

**WWD**

AEC  
Hackathon  
2015

Owen Derby  
Michael Kirschner  
Dan Taeyoung  
Andrew Heumann

# True collaboration demands source control

The image shows a GitHub repository interface. On the left, there's a commit history titled "Uncommitted changes" with many commits from various authors. On the right, there's a code diff viewer for a file named "CommonGraphDiffer.py". The diff shows several changes, with some lines highlighted in green (additions) and red (deletions). The code itself uses XML and ElementTree.

```
4 4 E = etree.Element
5 5 import copy
6 6 from xml.dom import minidom
7 7 + import codecs
8 8
9 9 def getMetaXML(metaData):
10 10
11 11     return thisCG
12 12
13 13     def CGToXML(CG, fileName):
14 14 -     with open(fileName, "w") as fp:
15 15 +     with codecs.open(fileName, "w", "utf-8-sig") as fp:
16 16         fp.write( prettyify(CG.toXML()))
17 17
18 18     def prettify(elem):
19 19
20 20         return reparsed.toprettyxml(indent="\t")
21 21
22 22     def DSToXML(diffSet, fileName):
23 23 -     with open(fileName, "w") as fp:
24 24 +     with codecs.open(fileName, "w", "utf-8-sig") as fp:
25 25         fp.write( prettyify(diffSet.toXML()))
26 26
27 27     def XMLToDS(fileName):
```

# and source control

## depends on the

## ability to track

## changes.

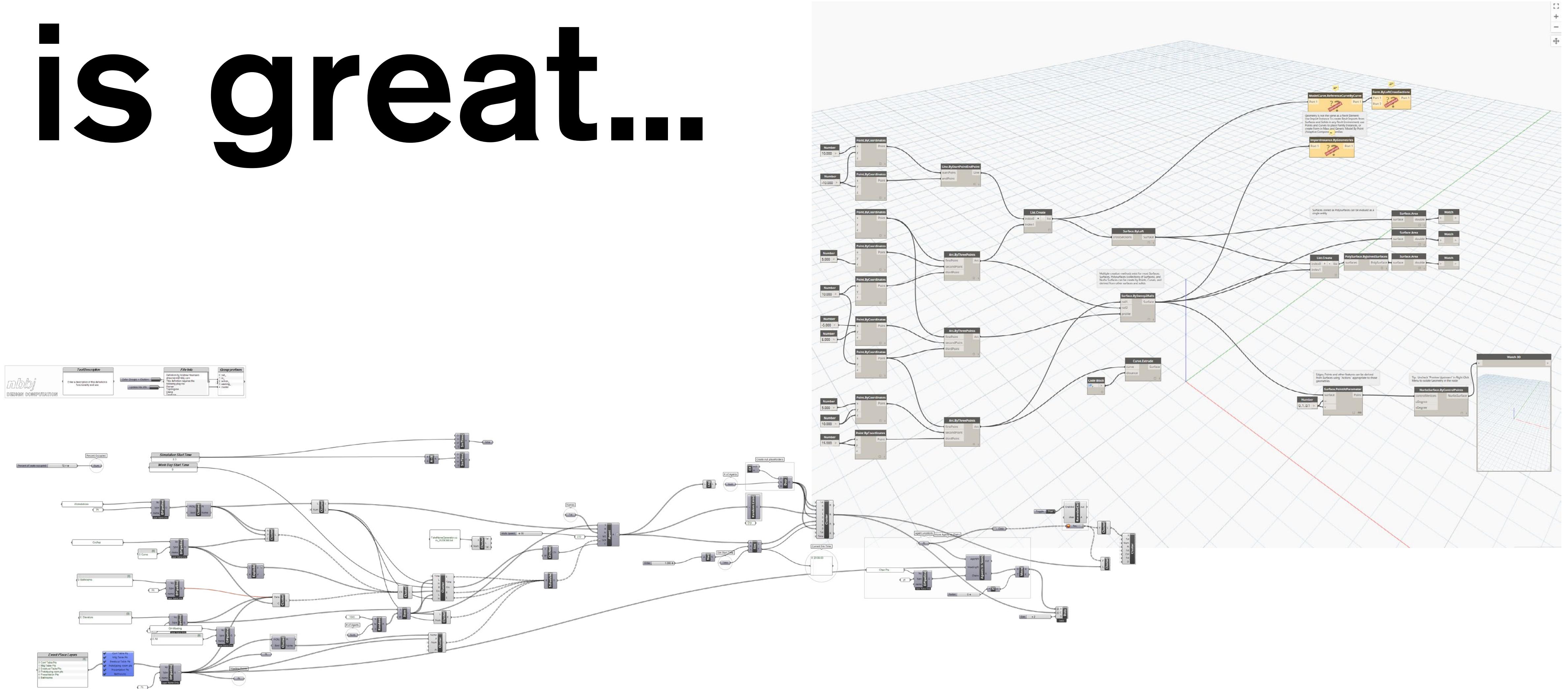
```
4 etree.Element
5 import copy
6 from xml.dom import minidom
7 + import codecs
8
9 def getMetaElement(data):
10     return thisCG
11
12 def CGToXML(CG, fileName):
13     with open(fileName, "w") as f:
14         if codecs.open(fileName, "w", "utf-8-sig") as fp:
15             fp.write( prettyify(CG.toXML()))
16
17 def prettify(elem):
18
19     return reparsed.toprettyxml(indent="\t")
20
21 def GSToMSdiffSet(fileName):
22     with open(fileName, "r") as fp:
23         with codecs.open(fileName, "w", "utf-8-sig") as fp:
24             fp.write( prettyify(diffSet.toXML()))
25
26 def XMLToDS(fileName):
```

Reverse hunk

Reverse hunk

# visual programming

## is great...



# but managing file versions feels like this.

CAN YOU SPOT THE DIFFERENCE?

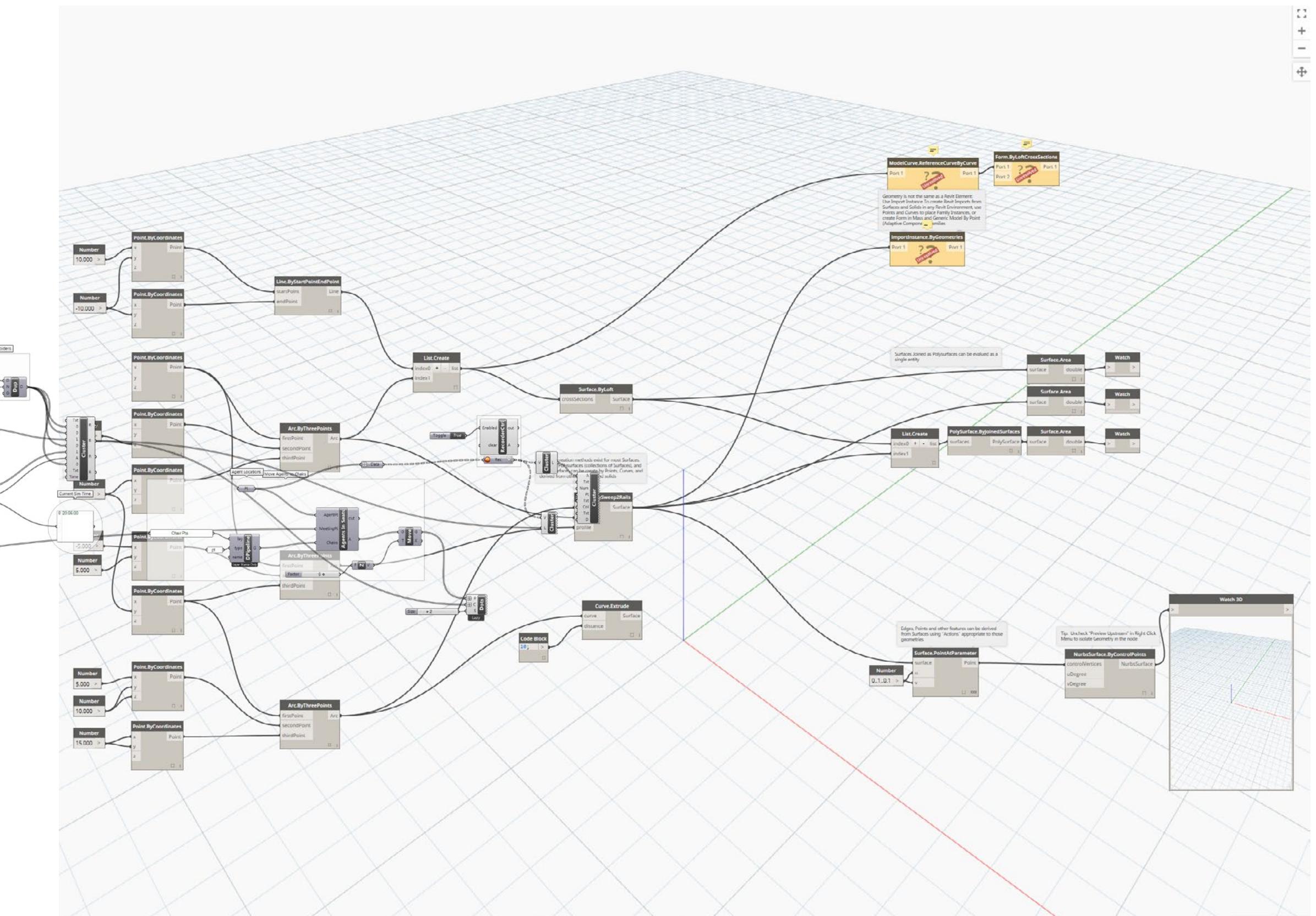
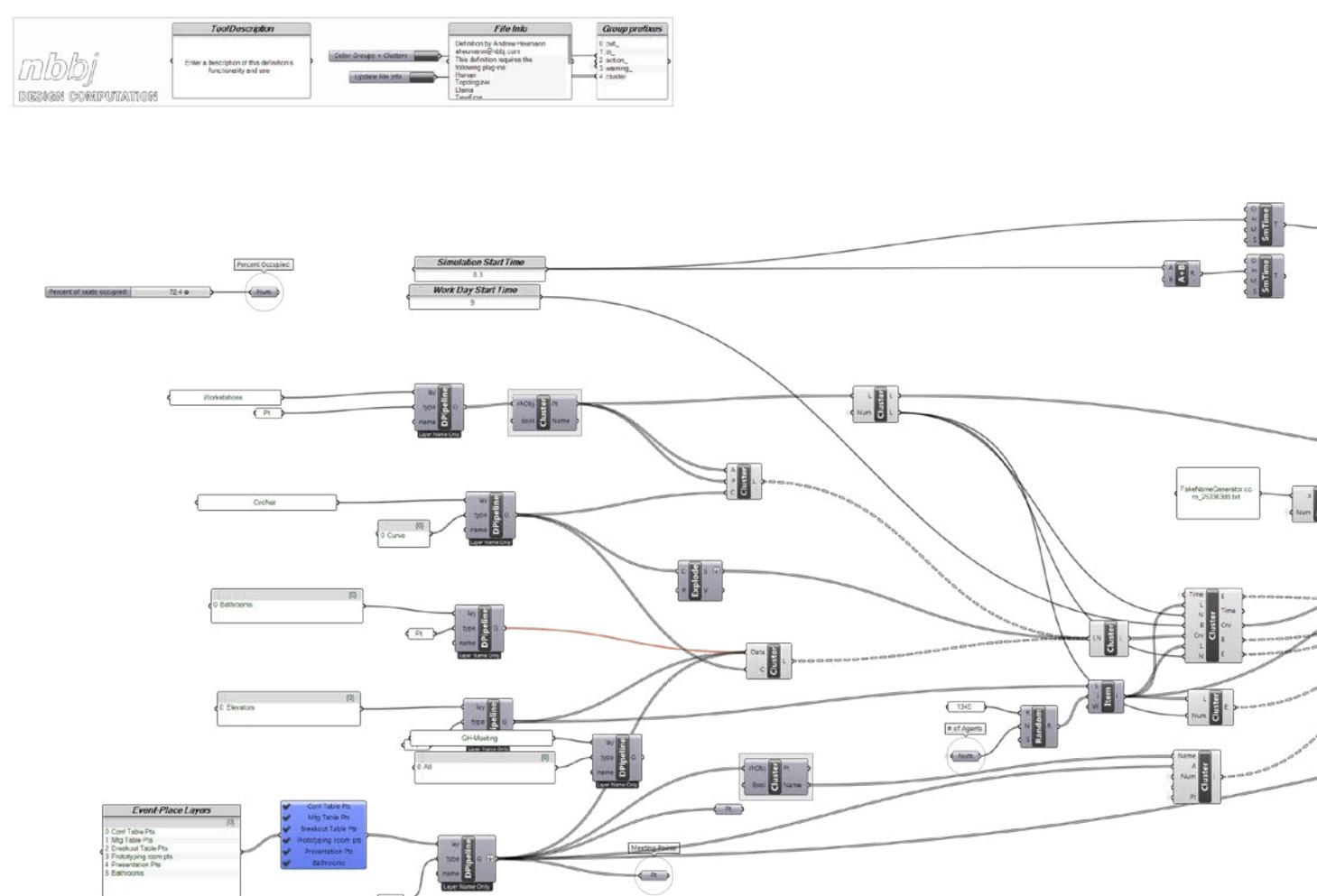


