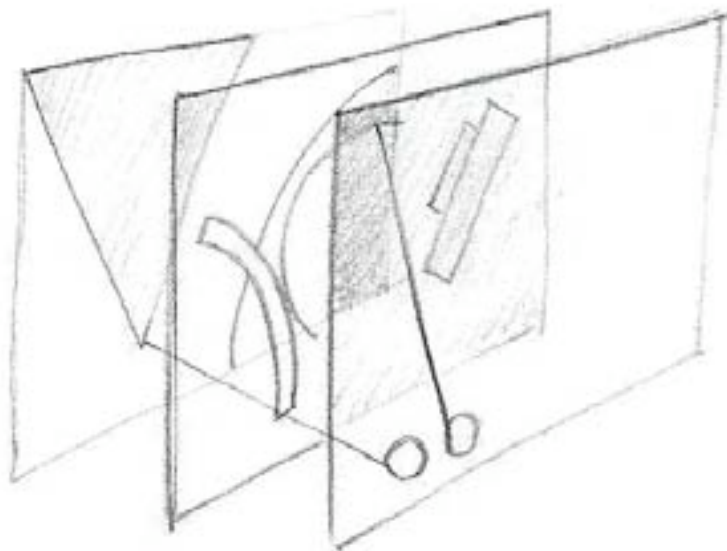


---

# Visually Representative Web History Browser

## Workbook



by Gray Hodgkinson

<http://www.designspace.co.nz/mdes.html>

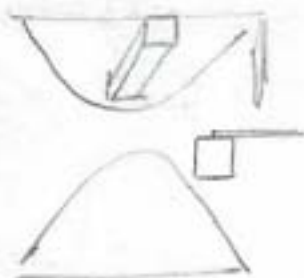
Part of a thesis submitted to the College of Creative Arts, Massey University, New Zealand, as fulfilment for the degree Master of Design.

© Gray Hodgkinson and Massey University 2007



Proun23\_no6\_1919\_800px.tif

2D shapes/curves + 3D blocks



plane  
curves

Planes, Triangles, paths & wires



3 way directions  
with strong vertical and  
Transparency



Proun31 Forms before #8E4FF.tif

circular (cones?) + wires & cube spots



Planar (circle) background

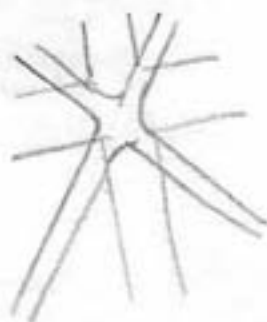


Painted backgrounds  
act as "grounding" planes.  
Textures provide scale,  
deliberate or accidentally.

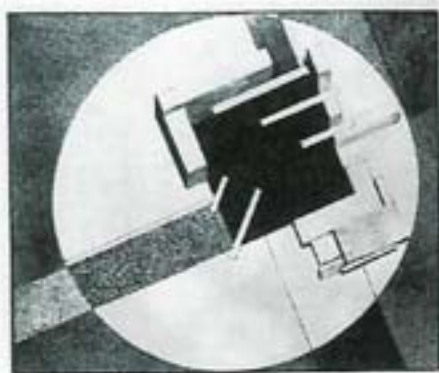


Proun93\_Free floating #8E4FD.tif

Plan (not planar)  
Blueprint / Diagrammatic / 2D  
Intersecting 2-way axes



Proun Study for G7\_800px.tif



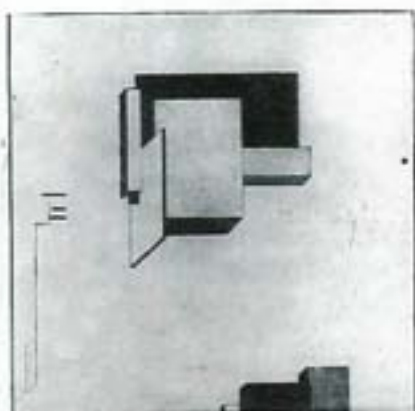
Proun1E The Town 1921\_800px.tif

Both "Constructions"



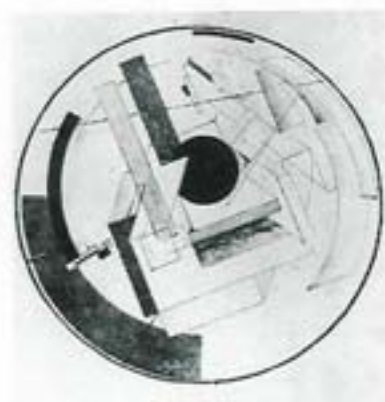
Right angle

2x Directional, angled circle



Proun1C\_1921\_800px.tif

3D construction "floating"  
Predominantly square



Proun6B\_1921\_800px.tif

Circular "prism?"  
Globular? why?

AREA  
DIRECTION  
POINTS  
CONNECTIONS



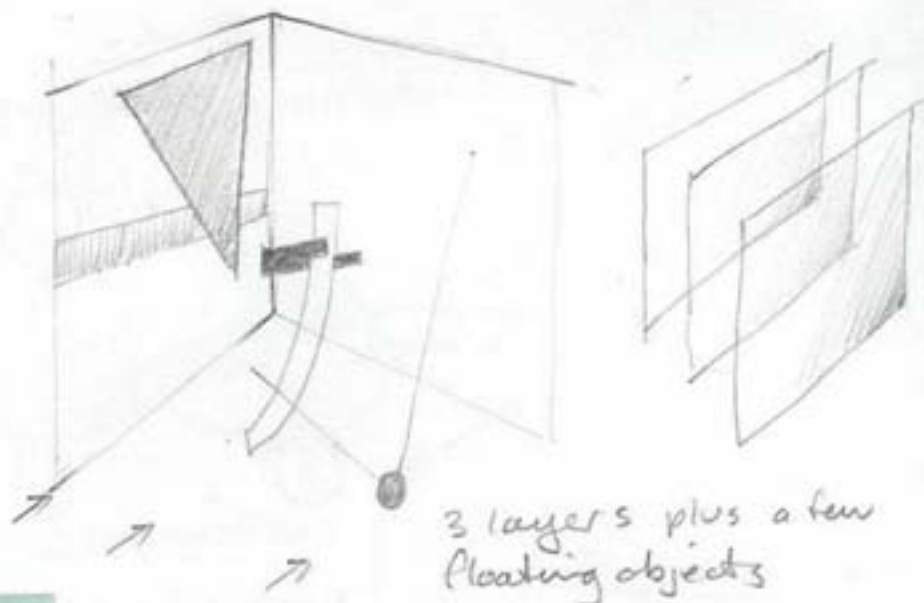
Proun1A\_Bridge\_1\_1919\_800px.tif

Another construction  
- with mixed perspectives  
- note arc  
- strong line  $\alpha 30^\circ$





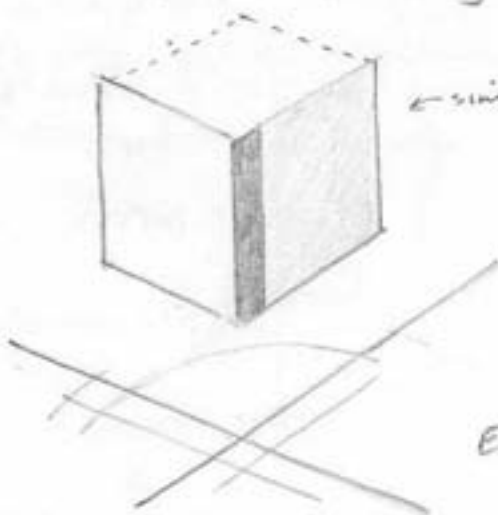
Proun12E\_c\_1920\_800px.tif



3 layers plus a few floating objects



Proun5A\_1919\_800px.tif



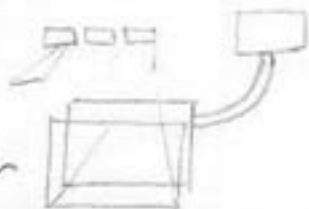
← simplified to a true cube. Many of Elvitzky's shapes are not parallelogramic.

Essentially....

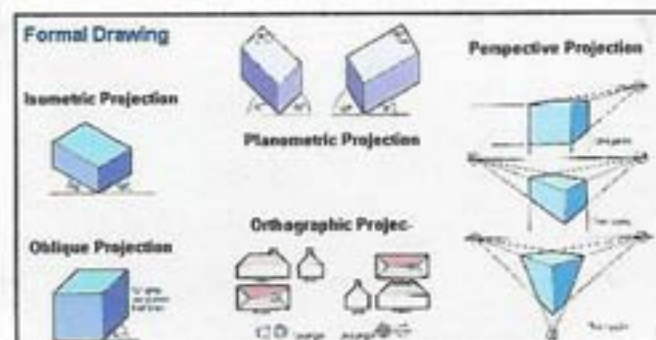
Ground plane with a 3D floating construction

(with other vanishing points added for extra shapes)

multi layered on XY using 2 depth. Essentially 2D on a Z depth. Not very "virtual" - more like 2 1/2 D. But, other shapes can be included to add to 2 1/2 D, to provide recallable navigation



OR base on a ground plane - may provide a stronger grounding, a la "Grid."







Proun5A\_1919\_800px.tif

## ← Sophisticated Mix

Multi-angle, arcs, cubes, with wires & spots.

plus a "hole",  
or perhaps  
a "target".



mixed axes

strong movement  
flow.



## Functions of shapes

- To define area
  - planes
  - tri's
- To define direction
  - axes, paths
  - wires
- To define points in space
  - spots,
  - points
  - constructions
- To connect points in space
  - wires
  - paths

⑧

## Key shapes/components

1° Angled axes

2° Spots & wires  
& points

3° arcs

4° 3D constructions

5° Planes

6° Triangles &  
paths

7° Limited number  
of axis, 2 or 3  
(x, y, z)

3/4 view of  
"cubic" shapes?

8° backgrounds - painterly/textured,  
provide scale.

Provide main  
directions, routes.

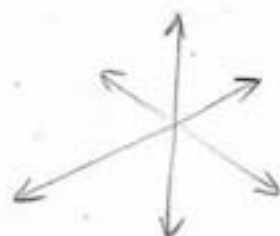
Places in space

connections,  
tension,  
dynamic.

"slow" scale with  
movement

resting  
places for  
the eye.  
symbolic  
"houses"

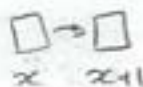
stability  
area  
grounds &  
walls



- Most shapes are either 2D, or 1D (wires)  
Only the constructions are actually 3D.  
Most shapes are 2D objects, tilted into 3D space.  
Do they have thickness?

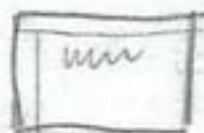
Not 3D - depth  
through texture,  
not perspective.

Toggle



$x$  = custom param Lasar Lissitzky  
 $x+1$  = custom param

How design first design? - choose style - planar, construction, etc  
- choose function - landscape

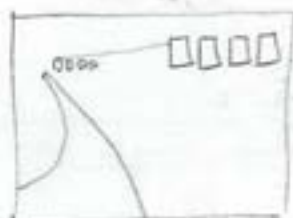


Hierarchy storage

[Intercept browser history?

OR Add a "Keep" button]!

[USE Random for BG's, ala Mondrian maker]?

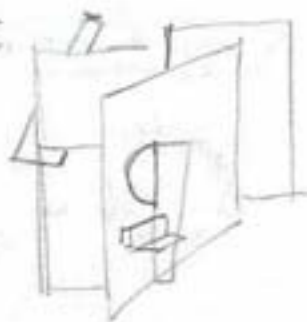


2 1/2 D overlay 3D?



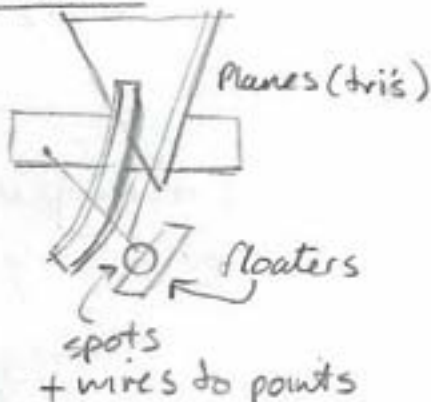
Proun Interpenetrating#8E500.tif

Planar



Proun12E\_c\_1920\_800px.tif

Planar + arcs



Typical paths → back butts → thumbs → 3D spatial → 3D Mountain

3D vis → Lissitzky

Affective Methods } Jordan, Norman

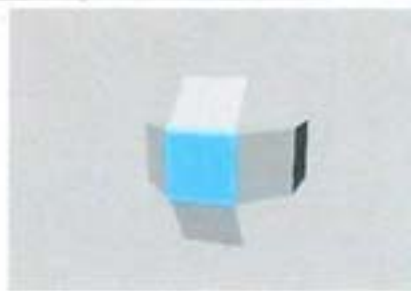
## AFFECTIVE CP

Intro

Norman - response → cognition

- Jordan - characteristics
- pleasures
  - 10 design principles
  - Formal / Experiential
  - Engagement
  - Direct Manipulation

Early Axel test using hinges



Thurs June 3 '04

• Group & store web page thumbnails

Distance = time?

Lissitzky - Objects in space  
eg Proxm 12E

- Construction's  
Proxm 1E Town



DOES USER  
CONTROL THE  
STARTING  
LOCATION?  
HOW?

vision of  
whole space?



Paths?

Distance = transparency?

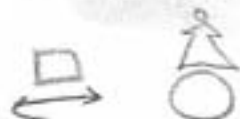
Axel

Mouse → Position

Position → transparency  
set param

OR  
mouse → Position  
Trans  
set param.

Relate Custom - Axel



- Select target:  
sphere's position
- Go to Relate, Custom
- Operator [, ,]

[sphere1.position.x, sphere1.position.y,  
cube1.position.x]

Means, cube's Z controls  
sphere's Z

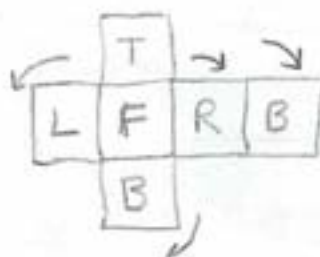
Axis

- S select
- E scale
- R rotate
- T translate
- Z zoom
- X pan
- C orbit
- TC orbit free
- click, opt click = move group

h snap grid

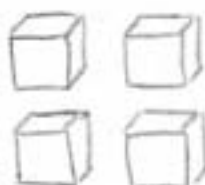
B preview

Keep offset (while setting constrain)



unfolds origami style

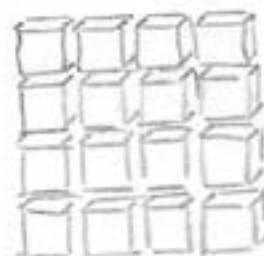
• 3D as a means to hold, or stack data.



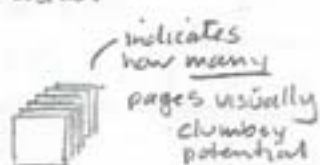
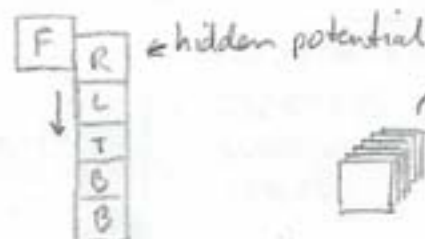
24 sides  
12 visible  
12 hidden



24 sides  
ALL visible



16  
 $\times 6$   
213 sides!  
16 visible  
32 partially visible



Each block represents a site. Cubeness is built by multiple pages of any site

3D storage  
2D display & access



colour? or letter

- colour faster - "Knaster" - Thumbnails strength:

- colour
- layout
- dominant text

perhaps not cubes  
why cubes?



could construction reflect nature of site?  
Yes but very complex.



Temporal or site?  
structure.  
↓  
sort out in step 5.



Folding out back plane



Two pivots

Pose constrain holds pose with object.



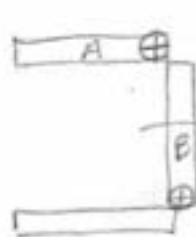
objects cannot have two pivots



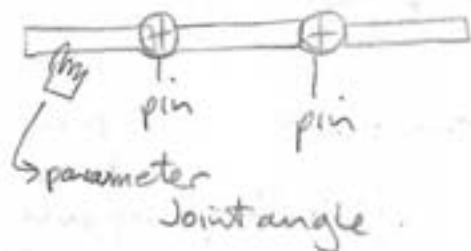
constrain - orient constrain

- direction - x y z movement

centre point



constrain pose to lock to B - No orientation  
- orient parameter to rotate.

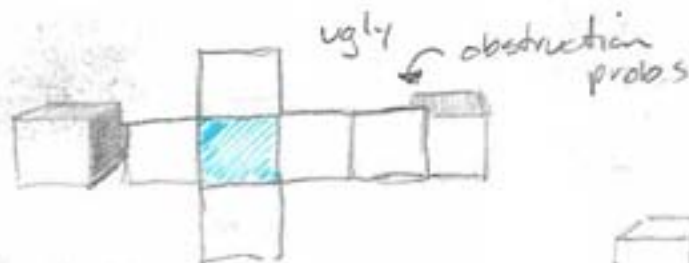


Axel - cannot Duplicate Interactions.

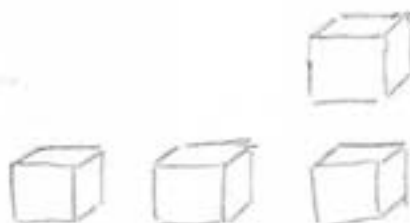


3D Box unfolding not so 'revealing' many huge variable less repeatable code.

not as "cool" as expected - no a strong interface feel - perhaps not suited?



Orthographic?  
Try in Axel



Try FLASH  
- more modular, faster, easier to control aesthetic.

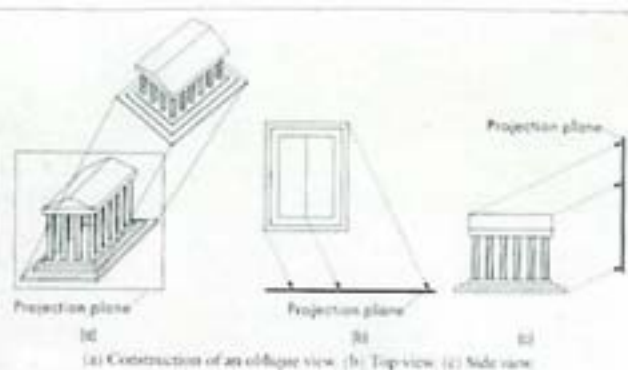
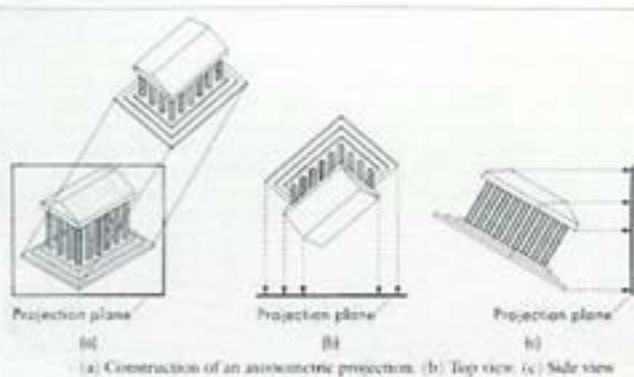
Items appear by alpha fade-up



Perhaps use some sort of random assembly?

↳ But where's the 3D?

Remember - Buttons cannot receive actionscript code!  
Use movie clips.



[ AT SOME STAGE, WILL NEED TO: ]

- how integrate (or not) with Browser
- consider page/history heirarchy.

(use Random to generate objects?)

