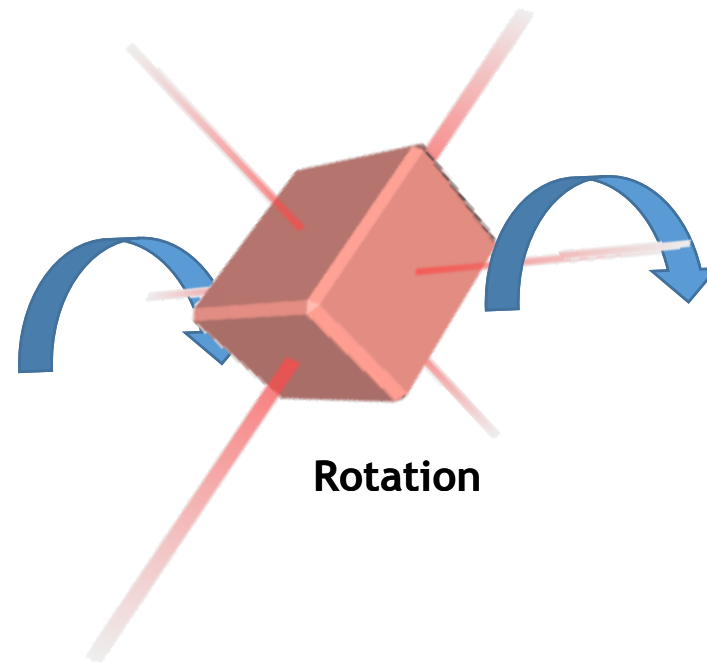
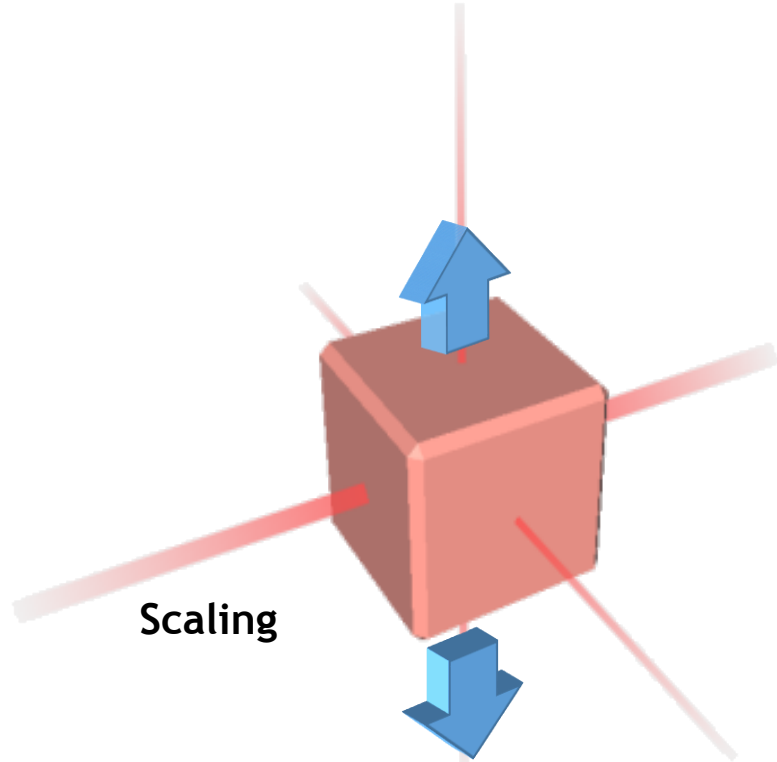


User Interfaces and Interaction Techniques

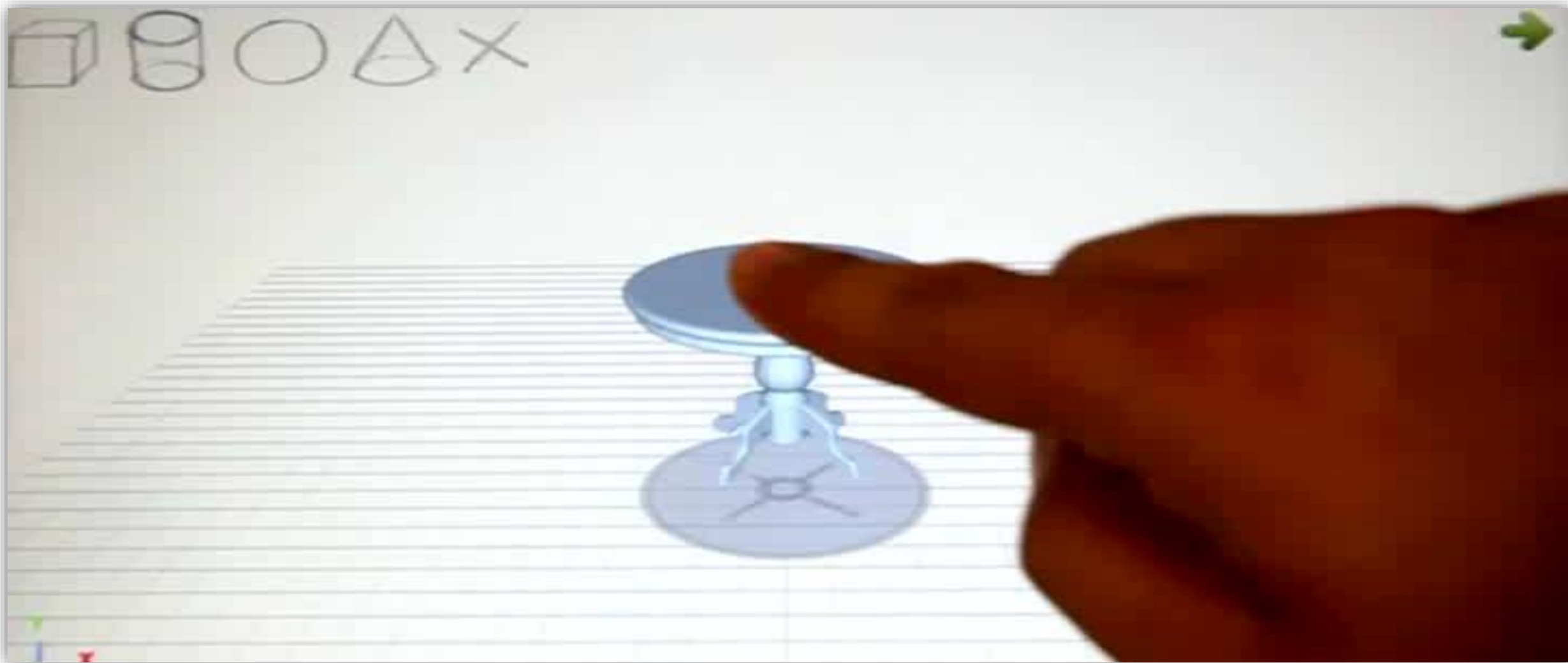
Chiew-Lan Tai

Multi-touch gestures for constrained transformations of 3D objects

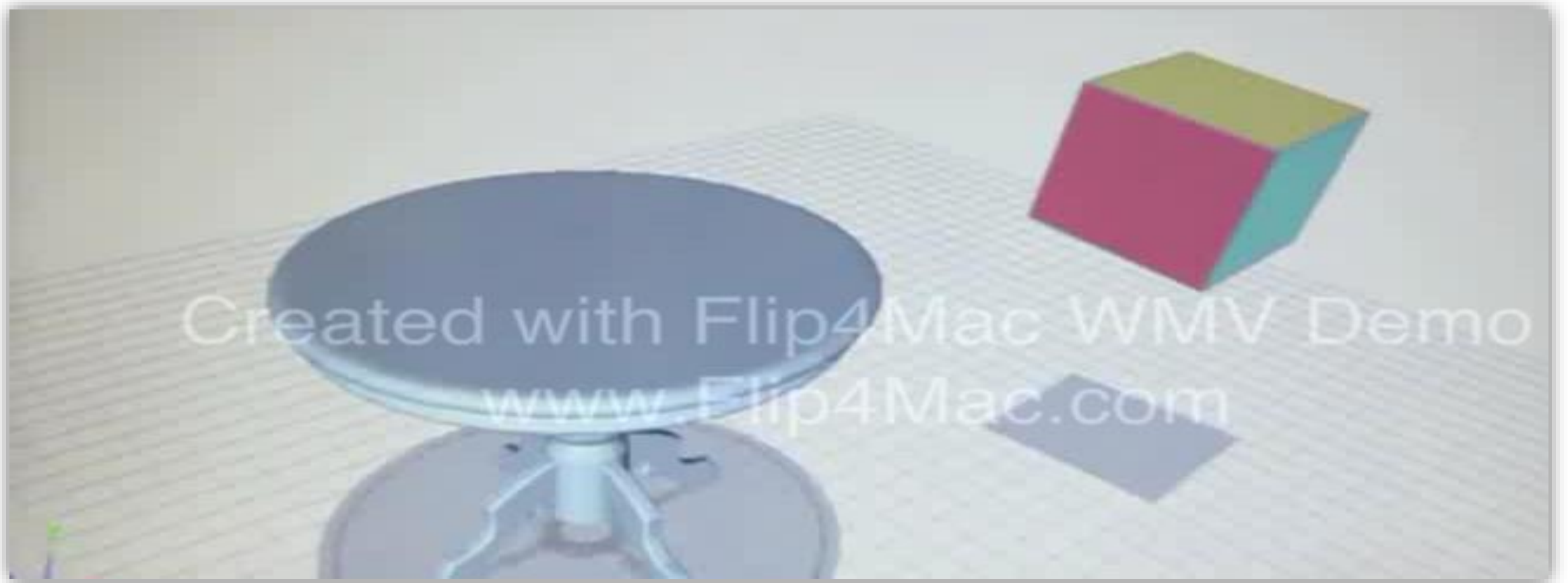
[Eurographics 2012]



