 0.6258	old area: 1.035034
new area: 1.14372	new area: 6.1602645	new area: 2.8185659	new area: 4.6938424
extension: 0.0	extension: 3.721866	extension: 2.1927657	extension: 3.6588085

selected C
    a leaf is found: C
return from CHOOSE-LEAF

the leaf C is not full, add the record.



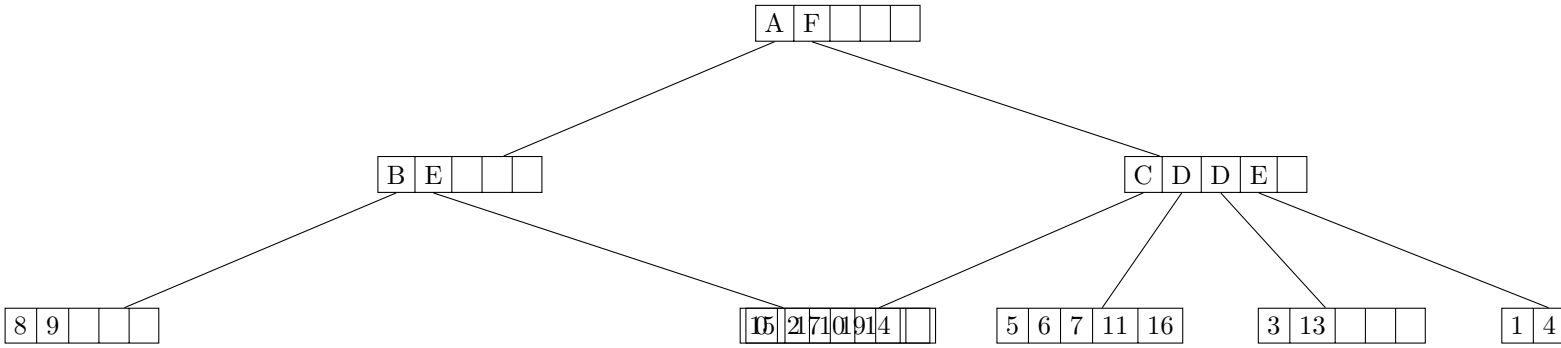
call ADJUST-TREE with R, node C
update MBR of node C.
continue by adjusting the parent node F

call ADJUST-TREE with R, node F
update MBR of node F.
continue by adjusting the parent node root

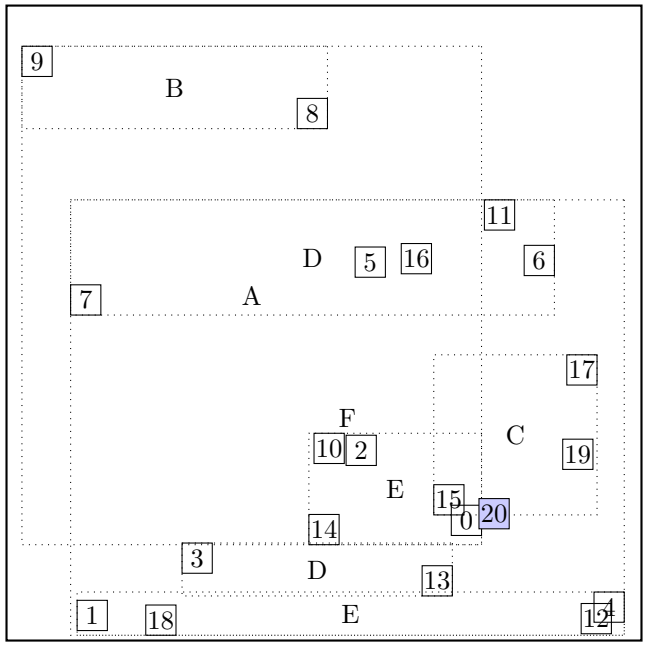
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 25/8 :Y 739/1000)`

structure view:

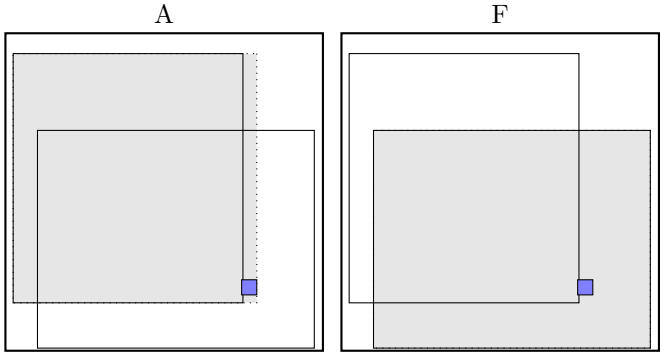


data view:



call CHOOSE-LEAF R, 20

choose among children:

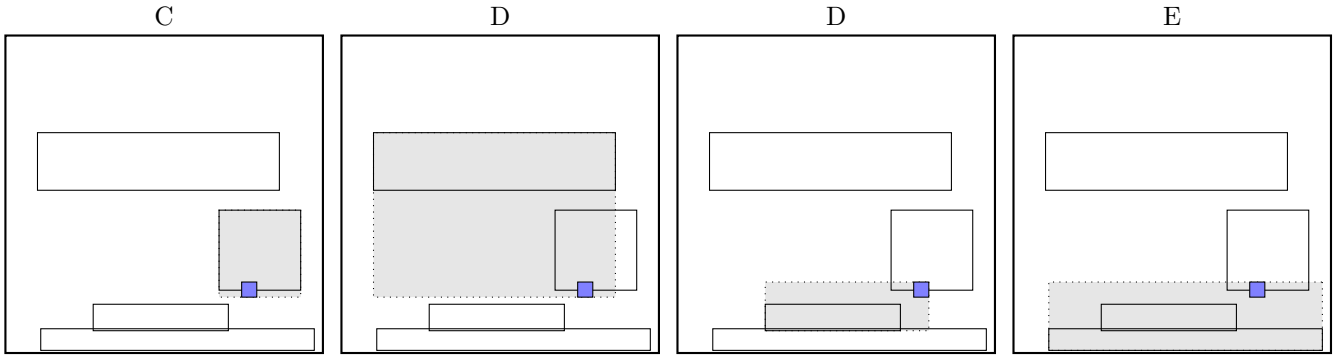


old area: 10.022879
new area: 10.62623
extension: 0.6033516

old area: 10.546558
new area: 10.546558
extension: 0.0

selected F

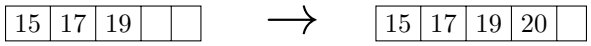
choose among children:



C	D	D	E
old area: 1.14372	old area: 2.4383986	old area: 0.6258	old area: 1.035034
new area: 1.2430799	new area: 6.963199	new area: 1.3936161	new area: 3.271576
extension: 0.09935987	extension: 4.5248003	extension: 0.76781607	extension: 2.236542

selected C
a leaf is found: C
return from CHOOSE-LEAF

the leaf C is not full, add the record.



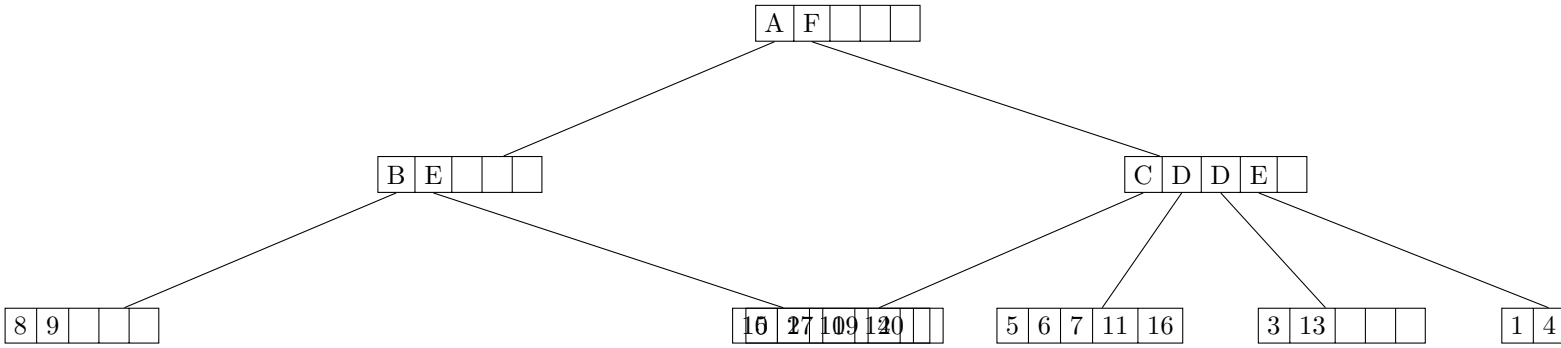
call ADJUST-TREE with R, node C
update MBR of node C.
continue by adjusting the parent node F

call ADJUST-TREE with R, node F
update MBR of node F.
continue by adjusting the parent node root

