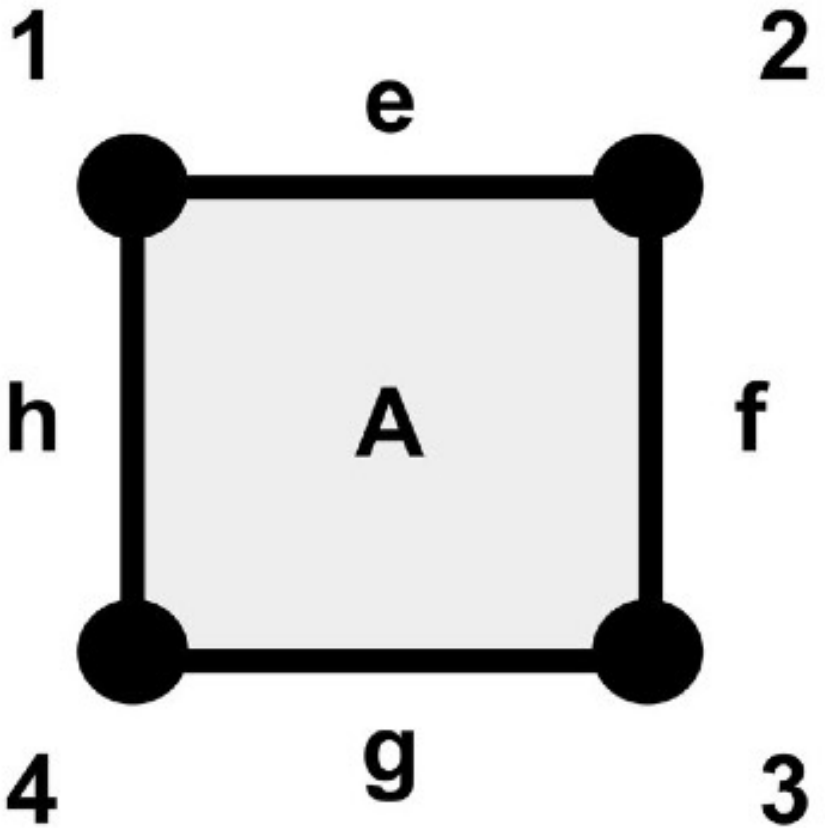
The motivation for the expanded cell complex.

- A cell complex[1] C is a collection of mathematical n-dimensional n-cells, and all lower-dimensional cells that make up their boundaries.

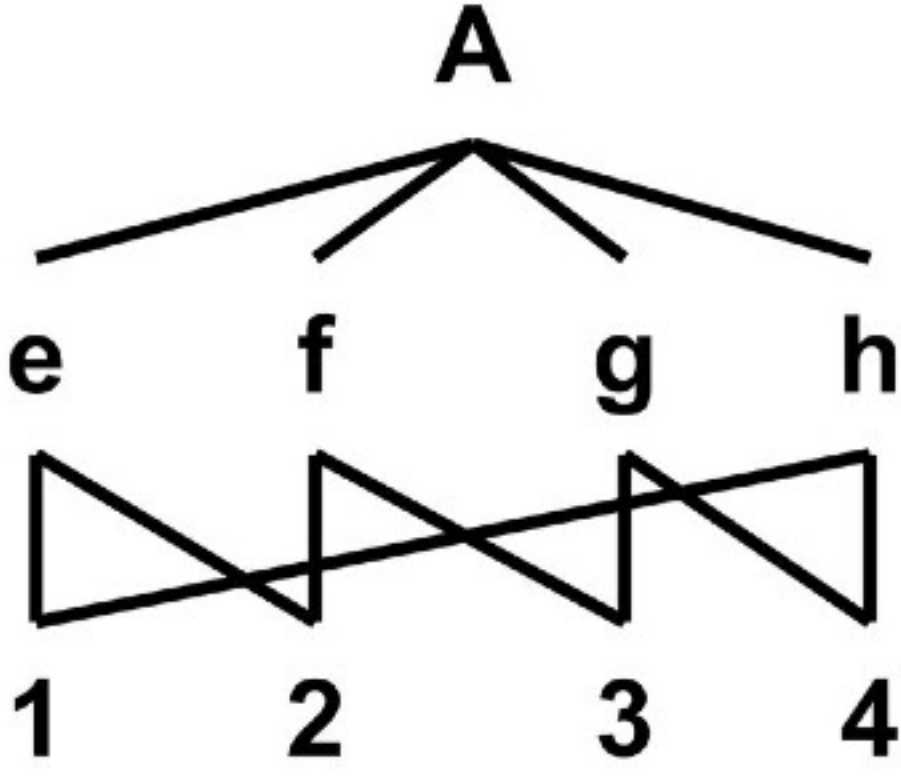
- For any k-cell, ∂ is the operator that returns the cell's boundary if it exists.

