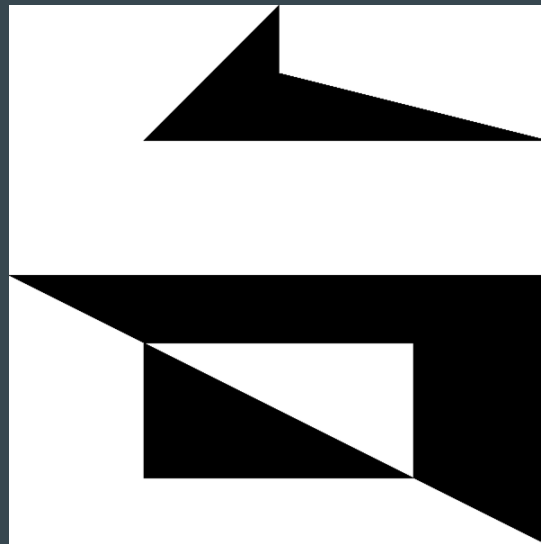
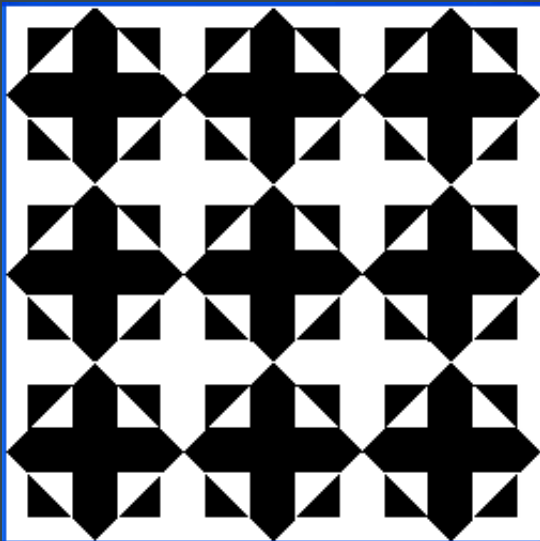


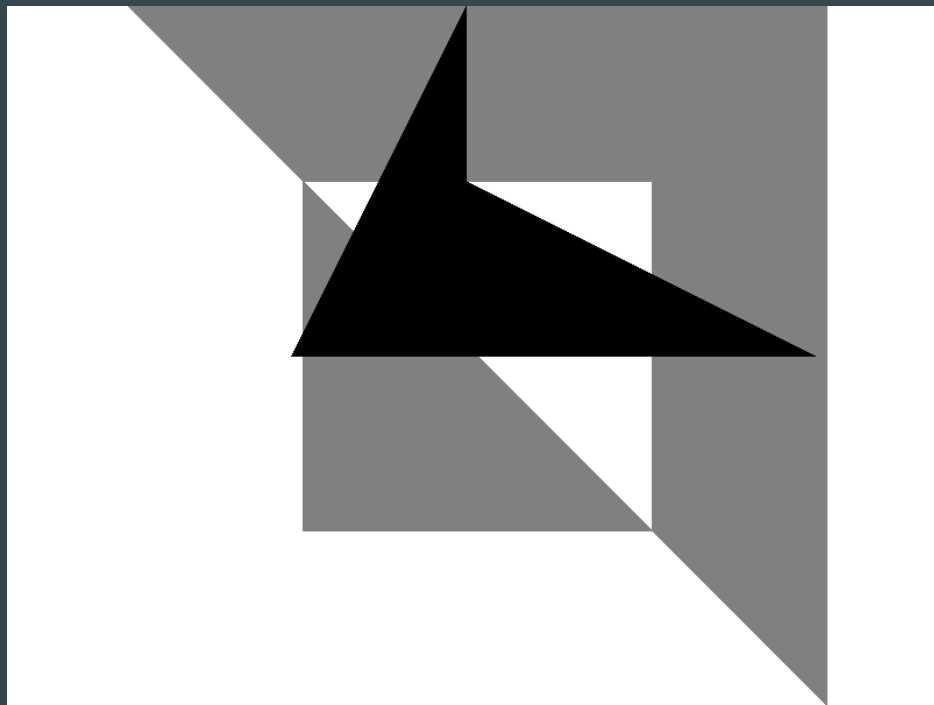
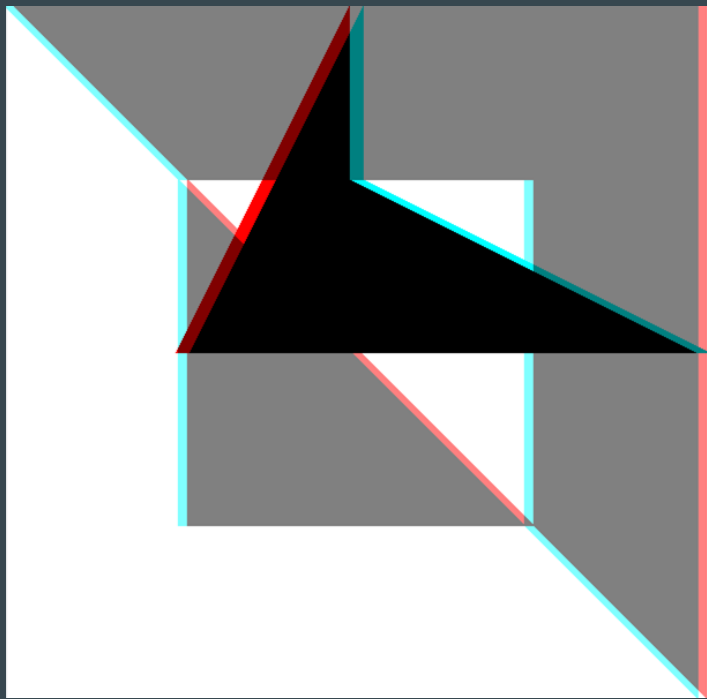
3D Runes

...

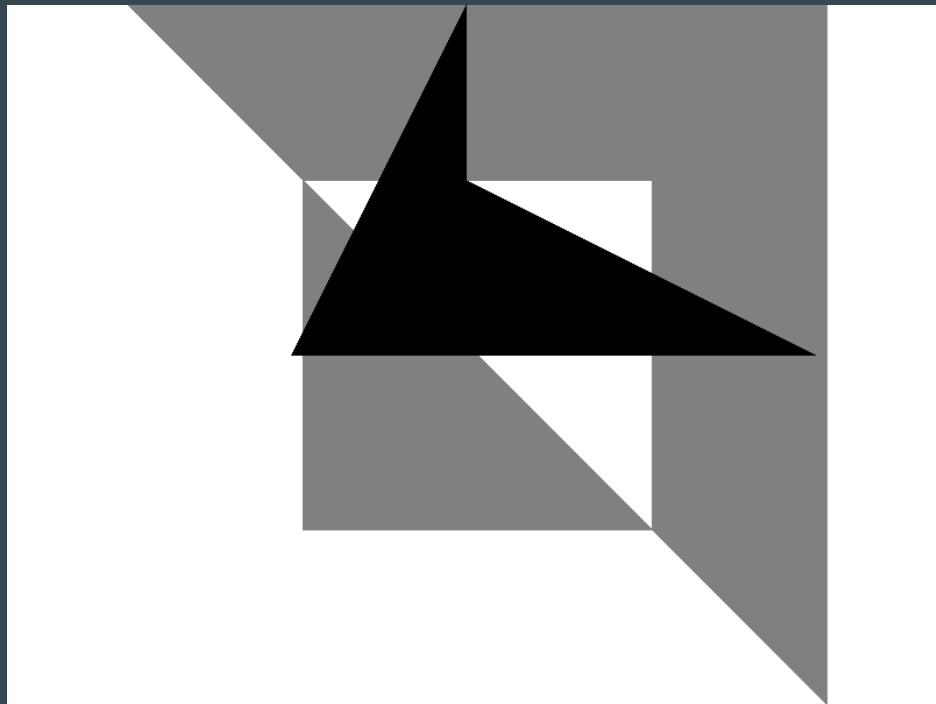
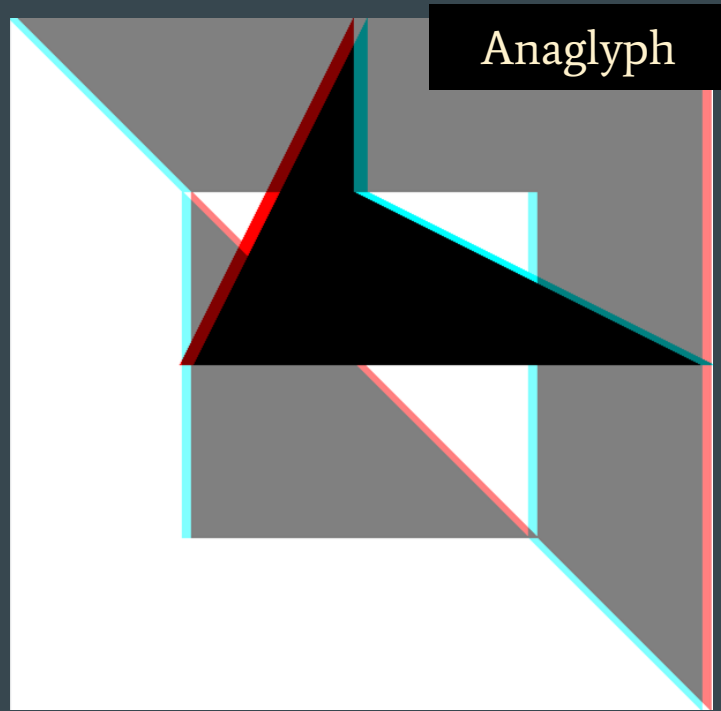
Flat Runes



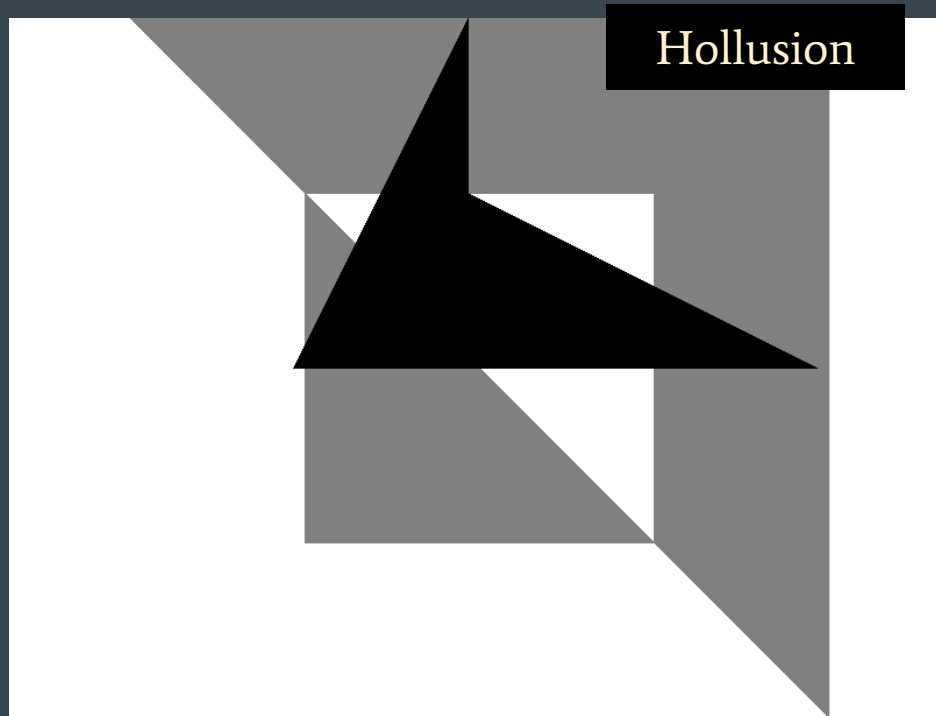
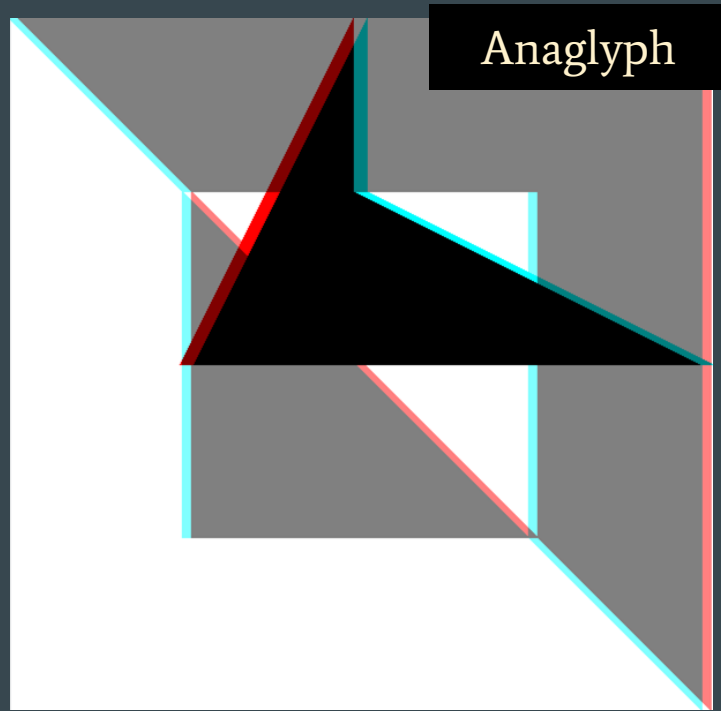
3D Runes



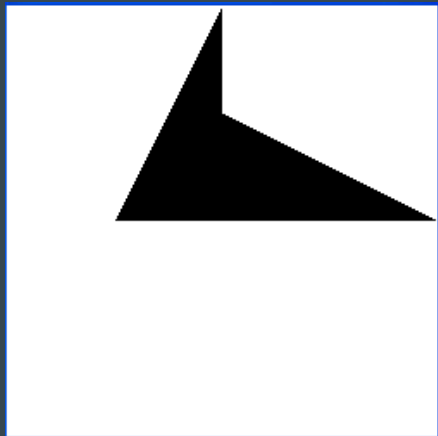
3D Runes



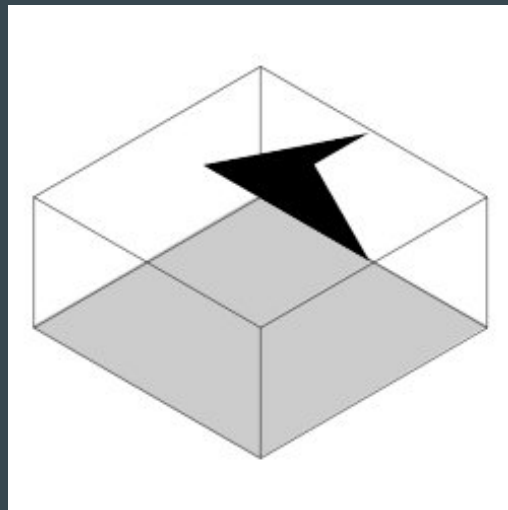
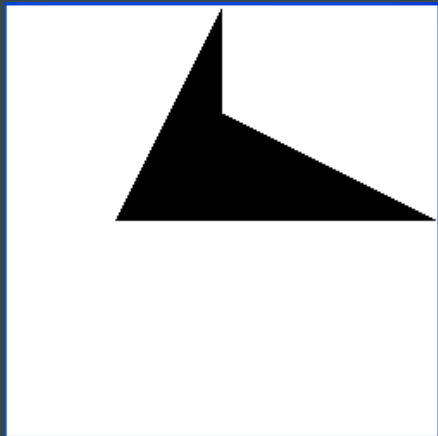
3D Runes