FG objects - spots, wires & constructions

MG objects - planes, paths, arcs

BG objects - planes, tris, arcs



#### Axonometric

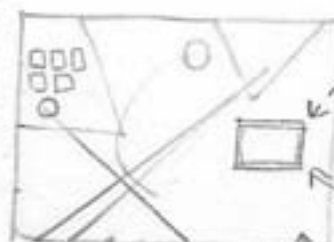
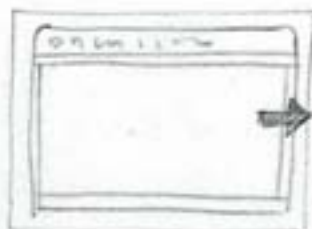
- View plane not parallel to object

- Projections generally orthographic

1. Isometric - equal angles  $3 \text{ equal}$

2. Dimetric - equal angles  $2 \text{ only}$

3. Trimetric - unequal angles



Page shrinks to thumbnail

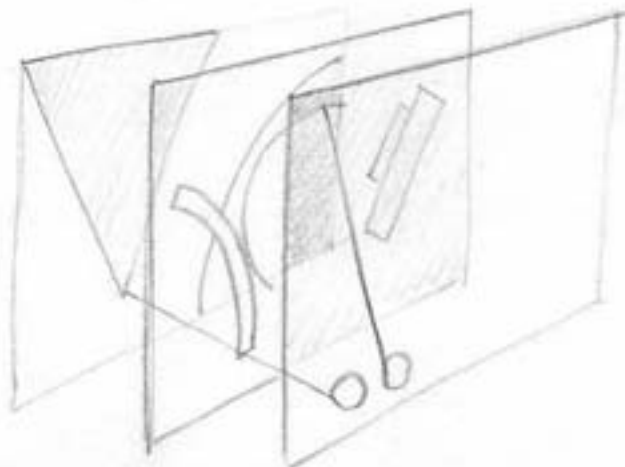
Ideal scenario

- OK for prototype

- Difficult to implement

3D Background is revealed

Need a system that "constructs" the Lissitzky type space.



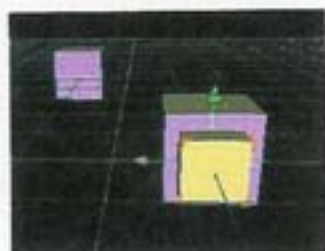
[ 3 layers or ?  
"Room Corner" ]

Begin with layers  
- BG - Can become room-like later if deemed necessary.

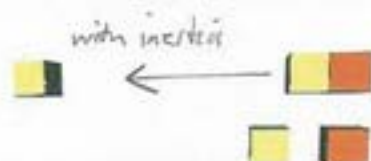
layers will provide simple model to initially explore with and establish visual language.

# Axel Edge Screen Grabs

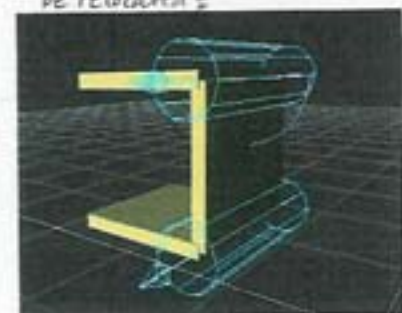
Controlling the various scripting functions



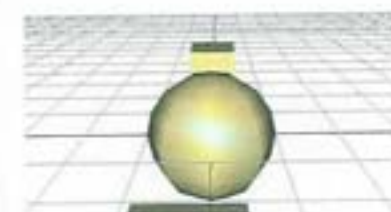
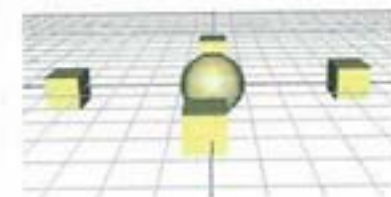
Button change out cheat



Spring constraints used for inertia  
- Permanent link - though spring can be relocated



Pin rotation - opening containers.  
Hidden faces that reveal contents.  
- Rather fussy to set up.



Camera zoom on click (easy)



Lights - link to depth, visual depth and illusion?

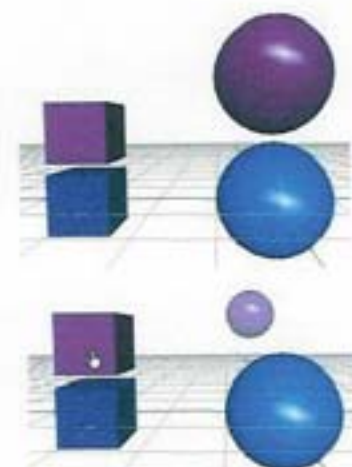
Pop up



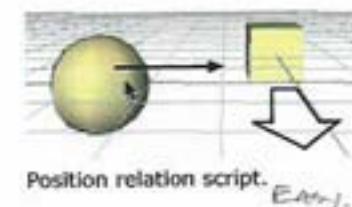
<http://www.designspace.co.nz>

Link on object

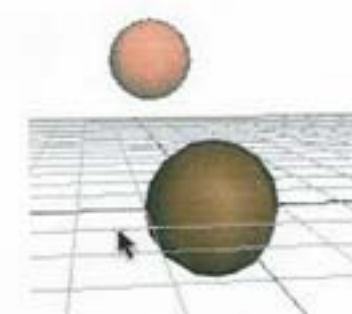
Replace or New Window. No obvious way to open within Axel.



Fade with distance - standard position translate, also transparent translate. One way trip - how to bring back?  
Too basic - need scripting



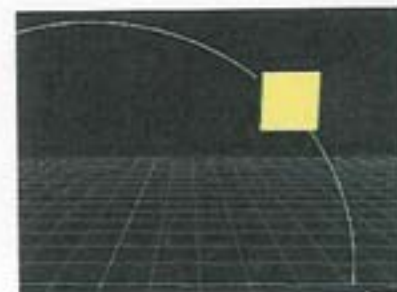
Position relation script. Easy.



Ball1: transparency linked to zdepth, Ball2: colour linked to Ball1. Tricky.



Double function button: uses micro change in butt 1 + position sensor.

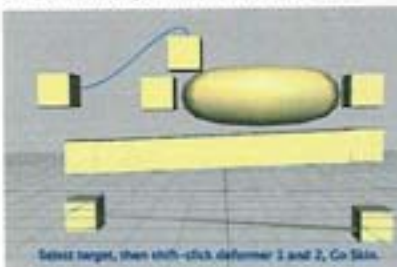


Constrain to path. Creates an animation timeline. If mixed with function, becomes unpredictable - perhaps have multiple timelines?  
Nice visually - "Curvy"



Imported tif image of website as texture - promising.

Using Skin to create visible connections - very clever. Select target, shift click controllers, go Model, Apply Skin.

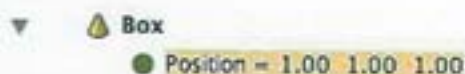


Colour linked - as objects depart, colours separate. Uses distance function linked to rgb or in script



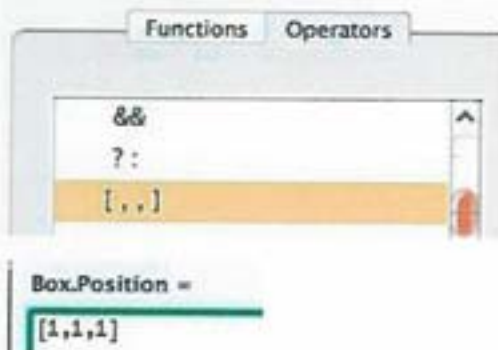
# Axel Edge Custom Relations

Select the **parameter** to be affected.



Go to **Relate, Add Custom Relation**.

Type in the function, or d/click from the lists:



Add values. In this case,  $[1,1,1]$  = places the object in xyz space.

**Box.Position =**  $[1,1,1]$  ← This top line defines the role of the follow values. So  $[1,1,1] = xyz$ .

## To alter only ONE value of xyz:

Set the non-changing values to themselves. Eg:

**Box.Position =**  
 $[1, \text{Box.Position.y}, \text{Box.Position.z}]$

## Drive ONE value by another object

Set the non-changing values to themselves

Set the changing value to **another object**. Eg:

**Box.Position =**  
 $[\text{Box.Position.x}, \text{Box.Position.y}, \text{Ball.Position.x}]$

So Box's **Z** position is controlled by **Ball's X** position.

## Distance between object controls transparency

**Material7.Transparency =**  
 $\text{distance}(\text{Cube4.Position.x} * 10, \text{Cube3.Position.x} * 10)$

This means that the distance from Cube3 to Cube4 controls transparency. \*10 is simply used increase the ratio.

## Zdepth controls transparency.

Use "distance" to measure the distance from X to Z:

**Ball1Shader.Transparency =**  
 $\text{distance}(\text{Ball1.Position.x} * 10, \text{Ball1.Position.z} * 10)$

## Object receives colour from another

**Ball2Shader.Color =**  
 $[\text{Ball1Shader.Color.r} * 2, \text{Ball1Shader.Color.g}, \text{Ball1Shader.Color.b} * 5]$

## Object receives colour from another as it approaches, (the back, from -Z)

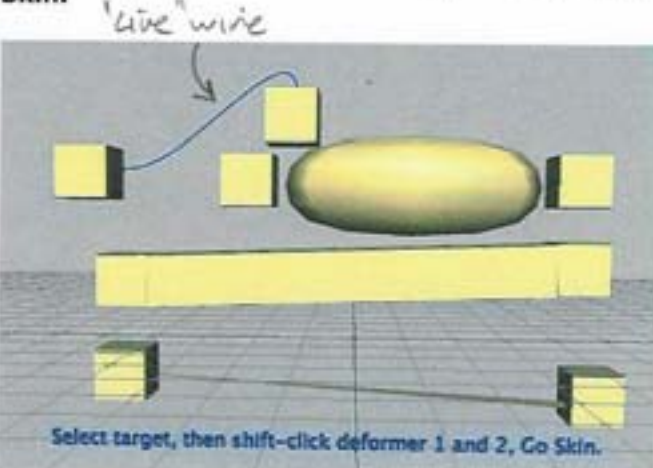
**Box12Shader.Color =**  
 $[\text{Ball1Shader.Color.r} + (\text{distance}(\text{Box1.Position.z}, \text{Ball1.Position.x}) * .1),$

$\text{Ball1Shader.Color.g} + (\text{distance}(\text{Box1.Position.z}, \text{Ball1.Position.x}) * .1),$

$\text{Ball1Shader.Color.b} + (\text{distance}(\text{Box1.Position.z}, \text{Ball1.Position.x}) * .1)]$

## Using Skin to create visible connections

Select target, shift click controllers, go **Model, Apply Skin**.



## How to

Attach

Drag

Detach

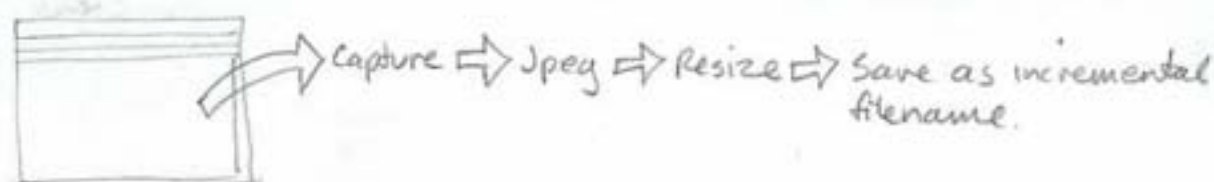
1 use script to have top bar drive xyz of bottom

2 This script can be toggled.

Grouping - watch out, objects behave differently - more wrong etc

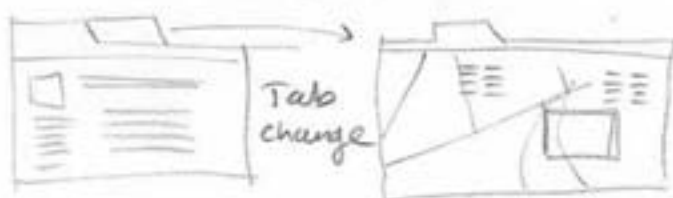


# browser window capturing & recall



Axel can load images as textures

How does a new page load into Axel?



IF screen changeout is acceptable - browser & Axel could be in different tabs!

Quickkey could move between  
Eg F1



How

OR

Work in a  
Frame  
window

too small?

Use Javascript  
to adjust size?

\* Axel can call Javascript - Interact, Reaction...

NEED TO TEST Potential of Javascript

stay with prototype concept first,  
can investigate browser integration in  
later stages.

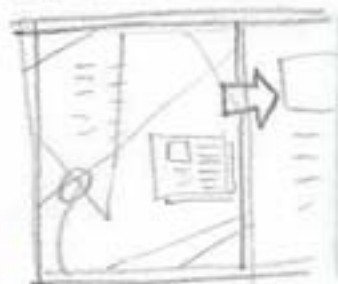


\* Screen Grabs windows under cursor  
Alt-shift-4, space, Click

This could be scripted.



fade to white



There's one more intangible factor that deserves consideration: the pleasure/coolness factor. It's one thing for an operating system to allow you to be productive and get your job done. However, if that same OS can be as productive, and be cool at the same time, it can draw you in and make you enjoy doing what you set out to do. The more you enjoy using your computer, the longer you will be willing to sit in front of it and get your work done. If your computer is simply functional, you'll get your work done, but you'll burn out more quickly. And OS X surely gets my vote for the coolest OS.

#### An Appeal to the Soul:

A recent "It's just an OS" remark by a co-worker got me thinking. I spend more hours a day looking at and interacting with my OS than I do with my wife, more time looking at it than looking at trees, clouds, the ocean, or anything beautiful-combined! Millions of people log billions of hours in front of their OSes. For the sake of the soul, OSes at least need to be less aggravating, and at best to be things that are a pleasure to the eye and to the soul. I won't make any claims as to which OS I think does this better, but consider this next time you're pulling an all nighter in front of your computer.

D Pouliot. OS Shootout

[www.xvsxp.com](http://www.xvsxp.com)

Chin Gorge



Petrus Van der Velder

"Romantic landscape" late 1890s

Distant haze = depth - greys



Funeral



Focused tonal range

blue haze.  
blur of detail

## Depth

Illusion of depth by "Haze".  
Often less than realism.  
Why? - to enhance FX  
- to aid rendering

Common in games since  
Myst 1  
- use of atmospheric haze to show depth - also serves to limit depth to limit refresh detail on screen  
possibility to use to reduce "infinity clutter".

\* Does Axel have issues with high number of polys?  
Does fog help?



MYST



MYST



GHOST RECON



FAR CRY



Haze - white (fog)  
- black (night)  
- coloured

Also consider changes in Hue & Saturation

TEST!  
M





Haze / white fog  
Also - basic colour theory,  
warm colours advance  
cool colours recede

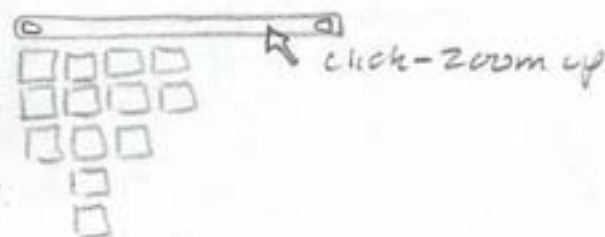


fade to white,  
whereas  
PTD, is  
fade to dark



How to: position wires - start, stop  
: store icons

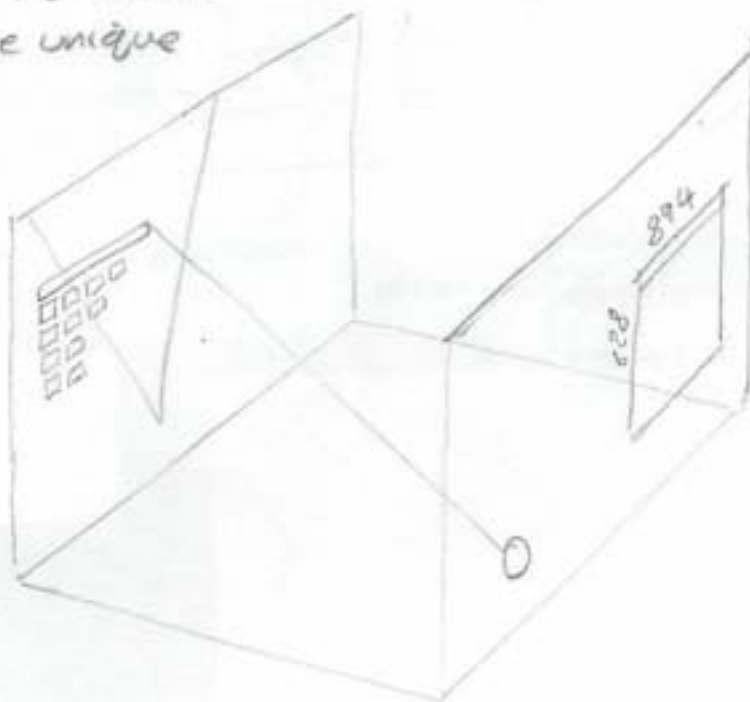
Need a visual storage mechanism  
Continue the "hang" metaphor?



Space construction - Random element  
No TWO spaces will be the same.  
Everyone's space will be unique



12E







# Call javascript

Axel call javascript, that has already been defined in the host web page.

Eg:

1. Use Behaviours to create a pop up message. Note the Javascript that is created in the html head.

```
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_popupMsg(msg) { //v1.0
  alert(msg);
}
//-->
</script>
```

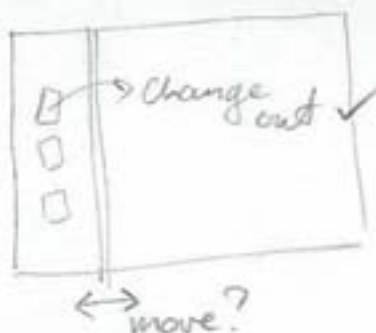
2. Copy the code, **inside** the quotes, from the html **body** into Axel

onClick="MM\_popupMsg('Java doody called')":

3. Paste into Call Javascript in Axel

JavaScript: MM\_popupMsg('Java doody called')

↑  
This pops up in window



• Could also use layers to open & close windows / talk to windows

To be INNOVATIVE - do not feel obliged to conform to existing web surfing paradigm. Do not fit into a browser, make the browser fit into my concept.

Go with - AxelPlayer - full screen or window, with browser windows coming & going!

## Open in Frame from Axel

Use Behaviour "Open URL" to create Javascript to open in another frame. Copy and paste this into Axel - wallah!! 5 August 2004

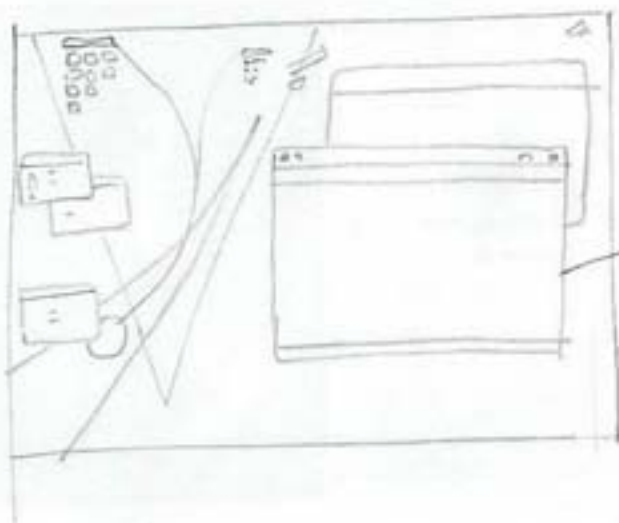
The function:

```
function MM_goToURL() { //v3.0
  var i, args=MM_goToURL.arguments; document.MM_returnValue = false;
  for (i=0; i<(args.length-1); i+=2) eval(args[i]+"."+location="'+args[i+1]+'");
}
```

The code - this bit goes into Axel

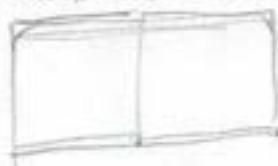
MM\_goToURL('parent.frames['mainFrame'],'two.html');return document.MM\_returnValue

\*BREAKTHROUGH!



what do when shrink even further?

Axel max res = 512. Double up?



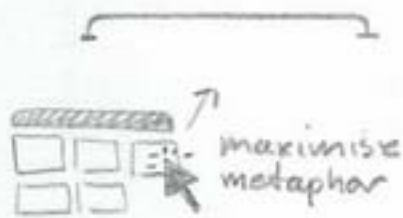
Browser should forego the banner-replace with banner that has new function - drag, hanging etc.



MAKE A 3 LEVEL GRID.

why?  
Ability to  
drag groups  
of sites  
around.

