hdk

Zürcher Hochschule der Künste
Bachelor of Arts in Design

Bits & Atoms

Computer Aided Design

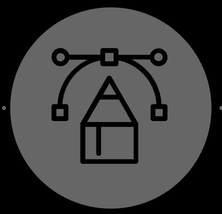
3rd Semester | 10th of October 2018

Florian Wille

Overview

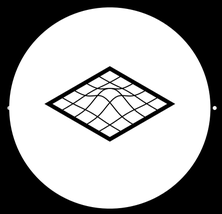
Bits & Atoms: Computer Aided Design

27.09.2018



Rhino Basics

04.10.2018



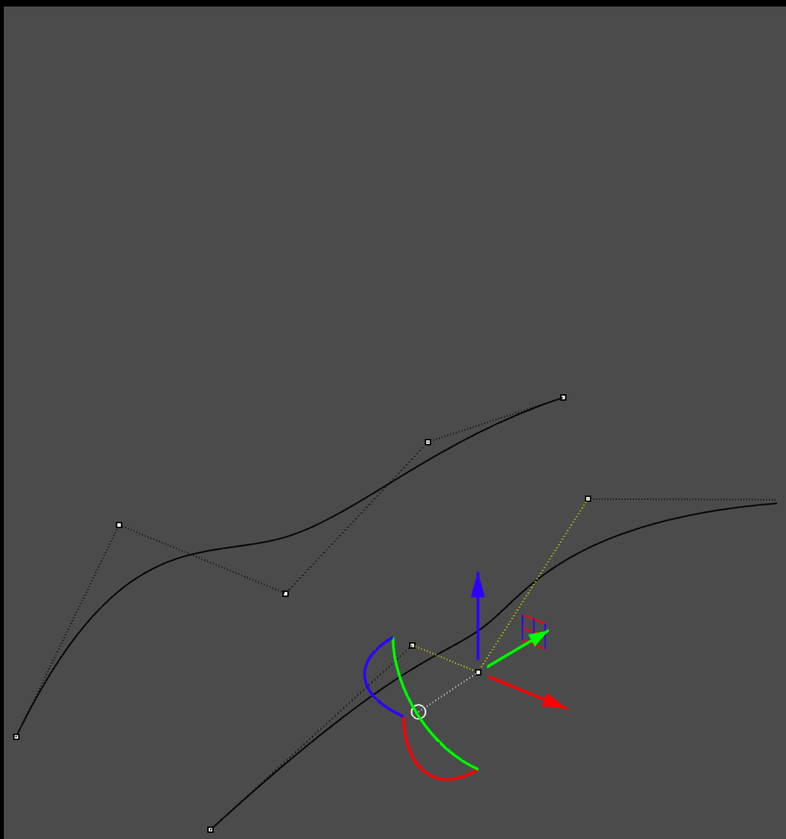
Rhino to Grasshopper

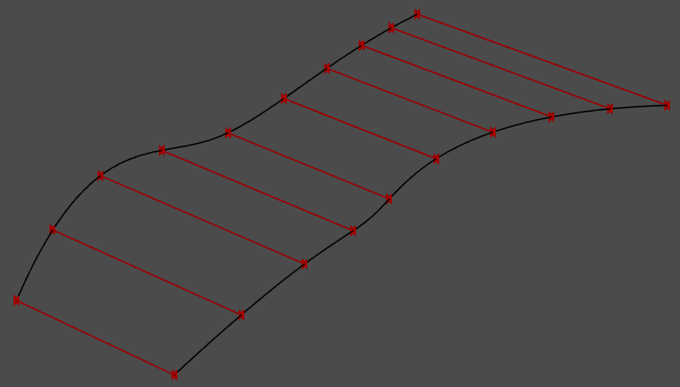
11.10.2018

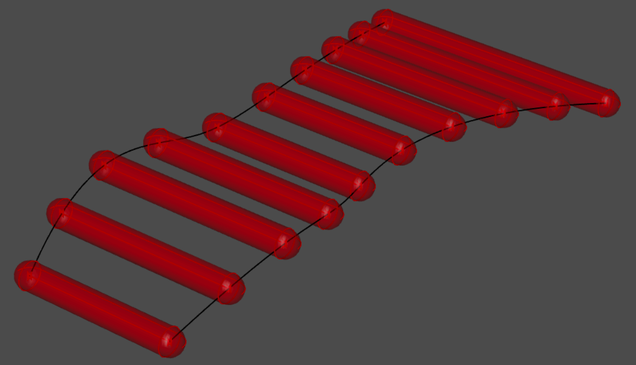
Parametric Design with Grasshopper

Example

The Bridge







_curve

_PointsOn

Use gumball to to edit and move points

_line

_pipe

Overview

Grasshopper

Grasshopper is a visual programming language and environment developed by David Rutten at Robert McNeel & Associates, that runs within the Rhinoceros 3D computer-aided design (CAD) application. The first version of Grasshopper was released in September 2007, and titled Explicit History. Grasshopper has become part of the standard Rhino toolset in Rhino 6.0 and later.

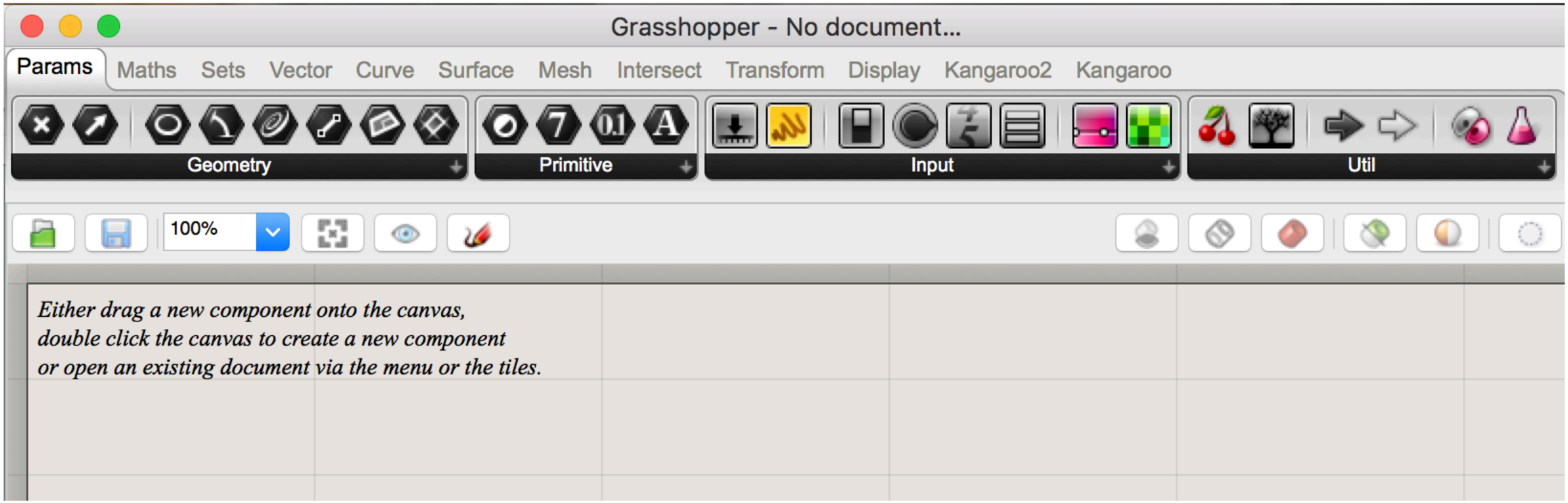
Overview

Grasshopper

- Grasshopper is primarily used to build generative algorithms, such as for generative art. Many of Grasshopper's components create 3D geometry.
- Advanced uses of Grasshopper include parametric modelling for structural engineering, parametric modelling for architecture and fabrication, lighting performance analysis for eco-friendly architecture and building energy consumption.

Overview

Component Panels (Container System)



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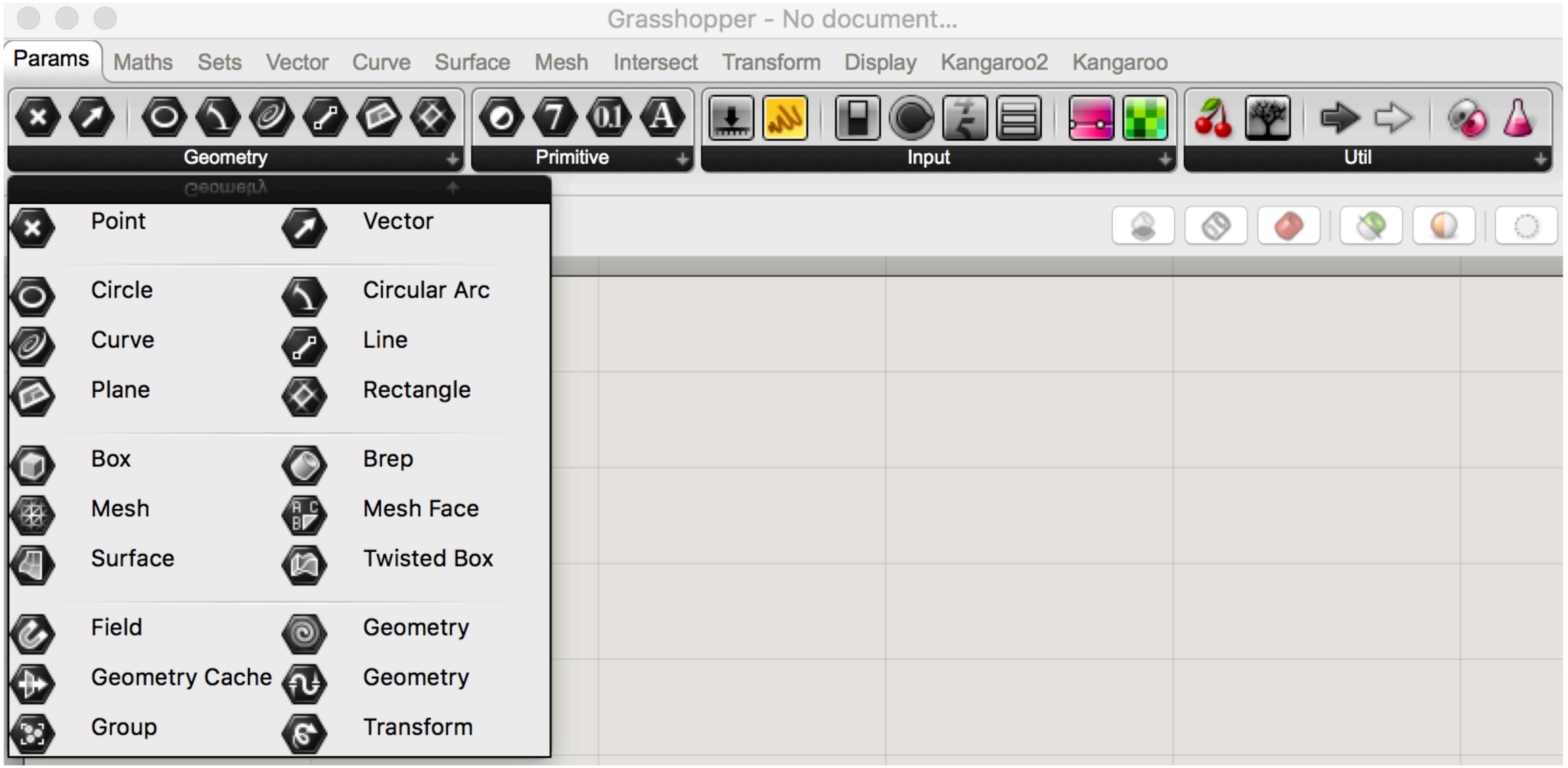

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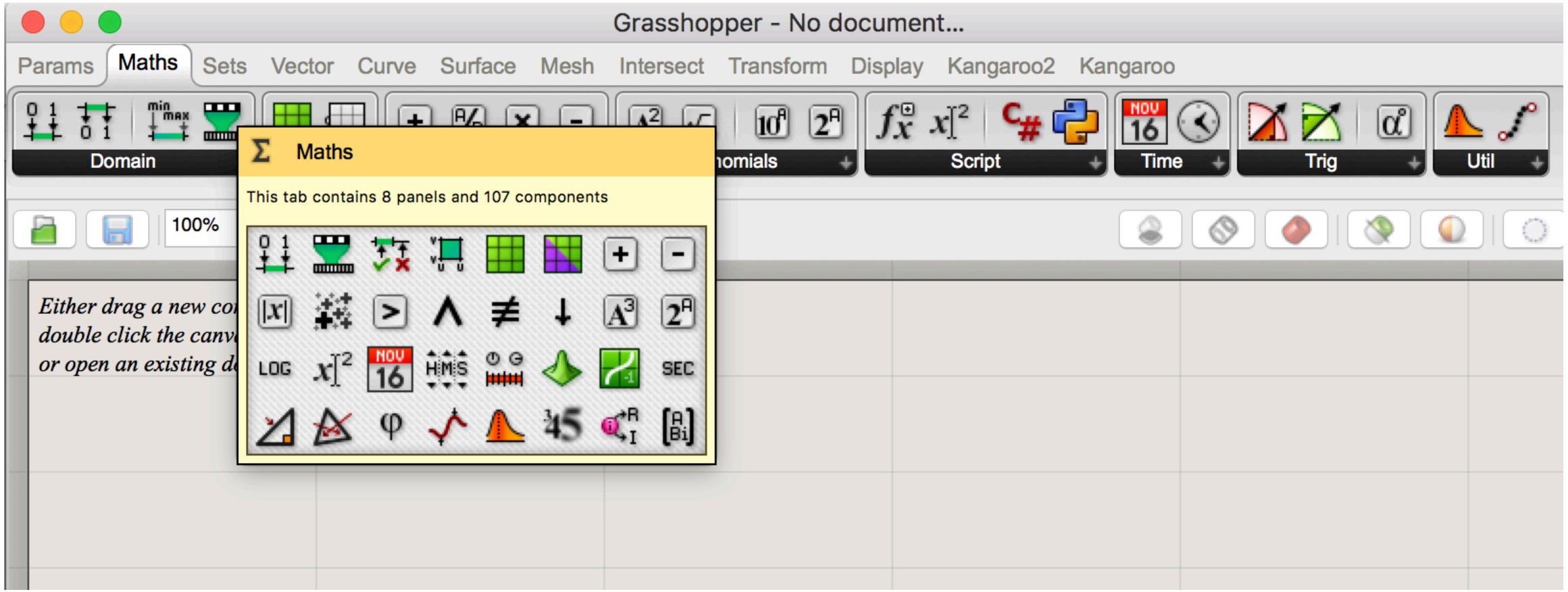