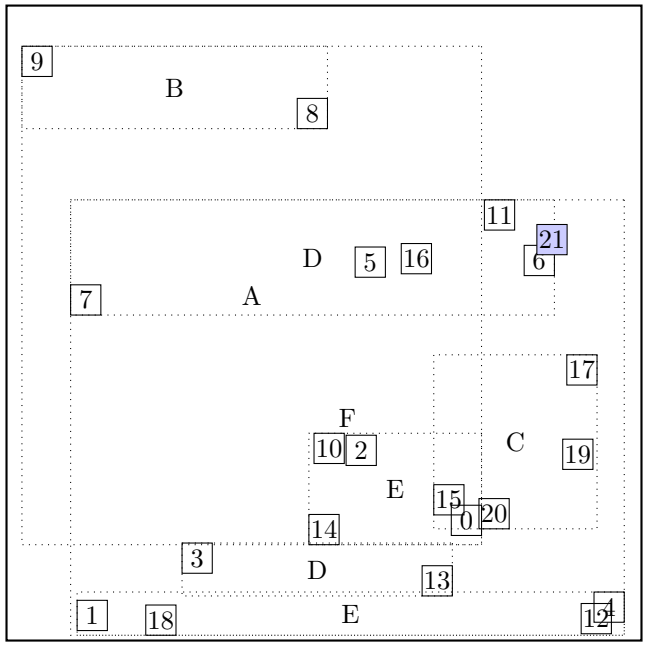
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 877/250 :Y 319/125)`

structure view:

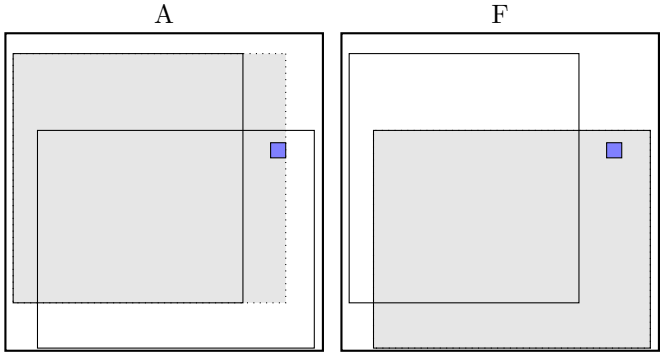


data view:



call CHOOSE-LEAF R, 21

choose among children:

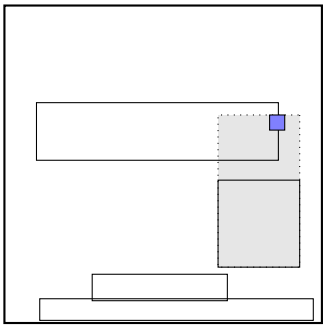


A	F
old area: 10.022879	old area: 10.546558
new area: 11.888981	new area: 10.546558
extension: 1.8661022	extension: 0.0

selected F

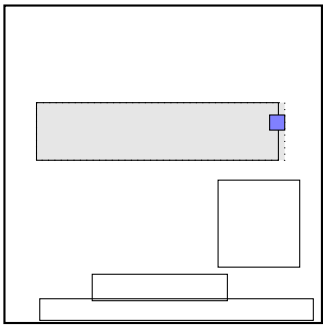
choose among children:

C



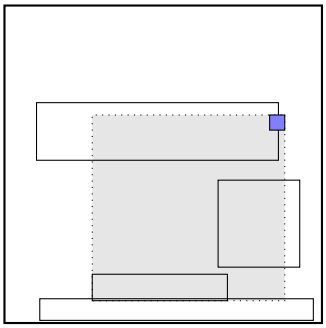
old area: 1.2430799
new area: 2.1740399
extension: 0.93095994

D



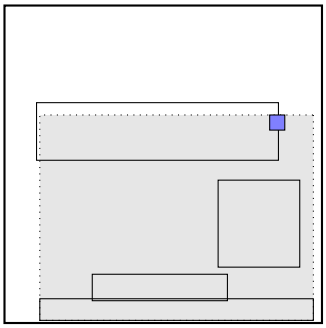
old area: 2.4383986
new area: 2.5024066
extension: 0.064008

D



old area: 0.6258
new area: 6.257979
extension: 5.632179

E

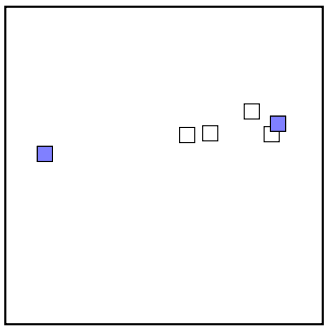


old area: 1.035034
new area: 9.832822
extension: 8.797788

selected D
a leaf is found: D
return from CHOOSE-LEAF

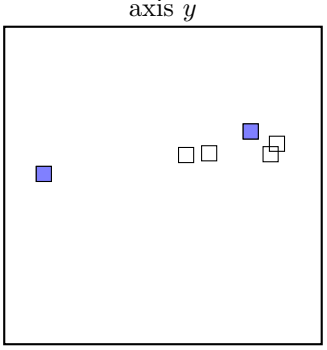
call SPLIT-NODE R new node
call PICK-SEEDS