Perhaps Browser Banner remains  
of "Browser Hanger"



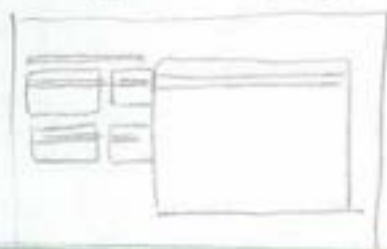
Lebbeus  
Woods



**"Presently we control  
and limit our future  
by designing what is  
already known"**

Born 1940, in Lansing, Michigan. Woods worked for Eero Saarinen and Associates and has been creating experimental projects since 1976. His visionary architecture is concerned with the cultural regeneration of society, directly confronting urban landscapes and social and political conditions presently undergoing radical transformations. His projects propose architecture as an instrument of social transformation. He is a co-founder of the New York-based Research Institute for Experimental Architecture. Currently, he is a Visiting Professor at Cooper Union in New York.

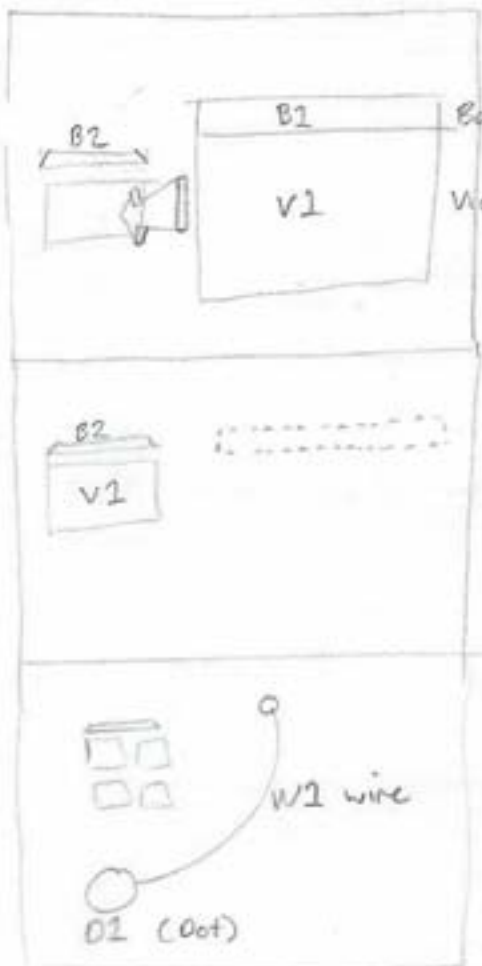
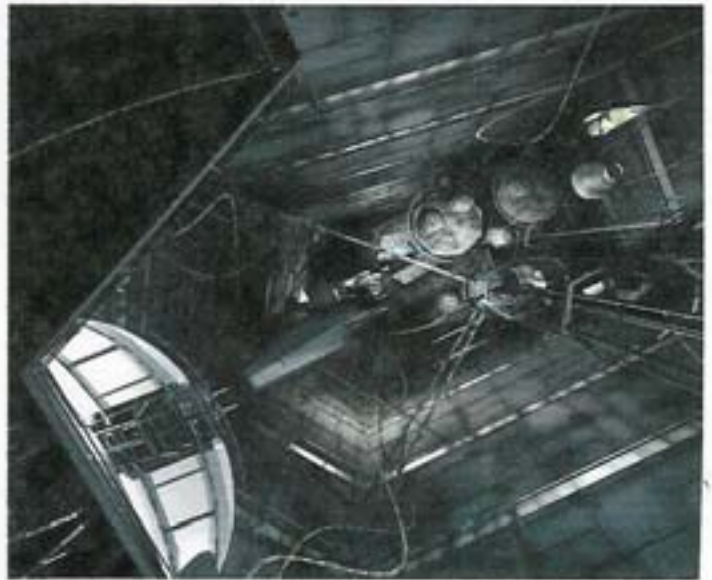
Keep browser banner to indicate  
ability to surf  $\frac{1}{2}$  icon size?



← why not have loose  
collection behind browser.  
what is gained by having  
a "coathanger" banner?

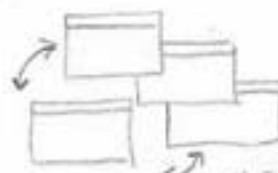






Banner 1 "B1" Why separate banner?

View 1



click to front



Ctrl-click zoom to back & auto arrange

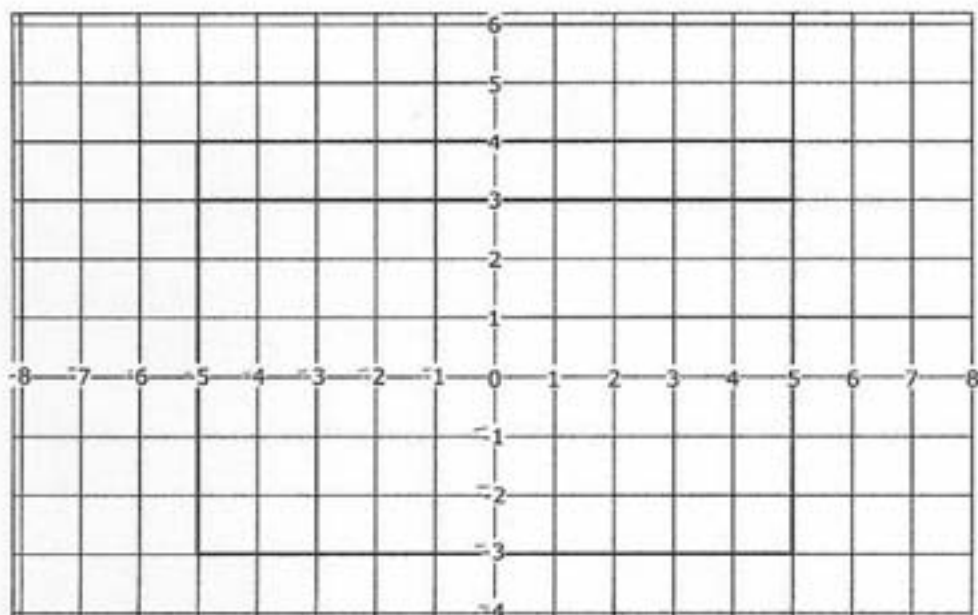
X = Script  
CX = Custom Relation

Mid distance "shuffle" zone

NEED TO SIMPLIFY & IDENTIFY:

As history build:

1. Where do the files stack?
2. What input does the user have?



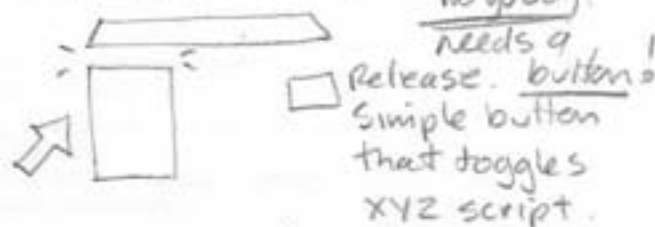
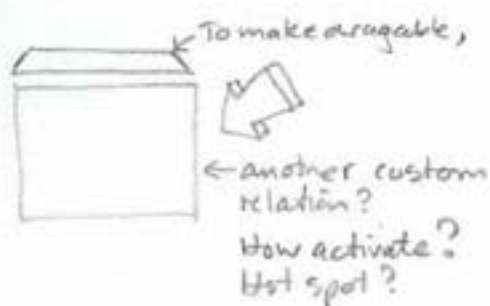
Web Cam Position

Pos. 0 0 2.0

Or. 0 0 0

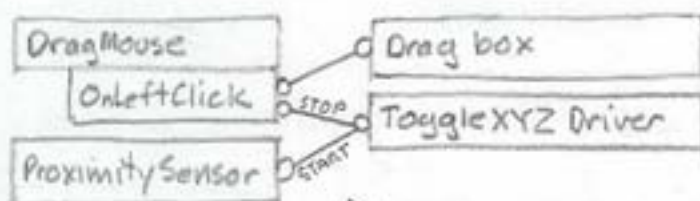
Scale 1 1 1

use proximity reaction  
to toggle the XYZ custom script



Need to develop a code  
language for Interaction  
Editor

Better Much!



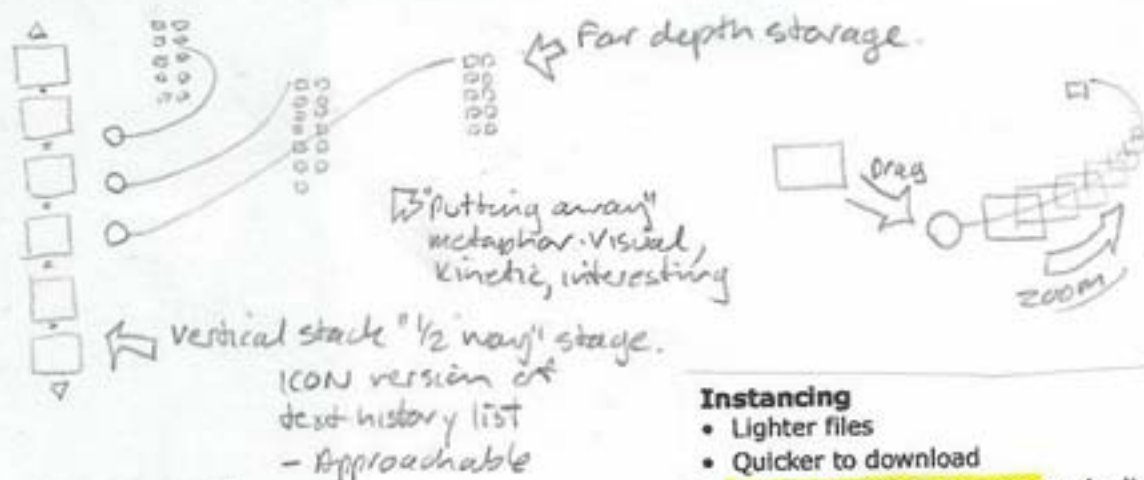
\* SEE ALSO  
CUSTOM SENSOR  
IF/ELSE - 2 pages

Note trigger modes:

Proximity is always start  
Click is always stop - that way, whenever  
user initially selects object, they can move it!  
See 21-Attach-Drag-Detach file.

CODE





How to deal with sheer amount of history filenames?

1. The list is generated anyway, & automatically as history.
2. At what stage should the user select those to be filed & kept.

- at browsing? - no! User is concentrating on searching, not storing  
 - following a browsing session? - Yes - searching is over, user can now spend some time organising.

3. Can history lists be organised automatically?  
 OR.

4. Can the history list be accessed, sorted, & stored at any time.

↳ In which case, how is the information catalogued?

⇒ If we ask for user intervention, are we not at point 2 again?

#### Instancing

- Lighter files
- Quicker to download
- Display speed **the same** as duplicating : since the computer still must calculate all objects on screen.

Manipulations (position, rotation and scaling) of the objects -when you are in Object mode ( )-are independent.

An instance appears in the Project Manager and in the viewports, where it is offset from the original. You can adjust the instance's offset in the **Edit settings in the Project Manager**.

#### Unique Materials:

When you instance an object, the instances share the same material, however, you can then add a new material to any instance and it's added to just that instance. This single instance would then have an independent material, although geometries remain connected.

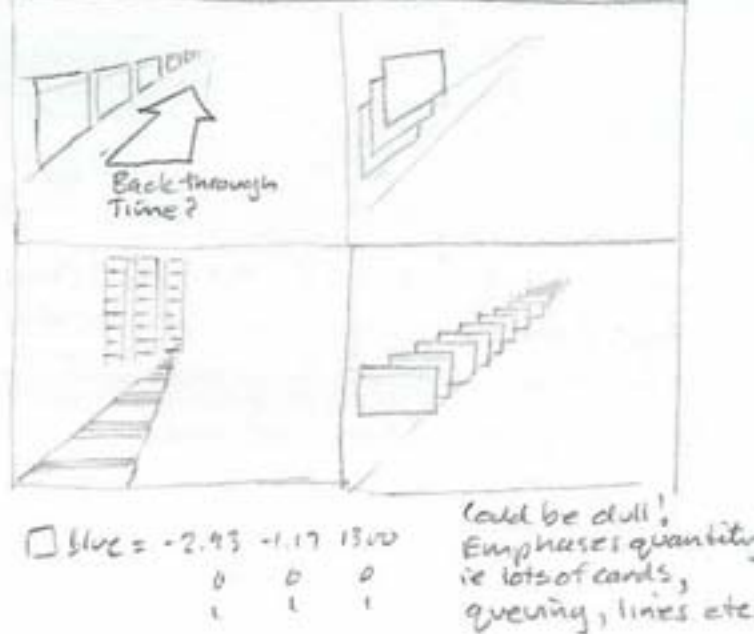
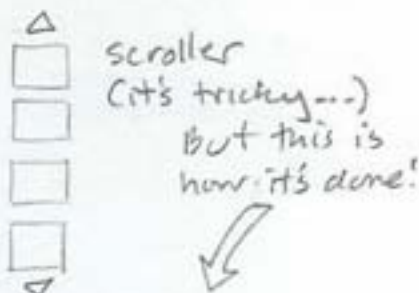
#### Duplicate - Offset and Array (?)

A duplicate appears in the Project Manager and in the viewports, where it is offset from the original. You can adjust how much a duplicate is offset by expanding **Author Settings / Edit** in the Project Manager, then typing a new value for **Duplicate offset** in the Parameter Editor.

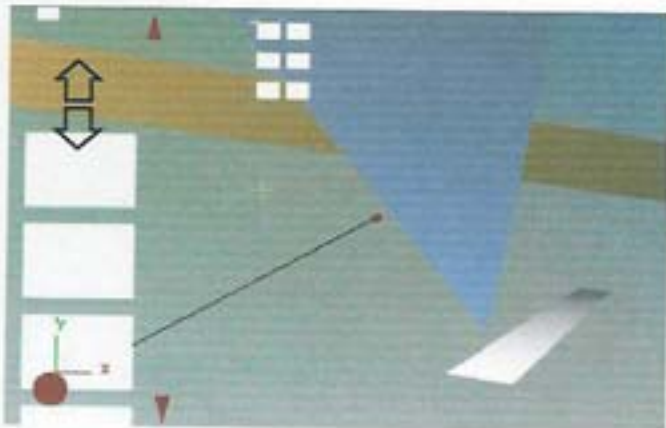
TWO LISTS? -OR THREE?

- 1- First encountered
- 2- Last visited
- 3- Catalogued

"Roadways" of history files?

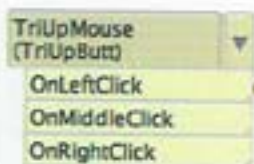


## Scroller

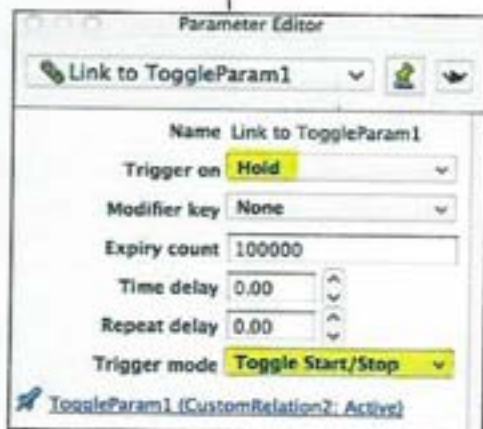
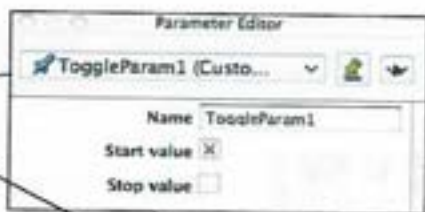


1. Give button **Mouse Sensor**
2. Select object or group's **translate channel**
3. Select **Custom Relation** (not reaction). **Write script.**
4. Select **Script channel, Active**, select Reaction, **Toggle Parameter.**
5. Change Mouse link to **Hold**, and **Toggle Start/Stop.**

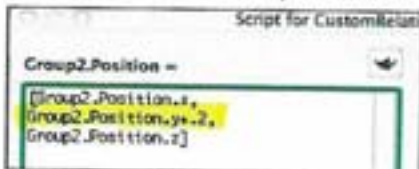
Reaction - Toggle Parameter.



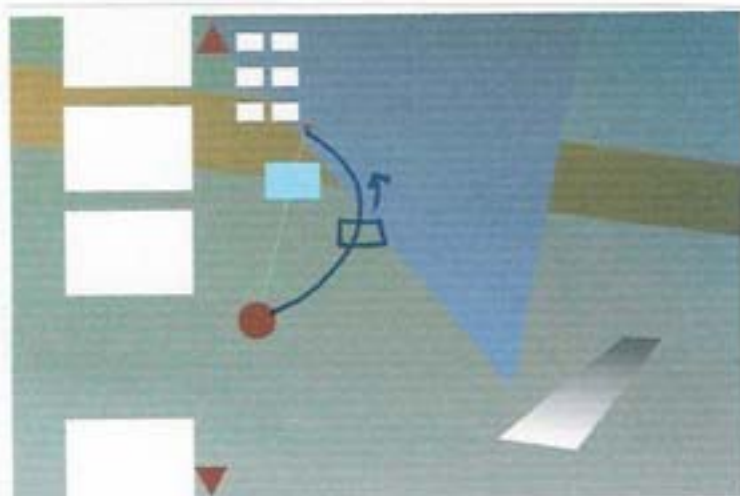
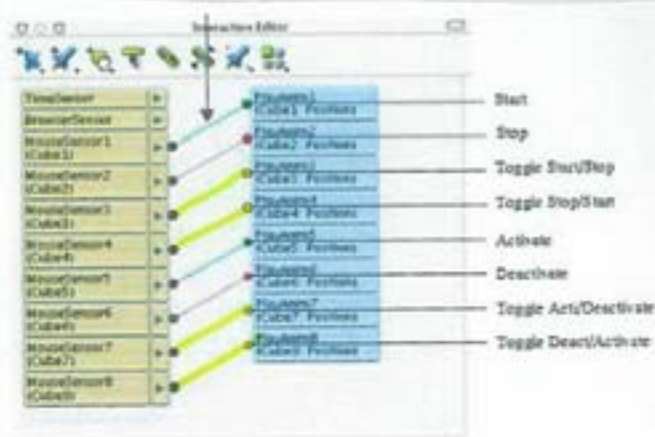
ToggleParam1 (CustomRelation2...)



Custom Relation (Not reaction - which will not allow mouse hold)

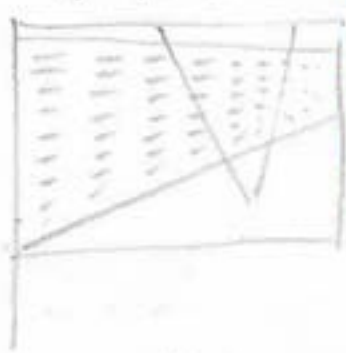
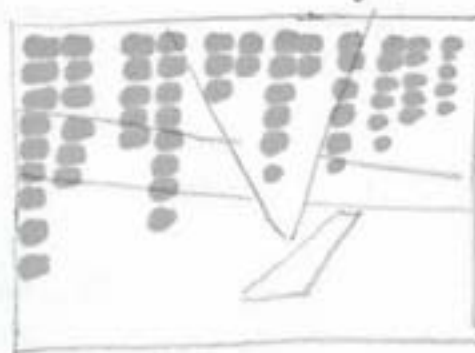


works 0.14, but greatest sense of 3D comes from camera zoom in - very cool  
wires may need to be longer (deeper)  
to give greater sense of scale.



⚠ Not sure about scroller. It's adding another interface metaphor - also is limited to eg 6 views at a time.

Perhaps files should just collect on 'back wall'  
vertical stacks = days / sessions / groups of 10...



Scale!



Link colours.

- Select Material of 1
- Select other object
- Material Link
- IF other object is then instanced, colour is retained.