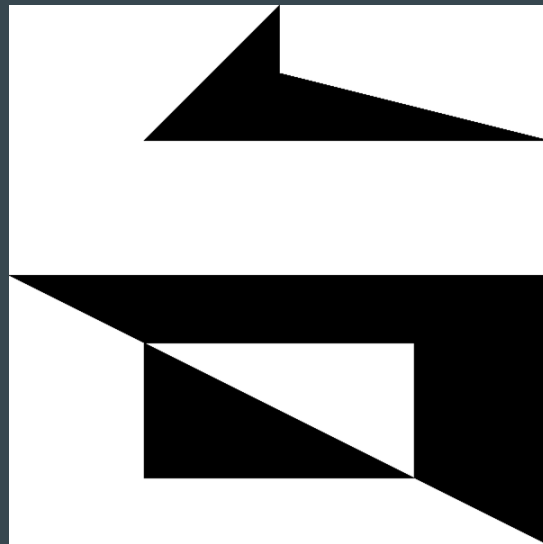
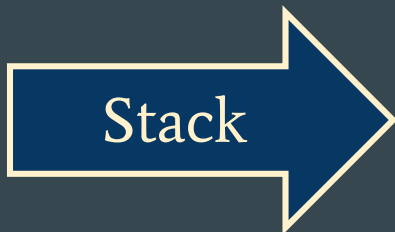
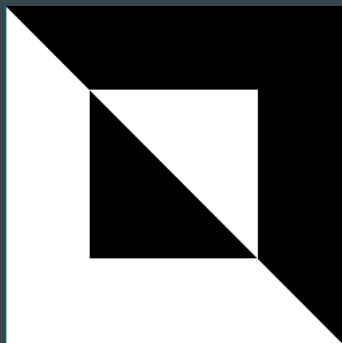
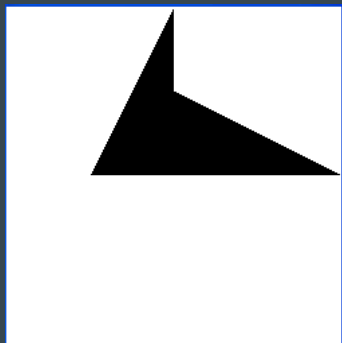
Flat Runes



3D Runes

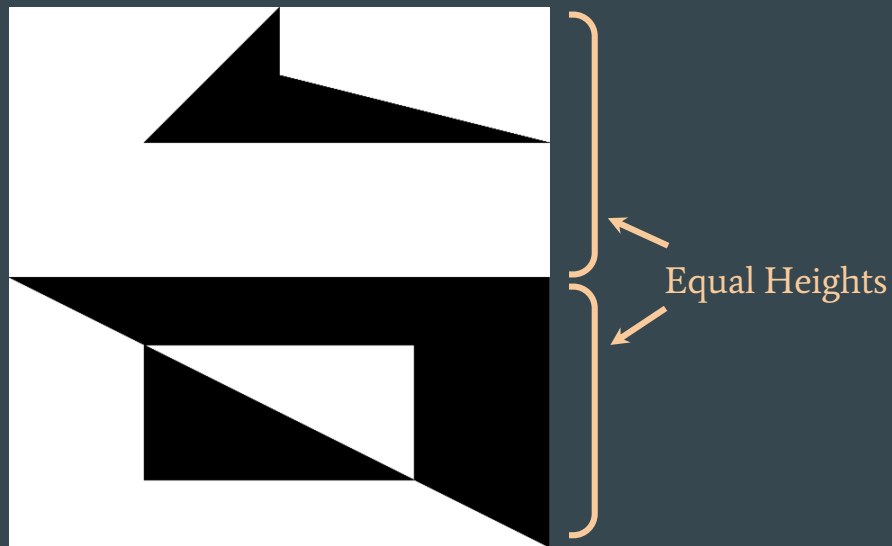
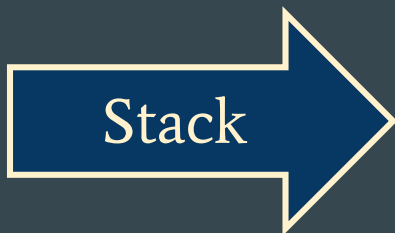
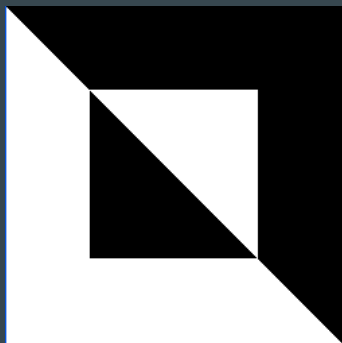
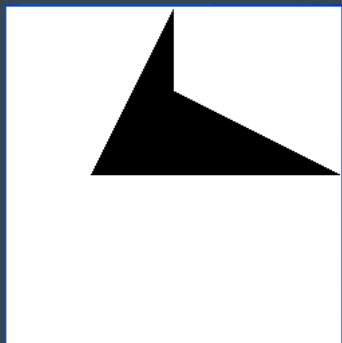


Stacking



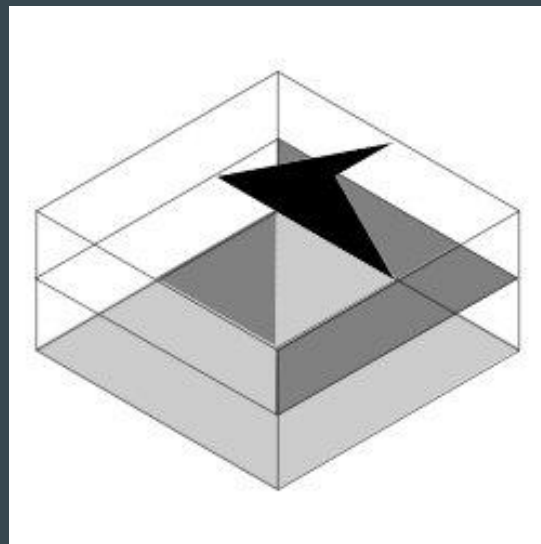
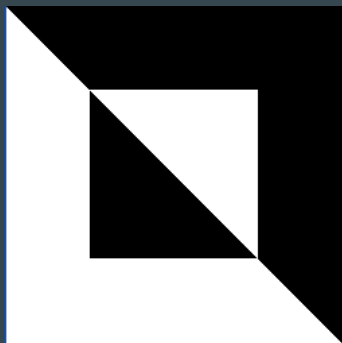
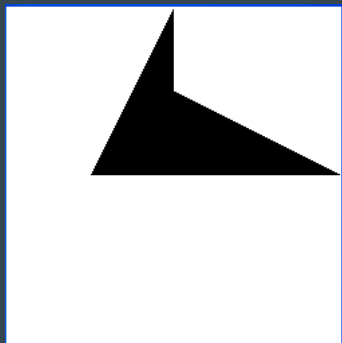
```
show(stack(nova_bb, rcross_bb))
```


Stacking



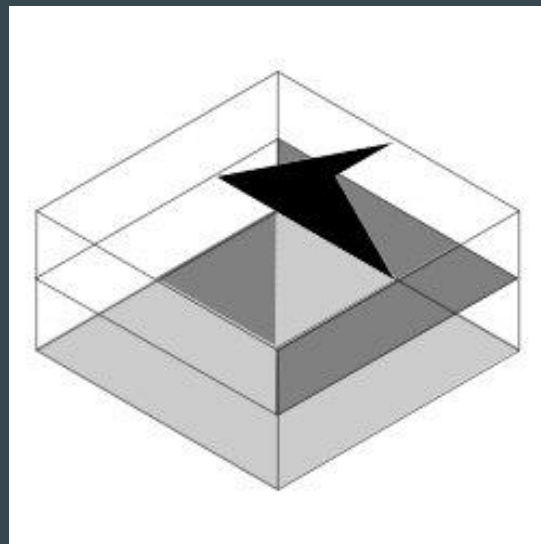
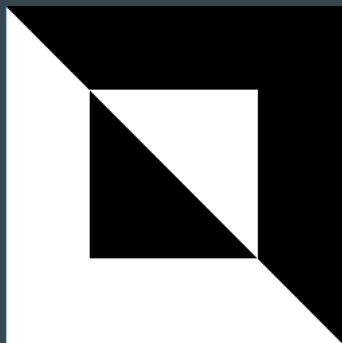
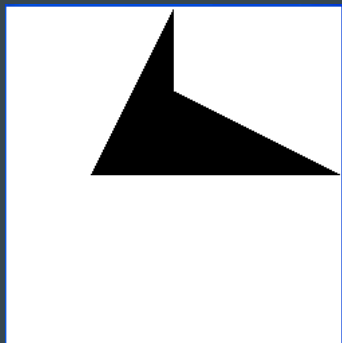
```
show(stack(nova_bb, rcross_bb))
```

Overlay



`overlay(nova_bb, rcross_bb)`

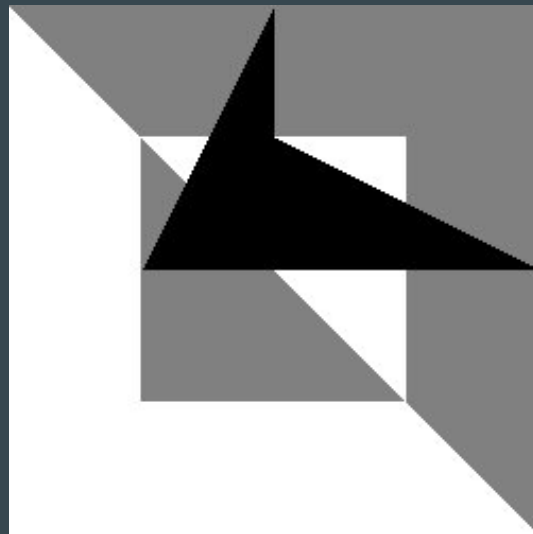
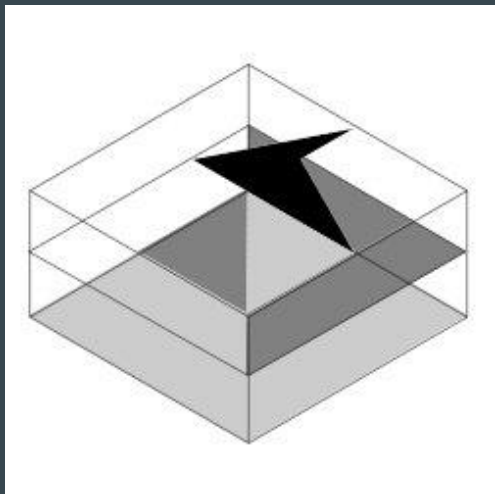
Overlay



} Equal Thickness

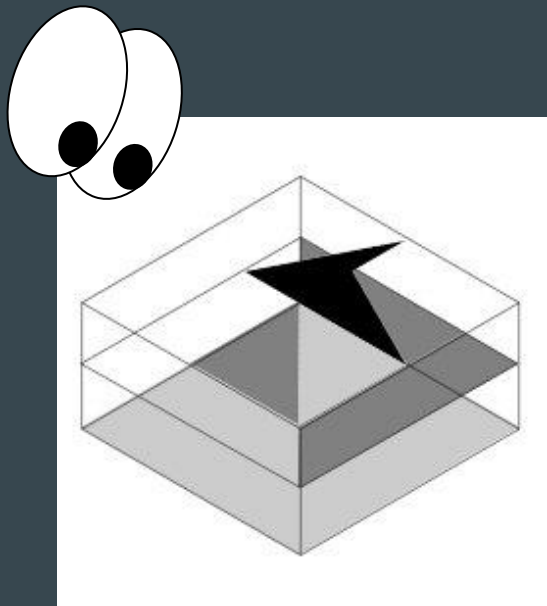
```
overlay(nova_bb, rcross_bb)
```

Visualising 3D Runes: Depth Map



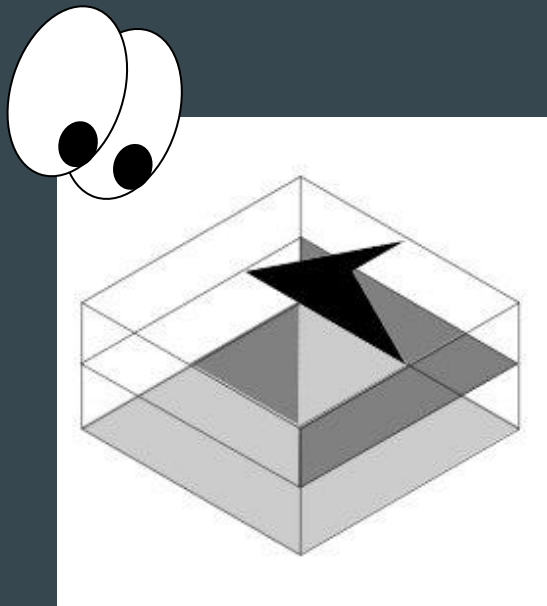
```
show(overlay(nova_bb, rcross_bb))  
anaglyph(overlay(nova_bb, rcross_bb))  
hollusion(overlay(nova_bb, rcross_bb))
```

Visualising 3D Runes: Depth Map



```
show(overlay(nova_bb, rcross_bb))  
anaglyph(overlay(nova_bb, rcross_bb))  
hollusion(overlay(nova_bb, rcross_bb))
```

Visualising 3D Runes: Depth Map

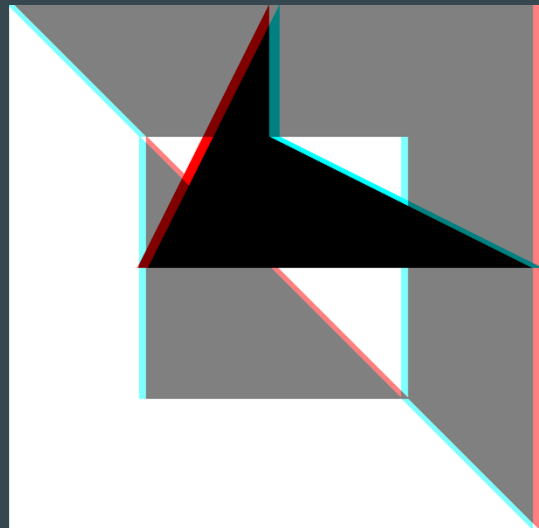
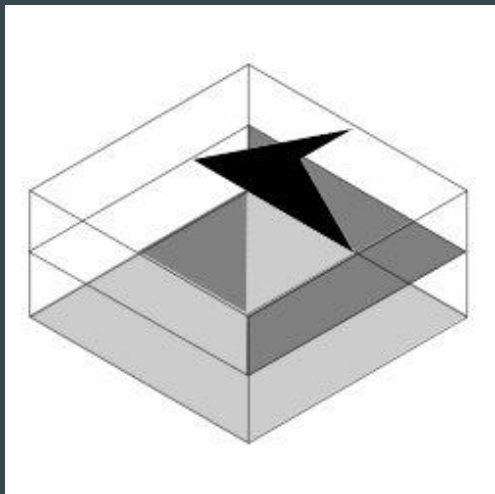


Darker →
nearest to you

Lighter →
further away

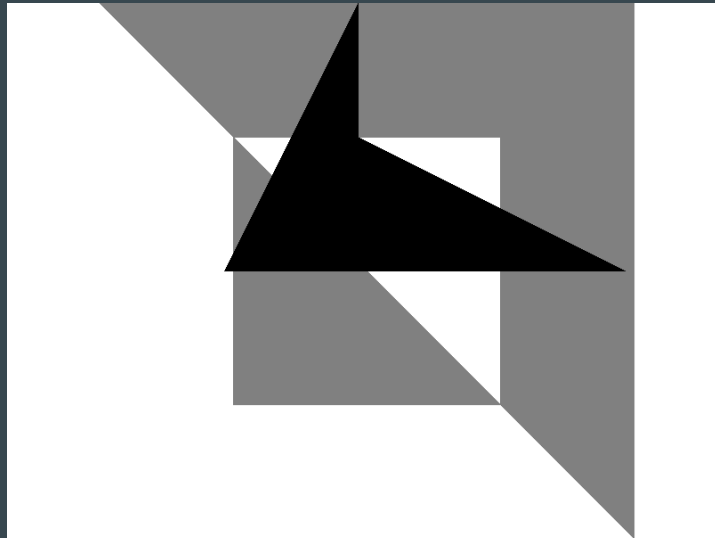
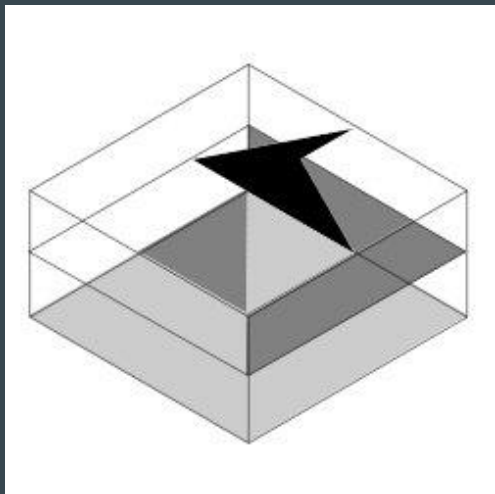
```
show(overlay(nova_bb, rcross_bb))  
anaglyph(overlay(nova_bb, rcross_bb))  
hollusion(overlay(nova_bb, rcross_bb))
```

Visualising 3D Runes: Anaglyphs



```
show(overlay(nova_bb, rcross_bb))  
anaglyph(overlay(nova_bb, rcross_bb))  
hollusion(overlay(nova_bb, rcross_bb))
```

Visualising 3D Runes: Hollusions



```
show(overlay(nova_bb, rcross_bb))  
anaglyph(overlay(nova_bb, rcross_bb))  
hollusion(overlay(nova_bb, rcross_bb))
```