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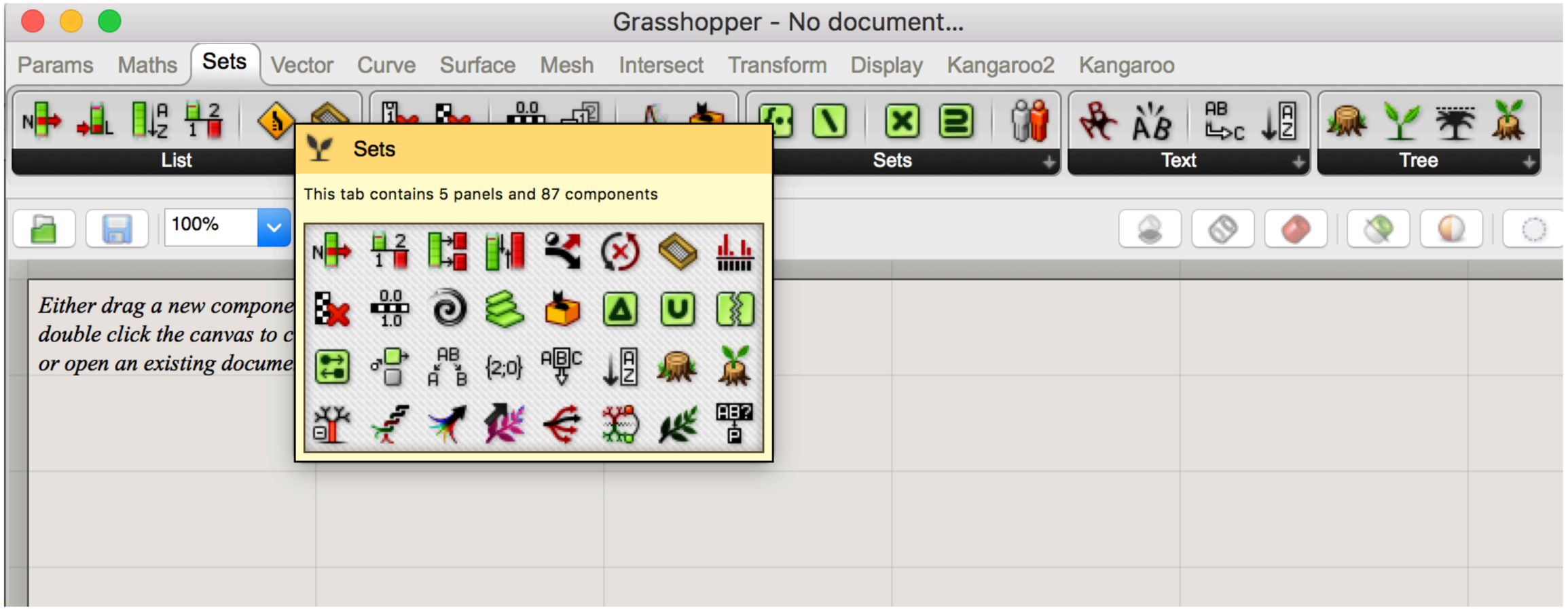

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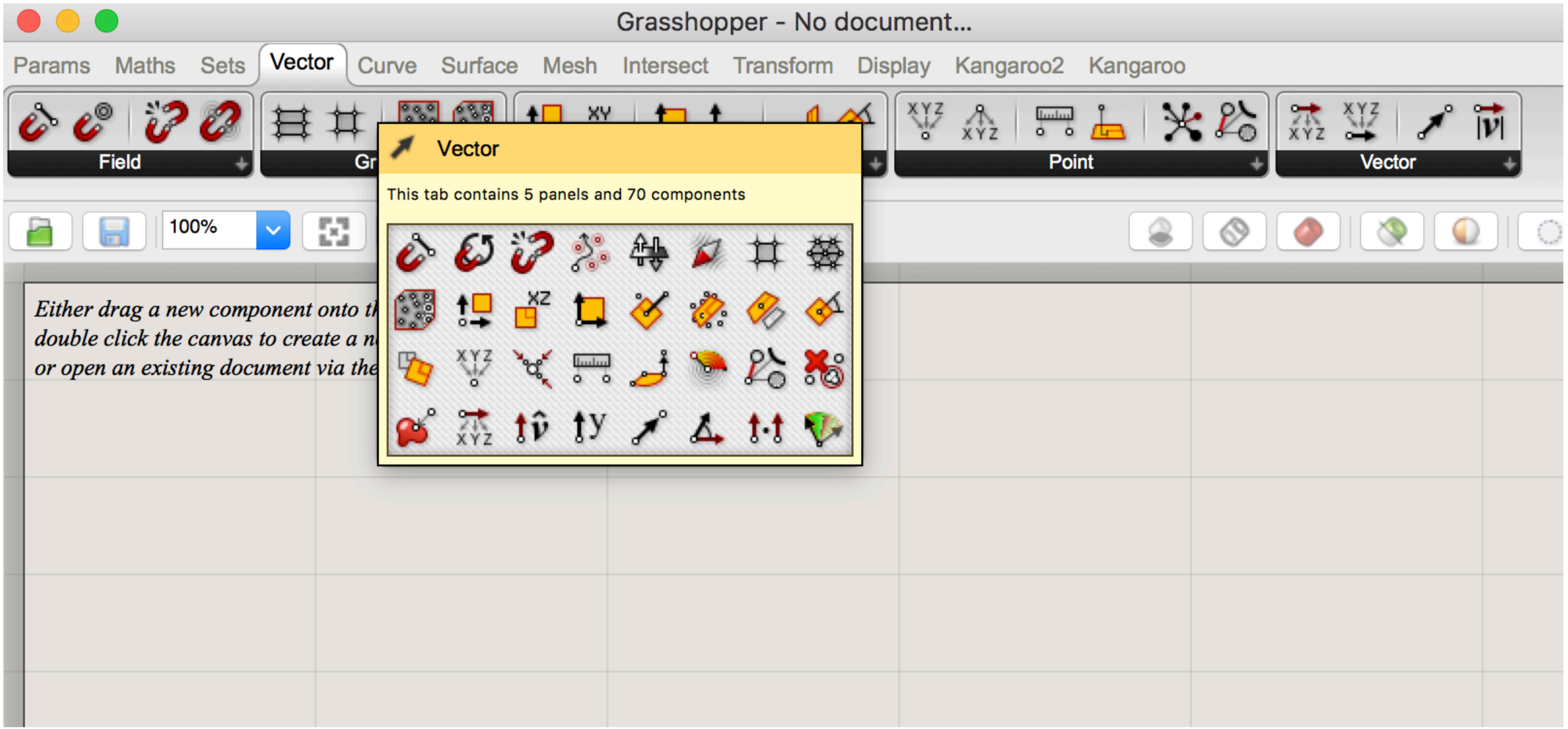

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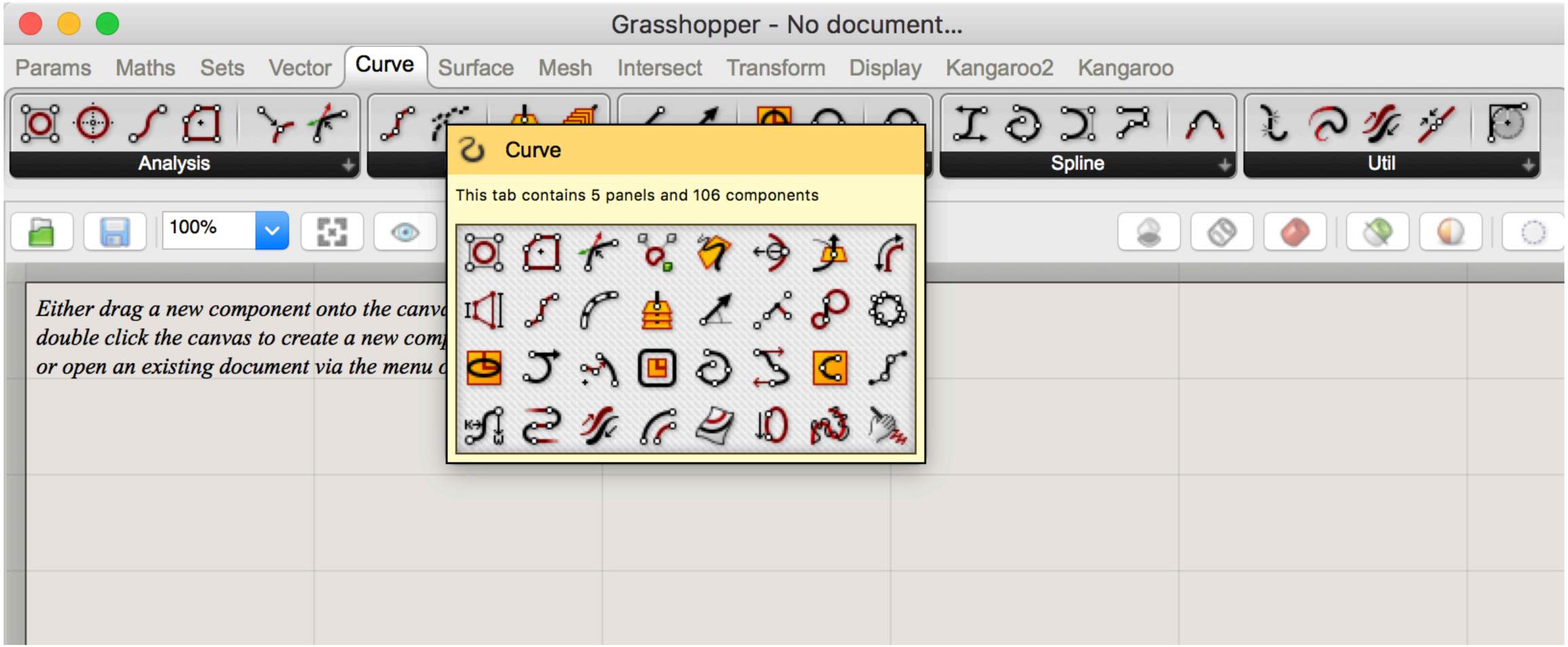

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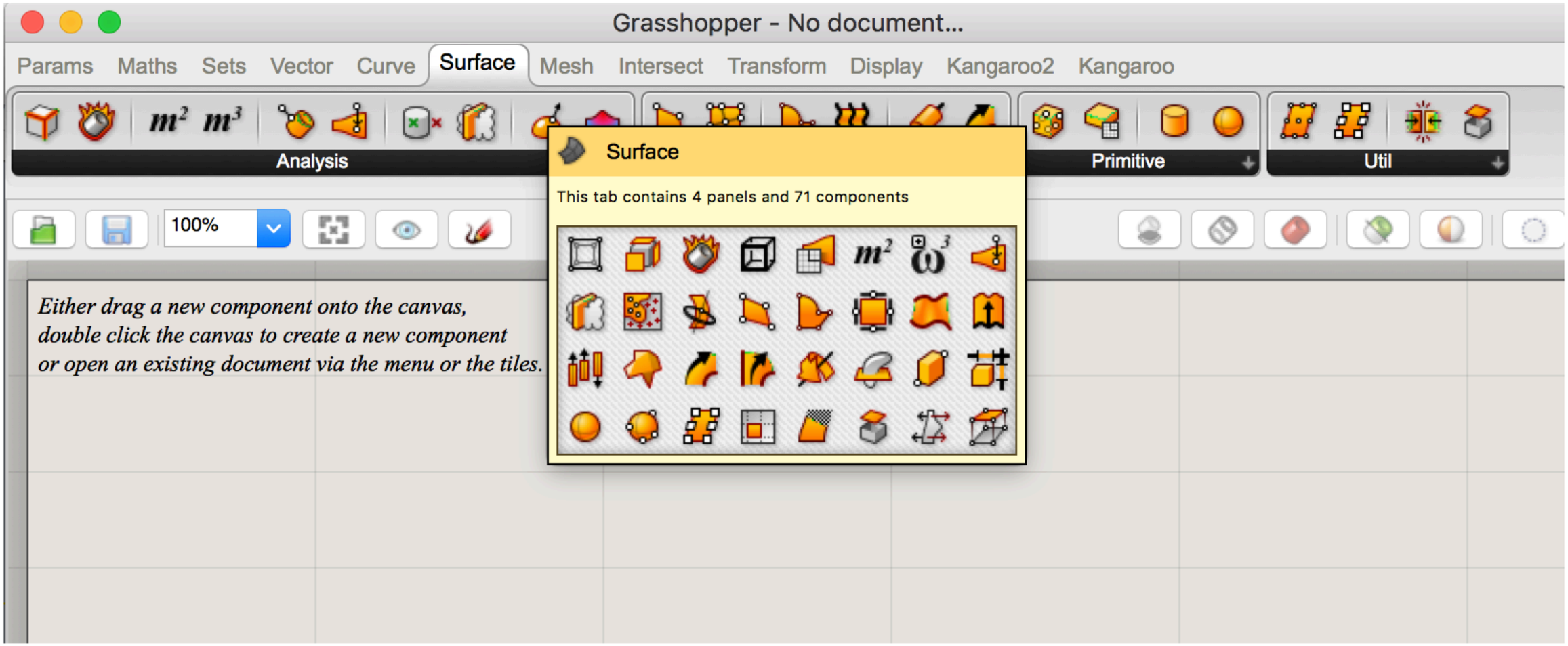