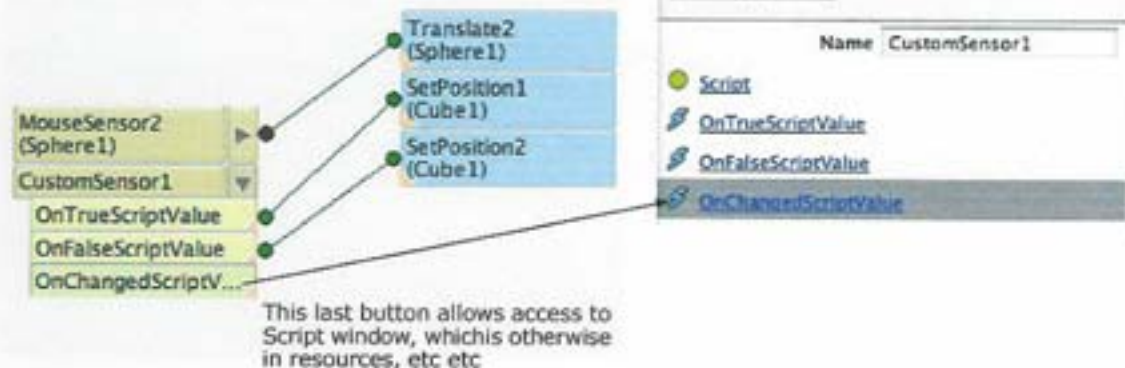


## If/Else

Use Custom Sensor to set up If/Else.  
Eg: If Sphere1's x position is greater than 2, then... link to normal reaction.

Trigger when value changes:

Sphere1.Position.x > 2



This last button allows access to Script window, which is otherwise in resources, etc etc

Perhaps ALL movement can be controlled by snap - using proximity sensors to toggle snap actives off/on.

## Best Snap Method!

1. Use the **Snap** Constraint in the **Relate** menu
2. Multi select the snap targets - these will stack up in the Parameter Editor - Nice and tidy, all in one place!
3. Use Toggle Reaction to turn the snap off and on while dragging (if you want to).
4. Clean layout in interaction editor too



Using Snap Constraint under Relate menu  
**Drag toggles active**

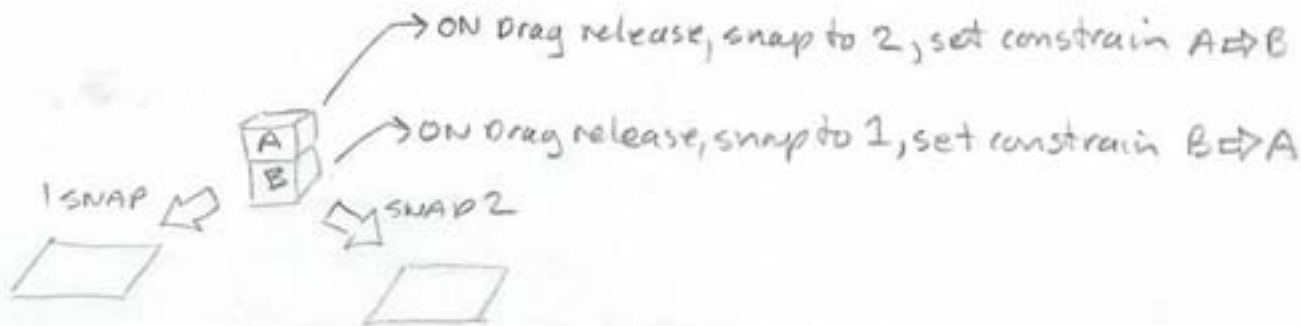
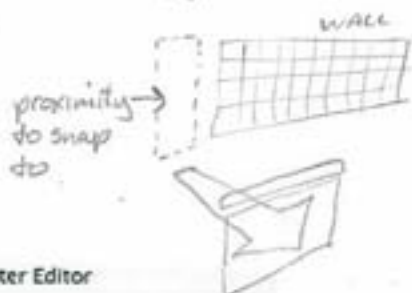
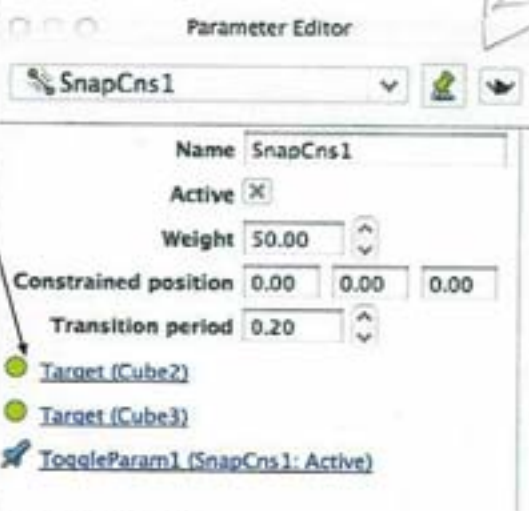


Hold  
Toggle Stop/Start

Start Value ☒  
Stop Value ☐

(opposite of  $\uparrow$ ) and also Active ☒

Basically - all objects "snap" from place to place!





- Banner is pose constrained to View panel.
- V is snapped to both S1 & S2



### How this works:

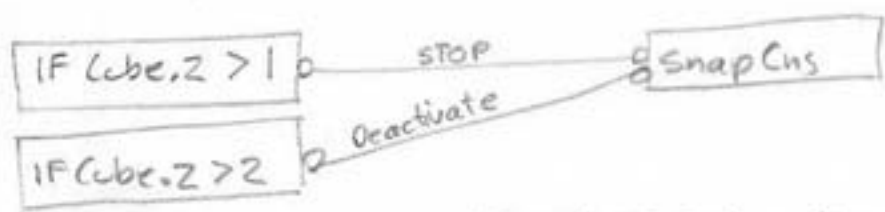
When banner is clicked - V is moved to near S2

To use a click, not a drag, to reposition a snap-to location

- Snap is briefly turned off then on again - by using the "hold" time of the click.
- The delay lets the move "break free" of the snap.
- After 0.3 secs, the snap is re-enabled, and now snaps to the newer, closer S2.

### VERSION 2 - Using position triggers to all free drag at front

Both Stop and Deactivate are required.



Use Proximity  
onEnter  
onExit

This allows free dragging at  $Z > 2$  without re-activating the snap constraint.

Now - How do we (simply) reverse this procedure?

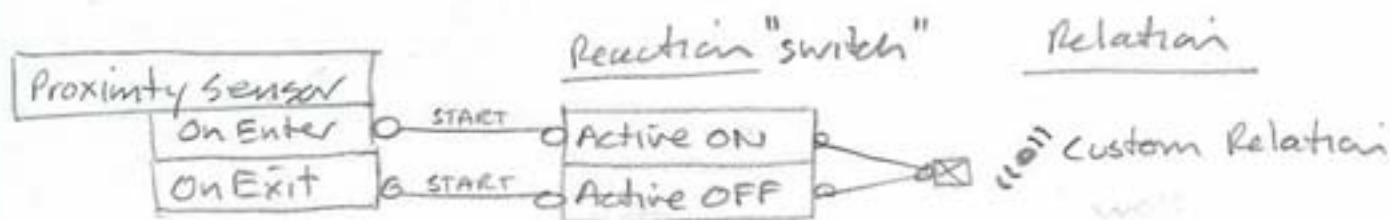
ACTIVATE command and SWITCHES - They make reactions work or not work.



Deactivate stops SPIN Z from receive any commands

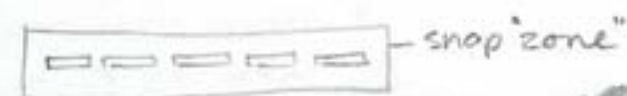
Activate do NOT turn a reaction off, if the condition is not met. It simply does nothing.

## USING LOCATION TO TRIGGER



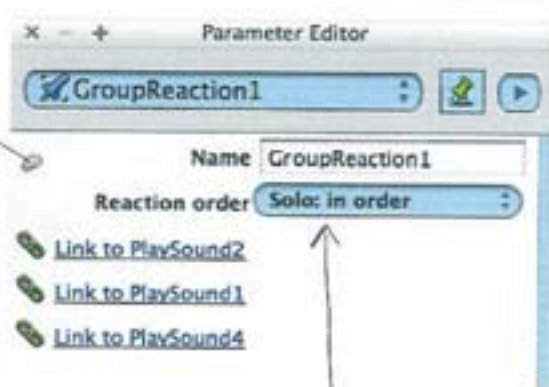
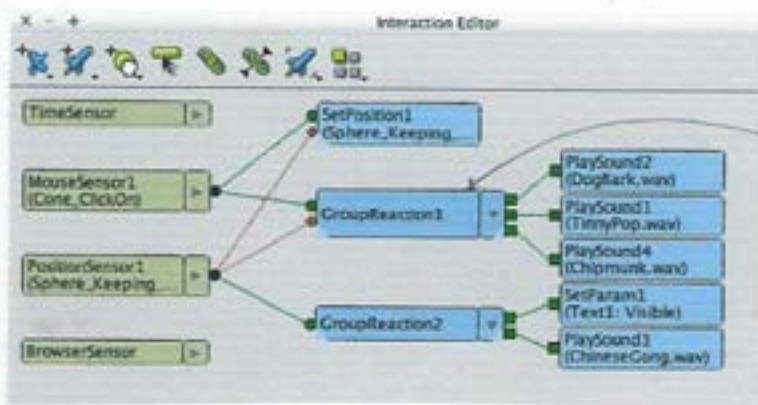
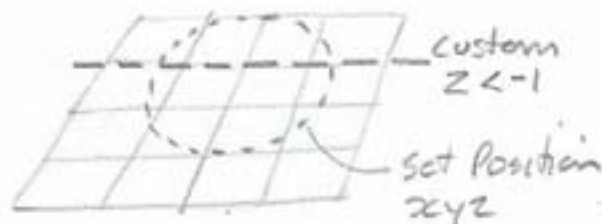
Consider: Use a script to provide movement, rather than Position Reaction, e.g.  $x+1$  etc.

Custom are best!

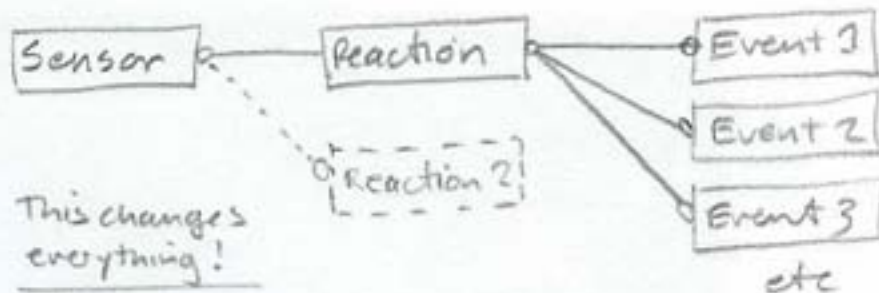


## Grouped Reactions!

MAJOR REVELATION!!

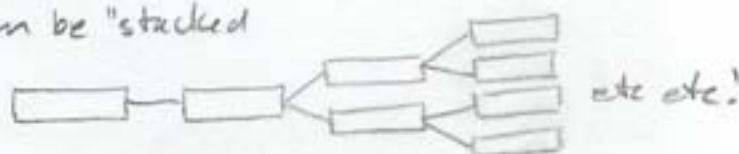


Events played Separately!

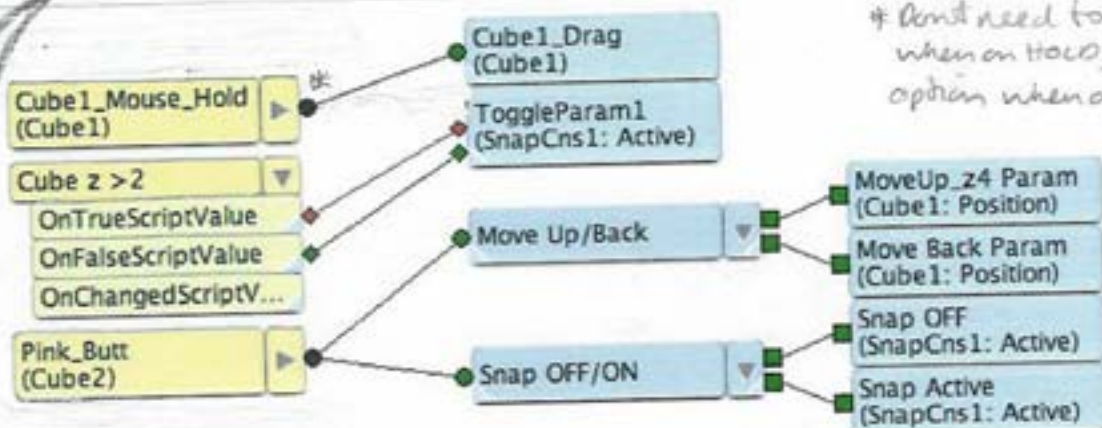


This changes everything!

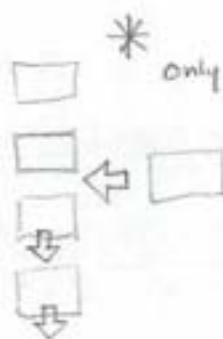
Can be "stacked"



THIS WORKS VERY WELL. Nicely modular (mostly)



\* Don't need to deactivate snap when on Hold, use override option when dragging instead



\* only need to shuffle downwards, as long as we stack from TOP DOWN, i.e. HANG.

stack up distance scripts to create one place proximity sensors

use override (?) to force top plc to jump down

maybe use Hold to deactivate snap to allow top to move down



Use Custom more Reactions - these do NOT trigger while dragging whereas Position reaction does!

\* Buggy Tip

IF you want to toggle a parameter ON/OFF, make the reaction with the parameter OFF ☐ supply

distance (Pink.Position, Blue.Position) <= 1 || distance (....etc)

Trouble is - does not distinguish between the two, therefore, which one moves?

use || to mean "OR"  
? IF TWO conditions are met, do they both trigger?



Snap on  $\Rightarrow$  OR  $\Rightarrow$  Snap off

move causes snap off

on move, snap is enabled

mouse down = drag

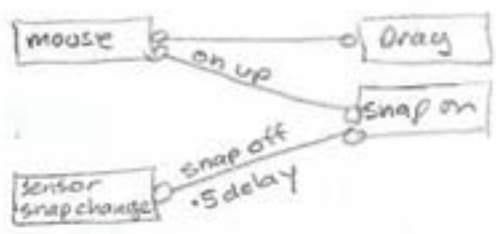
mouse up  $\rightarrow$  then play snap for .3s  $\rightarrow$  then deactivate

MouseUp  $\rightarrow$  Snap Active

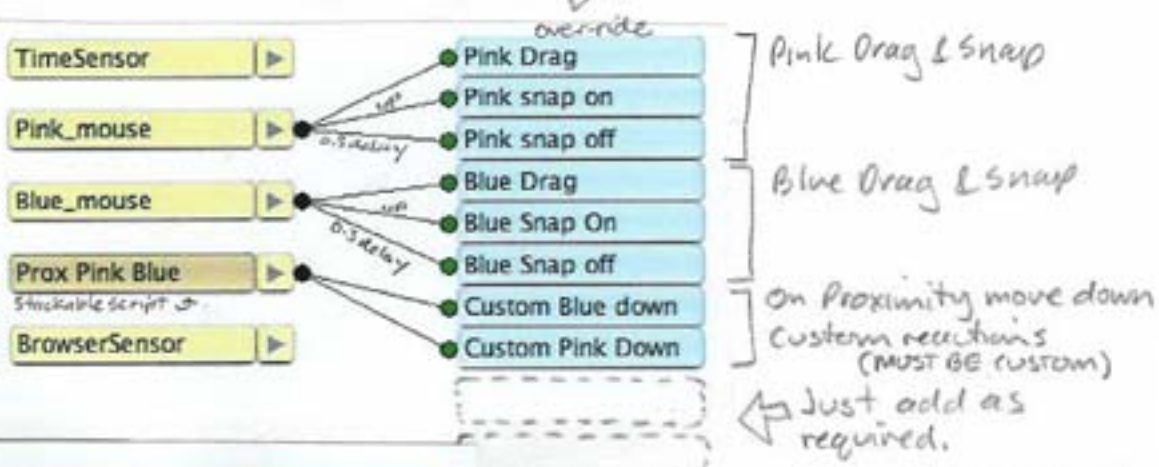
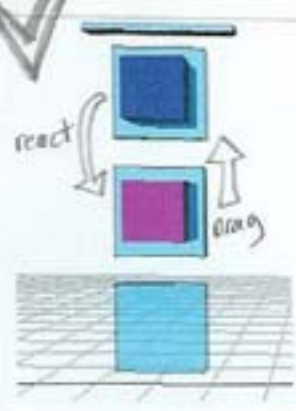
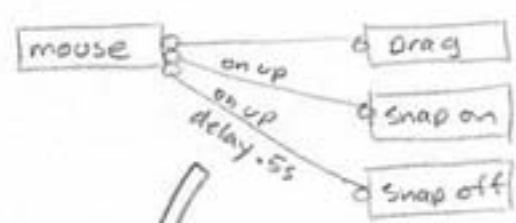
IF snap active, wait 2s, deactivate

Need to try to keep all behaviours on the object, so as to keep assembly as modular as possible. Modular = Flexibility

1. Drag
2. Let go
3. Snap
4. snap off



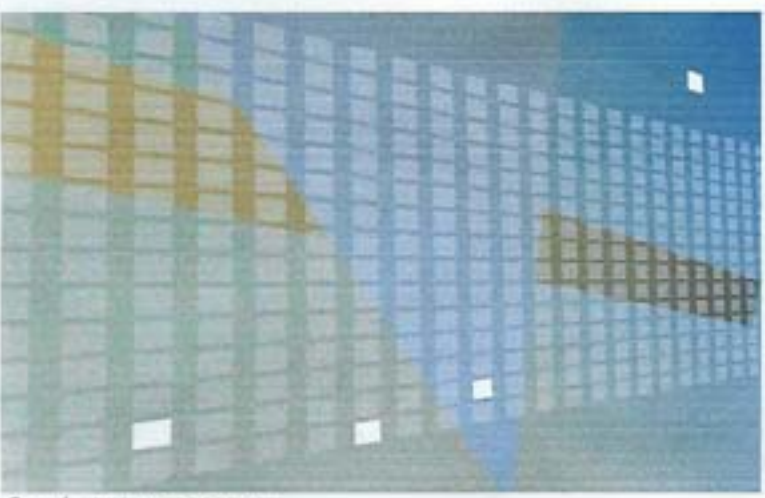
OR



STOP!

sure - might work - but not very "Lissitzky". Lissitzky's ideas have been reduced to a backdrop. Not really the initial plan!

Also, technical probs of pages getting confused with snap zones, & confusing selection.



Cool, but no coolie



Lissitzky talks of exploring the space.  
VR talks of virtual landscapes.

Why not have the environment  
"contain" the web pages. Pages do not  
need to jump to the front. Instead,

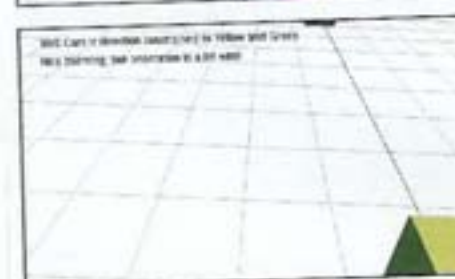
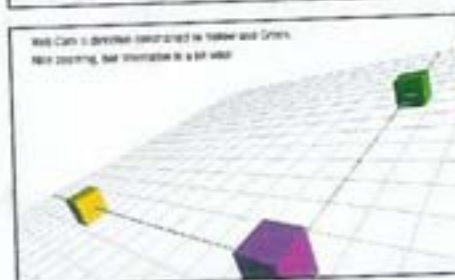
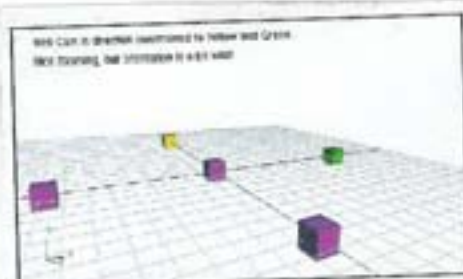
the user  
can  
jump  
to the

web pages.



2 ISSUES TO ASCERTAIN: 1. = Model up a complete space. Perhaps model in Maya first, Luxe as template in Axel?

2. = Need to establish a fluid user/camera motion  
All in axel.



Click on yellow - camera moves to position by Yellow  
- However, camera orientation is controlled by constraints to both yellow and green. VERY interesting.