- A cell complex can also be represented as a graph.


1
2
e
h
A
f
4
g
3

Cell Complex

15


A
e
f
g
h
1
2
3
4

(a) Our starting square.

(b) Square with topological cells labeled.

(c) Graph for the cell complex of the square.

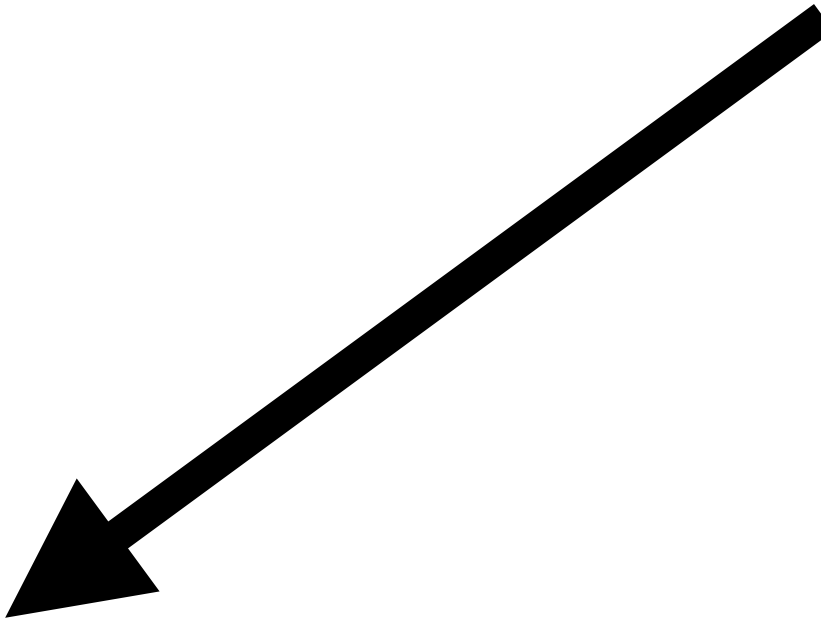
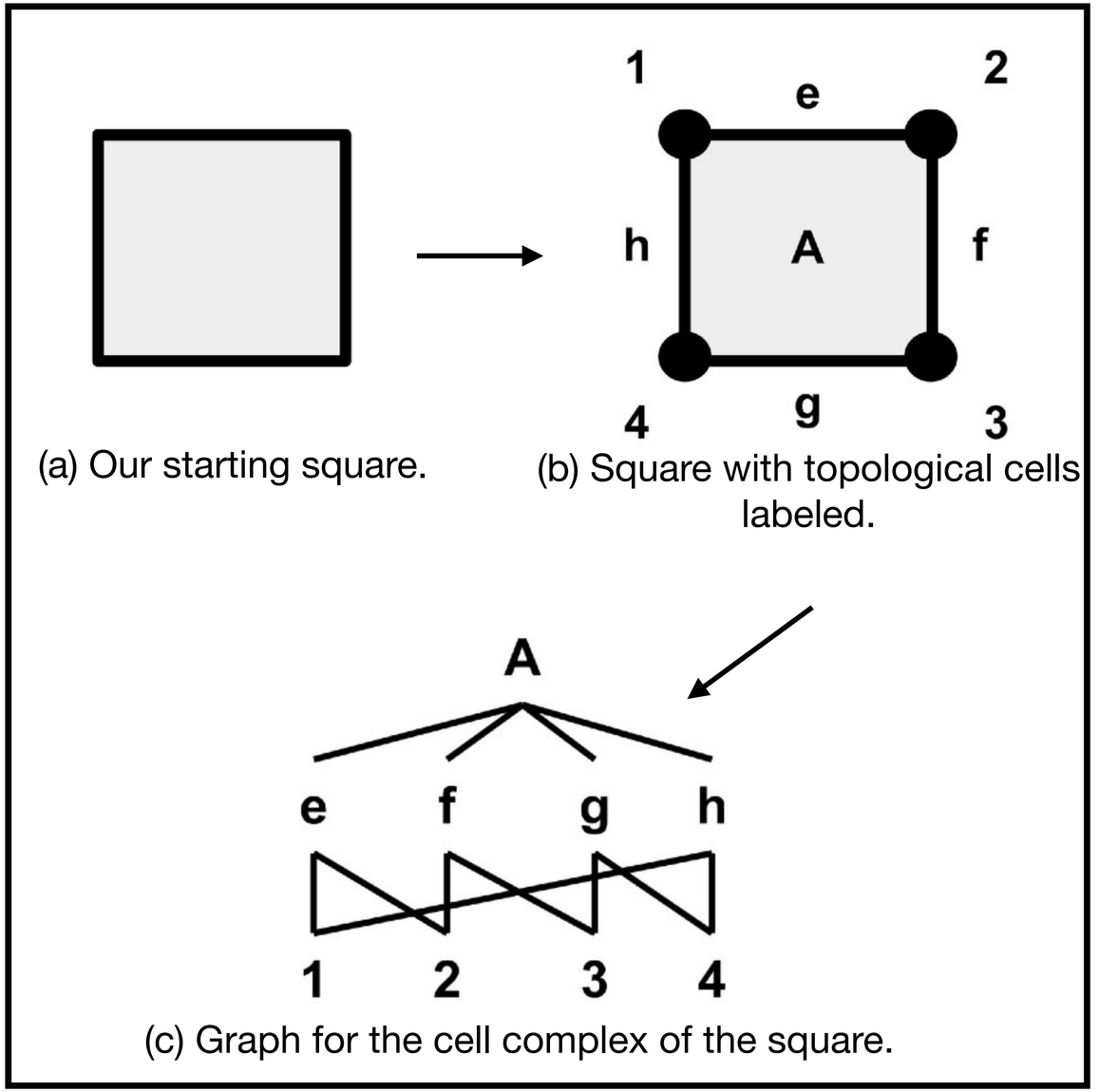


