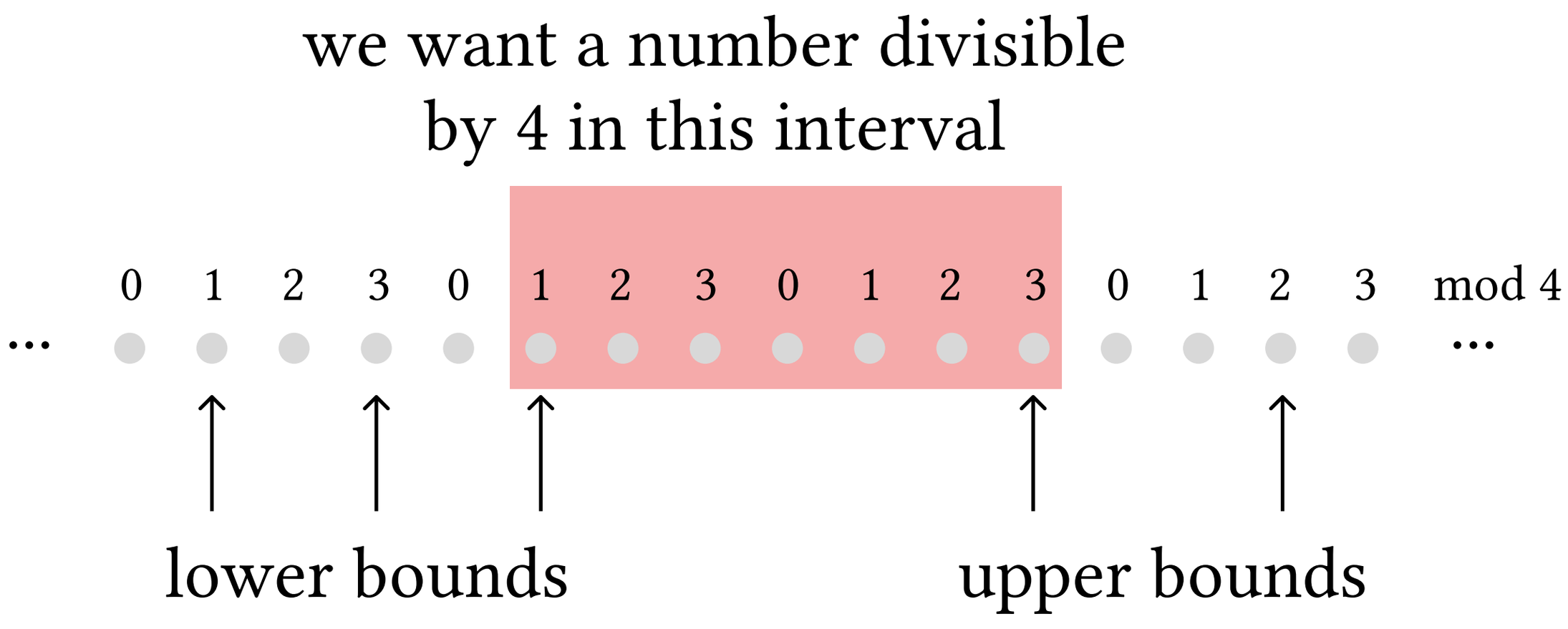

we want a number divisible
by 4 in this interval
0 1 2 3 0 1 2 3 0 1 2 3 0 1 2 3 mod 4
lower bounds
upper bounds

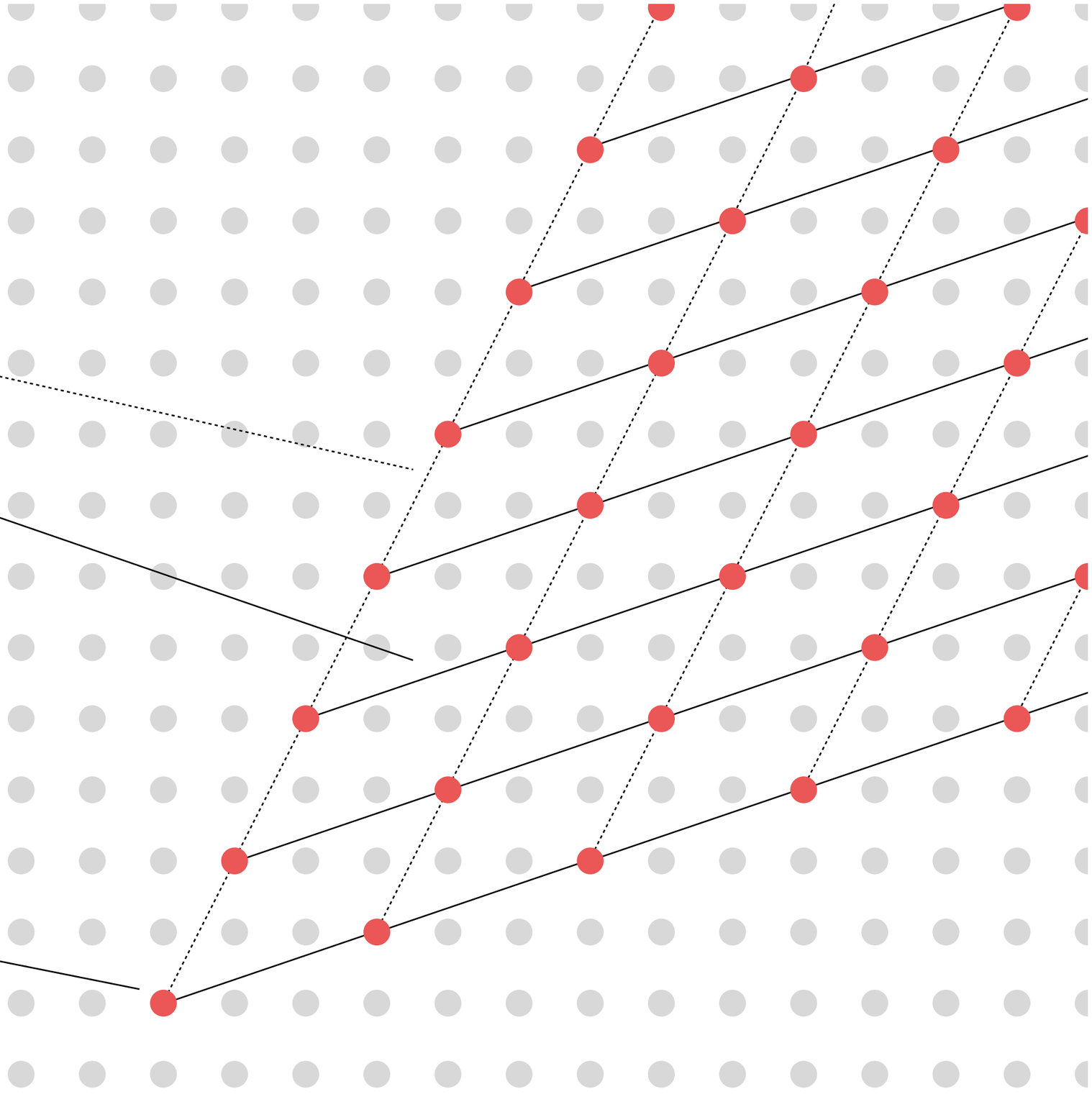
period vectors

(1,2)