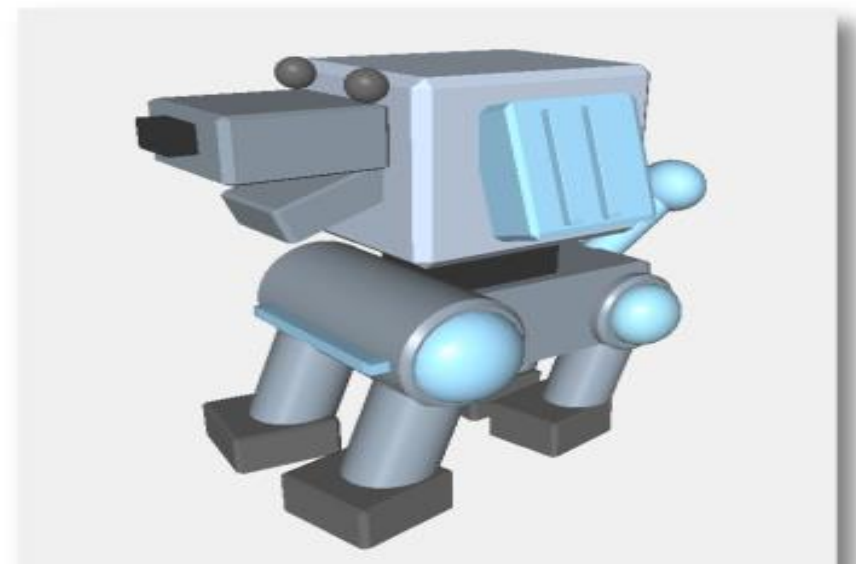
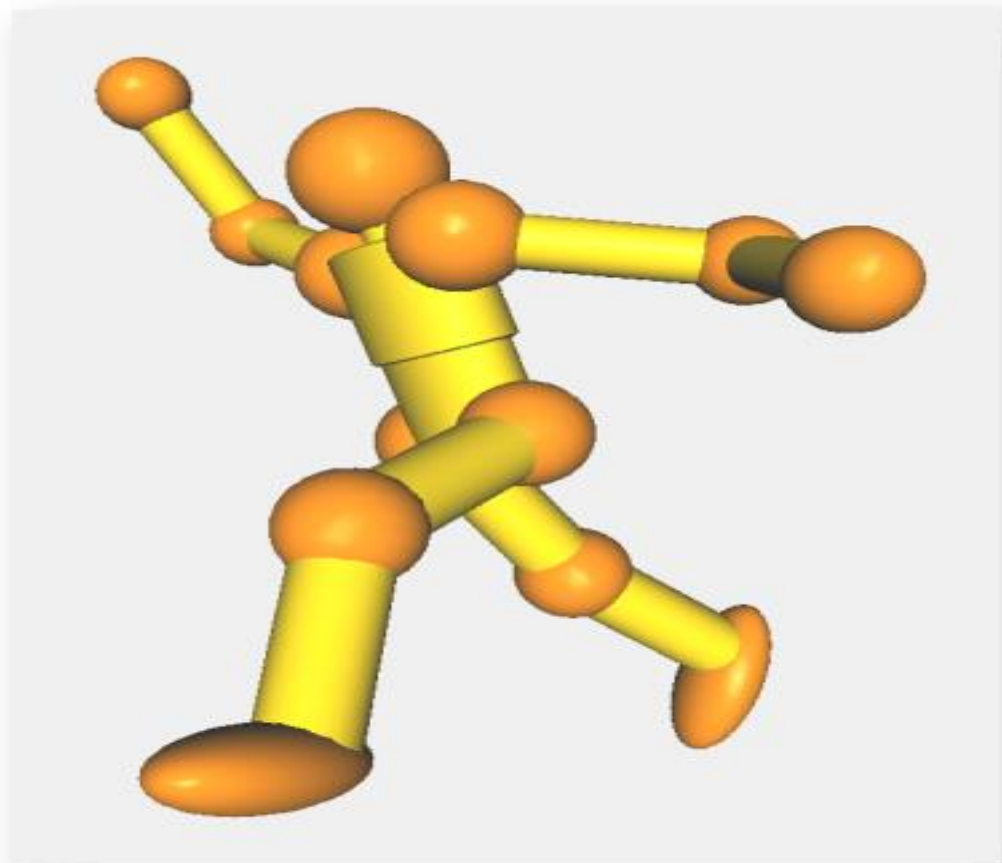
Axis-based Manipulation

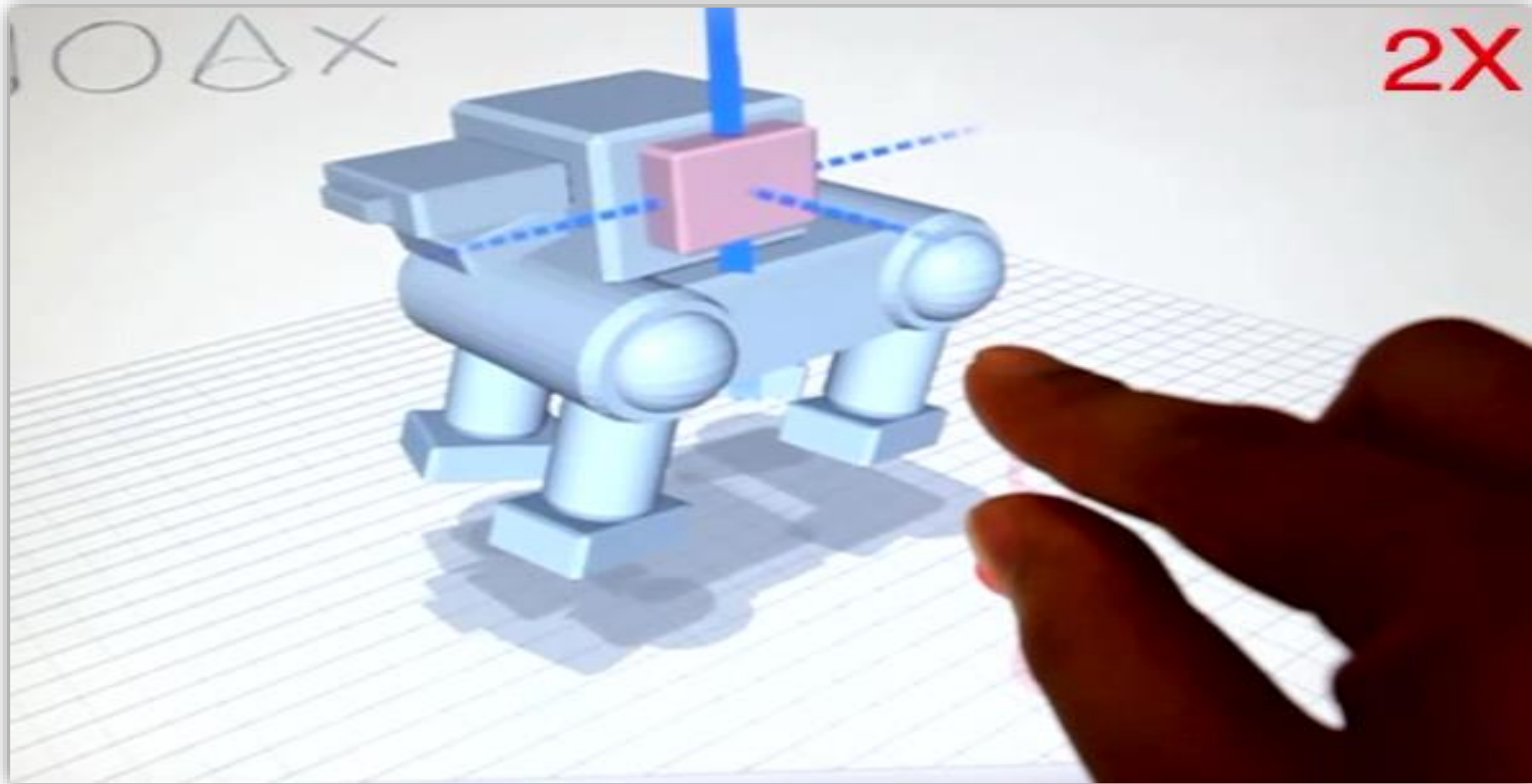


Active Snapping



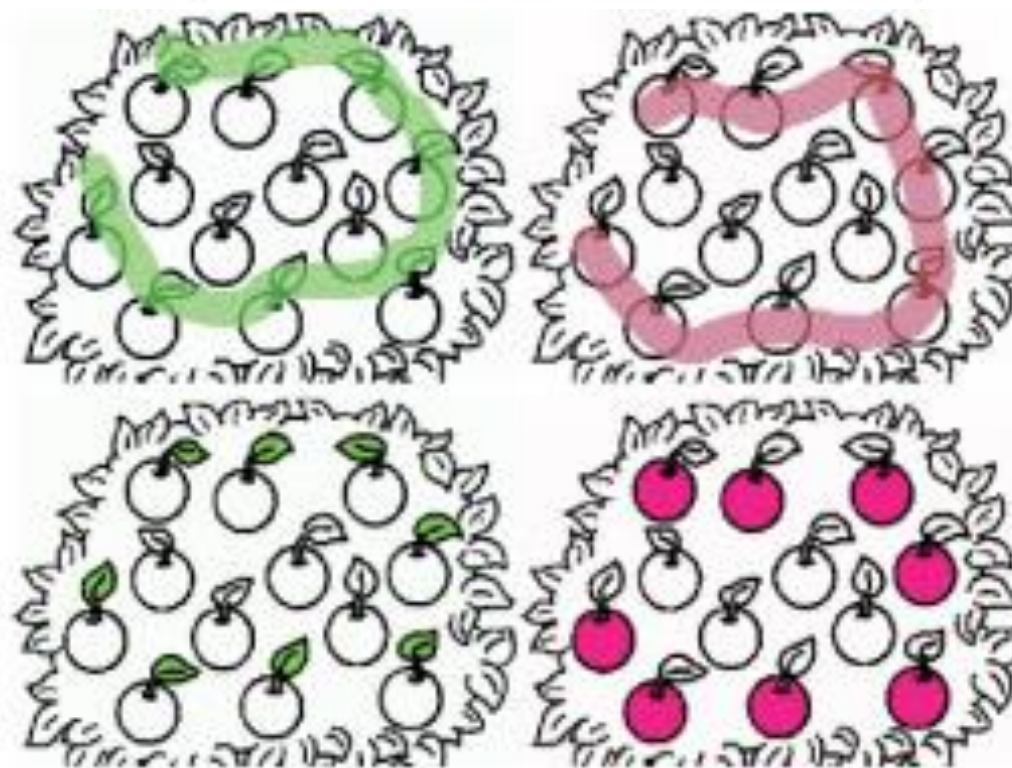
User study





Lazy Selection

[SIGGRAPH Asia 2012]