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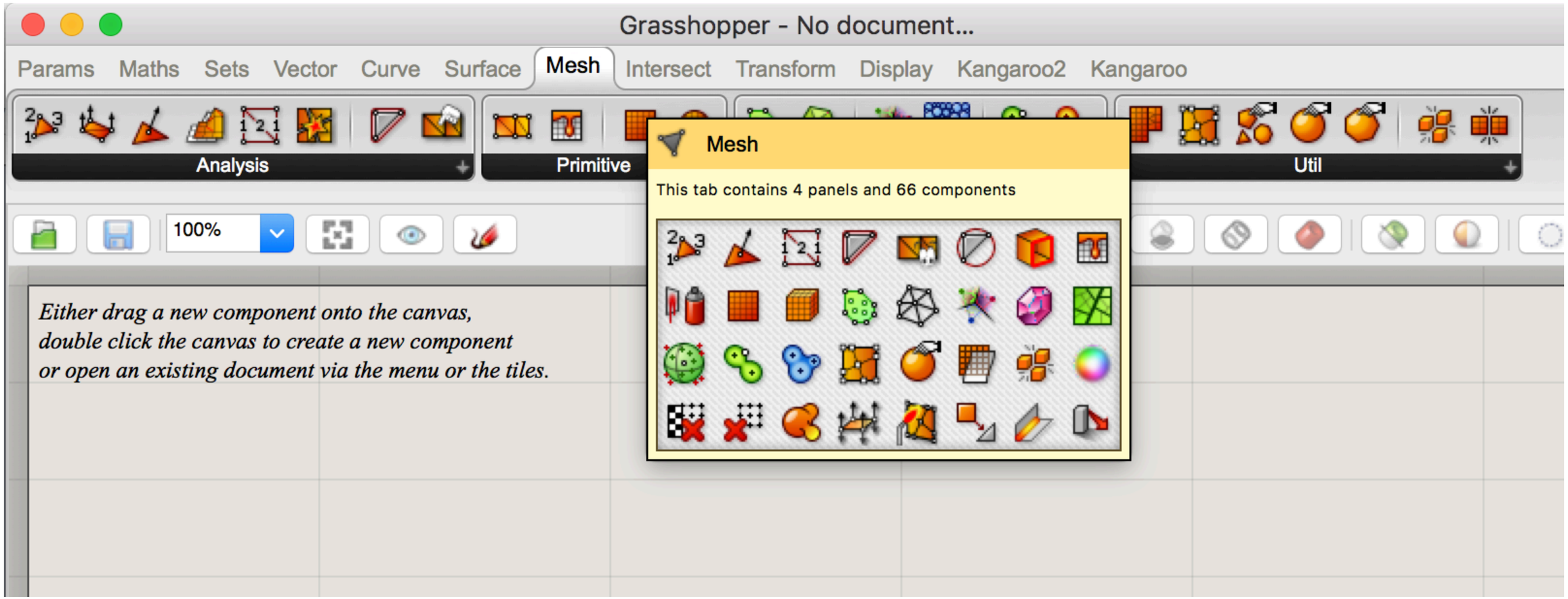

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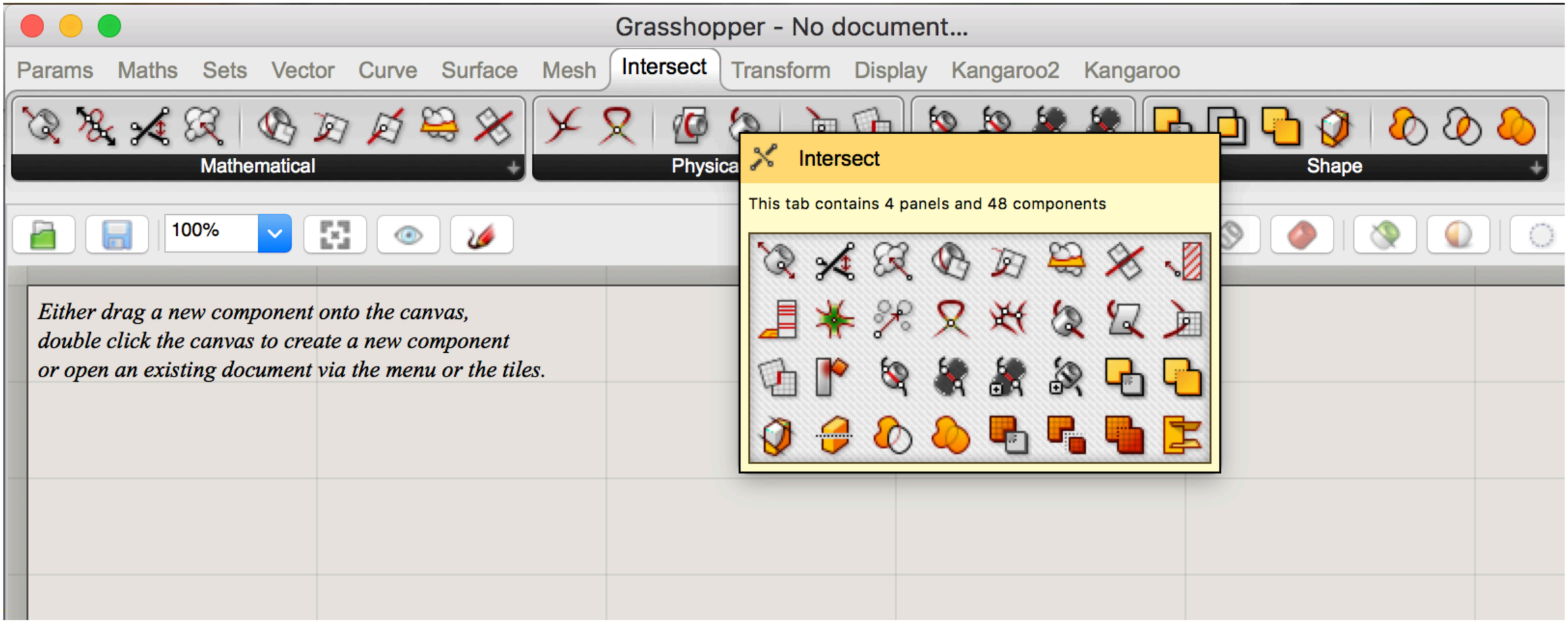

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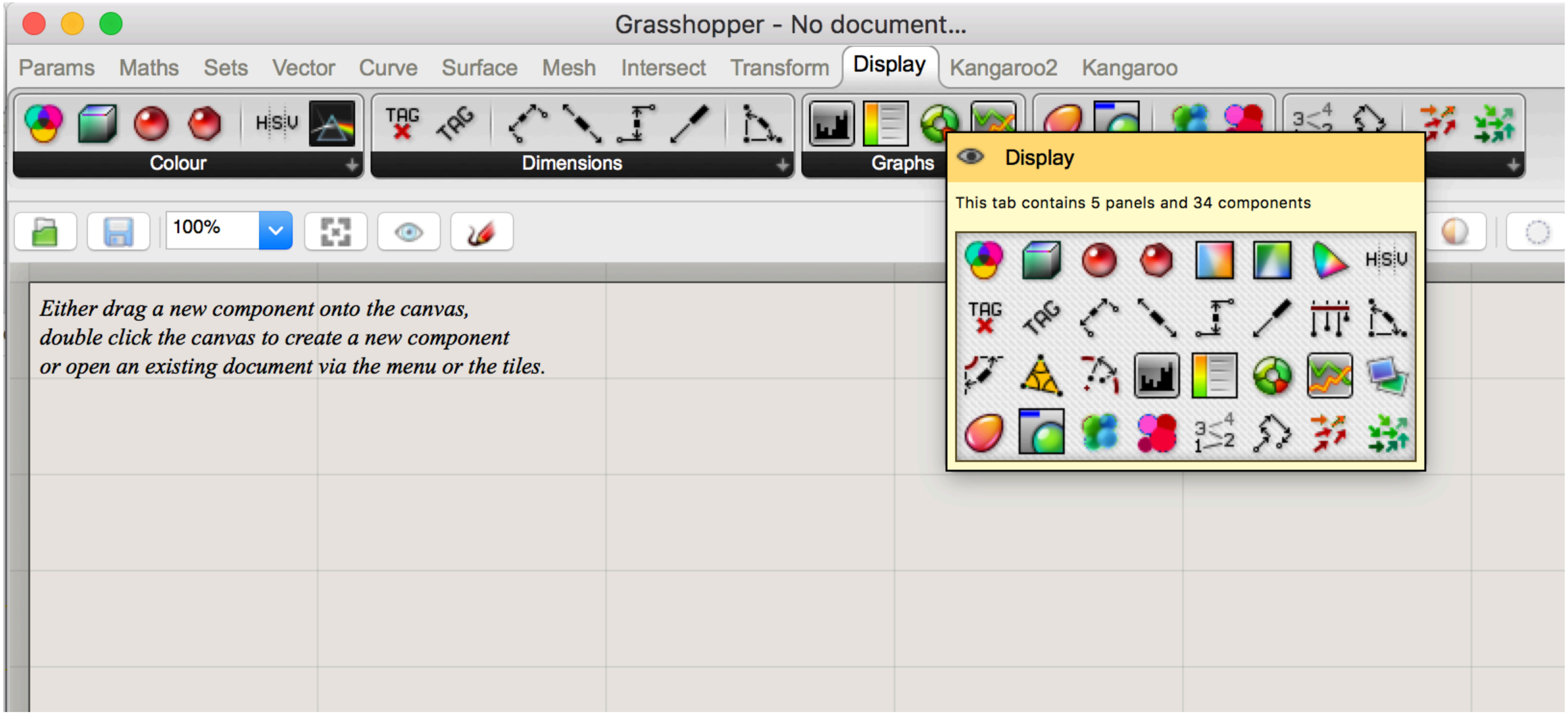
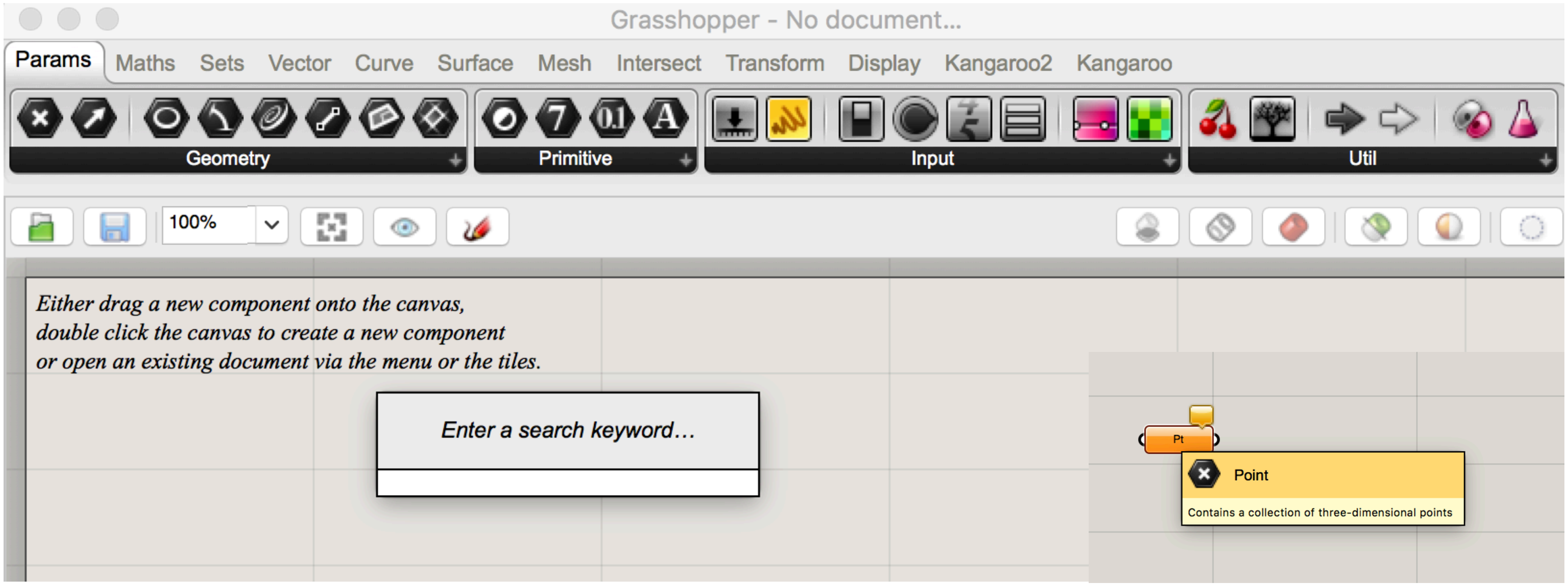