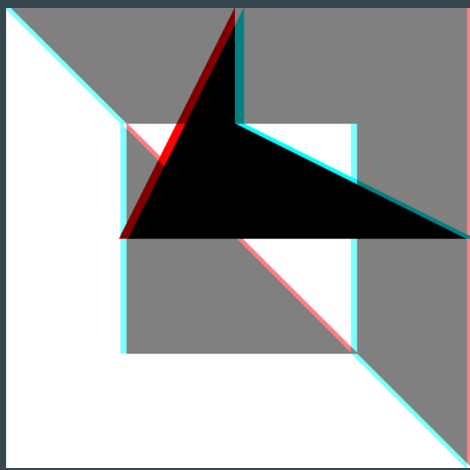

Visualising 3D Runes

Demo

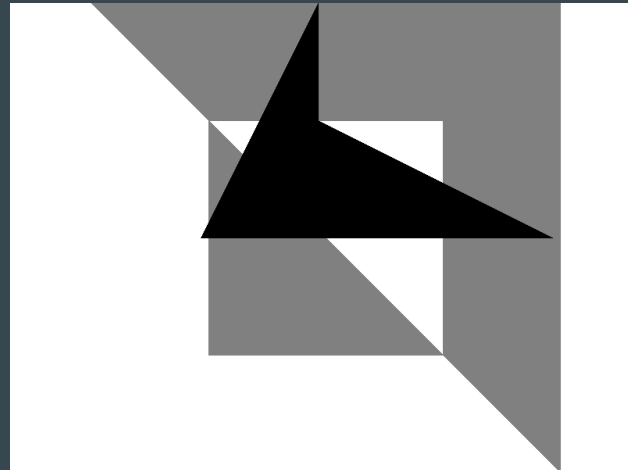
Visualising 3D Runes



show

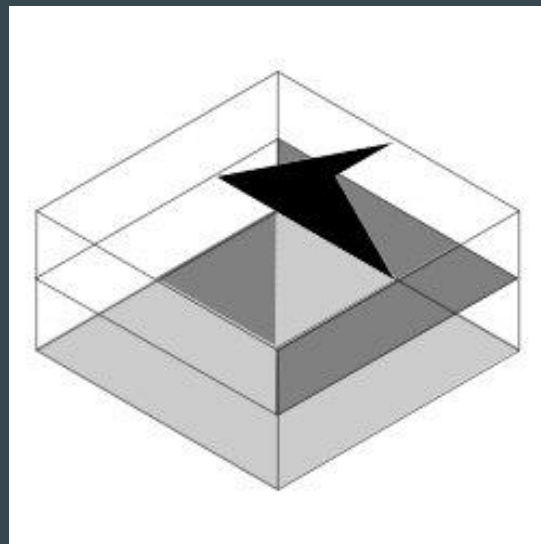
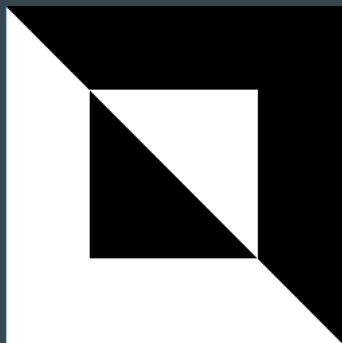
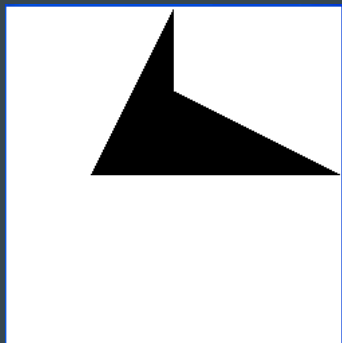


anaglyph



hollusion

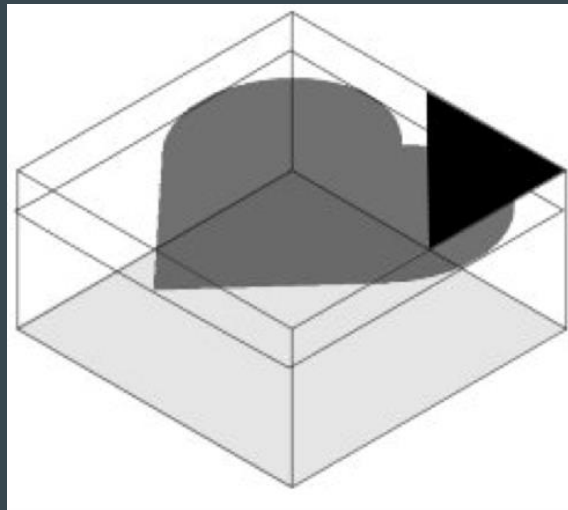
Overlay



} Equal Thickness

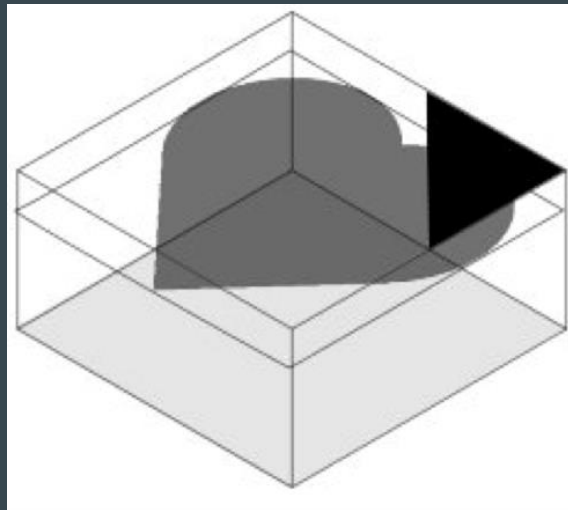
```
overlay(nova_bb, rcross_bb)
```

Overlaying by a Fraction



corner_bb heart_bb

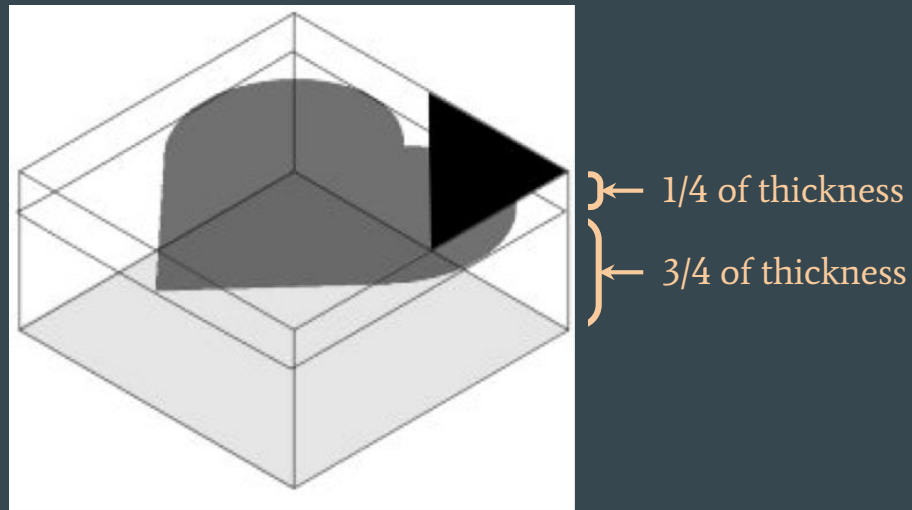
Overlaying by a Fraction



overlay_frac

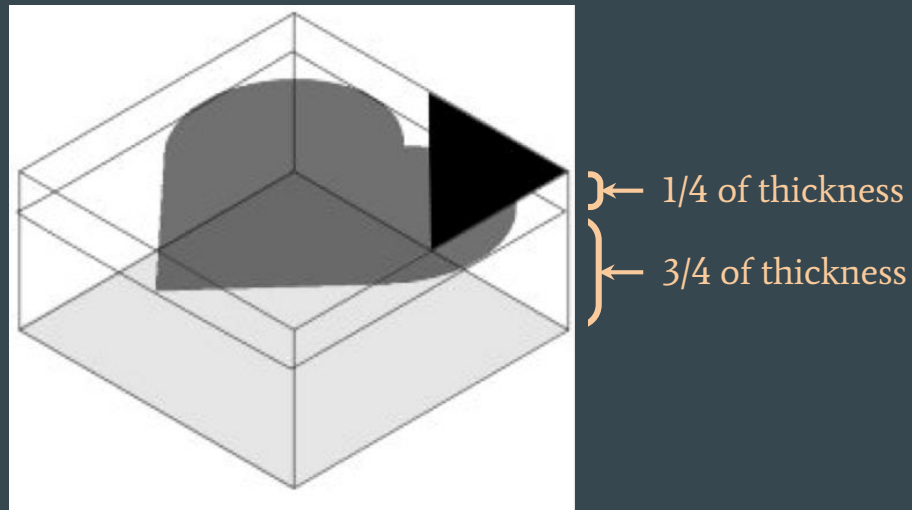
corner_bb heart_bb

Overlaying by a Fraction



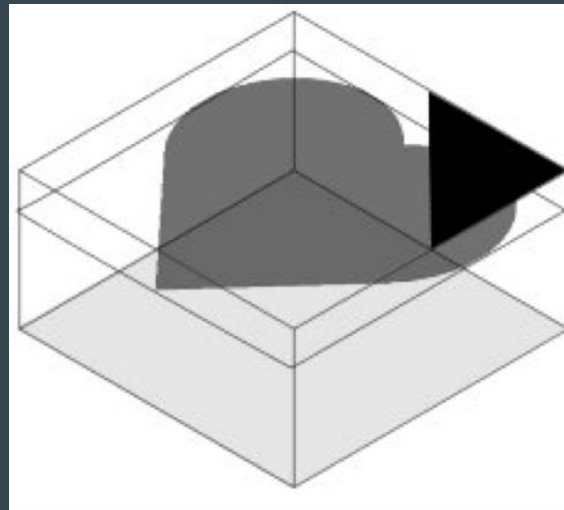
```
overlay_frac(1/4, corner_bb, heart_bb)
```

Overlaying by a Fraction



```
overlay_frac(1/4, corner_bb, heart_bb)
```

Overlaying by a Fraction

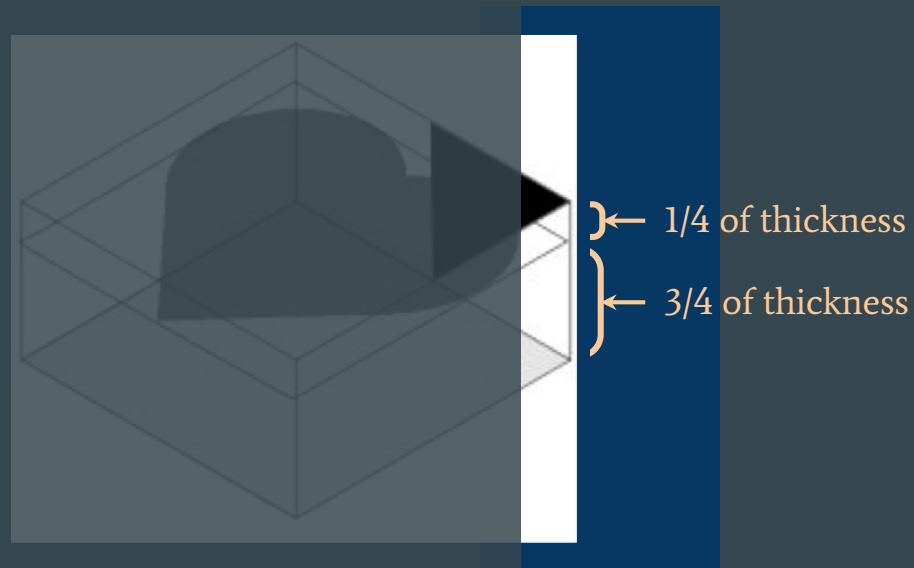


← 1/4 of thickness

← 3/4 of thickness

```
show(overlay_frac(1/4, corner_bb, heart_bb))
```


Overlaying by a Fraction



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Spot the Difference



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Spot the Difference

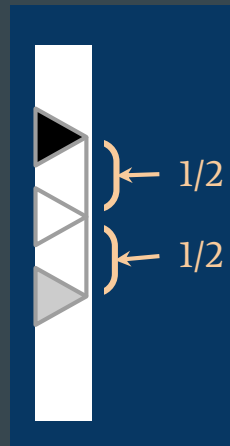
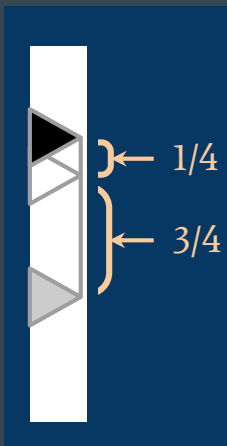
```
show(overlay_frac(1/2, corner_bb, heart_bb))
```



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Spot the Difference

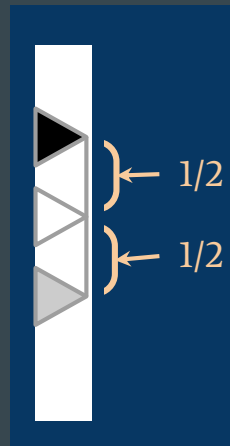
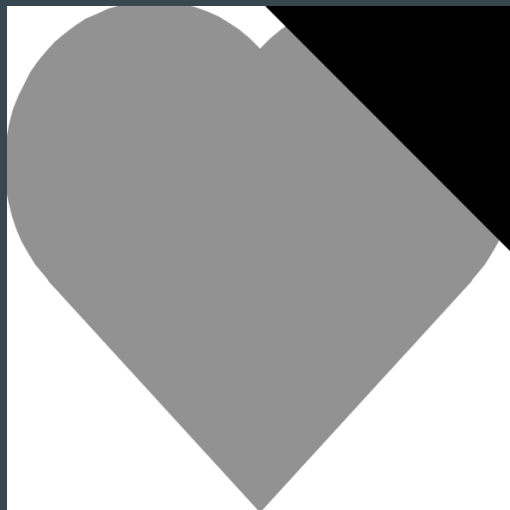
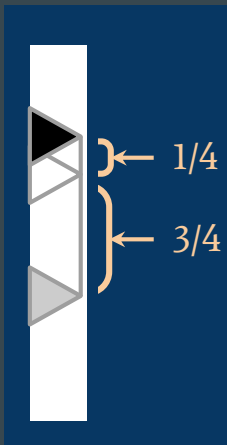
```
show(overlay_frac(1/2, corner_bb, heart_bb))
```



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Spot the Difference

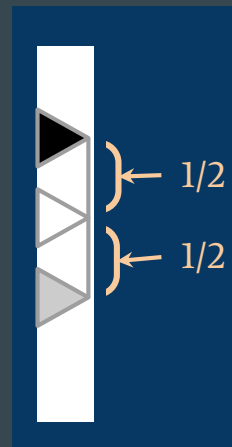
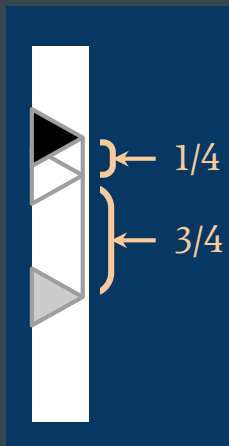
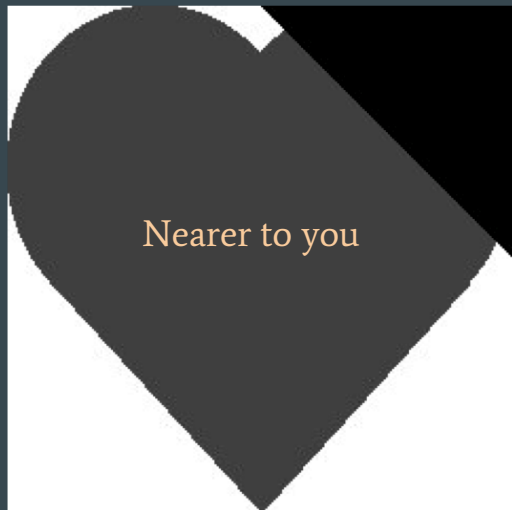
```
show(overlay_frac(1/2, corner_bb, heart_bb))
```