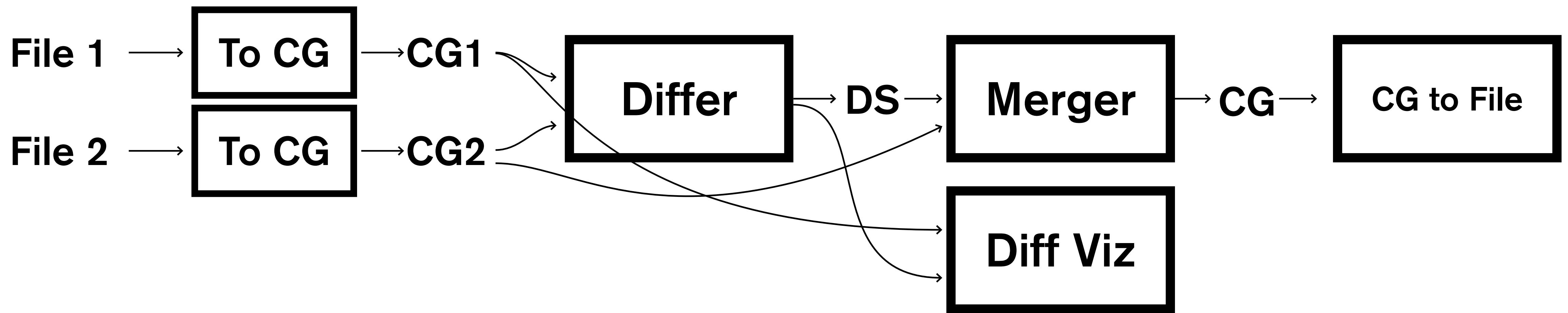
# What if you could do this:

```
CommonGraphDiffer.py

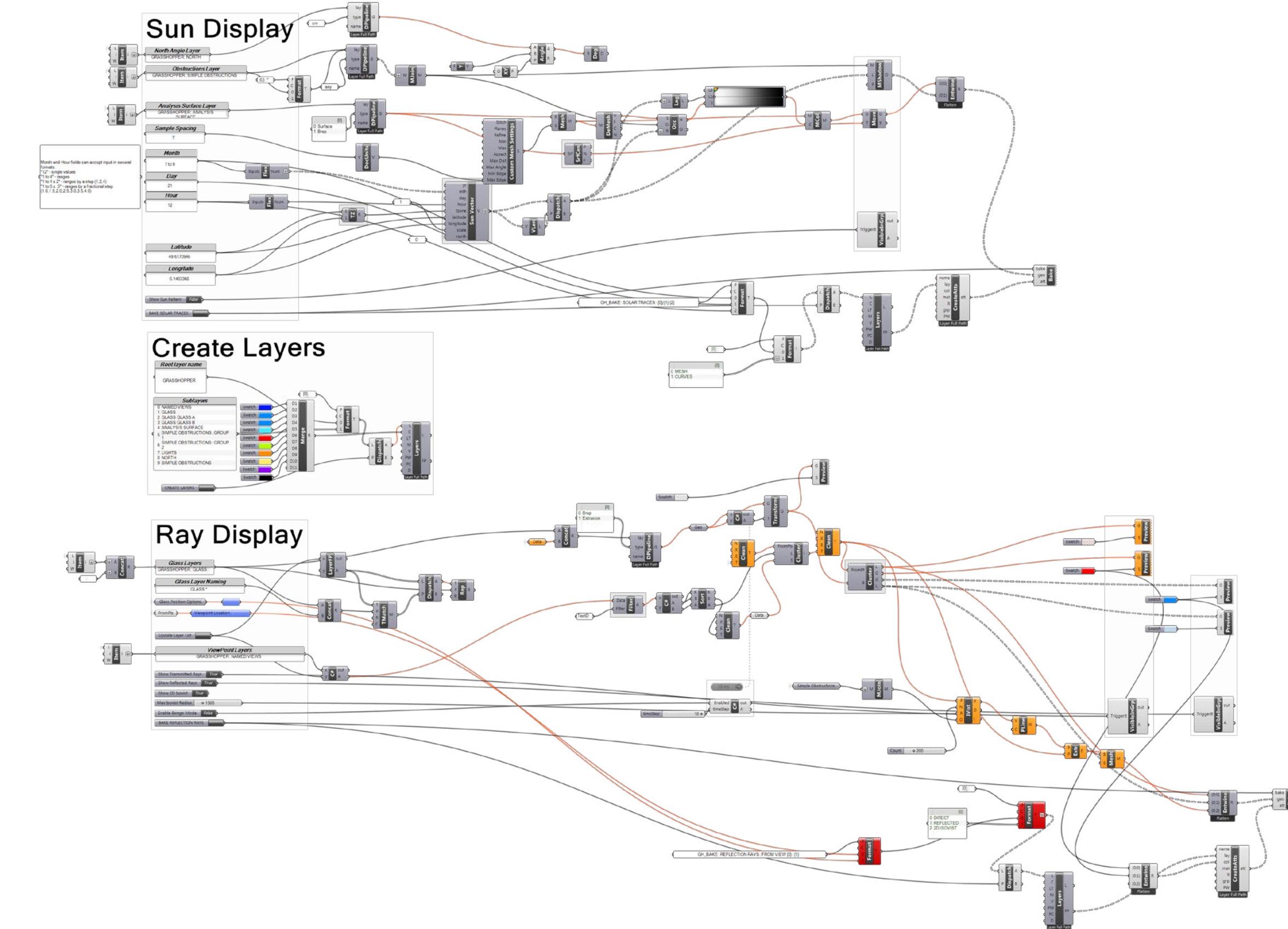
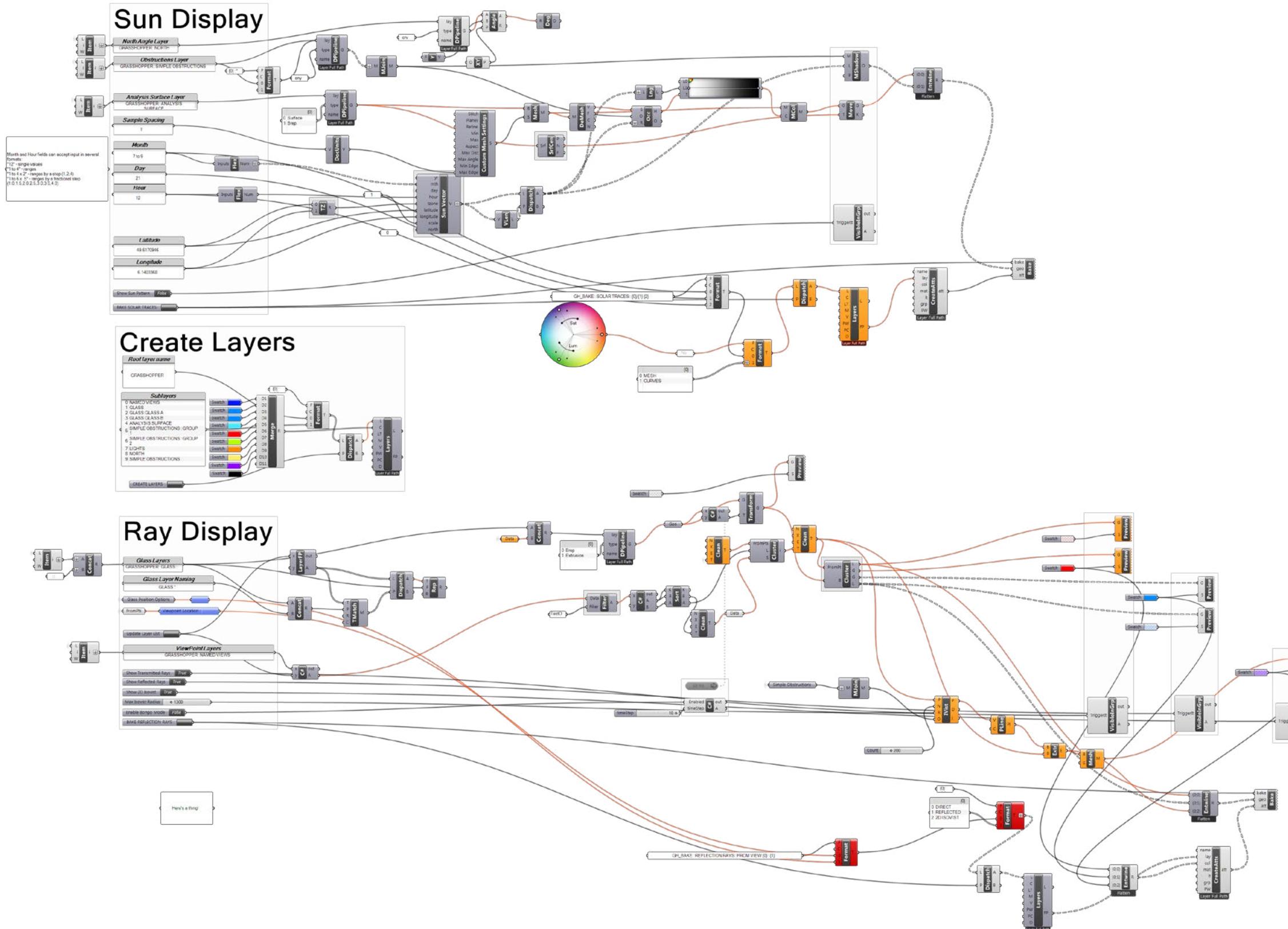
4 4     E = etree.Element
5 5         import copy
6 6         from xml.dom import minidom
7 7 +     import codecs
8 8
9 9
10 10    def getMetaXML(metaData):
11 11
146 447        return thisCG
147 448
148 449        def CGToXML(CG, fileName):
149 449 -            with open(fileName, "w") as fp:
150 450 +            with codecs.open(fileName, "w", "utf-8-sig") as fp:
151 451                fp.write( prettyify(CG.toXML()))
152 452
153 453    def prettyify(elem):
154 154
155 456        return reparsed.toprettyxml(indent="\t")
156 457
157 458        def DSToXML(diffSet, fileName):
158 459 -            with open(fileName, "w") as fp:
159 460 +            with codecs.open(fileName, "w", "utf-8-sig") as fp:
160 461                fp.write( prettyify(diffSet.toXML()))
161 462
162 463    def XMLToDS(fileName):
```