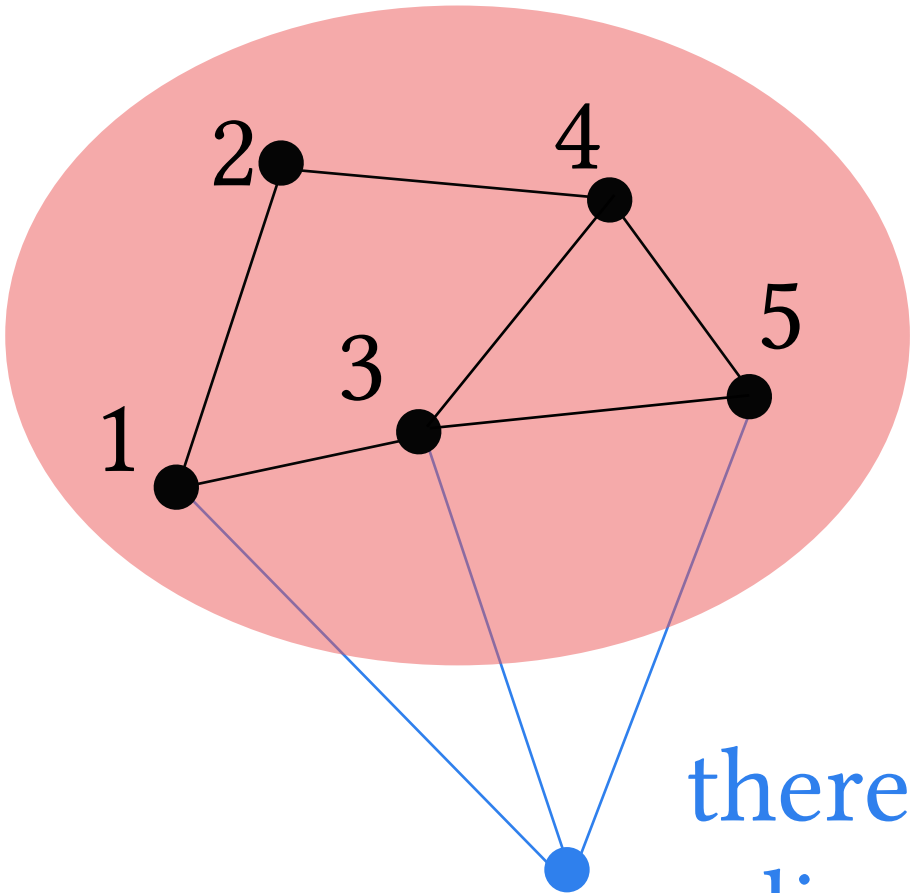
(3,1)

base vector

(2,1)



