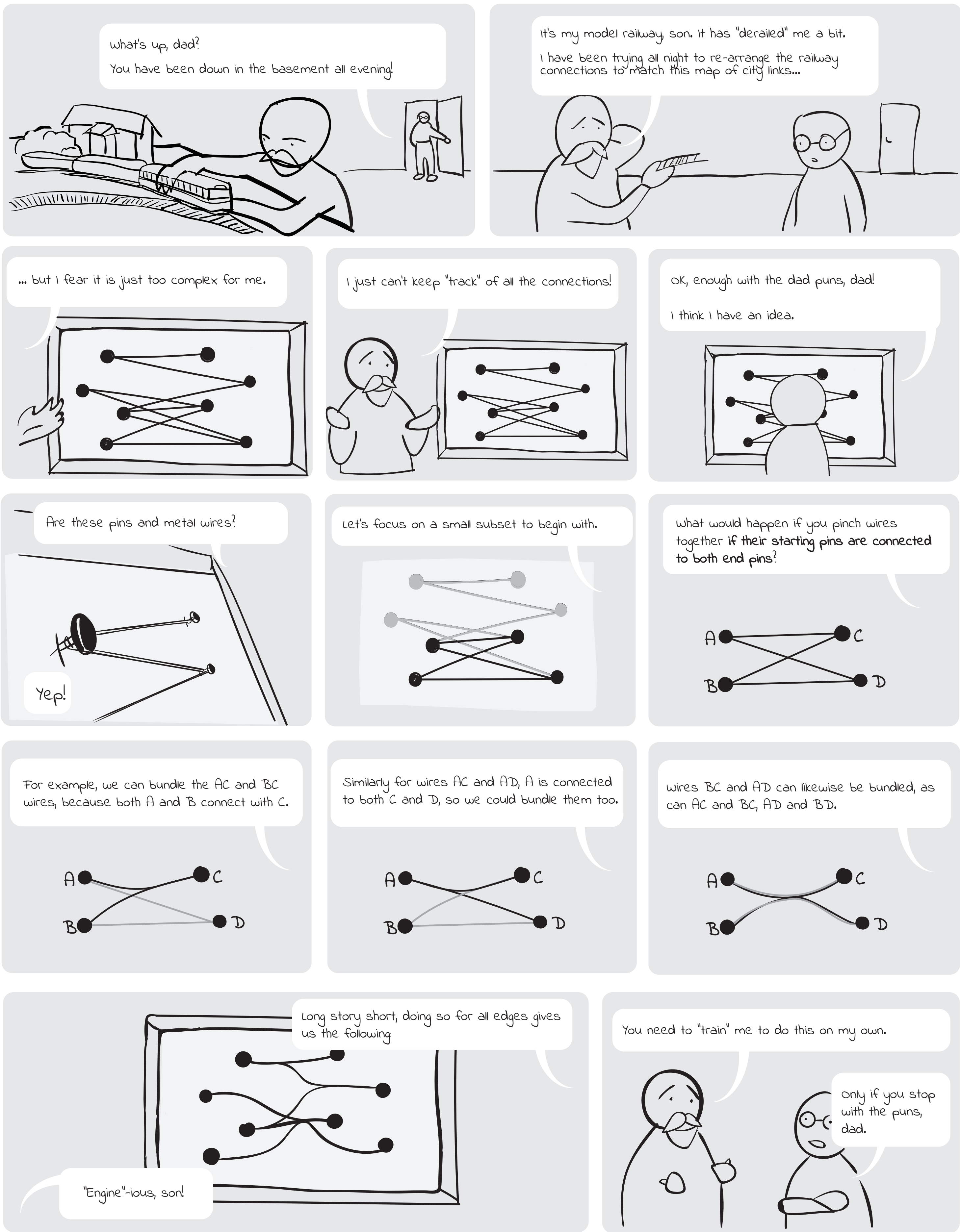
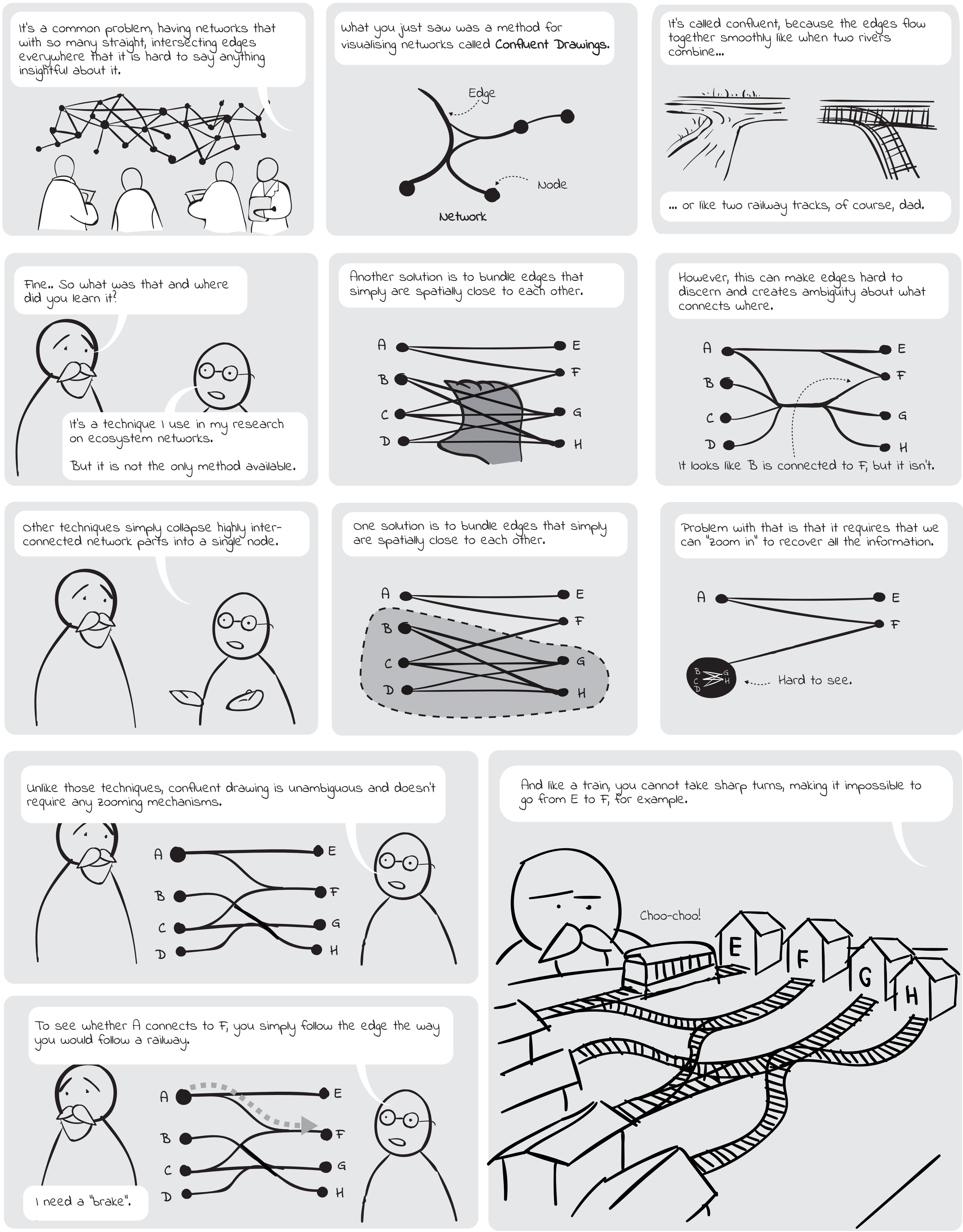
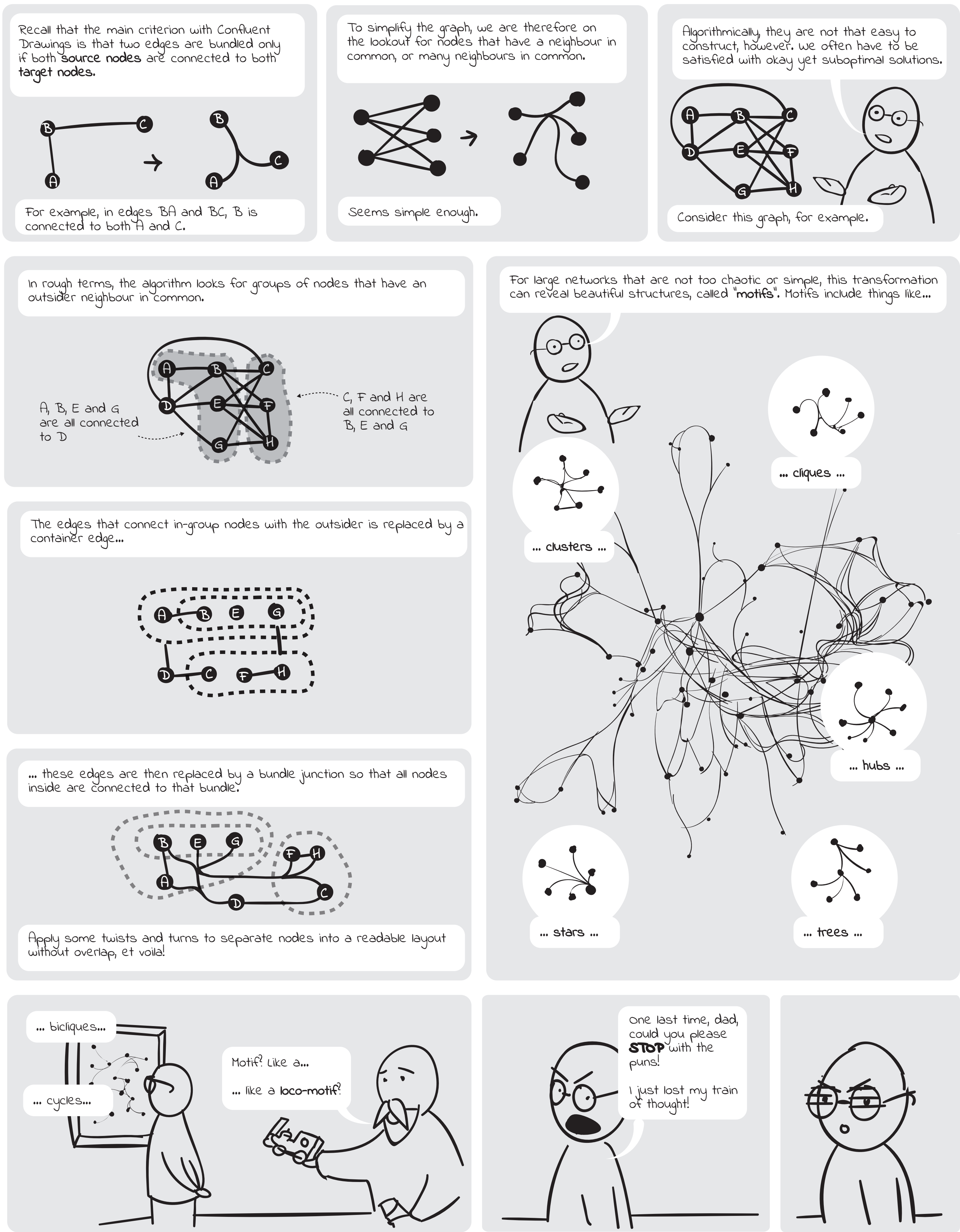
Confluence Graph

Introduction




It's a common problem, having networks that with so many straight, intersecting edges everywhere that it is hard to say anything insightful about it.
What you just saw was a method for visualising networks called **Confluent Drawings**.
Edge
Node
Network
It's called confluent, because the edges flow together smoothly like when two rivers combine...
... or like two railway tracks, of course, dad.
Fine.. So what was that and where did you learn it?
It's a technique I use in my research on ecosystem networks.
But it is not the only method available.
Another solution is to bundle edges that simply are spatially close to each other.
A
B
C
D
E
F
G
H
However, this can make edges hard to discern and creates ambiguity about what connects where.
A
B
C
D
E
F
G
H
It looks like B is connected to F, but it isn't.
Other techniques simply collapse highly inter-connected network parts into a single node.
One solution is to bundle edges that simply are spatially close to each other.
A
B
C
D
E
F
G
H
Problem with that is that it requires that we can "zoom in" to recover all the information.
A
E
F
Hard to see.
Unlike those techniques, confluent drawing is unambiguous and doesn't require any zooming mechanisms.
A
B
C
D
E
F
G
H
To see whether A connects to F, you simply follow the edge the way you would follow a railway.
A
B
C
D
E
F
G
H
I need a "brake".
And like a train, you cannot take sharp turns, making it impossible to go from E to F, for example.
Choo-choo!
E
F
G
H



* Learn more about the algorithm:
Bach, B., Henry Riche, N., Hurter, C., Marriott, K, & Dwyer, T. (2017, January). Towards Unambiguous Edge Bundling: Investigating Confluent Drawings for Network Visualization. In IEEE Transactions on Visualization and Computer Graphics (Vol. 23, No. 1, pp. 693-716).