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Spot the Difference

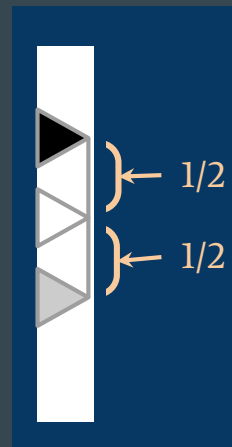
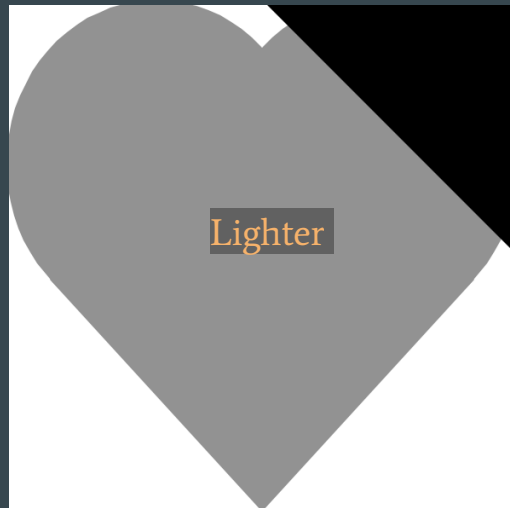
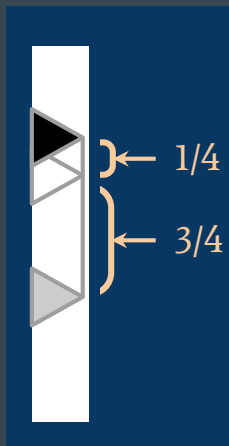
```
show(overlay_frac(1/2, corner_bb, heart_bb))
```



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Spot the Difference

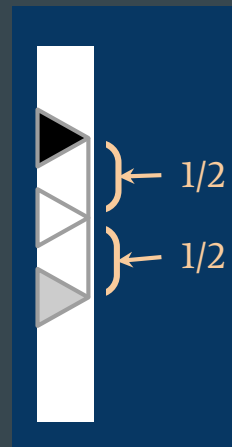
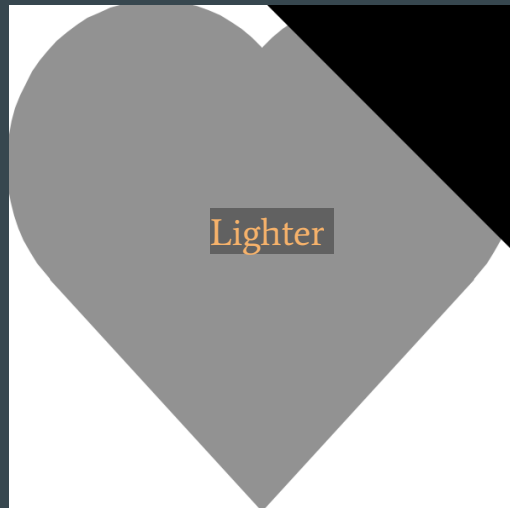
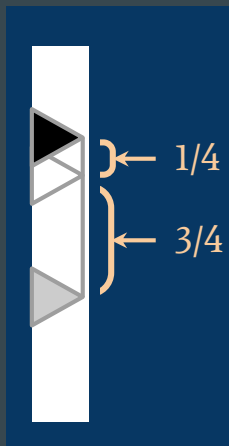
```
show(overlay_frac(1/2, corner_bb, heart_bb))
```



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

overlay and overlay_frac

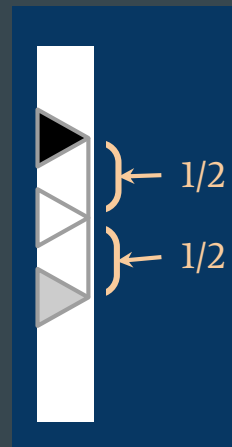
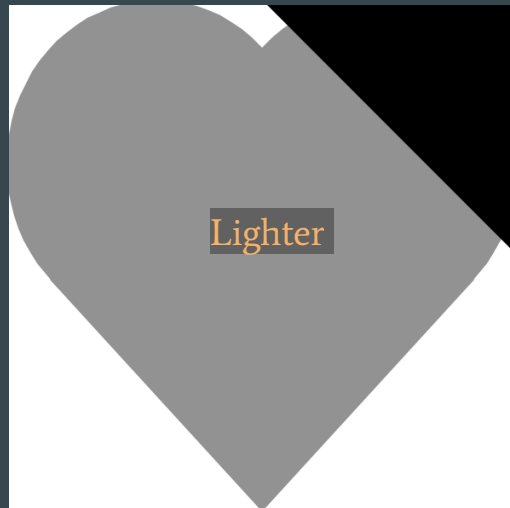
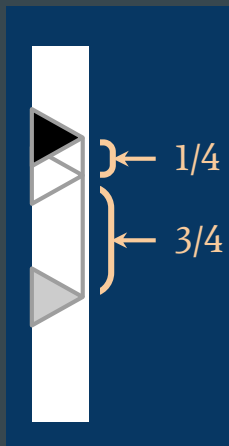
```
show(overlay(corner_bb, heart_bb))
```



```
show(overlay_frac(1/4, corner_bb, heart_bb))
```


overlay and overlay_frac

```
show(overlay(corner_bb, heart_bb))
```

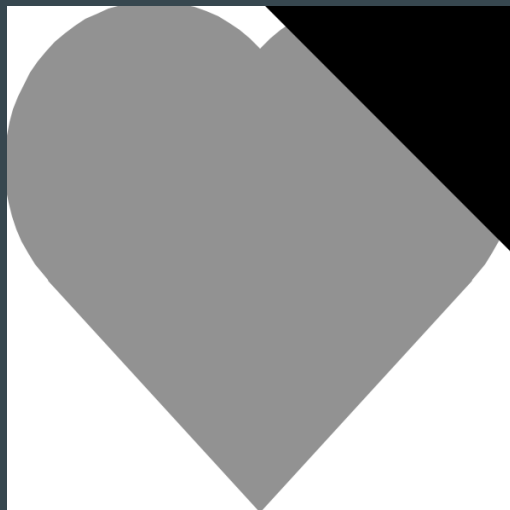


```
show(overlay_frac(1/4, corner_bb, heart_bb))
```

Functions to Control the Third Dimension with



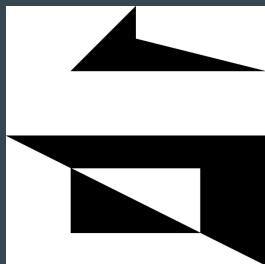
`overlay_frac`



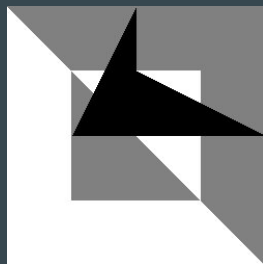
`overlay`

Contest

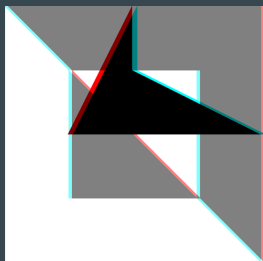
Two Contest Categories



Flat Rune



Depth Map

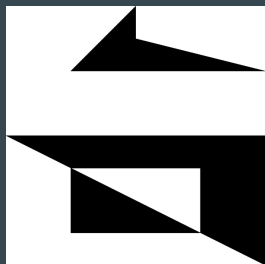


Anaglyph

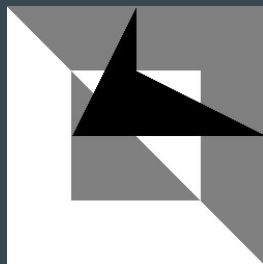


Hollusion

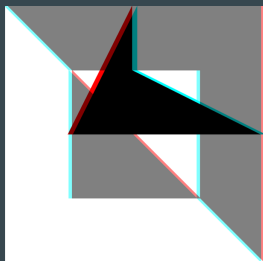
Two Contest Categories



show



show



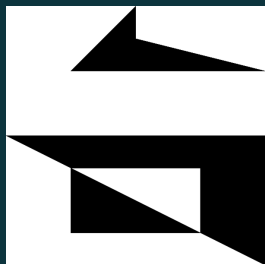
anaglyph



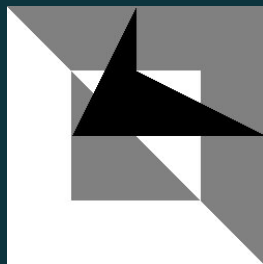
hollusion

Two Contest Categories

2D



show



show

3D



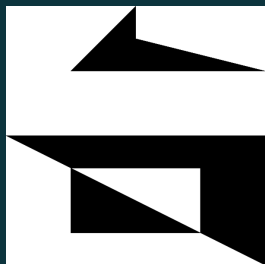
anaglyph



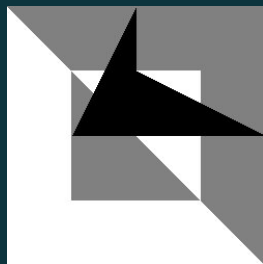
hollusion

Two Contest Categories

2D

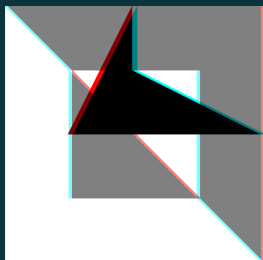


Flat Rune



Depth Map

3D



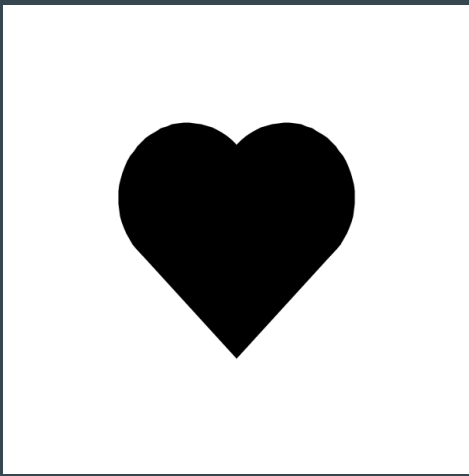
Anaglyph



Hollusion

More Functions

Scaling down

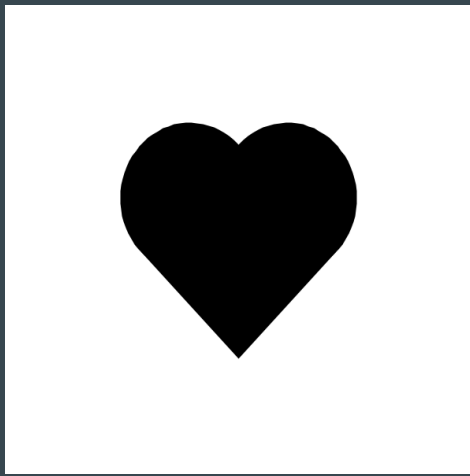


```
show(scale(1/2, heart_bb))
```

Scaling down

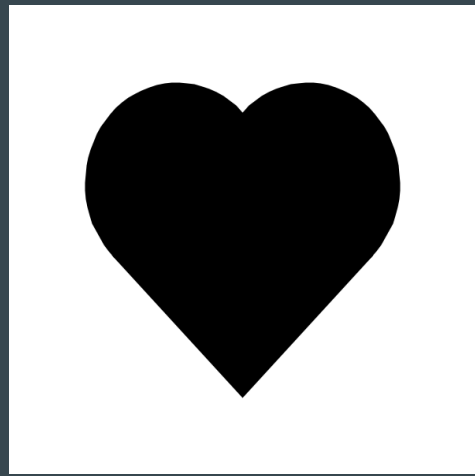
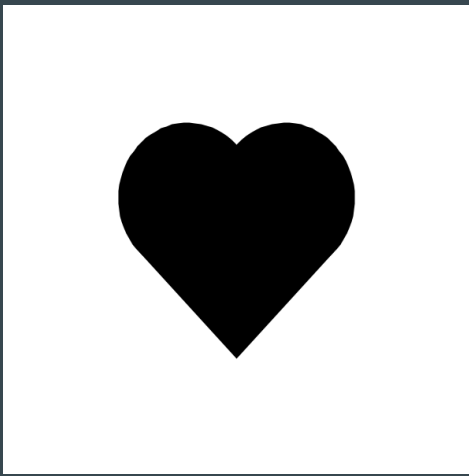


Half the original size



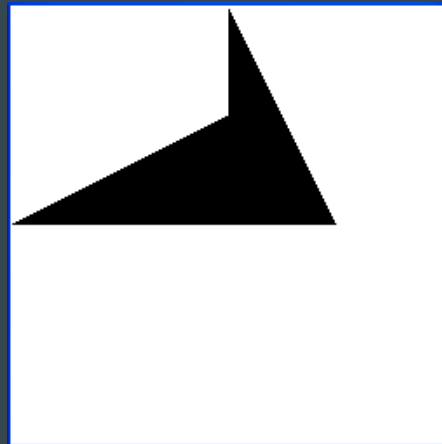
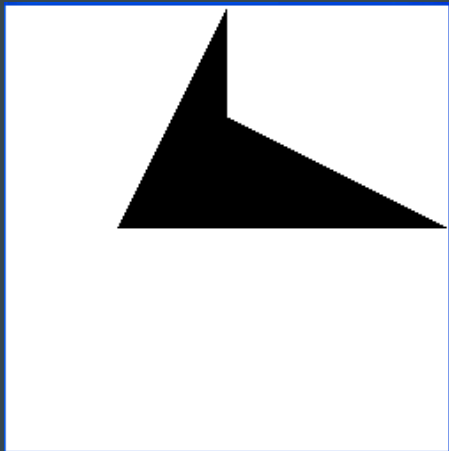
```
show(scale(1/2, heart_bb))
```

Scaling down



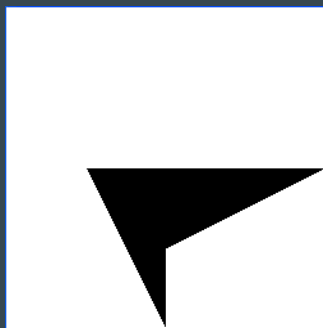
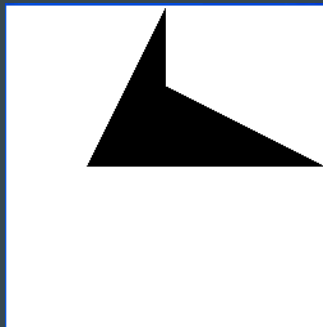
```
show(scale(1/2, heart_bb))  show(scale(2/3, heart_bb))
```

Flipping Horizontally



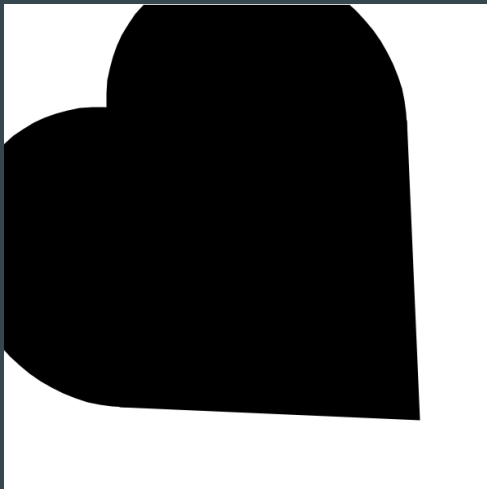
```
show(flip_horiz(nova_bb))
```

Flipping Vertically



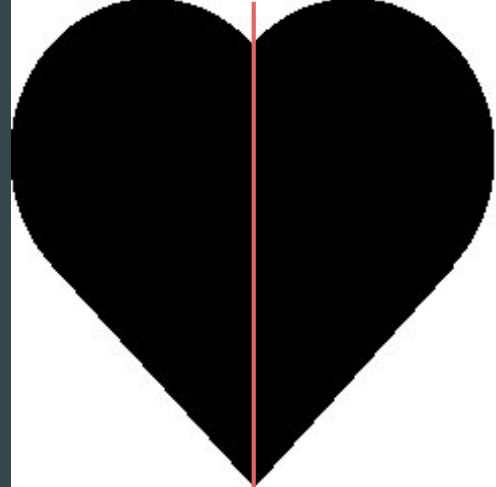
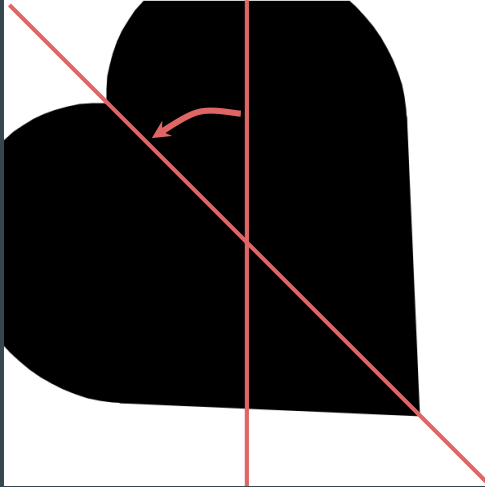
```
show(flip_vert(nova_bb))
```

