PARALLEL PROJECTION MATCH

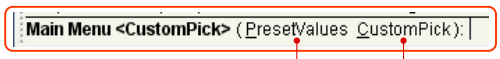
VB - Script for Rhino V4. Thomas Anagnostou (2009/03/15)

INSTRUCTION OF USE

This script helps create parallel viewports with specific vantage point characteristics.

There are two uses:
a) You can use this script to reverse engineer drawings printed with parallel views of unknown projection. You do this by importing a background bitmap of the drawing in question. Draw two lines tracing the X and Y axis of that drawing and then run the script with the 'CustomPick' option. You are basically telling Rhino: "Do you see these two lines I just drew in your Top viewport ? Well, this is how I want the make2d result to look like. I want the 2d image to have that exact same projection. Give me a viewport that will do this"

b) You can use this script to create standard Isometric, dimetric, Trimetric, or Custom angle viewports, by selecting the 'Preset' script option and manually entering the XY axis angles. (eg. 30, 30 for Isometric; 42, 7 for Dimetric, and 44, 15 for Trimetric)



To create your own explicitly defined projection:

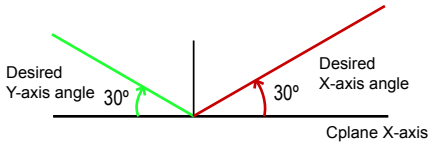
Select the top viewport.
Enter X and Y values at the prompts
For example:
Enter x=30, y=30 for Isometric, or
Enter x=42, y=7 for Dimetric
Enter x=44, y=15 for Trimetric

Input

To reverse engineer an unknown projection:
1. Place a background bitmap on the top viewport.
   The background image needs to have its Z-axis on the vertical (Adjusted, if necessary, in a photo program)
2. Trace a line representing the X-axis
3. Trace a line representing the Y-axis
   Traced lines need not touch (see input image below)

Top viewport

Both the XY values you enter are measured from the horizontal and they are both positive



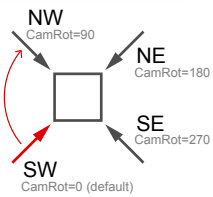
Result

The perspective view will be automatically oriented to match the perspective of the bitmap.

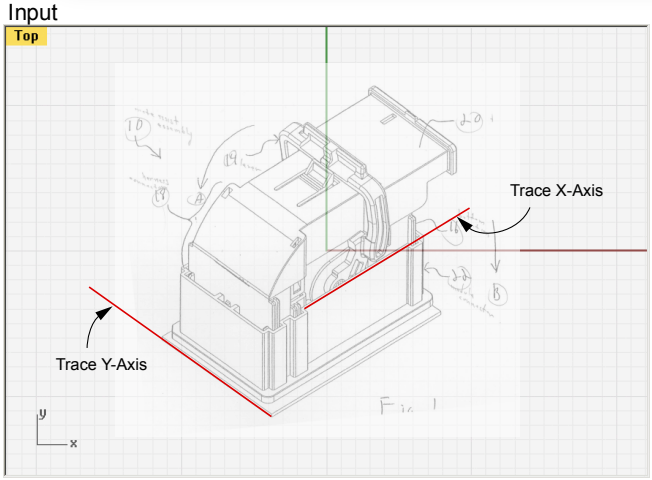
If the script is successful and a perspective view is found, the projection of the Perspective viewport will be automatically converted to parallel.

Z-axis option: You can select the Z-axis orientation to be negative if you want to look from the bottom up (by default the script will give you a view from above).

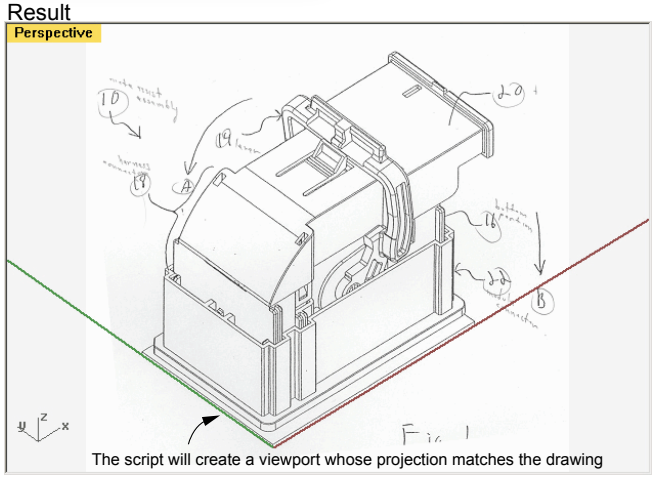
Camera rotation option: You can choose to offset the final camera rotation. By default the script will generate a SouthWest vantage point. To create a NW vantage point enter 90 (to offset the camera 90 degrees clockwise from the default)



Input



Result



INSTALLATION

1. Save the IsoMatch.rvb file in a directory on your drive.
2. Create a new alias (e.g. IsoMatch) with this macro: `_-loadscript "C:\.....\isomatch.rvb"`
3. Replace the dots with the directory of step 1.
4. Create a button with this command: `! IsoMatch Auto No` or `! IsoMatch`