

Representing Trees

How do we represent a tree?

Choosing a data structure

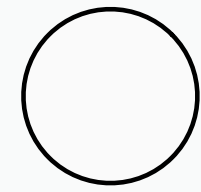
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How do we represent a tree?

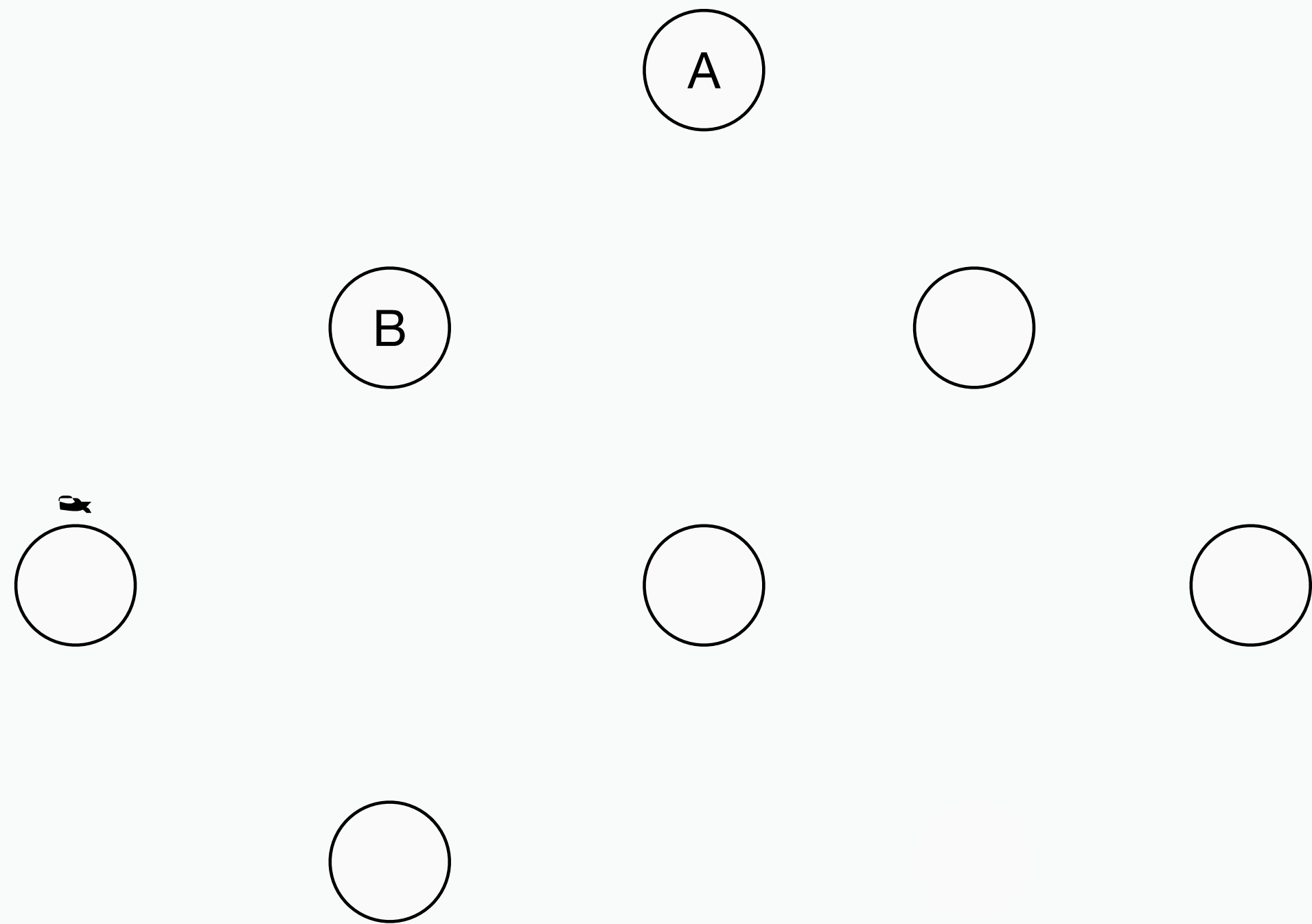
Choosing a data structure

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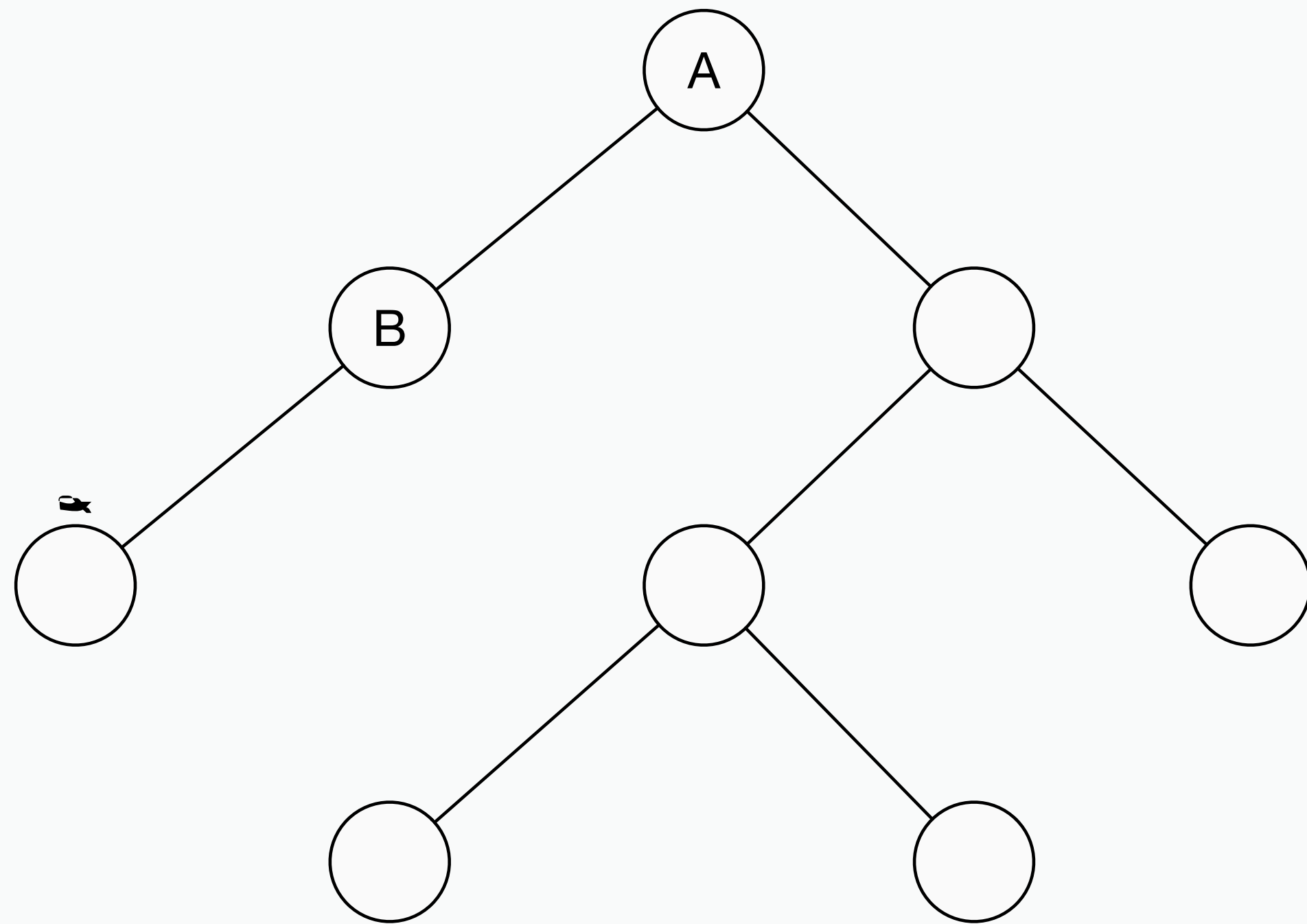
Adjacency list