subgraph H with at most 5 vertices



there must be vertex that is adjacent to {1,3,5} but not {2,4}

... and similarly for every other subset

matrices

1	0	0
0	1	1
1	0	0
0	0	1

M

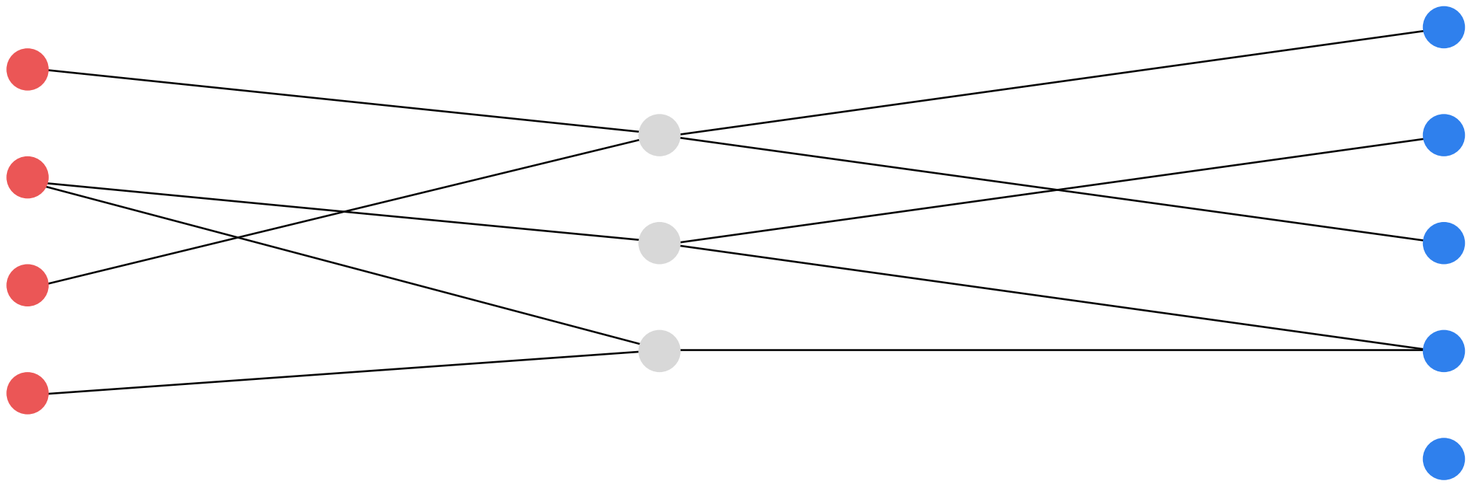
1	0	1	0	0
0	1	0	1	0
0	0	1	0	0

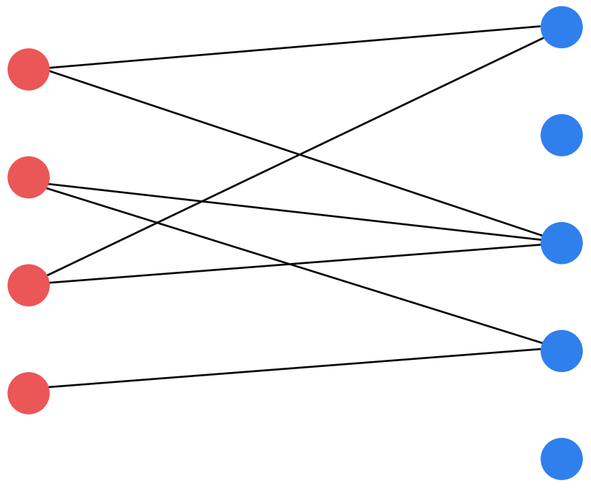
N

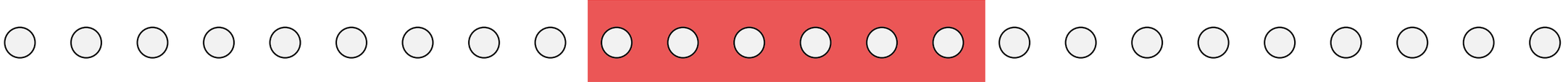
1	0	1	0	0
0	0	1	1	0
1	0	1	0	0
