

MA2288 How to Drive Autodesk Inventor with the Top Down

Paul Munford

CAD/CAM Manager Halstock cabinet makers

Class Summary

In this class you will learn how to create reliable predictable, parametric assembly models using Autodesk Inventor's 'Alternative' modeling techniques.

Who am I?

- Paul Munford
- CAD/CAM Manager Halstock cabinet makers UK
- 'Setter out' – Specialist woodworking Draftsman
- CAD Geek

Who are you?

- You heard about Inventor
- You bought into Inventor
- You trained with Inventor
- You struggle with Inventor

This class is for you



Learning Objectives

At the end of this class, you will be able to:

- Identify the differences between Bottom Up, Top Down and In Place modelling techniques.
- Communicate the benefits of using derived assembly techniques, over the 'standard' constraint based assembly technique.
- Understand how to choose which technique (or combination of techniques) to use on your project.
- Understand how to use 'alternative' assembly techniques to build constraint free Assembly models.

Design Intent



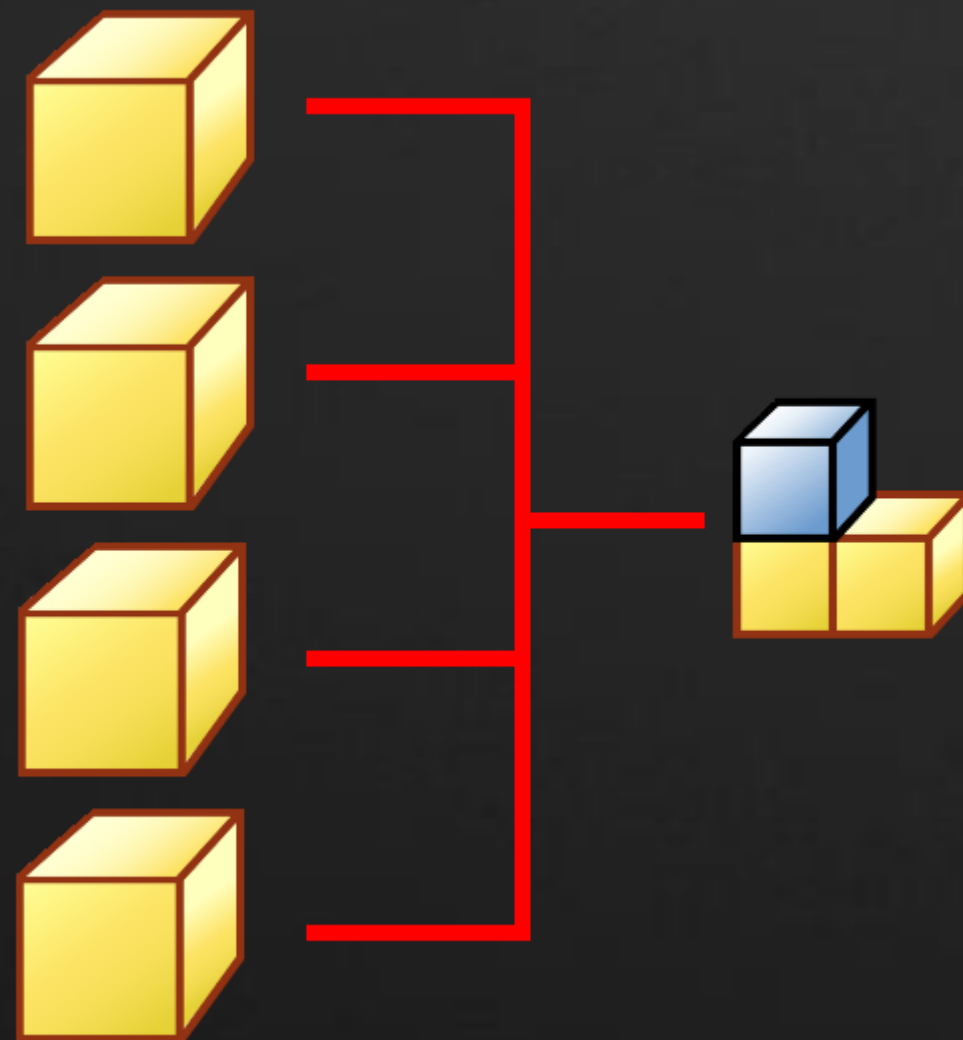
- We want assembly models that are:
- Quick to build
 - Reliable
 - Predictable
 - Easy and quick to edit



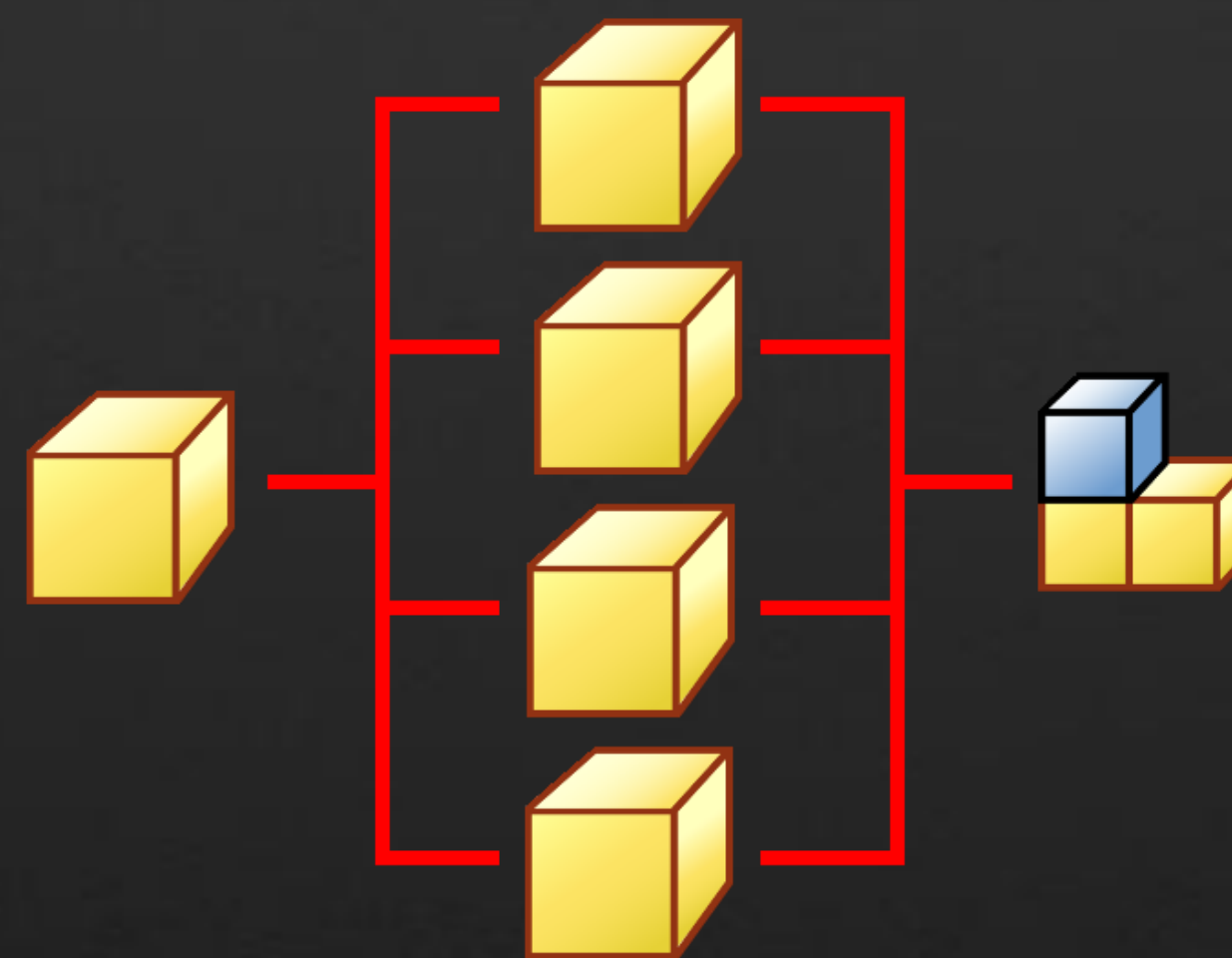
*Before you can model your design
you must design your model*