NICE movement, FLUID!

Need to control transition - look at weighting the constraints, and deactivating those not relevant.

These options potentially could be controlled by the user!

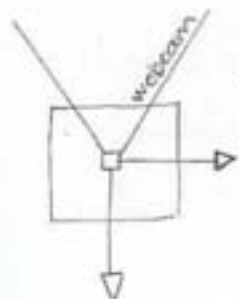
Constraints could be used to control orientation - setup on triangle: keep two elements in site:

- 1 - Aids user orientation
- 2 - Aids Web Cam orientation
- 3 - Simplifies camera placement.

We could script: on click, cam XYZ = box XYZ

That's elegant! Constraints take care of everything else.





Pose constraint defaults to this

Transition times with pose do NOT work!

Turning things ON & OFF:

Can do with script:

- Select Active ☒
- Custom Reaction, Blah.Active =

0

OFF

OR

1

ON

### Spring constraint parameters

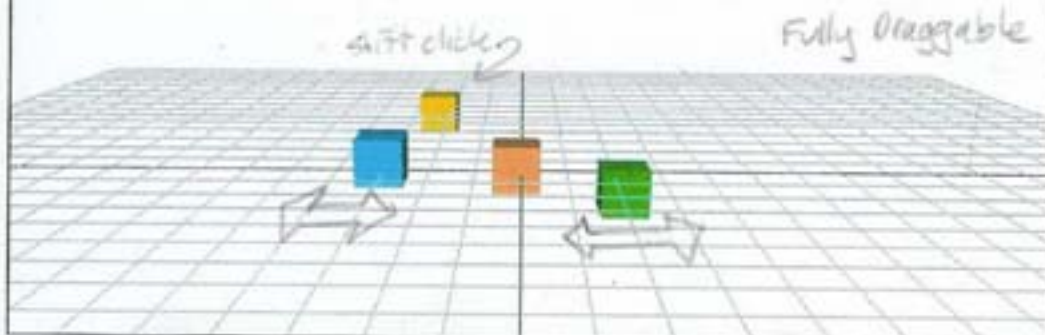
Active	Toggles the constraint on and off.
Rest length	Determines the distance in units at which the object comes to rest vis-à-vis the leader. For example, if the rest length is 0, it comes to rest on upon the leader object. If the rest length is 2, it comes to rest 2 units from the leader.
Springiness	Determines the strength of the spring. A low value makes the object slowly spring back to its original position, whereas a higher value tightens the spring making the object bounce quickly into place.
Resistance	Attenuates the strength of the bounding. A higher value makes the constrained object or group seem to be moving through molasses!

## CAMERA

### ZOOM TO DRAGGABLE TARGET !

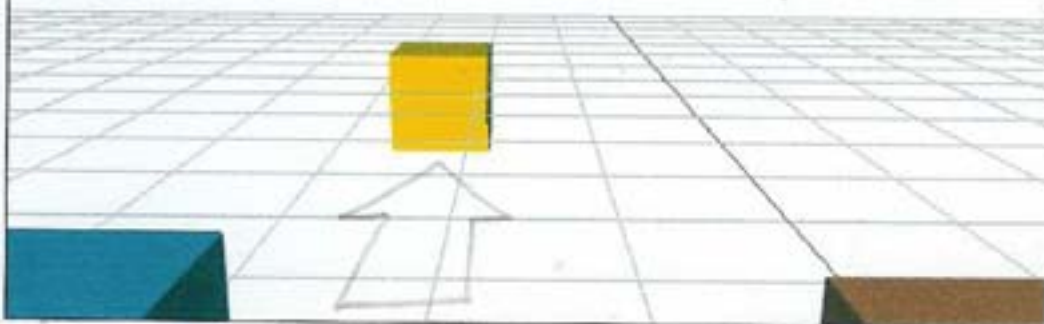
#### Shift-click to Zoom

Springs - very cool! Also grouped custom ON/OFF switches. Better than supplied!  
Don't worry about alignment to objects, could offset pivots, or target dummies.,  
Note that we can drag the object, and the camera stays pointed! Very cool indeed.



#### Shift-click to Zoom

Springs - very cool! Also grouped custom ON/OFF switches. Better than supplied!  
Don't worry about alignment to objects, could offset pivots, or target dummies.,  
Note that we can drag the object, and the camera stays pointed! Very cool indeed.



Camera zooms in only on Shift-clicked item.


Amazingly  
Difficult to do!

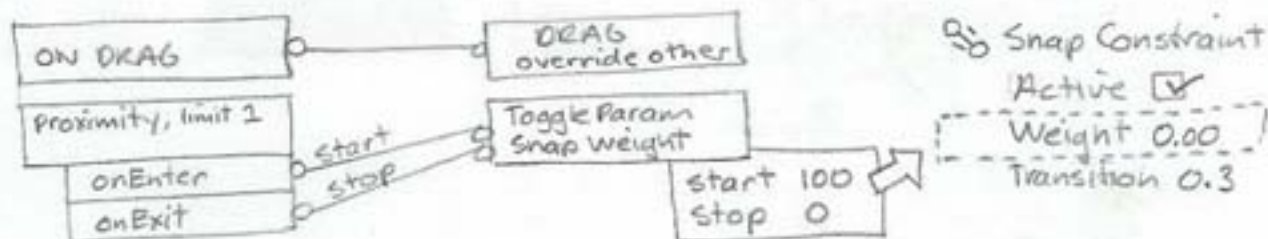
File 39 zoom-to-draggable-target.



# PERFECT DRAG AND SNAP!

VERY Modular  
behaves as it should!

Gets close  And, user can drag off easily

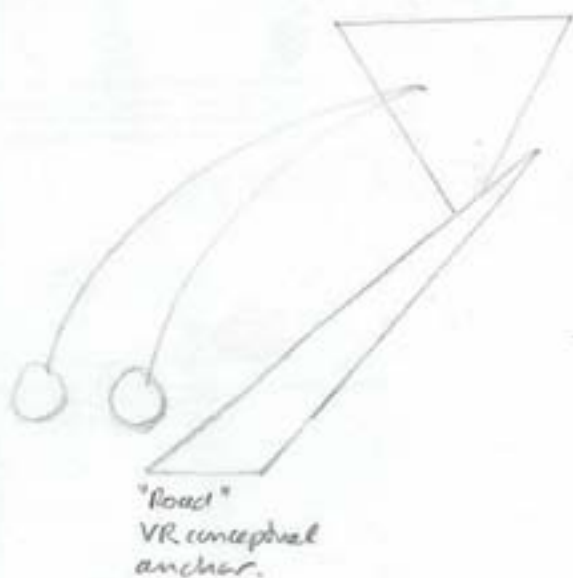


Megalith?

Create construct "units"  
-these can be randomised  
in Axel easily - no need to  
do this in Maya

## NEXT TASK!

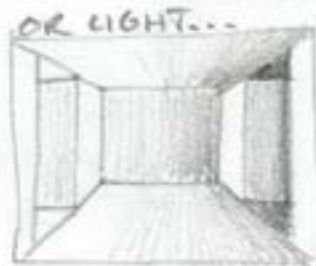
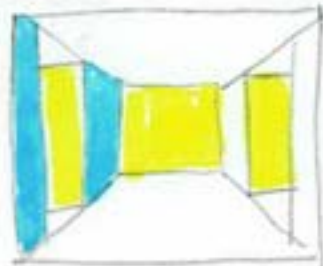
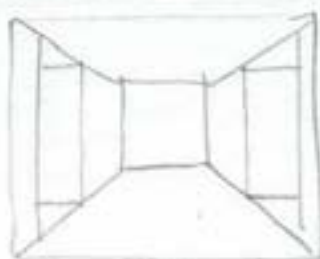
Design the form ---  
≡



SMALL 280 x 150      LARGE 400 x 250

60  
45  ≡

Games orientation  
(colour coding)?

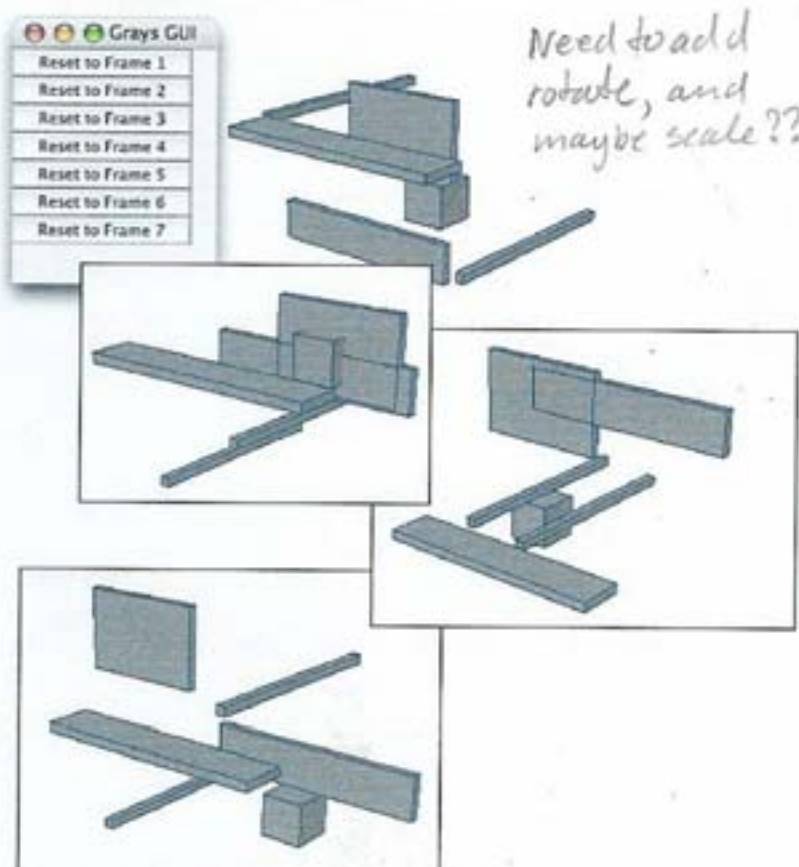


How do we construct more  
constructs? Set up rand to  
create, following principles?

**Construct Builder** : How to create forms within a style, with a certain amount of originality and "randomness", without being too contrived. By using the rand function (random) in Maya, we can create new compositions in space, that fit within certain parameters, but still retain freshness. Unlimited variety. Question for later: should this be offered to the user as part of the interface?

### Using frames to trigger event:

The rand function cannot be triggered directly from a window button, so I use the button to trigger frame changes, which triggers the Expression I wrote :Random. This turned out to be very handy, as the different frames can be linked to different actions.



### Maya Window GUI Mel script:

```
window -title "Grays GUI" -widthHeight 200 400;
setUITemplate -pushTemplate DefaultTemplate;
tabLayout -scr true -tv false;
string $parent = `columnLayout -adjustableColumn 1`;
```

```
columnLayout;
```

```
// Create the button.
```

```
string $button1 = `button -label "Reset to Frame 1";
string $button2 = `button -label "Reset to Frame 2";
string $button3 = `button -label "Reset to Frame 3";
string $button4 = `button -label "Reset to Frame 4";
string $button5 = `button -label "Reset to Frame 5";
string $button6 = `button -label "Reset to Frame 6";
string $button7 = `button -label "Reset to Frame 7";
```

```
// Add the command.
```

```
string $buttonCmd;
$buttonCmd = ("currentTime 1"); button -edit -command $buttonCmd $button1;
$buttonCmd = ("currentTime 2"); button -edit -command $buttonCmd $button2;
$buttonCmd = ("currentTime 3"); button -edit -command $buttonCmd $button3;
$buttonCmd = ("currentTime 4"); button -edit -command $buttonCmd $button4;
$buttonCmd = ("currentTime 5"); button -edit -command $buttonCmd $button5;
$buttonCmd = ("currentTime 6"); button -edit -command $buttonCmd $button6;
$buttonCmd = ("currentTime 7"); button -edit -command $buttonCmd $button7;
```

```
setParent ...;
setParent ...;
setUITemplate -popTemplate;
showWindow;
```

```
//-----
```

### Expressions code:

```
if (frame == 1) {
    b1.translateX = rand (2, 8);
    b1.translateY = rand (2, 8);
    b1.translateZ = rand (2, 8);
}
if (frame == 2) {
    b2.translateX = rand (2, 8);
    b2.translateY = rand (2, 8);
    b2.translateZ = rand (2, 8);
}
if (frame == 3) {
    b3.translateX = rand (2, 8);
    b3.translateY = rand (2, 8);
    b3.translateZ = rand (2, 8);
}
if (frame == 4) {
    b4.translateX = rand (2, 8);
    b4.translateY = rand (2, 8);
    b4.translateZ = rand (2, 8);
}
if (frame == 5) {
    b5.translateX = rand (2, 8);
    b5.translateY = rand (2, 8);
    b5.translateZ = rand (2, 8);
}
if (frame == 6) {
    b6.translateX = rand (2, 8);
    b6.translateY = rand (2, 8);
    b6.translateZ = rand (2, 8);
}
if (frame == 7) {
    b1.translateX = rand (2, 8);
    b1.translateY = rand (2, 8);
    b1.translateZ = rand (2, 8);
    b2.translateX = rand (2, 8);
    b2.translateY = rand (2, 8);
    b2.translateZ = rand (2, 8);
    b3.translateX = rand (2, 8);
    b3.translateY = rand (2, 8);
    b3.translateZ = rand (2, 8);
    b4.translateX = rand (2, 8);
    b4.translateY = rand (2, 8);
    b4.translateZ = rand (2, 8);
    b5.translateX = rand (2, 8);
    b5.translateY = rand (2, 8);
    b5.translateZ = rand (2, 8);
    b6.translateX = rand (2, 8);
    b6.translateY = rand (2, 8);
    b6.translateZ = rand (2, 8);
}
```

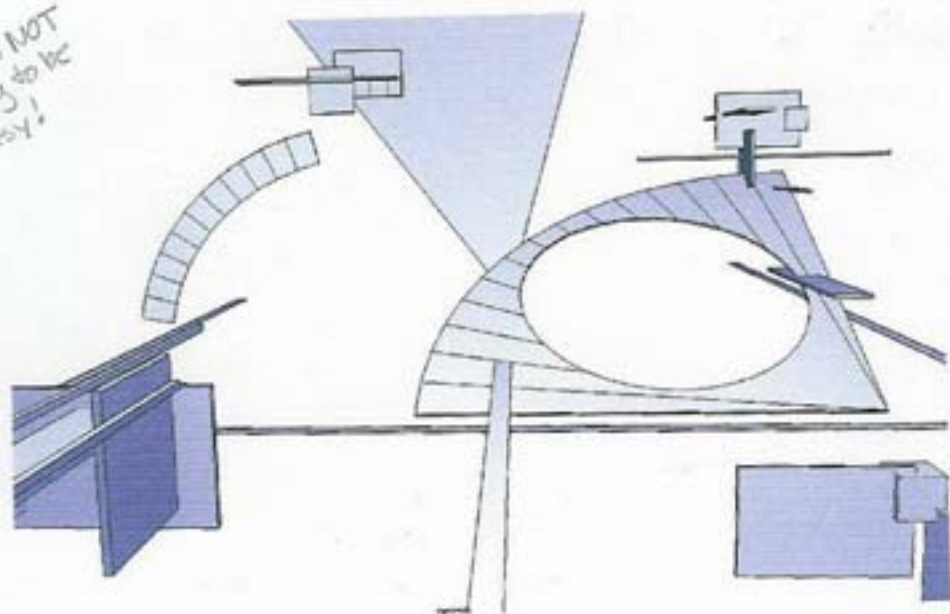
⚡ This method may seem odd, but is MUCH easier than putting into one Mel script!

### IT WORKS

Don't waste time trying to be more "efficient"



This is NOT  
going to be  
easy!



Attempt at environ  
construction, combining  
"constructs" and larger  
layout devices.

- Multiple floating constructs doesn't assist layout
- The large elements work well.
- Still have issue with composing the space, - need to look further at letting software create unique compositions - within defined parameters

Also - what is the role of the floating constructs? As 3D-space locators, they seem to work much better at distance. Very unsure about usefulness up close.

COMPOSITION: Note that the few main shapes dictate the composition.



This is as it should be, and is true to Lissitzky space. The other elements are "feeders", dots, wires etc. Need to construct central compositions FIRST!

WHAT IS THE FUNDAMENTAL STARTING SHAPE?

- Box?
- Roadway?
- Grid? - Flat?
- Wall
- End?
- Side?



Lissitzky's objects generally

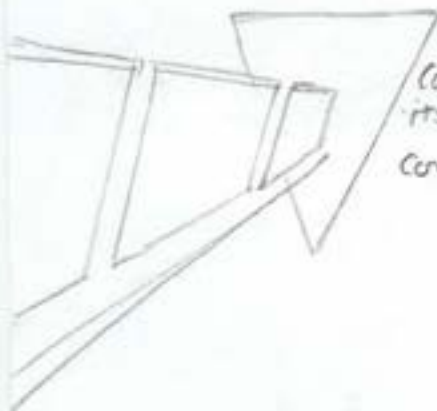
Float in space,

which removes such devices as rooms, & roadmaps.

So - think of cityscapes that can be entered perhaps?

Not several "floating" constructs, why not one construct?

Cool - but again, it's just a wall. Contrived!



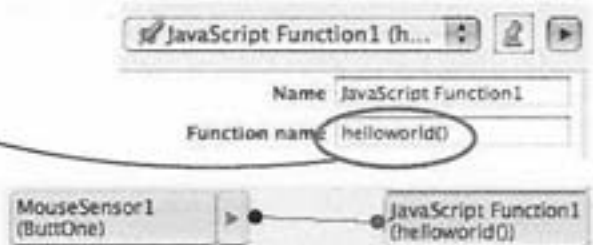


# Getting JavaScript working

1. The JavaScript function in Dreamweaver:

```
function helloworld()  
{  
  alert("Yah Har");  
}
```

2. The bit that goes in Axel



## Changing frames and open new windows

1. First, use a temporary button in Dreamweaver in order to create the header script function.
2. Copy the code from the button into Axel. Do not include the speech marks.

Both of these worked in Safari, pop-up worked in IE, and neither worked in Firefox!

Change frame

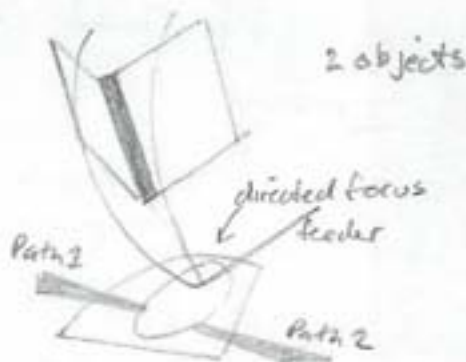
```
<p><a href="#" onClick="MM_gotoURL('parent.frames[\'mainFrame\'],'one.html');return document.MM_returnValue">One</a></p>
```

Open a new window.

```
<p><a href="javascript;" onClick="MM_openBrWindow('one.html','metoo','toolbar=yes,location=yes,resizable=yes,width=555,height=333')"></a>
```



SA 1919



Tumbled "House" of cards/files



NEW APPROACH ⇨ How about utilising Lisitzky's space to "label" groupings of pages/files. Use 3D "tags", and user can arrange into 3D space!

Perhaps have "snap into perspective" function.

The User "creates" the 3D structure!



OR Tumble---

Revisit rotating object:

Main issue is hidden faces.

However: - All other methods have their own versions of hidden faces:

- List - scrolling off screen
- Icons - become so small they lose recognition

Don't think of it as hidden faces, consider it as 'putting away'

The interface metaphor should enhance this - the "hidden" aspect



wall

wall is 3D



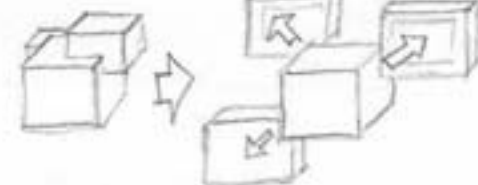
rotate view

room view

travel view

wall view

① slide out

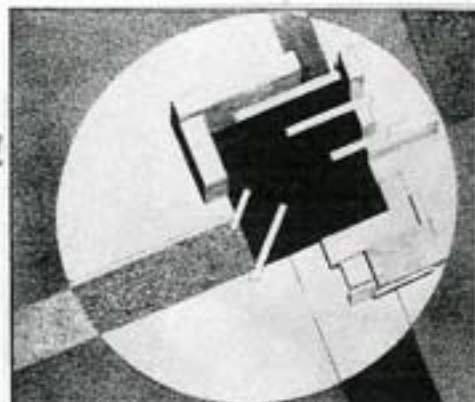


Page groups stack into unique shapes.