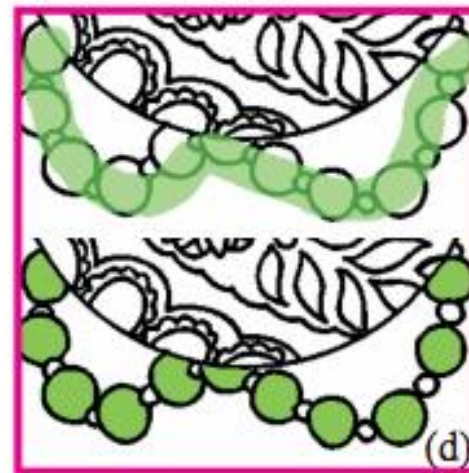
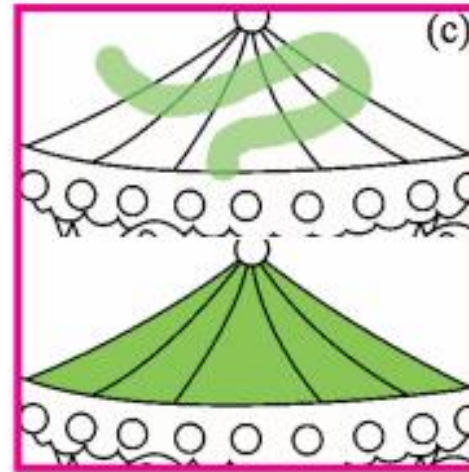
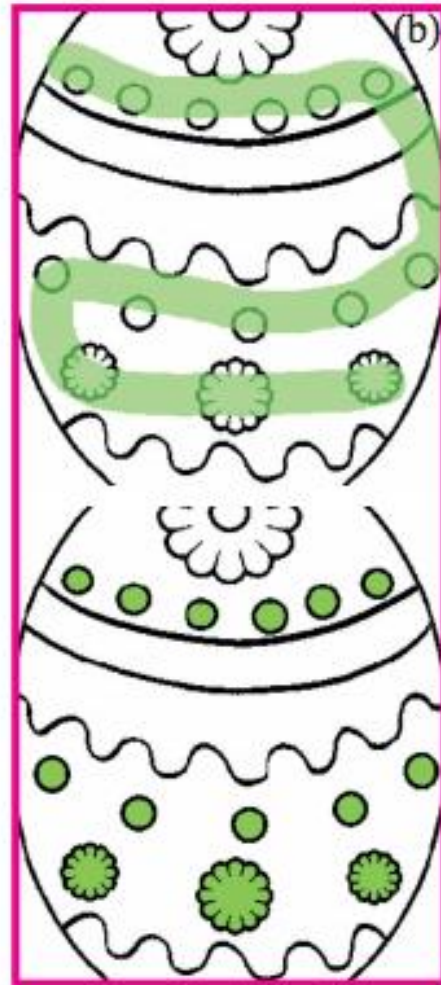
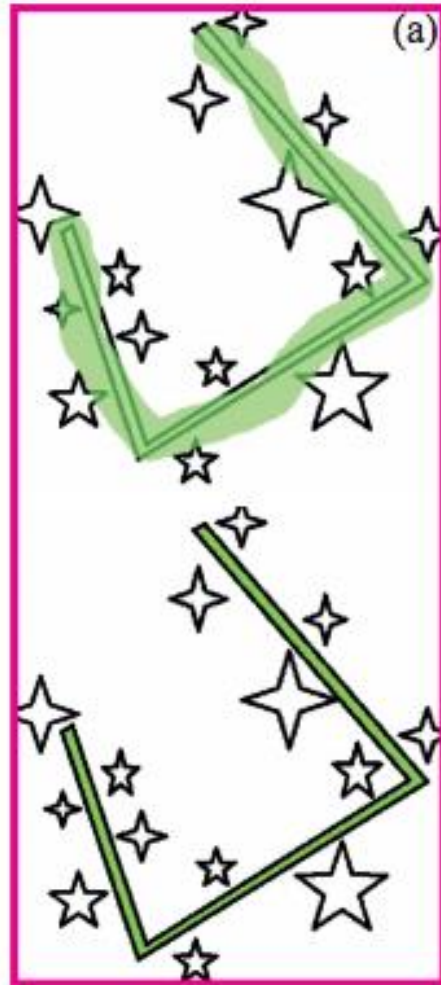


Traditional UIs: clicks or lasso



Click selection

Challenge: automatically reveals user's intention is nontrivial



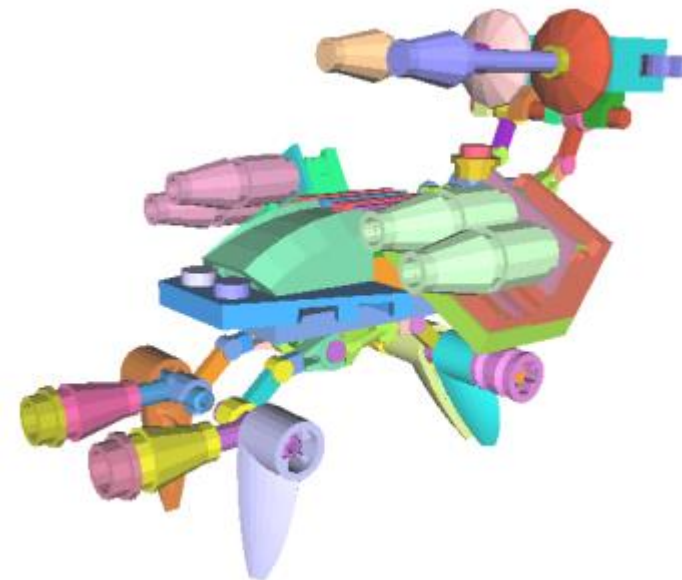
Applicable to different types of shape elements