Overview

Component Panels (Container System)

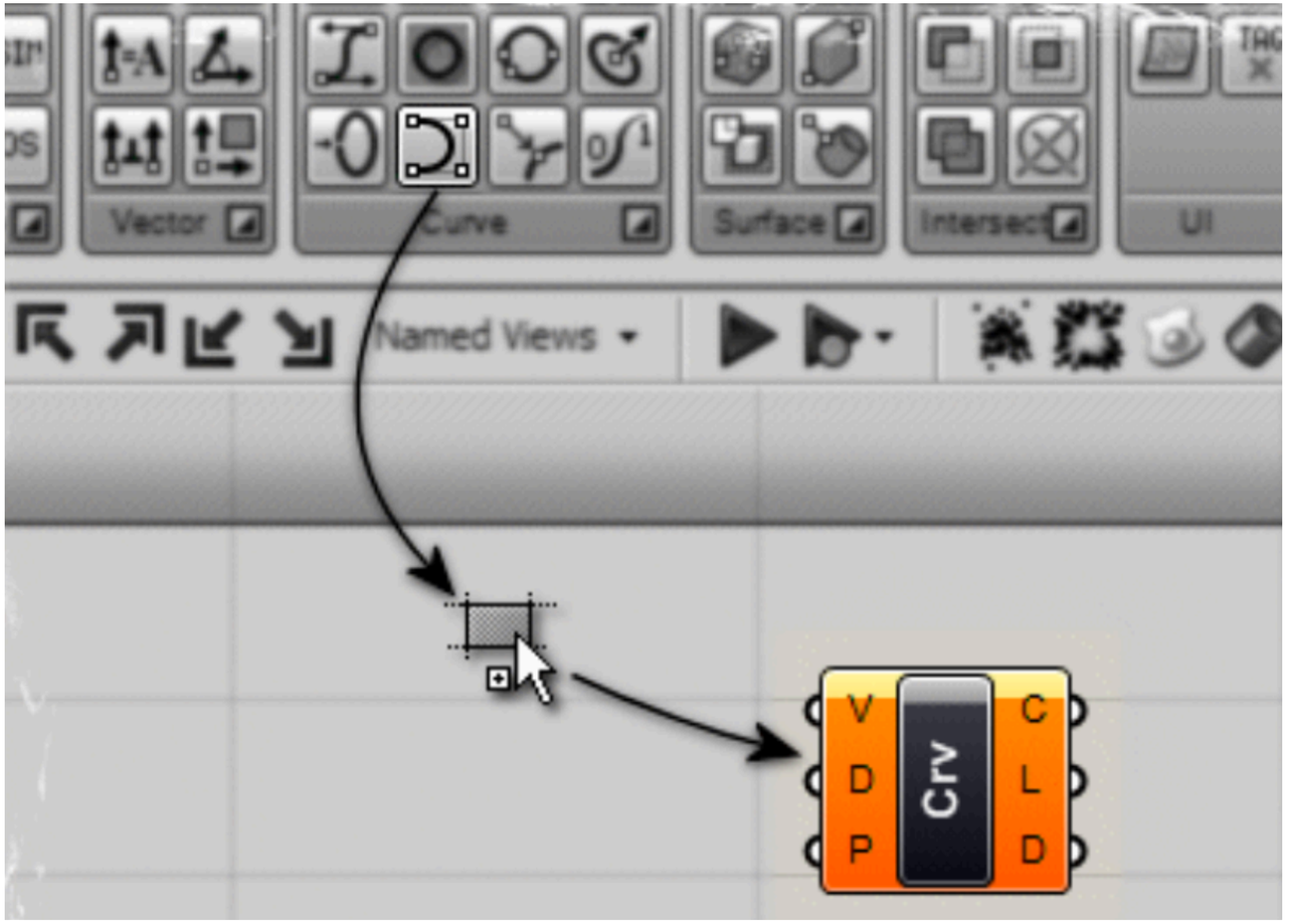
You can also find components by name, by double-clicking anywhere on the canvas; launching a pop-up search box. Type in the name of the component you are looking for and you will see a list of parameters or components that match your request.



Overview

Component Panels (Container System)

- The program gets created by dragging components onto a canvas. The outputs to these components are then connected to the inputs of subsequent components.



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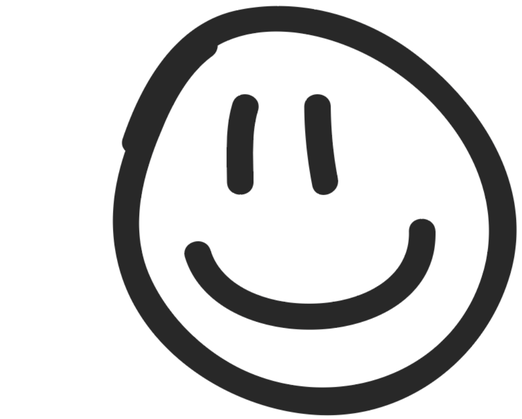
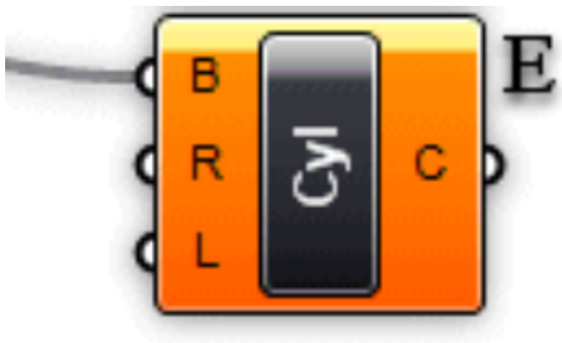
Component Panels (Container System)



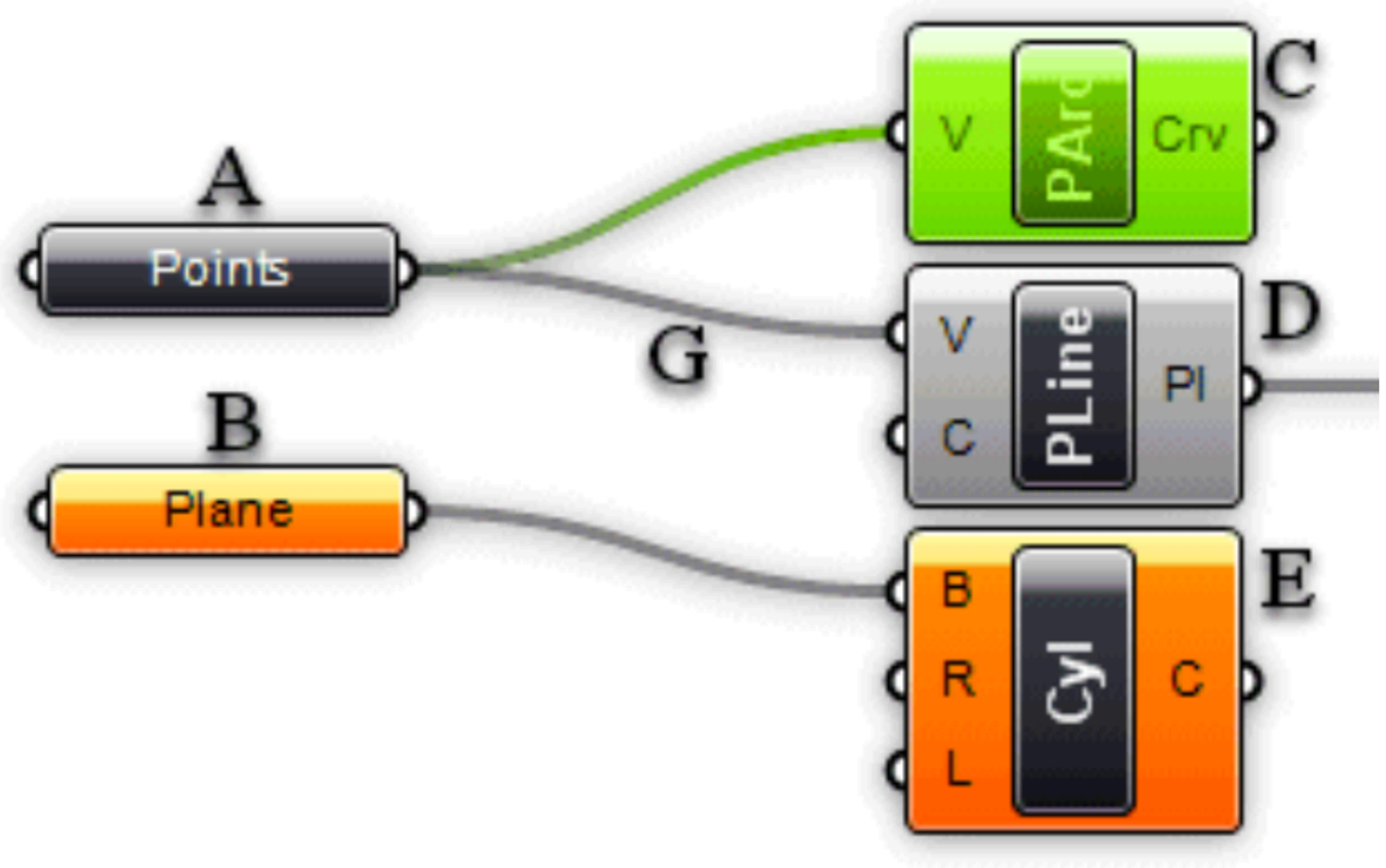


Overview

Component Panels (Container System)

Parameters contain data, meaning that they store stuff.

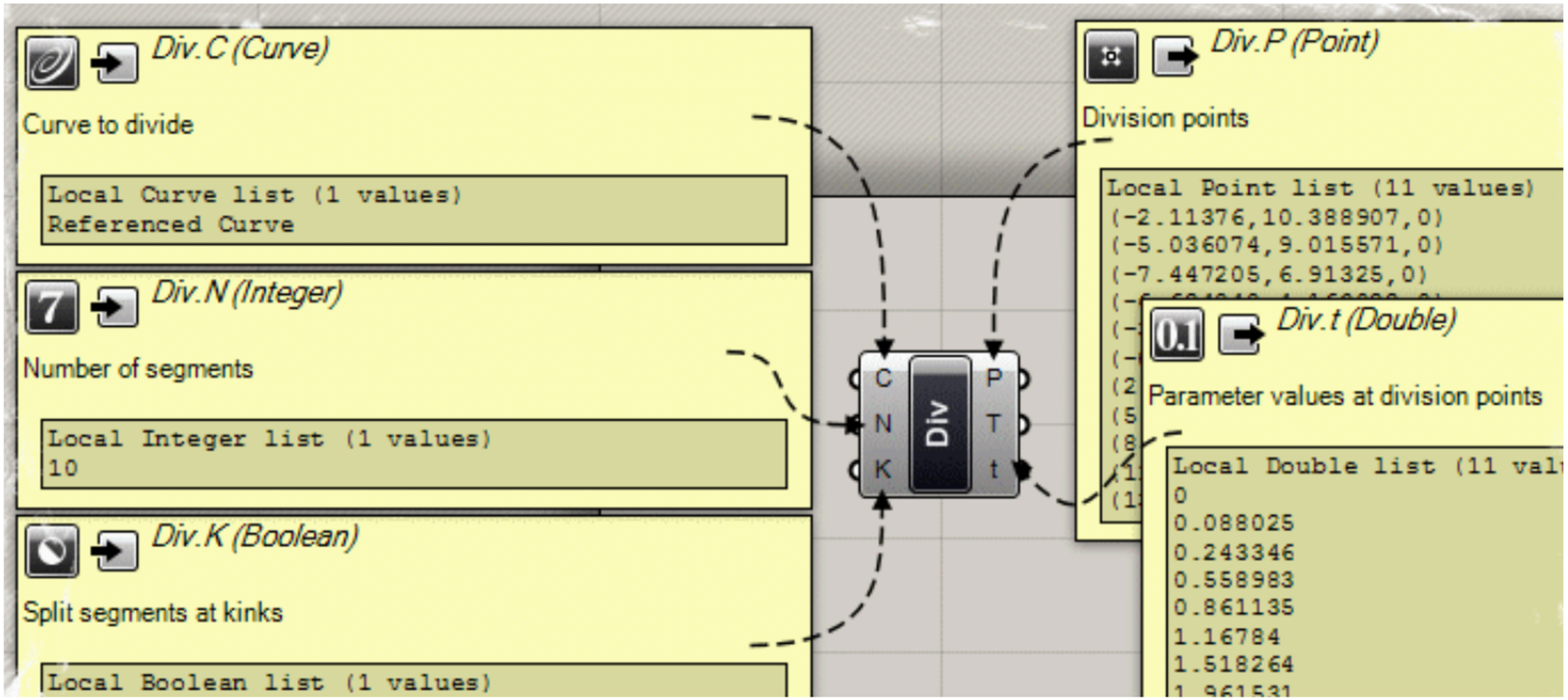
Components contain actions, meaning that they do stuff.