Adjacency list

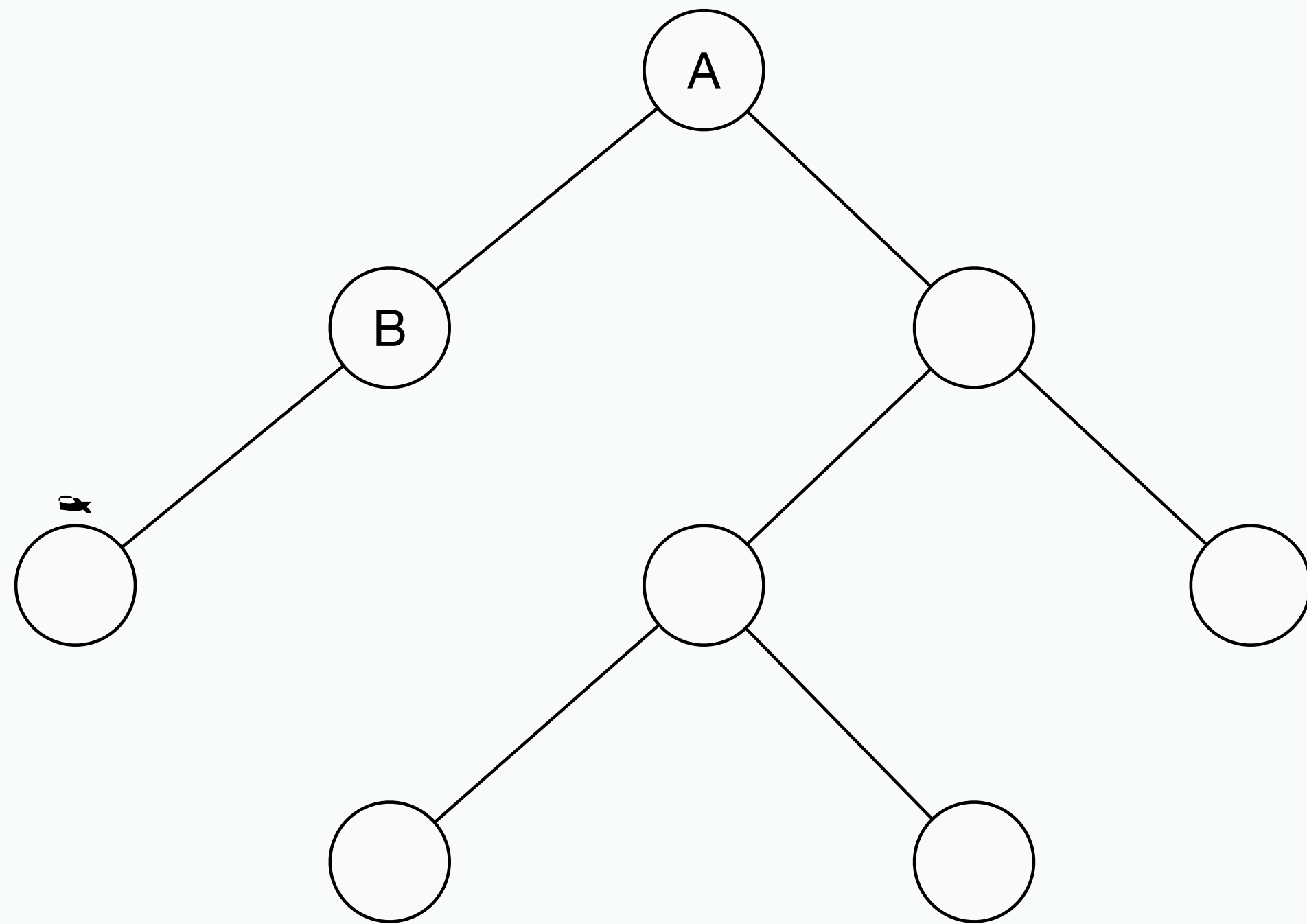


Adjacency matrix



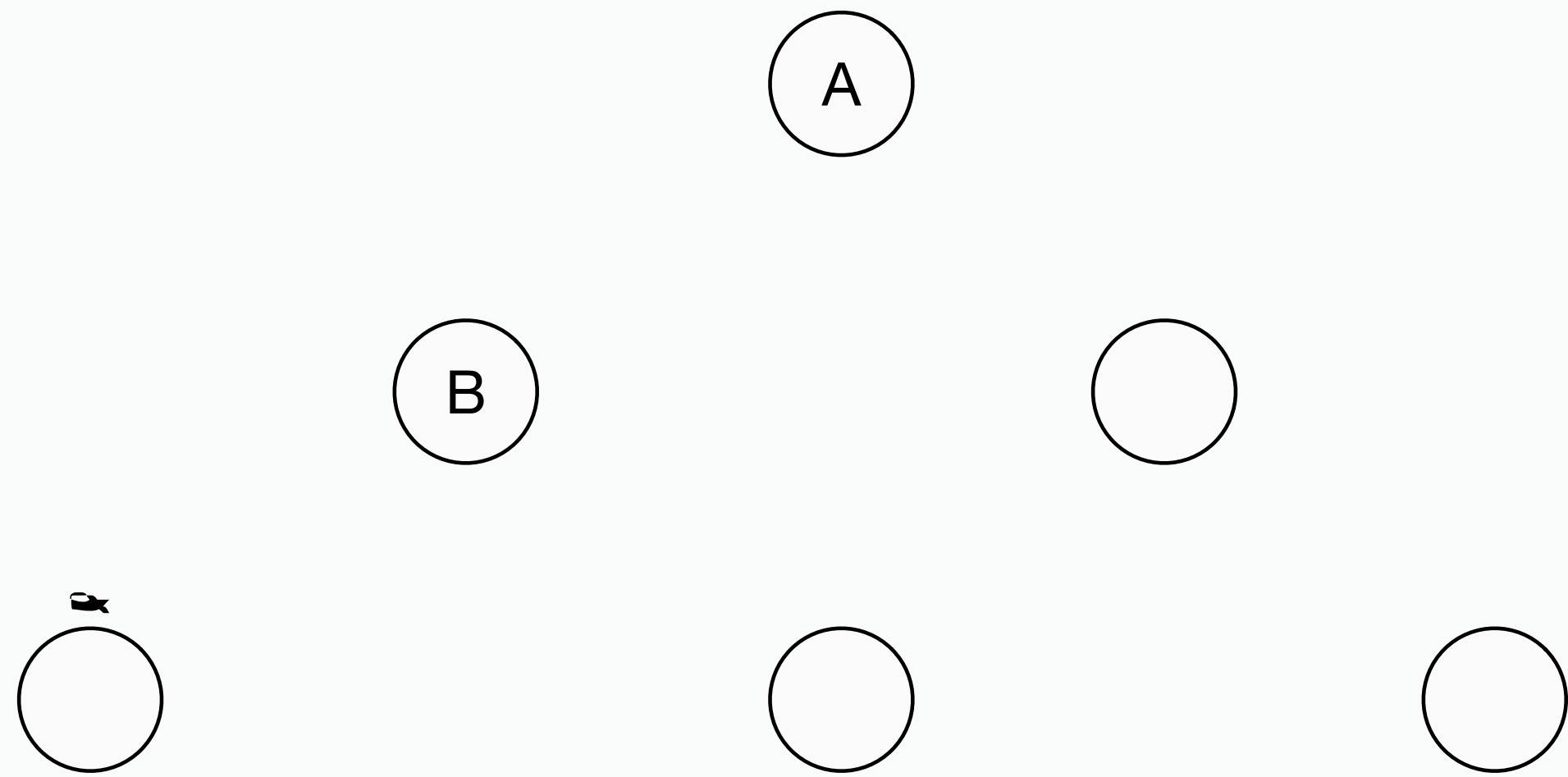
0	1	0	1	0	0	0	0
1	0	1					

Adjacency matrix