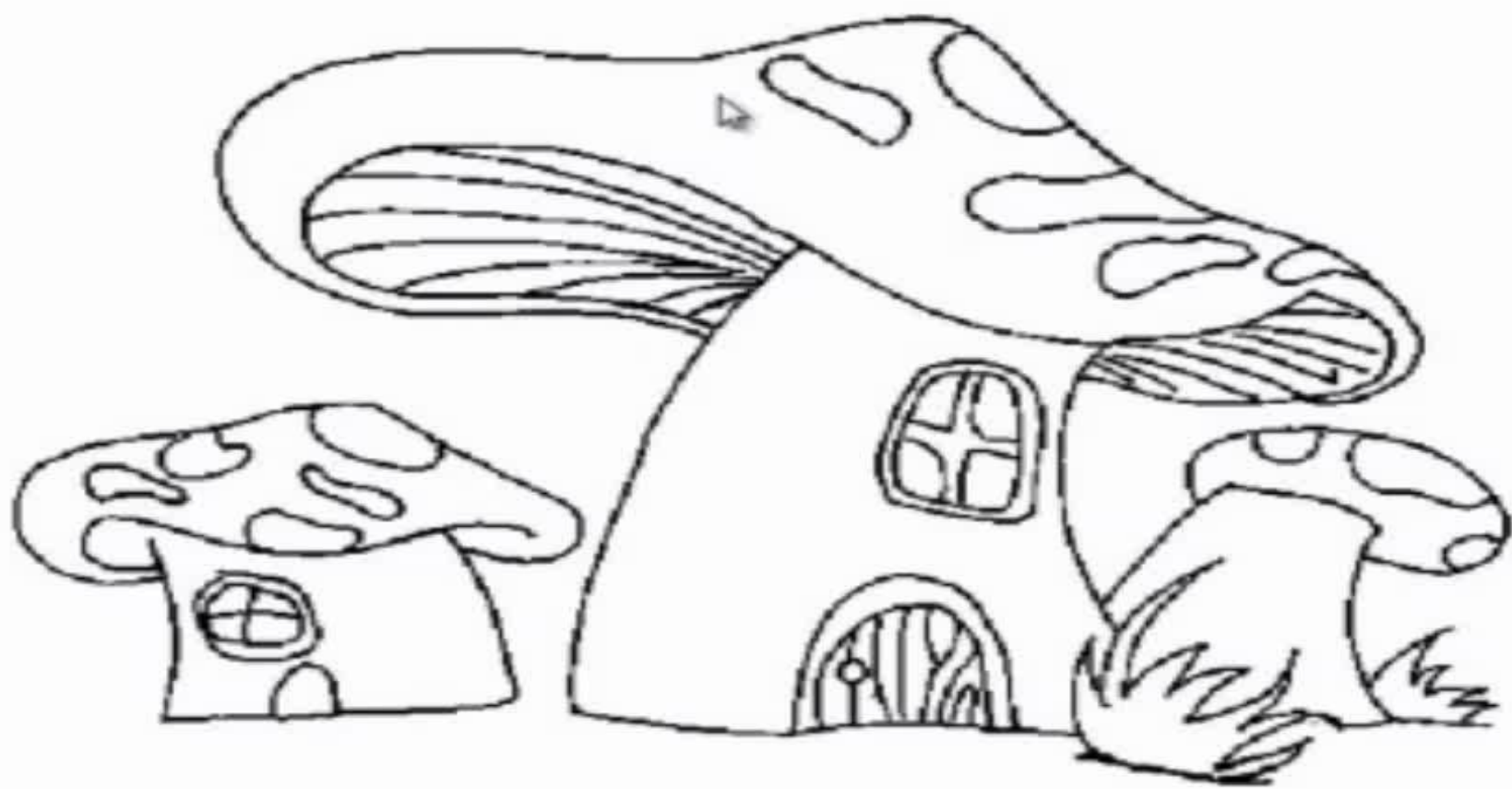
Bitmap images with well-defined regions



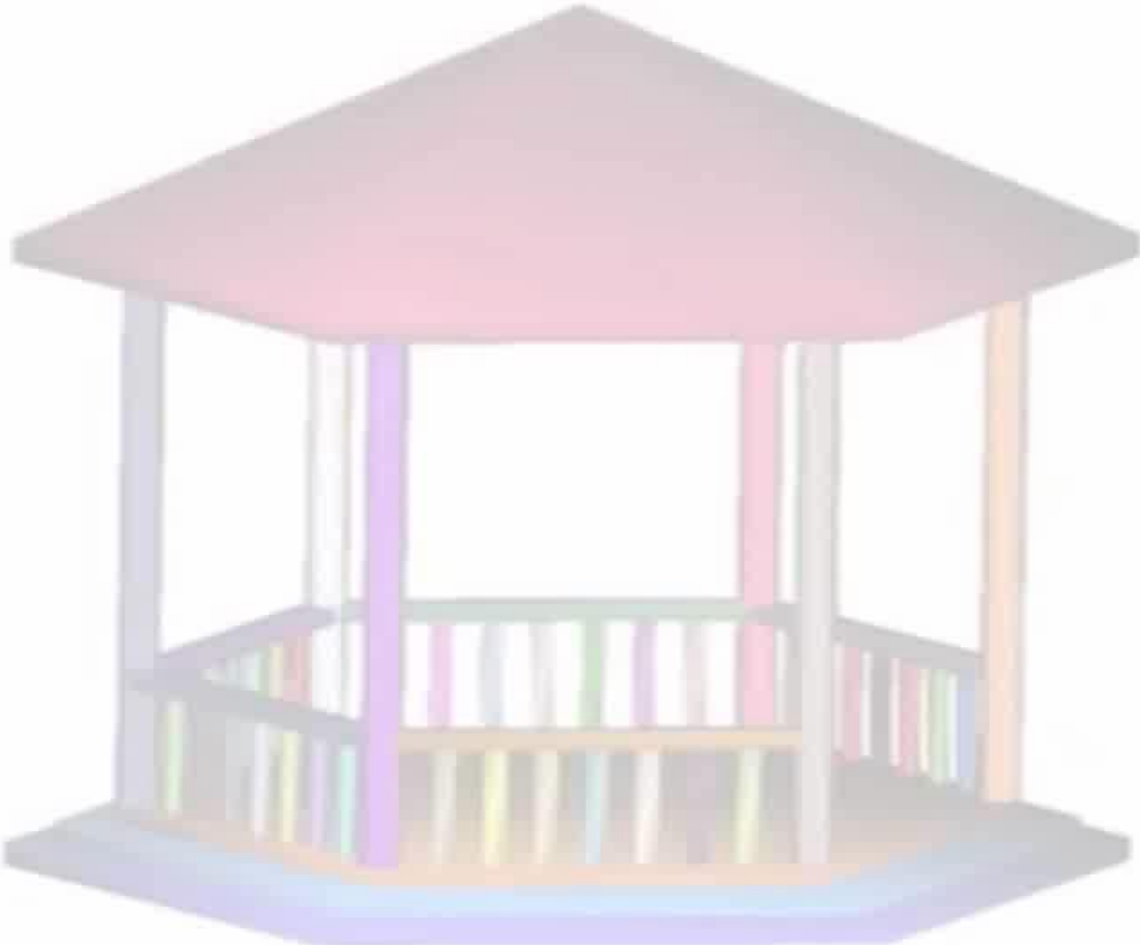
Vector graphics images



3D models with segmentation



Selection of 3D Elements



Group-Aware Command-Based Arrangement Tool (GACA)

[CHI 2015]