axis x



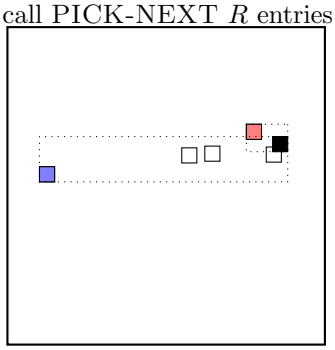
separation= 0.8781974

axis y



separation= 0.47506586

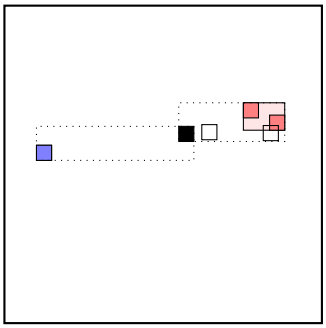
call PICK-NEXT R entries node



21: $\Delta d = -1.7685543$

maximal $|\Delta d|$ is for node 21.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

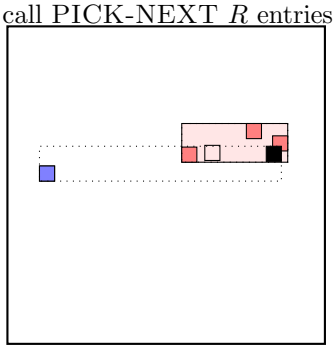
call PICK-NEXT R entries node



5: $\Delta d = -0.3776369$

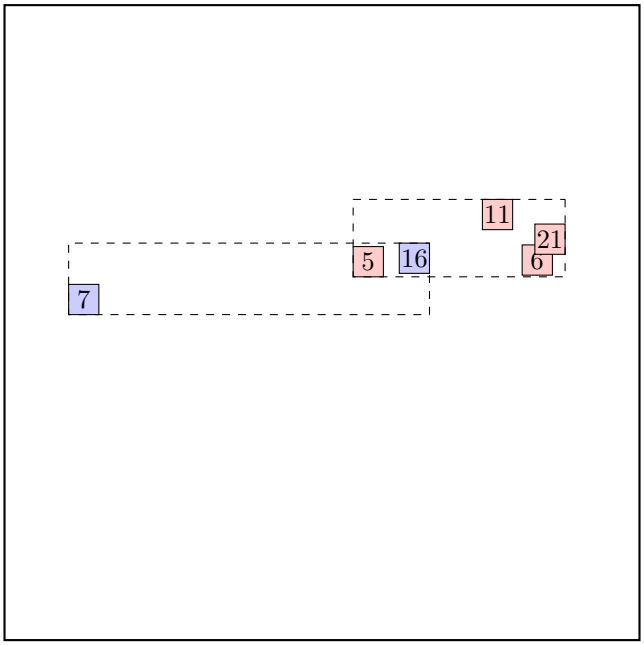
maximal $|\Delta d|$ is for node 5.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group

call PICK-NEXT R entries node



6: $\Delta d = -1.435199$

maximal $|\Delta d|$ is for node 6.
add the node to the red group ($\Delta d < 0$)
update MBR of the red group group
the rest of rectangles must be put to the blue group.
. . . the final split is:



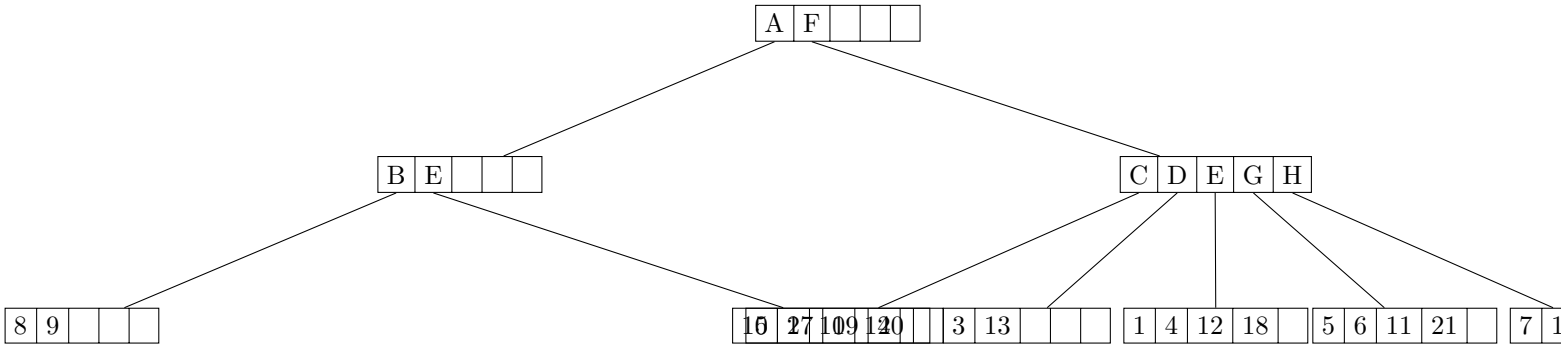
call ADJUST-TREE with R, node G and the new node
update MBR of node G.
add the new node to the parent node F

call ADJUST-TREE with R, node F
update MBR of node F.
continue by adjusting the parent node root