0	0	0	1	0

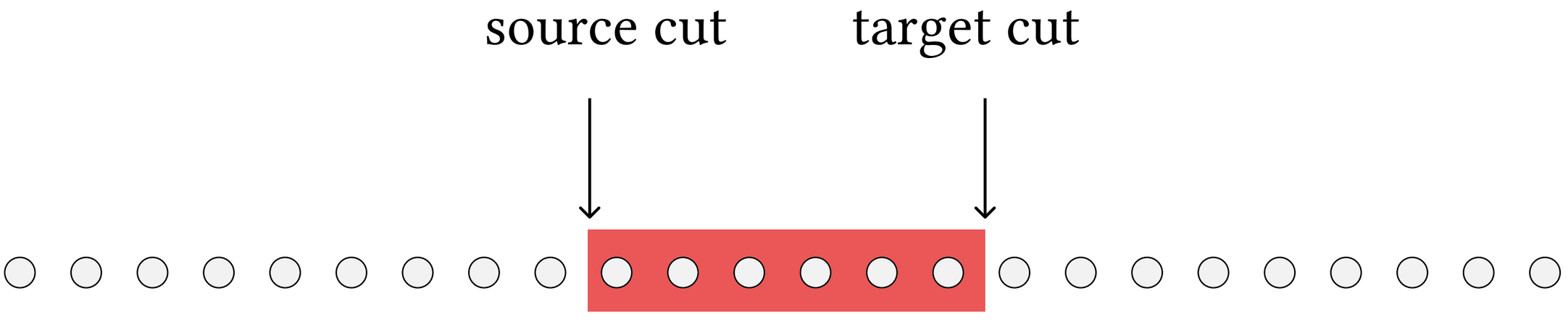
M·N

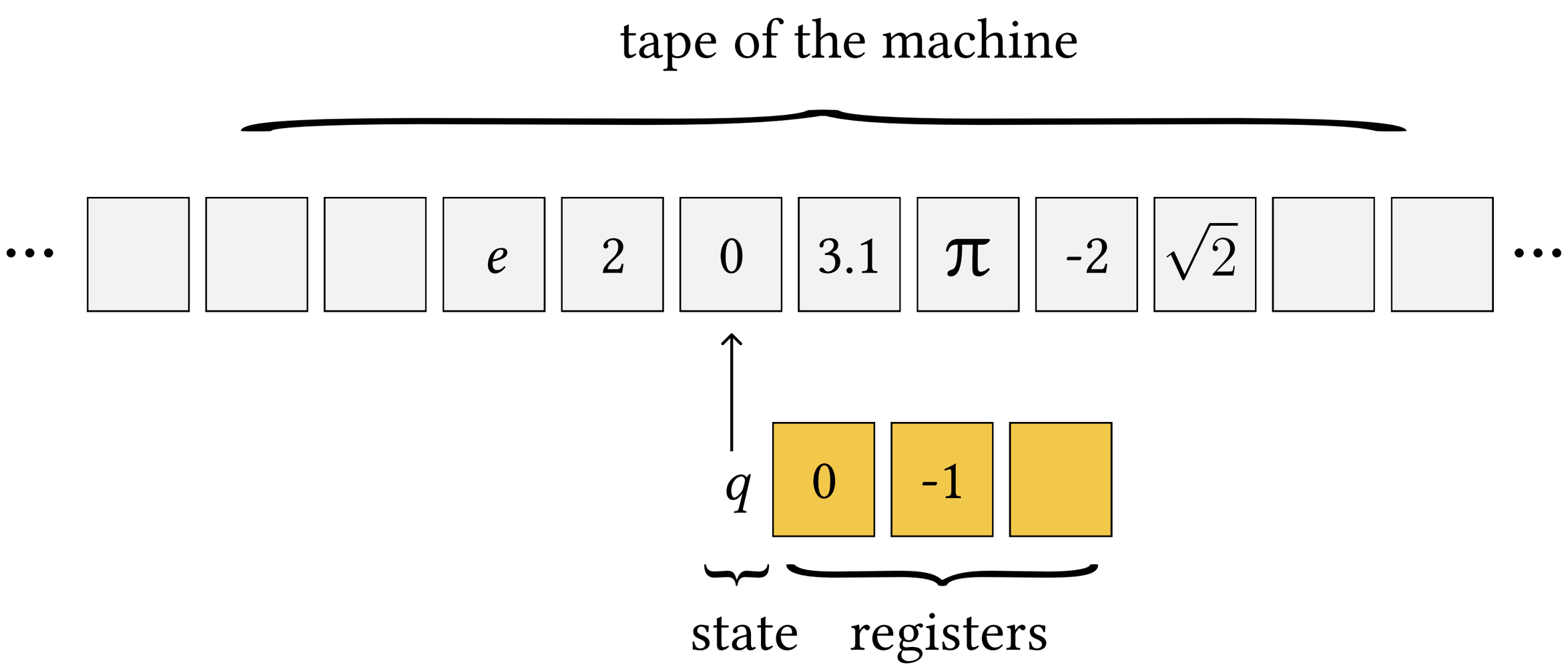
binary relations

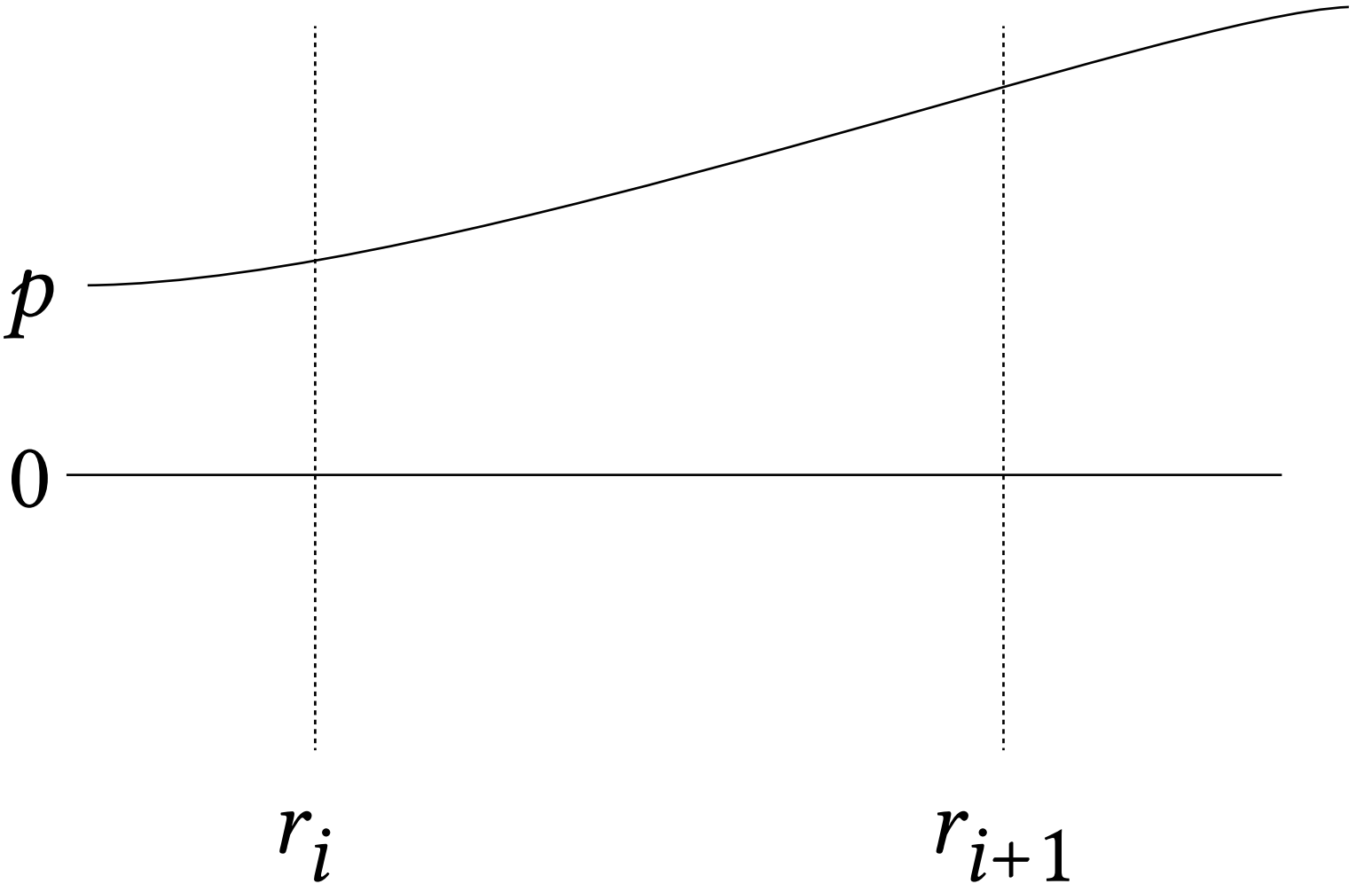


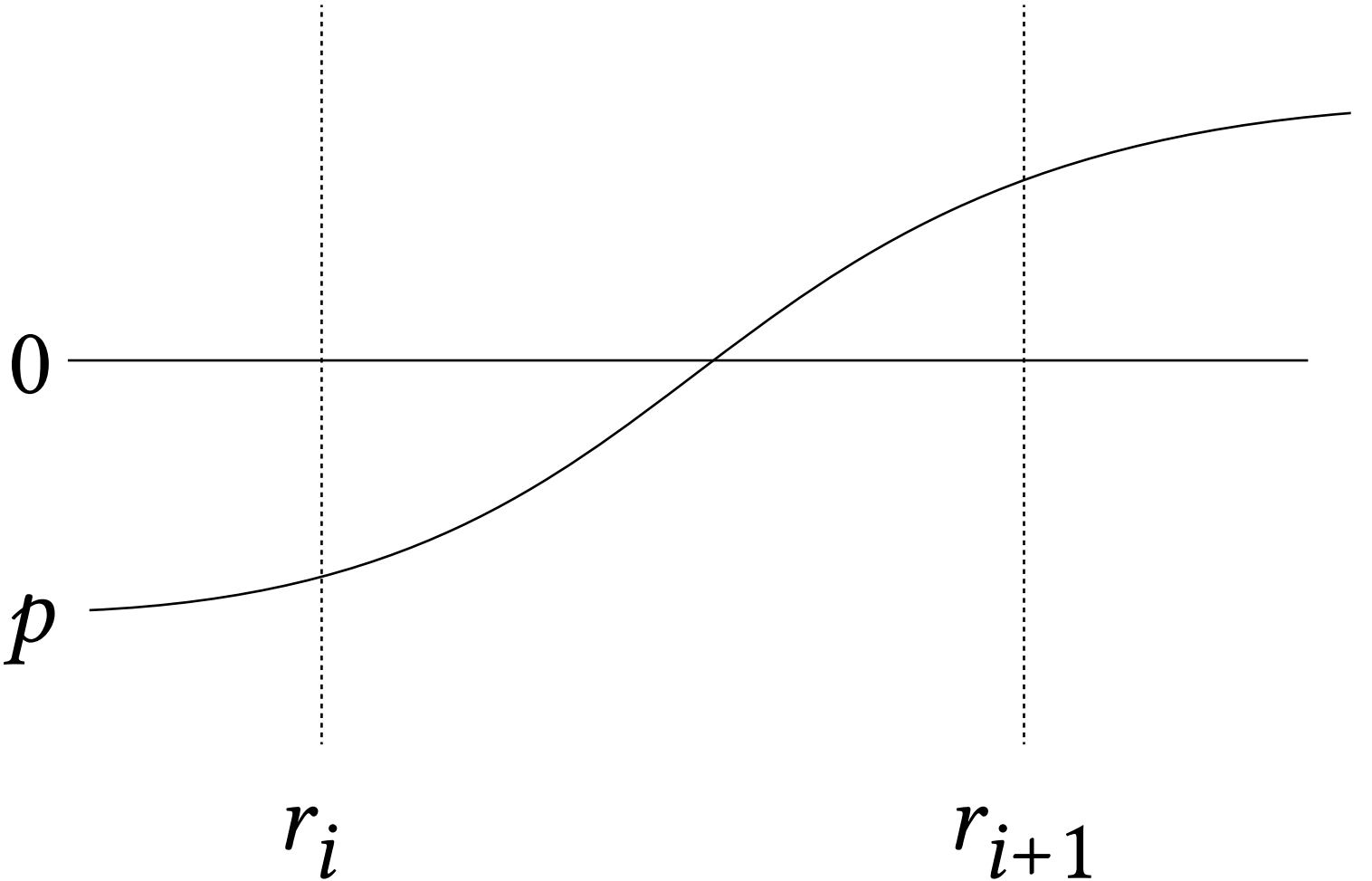


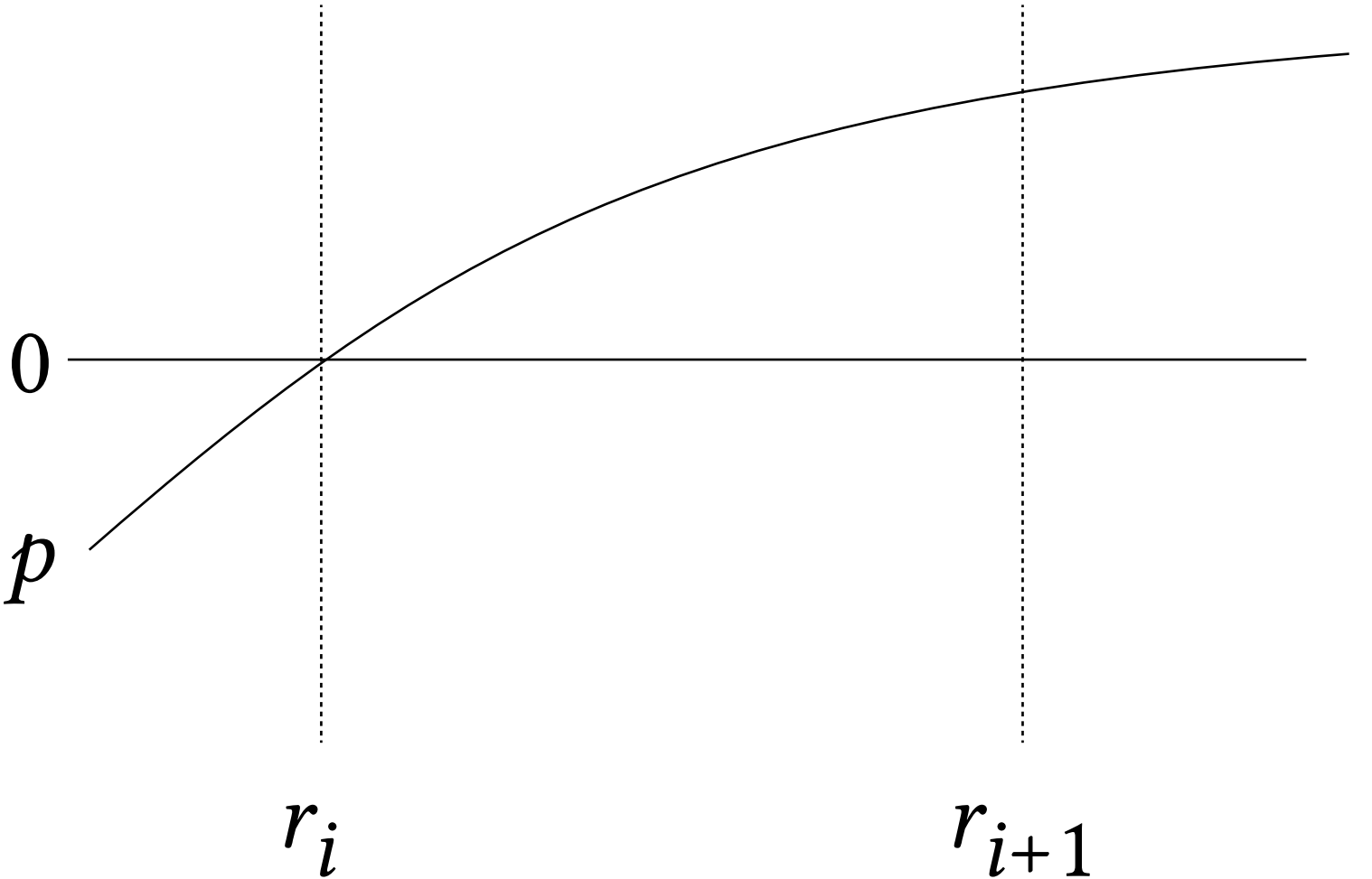


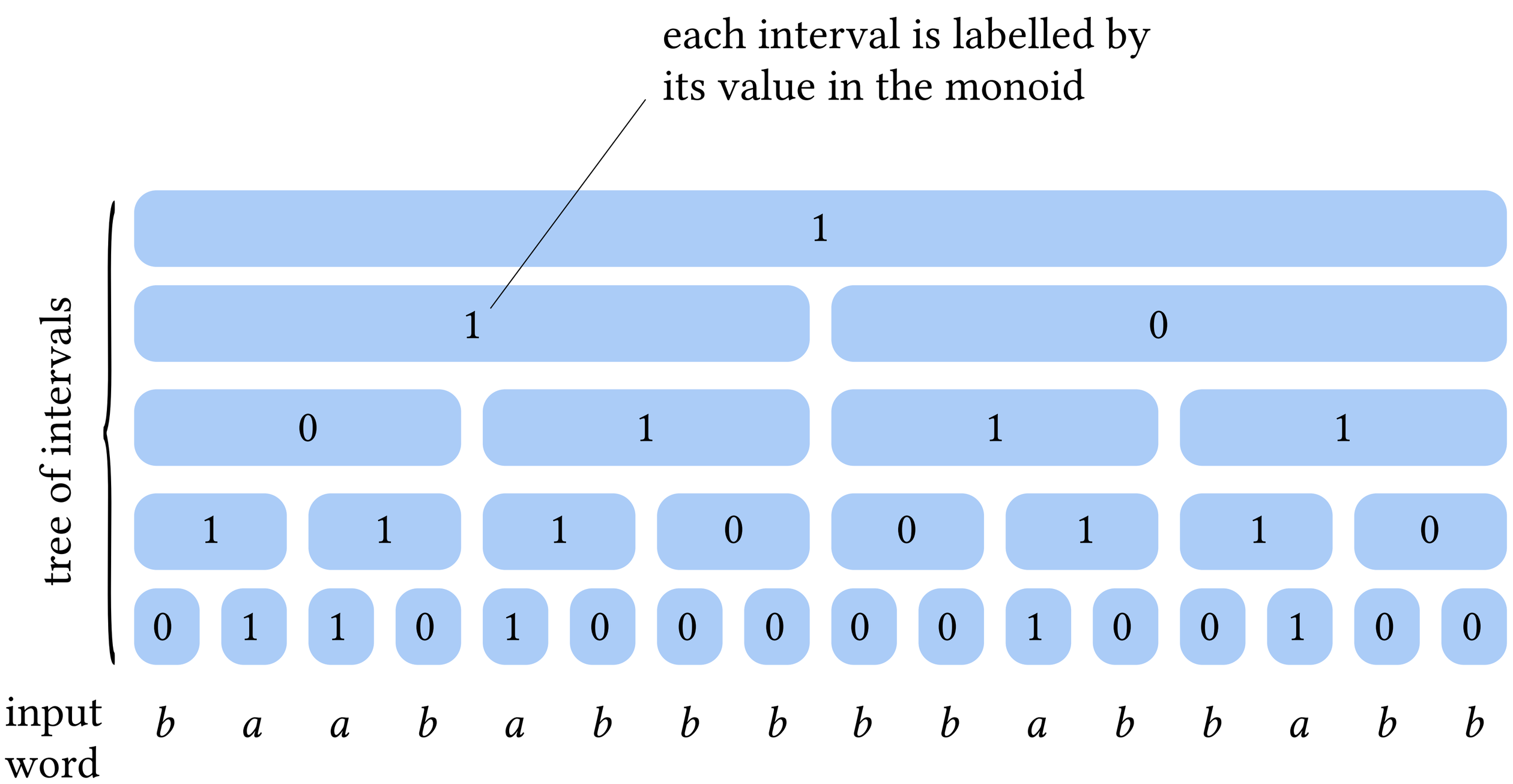

source cut
target cut


tape of the machine
e
2
0
3.1
π
-2
√2
q
0
-1
state