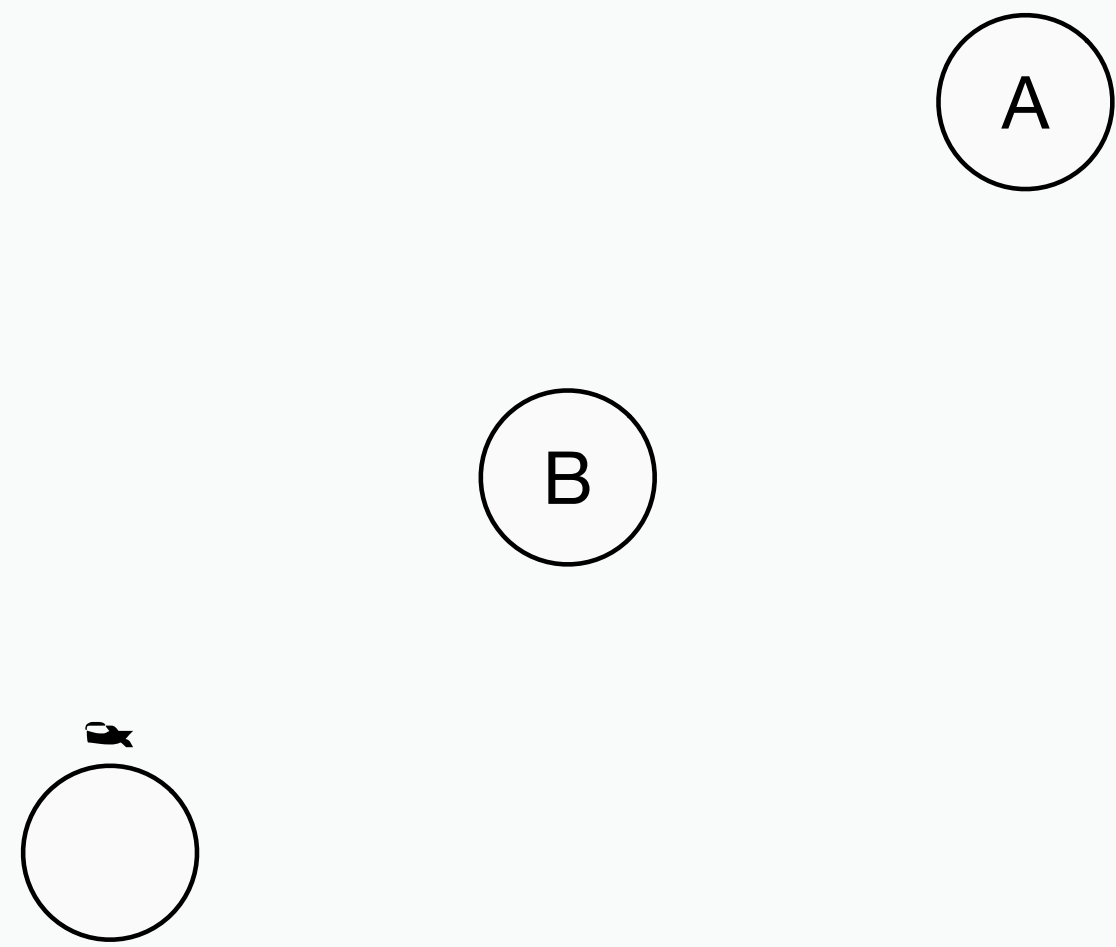


0	1	0	1	0	0	0	0
1	0	1	0	0	0	0	0
0	1	0	0	0	0	0	0
1	0	0	0	1	0	1	0
0	0	0	1	0	1	0	1
0	0	0	0	1	0	0	0
0	0	0	1	0	0	0	0