# with these?

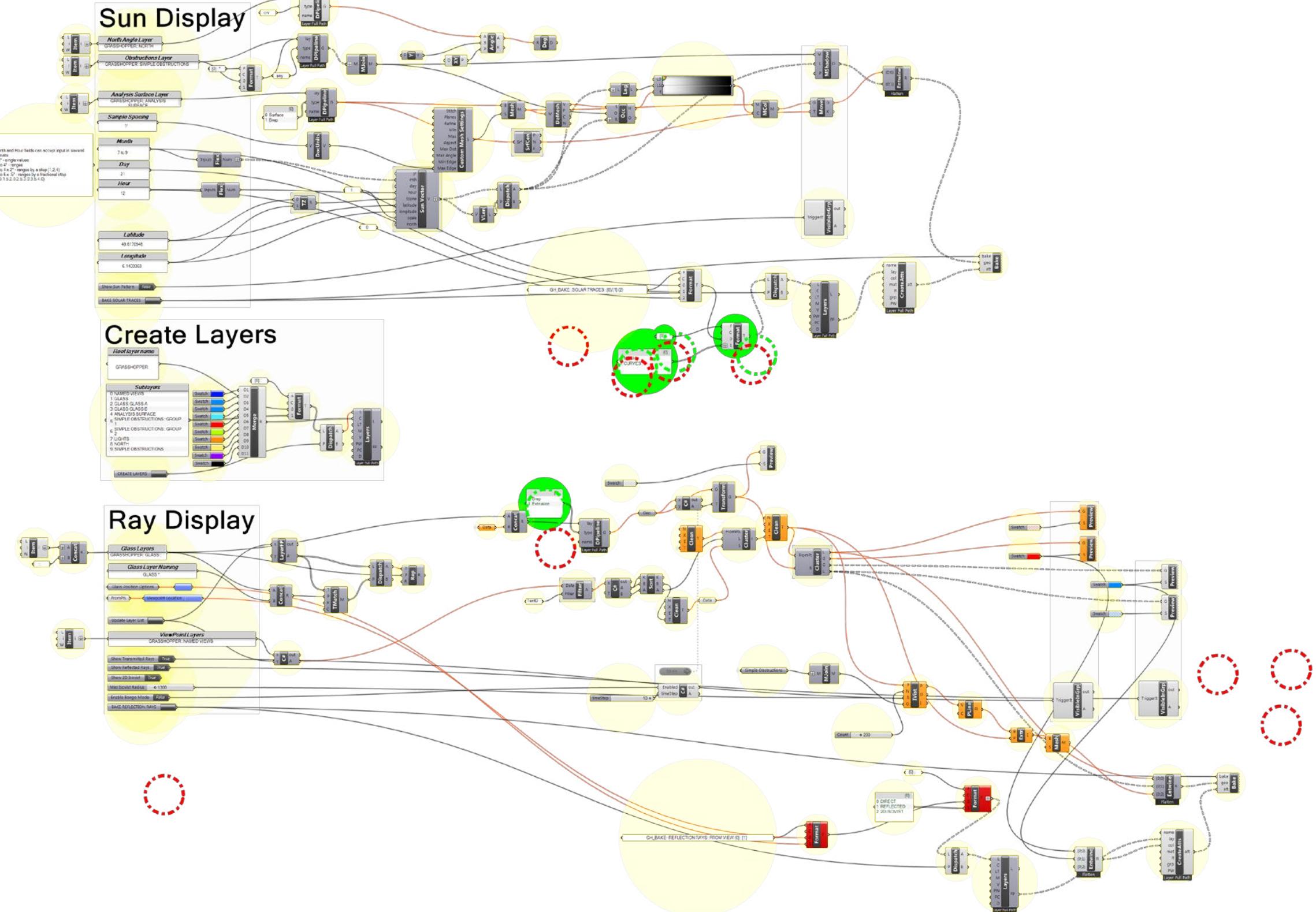
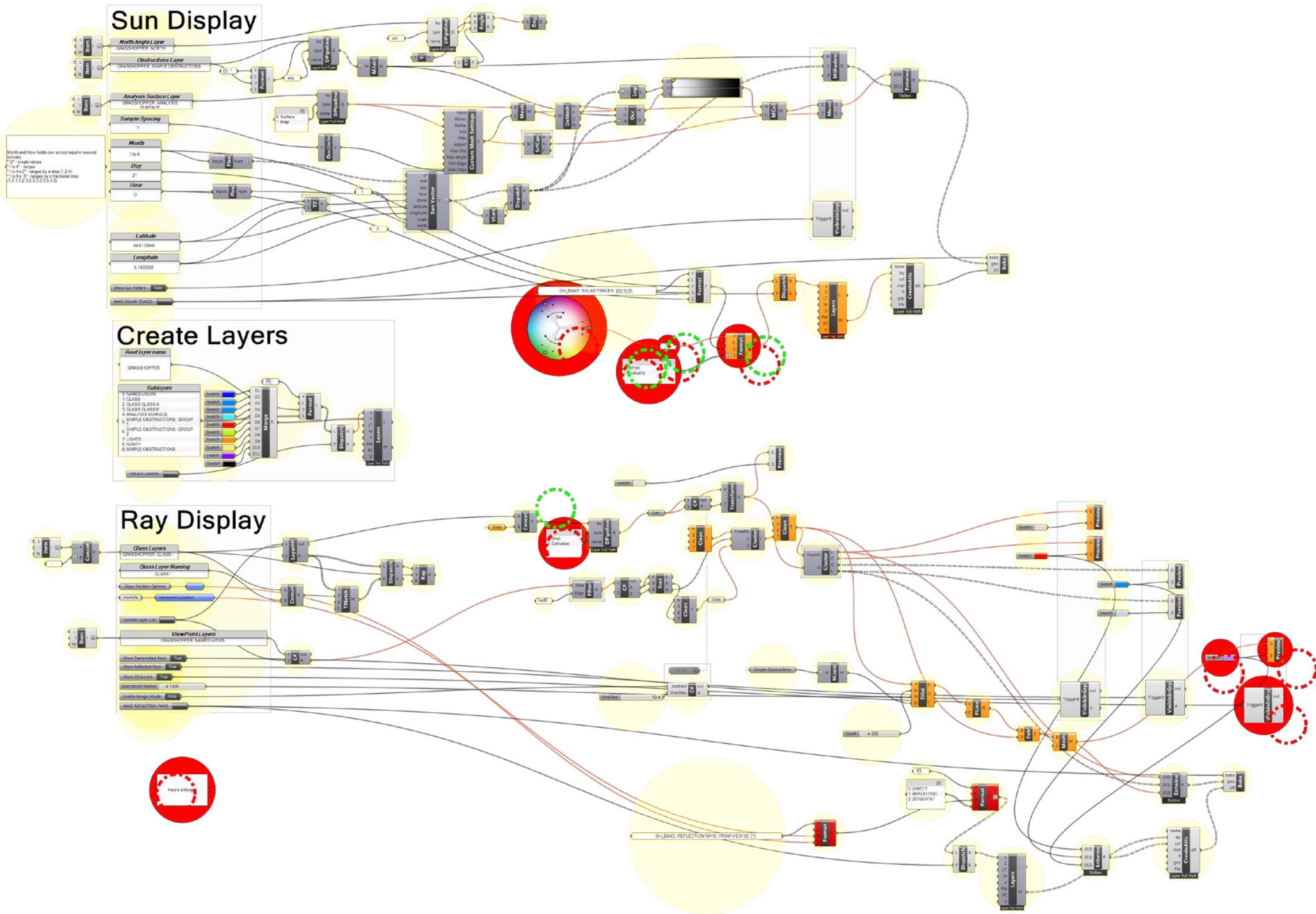