Presentation1 - PowerPoint

FILE HOME INSERT DESIGN TRANSITIONS ANIMATIONS SLIDE SHOW REVIEW VIEW ADD-INS Sign in

Paste New Slide Layout Reset Section

Clipboard Slides

Font Paragraph Drawing Editing

18 A A

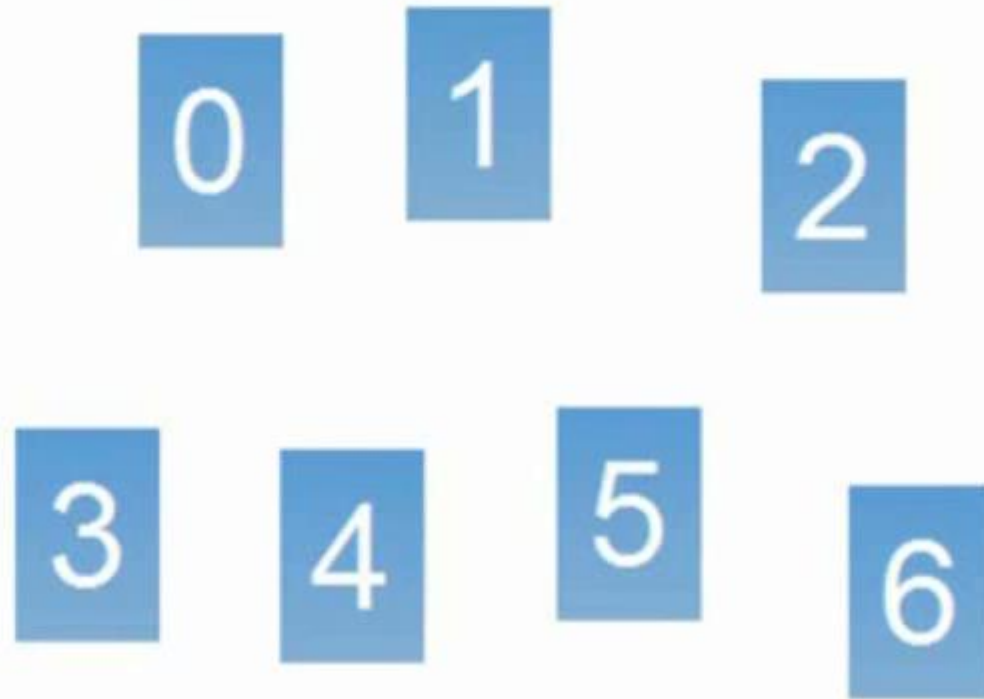
B I U S abc AV Aa A

Shapes Arrange Quick Styles

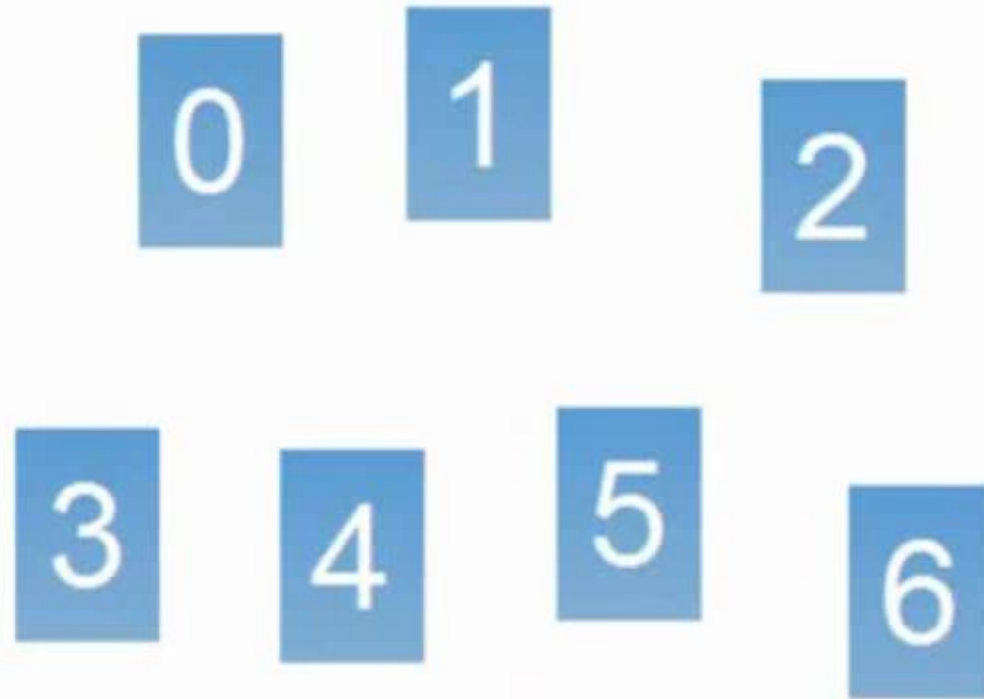
Find Replace Select

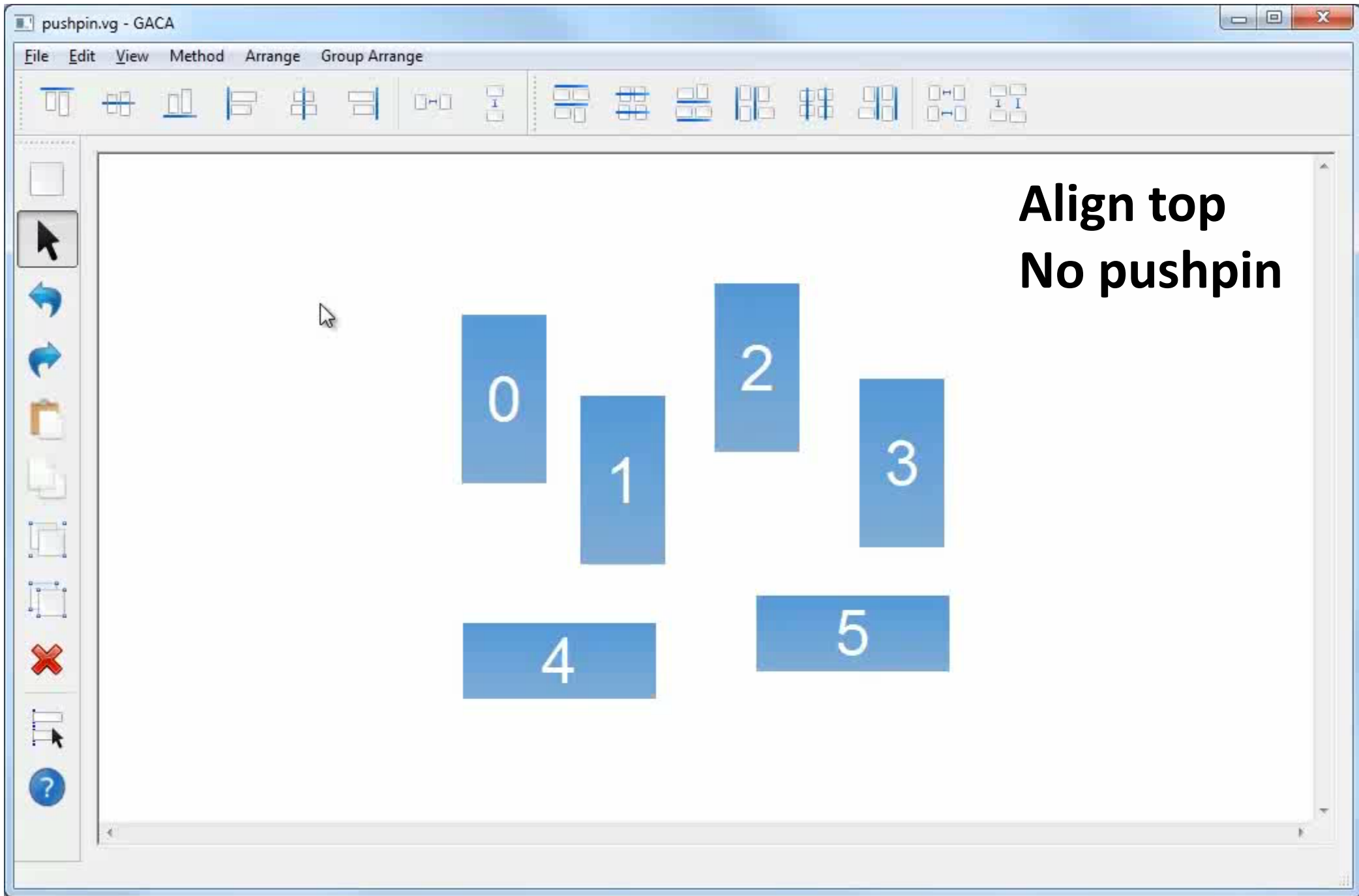
The screenshot shows the Microsoft PowerPoint application window. The title bar reads "Presentation1 - PowerPoint". The ribbon is set to the "HOME" tab, which is divided into several groups: "Clipboard" (Paste), "Slides" (New Slide, Layout, Reset, Section), "Font" (font size 18, bold, italic, underline, strikethrough, text color, font color), "Paragraph" (bullet points, numbering, indent, decrease indent, increase indent, text alignment, text orientation), "Drawing" (Shapes, Arrange, Quick Styles), and "Editing" (Find, Replace, Select). The main slide area contains four blue squares arranged in a staggered pattern. A small thumbnail of the slide is visible in the left-hand pane. The status bar at the bottom indicates "SLIDE 1 OF 1", "ENGLISH (UNITED STATES)", and "56%" zoom level.

