Learn Grasshopper
with Kris

GRASSHOPPER GLOSSARY

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Canvas

The canvas is the primary working environment in Grasshopper and the *drawing board* to create an algorithm. Objects can be placed, connected, and moved on the canvas in a manner of visual programming.

Canvas search

The Canvas search is a search box to quickly find and place objects on the canvas.

Canvas Toolbar

Provides some quick actions on the left and settings for the preview in Rhino on the right.

Component

Components are the building blocks for algorithms and perform a narrow task each. By combining them with wires, complex algorithms can be created. They can be placed on the canvas by drag and drop from the component ribbon or through the canvas search. Right-clicking the middle of a component opens its context menu.

Component ribbon

The component ribbon or component toolbar is organized in tabs and displays all components that Grasshopper and its plugins offer. They are organized by functionality or by plugin. Objects can be drag and dropped from here to the canvas.

Container / parameter

A container is similar to a component, but does not perform any transformation. It holds or references values, for example a point or a list of geometry from Rhino.

Input / Output grip

The half circles on the left and right side of components and containers are their input and output grips. Wires can be drawn between them and they offer an individual context menu by right-clicking them.

Preview

Geometry that is in preview mode (component's body is in a lighter gray compared to when preview mode is off) is displayed in the Rhino viewport. Selected objects are previewed in green and non-selected in red (default colors). If the option *Only draw preview geometry...* is activated (half green cylinder in the canvas toolbar), then only the selected objects are previewed in Rhino, regardless of whether the preview mode is activated for the selected objects or not.

Wire

The connections between the objects on the canvas are called wires and they can be drawn with various methods. The display of the wires indicates the data structure that is transported: A single line represents a single data item. A double line represents items in a list and a dotted line indicates that the data is structured as a data tree. Right-clicking the input grip, with a wire is connected to, allows changing the wire display.

Zoomable User Interface (ZUI)

Some components (like List Item) offer the possibility to add and remove input and output grips. This is done by zooming in on the component until labels for action appear.
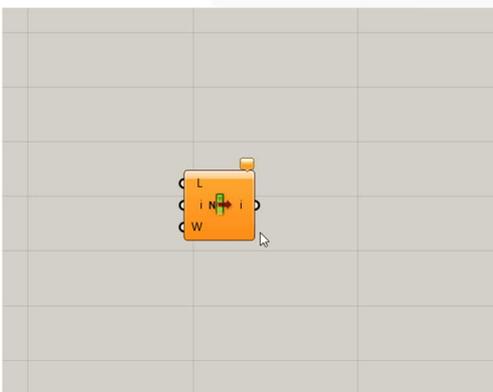
Some components let you add grips by zooming in.

Vector

A vector is a geometric quantity describing Direction and Magnitude. Vectors are abstract; ie. they represent a quantity, not a geometrical element.
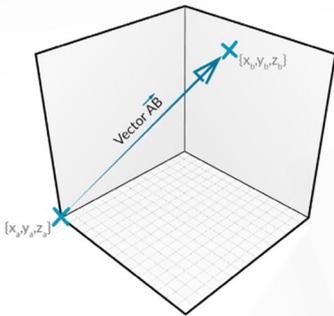
Plane

Planes are "Flat" and extend infinitely in two directions, defining a local coordinate system. Planes are not genuine objects in Rhino, they are used to define a coordinate system in 3D world space. In fact, it's best to think of planes as vectors, they are merely mathematical constructs.
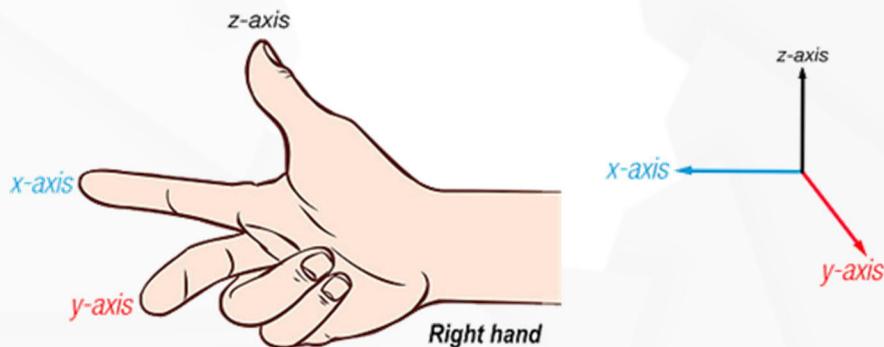
Brep

A Brep, short for boundary representation, is a shape consisting of multiple trimmed or untrimmed surfaces that are connected to each other. Its elements are faces, edges, and vertices.