Assembly modeling techniques

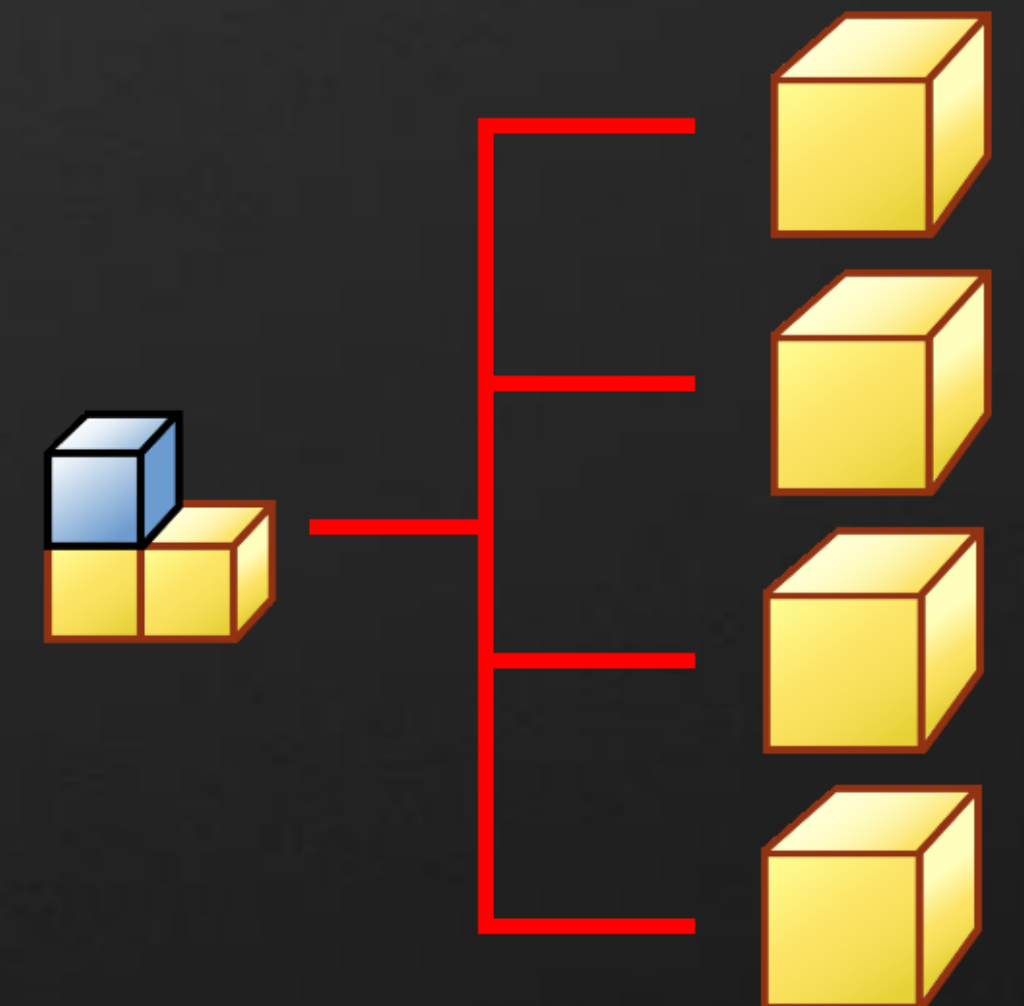
Bottom up
(Traditional)



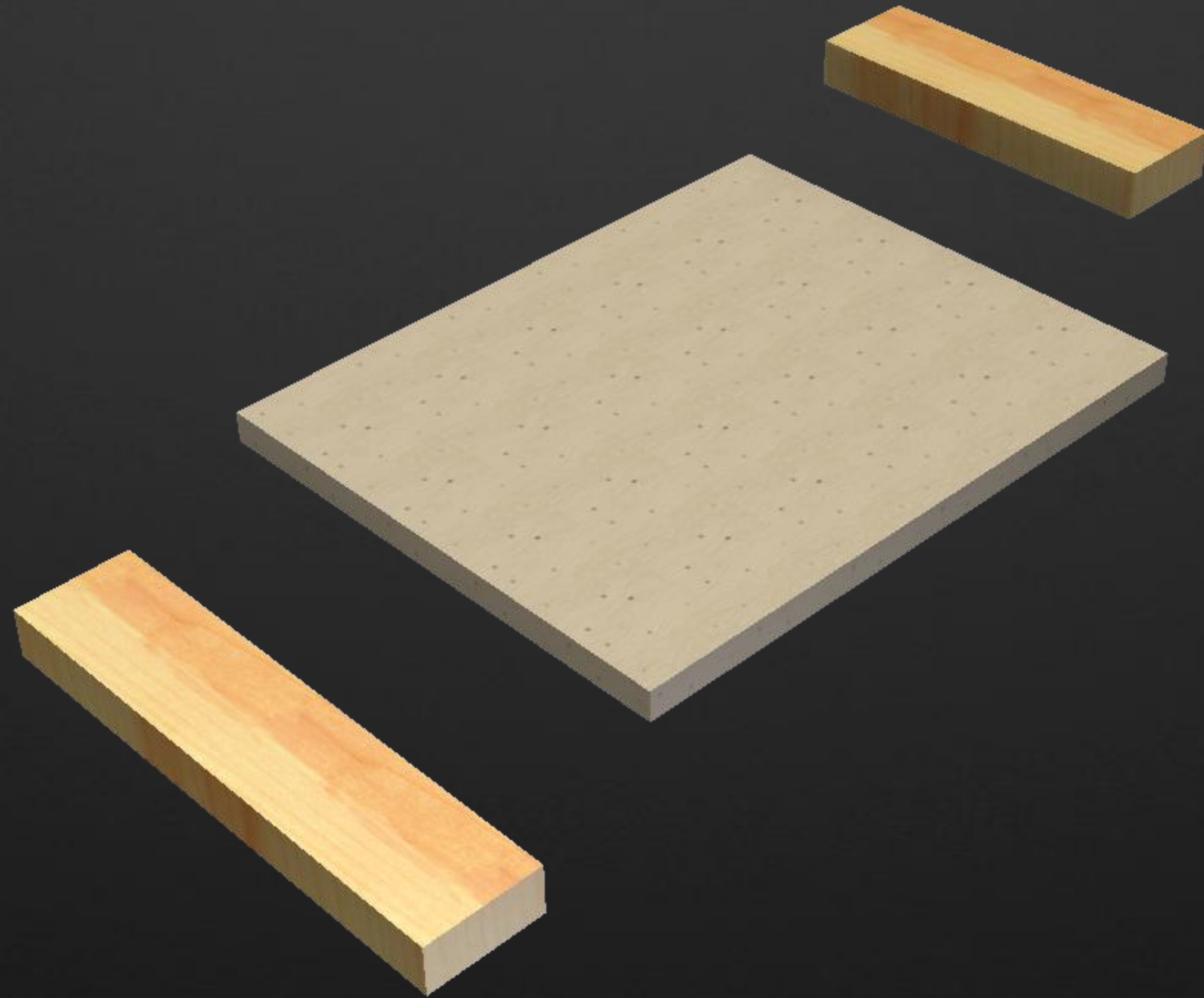
Top Down
(Derived)