Also - consider that 'stacking' plus material, movement, etc. all used

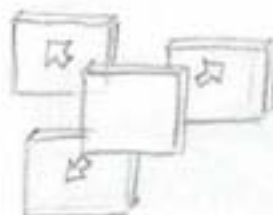
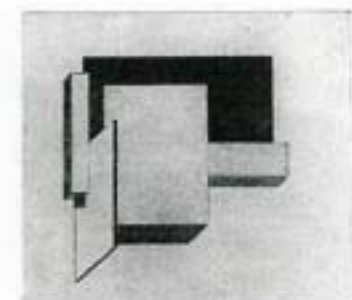
Why 3D? This technique does not need 3D!

Ah, but to follow the existing spatial model it does!



THE ESSENTIAL CONSTRUCTIVIST VISUAL "STYLE" IS:

- use of geometric shapes - the universal building blocks
- planar composition - angles, intersections, overlaps, perspective
- colour & texture - though perhaps influenced by the tools of the time



5  
12  
6





19D 1922

# VARIATIONS:

- Less "constructed 3D"
- More planar - more about flat planes, turning & twisting in a 3D space.
- Note use of circle!

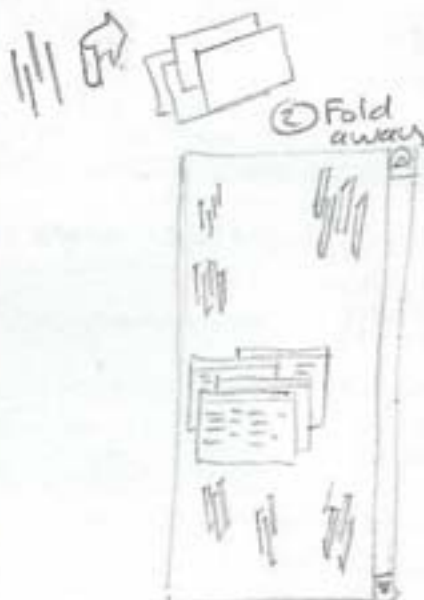


El Lissitzky: Proun G 7; 1923



"SK"

"Floating"



A 11

NOTE - Axonometric, not true perspective

As the groups of folders approach the camera, their contents will be partially visible. The user will be able to partially scan before files "unfold"

Axonometric  
"Parallel Perspective"

- isometric
- dimetric
- trimetric



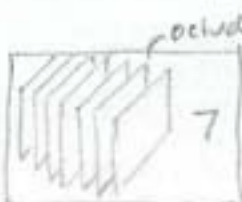
"Never"



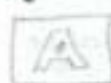




Using perspective to simply fit more stuff into a window.



Recognition value



Better than stacking.

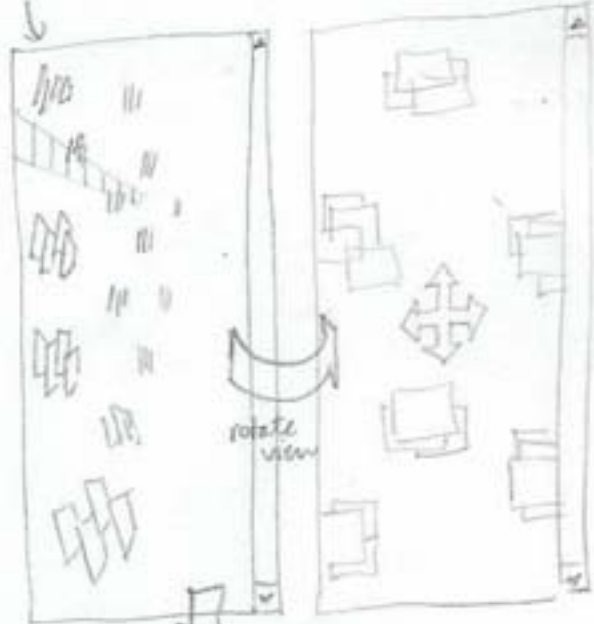


12 - Full view

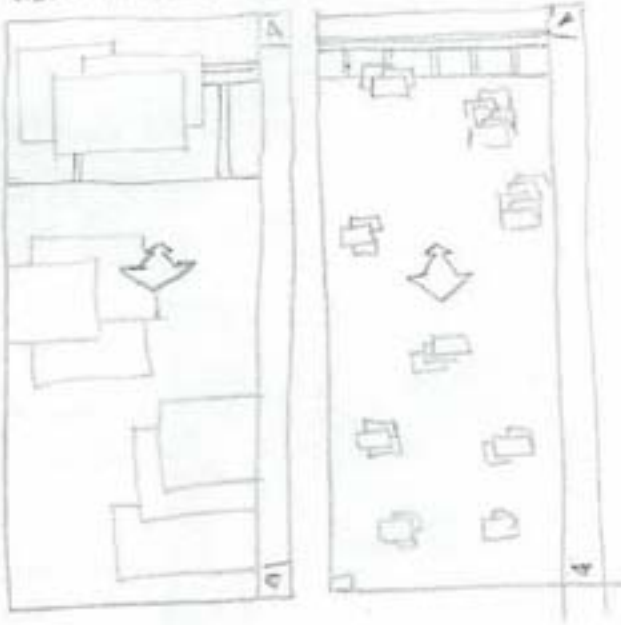


Axonometric - 30-confusing

How do these compare themselves?



Function to allow browsing of clusters.  
Should add scale function too

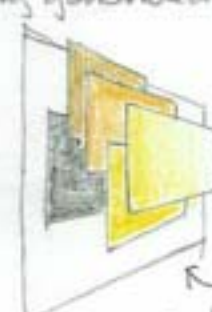
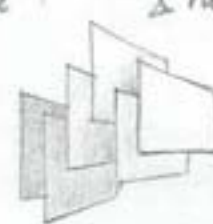


cluster of pages zooms up to view & partially unfolds - only partially so as to obscure the space a little as possible

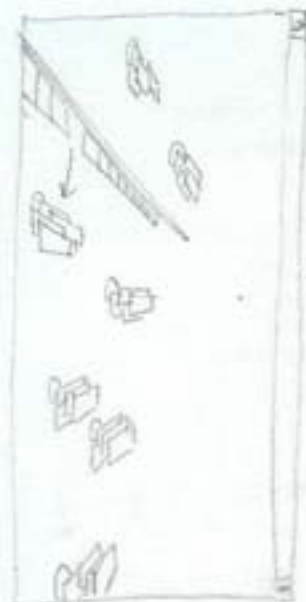
The clusters themselves will have shadows & randomly generated stack positions



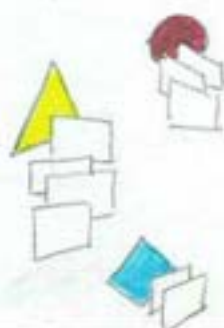
Random is good; re surprise reward. guaranteed(!)



A back shape has a stronger "window" feel.



History "timeline" - "descending into the past"  
Autogenerated chosen pages can be dragged down onto a cluster.

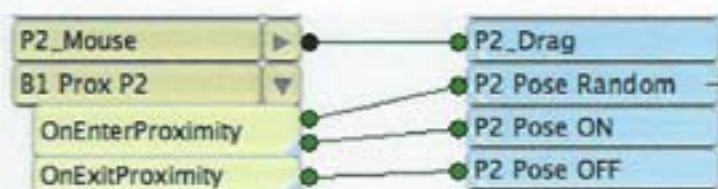
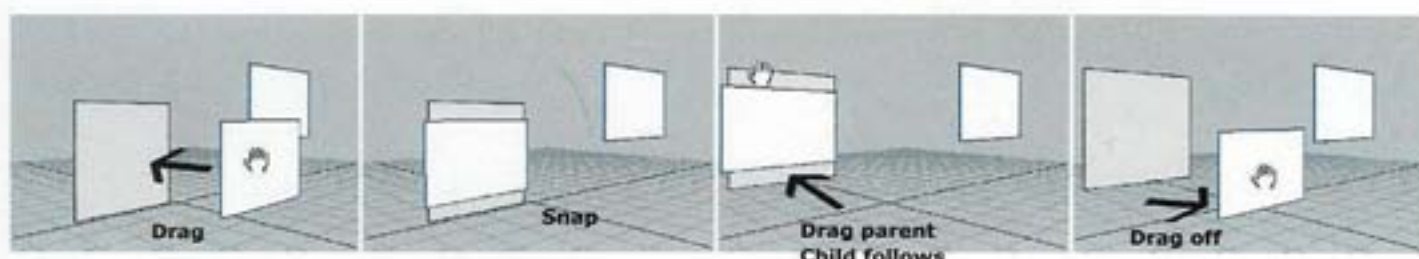


Basic Geometric Shapes as the handles.  
Vary in colour.

Custom Reaction to ascertain position

Custom Relation to maintain snap, BUT this will reposition the centrepoint!

⇒ User simply selects the handle of choice, & collects pages!



Custom scripts

Offset parameter of Standard Pose Constraint between B1 and P1

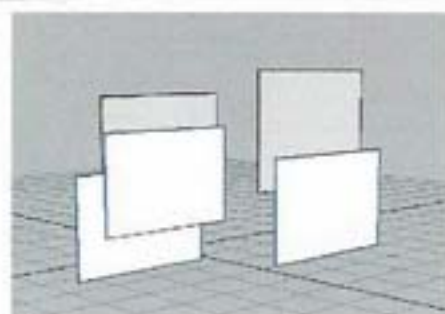
PoseCns1.Position\_offset = [random(0,1), random(0,1), random(0,1)]

Material31 (p2)  
P2\_Mouse (p2)  
PoseCns1 (B1)  
P2\_Drag (p2)



Use Import

- Import an Axel file & all constraints, scripts etc are imported
- Objects are auto named.



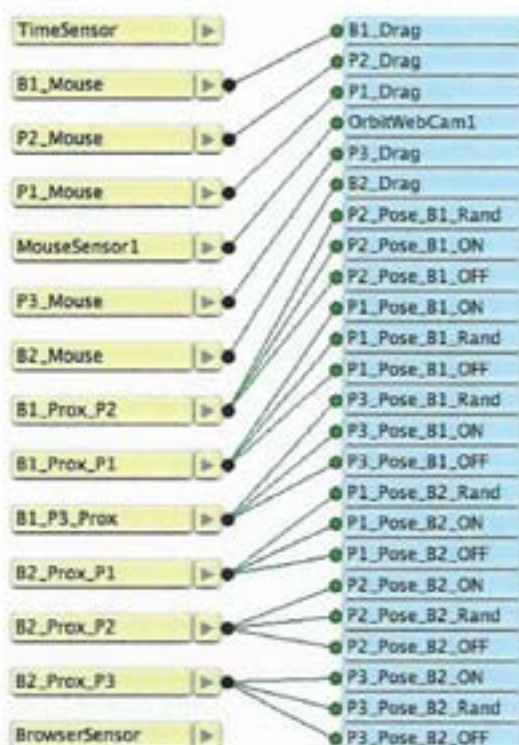
Code schematic for only 5 separate objects!

That's:

- Each relation = 3 nodes
- Each object = 1 node (Orig).

So for 5 Base objects & 10 pages:

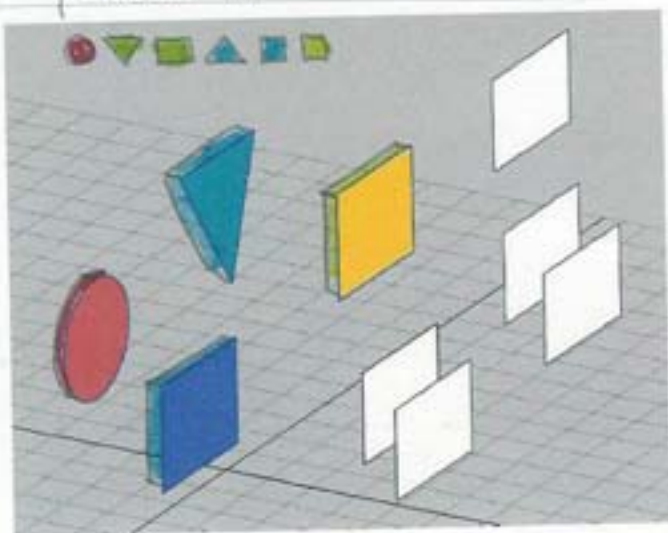
- 150 Relationships
- 15 Drags
- = 165 nodes



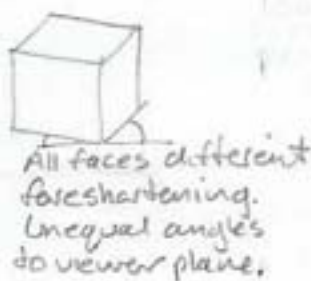
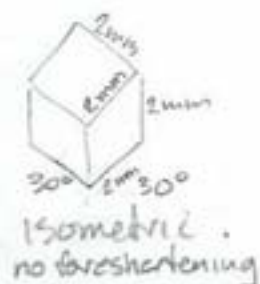
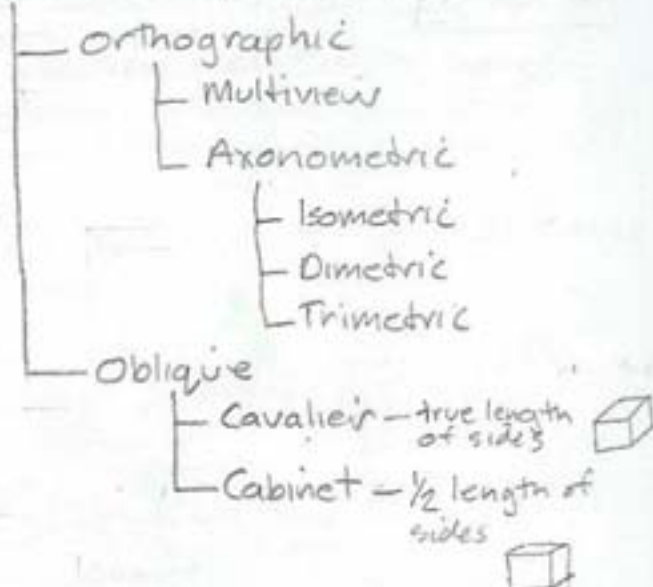
WASTEFUL CODING! SO, REDUCE OBJECT NUMBERS?



ICONS AT TOP



## Parallel Projections



The handles could be "solid" - have depth, whereas the pages are planes - transient, changing.



Lock mouse to move YZ  
But how to move X - in/out  
- Shift?  
- Another hot spot?



Position of X =

$$(X+1) + (C/10) \approx 1^{st} \text{ time} = 12$$

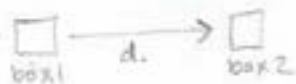
$$X + (C * .5) = 15$$

Doesn't decrease - need to use  
Get length or similar.

distance(value1, value2)

Sure - works, But, really requires  
too much driving from the user.

Need a "snap to selected"  
function.

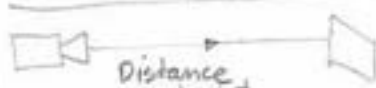


$$\text{box1xyz} = (\text{box1xyz}/2) + (\text{box2xyz}/50)$$

increasingly  
smaller

increasingly  
larger, towards box2 xyz

### ZOOM IN/OUT TO CAM.



Distance  
Constraint

Custom vels,

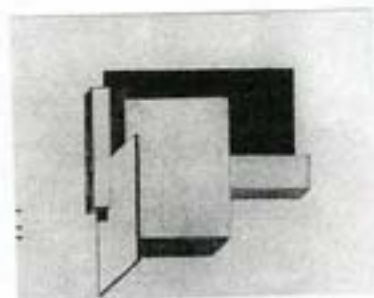
+ style eq.

$$\text{Distance} = \text{Distance} + 1$$

Distance Constraint  
Go away  
Come back

Group  
cyclic  
Go away on  
Go away off  
Come back on  
Come back off

WORKS BETTER than supplied  
Toggle Param.



"Trimetric projection is  
the general case of  
axonometric and occurs  
when all three axes  
are randomly  
orientated and are  
each of different  
scales" (foreshortening  
64  
www.lboro.ac.uk/  
ac/tracy/rep/riley.1)



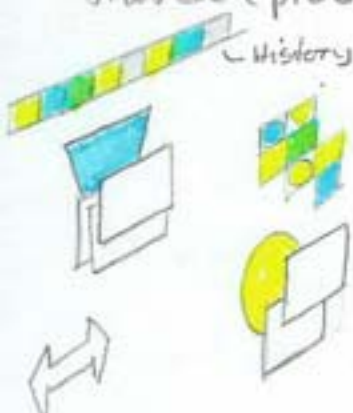
# Isometric

## KEY ASPECTS

- Cannot use perspective to reduce size of objects
- All objects are the same size:
  - equally selectable
  - does not have complexities of depth perception
- Users will have some experience of isometric
  - diagrams & instructions
  - computer games
  - existing icons

## SO why use isometric over 2D?

- Isometric is 3D, and offers functionality of depth - even if it is diagrammatic.
- Is more indicative of an object, rather than an environment, that requires 3D travel (problematic).



← Reduce to isometric grid for "storage"

← Click, & zoom up to this size

Canvas scrolls in XY isometric. (if need be).

This can all be done in Flash! - which also has stacking order (!), plus target instances, random, all scriptable, in a better interface than Axel.

Still retains several perceptual concepts of 3D;

- 3D scroll
- zoom in/out storage
- visual environment is 3D.

## FLASH NOTES

- Consider \_level to control loading etc.

Goodbye to Axel  
Hello to Flash.

Mainly due to scripting control.

VERY Modular! Much easier environment than Axel! Better script - more extensive, better info & tutes available.

```
on (press) {  
    startDrag(this);  
}  
on (release) {  
    stopDrag();  
    if (eval(this._droptarget) == _root.t1) {  
        this._x = _root.t1._x;  
        this._y = _root.t1._y;  
    }  
}
```

ON Button



```
function zoop(me) {  
    _root.onEnterFrame = function() {  
        me._x = t1._x;  
        me._y = t1._y;  
    };  
}
```

↑  
Frame action with parsable function

```
on (release) {  
    zoop(d1);  
}
```

```
on (release) {  
    delete  
    t1.onEnterFrame;  
}
```

Constrain function on left.  
Now need to attach to dragging object

Drag, Snap

```
on (press) {  
    startDrag(this);  
}  
on (release) {  
    stopDrag();  
}
```

Draggable

ALL WORKS!

## Frame Script

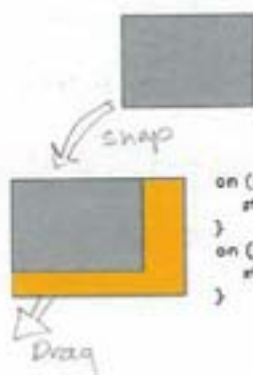
```
function zoop(me) {
  t1.onEnterFrame = function() {
    me._x = t1._x;
    me._y = t1._y;
    lock = true;
    trace("Lock is working");
  };
}
```

## Need to do:

1. Sort out what bits of code are attached to objects, and what bits can stay as frame actions.
2. Stop lock-off turning off other mc locks.

## Button Script

```
on (press) {
  this.swapDepths(100);
  startDrag(this);
  if (lock == true) {
    delete_root.t1.onEnterFrame;
    trace("unlocked");
  }
}
on (release) {
  stopDrag();
  if (eval(this._droptarget) ==
    _root.t1) {
    this._x = t1._x;
    this._y = t1._y;
    _root.zoop1(_root.p1);
  }
}
```



```
on (press) {
  startDrag(this);
}
on (release) {
  stopDrag();
}
```

← zoop action needs to be on Frame action - if it is on the object, the continuous script seems to conflict with mouse up/down/drag etc

whoops - the unlock script unlocks both objects

⚡ Problem with droptarget - it doesn't seem to be able to cope with two objects

mousedown - release snap

mouseup - if near snap

↳ if snapped, stay snapped.

cannot nest clip events!