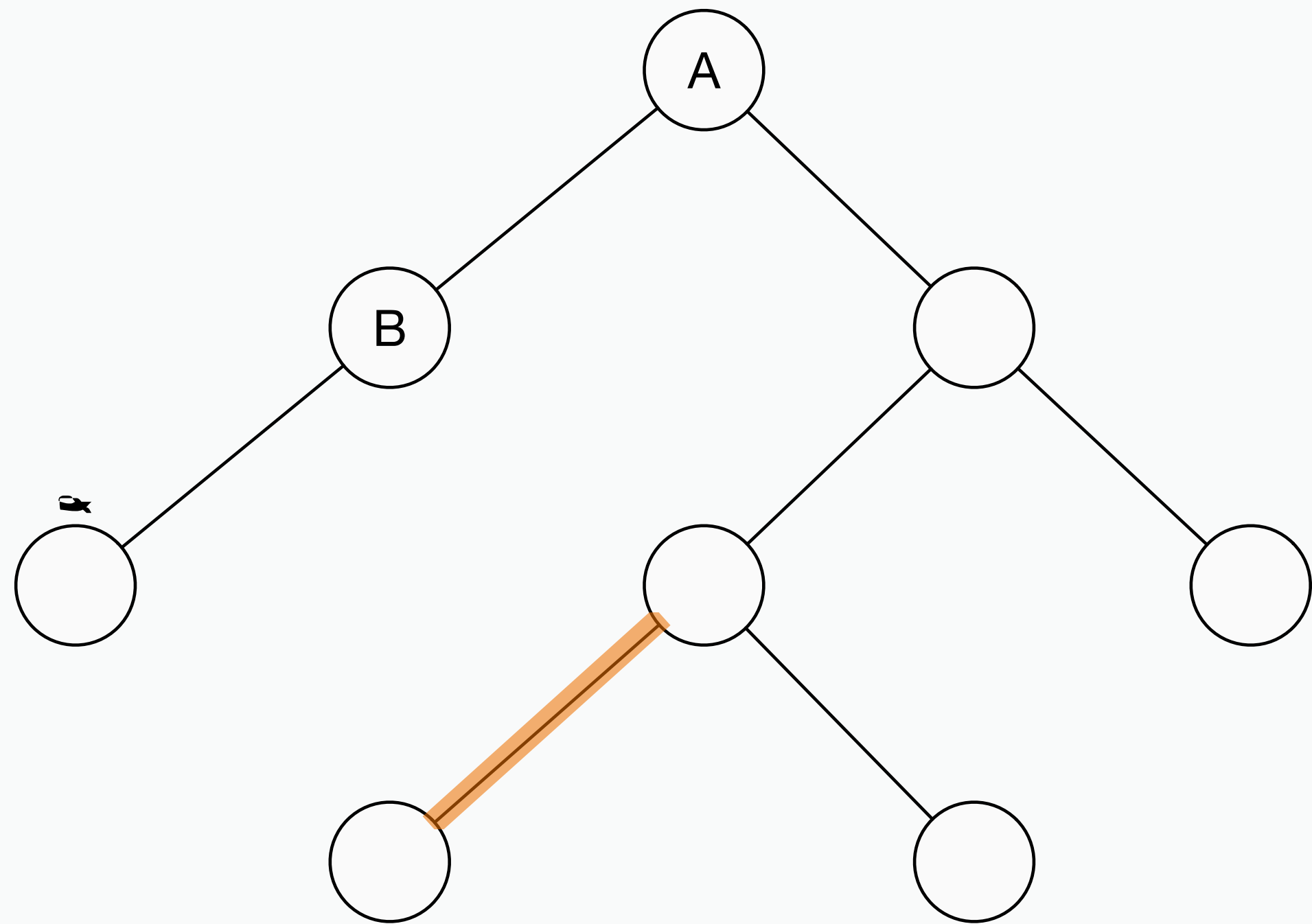
Adjacency matrix



Adjacency matrix

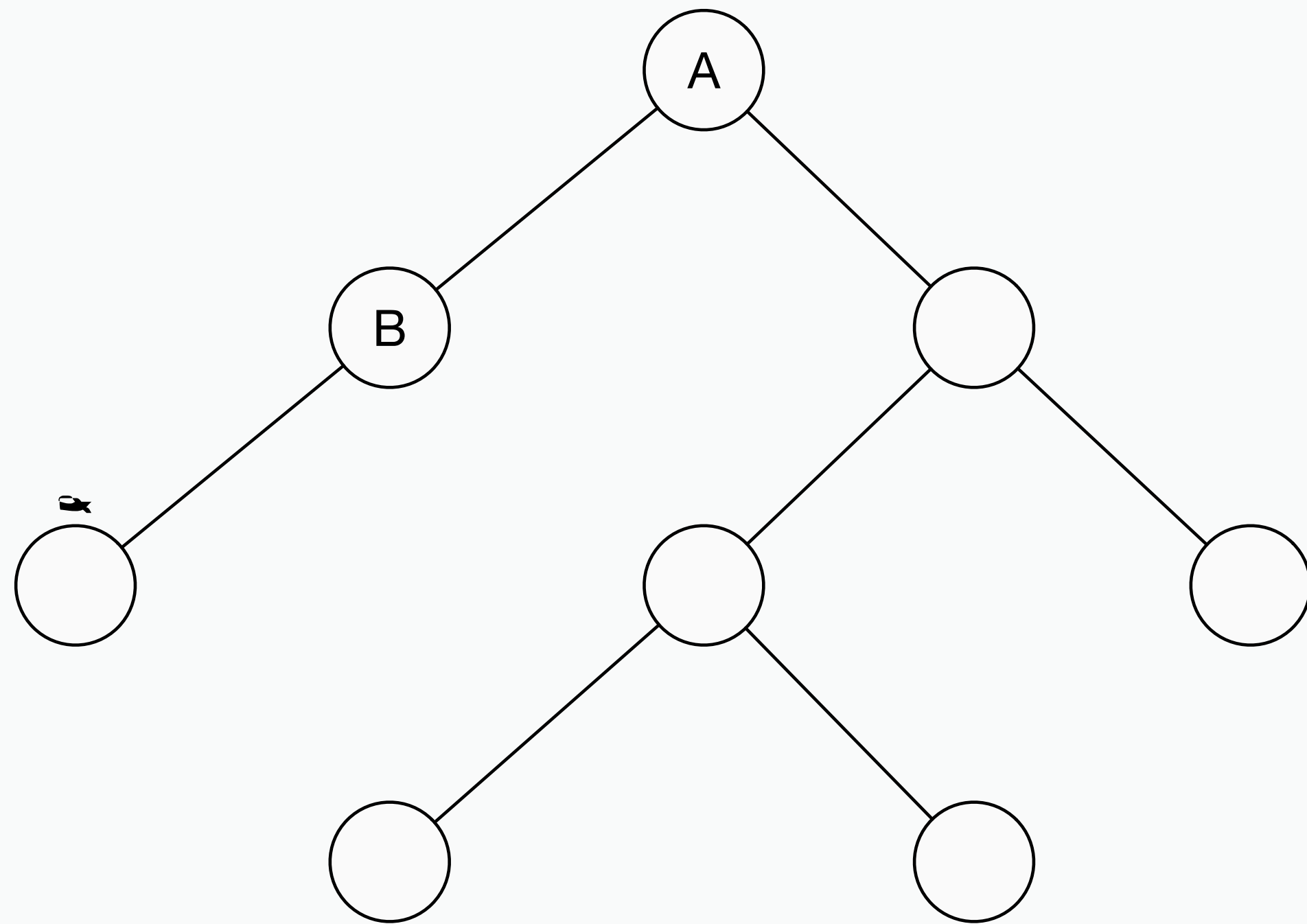


Adjacency matrix



	A	B	C	D	E	F	G	H
A	0	1	0	1	0	0	0	0
B	1	0	1	0	0	0	0	0
C	0	1	0	0	0	0	0	0
D	1	0	0	0	1	0	1	0
E	0	0	0	1	0	1	0	1
F	0	0	0	0	1	0	0	0
G	0	0	0	1	0	0	0	0
H	0	0	0	0	1	0	0	0