registers

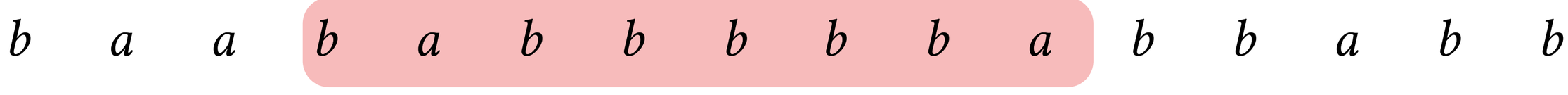

p
0
r_i
r_{i+1}


0
p
r_i
r_{i+1}

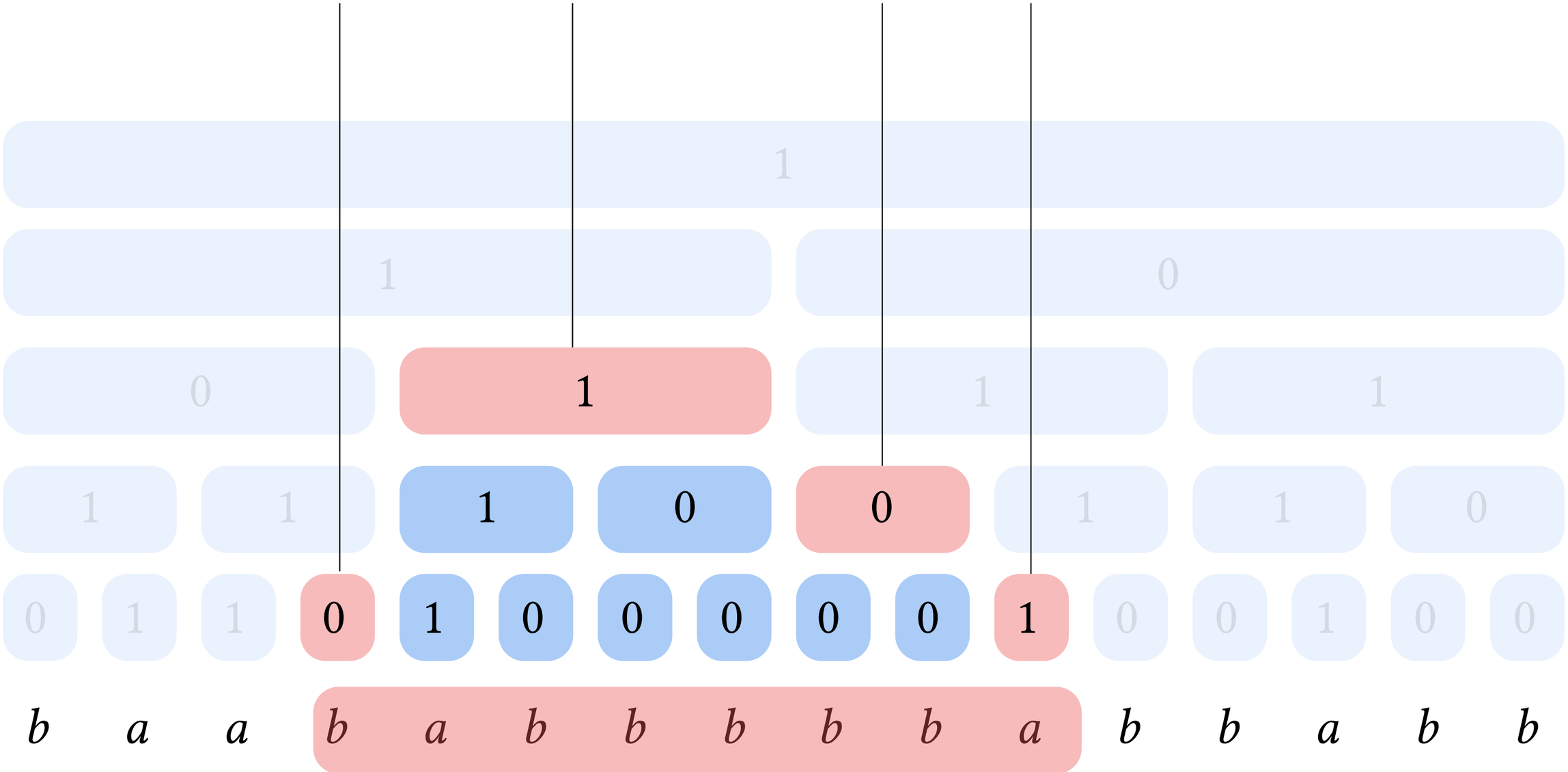

0
p
r_i
r_{i+1}

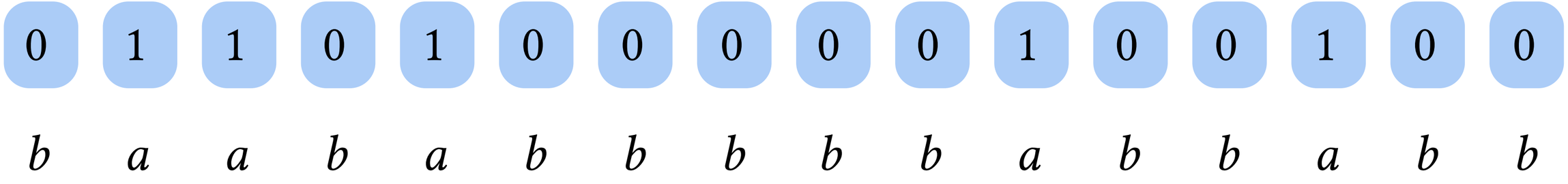

each interval is labelled by
its value in the monoid
tree of intervals
1
1
0
0
1
1
1
1
1
0
1
1
1
0
0
1
1
0
0
1
1
0
1
0
0
0
0
0
1
0
0
1
0
0
input
word
b a a b a b b b b b a b b a b b