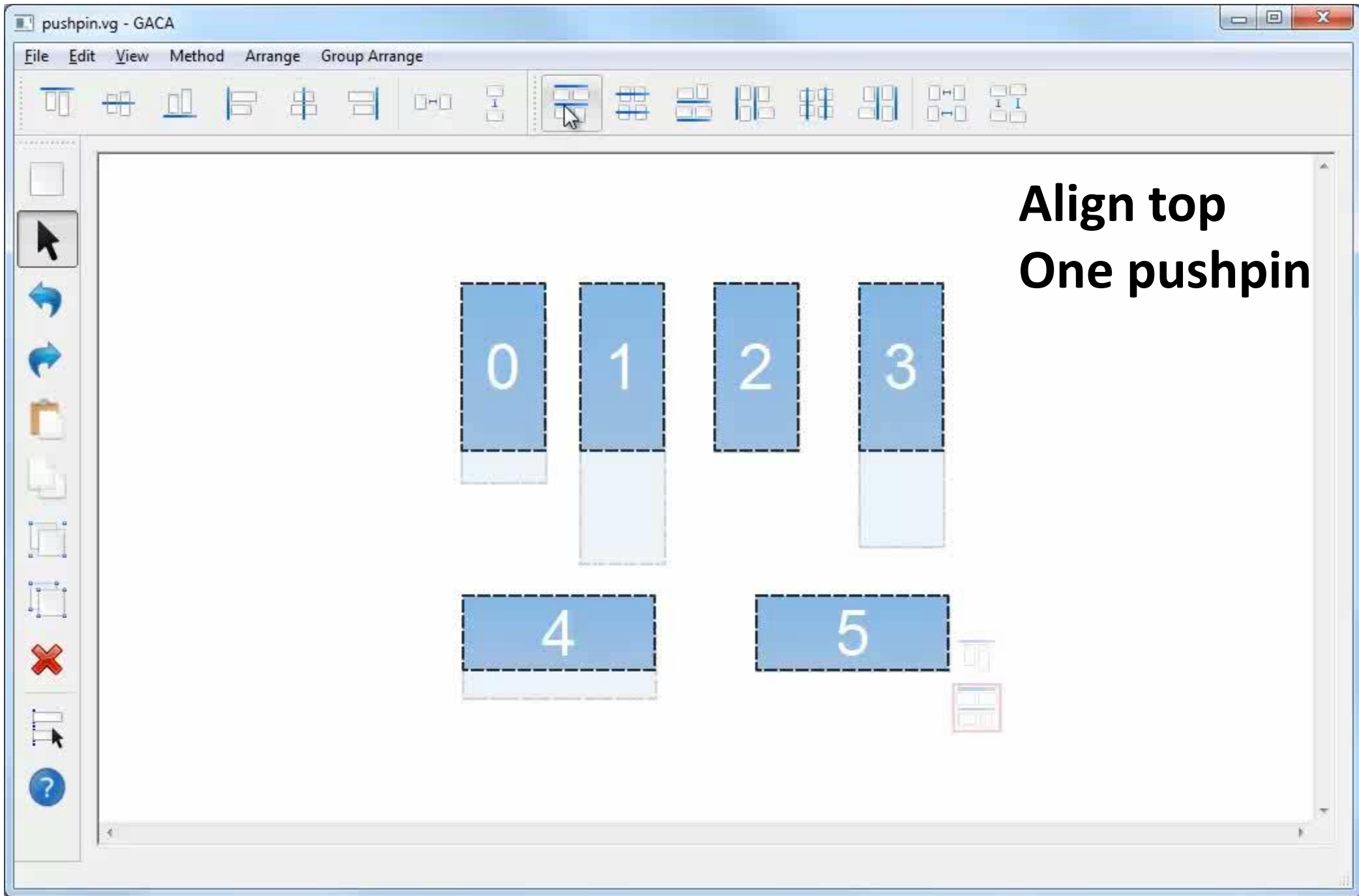
Align top

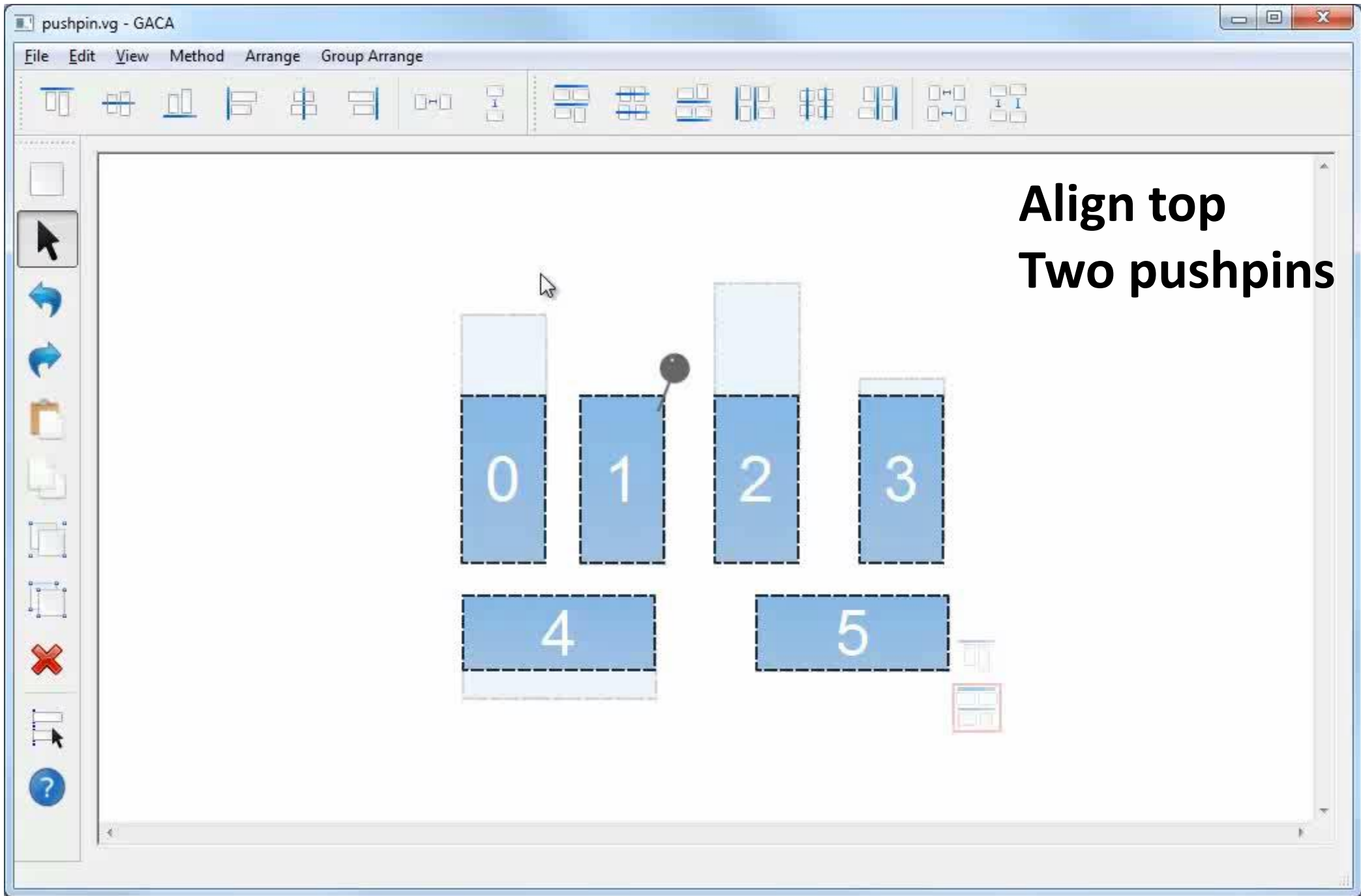


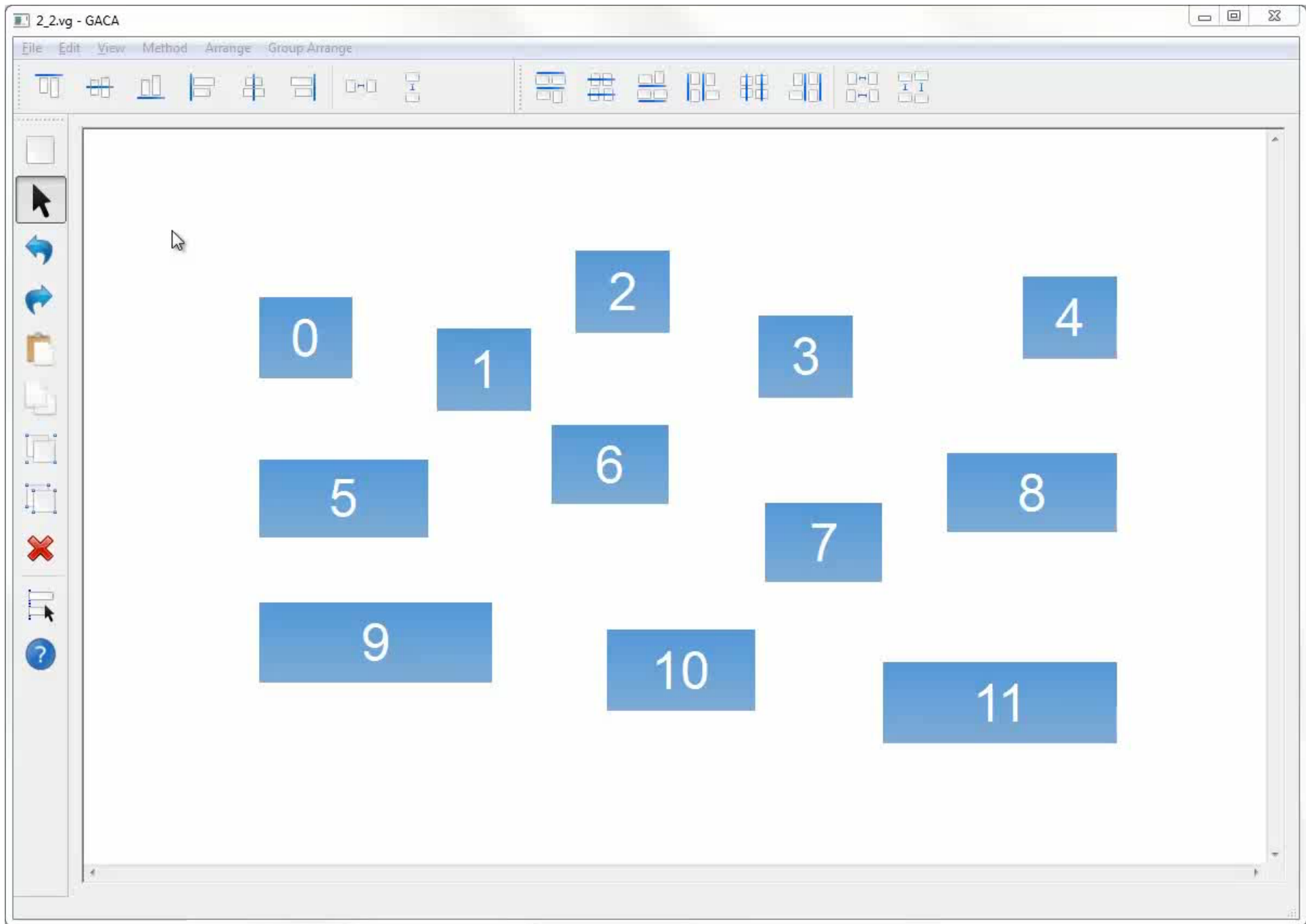
Align top



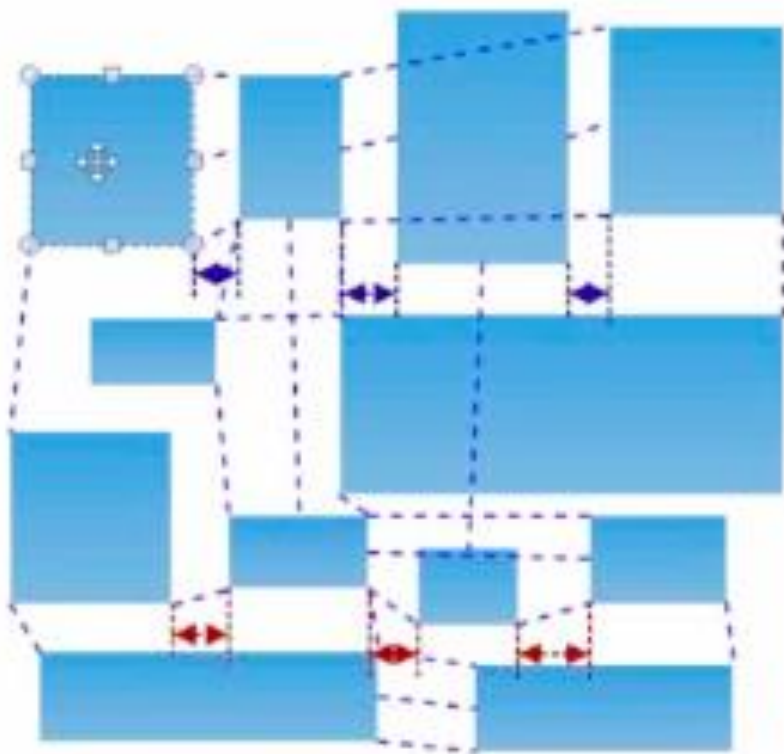




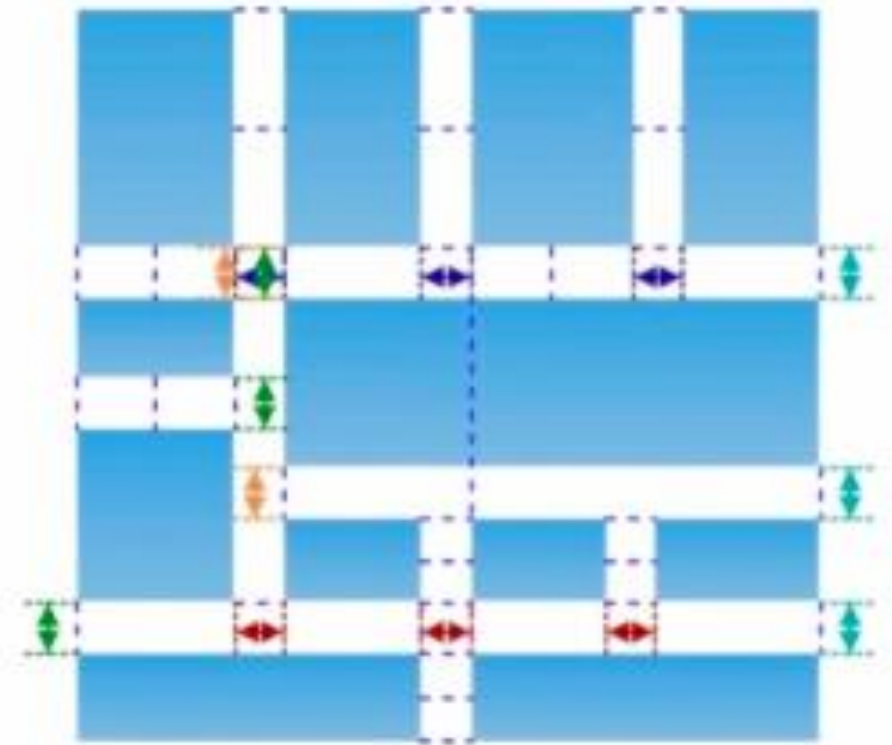
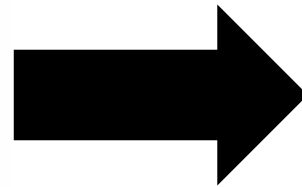