Overview

Component Panels (Container System)

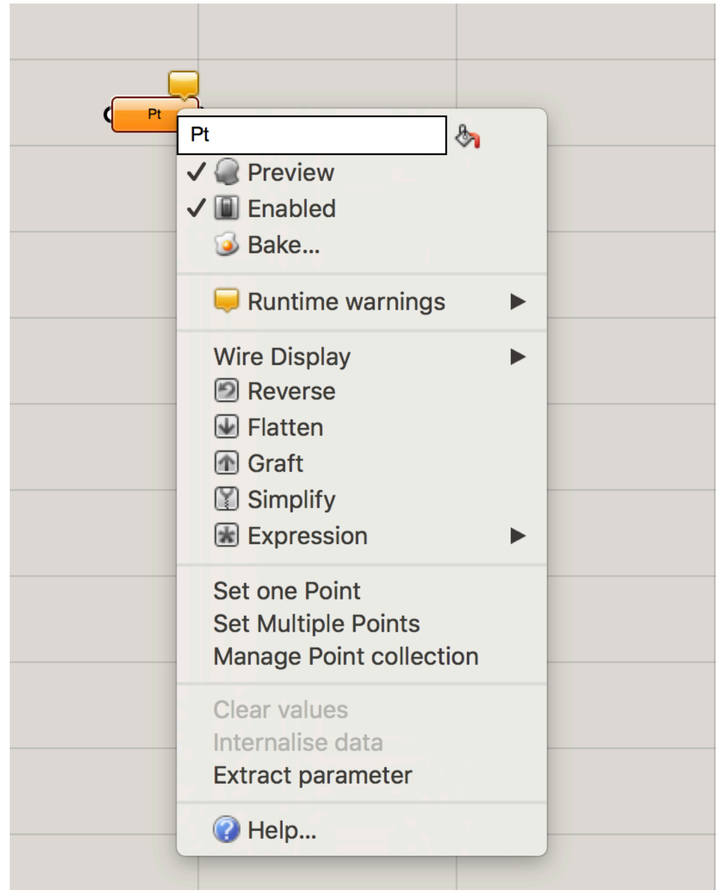
When you hover your mouse over the individual parts of a Component object, you'll see different tooltips that indicate the particular type of the (sub)object currently under the mouse. Tooltips are quite informative since they tell you both the type and the data of individual parameters:



Component Panels (Container System)

All objects on the Canvas have their own context menus that expose most of the features for that particular component.

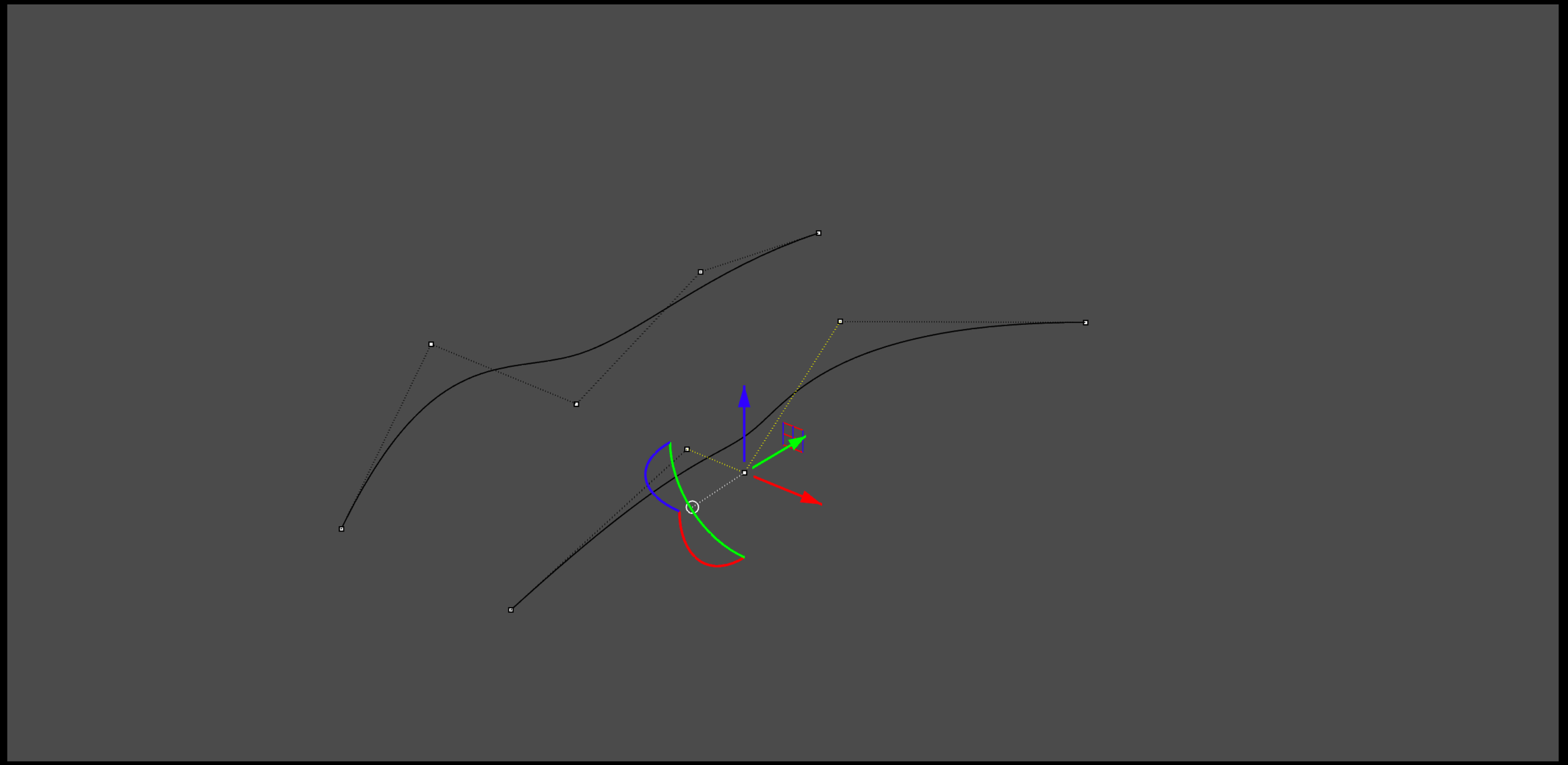
Right click on the Parameter or Component indicates those features:



The space button shows the same features in symbols:

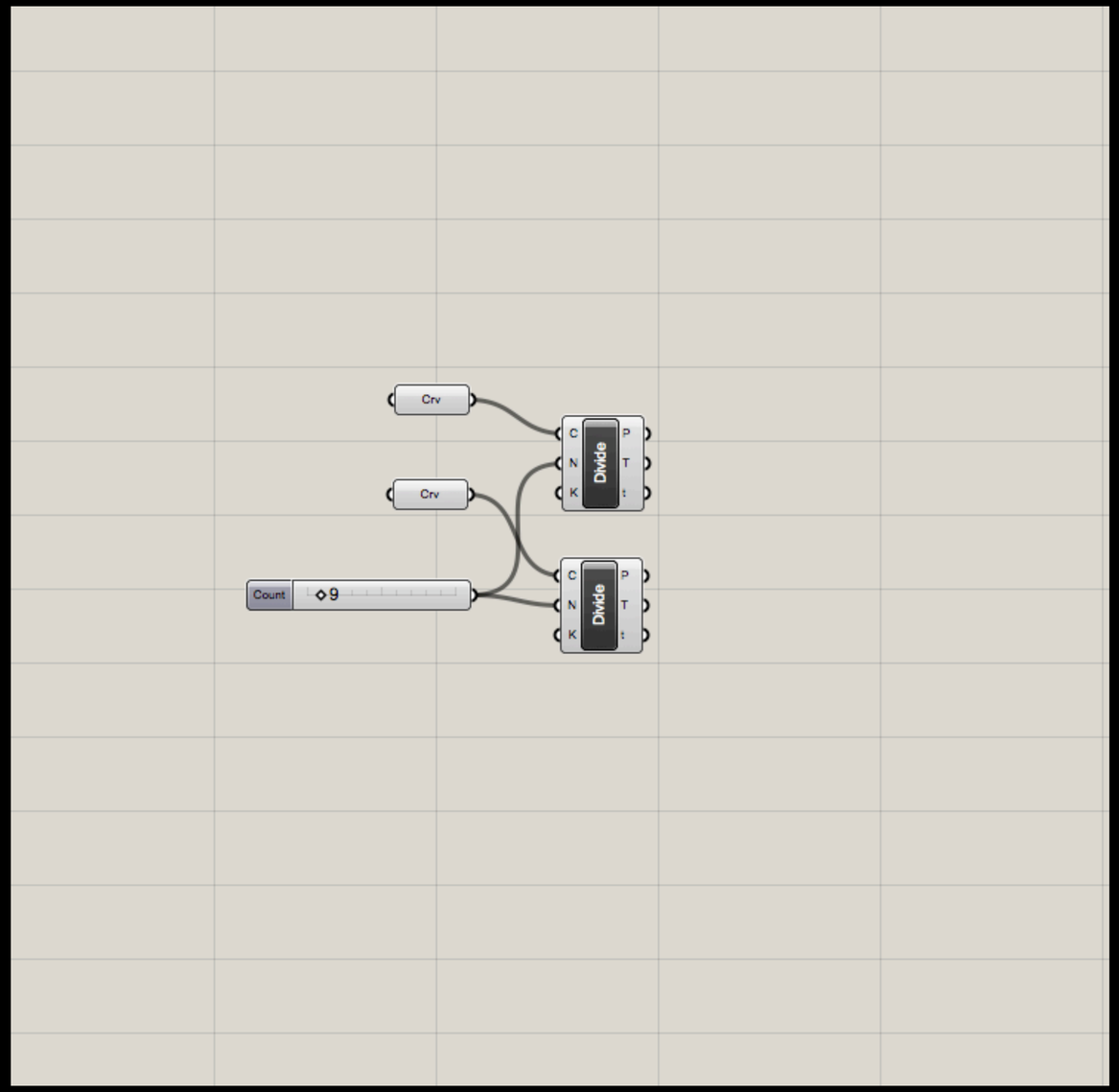
Example

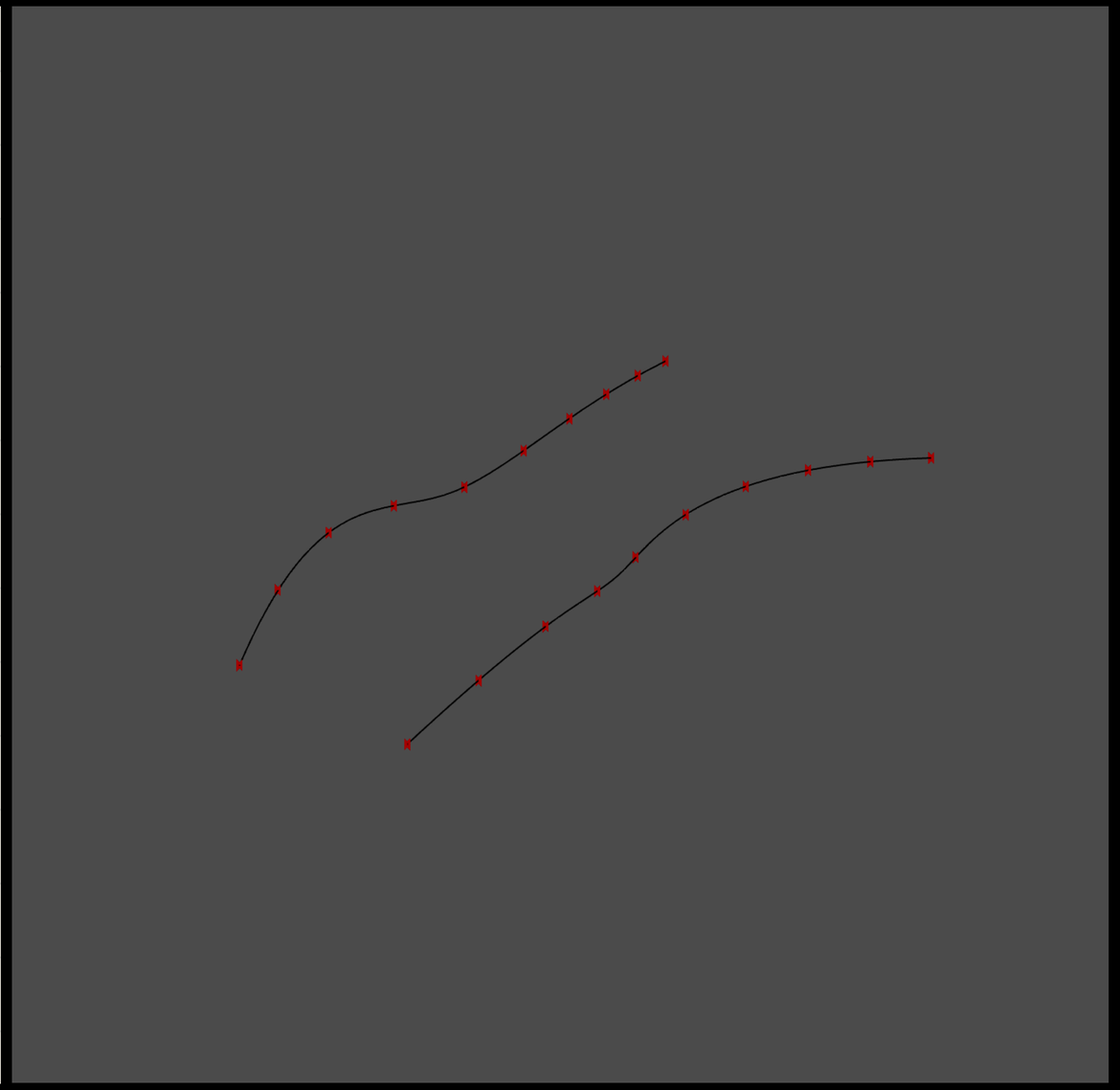
The Bridge



Example

The Bridge





Example

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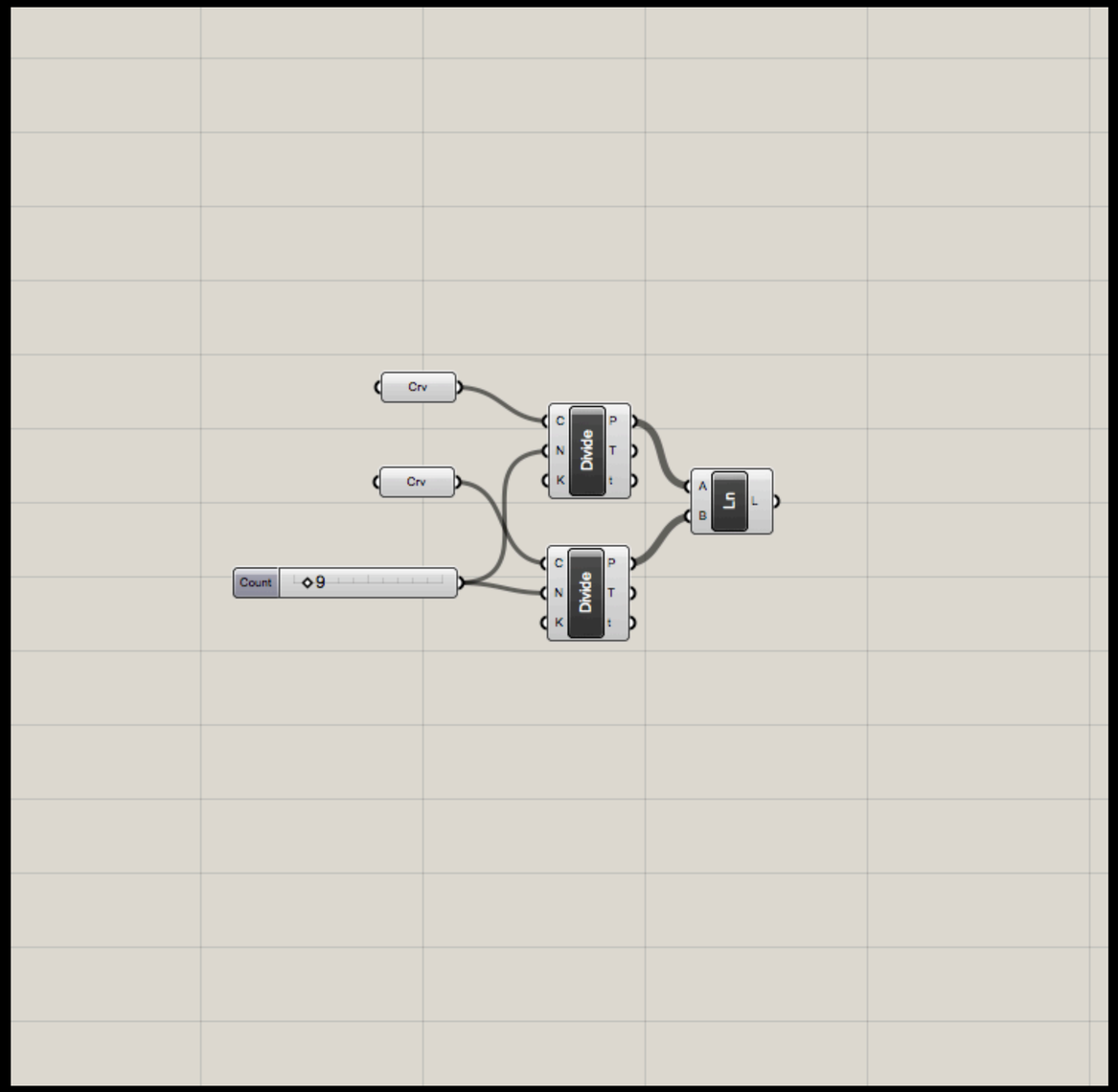