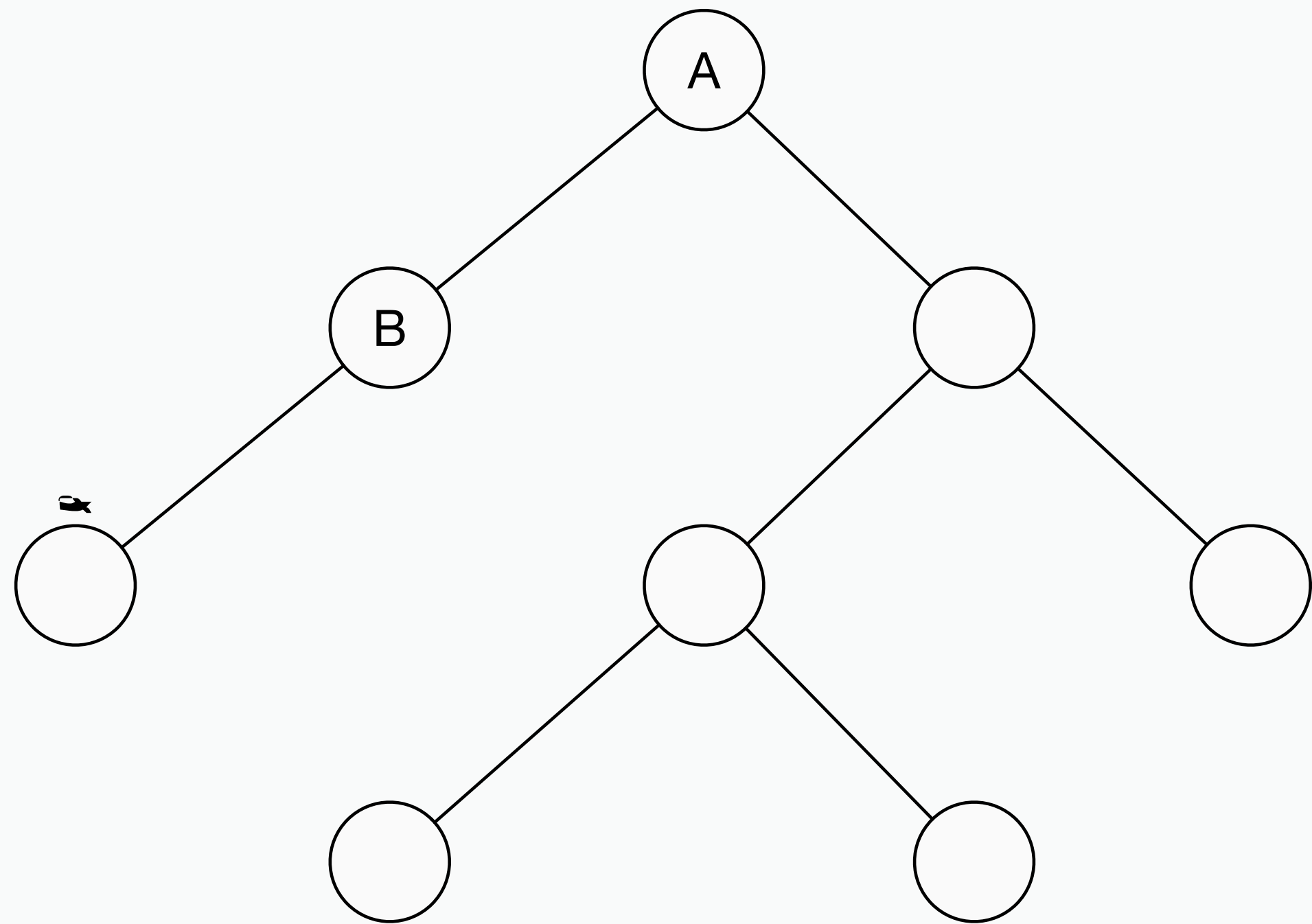
Adjacency matrix



0	1	0	1	0	0	0	0
1	0	1					

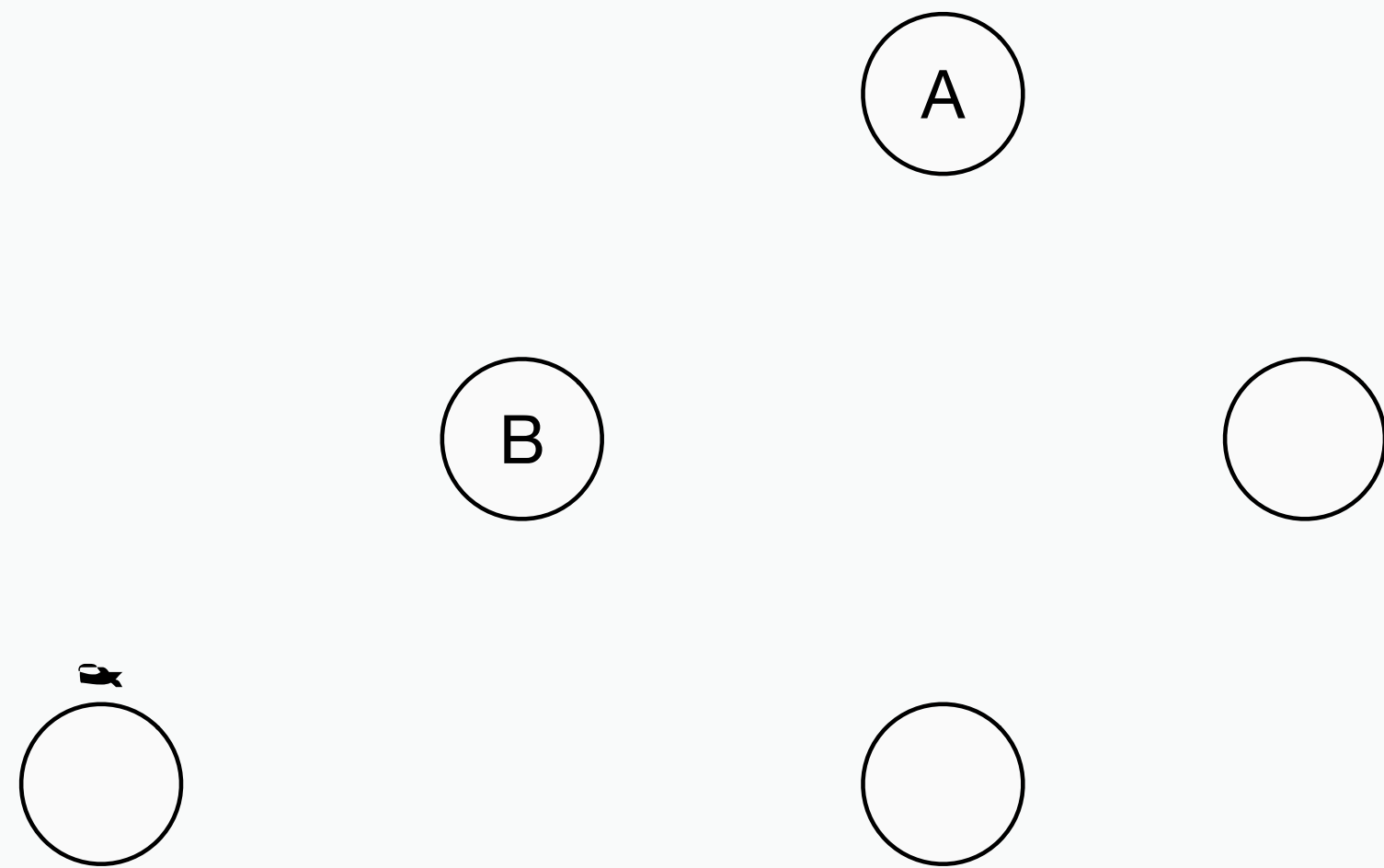
Adjacency matrix

Adjacency matrix



	A	B	C	D	E	F	G	H
A	0	1	0	1	0	0	0	0
B	1	0	1	0	0	0	0	0
C	0	1	0	0	0	0	0	0
D	1	0	0	0	1	0	1	0
E	0	0	0	1	0	1	0	1
F	0	0	0	0	1	0	0	0
G	0	0	0	1	0	0	0	0
H	0	0	0	0	1	0	0	0

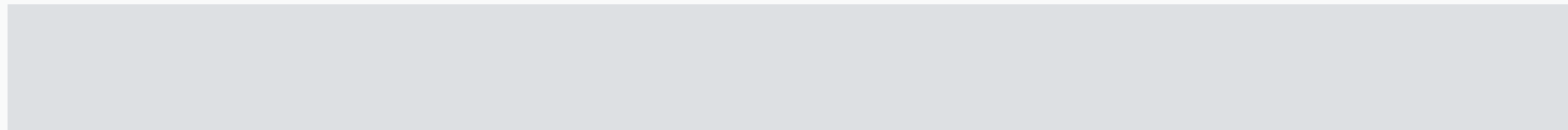
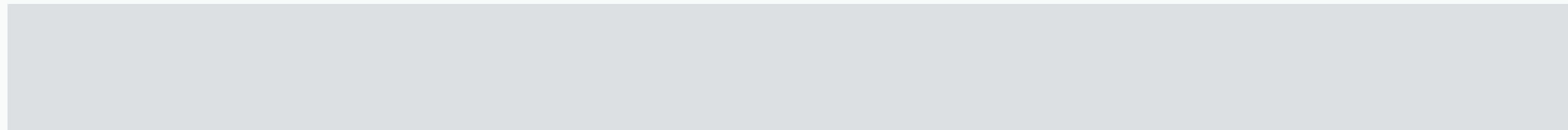
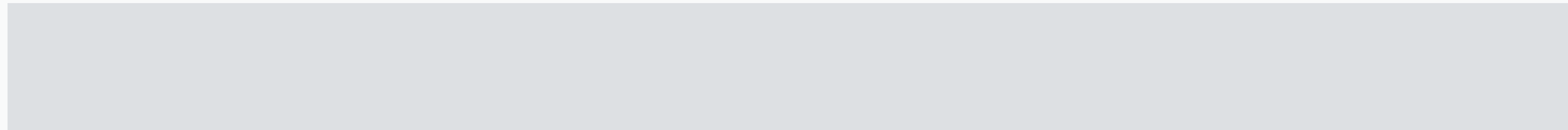
Adjacency matrix