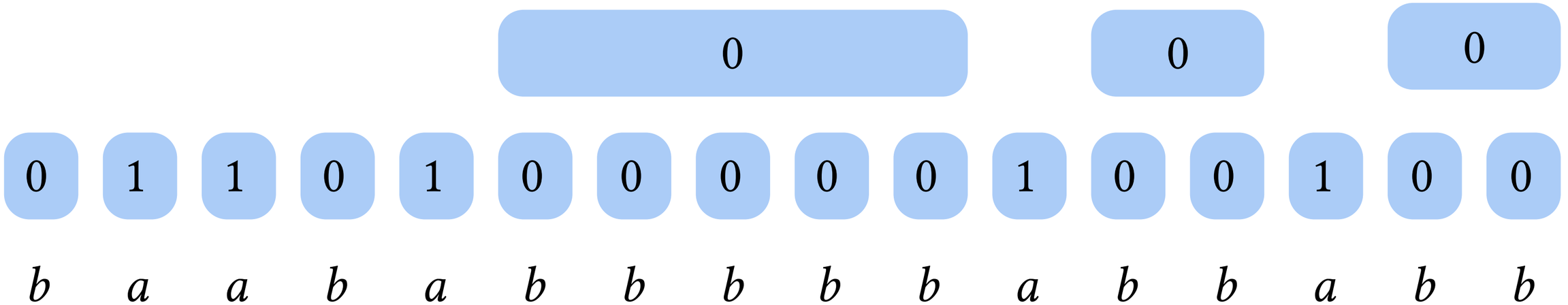
we want to know if this
interval belongs to L

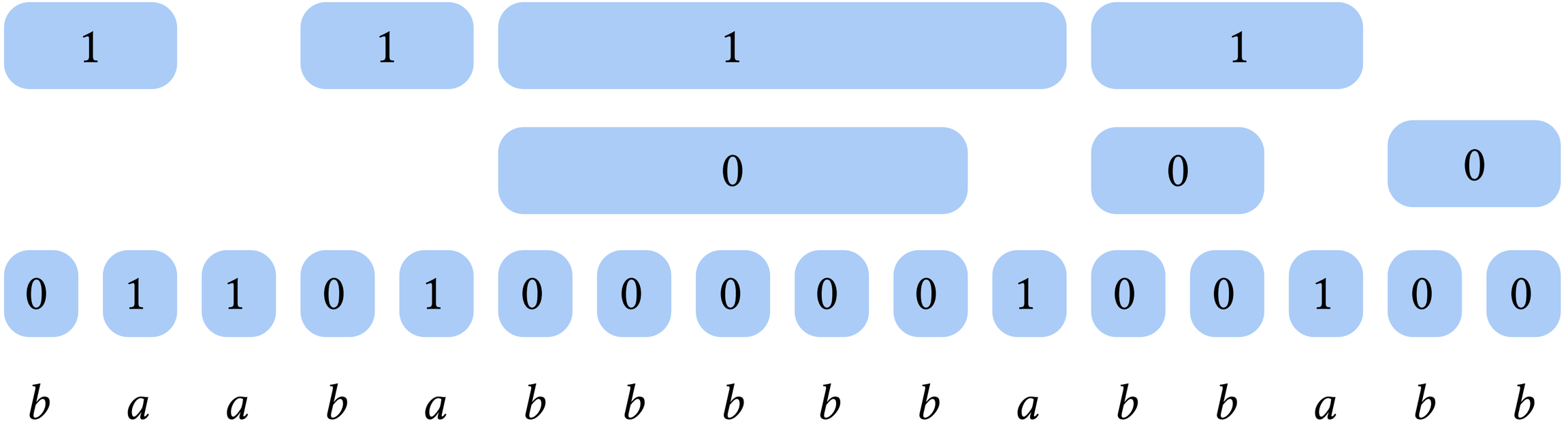


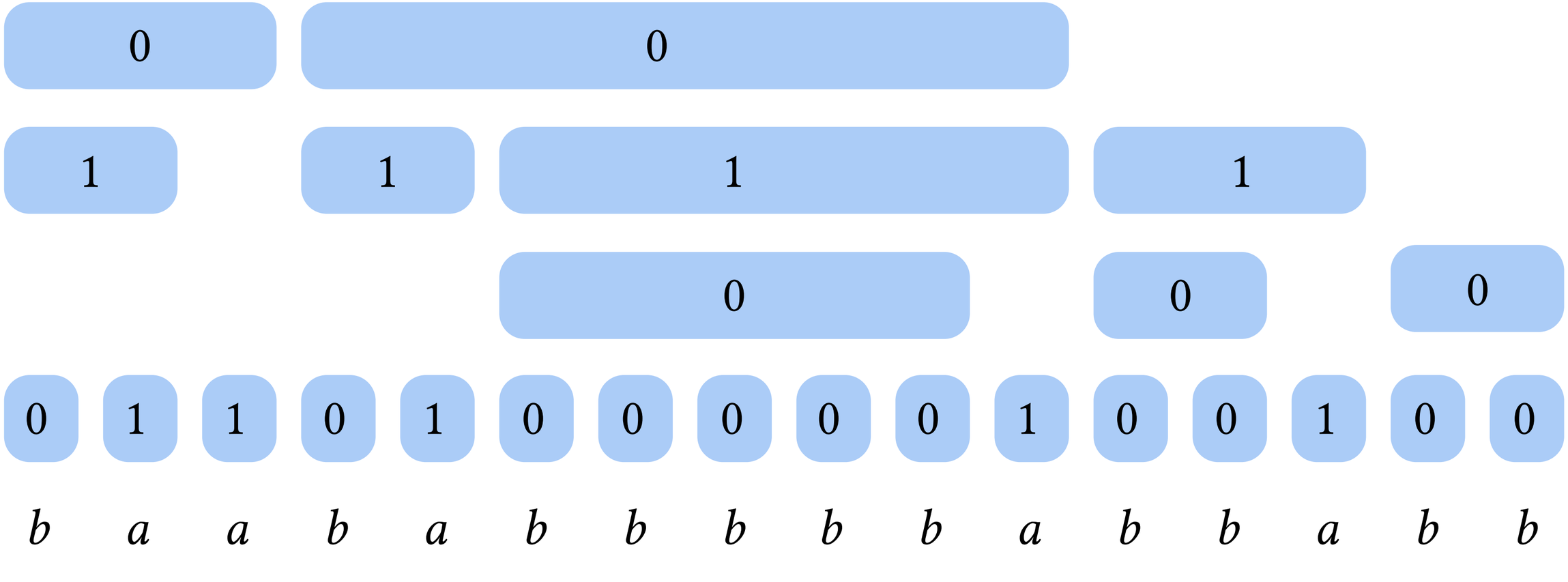
decomposition into intervals from the tree