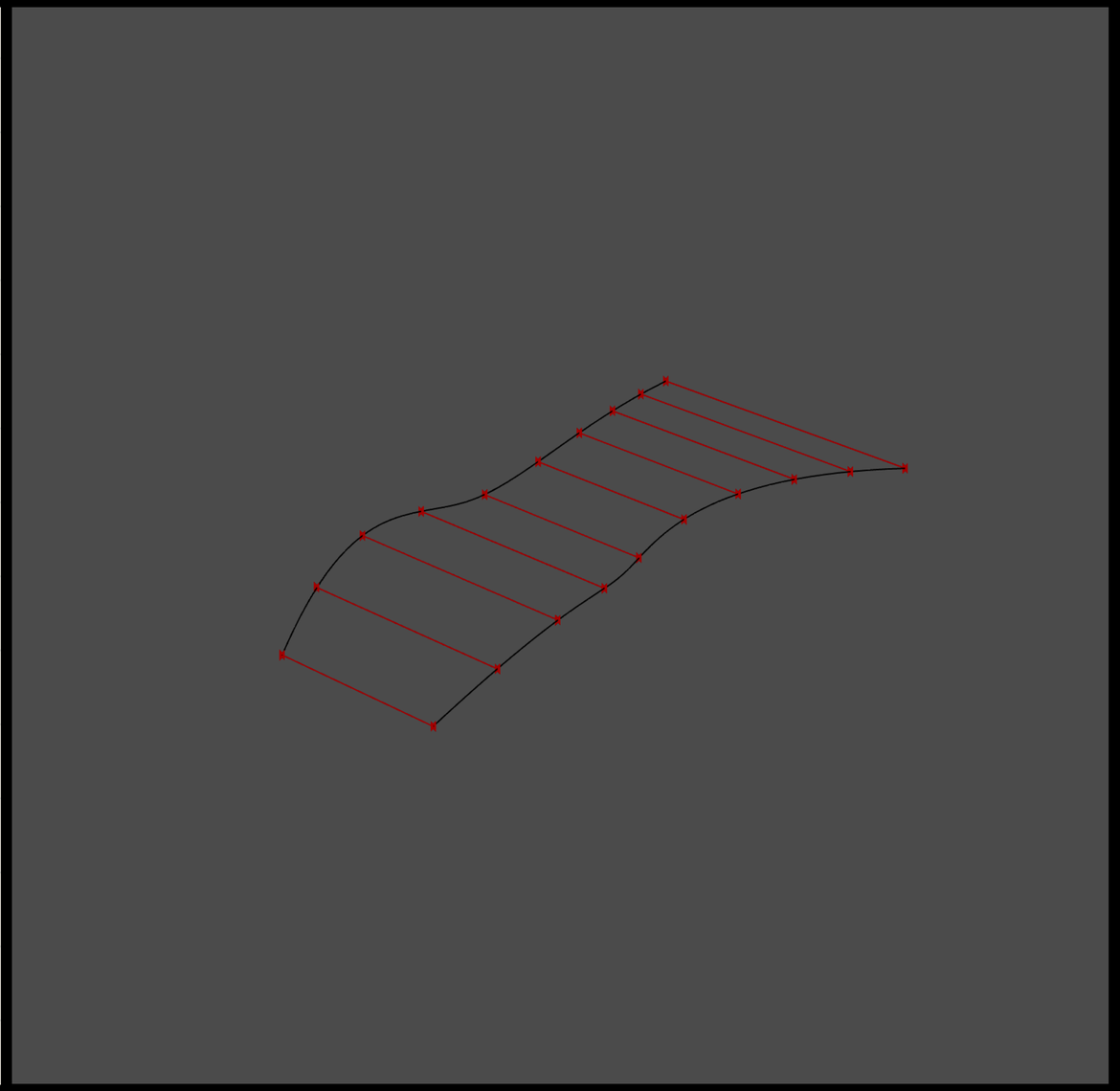

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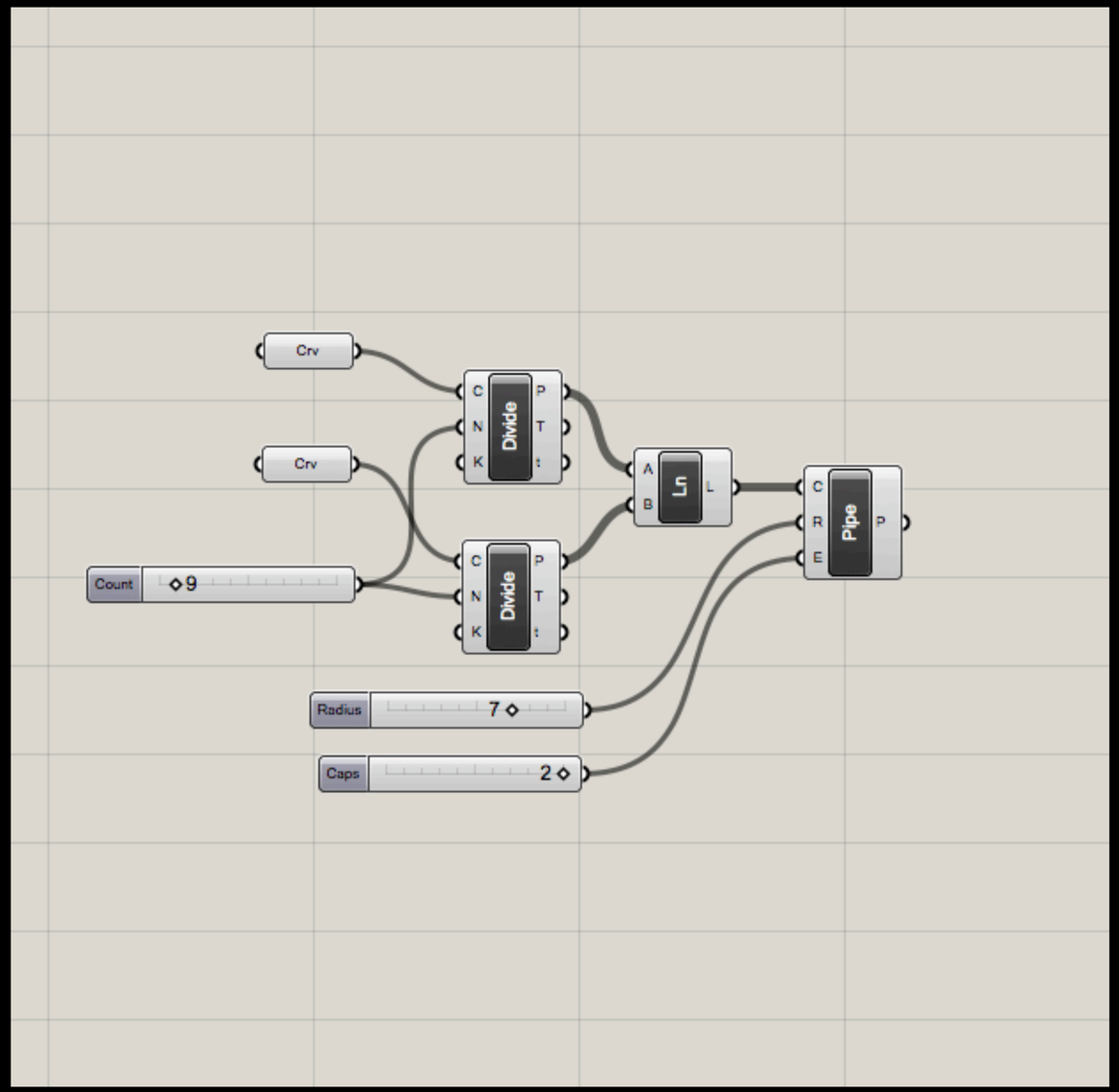
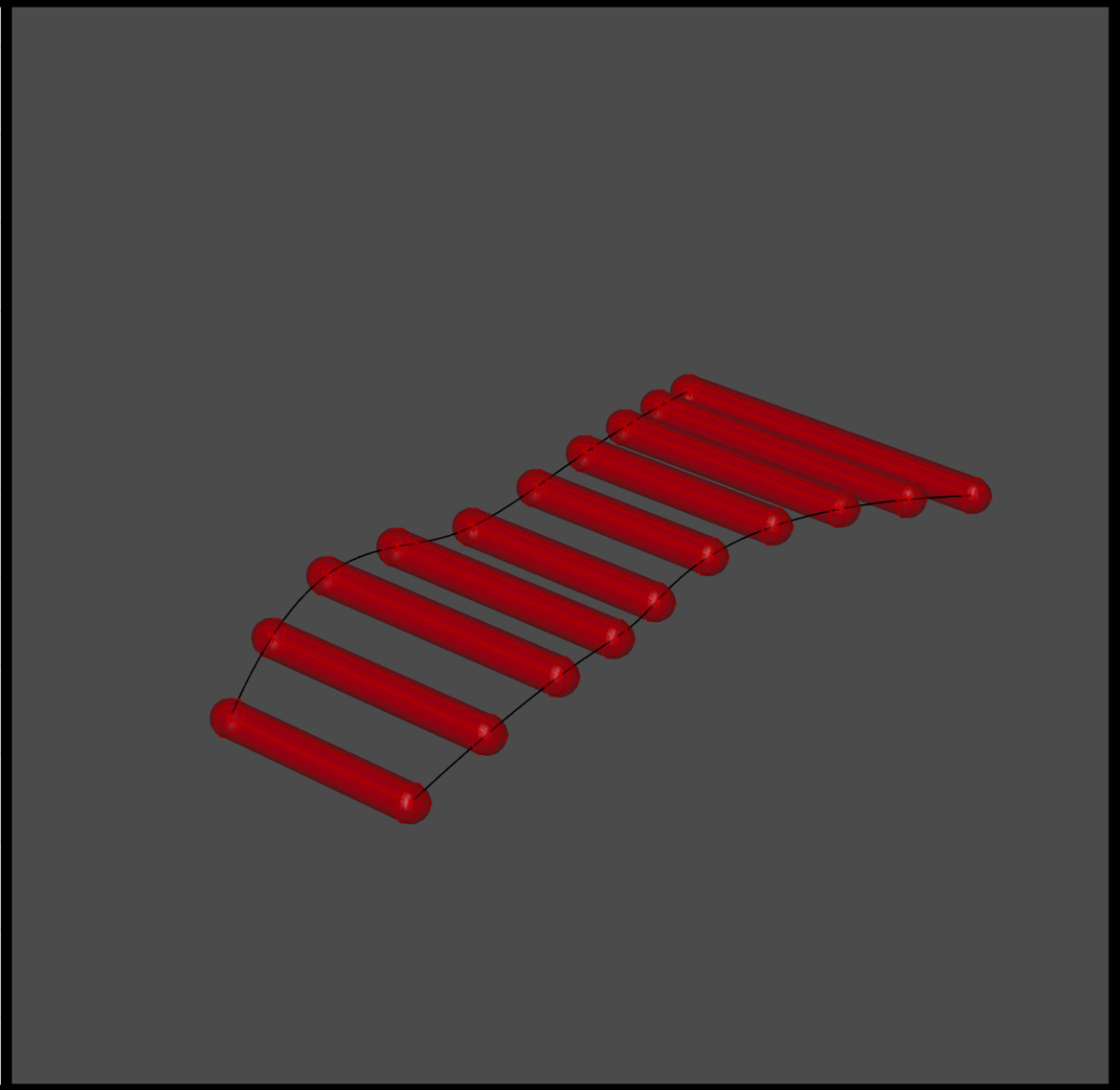
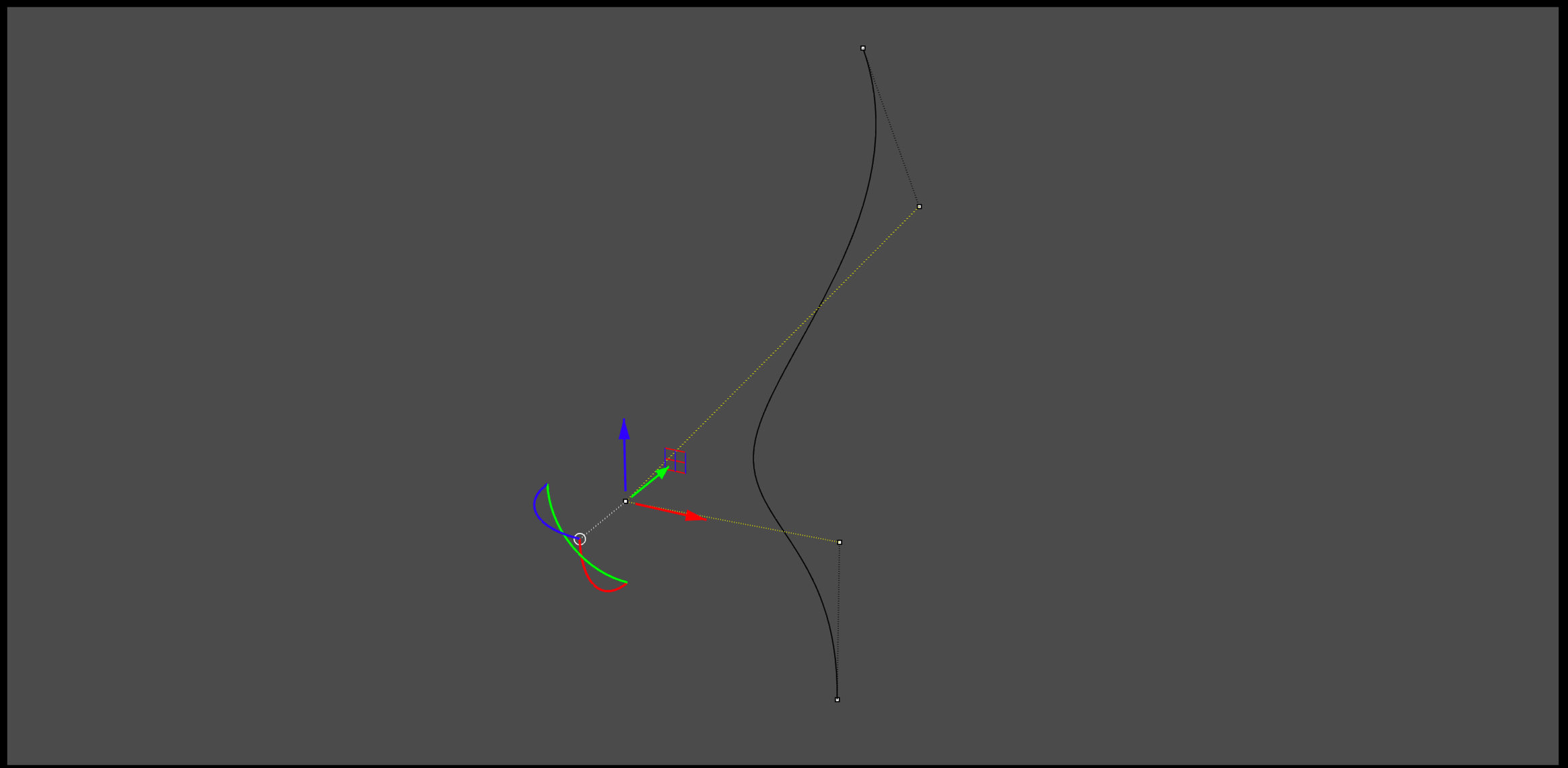




Example

Tower with variable diameter



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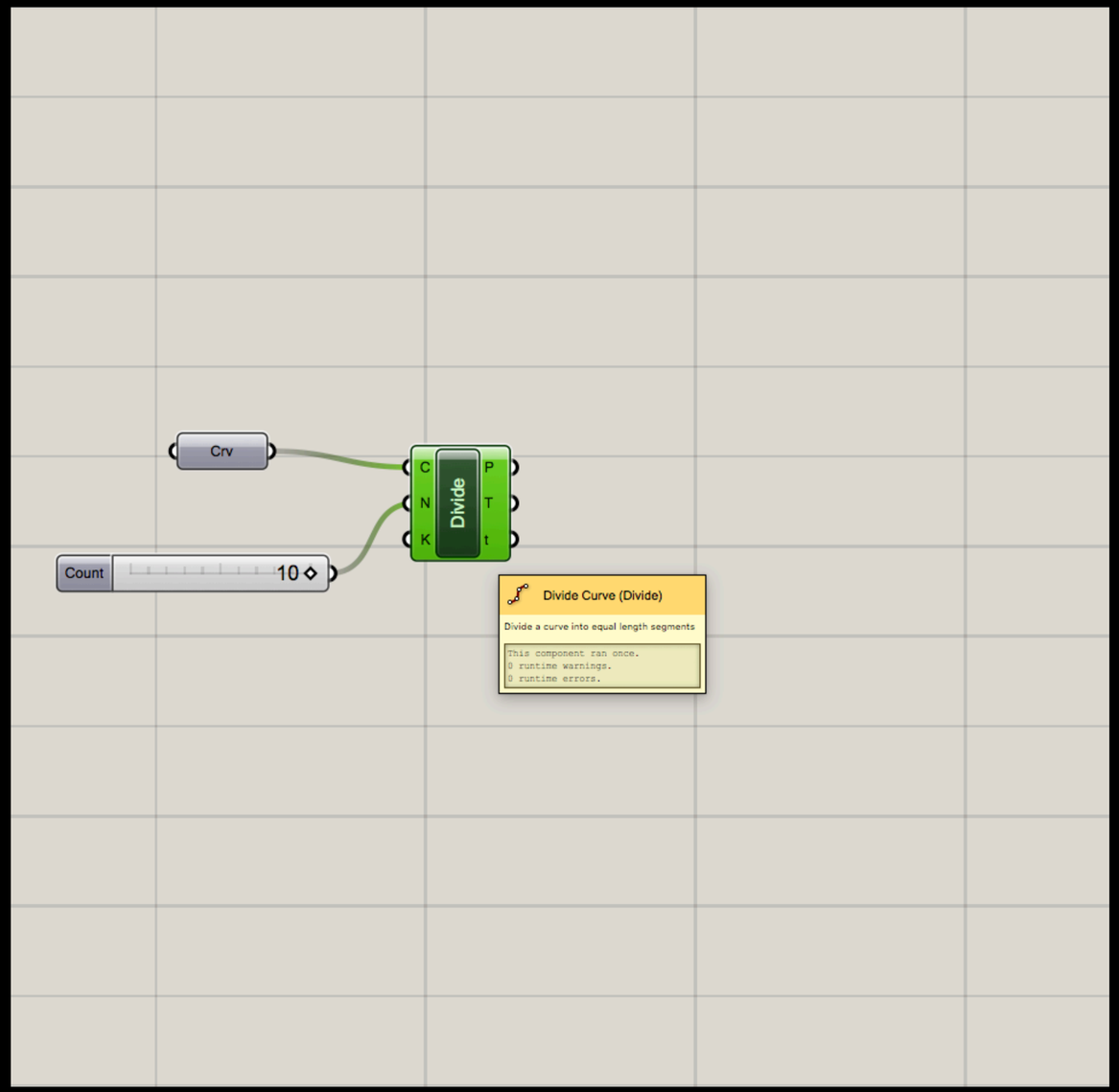