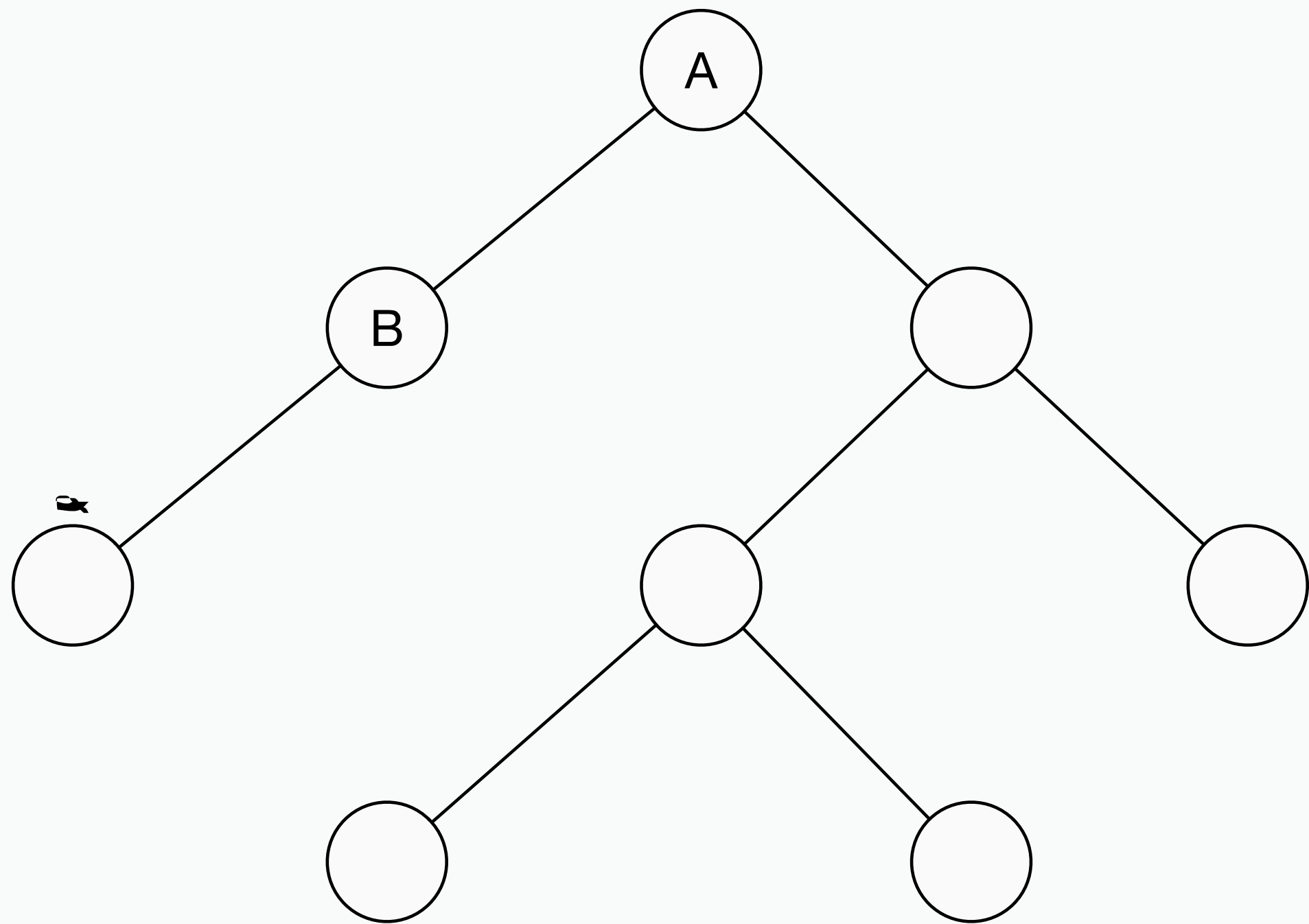
Adjacency List vs Adjacency Matrix

Adjacency list

Adjacency matrix

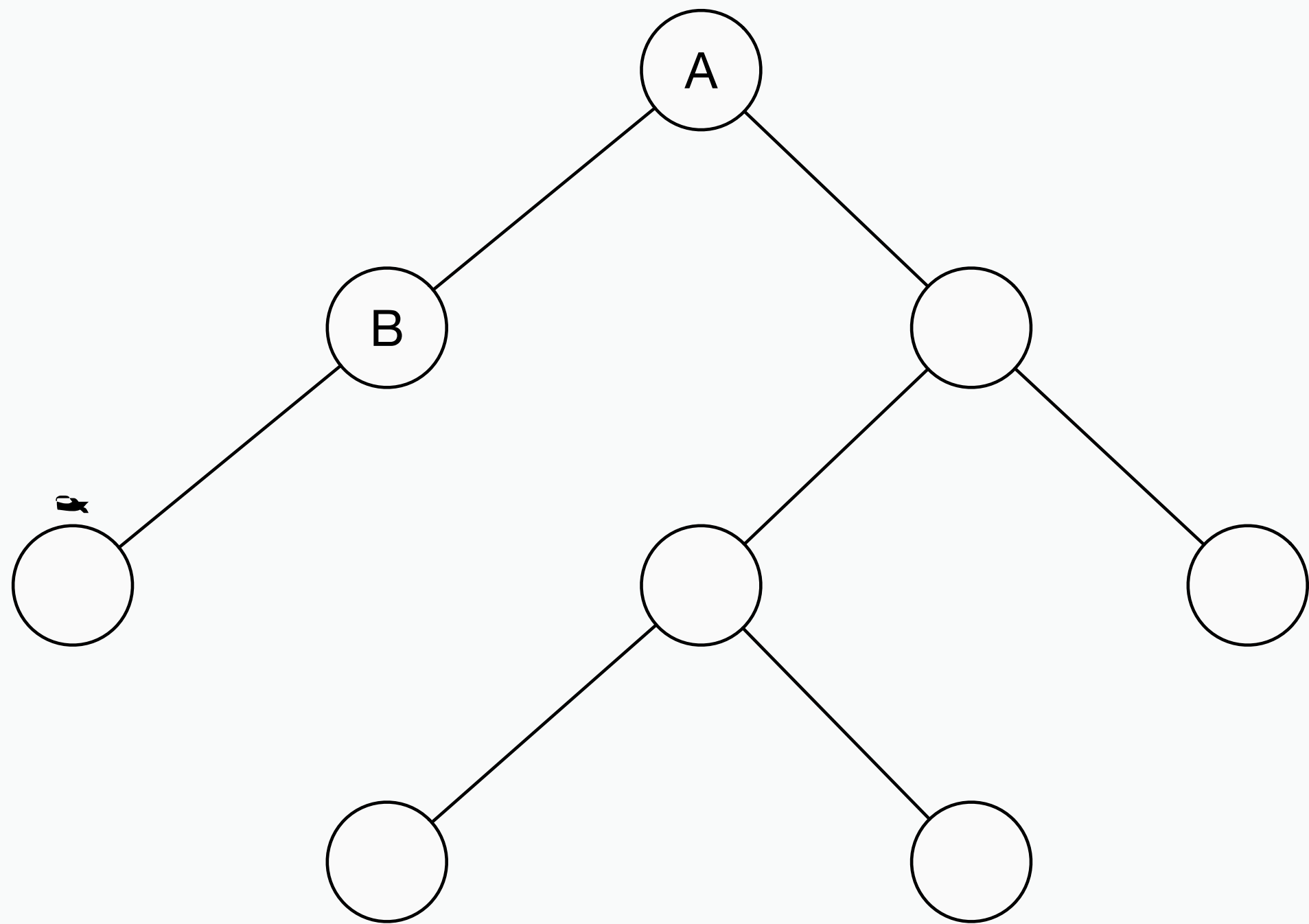


Incidence matrix



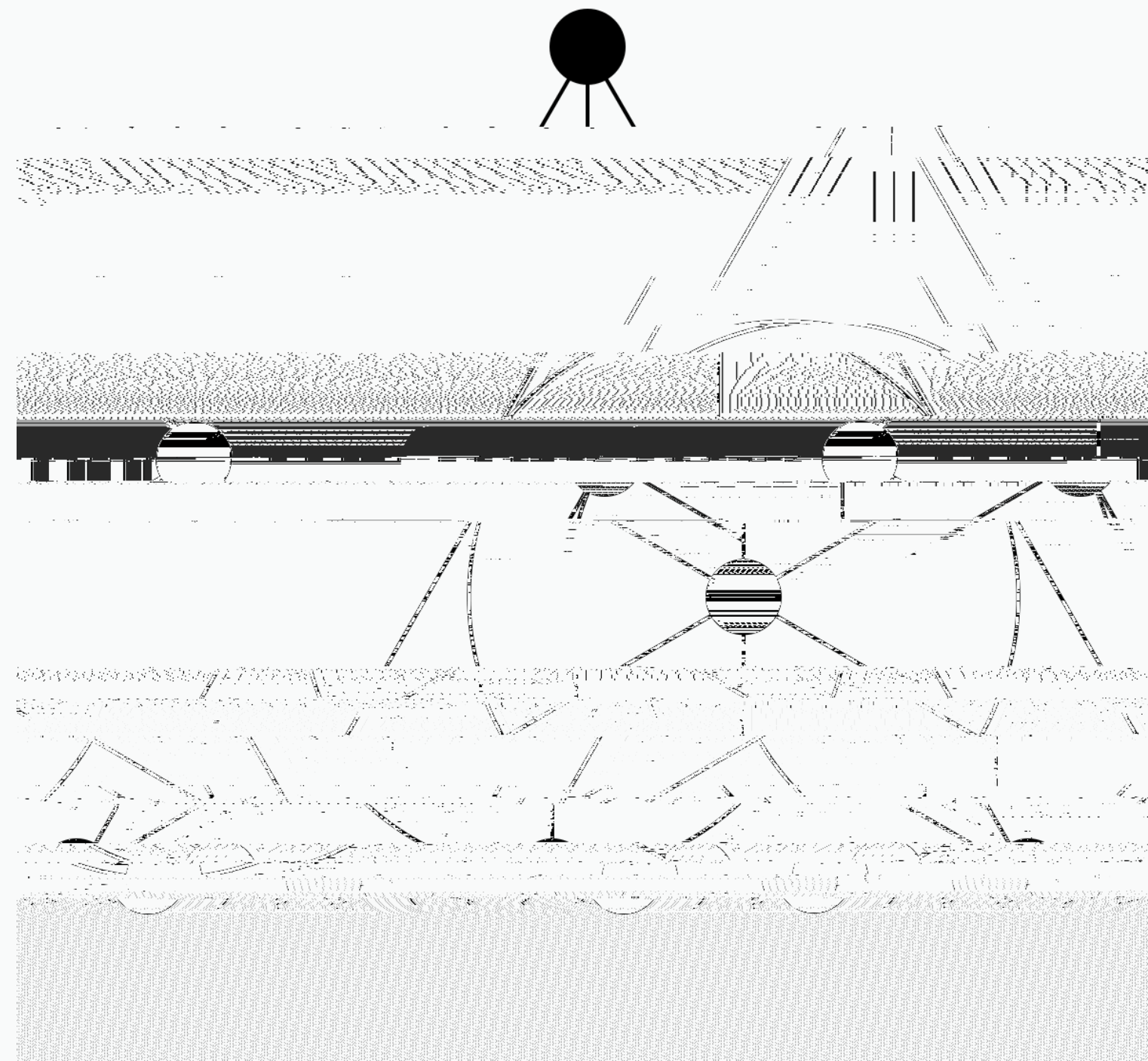