Turning Left by Eighths



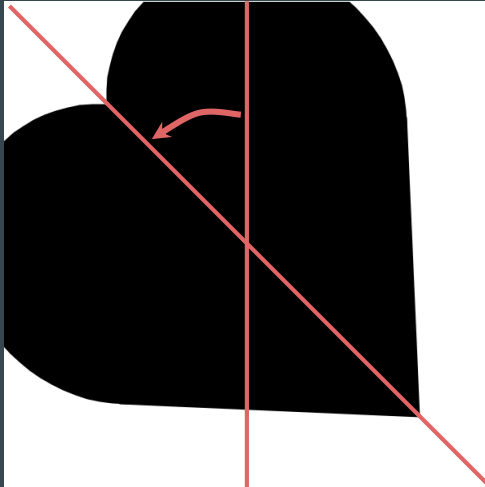
```
show(eighth_turn_left(nova_bb))
```

Turning Left by Eighths

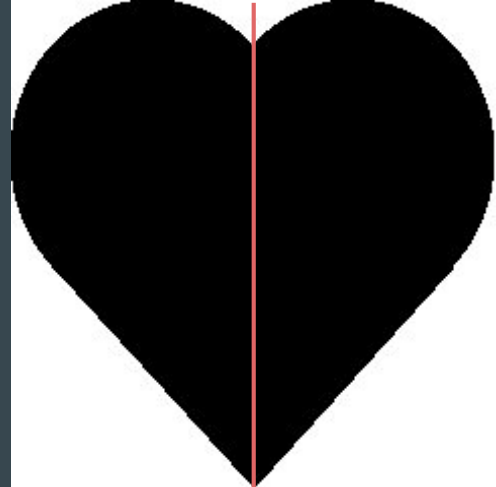


```
show(eighth_turn_left(nova_bb))
```

Turning Left by Eighths

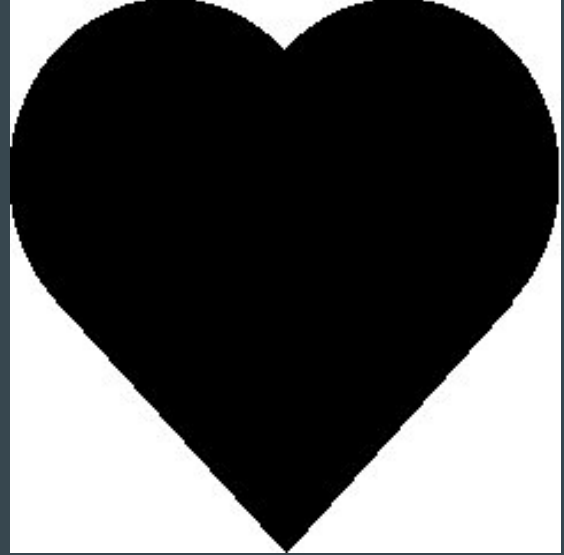
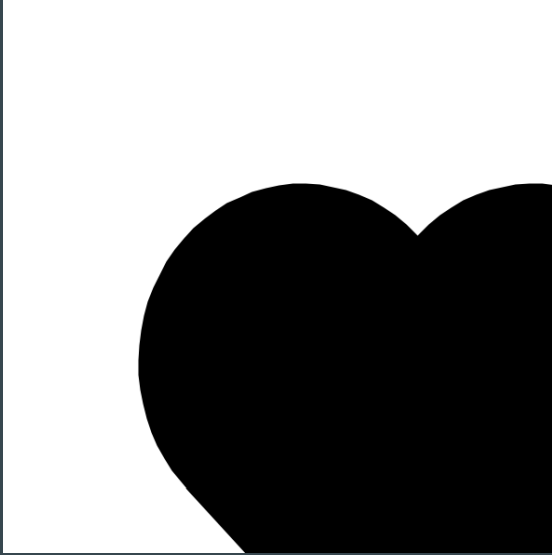


```
show(eighth_turn_left(nova_bb))
```



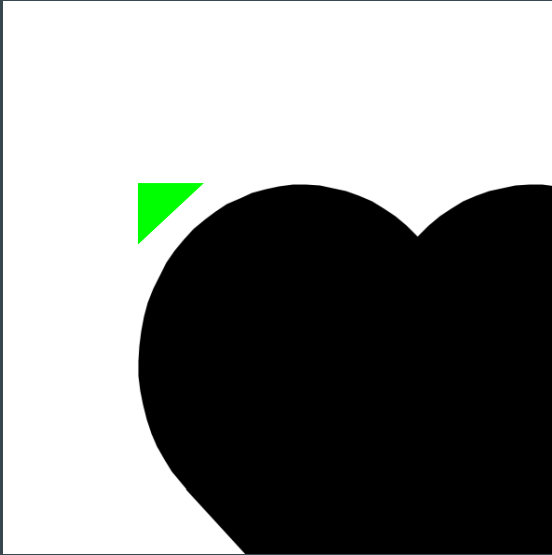
Can you make
`eight_turn_right?`

Moving things around



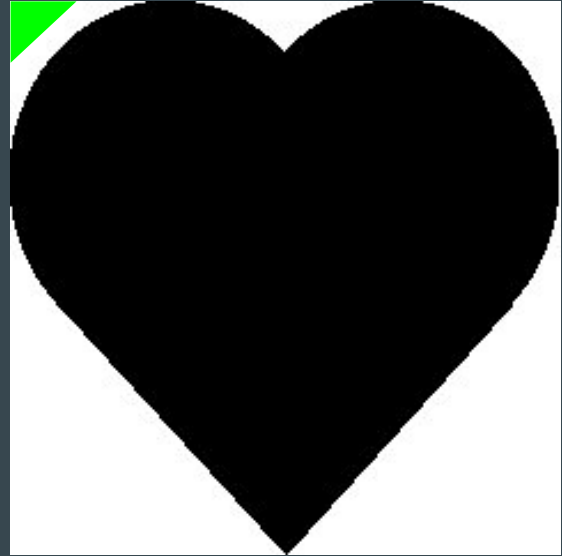
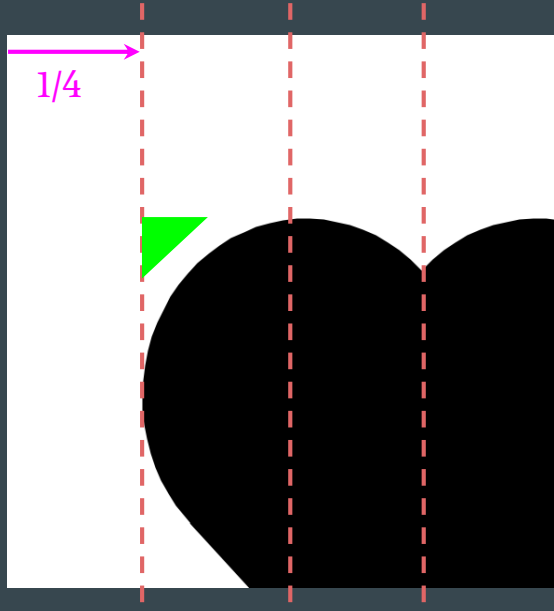
```
show(translate(1/4, 1/3, heart_bb))
```

Moving things around



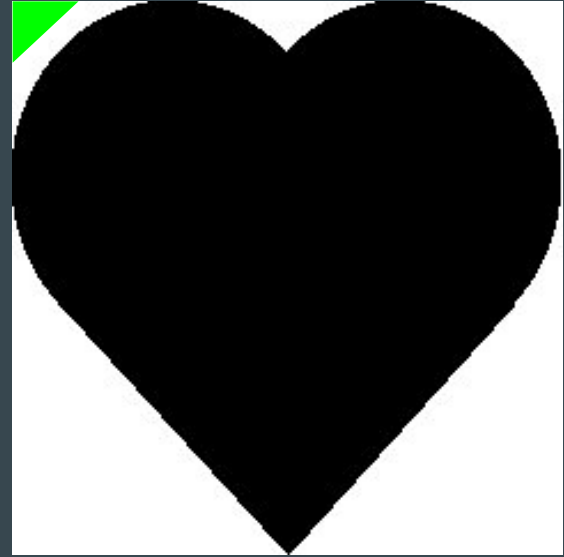
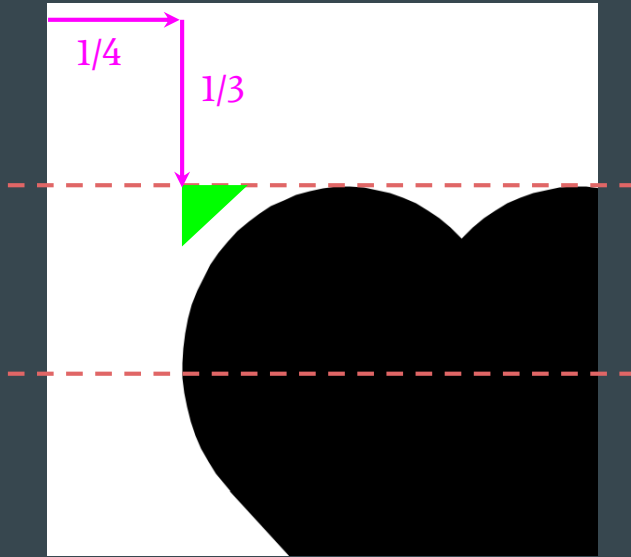
```
show(translate(1/4, 1/3, heart_bb))
```

Moving things around



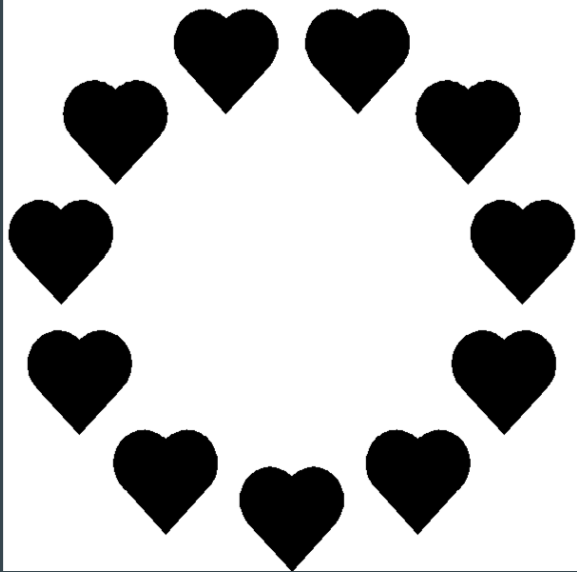
```
show(translate(1/4, 1/3, heart_bb))
```

Moving things around



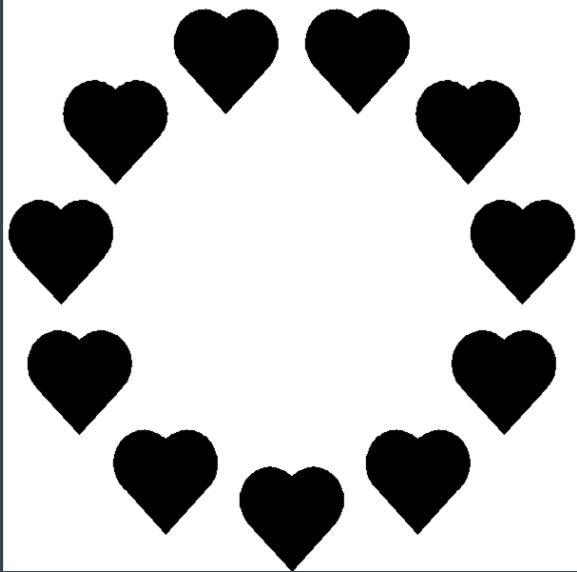
```
show(translate(1/4, 1/3, heart_bb))
```

Special Function: Ring

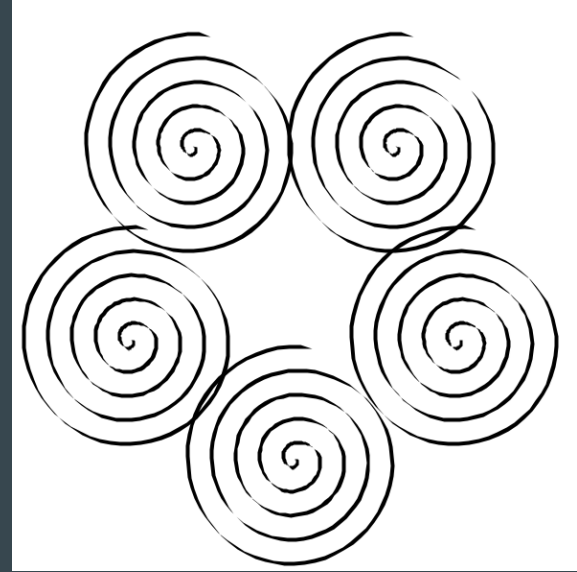


```
show(ring(11, heart_bb))
```

Special Function: Ring

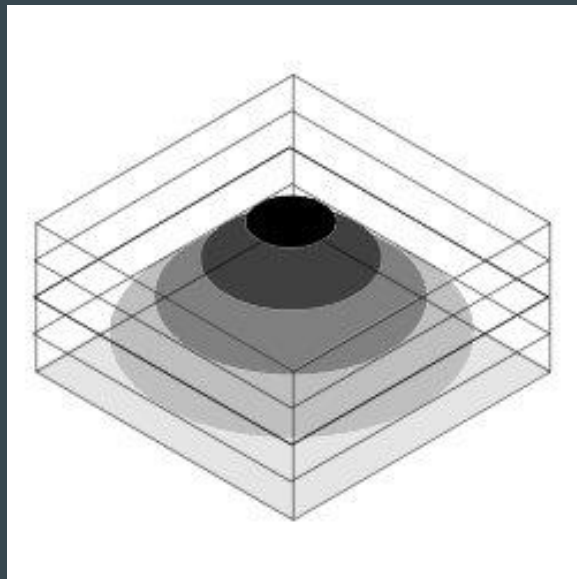
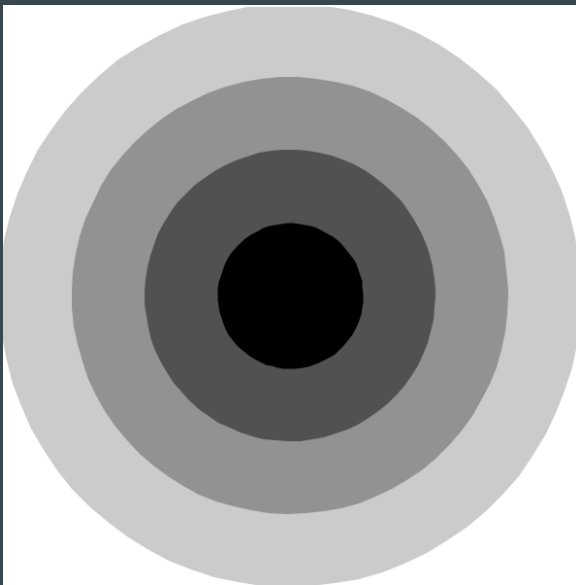


```
show(ring(11, heart_bb))
```