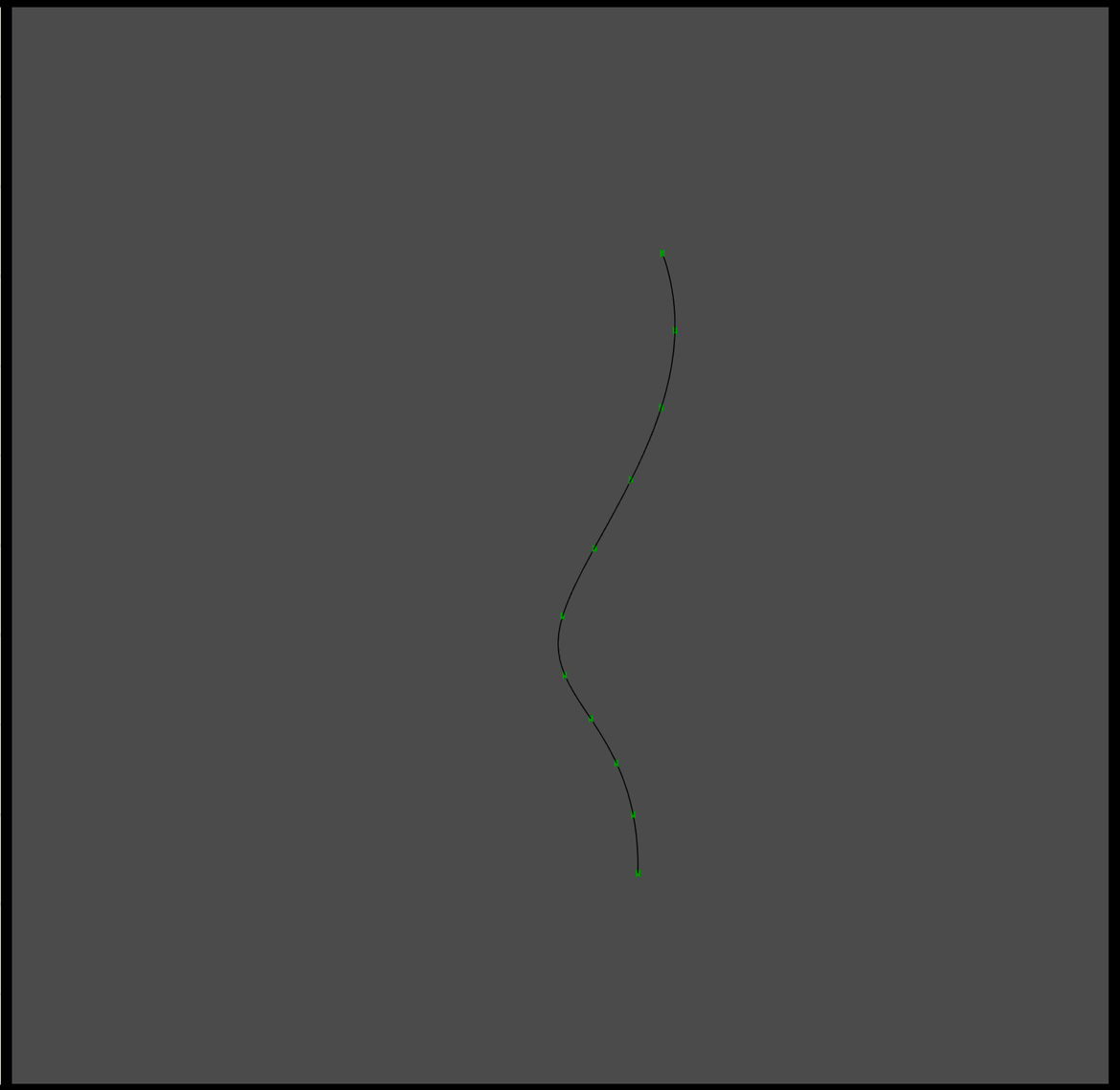

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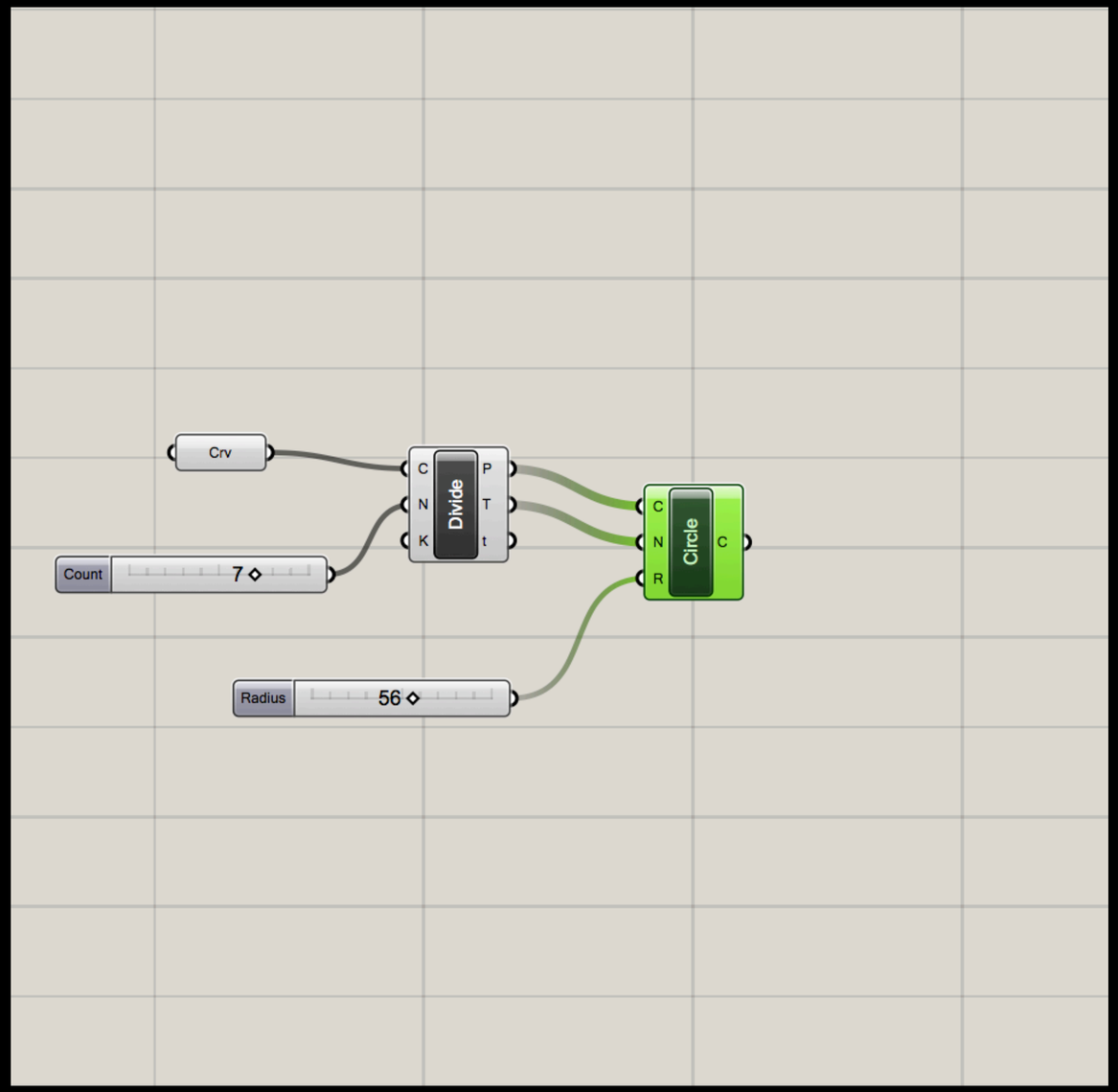

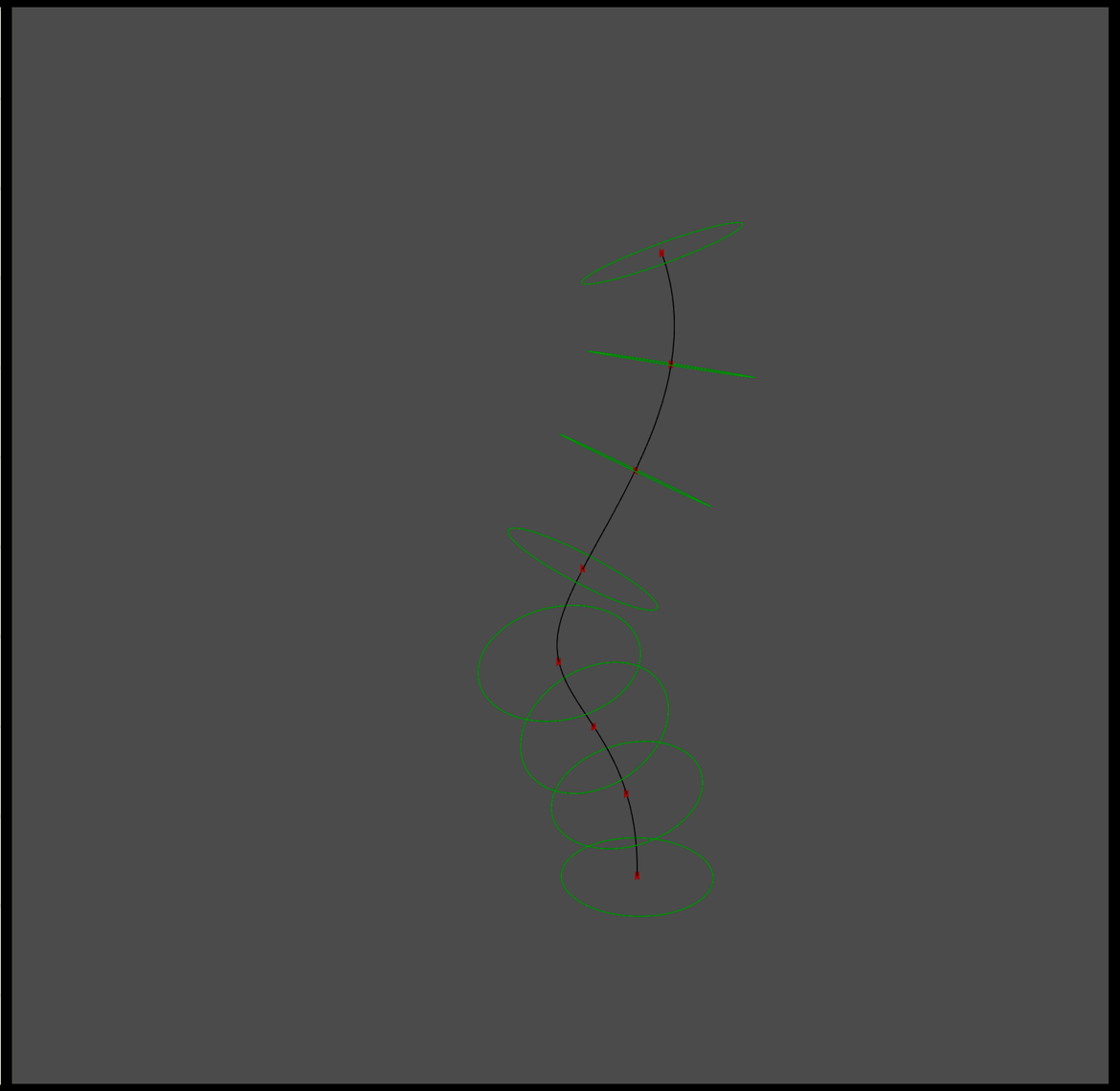

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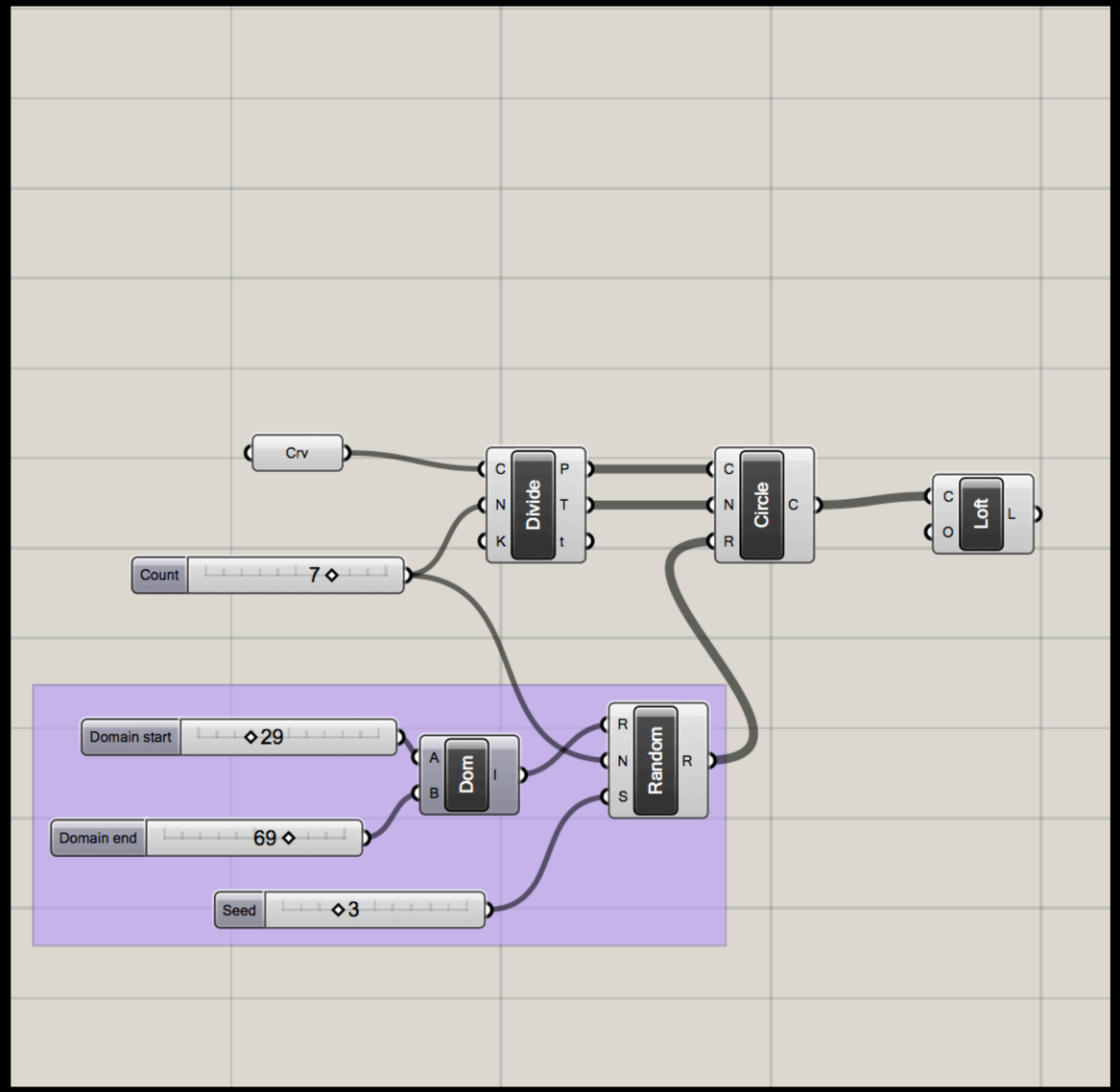

Thank you!

Kontakt

Florian Wille

florian.wille@zhdk.ch

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Zürcher Hochschule der Künste
Bachelor of Arts in Design