In place
(Adaptive)



Bottom up



Let's try it...

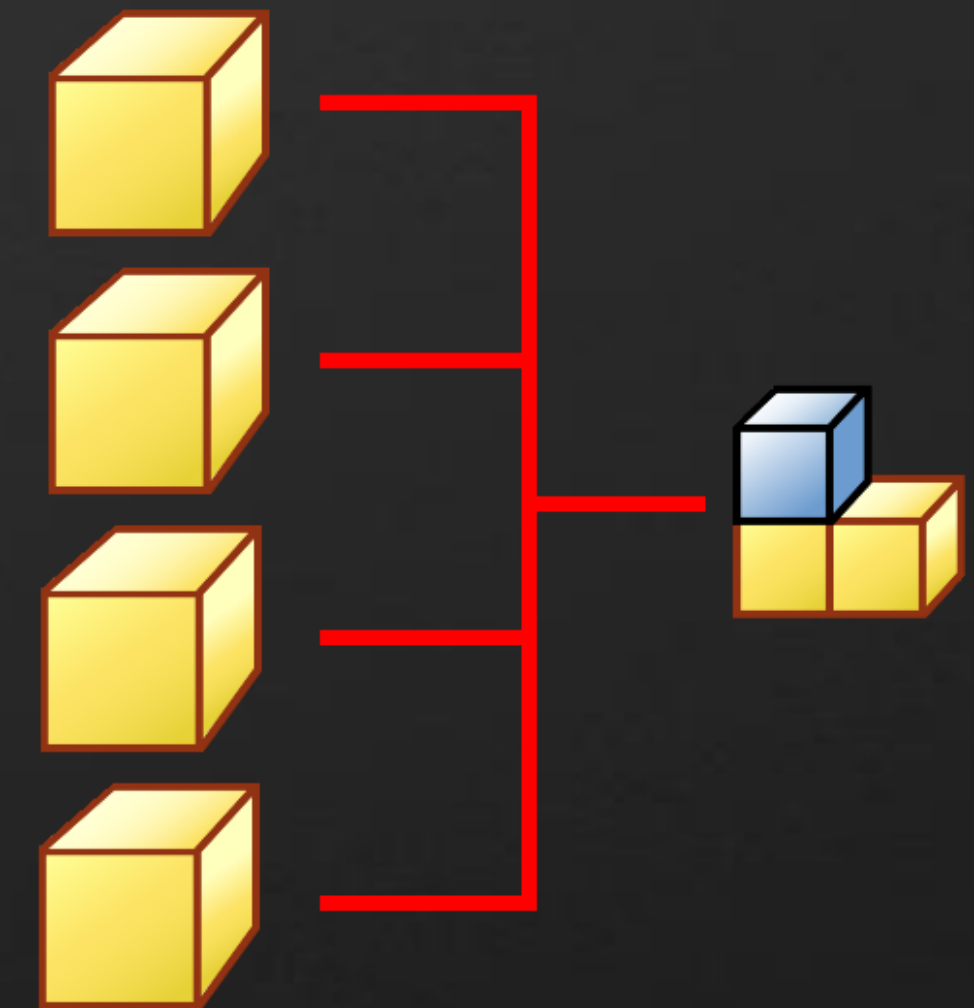
Bottom up (Traditional)

Cons:

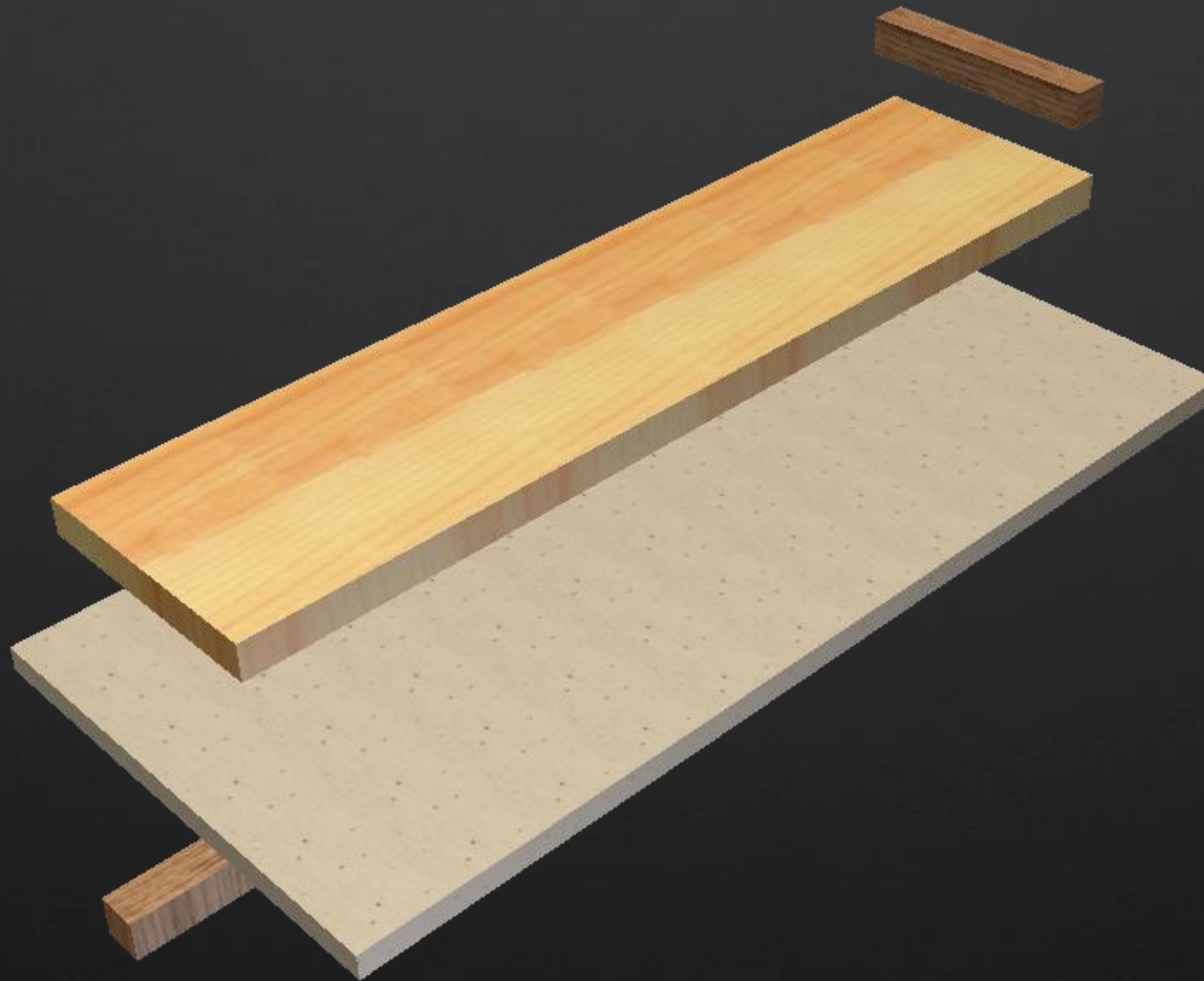
- No relationships between parts
- Not easy to build or edit large assemblies

Pros:

- No relationships to manage between parts
- Easy to create your BOM/Parts list



In Place



Let's try it...

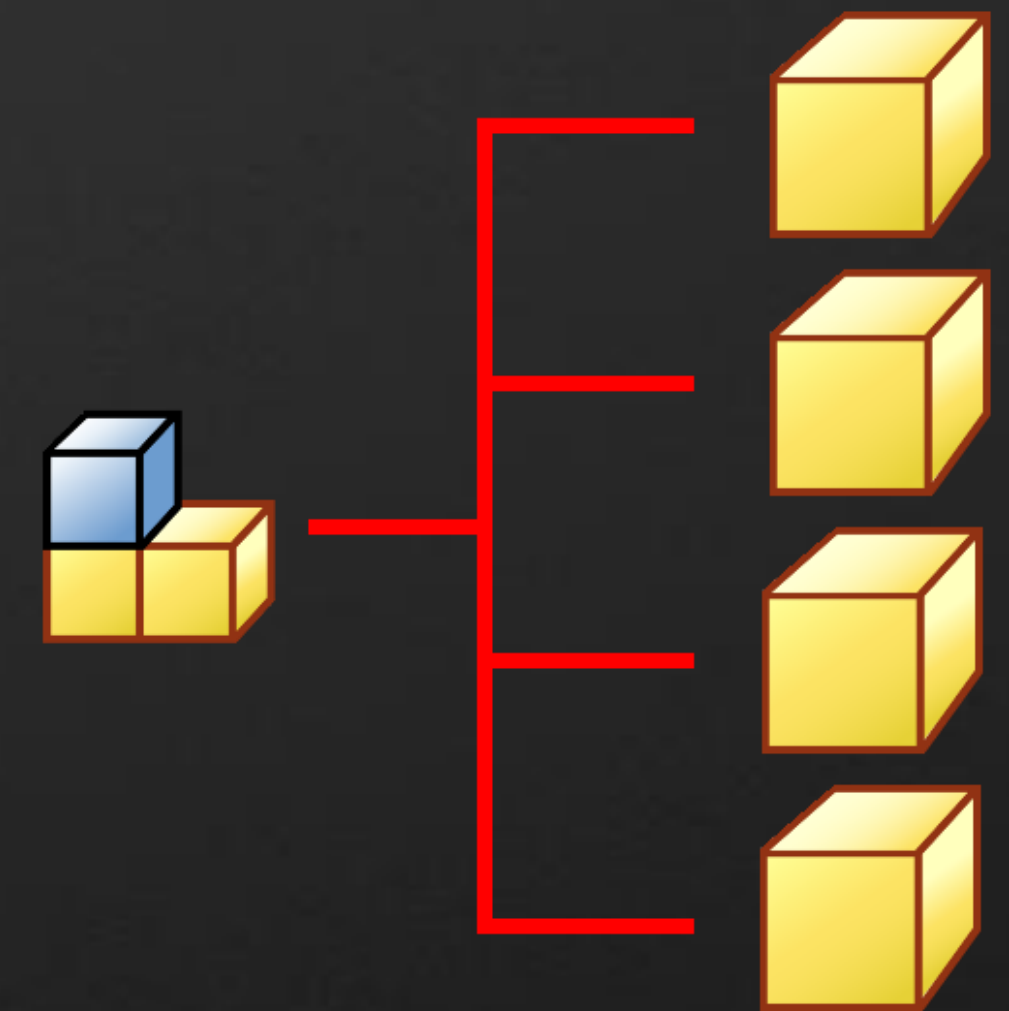
In Place (Adaptive)

Cons:

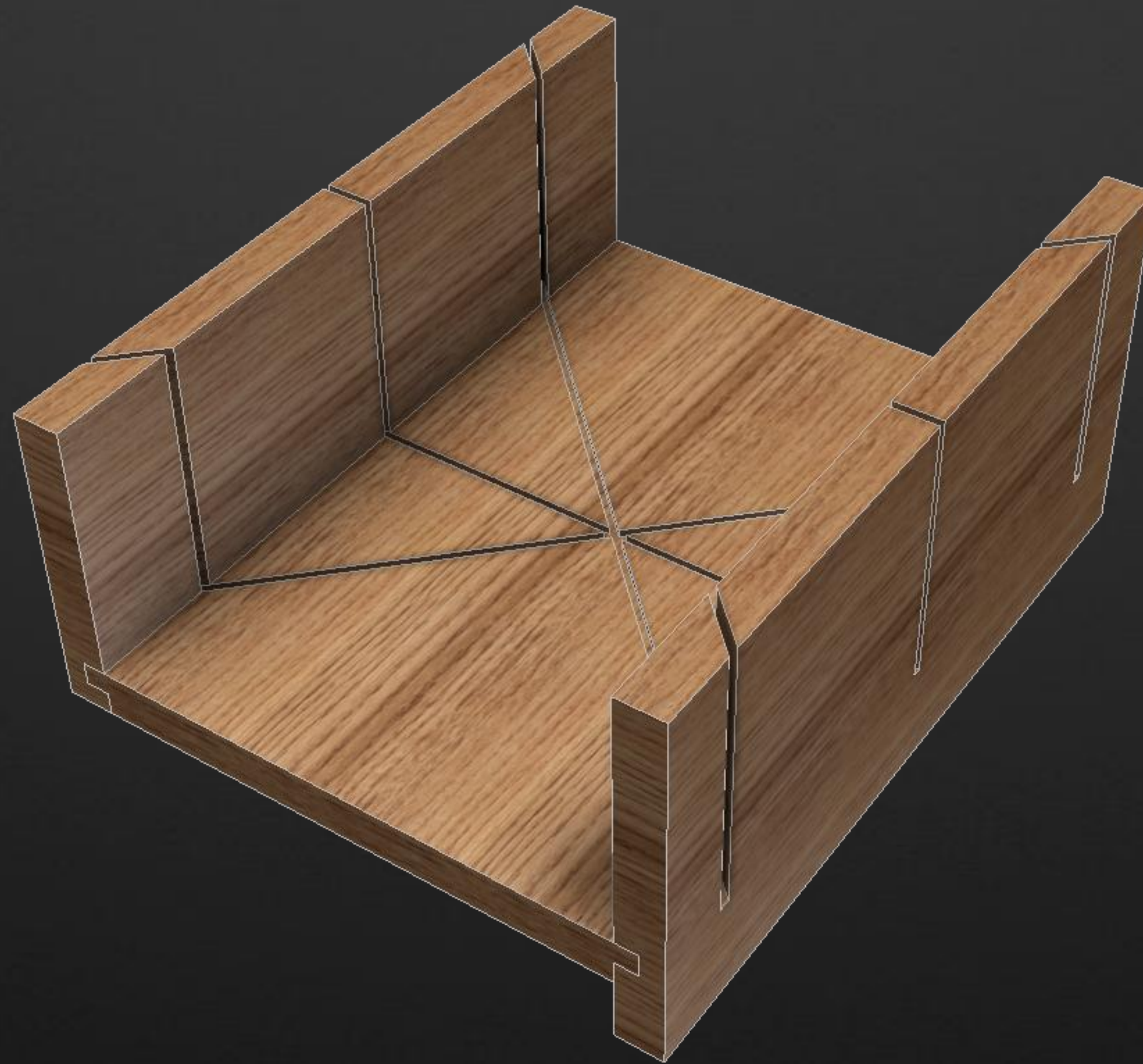
- Adaptive references can be tricky to manage
- Not easy to build or edit large assemblies

Pros:

- Works with surfaces & neutral format parts
- Quick to build – great for goal finding

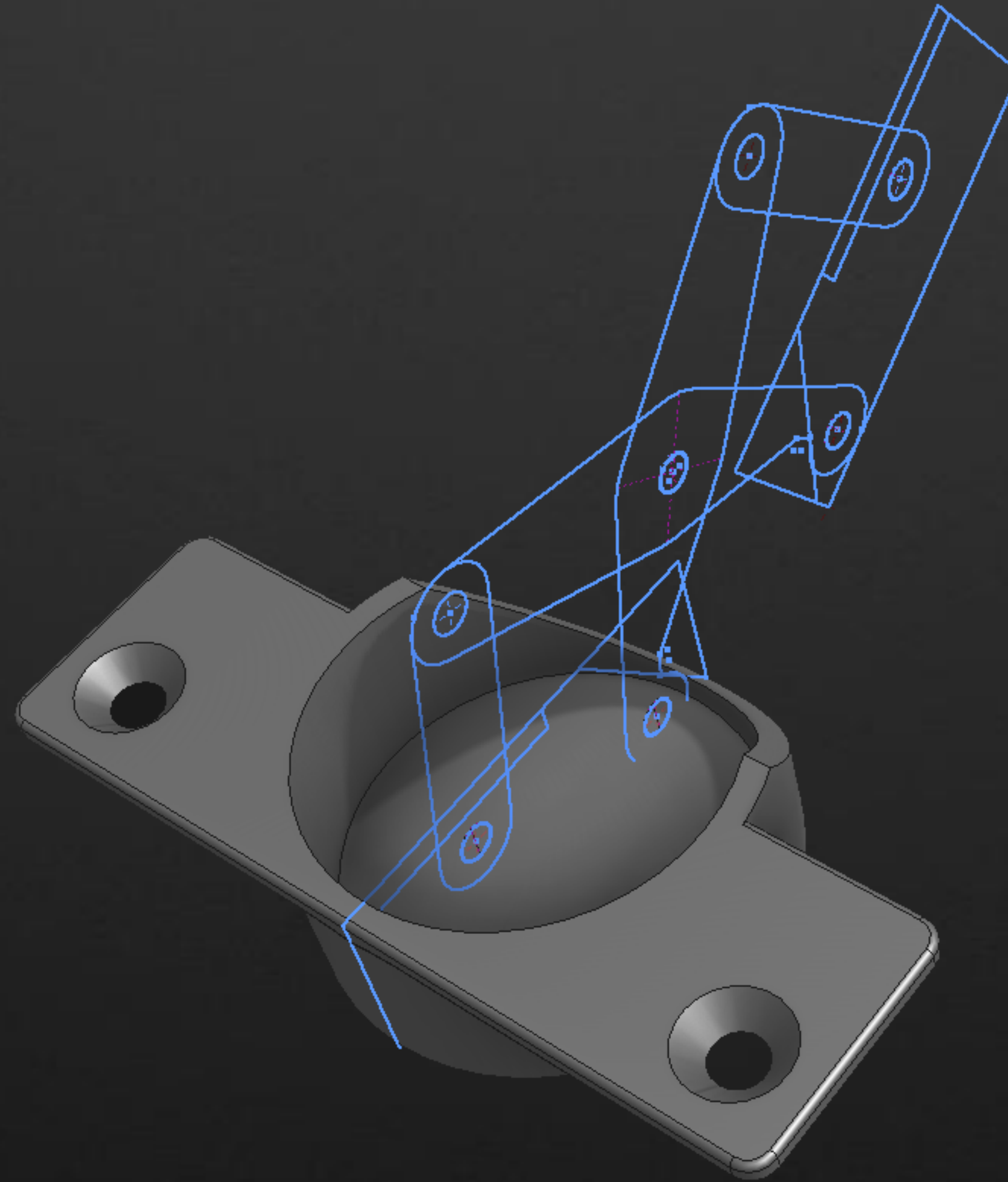


Top Down: Skeletal modeling



Let's try it...