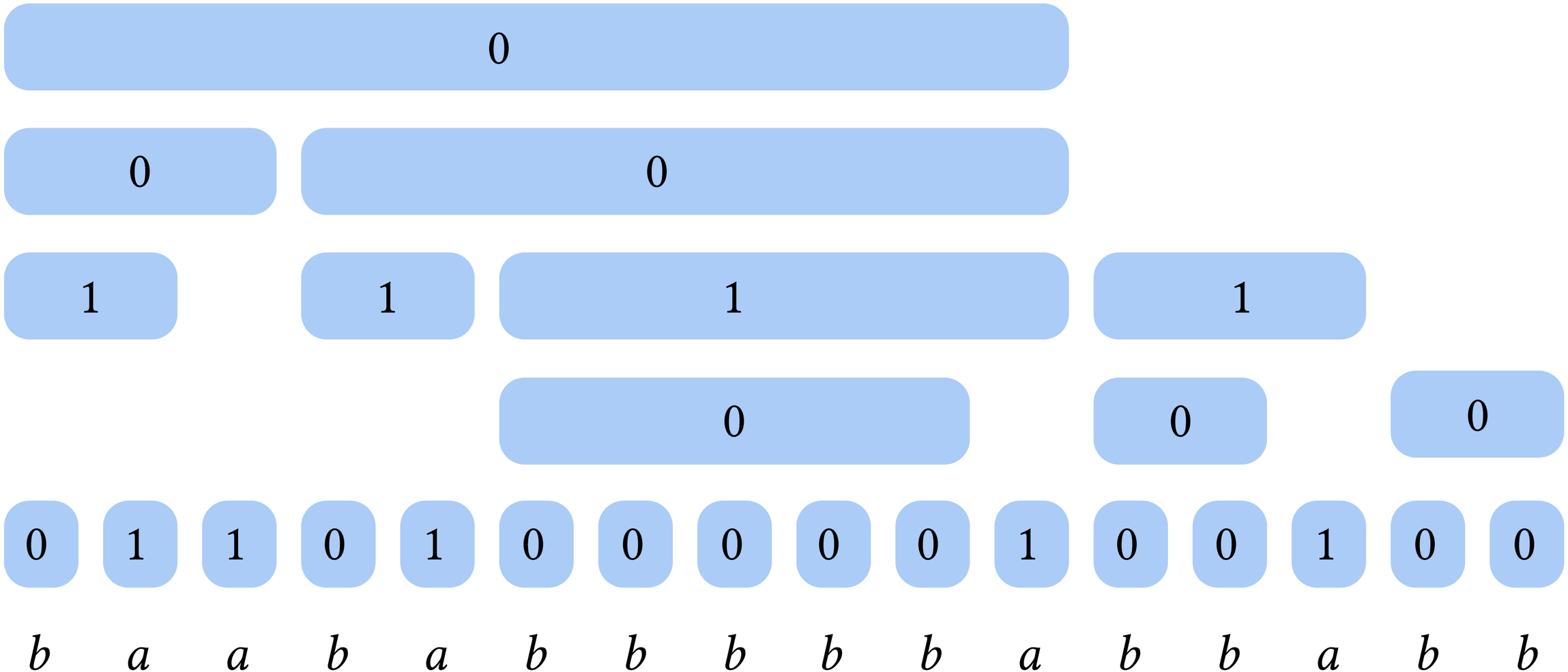


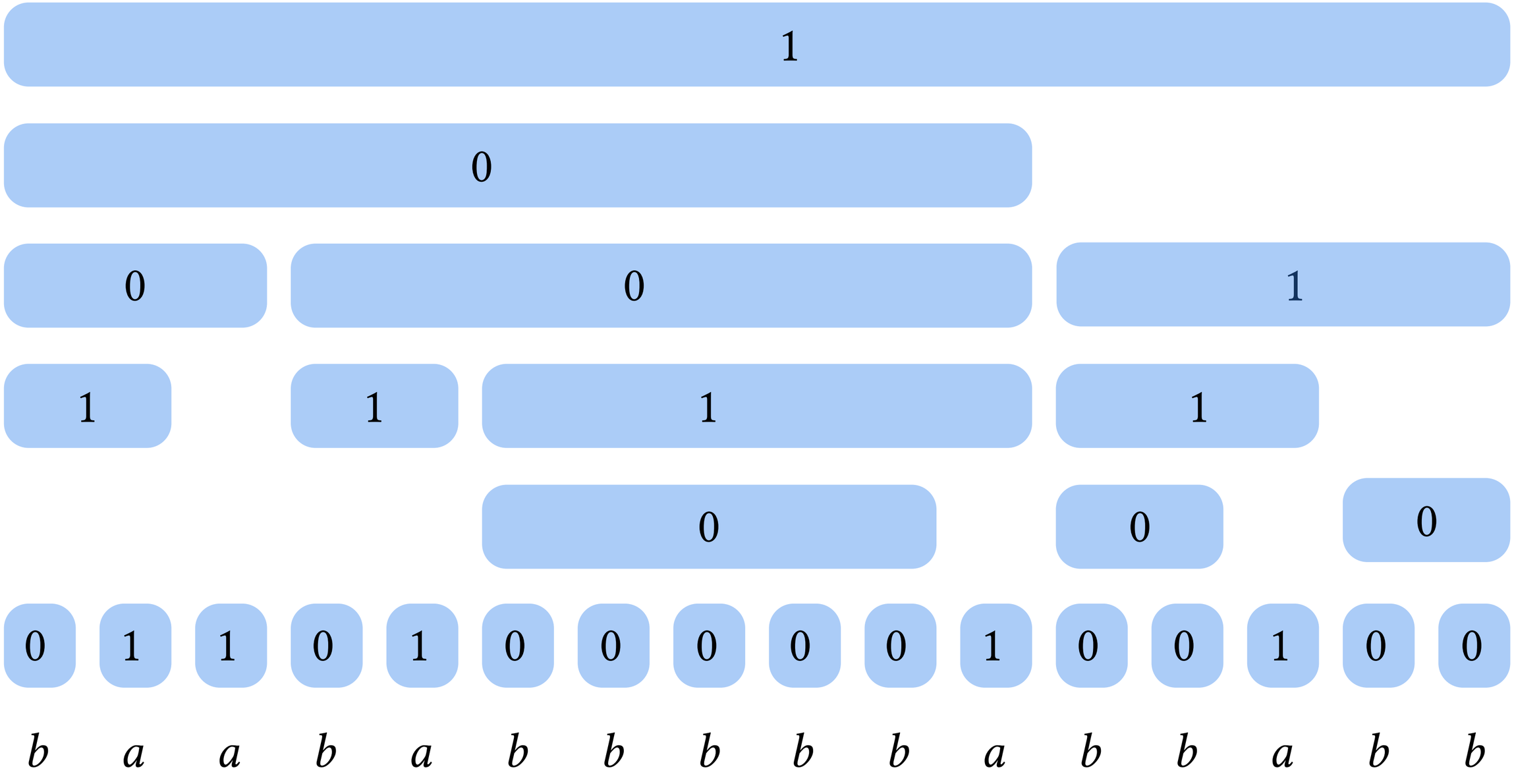

0 1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b

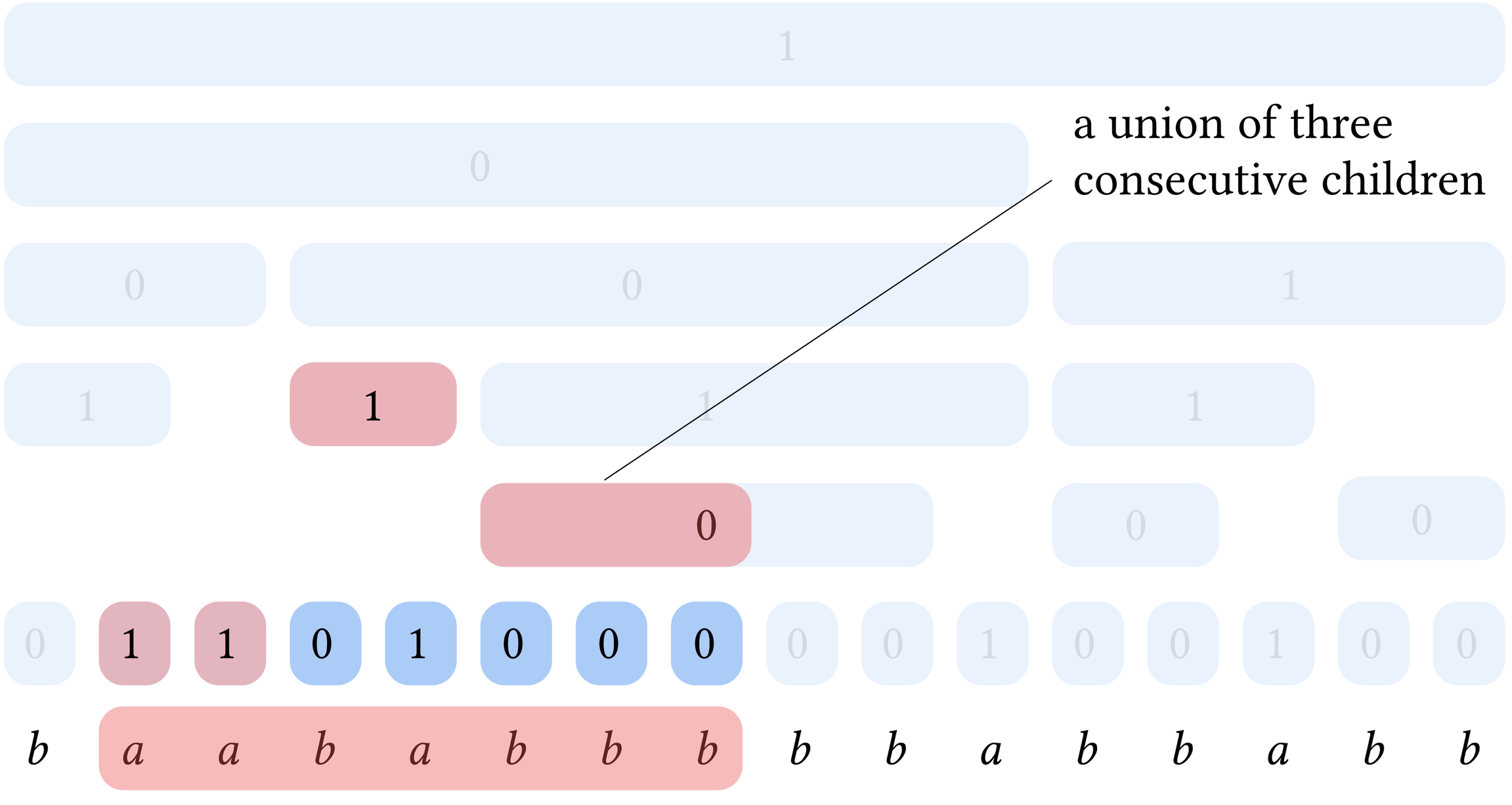

0
0
0
0 1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b

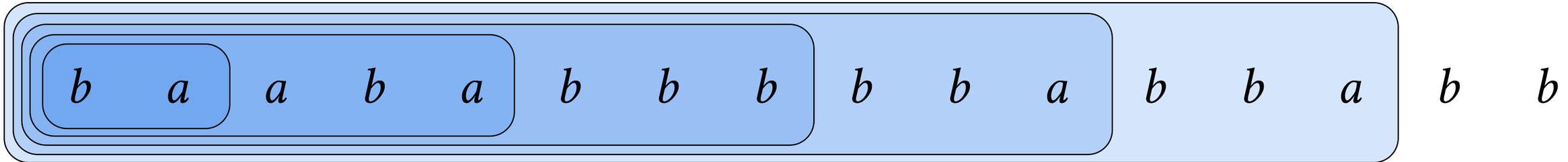

1
1
1
1
0
0
0
0 1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b

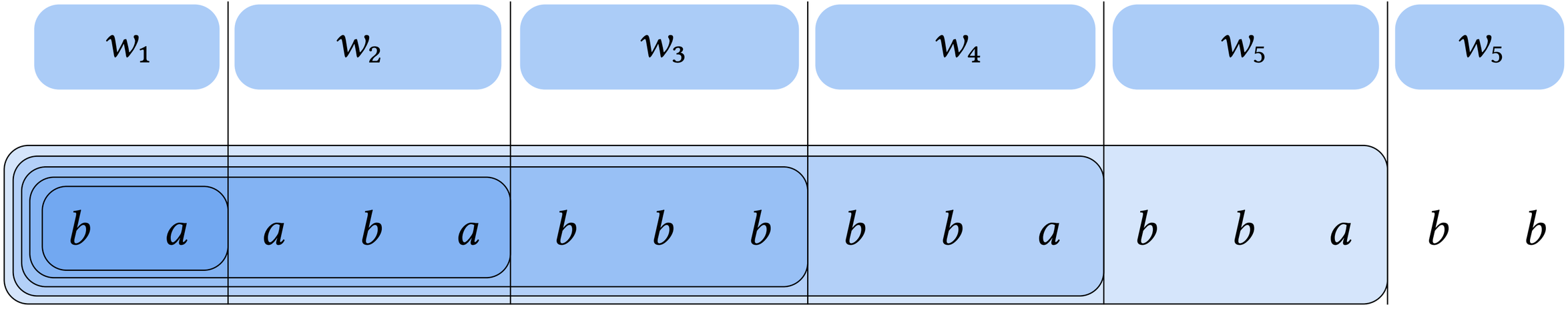

0
0
1
1
1
1
0
0
0
0 1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b


0
0
0
1
1
1
1
0
0
0