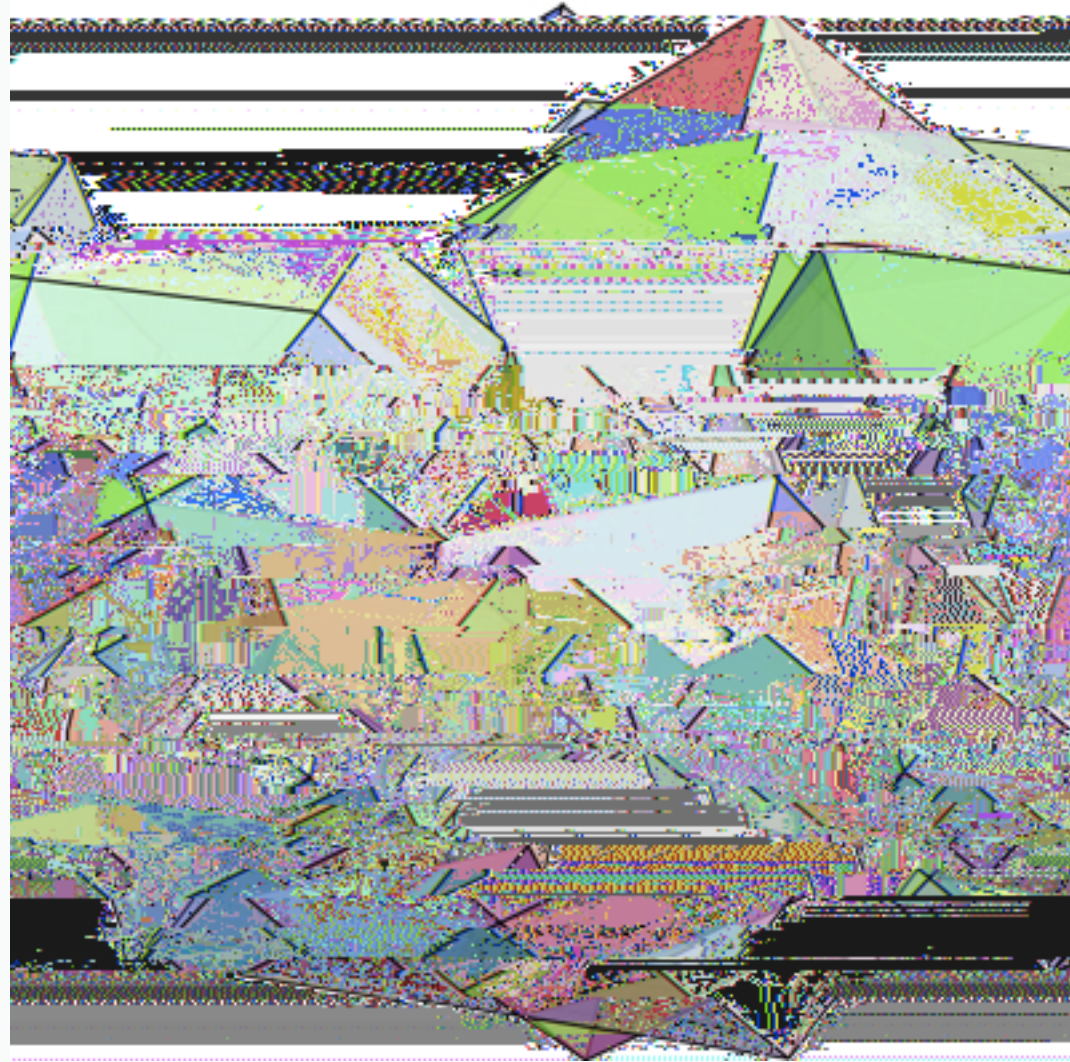
	1	2	3	4	5	6	7
A	1	0	1	0	0	0	0
B	1	1	0	0	0	0	0
C	0	1	0	0	0	0	0
D	0	0	1	1	0	1	0
E	0	0	0	1	1	0	1
F	0	0	0	0	1	0	0
G	0	0	0	0	0	1	0
H	0	0	0	0	1	0	1