Top Down: Sketch block layouts



Let's try it...

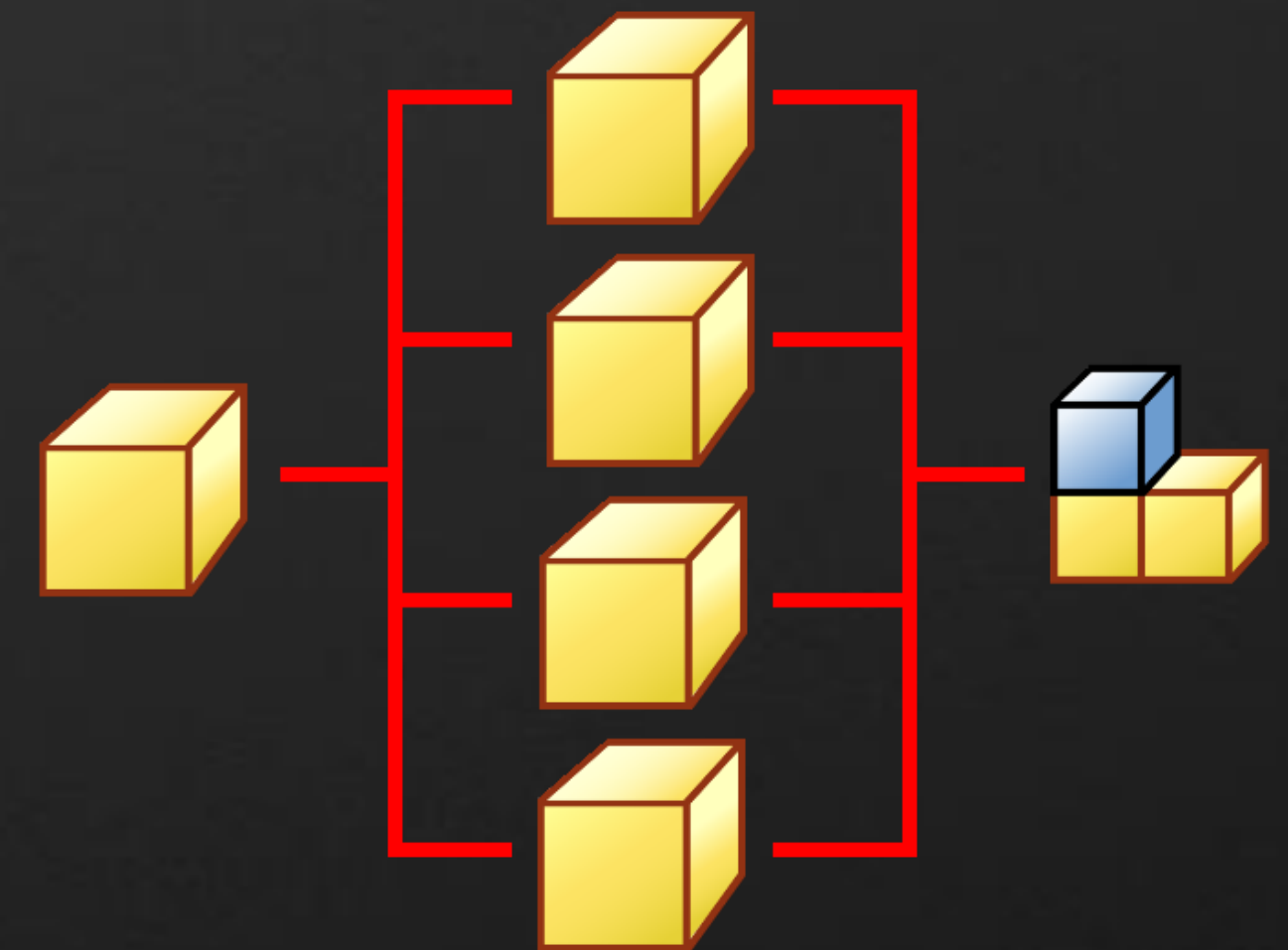
Top Down: Skeletal modeling & Sketch block layouts

Cons:

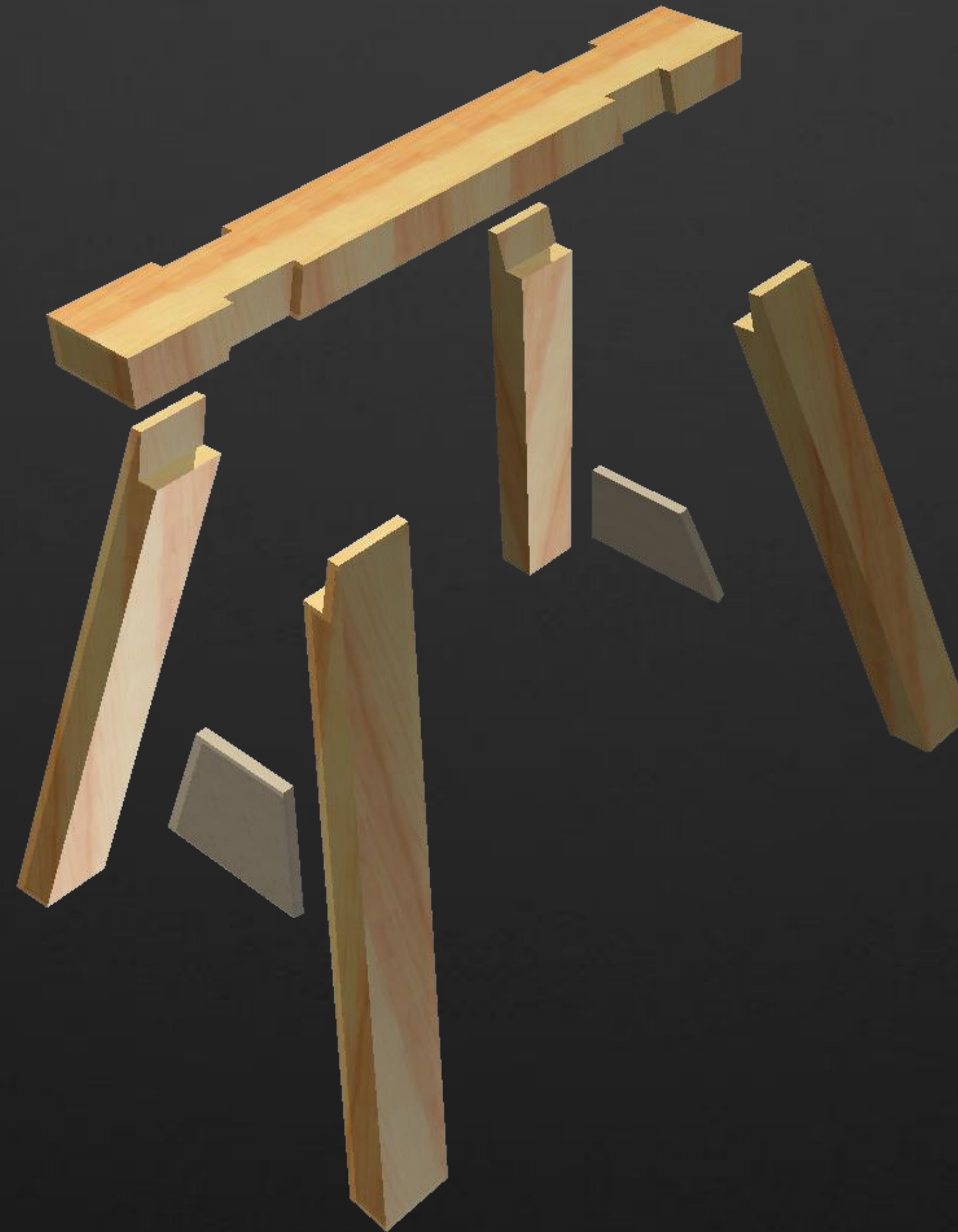
- Working with just the geometry is not very intuitive
- Building part models can be time consuming
- Building parts without context = lots to coordinate