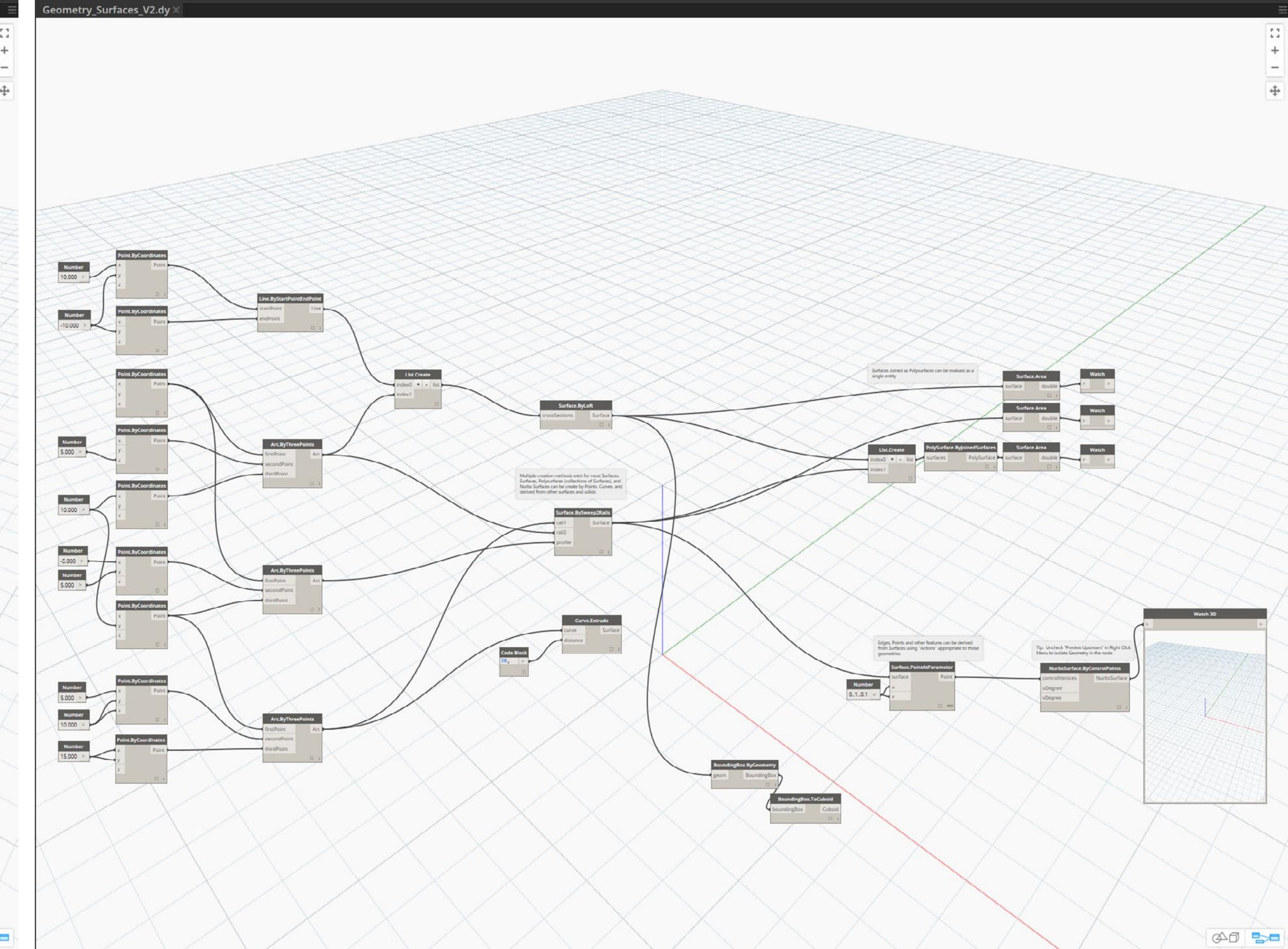
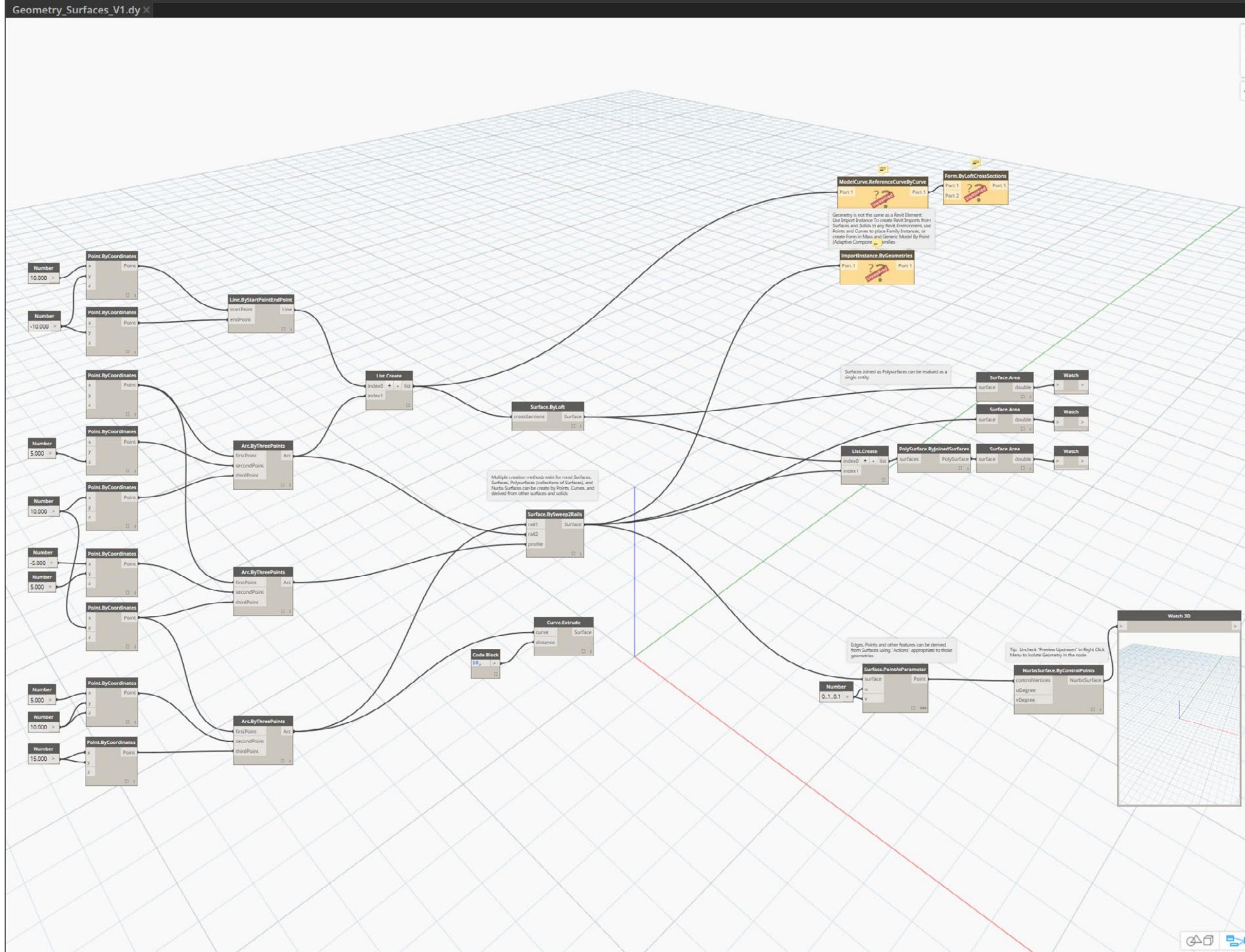


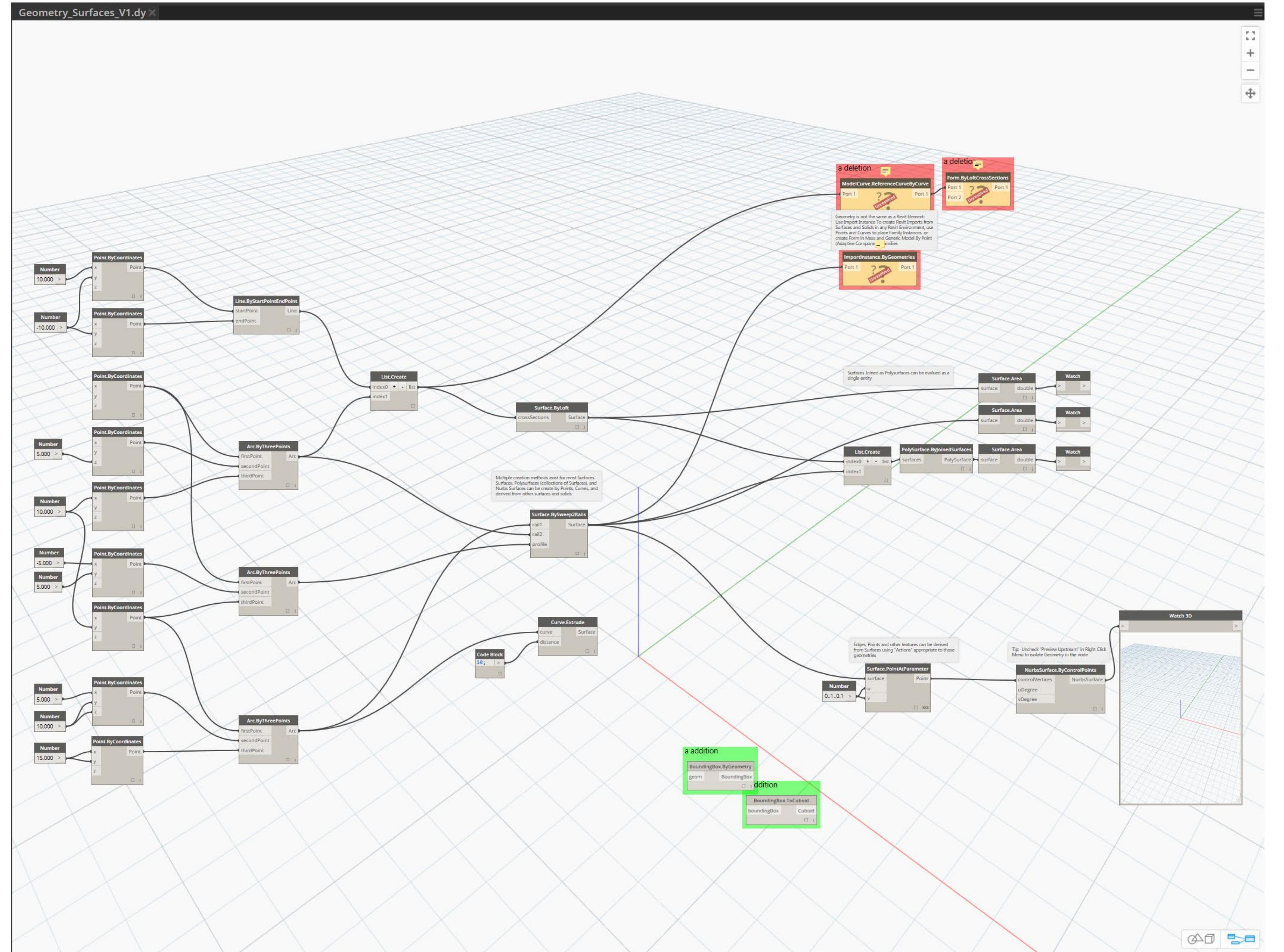
# Can you spot the difference?