Figure 5

1. (Hatcher, 2019)

Cell Complex

The motivation for the expanded cell complex.



(a) Our starting square.

(b) Square with topological cells labeled.

(c) Graph for the cell complex of the square.

Figure 5

1. (Hatcher, 2019)

Subdividing a Simulation Space

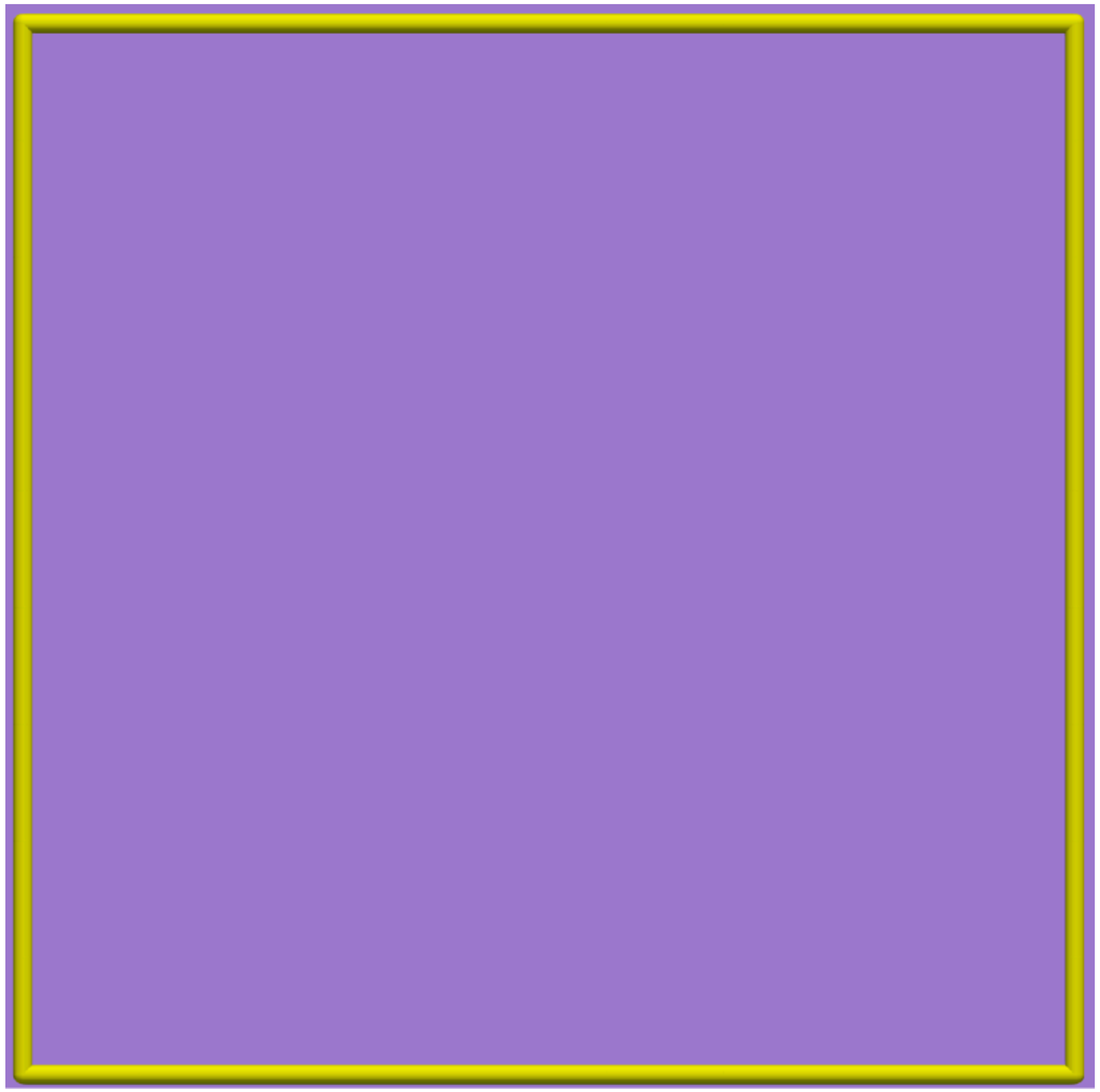


Figure 6: Square simulation space.

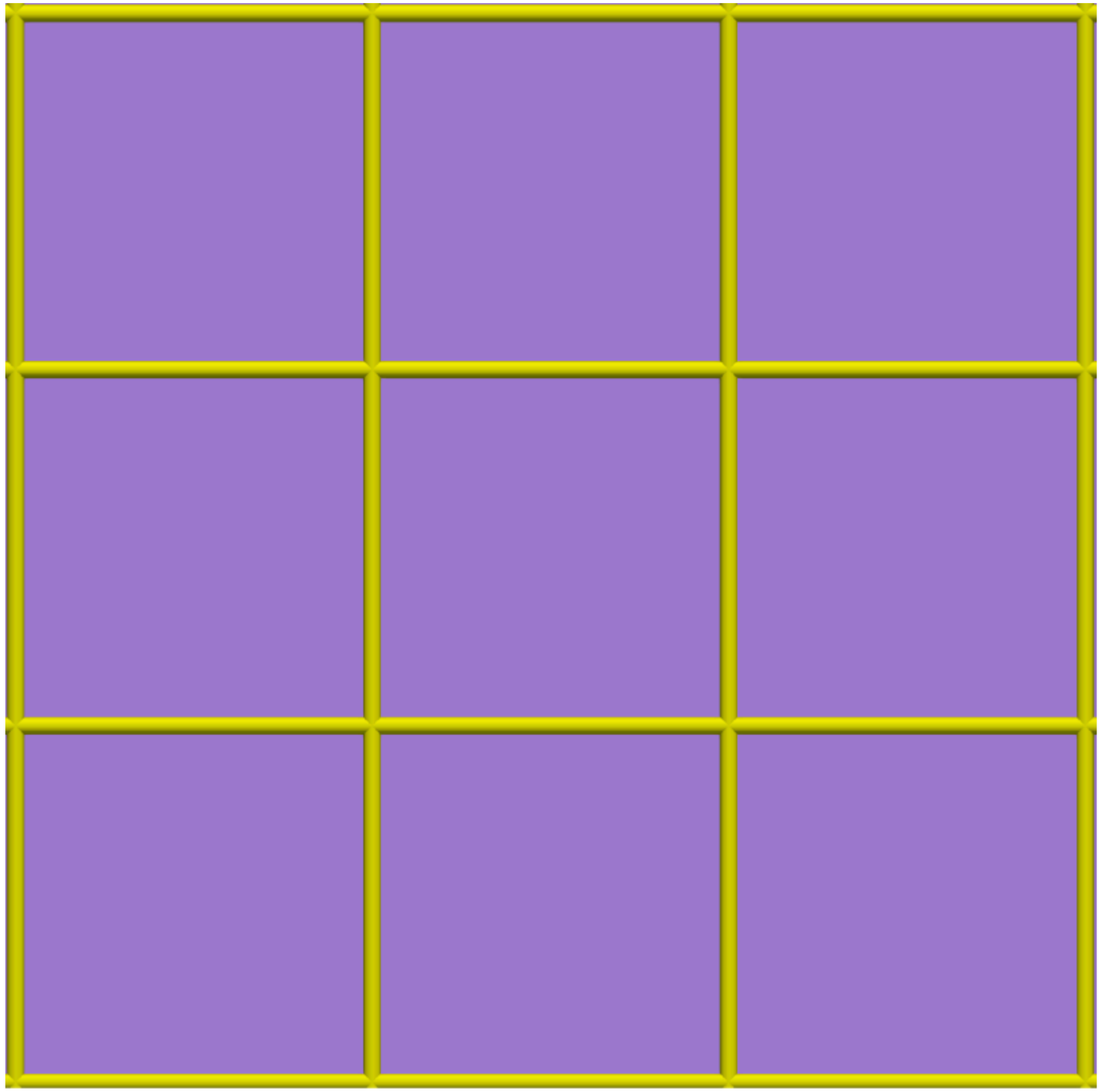


Figure 7: 3x3 subdivided space.