TRY - Dropping onto a fake target, then release to +1

⚡ Use hitTest instead. - hit test will use entire shape of object (?)



Why not use hit-test? when select yellow, hitTest it.

true switches are good eg set a variable `scooby = true;`  
Then test for it if `scooby = true`  
etc

```
//P1 Lock function
function p1_lock_t1(me) {
  p1.onEnterFrame = function() {
    me._x = t1._x+5;
    me._y = t1._y+5;
    readout1 = "lock1";
  };
}
```

```
//P2 Lock function
function p2_lock_t1(me2) {
  p2.onEnterFrame = function() {
    me2._x = t1._x+10;
    me2._y = t1._y+10;
    readout2 = "lock2";
  };
}
```

```
// P1 drag
p1.onPress = function() {
  startDrag(this);
  this.swapDepths(100);
  delete this.onEnterFrame;
  readout1 = "Unlocked";
};
```

```
//p1 Release, Snap if over T1
p1.onRelease = function() {
  stopDrag();
  readout1 = "Released";
  if (p1.hitTest(t1)) {
    p1_lock_t1(p1);
  }
}
```

⚡ This works very well  
This much code for one object & one target.

Lock function for each possibility. Exponential increase!

For 4 objects & 2 targets that's 16 blocks of code.




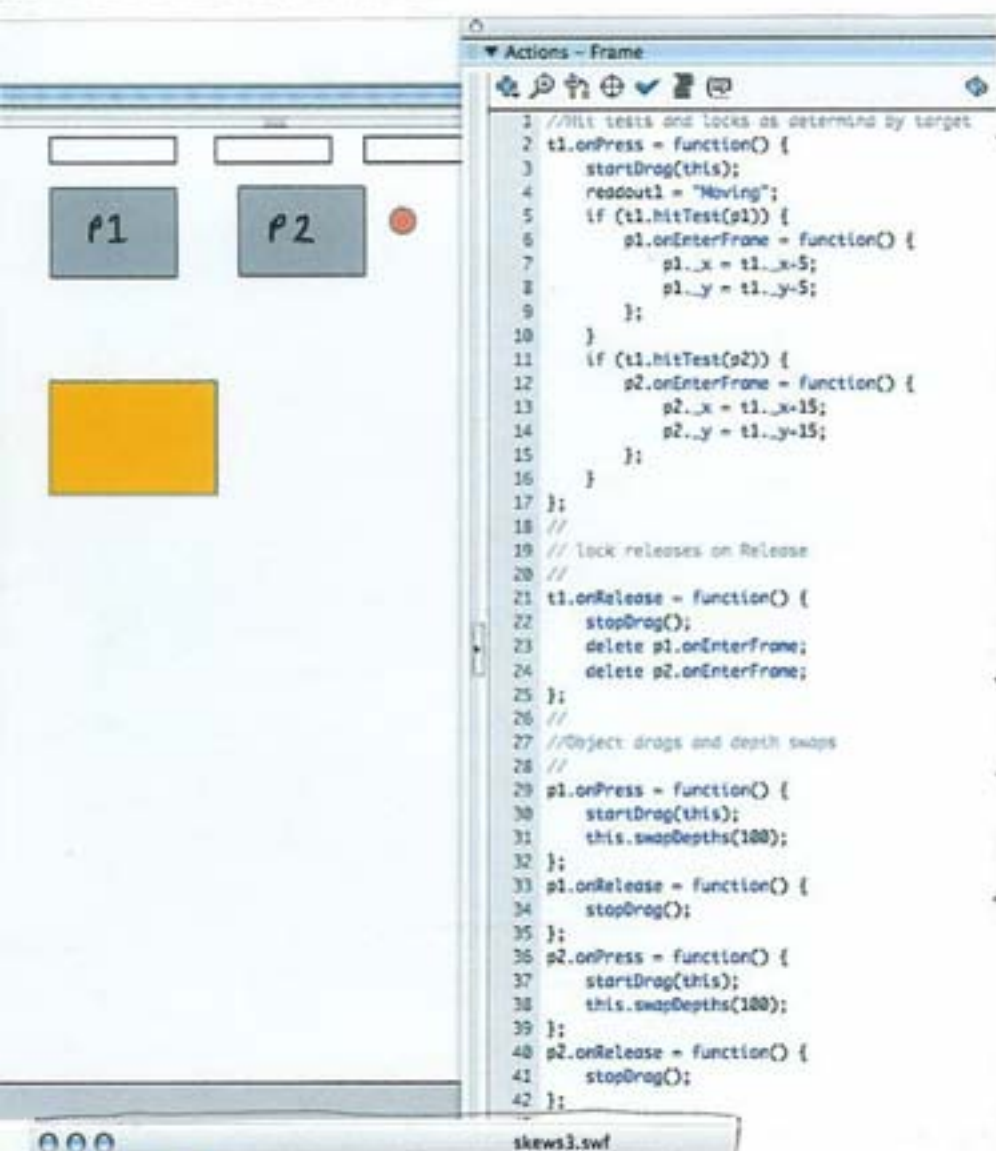
How about driving the lock from the target. IE, whoever is in my zone, is under my control.

⚡ Snap function required for each possibility. Will get no



## Recreate FH mockup in Flash MX 2004

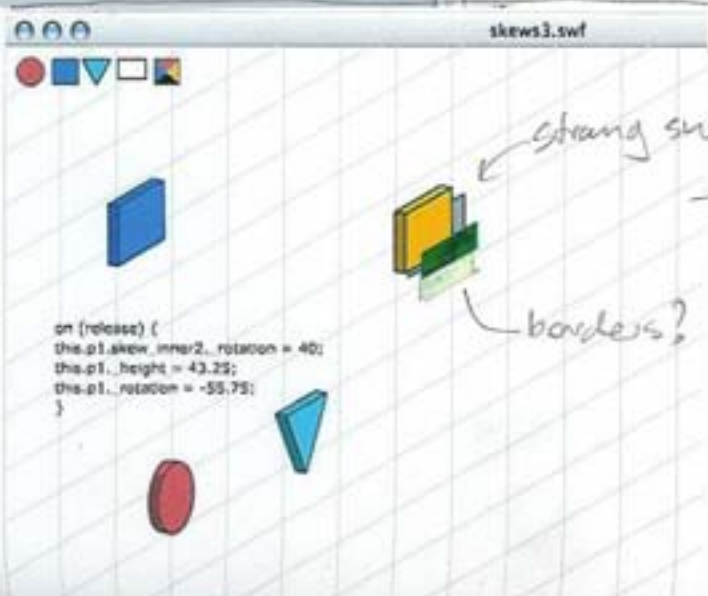
- Decide example sites — Apple, OM Exposure, ED-Media, Nat Bank page.
- Ascertain skew, squash & scale ratios 
- Create variable-based hierarchy
  - Simple dragging
  - Button clicking parenting (at first)
  - Connector lines



Once only target  
hit test code, for  
every object, simple  
list

} Drag & Depth for  
each object.

Now make it  
Isometric  
• Add Thumbs  
• Add Connectors



Strang swap depth?

— Flash Skew iso 1.  
Works o.k.

borders?

What sort of zoom?  
— Entire page?  
— Per object?  
— By key?  
— By button?



## Drag all page

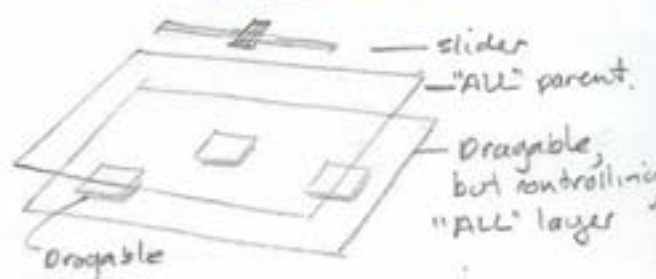
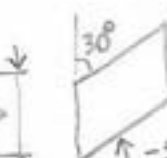
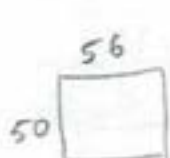
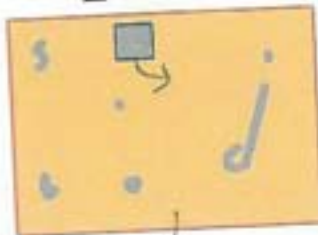


```
on press() {
  drag(all);
}
```

all mc.

NESTED CLIPS WORKS WELL!

All objects zoom  
Main BG can drag  
Individuals objects can drag.



224 x 200

Reverse seq. is  
rotation = 0  
height = 75  
inner rotate = 0

## Swapdepths problem

SwapDepth (100) - if go to 100, But if another object has 100, will go the absolute bottom, -16384!

If we use common numbers eg 100, to force swap, the pages simply zoom off behind the Target.

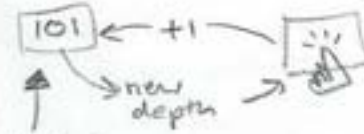
This is NOT caused by the Target, but conflicting depths.



As soon as any 2 pages share the same depth - zoom - off to -16384.

Run an onEnterFrame, if blah = -16384, make eg 50. No, it'll loop as all pages hit 50!

## SOLUTION



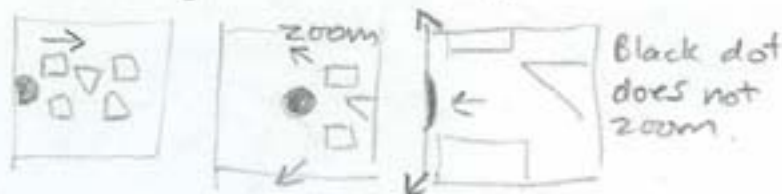
Global number for ALL pages

Each click adds to a number in a dynamic text box/variable. This number is then re-read as the new level.

The Target objects have the same, but with -1000 included!

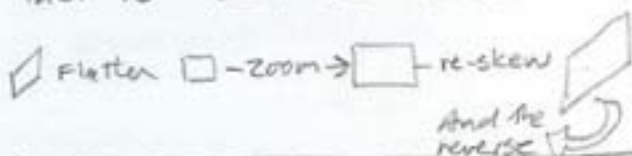
Alive = #798BA0

Zooming has a basic problem



The object zooms, not the view.  
Therefore, the view object (item)  
will likely move off screen

Thur 16 - GOT ZOOMING TO WORK



Single action partner to onEnterFrame:

This is onLoad  $\Rightarrow$  mc.onLoad = function() {

```
    with (_root.all.p1) {  
        inner._rotation = 40;  
        _height = 43.25;  
        _rotation = -55.75;  
    }  
    with (_root.all.p2) {  
        inner._rotation = 40;  
        _height = 43.25;  
        _rotation = -55.75;  
    }  
    with (_root.all.p3) {  
        inner._rotation = 40;  
        _height = 43.25;  
        _rotation = -55.75;  
    }  
    with (_root.all.p4) {  
        inner._rotation = 40;  
        _height = 43.25;  
        _rotation = -55.75;  
    }  
    with (_root.all.p5) {  
        inner._rotation = 40;  
        _height = 43.25;  
        _rotation = -55.75;  
    }  
};
```

whatever is here;  
}

Put this  
repetition into  
a function  
Then called  
very  
simply

FRAME SCRIPT

```
_root.onLoad = function() {  
    function skewer(skew_me) {  
        with (skew_me) {  
            inner._rotation = 40;  
            _height = 43.25;  
            _rotation = -55.75;  
        }  
    }  
    skewer(_root.all.p1);  
    skewer(_root.all.p2);  
    skewer(_root.all.p3);  
    skewer(_root.all.p4);  
    skewer(_root.all.p5);  
};
```

DECLARE  
PARSE

Curves

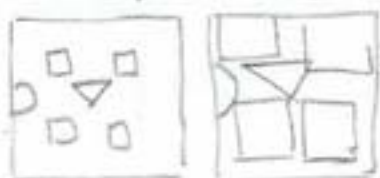
How to  
turn on  
& off.

- Can easily link permanently
- Need on/off
- Create in simple scenario first!



Alternative

Simply scale up the objects



\* Bitmap images are likely to  
not scale smoothly.

TWO OPTIONS:

1\_ Use blanks for the scaling  
stage - (weird, disruptive)

✓ 2\_ zoom up in stages.

eg: slider = 100 = 1 x  
slider = 200 = 2 x etc

# CURVE SCRIPT

Pullout  
(A)  
Drop  
(B)



```

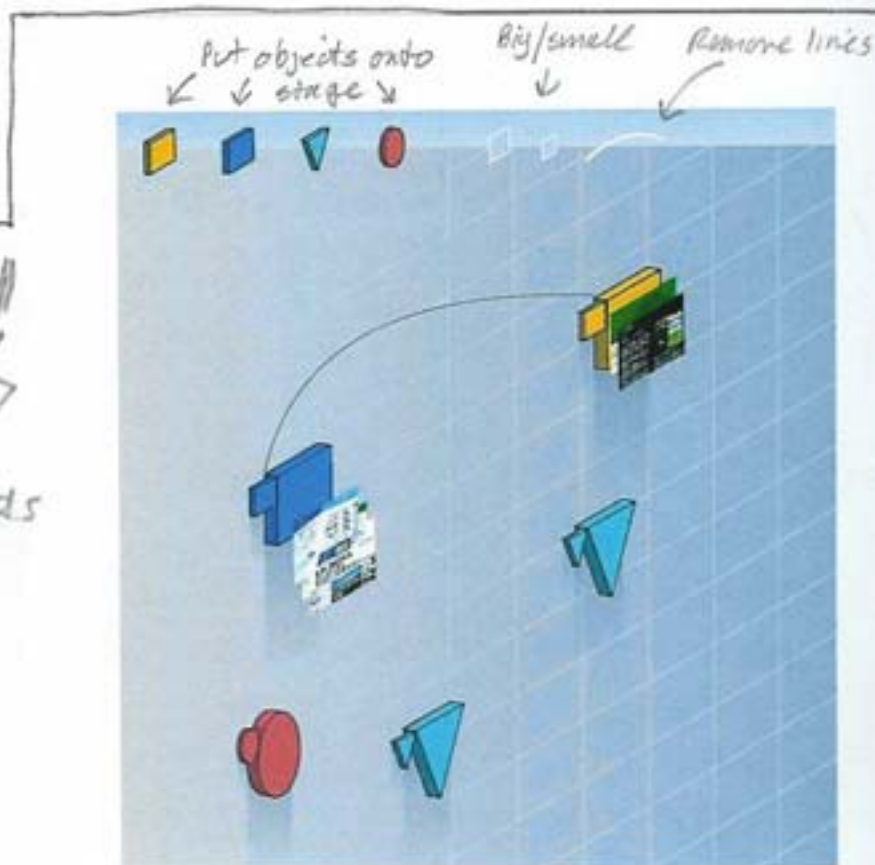
1 b1.onPress = function() {
2   delete b2.onEnterFrame; — delete any function
3   dragline(); — call any named function (A)
4 };
5 b2.onPress = function() {
6   startDrag(this);
7 };
8 b2.onRollOver = function() { — use RollOver to detect
9   stopDrag(); second line. (B)
10  trace("Stop Drag Working");
11  delete base.onEnterFrame;
12  joinline();
13 };
14 //
15 //Line drawing function dragged out by b1
16 function dragline() {
17   base.onEnterFrame = function() {
18     _root.createEmptyMovieClip("dragger", -7000);
19     with (dragger) {
20       lineStyle(0, 0x666666, 100);
21       moveTo(_root.base._x, _root.base._y);
22       curveTo((_xmouse+20), (_ymouse-40), _xmouse, _ymouse);
23     }
24   };
25 }
26 //Line drawing function b1 to b3
27 function joinline() {
28   b2.onEnterFrame = function() {
29     _root.createEmptyMovieClip("linejoin1", -7000);
30     with (linejoin1) {
31       lineStyle(6, 0x666666, 100);
32       moveTo(base._x, base._y);
33       curveTo(150, 100, b2._x, b2._y);
34     }
35   };
36 }
37 //Base Drag
38 base.onPress = function() {
39   startDrag(this);
40 };
41 base.onRelease = function() {
42   stopDrag();
43 };
  
```

— function "dragline" only runs if called.

Fully working!

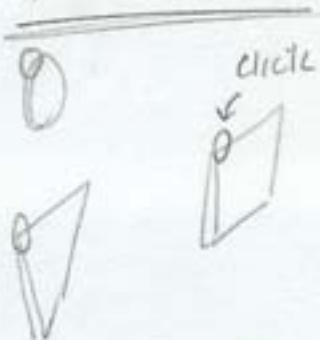
All objects draggable.  
line stay connected as objects move.

Need more pages.



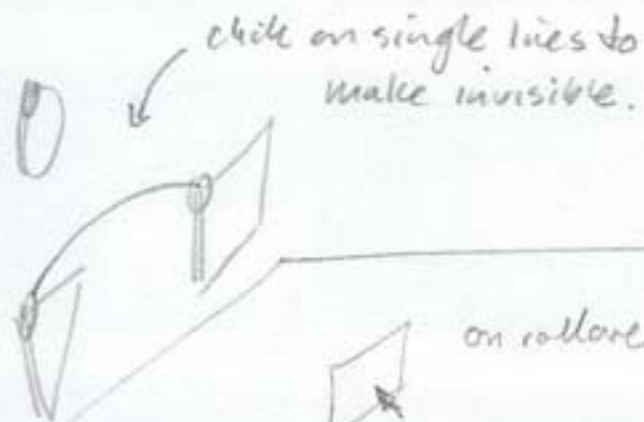


## IDEA re lines



lines appear - Have lines already connected - use click to make visible.

Advantages - lines can be pre-connected  
- lines can be pre-named.



BRILLIANT!



on roller readout 2 = 3 (e a number specific to that thumbnail)

on spacebar down  
if readout 2 = 3  
make big

The SPACEBAR command is a problem - it is 'GLOBAL' - e.g., like OnEnterFrame. Even if followed by if statements, it really doesn't behave normally.

Because it loops, you can't use if/else, as it continually repeats the loop e.g. if green make blue, if blue make green, if green make blue etc NOT helpful.

Also harder to script as keystrokes are not attached to movie clips. Most certainly more hassle than they are worth at this point in time.

# ⚡ ①... What needs to be refined, debugged & TESTED? ←

- main interface features are:
  - Entire stage is draggable
  - Thumbnails zoom
  - Thumbnails have spatial positioning
  - Thumbnails can be grouped onto target objects
    - ↳ Target objects can also "sweep" up thumbnails
  - Lines can be drawn between targets

Find <sup>the</sup> paper that \* supports legibility of angled thumbnails

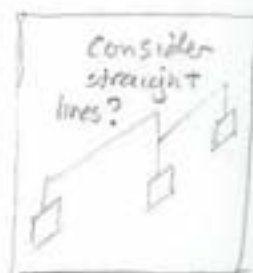
This would require complete dragging of entire view - do we want this?

## USER FUNCTIONALITY that could be desired...

- User control colour of targets & lines
- User controls thickness of lines
- Greater control over size of all objects - bigger AND smaller!

## KEY UNIQUE ISSUES THAT SHOULD BE TESTED

- 1 \* Grouping concept using target objects
- 2 \* Lines joining groups / ideas
- 3 \* Perhaps zoom/drag stage view should be a separate study?



↳ could test the difference between:

1. Icon zoom



OR

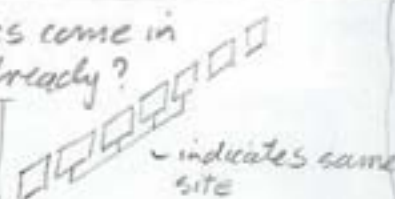
2. View zoom



Should the pages come in with "links" already?

Does NOT require stage drag!

Requires stage drag



BUT - what would be achieved?

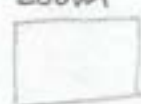
This is not as valuable as the first two points! Do 1 & 2 FIRST!

- ⊕ Leave stage-drag out of 1st test.
- ⊙ So incorporate icon zoom.
  - ↳ ALL icons?
  - ↳ JUST ON ROLOVER?