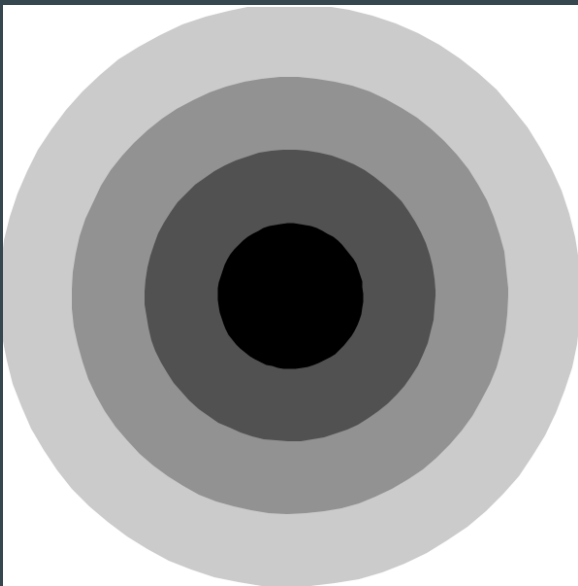
```
show(ring(5, ribbon_bb))
```

Special Function: Tree



```
show(tree(4, circle_bb))
```

Special Function: Tree

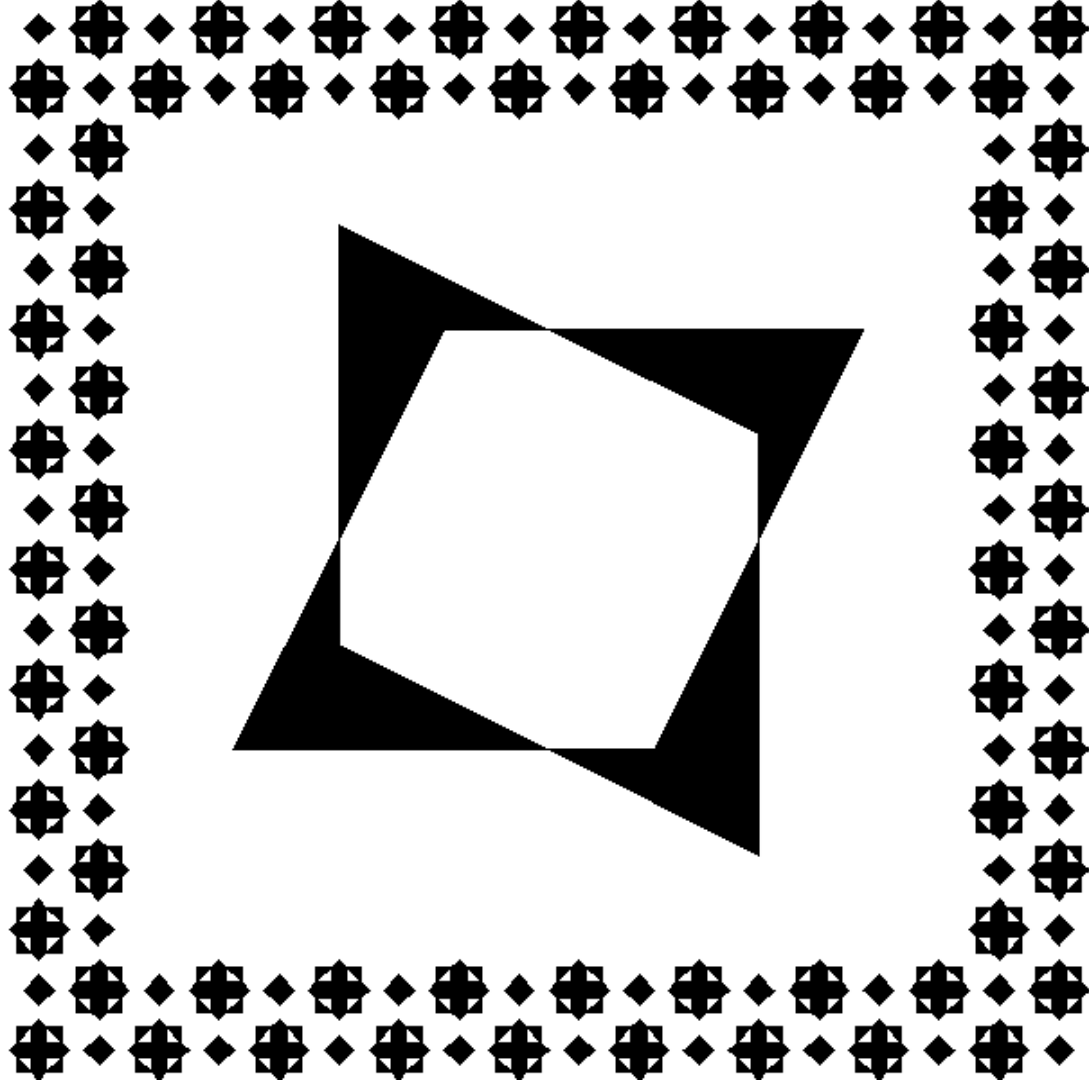


```
show(tree(4, circle_bb))
```

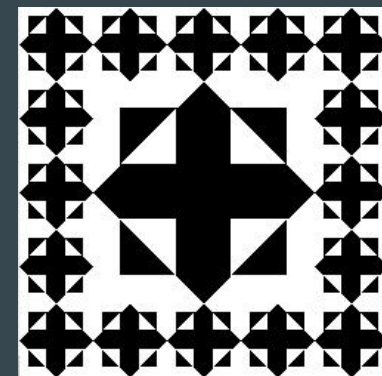
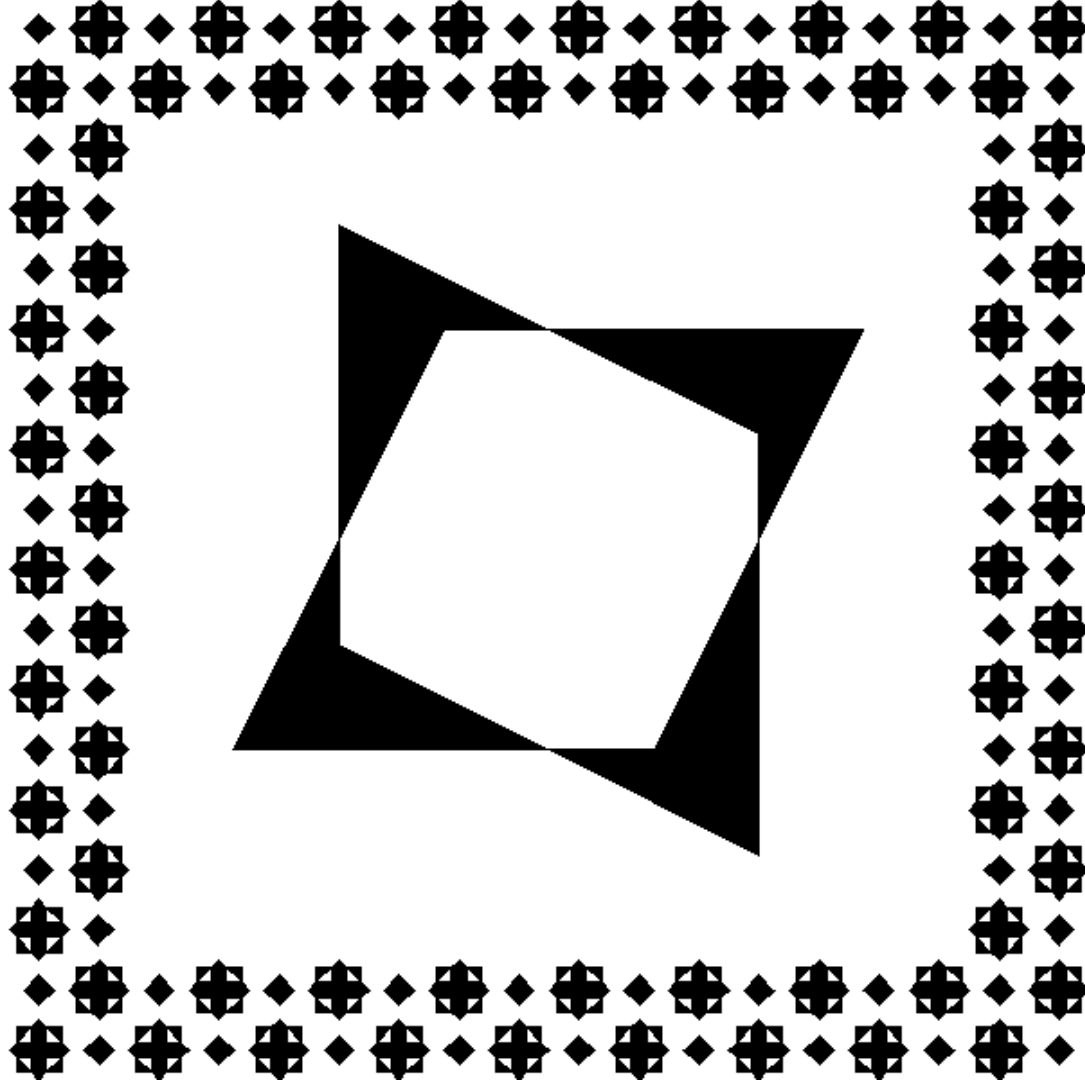


```
show(tree(6, pentagram_bb))
```