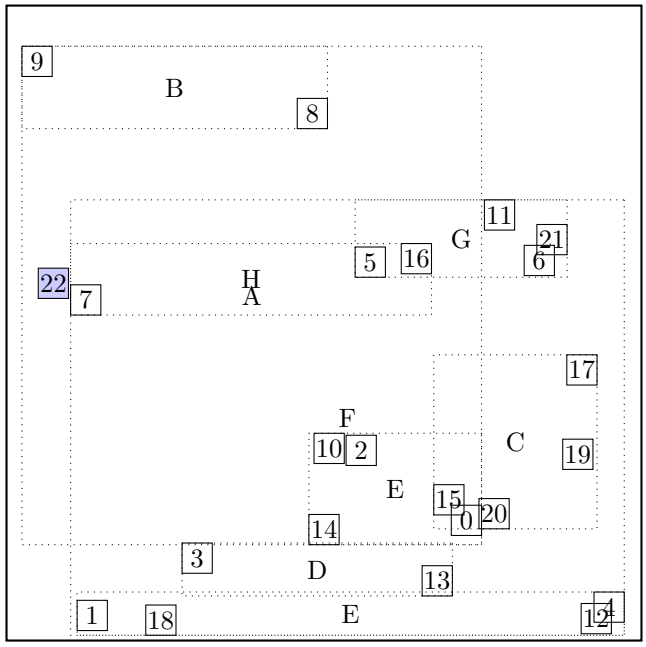
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 21/100 :Y 2263/1000)`

structure view:

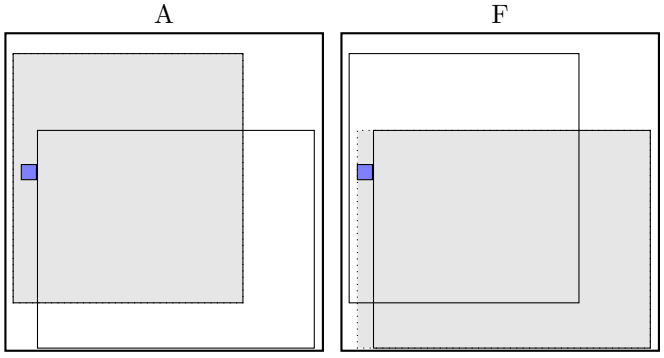


data view:



call CHOOSE-LEAF R, 22

choose among children:



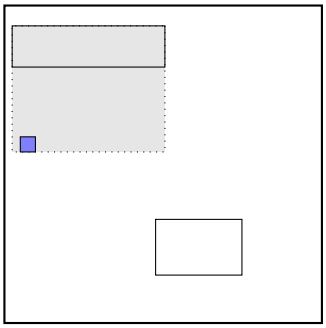
old area: 10.022879
new area: 10.022879
extension: 0.0

old area: 10.546558
new area: 11.162879
extension: 0.6163206

selected A

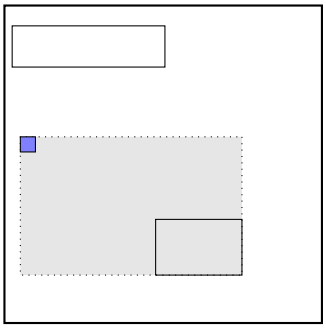
choose among children:

B



old area: 1.1014446
new area: 3.3710273
extension: 2.2695828

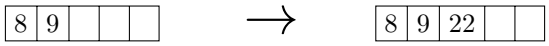
E



old area: 0.84165395
new area: 5.362628
extension: 4.520974

selected B
a leaf is found: B
return from CHOOSE-LEAF

the leaf B is not full, add the record.