Incidence matrix

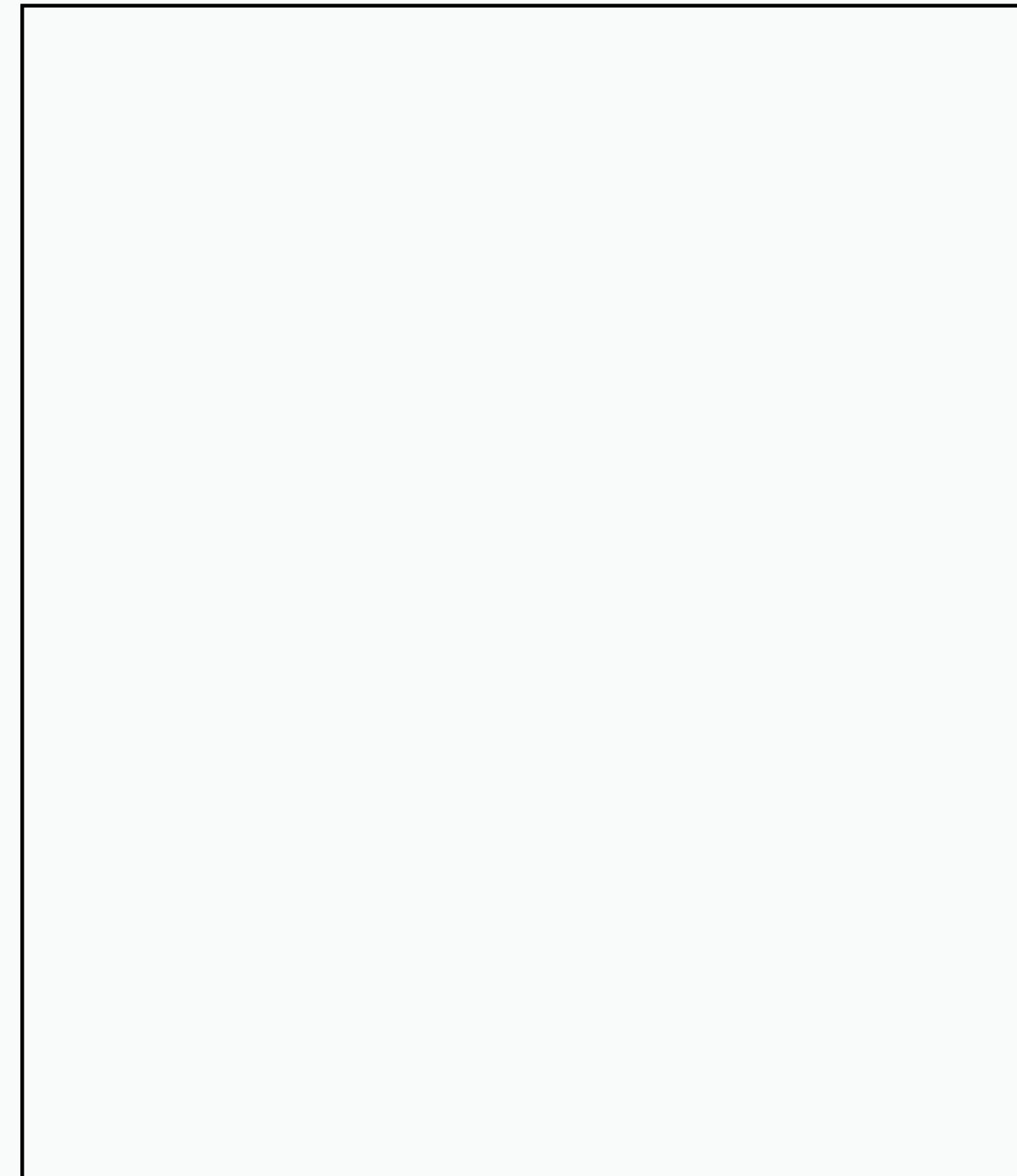
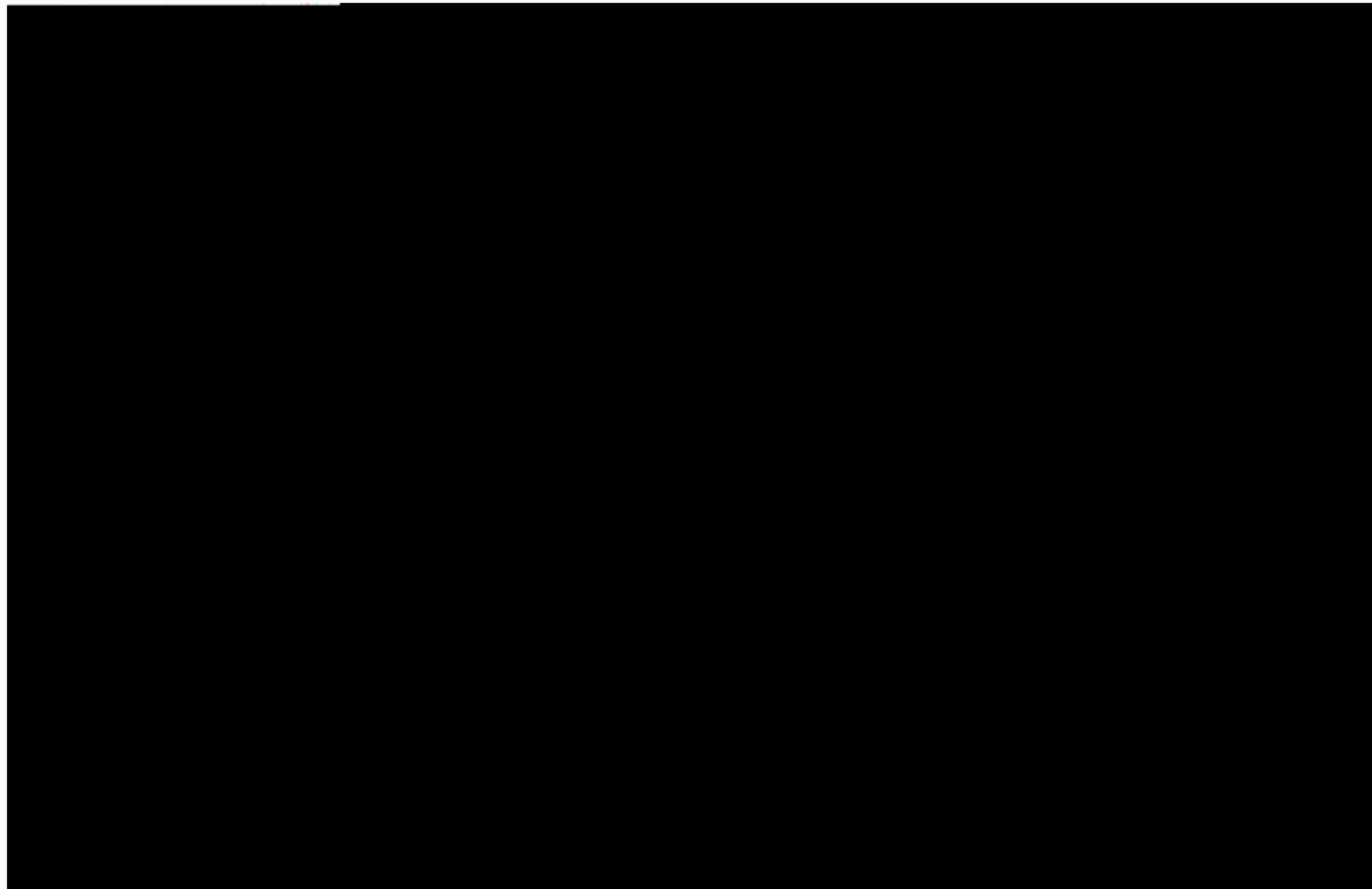


	1	2	3	4	5	6	7
A	1	0	1	0	0	0	0
B	1	1	0	0	0	0	0
C	0	1	0	0	0	0	0
D	0	0	1	1	0	1	0
E	0	0	0	1	1	0	1
F	0	0	0	0	1	0	0
G	0	0	0	0	0	1	0
H	0	0	0	0	1	0	1

Incidence matrix



Simple L/R Object-oriented Approach



How do we represent a tree?

Choosing a data structure

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