Pros:

- The derived parts are very lightweight
- Assemblies can quickly be laid out in 2D to see how they function before time is invested in 3D modeling.



Top Down: Multi body design parts



Let's try it...

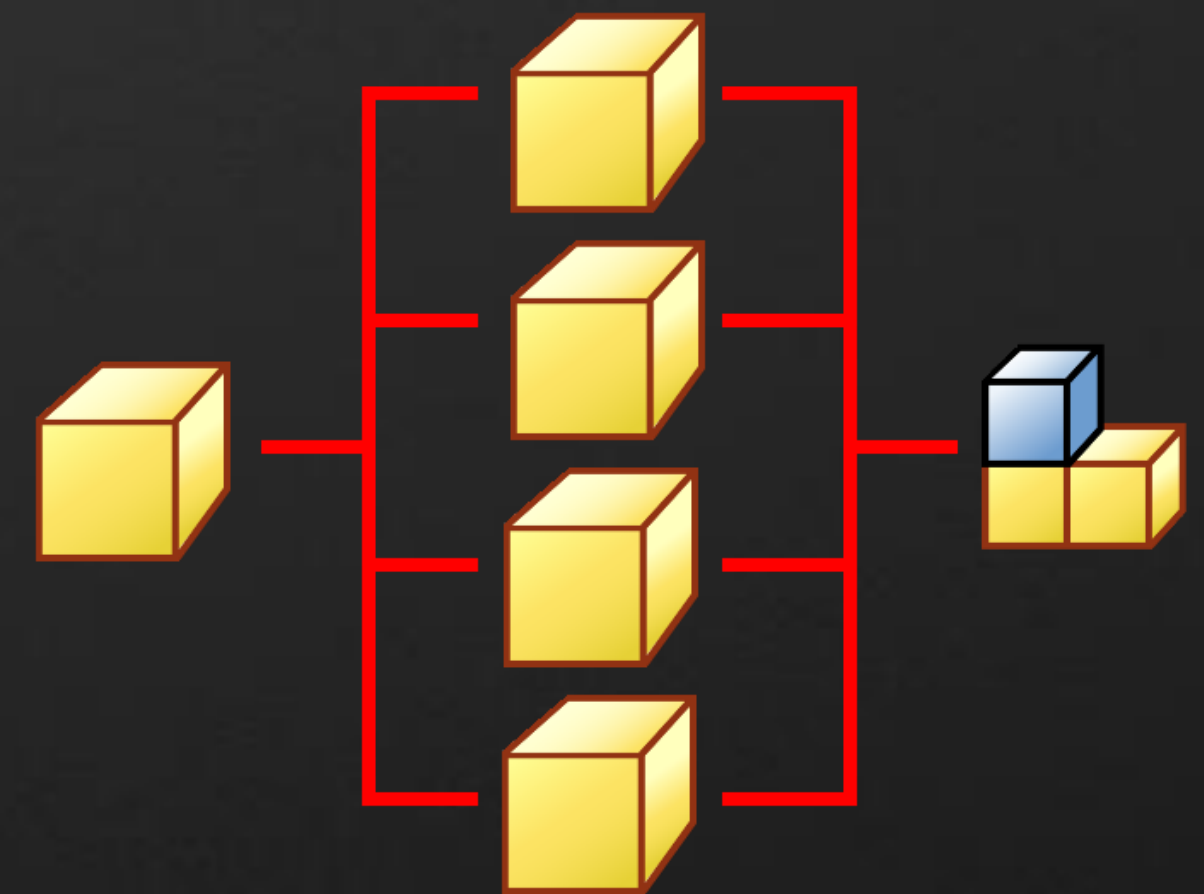
Top Down: Multi body design parts

Cons:

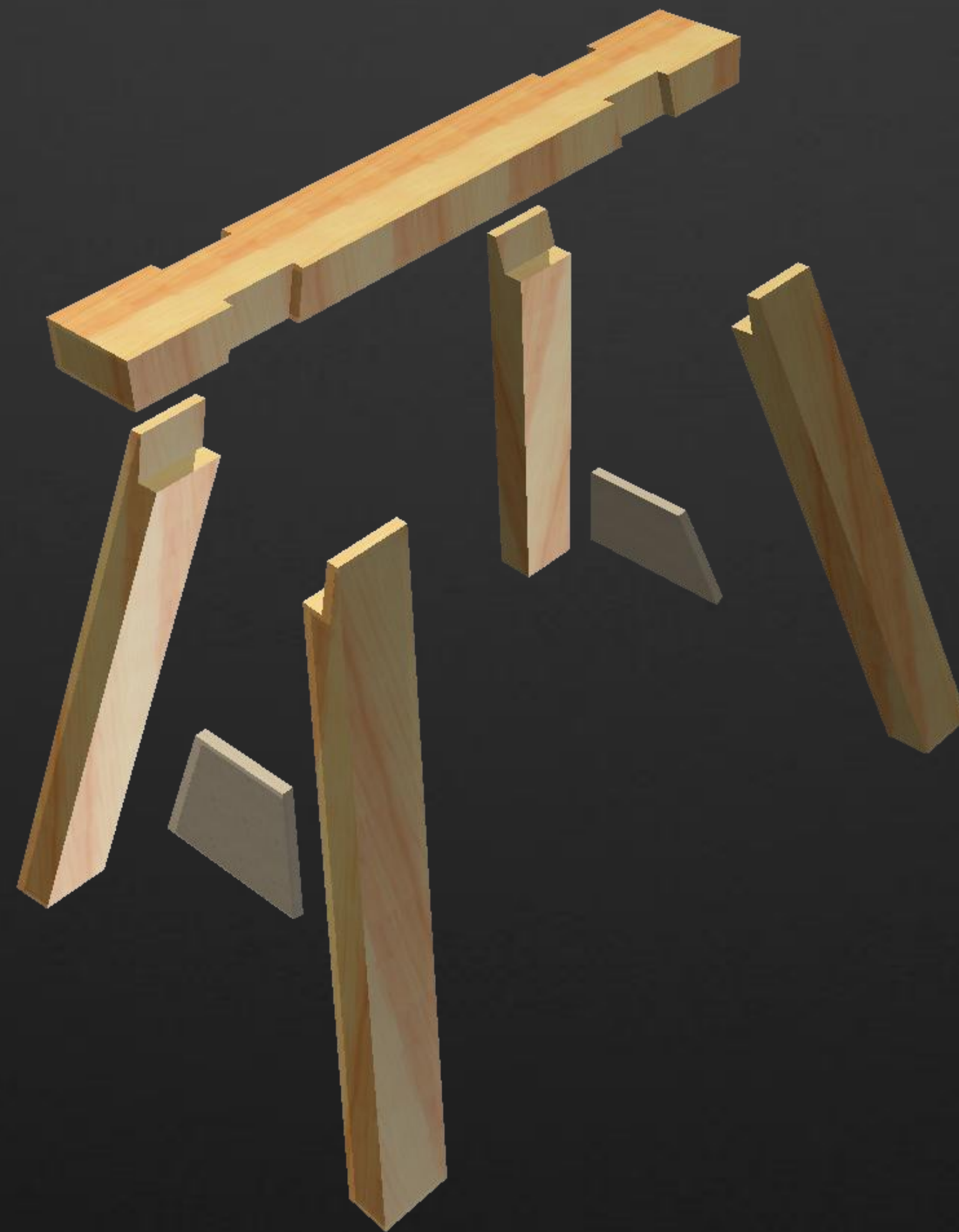
- Must be built in a structured manner – design intent
- Lots of relationships between parts to manage

Pros:

- Quick and easy to design complex models
- Quick and easy to make parametric edits



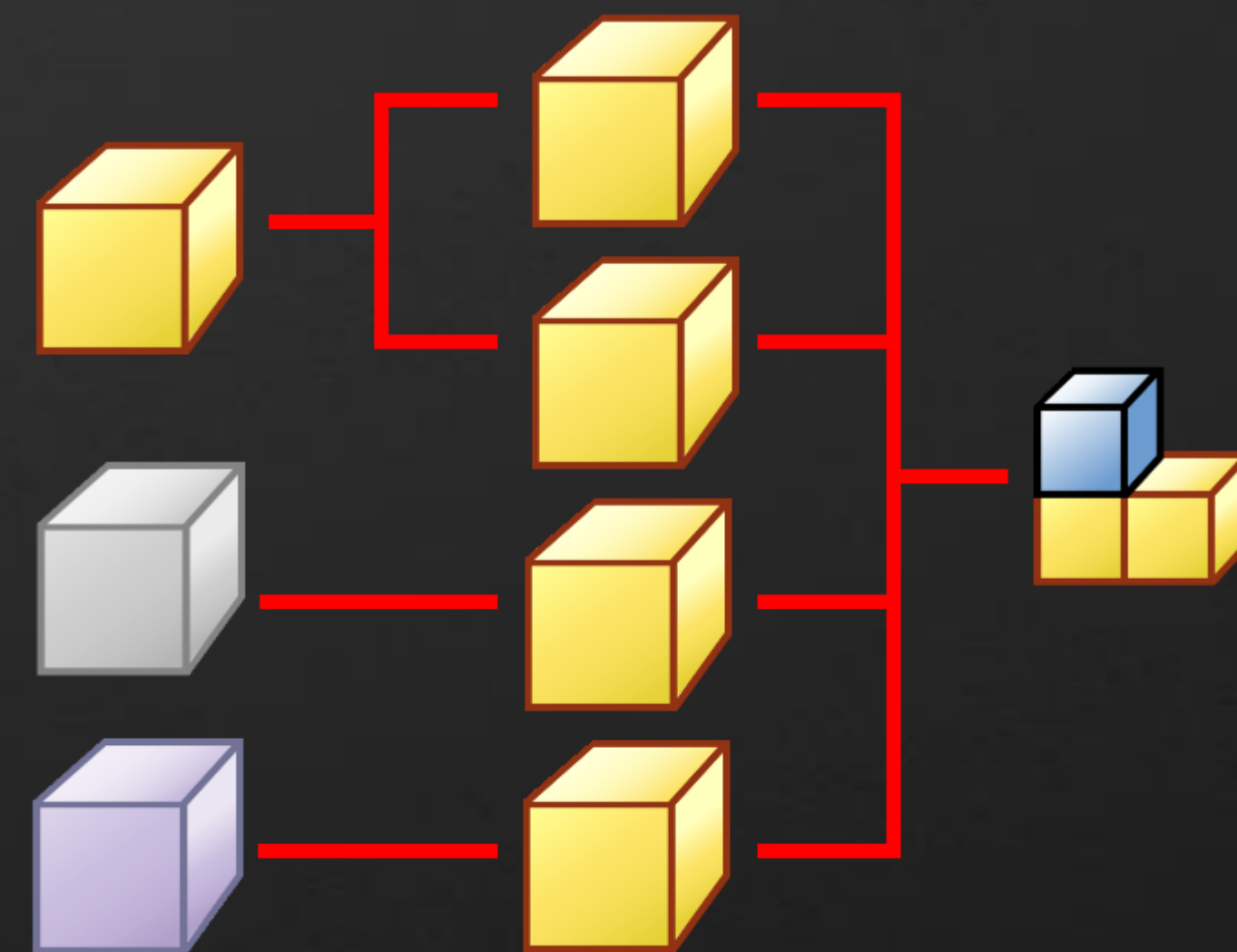
The Hybrid approach



Let's try it...

Workflow tips

- Plan your assembly (Design intent)
- Add your known parameters
- Create sketch blocks
- Create work features as required
- Create geometry to define your design
- Name your geometry
- Derive geometry out – if appropriate
- Model the 3D features/solids
- Derive your solids out into assemblies



Summary

- You can now create predictable, reliable assembly models with Autodesk Inventor
- You know how to model in a structured manner and when to keep it simple
- You now know how to use derived modelling techniques to collaborate with your colleagues

So Get on with it!

Email: Paul@Cadsetterout.com

Tweet: [@Cadsetterout](https://twitter.com/Cadsetterout)

Blog: Cadsetterout.com

Web: Halstock.com

Q&A



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(Please don't forget to fill out your class evaluations)

THANK YOU