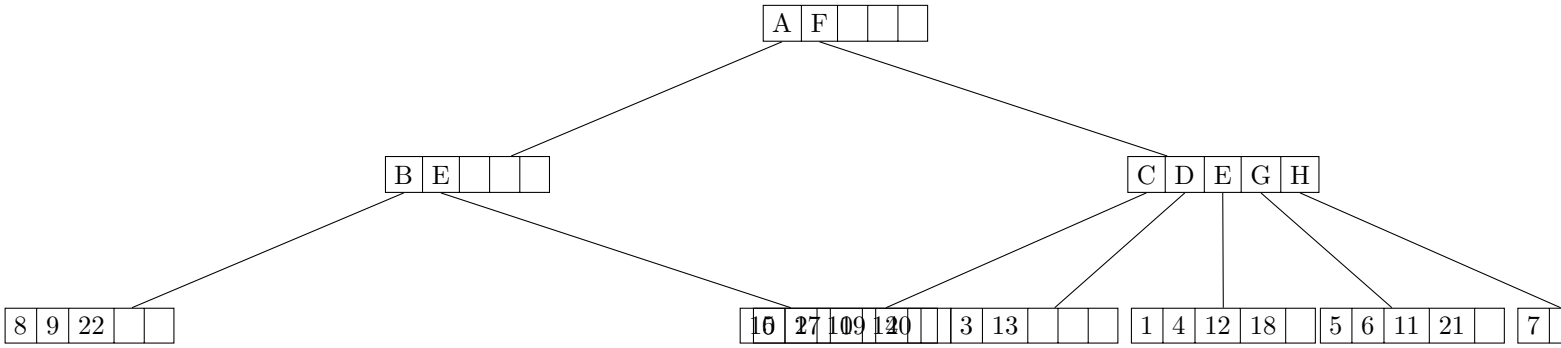
call ADJUST-TREE with R, node B
update MBR of node B.
continue by adjusting the parent node A

call ADJUST-TREE with R, node A
update MBR of node A.
continue by adjusting the parent node root

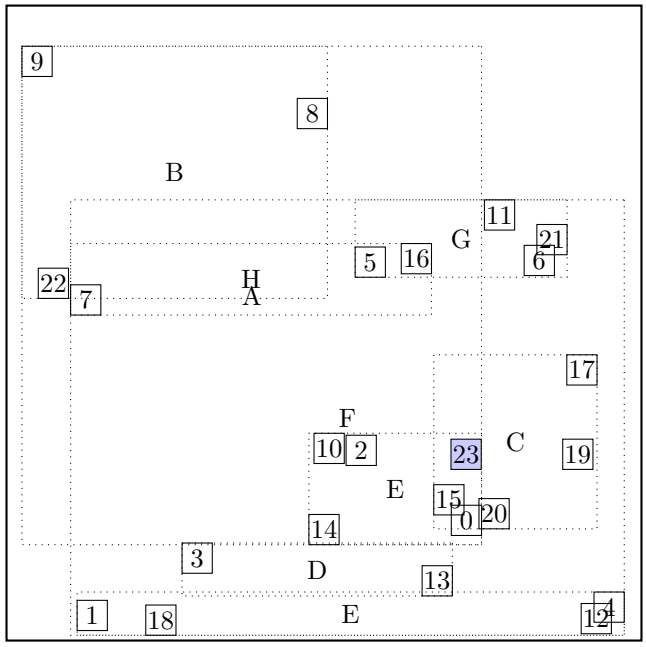
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 147/50 :Y 283/250)`

structure view:

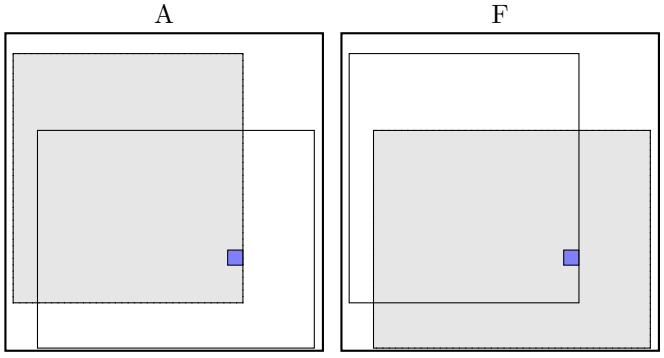


data view:



call CHOOSE-LEAF R, 23

choose among children:



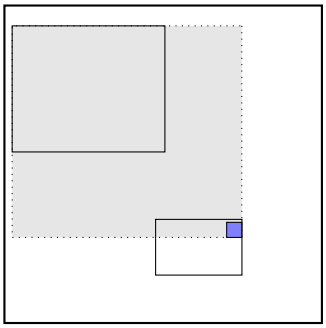
old area: 10.022879
new area: 10.022879
extension: 0.0

old area: 10.546558
new area: 10.546558
extension: 0.0

selected A

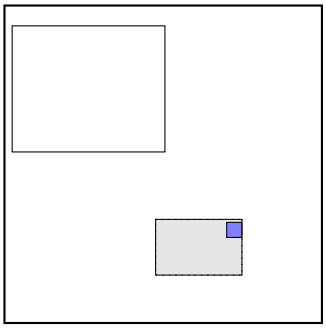
choose among children:

B



old area: 3.3710273
new area: 8.503361
extension: 5.1323338

E



old area: 0.84165395
new area: 0.84165395
extension: 0.0

selected E
a leaf is found: E
return from CHOOSE-LEAF

the leaf E is not full, add the record.