Sample 2D Runes

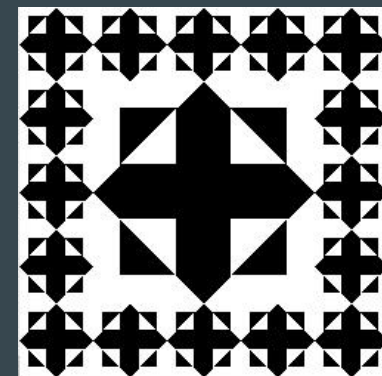


Skills to Unlock

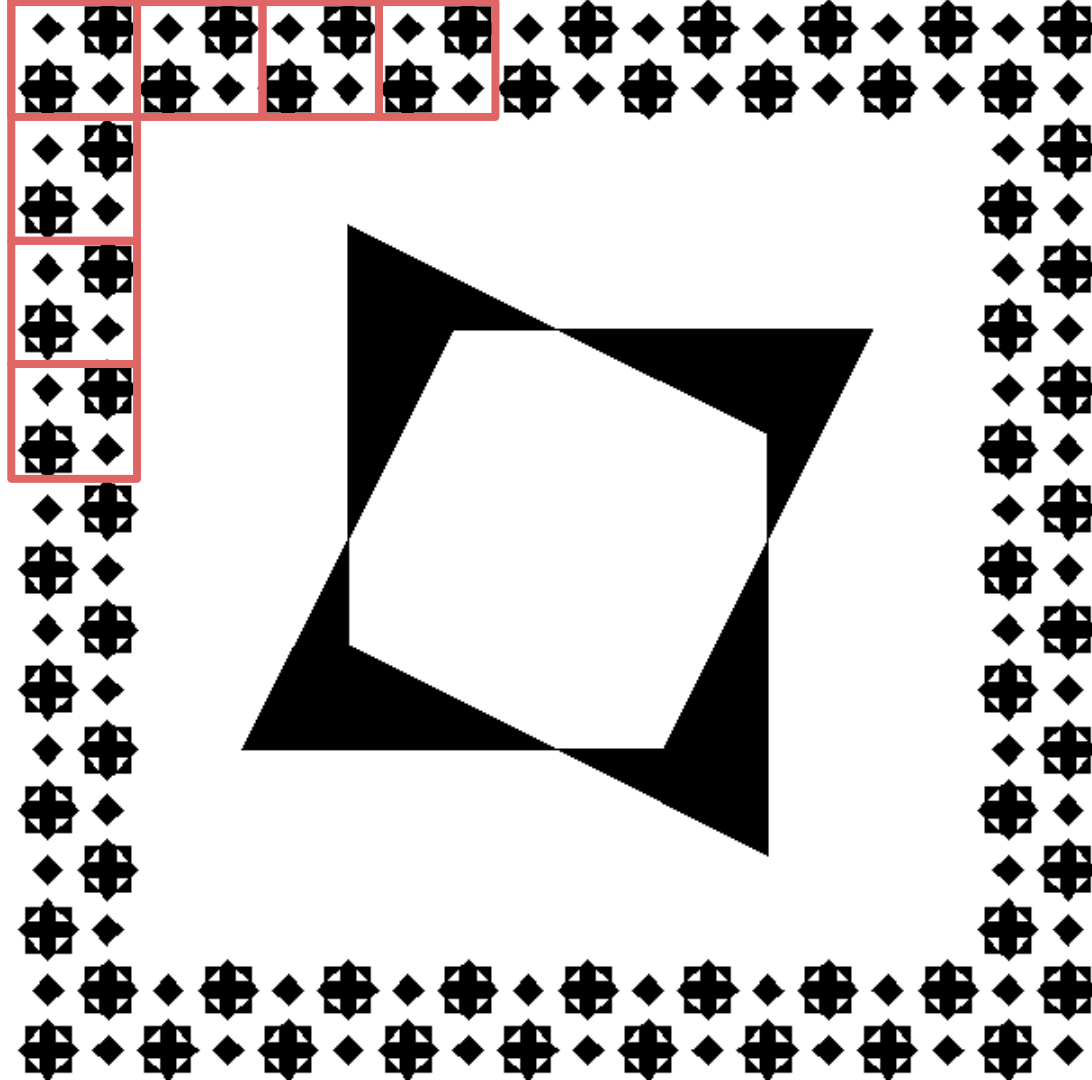


egyptian

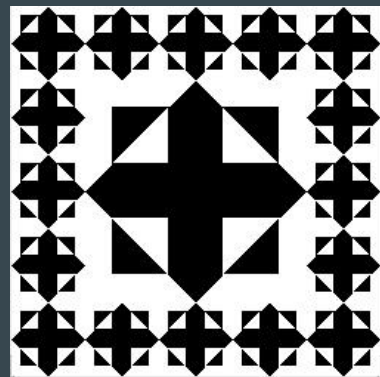
Skills to Unlock



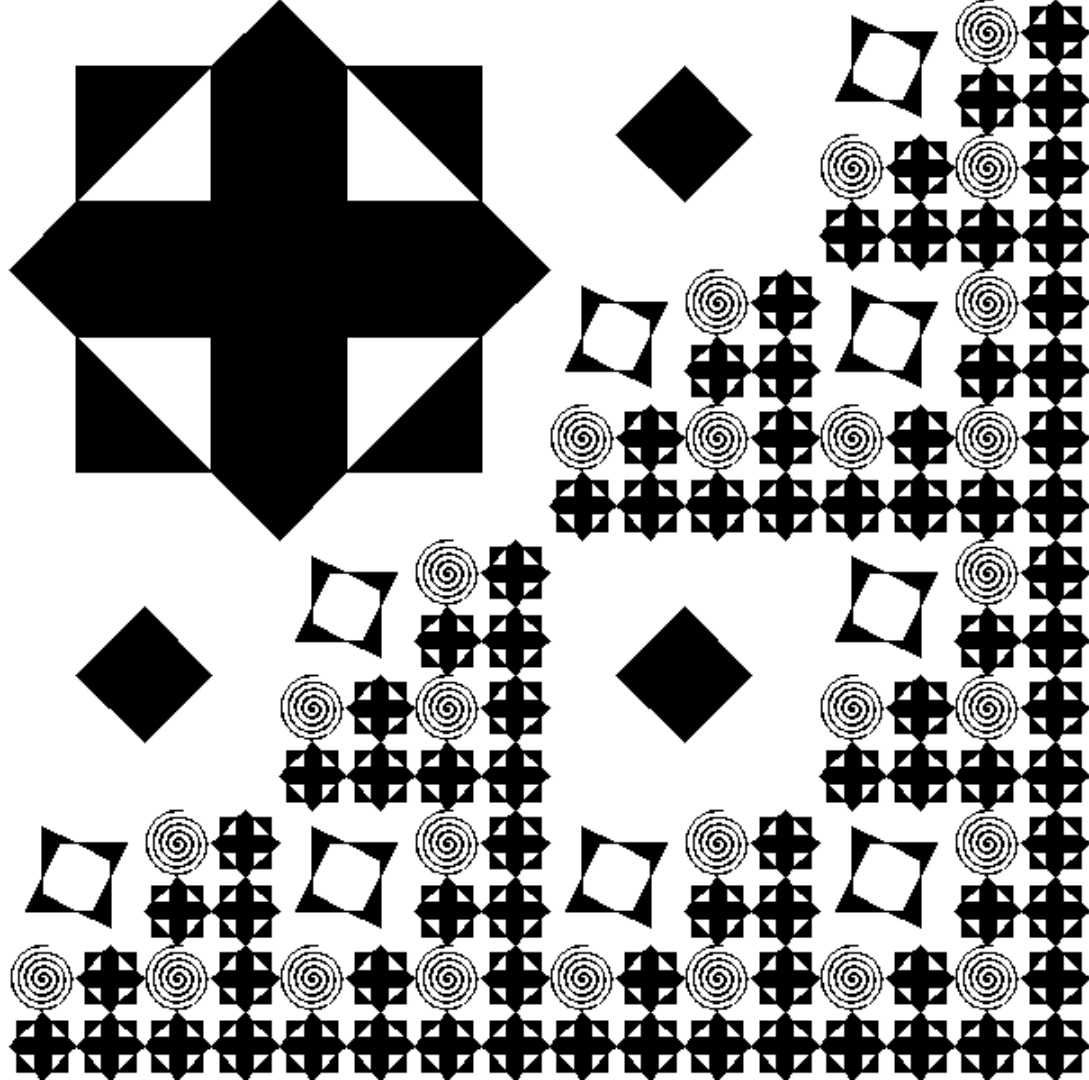
egyptian



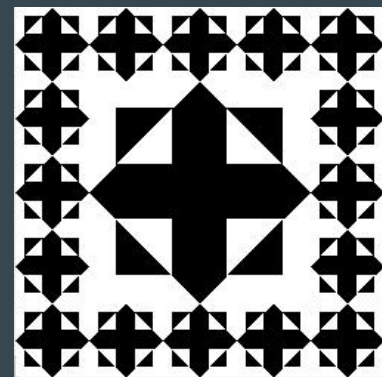
Skills to Unlock



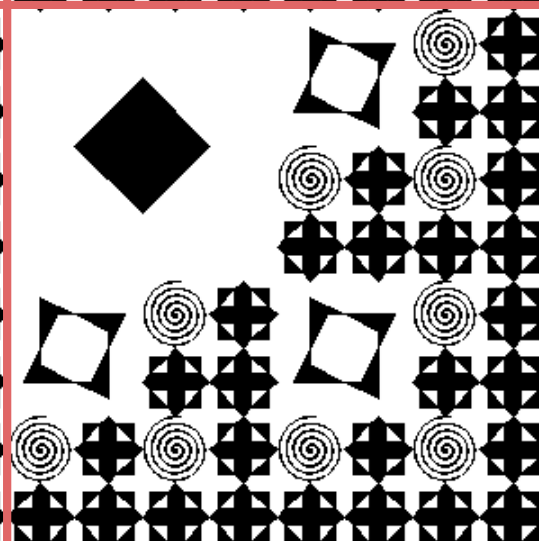
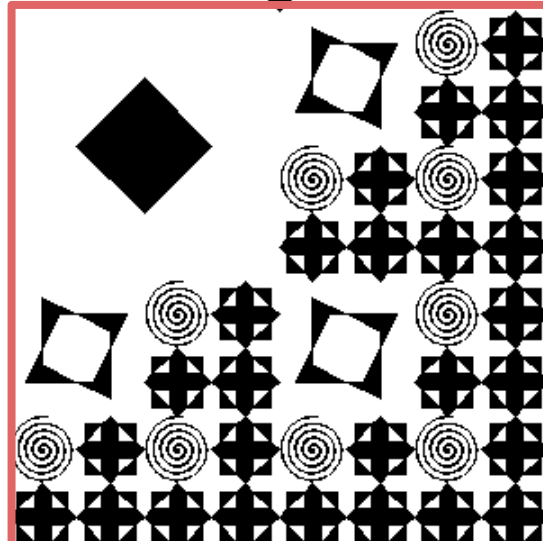
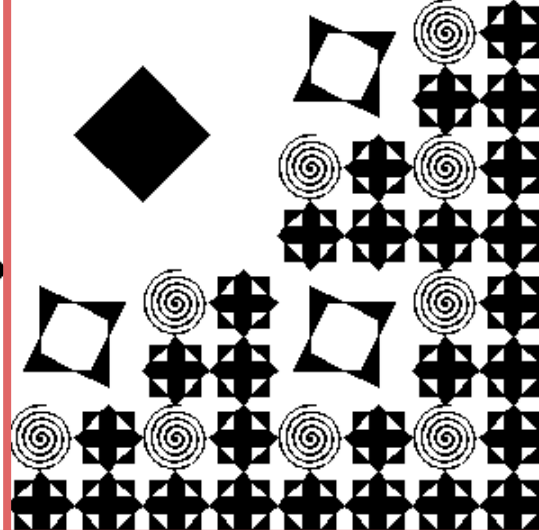
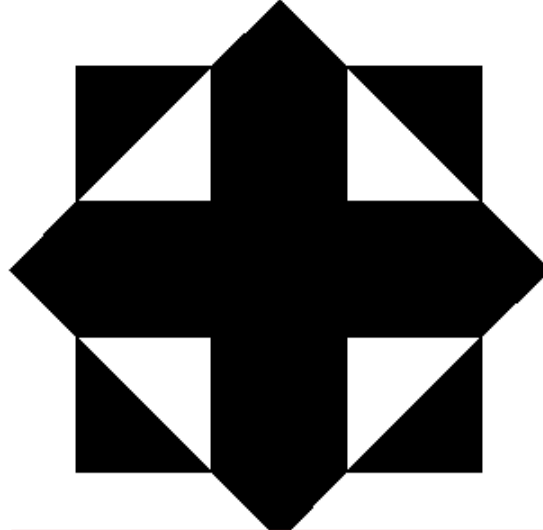
egyptian

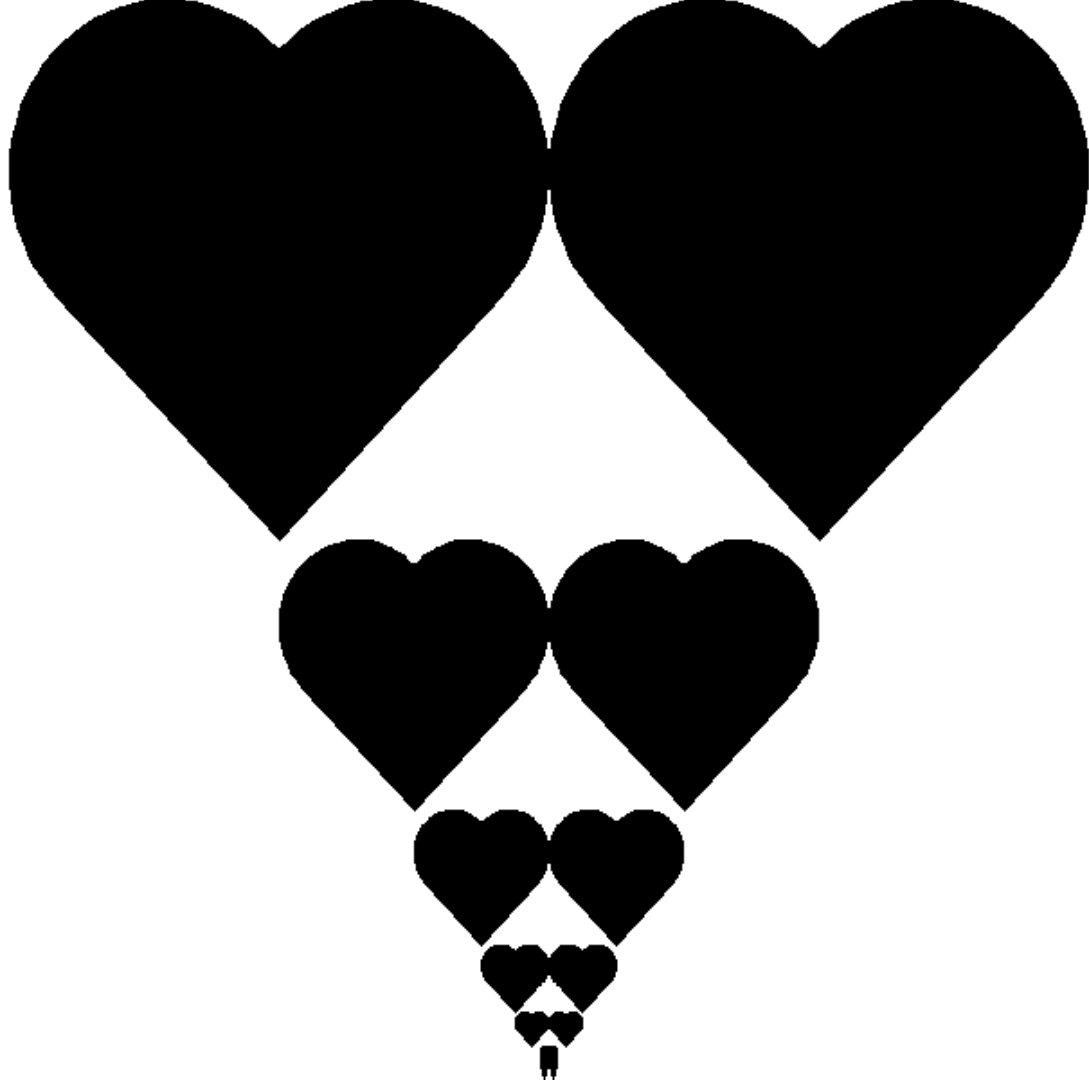


Skills to Unlock

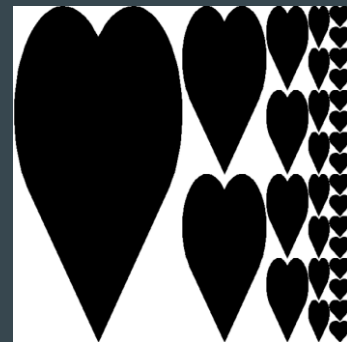


egyptian

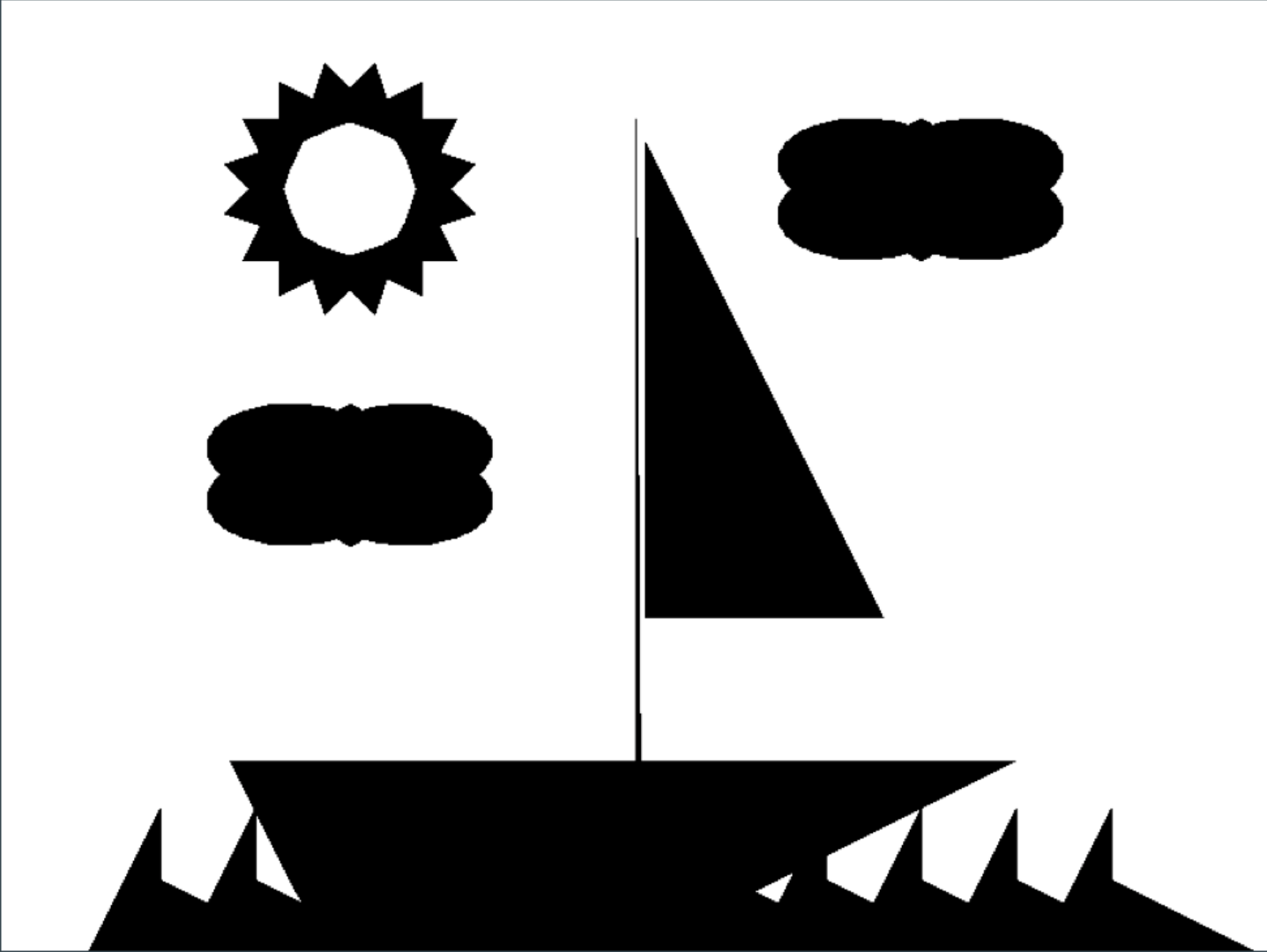




Skills to Unlock



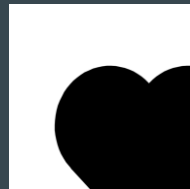
fractal



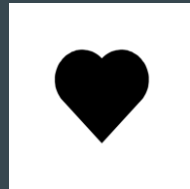
Skills to Unlock



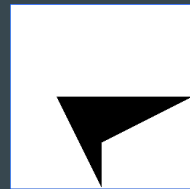
`eighth_turns`



`translate`

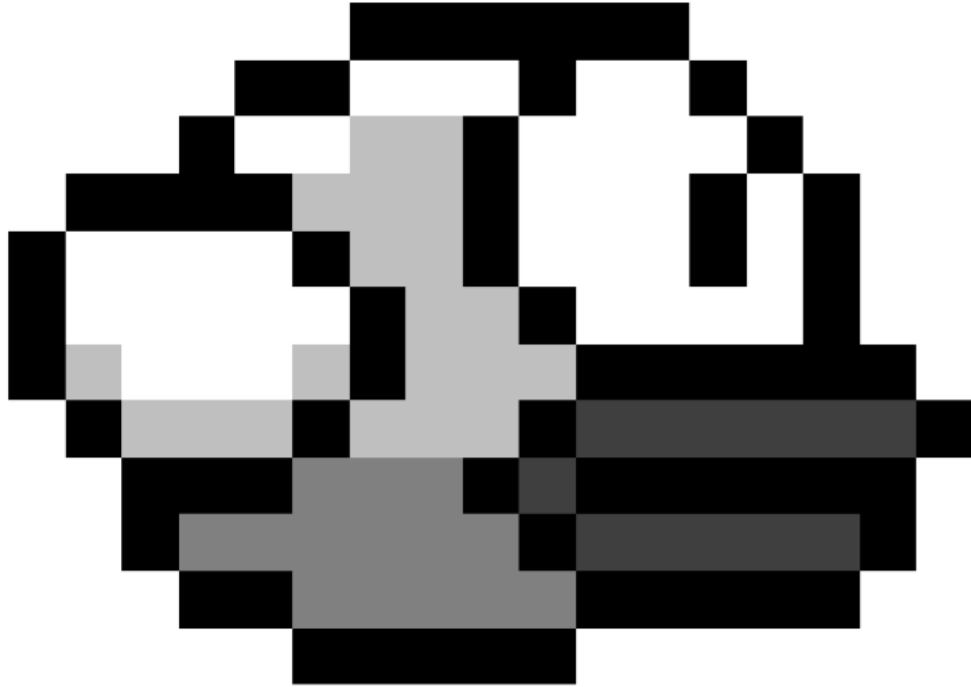


`scale`



`flips`

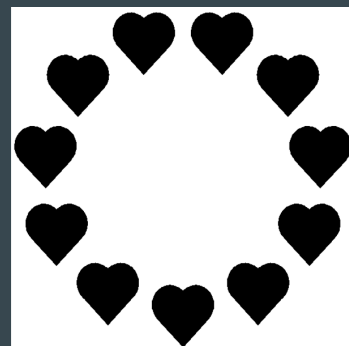
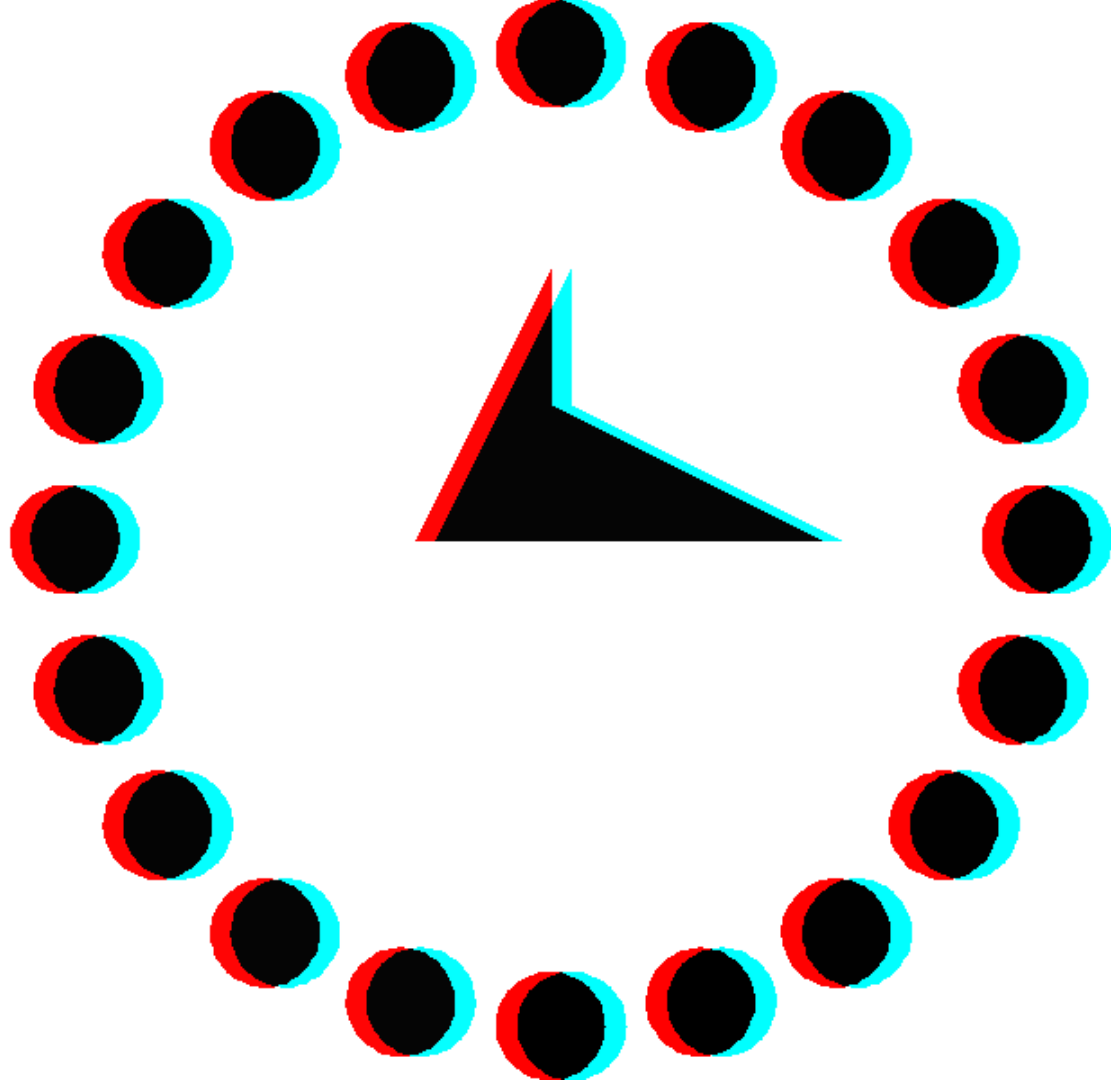
Skills to Unlock