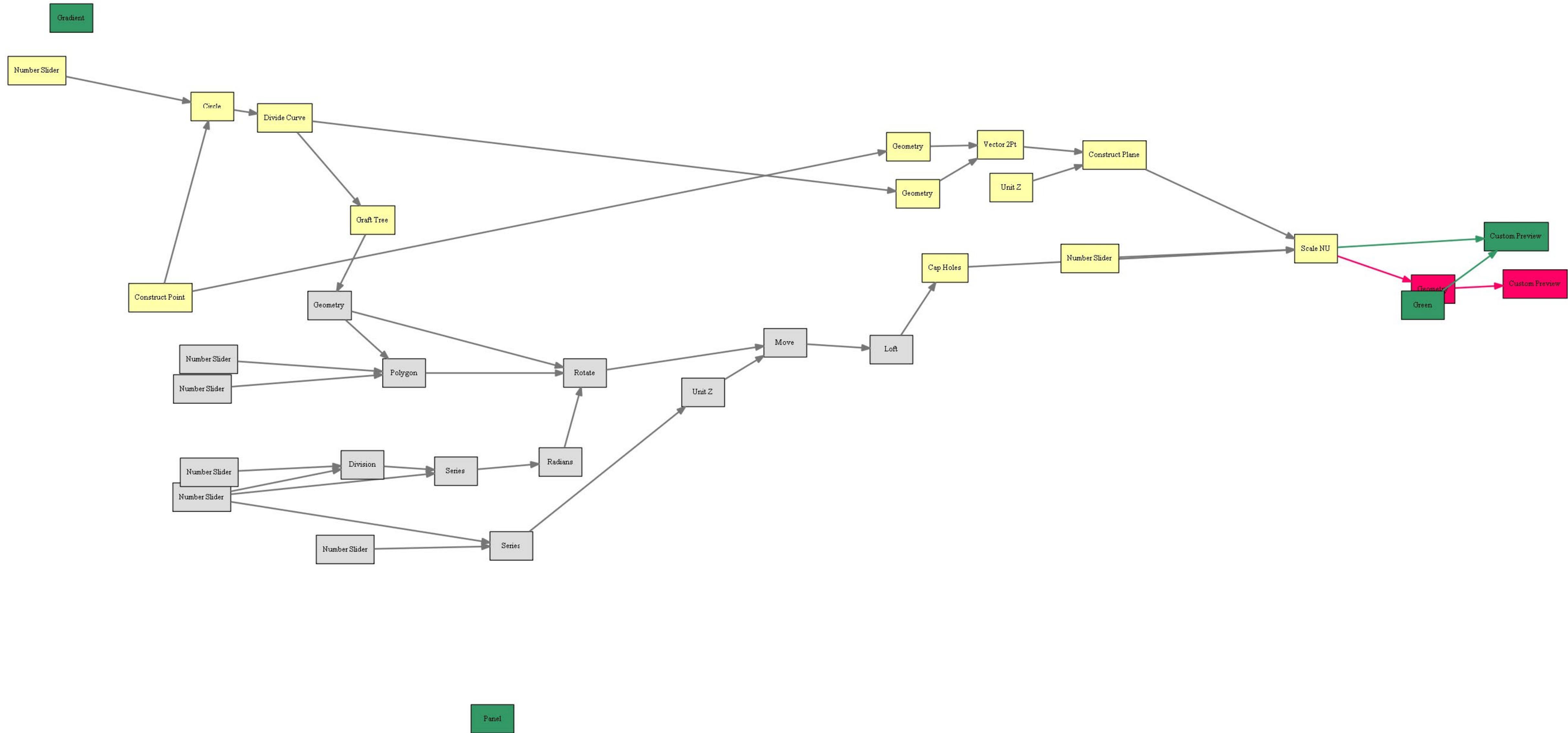


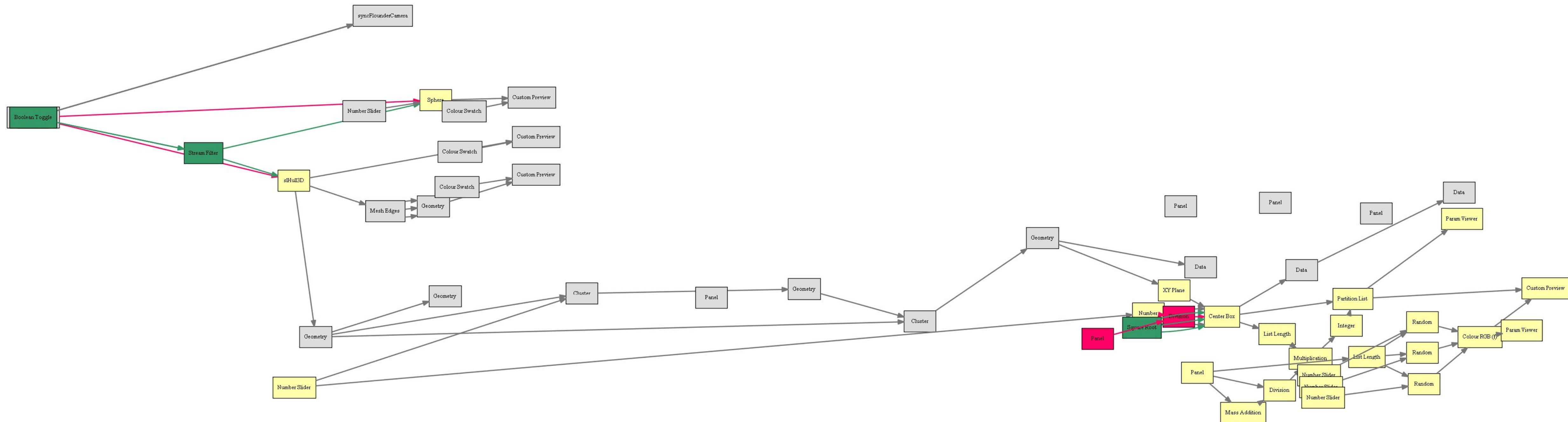
# How about now?









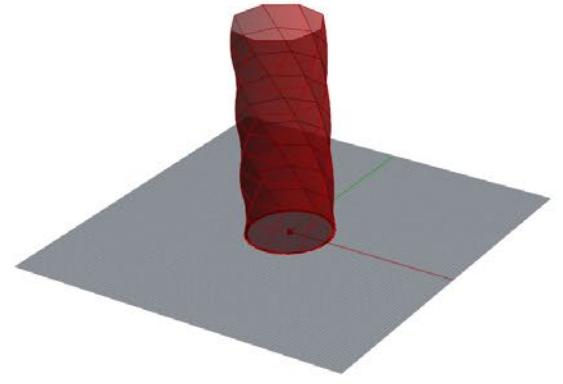


Untitled - Rhinoceros 5.0 Commercial - [Perspective]  
File Edit View Curve Surface Solid Mesh Dimension Transform Tools Analyze Render Panels Help  
Command: New  
File successfully written as C:\Users\ahemann\Desktop\Projects\27\_SpringDataScenes\Viewer\SD Base Model 09.10.3dm

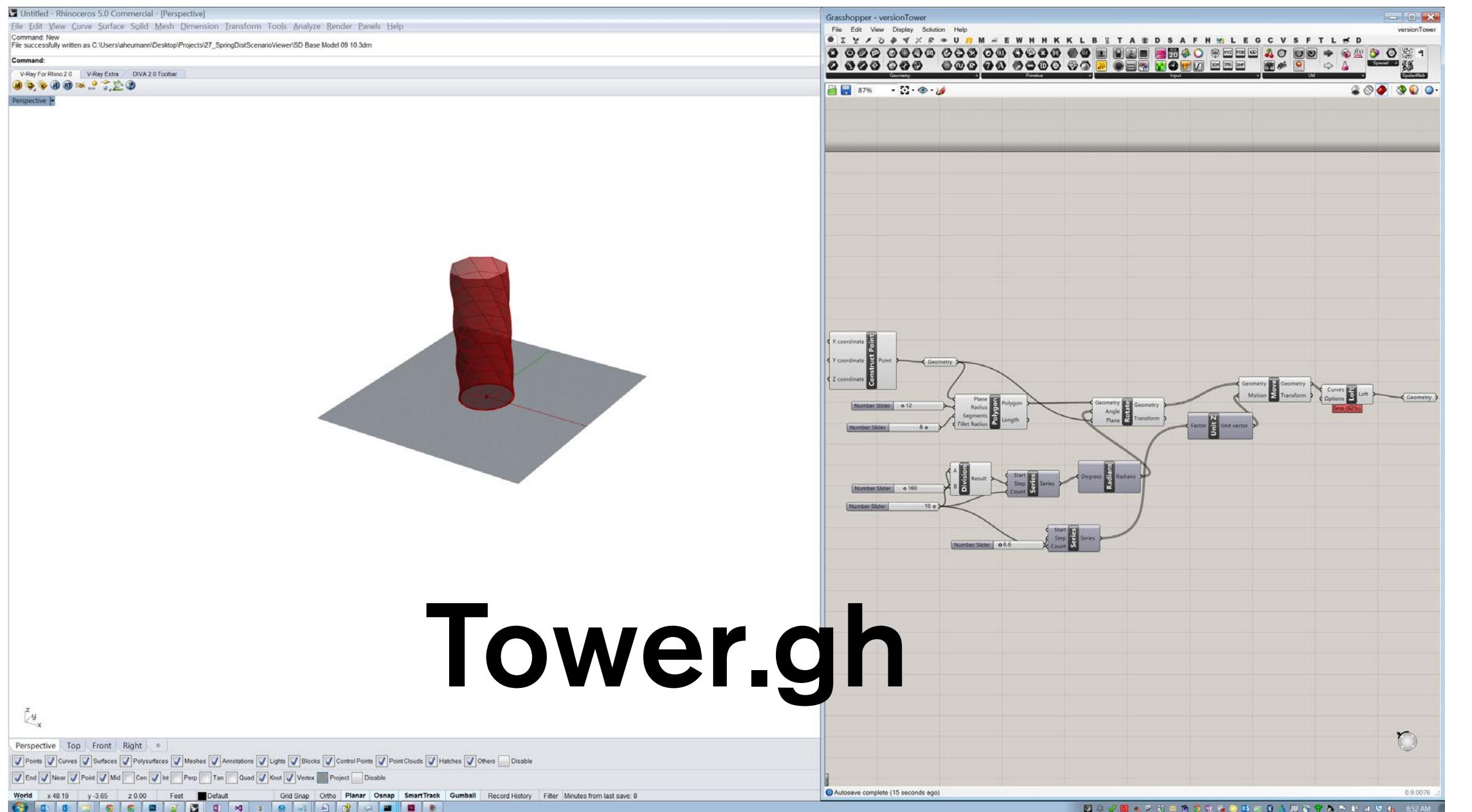
Command:

V-Ray For Rhino 2.0 | V-Ray Extra | DIVA 2.0 Toolbar

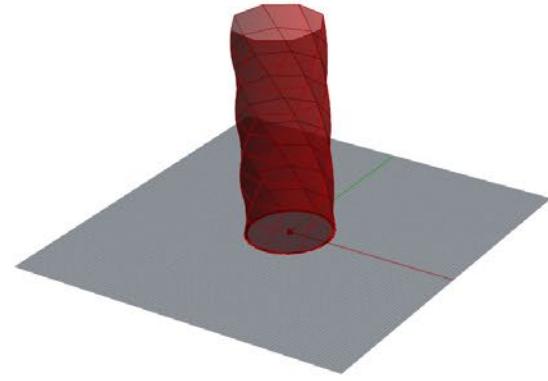
Grasshopper - versionTower



# Tower.gh



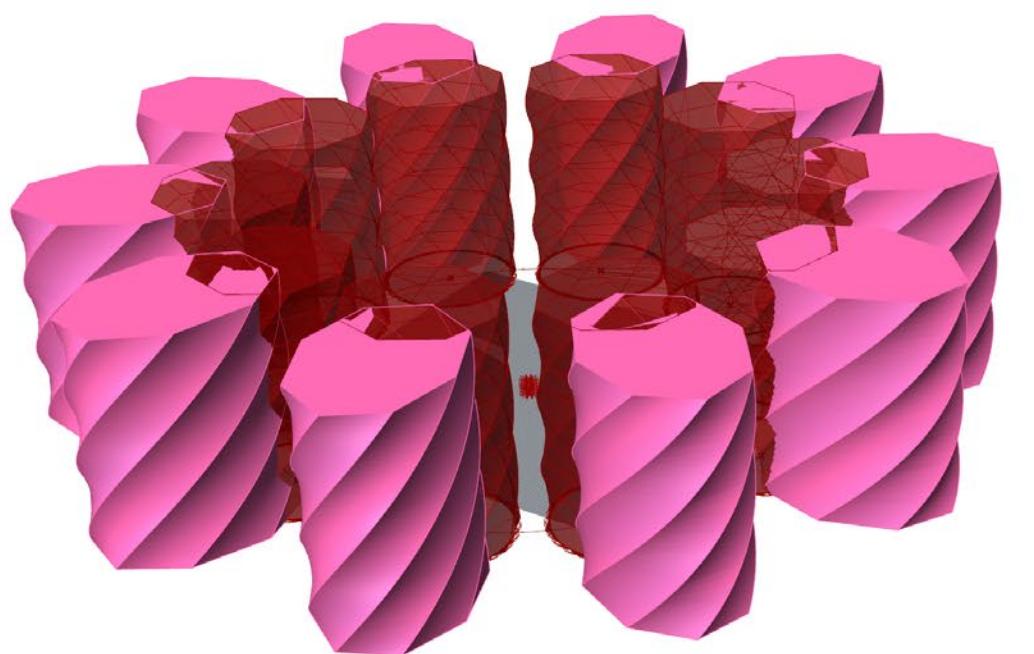
Untitled - Rhinoceros 5.0 Commercial - [Perspective]  
File Edit View Curve Surface Solid Dimension Transform Tools Analyze Render Panels Help  
Command: New  
File successfully written as C:\Users\ahemann\Desktop\Projects\27\_SpringDataScenes\Viewer\SD Base Model 09 10.3dm



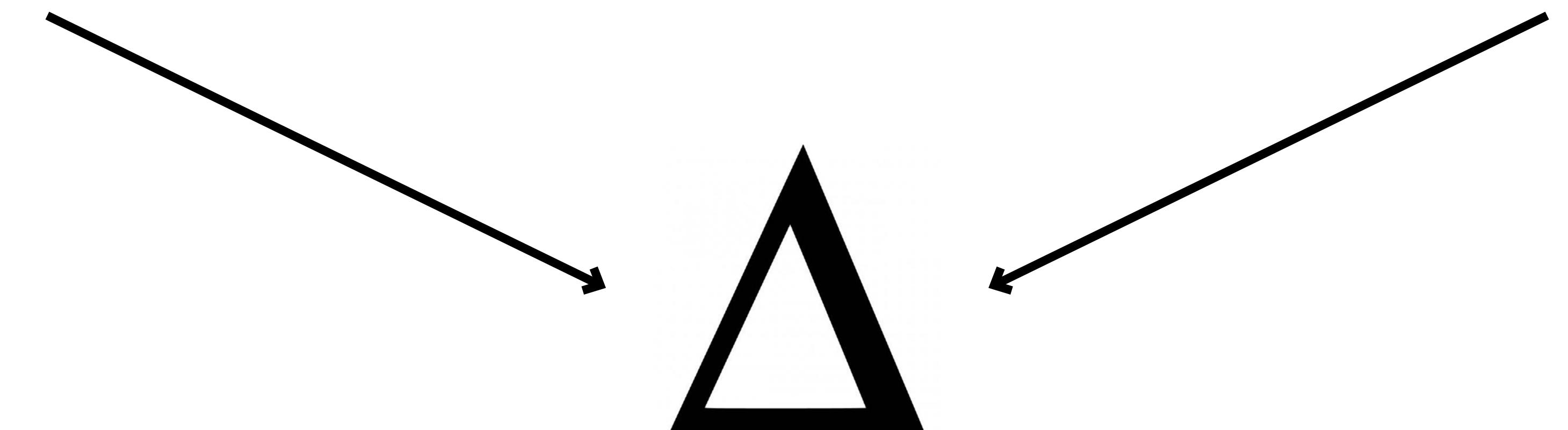
# Tower.gh

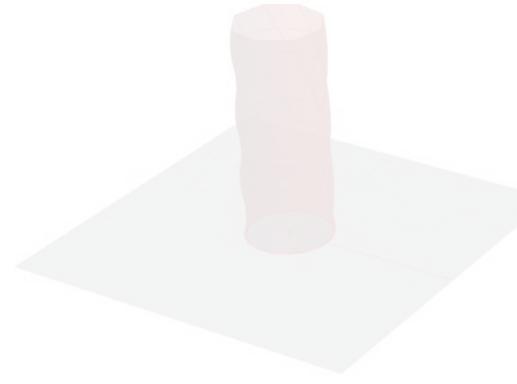


Untitled - Rhinoceros 5.0 Commercial - [Perspective]  
File Edit View Display Solutions Help  
Command: New  
File successfully written as C:\Users\ahemann\Desktop\Projects\27\_SpringDataScenes\Viewer\SD Base Model 09 10.3dm