0	2	10	14	

$\longrightarrow$

0	2	10	14	23

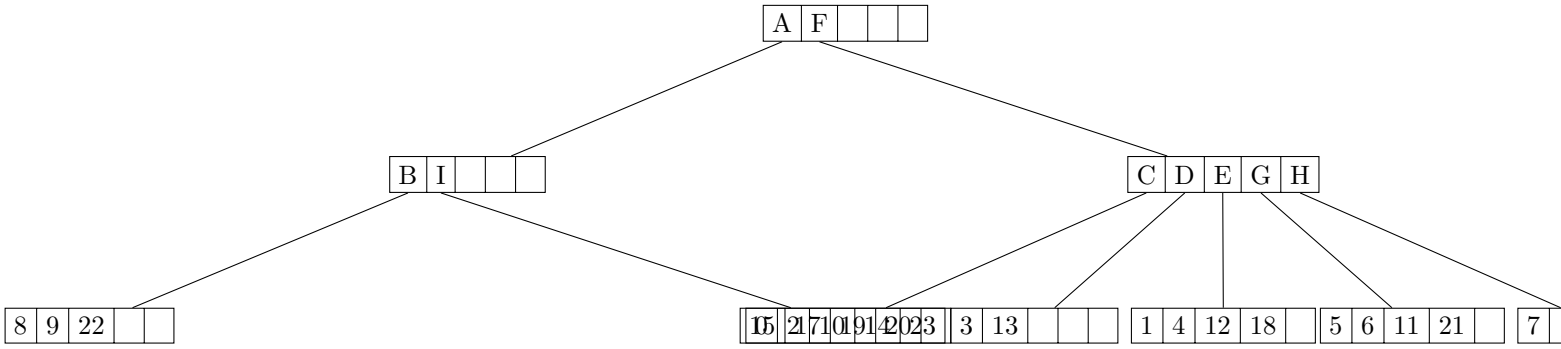
call ADJUST-TREE with R, node E
update MBR of node E.
continue by adjusting the parent node A

call ADJUST-TREE with R, node A
update MBR of node A.
continue by adjusting the parent node root

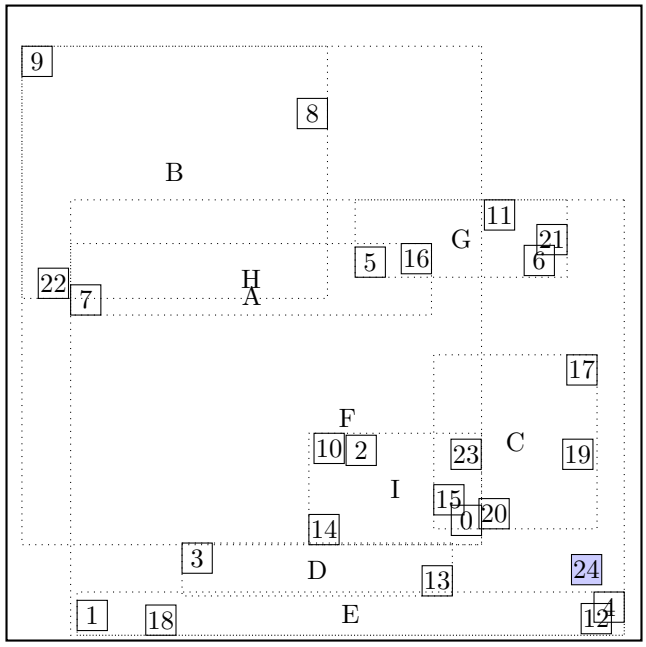
call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE

call INSERT R, `#S(P :X 3737/1000 :Y 369/1000)`

structure view:

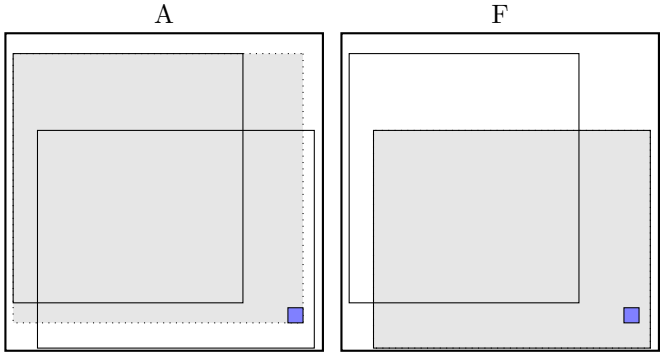


data view:



call CHOOSE-LEAF R, 24

choose among children:



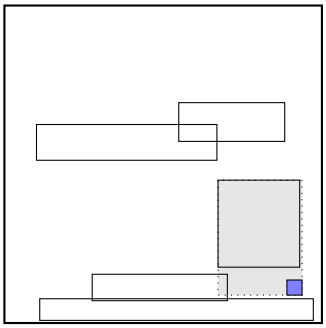
old area: 10.022879
new area: 13.660269
extension: 3.6373902

old area: 10.546558
new area: 10.546558
extension: 0.0

selected F

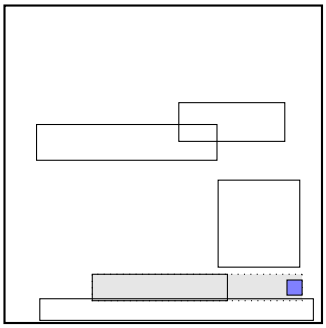
choose among children:

C



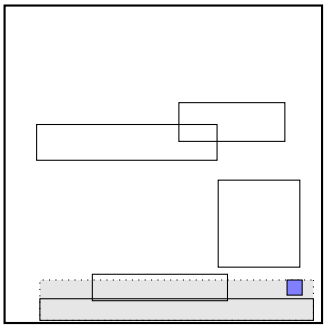
old area: 1.2430799
new area: 1.6898309
extension: 0.446751

D



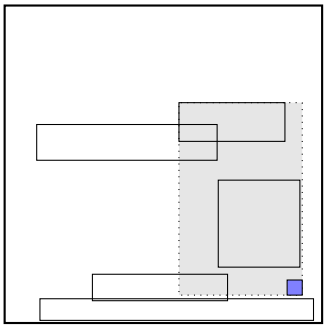
old area: 0.6258
new area: 0.97160006
extension: 0.34580004

E



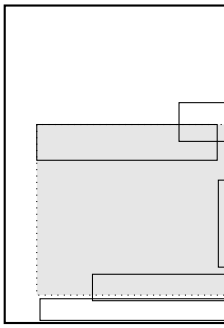
old area: 1.035034
new area: 1.9325458
extension: 0.89751184

G



old area: 0.7178233
new area: 4.152525
extension: 3.4347017

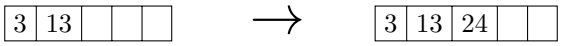
H



old area: 1.129
new area: 7.92
extension: 6.799

selected D
a leaf is found: D
return from CHOOSE-LEAF

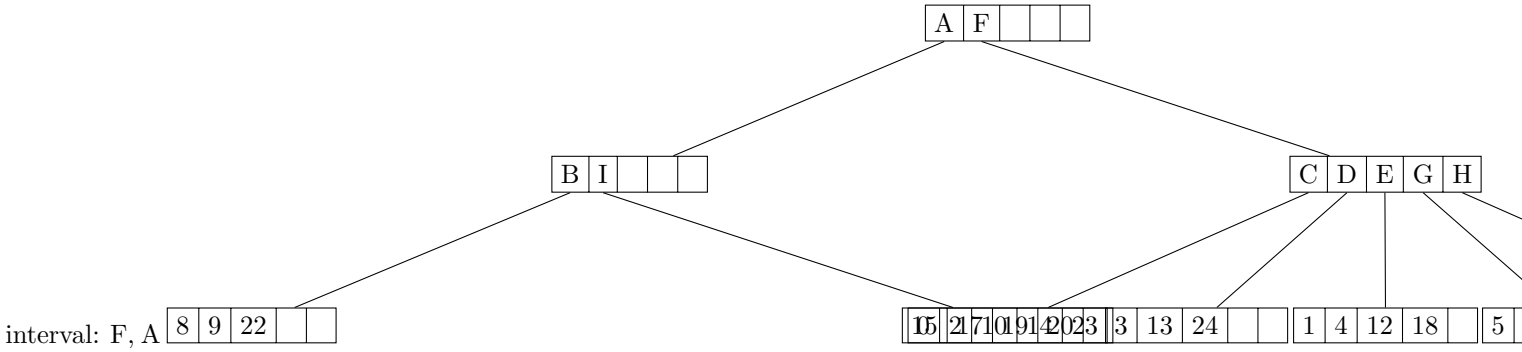
the leaf D is not full, add the record.



call ADJUST-TREE with R, node D
update MBR of node D.
continue by adjusting the parent node F

call ADJUST-TREE with R, node F
update MBR of node F.
continue by adjusting the parent node root

call ADJUST-TREE with R, node root
we are at the root
return from ADJUST-TREE


A F
B I
C D E G H
interval: F, A
8 9 22
1 4 12 18
5