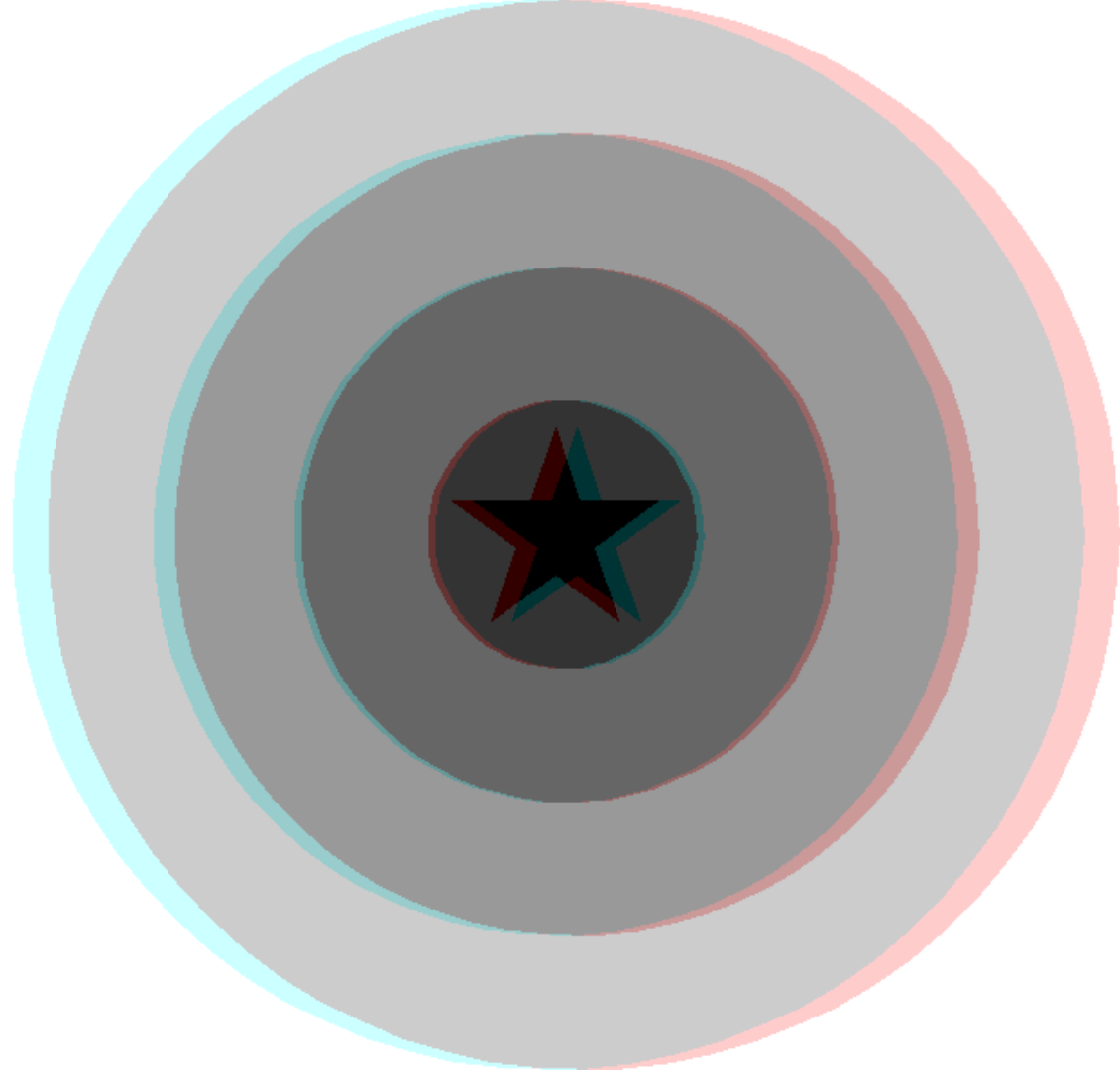
steps

Sample 3D Runes

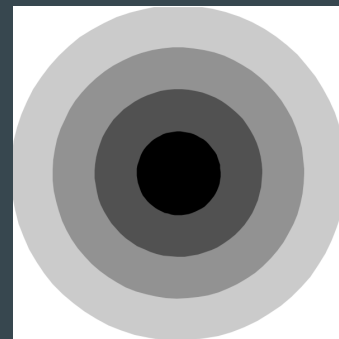
Skills to Unlock



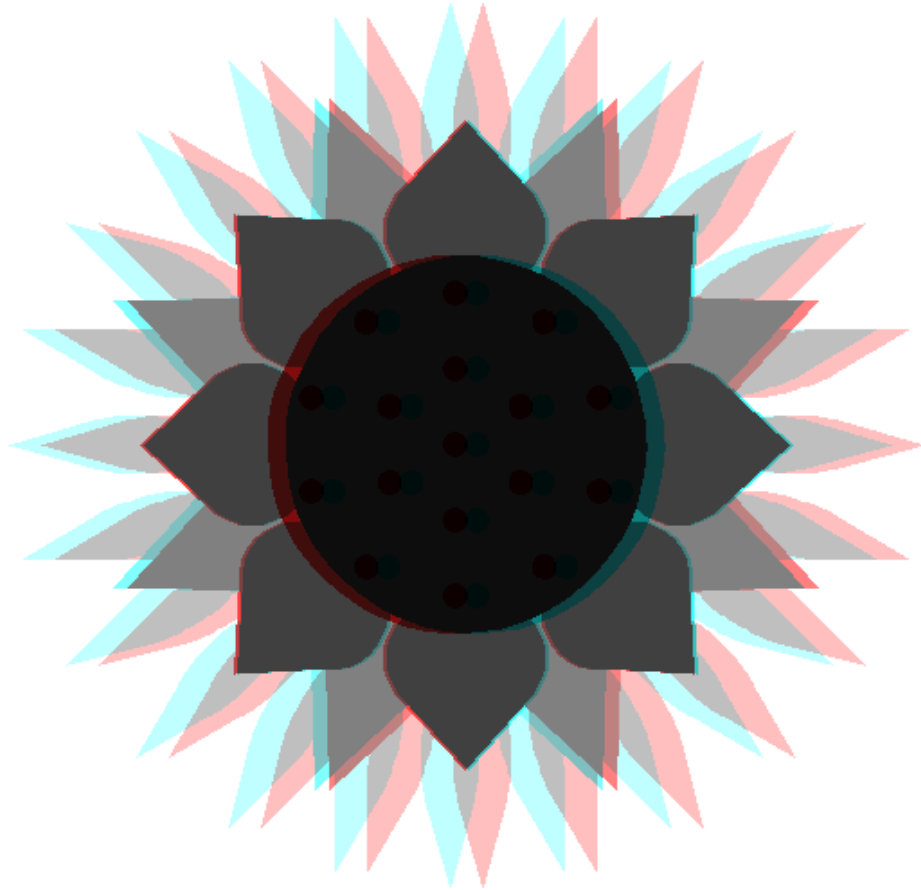
ring



Skills to Unlock

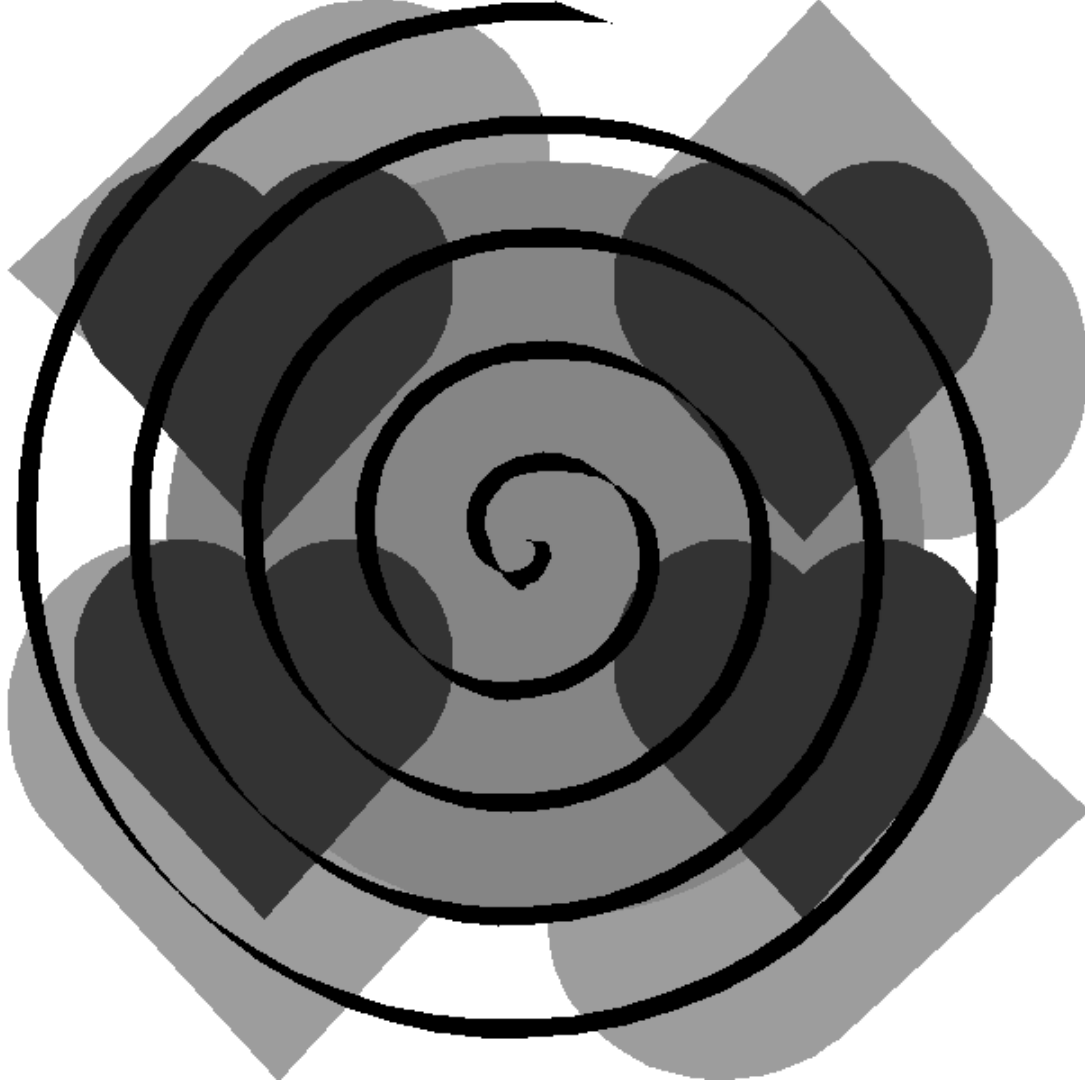


tree



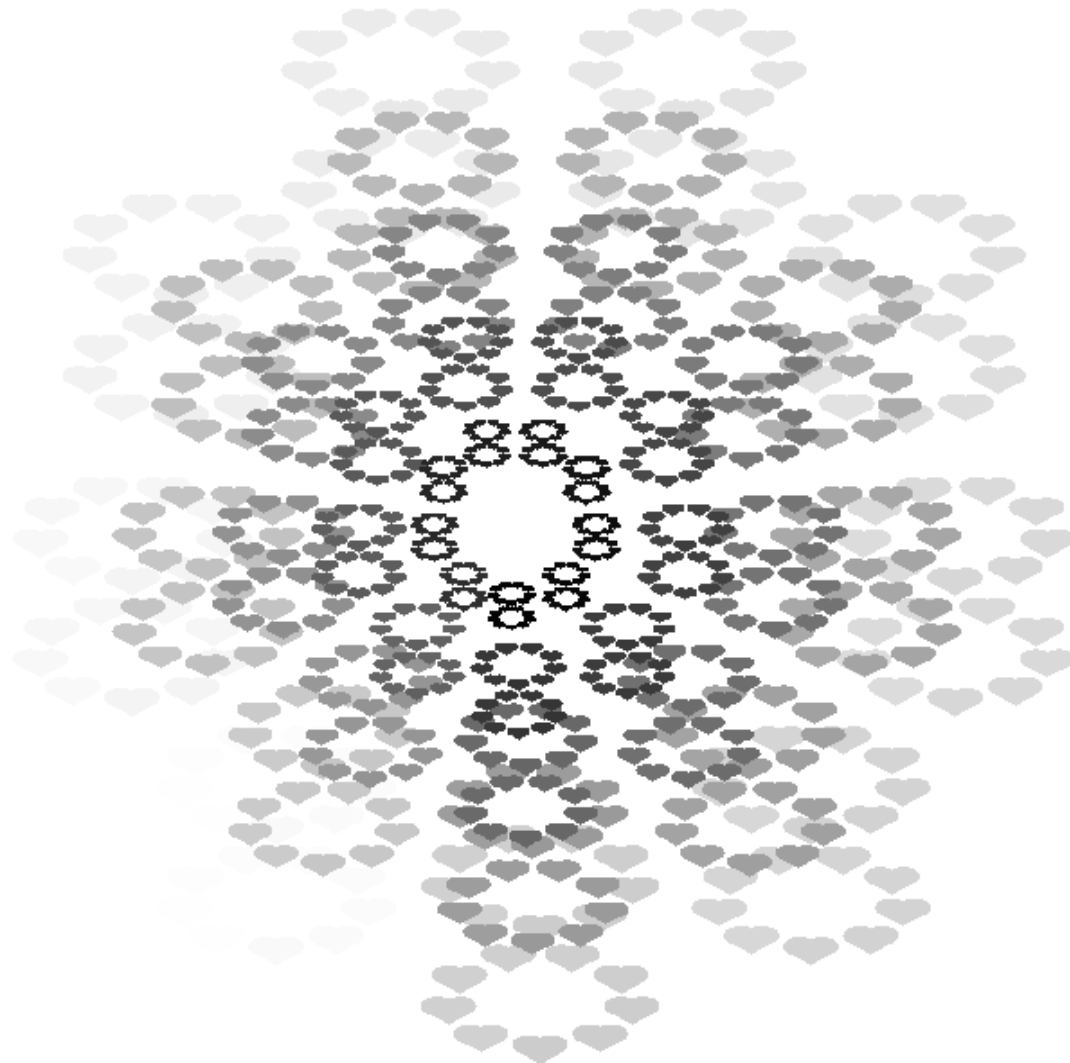
Make a guess? :-)

Skills to Unlock



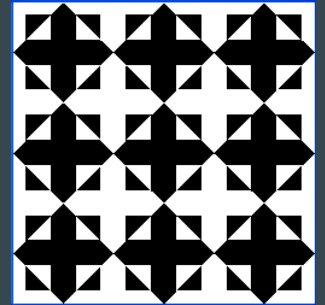
Make a guess? :-)

Skills to Unlock



Make a guess? :-)

Skills to Unlock



Go through
“Picture Language 3”!