0 1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b

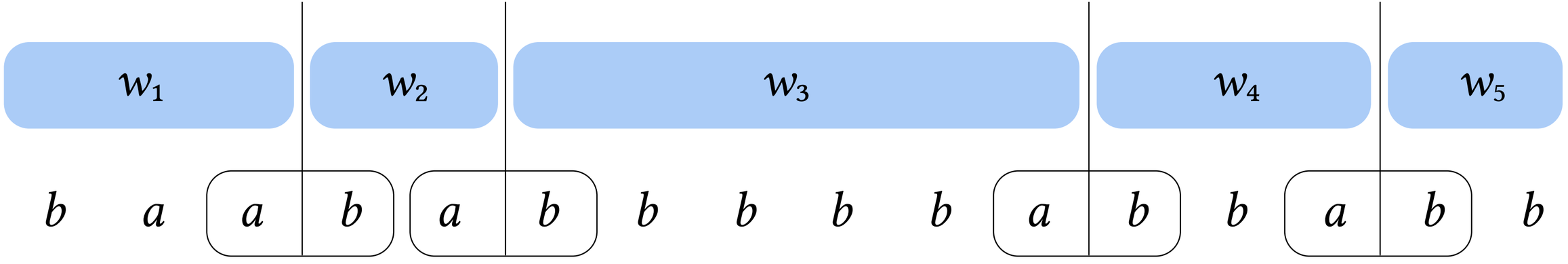

1
0
0
0
1
1
1
1
1
0
0
0
0 1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b

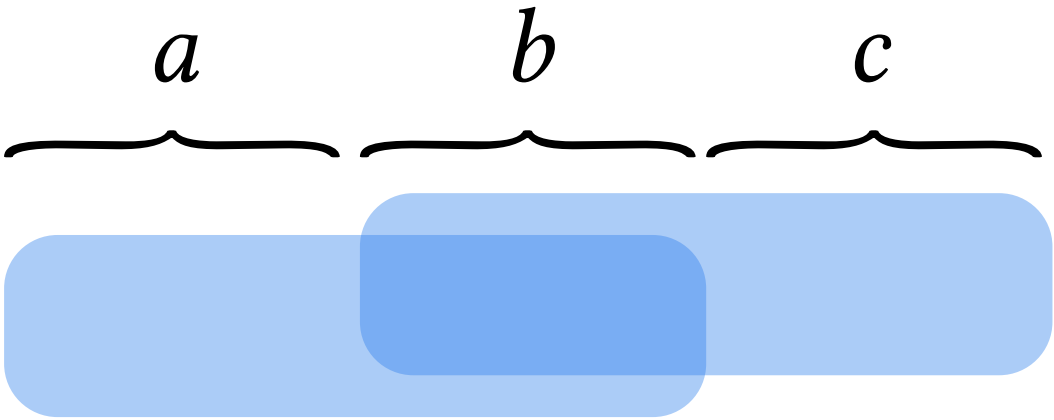

1
0
0
0
1
1
1
1
1
0
0
0
1 1 0 1 0 0 0 0 0 1 0 0 1 0 0
b a a b a b b b b b a b b a b b
a union of three
consecutive children


b a a b a b b b b b a b b a b b


w_1
w_2
w_3
w_4
w_5
w_5
b a a b a b b b b b a b b a b b

b
a
a
b
a
b
b
b
b
b
a
b
b
a
b
b


w_1
w_2
w_3
w_4
w_5
b a a b a b b b b b a b b a b b


a
b
c