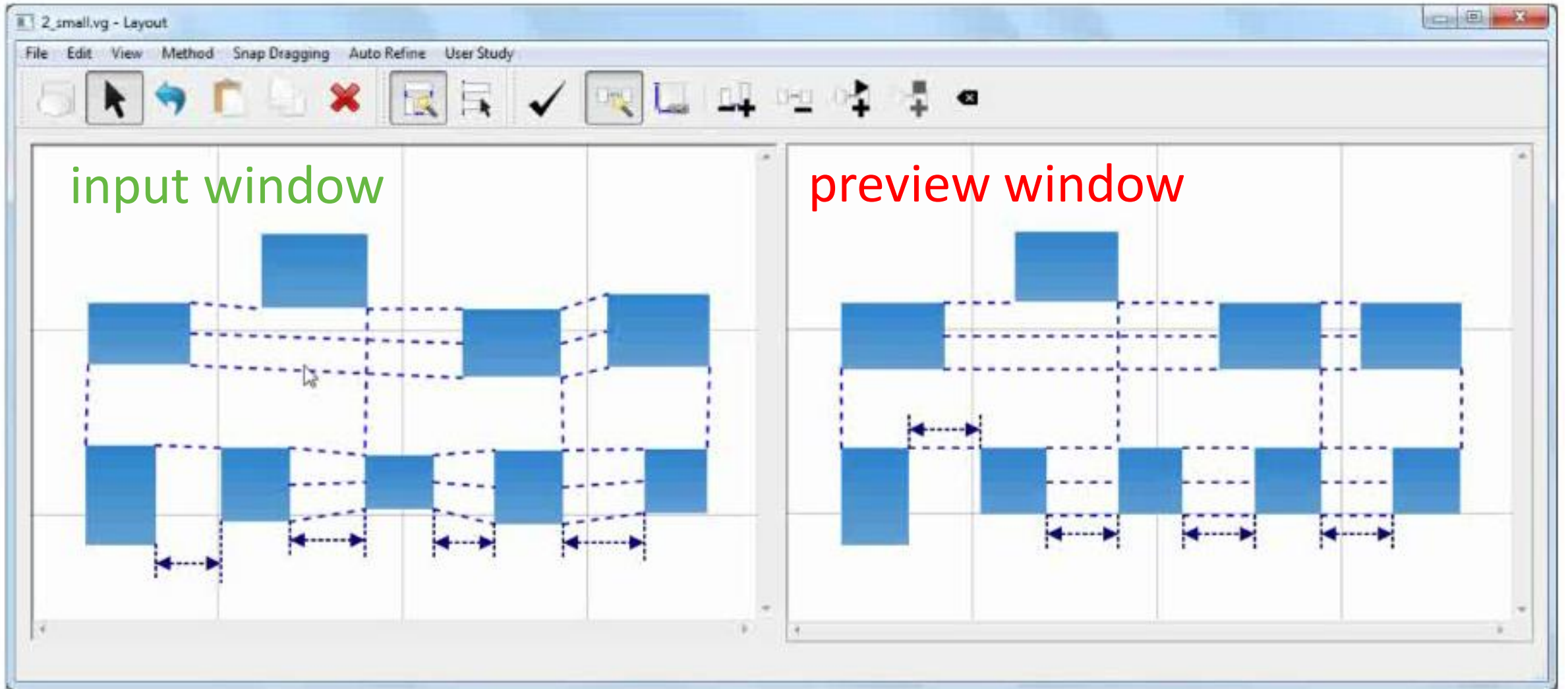
Global Beautification of Layouts with Interactive Ambiguity Resolution [UIST 2014]