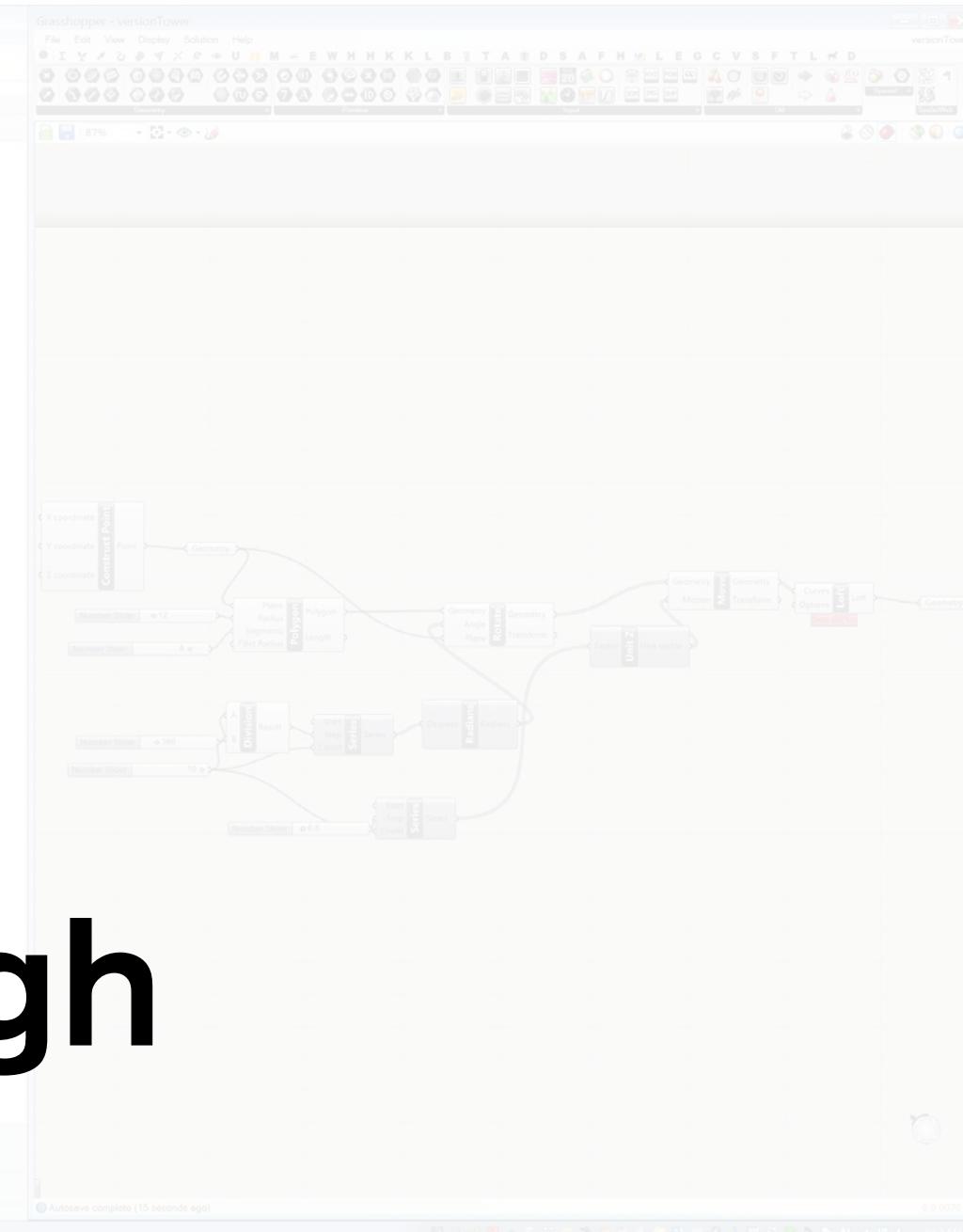


# Flower.gh

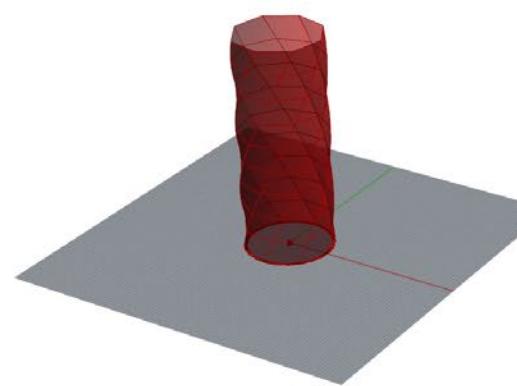




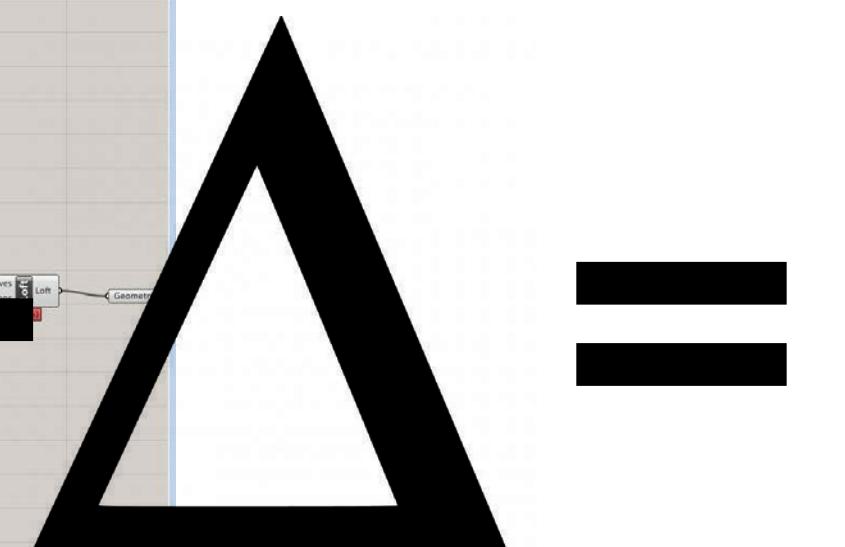
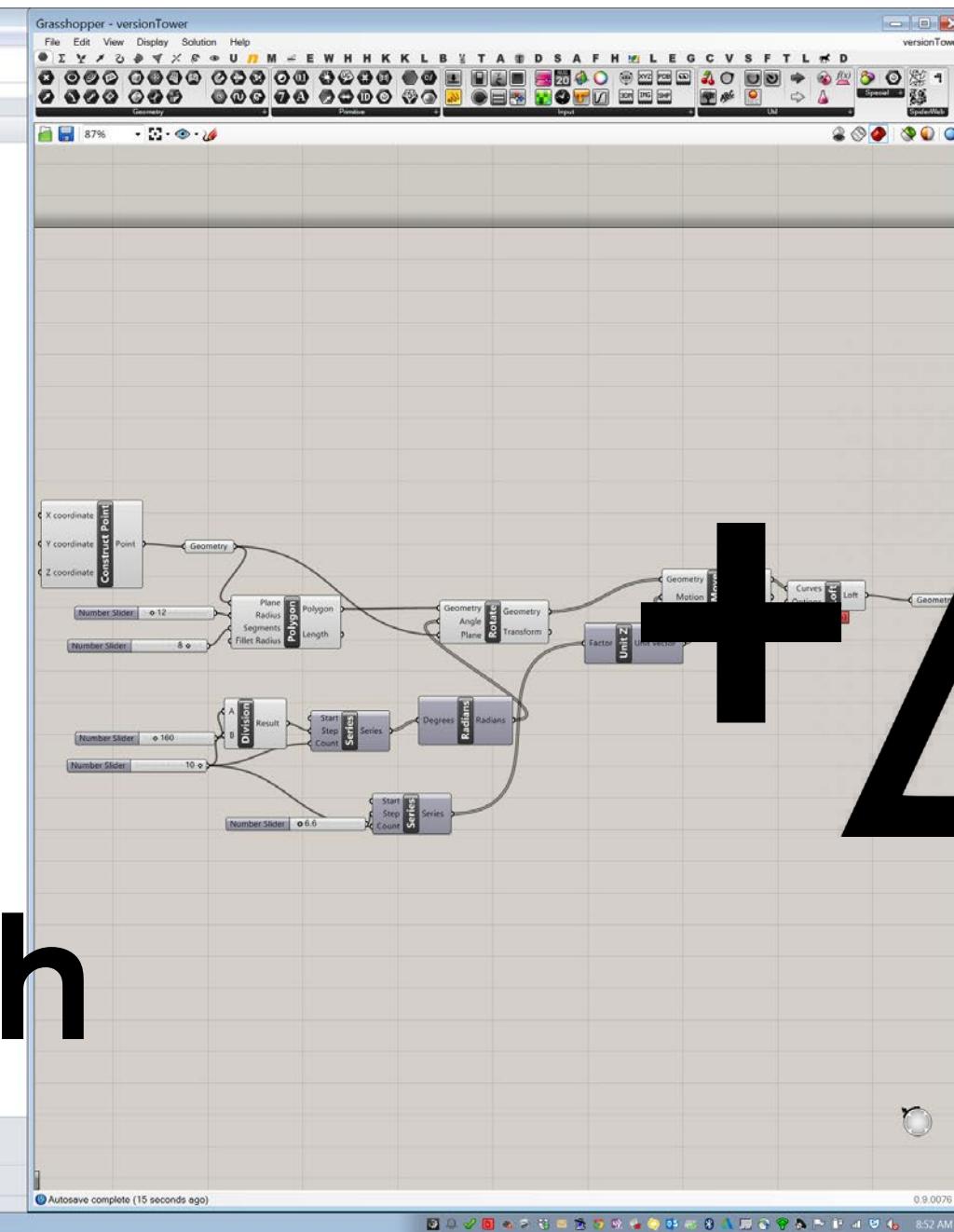
# Tower.gh