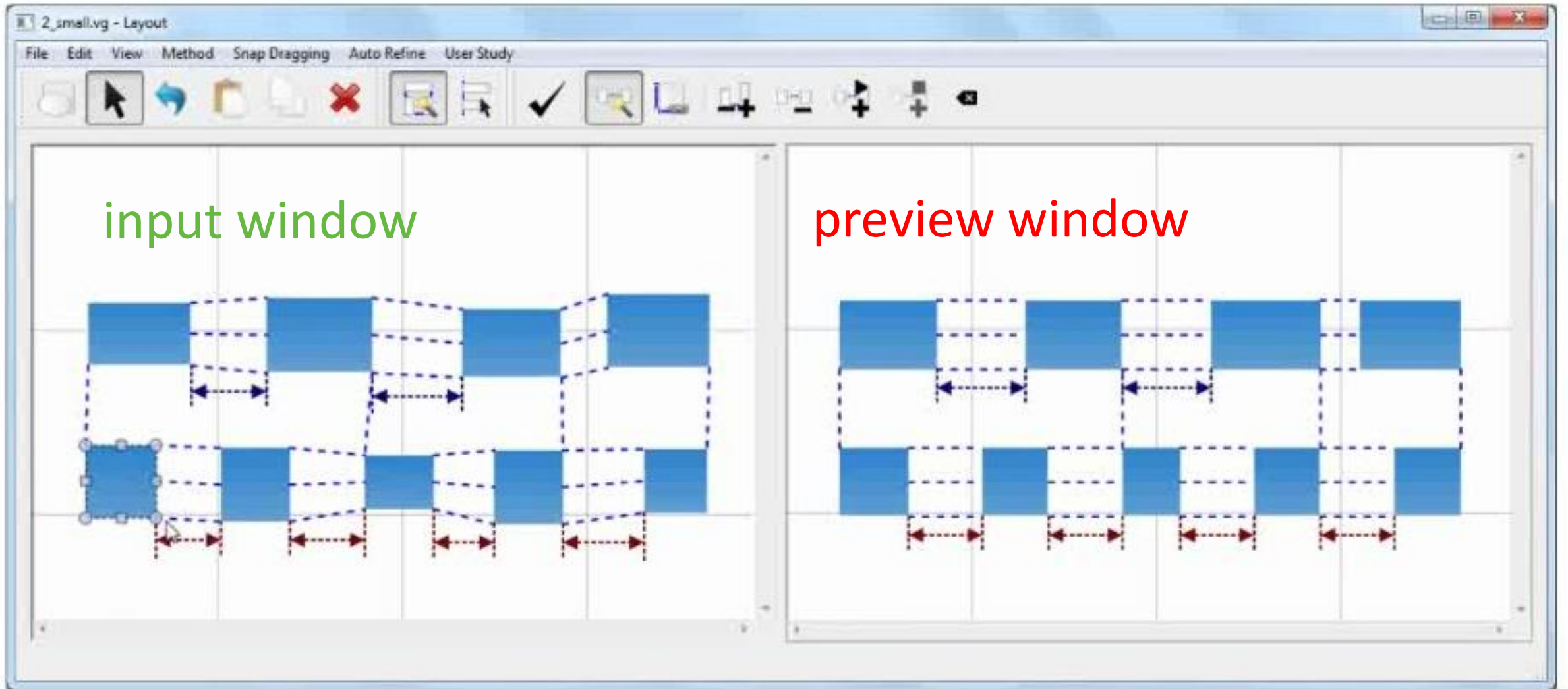


rough layout

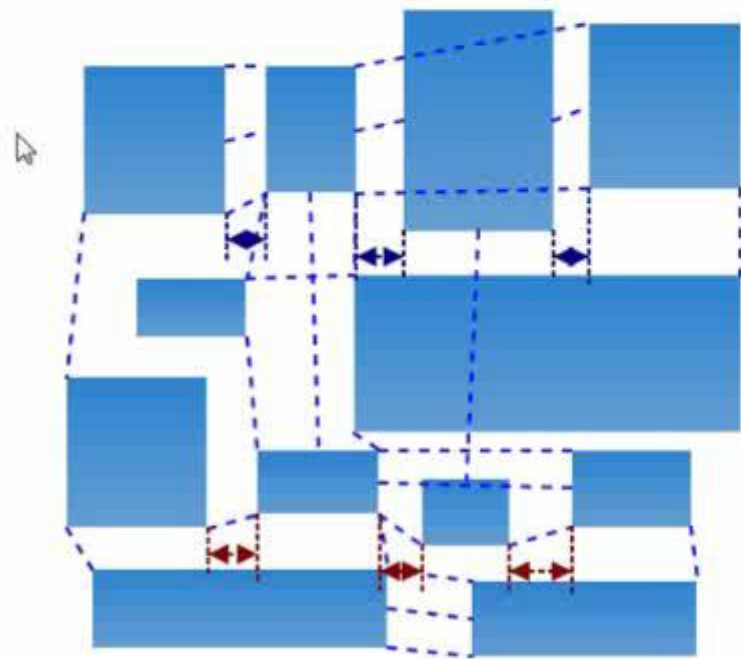


target layout

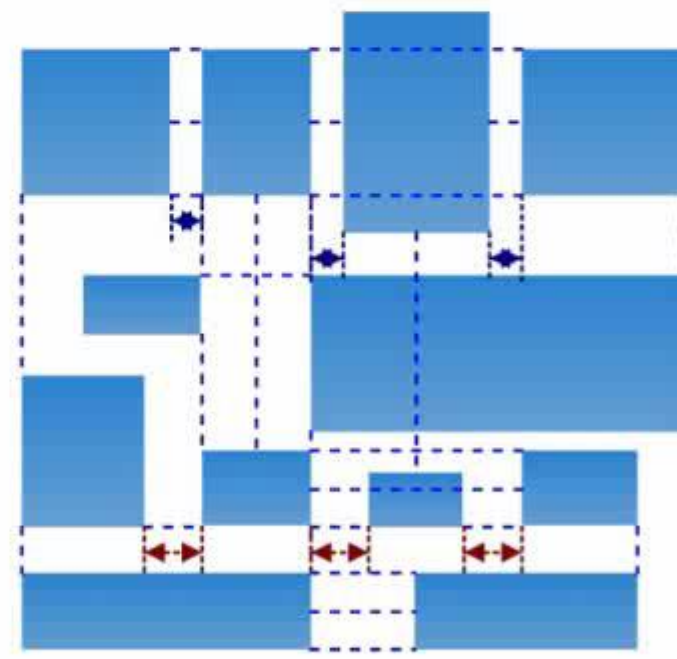




Editing layouts with our interface



Input



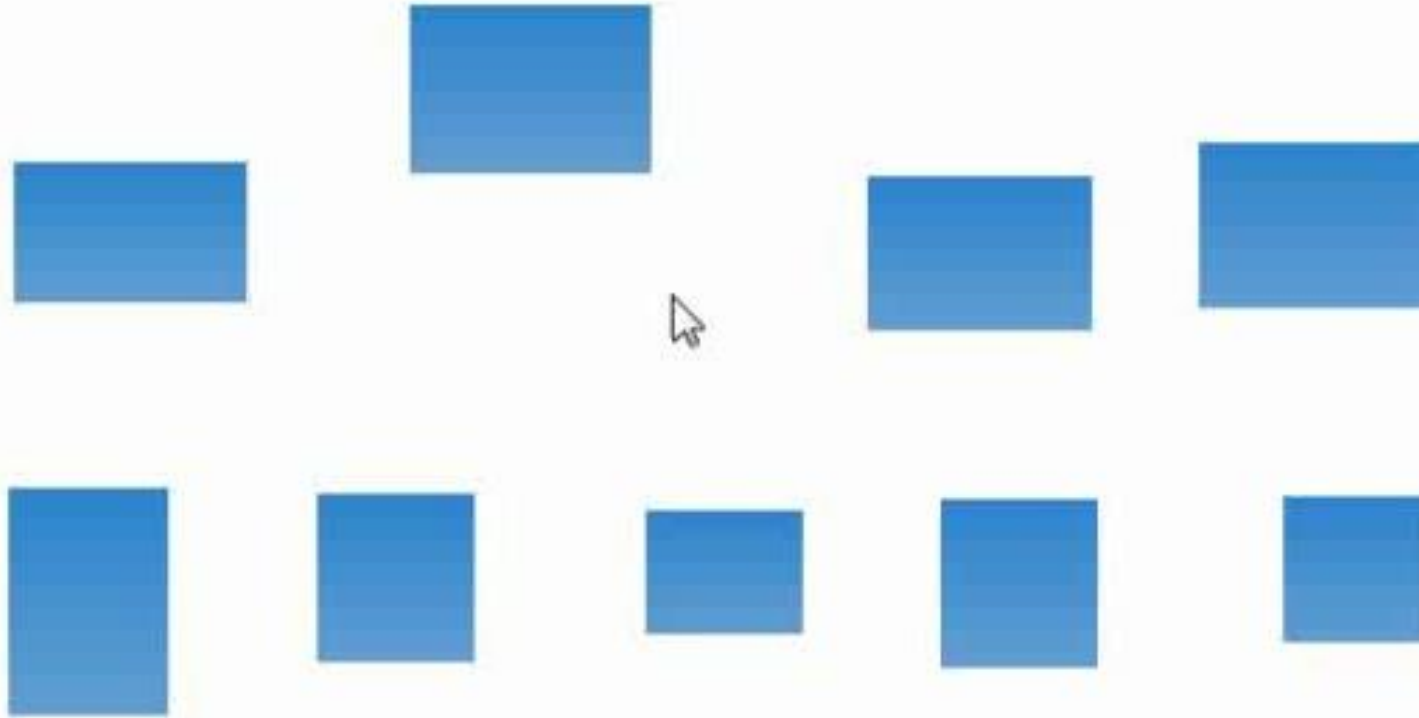
Preview

x2

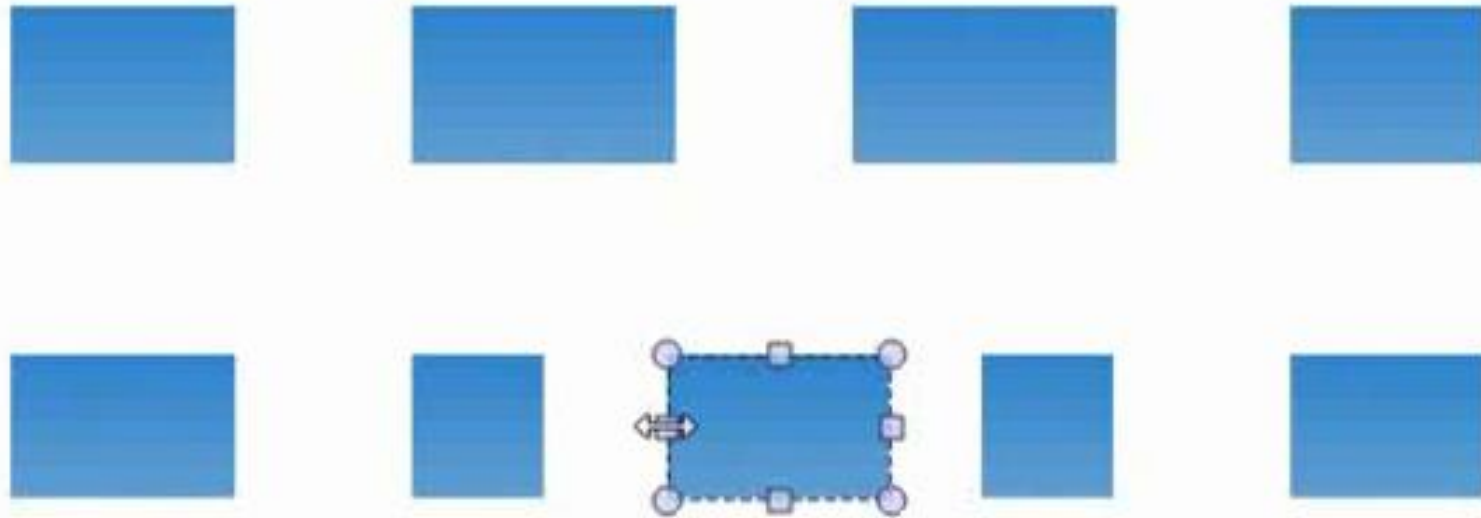
Potential interface

Apply beautification after each operation

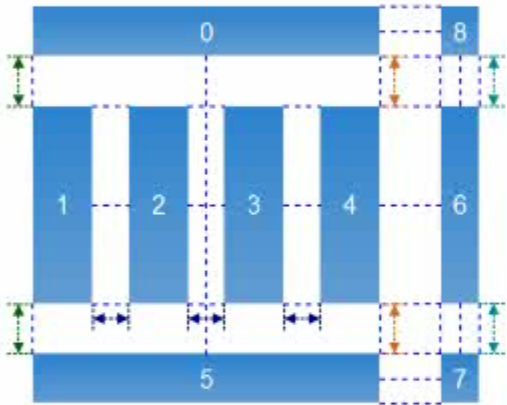
Difficult to form **global** patterns



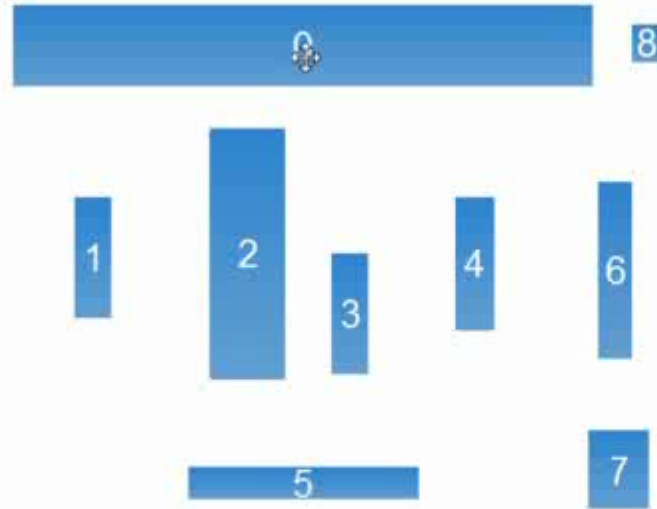
Difficult to resolve **ambiguities**



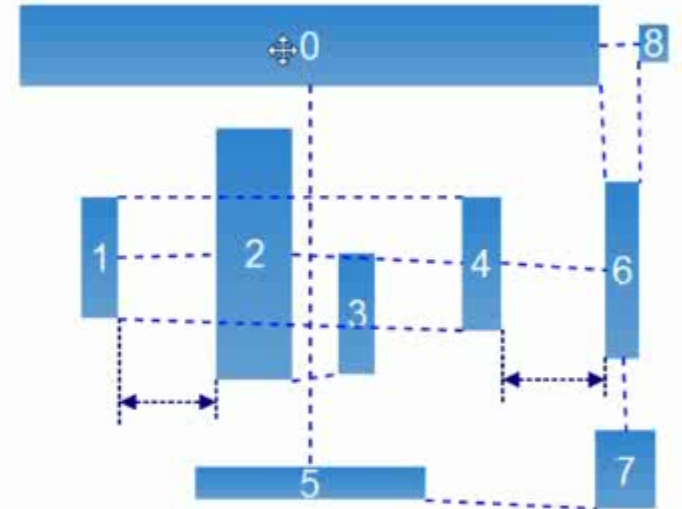
Comparison with traditional tools



Target

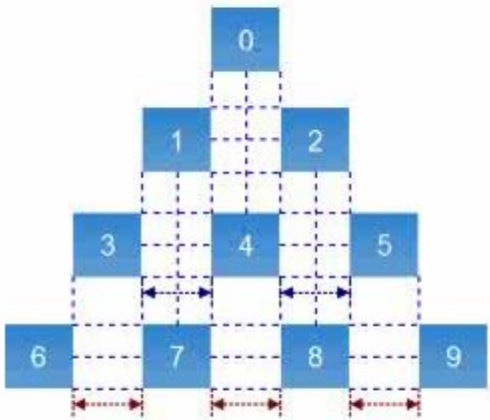


Snapping &
alignment commands

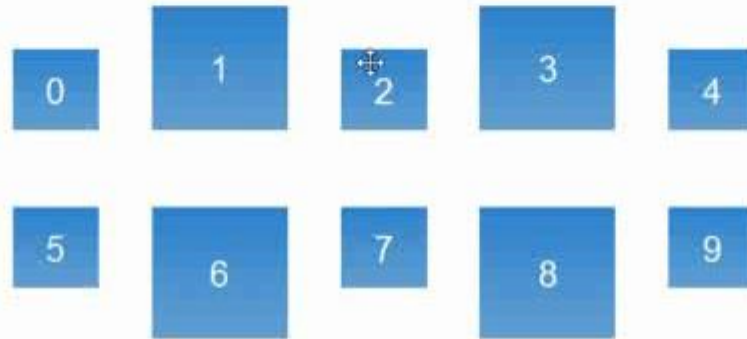


Our interface

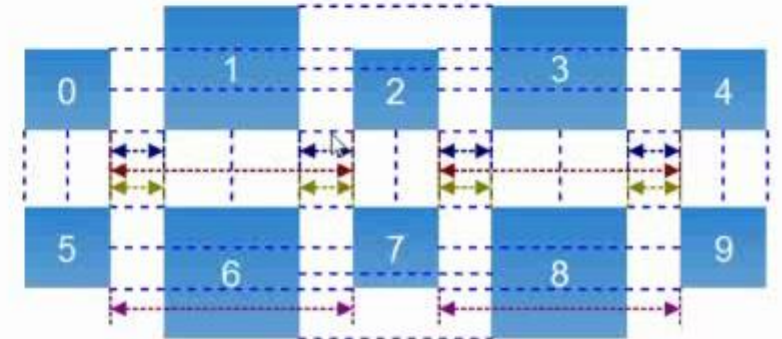
Comparison with traditional tools



Target



Snapping & alignment commands



Our interface

For more details, please refer to papers and videos on our project pages

Acknowledgement: thank my students for their nice conference presentation video clips.