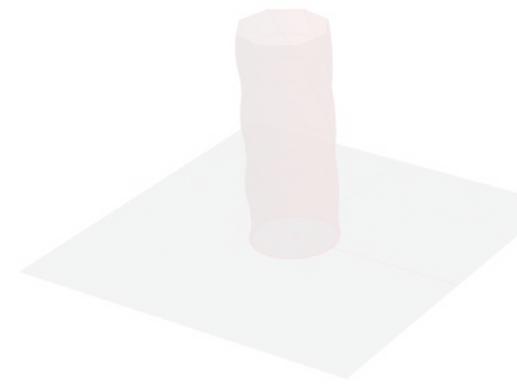


# Flower.gh



# Twist.gh

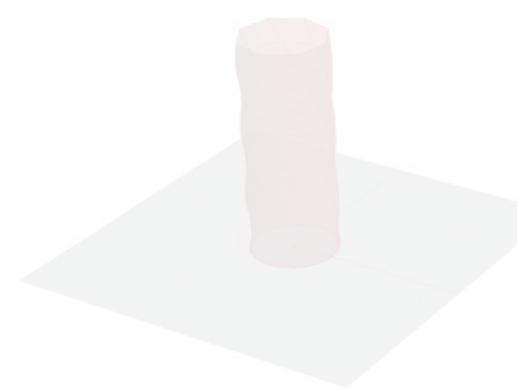




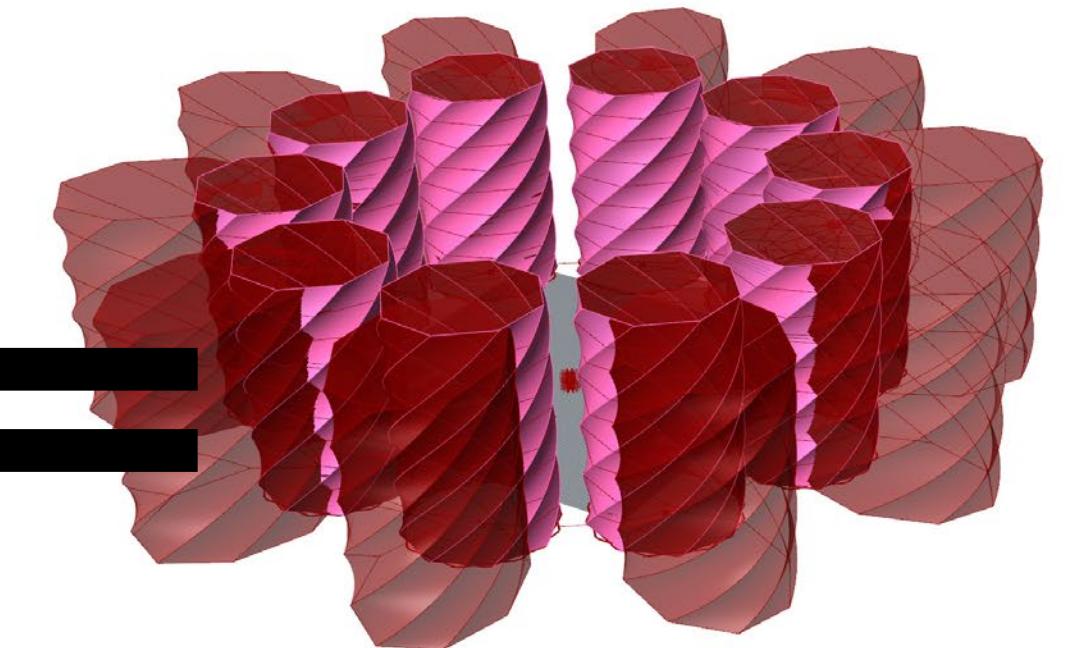
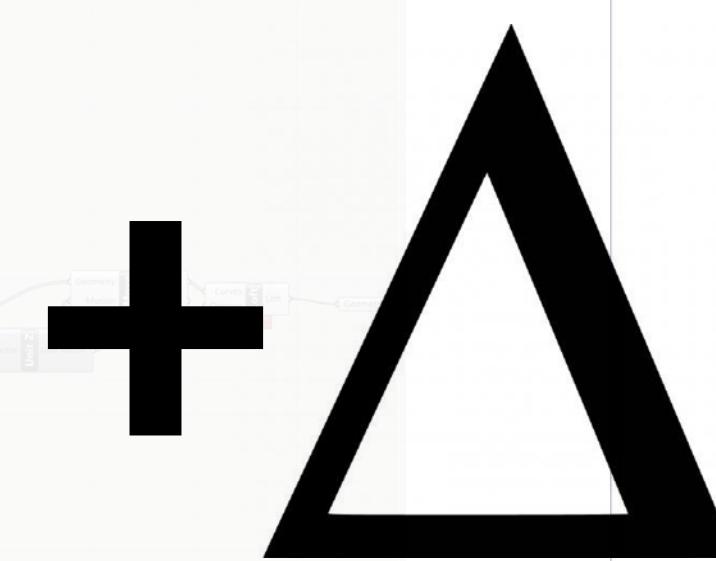
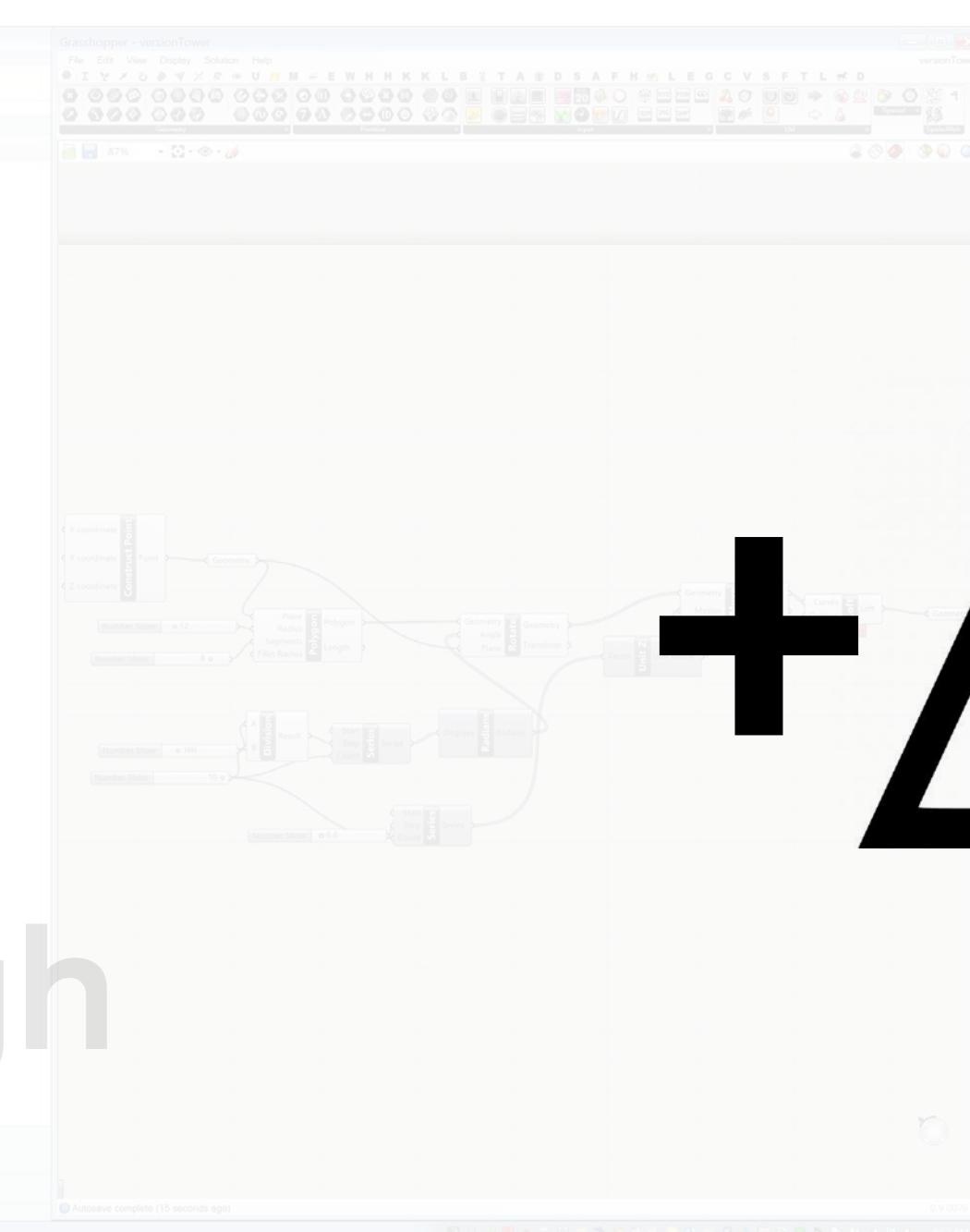
# Tower.gh



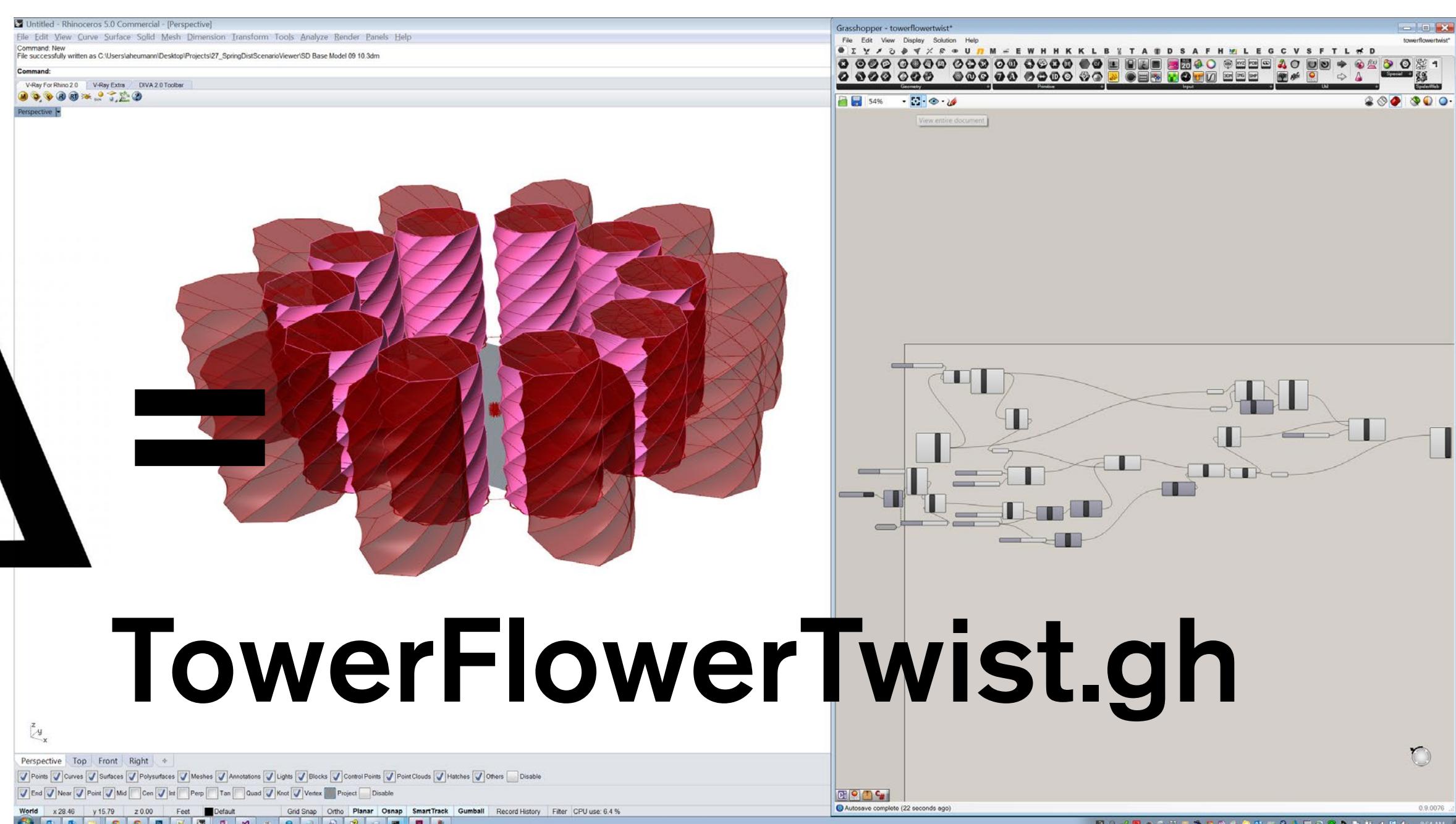
# Flower.gh



# Twist.gh



# TowerFlowerTwist.gh



**Dynamo to CG**      **GH to CG**  
**CG to Dynamo**      **CG to GH**

**CG+CG to DiffSet**

**Visualize Diff (Standalone)**

**Visualize Diff (GH)**

**Visualize Diff (DYN)**

**Apply Diffset to GH**

**Apply Diffset to DYN**

# VVD

AEC  
Hackathon  
2015

<https://github.com/oderby/vvd>

Owen Derby  
Michael Kirschner  
Dan Taeyoung  
Andrew Heumann