① rollover

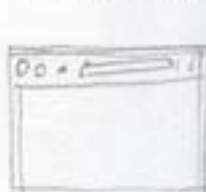


② Flip & zoom



Hold down key

③ To Browser



on click


## WHAT am I trying to ascertain?

- Need key questions

- Ex: ① Do target objects assist with grouping files, cognitive associations & recall  
② Do lines ...! " " " " " " " " " " " "

1      User browses pages.

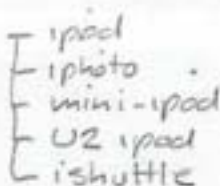
Will need to  
recreate ideal  
sequence of links

A  Then presented with normal history list

Q1 - Present with questions that require accessing history  
in a specific order.

Q2 - Asked to re-order pages in accordance to differing criteria

Key by model, date, colour, price



B Then, presented with Interface  
and asked same tasks



How many pages?  
(more than prototype 1)

C User's questioned.



## TESTING

Qualitative Methods (Tochrim)

- Direct Observation
- Followed by Unstructured Interview

(Jordan)

- Interviews - Semi structured.
- 

My Method chapter says: MY NOTES NOW - AUG '05

- Expert Appraisal
  - Followed by interview
- \* → OR Direct Observation? Both?
- Two Tier - Fixed response  
- Open response.

to next design iteration  
if deemed appropriate.

whether to go expert or  
observation may depend on  
final nature of prototype,  
eg, an expert will be easier to  
brief than a less skilled user.

No Likert scales!

Need to encourage participation  
at interviews - Likert does the  
opposite.

☆ would be interesting to do both.



# How ASSEMBLE?

## Stages

### web browsing



standard browsing

\* really should get a size-slider working - then 1024 x 768 would book

swf inside html - works!  
change to 1024 x 768



List browsing - need proper browser?

OR could use series of pre-determined pics.

The number of permutations could be huge.

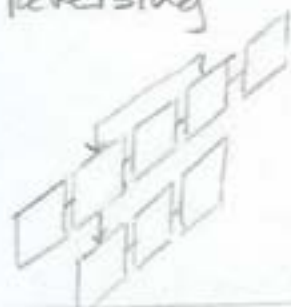
\* Individually resize AND all resize, + reset

\* How about labels?

NOT rollovers (require mousing)



### Reversing



Size of page screen cap doesn't really matter, as scroll bars will accomodate

SO ① Make up HTML page:

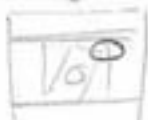


centred box

② Take screenshots of pages



③ Add highlighted button with map link.

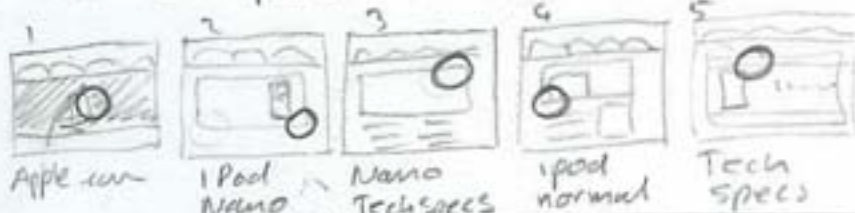


## PAGES

Apple.com  
ipod tab  
20 206b ipod pic  
Ipod mini icon at top  
Tech specs  
Go back  
Go back

Want to buy a 206b colour iPod

Ipod Tech Specs



Apple.com

Ipod Nano

Nano Tech specs

ipod normal

Tech Specs



Music and More

Ipod Camera Connector

Store

Ipod

From 249

If user resizes, image stays centred

Design for 1024 x 768  
∴ suit all situations.





User to arrange:

1. By Price
2. By Product - iPod or nano(?)
3. By Source - Apple
  - Mac Warehouse
  - Magnum Mac
  - Trademe

Then, by using the interface,  
Find — Best Price  
— Tech info  
etc...

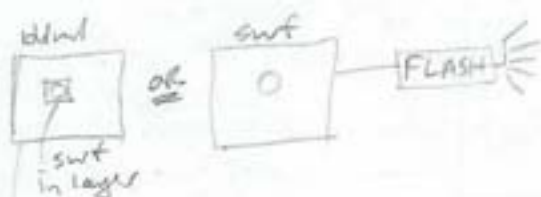
• 14 fix  
• remove bundle delays  
• 17 fix

\* Create a faked Google page with

- Magnum Mac
- Mac Warehouse
- DSE
- Trade Me

all included

use, "Buy iPod n2"?



Make all on-screen instructions use an appealing skin-ey Ruler - the whole feel needs to be assuring & visually professional.

History menu test:

Used pop-up instructions box - how to keep on top?

Frame? obscures



This page changes out.

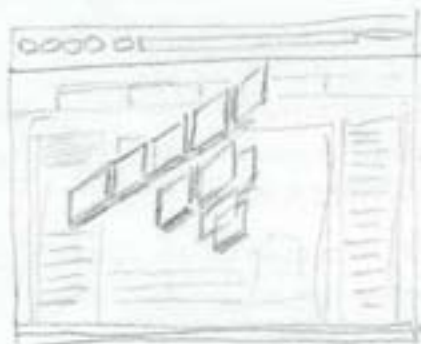
- But the history list will replace entire "page".

History remembers framesets - which is unhelpful.

Google example? - Try



IDEA!



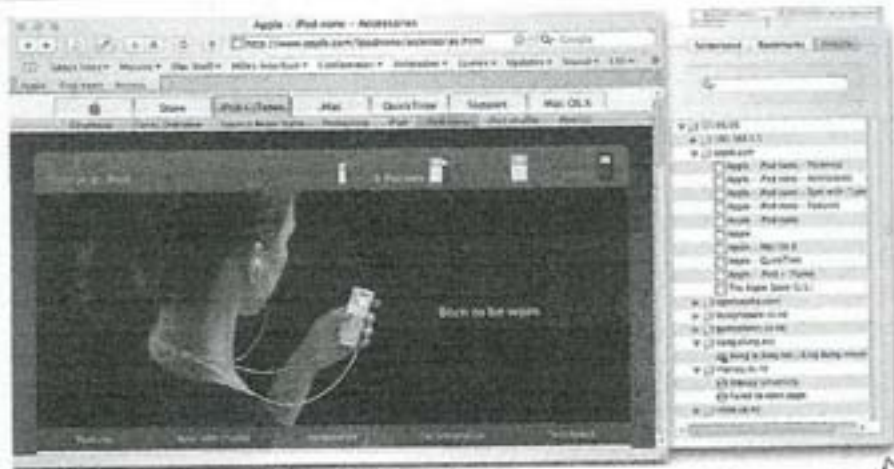
Consider floating interface over background!

Also consider

- OMNIweb icons
- Opera history

History created by test sequence

Apple's Safari's entire-page bookmarking interrupts browsing continuity



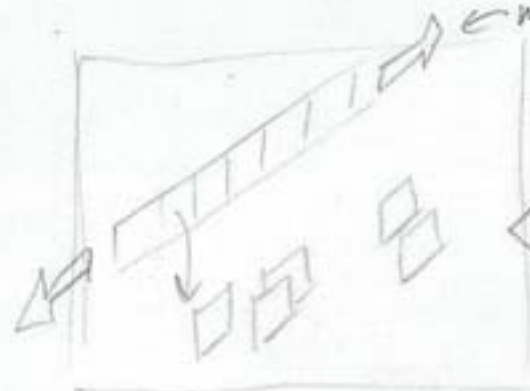
Concierge Utility for Safari's on-the-fly organising

Do I need the user to complete tasks using this list - to provide comparison?  
- why? - to achieve what?

- 30 ipod nano nz - Google Search
- 29 TradeMe.co.nz - ipod nano for sale, New Zealand (back)
- 28 BRAND New Apple iPod Nano 4gb WHITE MP3 Player for sale - TradeMe.co.nz - New Zealand
- 27 TradeMe.co.nz - ipod nano for sale, New Zealand
- 26 ipod nano nz - Google Search (via drop down)
- 25 Apple iPod Nano 4GB White (A2473) - Dick Smith Electronics - New Zealand
- 24 Dick Smith Electronics - New Zealand
- 23 ipod nano nz - Google Search
- 22 TotallyMac.com - NZ's definitive source for Macintosh products! (back)
- 21 TotallyMac.com - NZ's definitive source for Macintosh products! (back)
- 20 TotallyMac.com - iPod nano 4.0GB White
- 19 TotallyMac.com - NZ's definitive source for Macintosh products!
- 18 TotallyMac.com - NZ's definitive source for Macintosh products!
- 17 ipod nano nz - Google Search
- 16 Apple Macs NZ : : MacWarehouse : : New Zealand Mac Reseller (back)
- 15 Apple Macs NZ : : MacWarehouse : : New Zealand Mac Reseller (back)
- 14 Apple Macs NZ : : MacWarehouse : : New Zealand Mac Reseller
- 13 Apple Macs NZ : : MacWarehouse : : New Zealand Mac Reseller
- 12 Apple Macs NZ : : MacWarehouse : : New Zealand Mac Reseller
- 11 ipod nano nz - Google Search
- 10 The Apple Store (U.S.)
- 9 The Apple Store (U.S.)
- 8 The Apple Store (U.S.)
- 7 Apple - iPod - Accessories
- 6 Apple - iPod - Features
- 5 Apple - iPod - Technical Specifications
- 4 Apple - iPod
- 3 Apple - iPod nano - Technical Specifications
- 2 Apple - iPod nano
- 1 Apple
- index Welcome



← make this just a history slider.  
 ← This stays static?



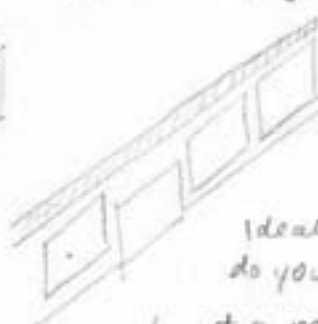
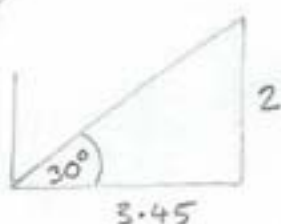
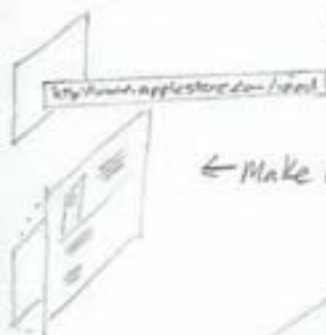
Good idea. Lets this space become a "working" area.  
 Can deal with issue of large numbers later - once key principles have been tested.

Pop up URL's can get very long - how to deal with this?  
 URL's & page titles can get VERY MEANINGLESS!  
 Go for pic.

on hover, popup url?

← Make larger? } keeps it visual.

Need a mechanism where individual pages can be kept large - Eg while certain pages are being looked for.

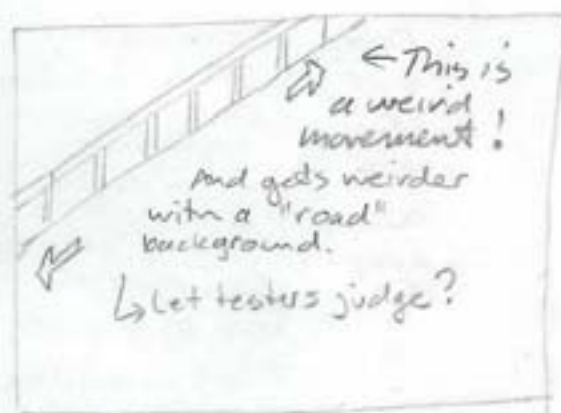


← Use a zone, where pages are still affected until they are pulled off!

Ideally use drag - but how do you drag on a diagonal.

$$\begin{matrix} \text{object} = & \text{mouseX} + 3.45 \\ & \text{mouseY} + 2 \end{matrix}$$

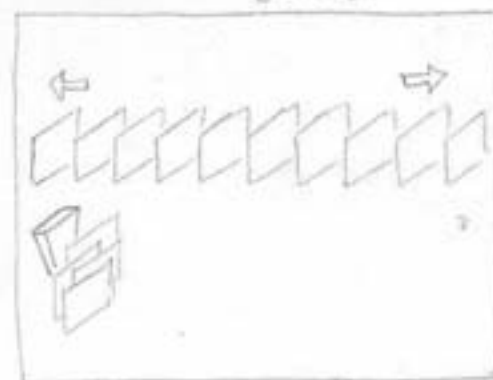
hit test



← This is a weird movement!

And gets weirder with a "road" background.

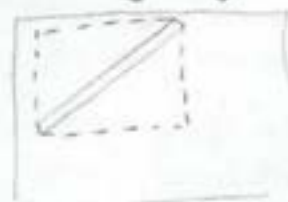
↳ Let testers judge?



Drop the diagonal?

Vo keep iso

Watch out for hot spots - always square!



USE

if(\_root.object.hitTest(this.y, this.x, true))

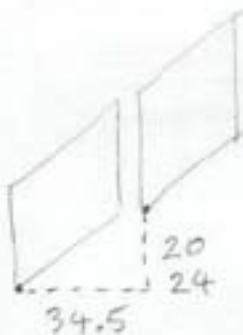
Target object

moving object, or current object.

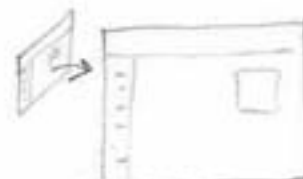
"true"

```
function zoop(me) {
  me._width = 100;
}
```

```
on (release) {
  zoop(object);
}
```

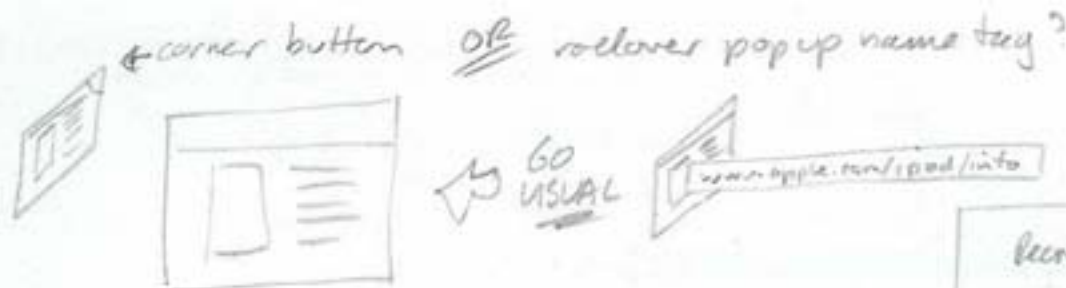


100%	34.5	20
120%	41.4	24
130%	44.85	26



Small icons should have a zoom preview - ideally using simple keyboard, ie spacebar.

- Refers some sort of mouse "hot-spot".

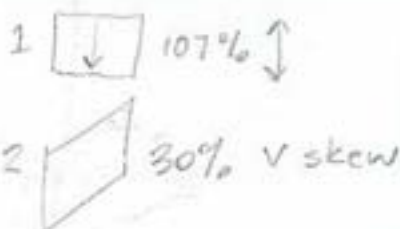


WOULD IT HELP TO PRE ANGLE THE LINES?



Then remove all that skewing code!

Recreate skew in PS



## MASKING

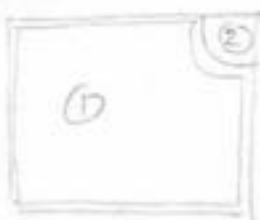


Note:

- Mask on top
- Both layers locked
- make mask work
- works with objects, groups & photos

Re Testing - IF the page browse sequence is too slow, provide "Instant History" button  
Eg Go to end - all pages browsed.

NOTE:



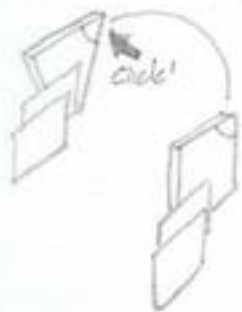
IF we have a MC with two MC's/butts inside, DO NOT target the overall mc or the inside ones WILL NOT WORK!

Dragging out a line has problems:

- very technically difficult
- has high load on framerate
- is possibly unnecessary - when a "click" may do just as well.



How about:



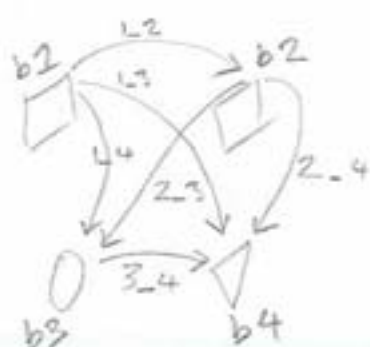
- Click once on block A
- Click on block B
- Line then appears

Code: on release T1.line = 1  
on release T2.line = 2

Tidy!

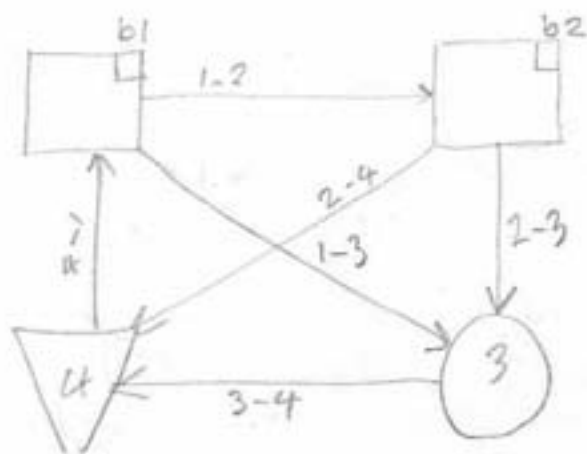
Then a bunch of functions

```
OnEnterFrame = function () {
  if T1.line = 1 and T2.line = 2
    T1T2line.visible = 1
}
```



Connections: one

- 1-2
- 1-3
- 1-4
- 2-3
- 2-4
- 3-4



Each click needs to set a variable.

on click

b1 readout1 = b1

b2 readout2 = b2

If readout1 = b1 ++ readout2 = b2  
line draw 1-2.

Can have one function with all possibilities

use numerical 1, 2 etc  
or expression "b1"

Delete?

use double click

- click once to set var

- if var is "this"

- delete.

Use a var

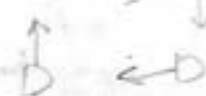
on click if var = 1  
make 0  
else 1 ] for each tag

Then:

IF var1 = 1 & var2 = 1  
then show line 1

IF var2 = 1 & var3 = 1  
then show line 2

IF / else's to  
show lines



Line no.

1-2	1
1-3	2
2-3	3
2-4	4
3-4	5
4-1	6

Notes from MW AM - 16:06:06

- Focus on Lessitzky "SPACE" - ~~THAT'S THE POINT~~
- Abstract shape thing can go. More from linear space to "constructed" space. Relates to constructivism education
- Allow naming groups
- Action Research - names from websites - select one or custom?
- Include icons - eg ipod
- Q's on concept - drag/drop/group/move
- Thumbnails line update?



ON

ON

OF

OF



ON - line

OFF - Y

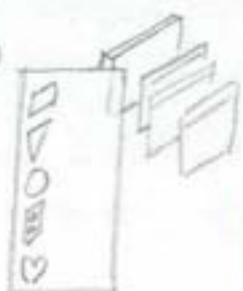
OFF - X

ON - X



## Icon selection

Pop-up?



← how does the block appear, and "why"?



if we is below Y,  
scale = ...

## KEY STROKE LISTENING

```
var myListener = new Object();  
myListener.onKeyDown = myOnKeyDown;  
Key.addListener(myListener);
```

```
function myOnKeyDown() {  
  if (Key.isDown(Key.CONTROL)) {  
    pop_up_panel._width = 200;  
  }  
}
```

BLOCKS - Drag off toolbar  
or pop-up toolbar?

- Go for drag-off as this continues the drag-n-drop approach. Also shapes are visible to select from.

- A pop-up introduces a new "mode", and is invisible and unknown unless informed. Not ideal!

## USE ICONS?

(Drawn in Freehand)

Using literal icons

creates problems -

- where do they come from - a huge database somewhere?

- the more literal you get, the harder it is to find "just" the right icon.

- This replicates current issues with literal icons, and achieves little that is new.

- One of my main issues is the generic usefulness of

abstract objects - STICK WITH SHAPES!



Drag in

Pop up to select colour

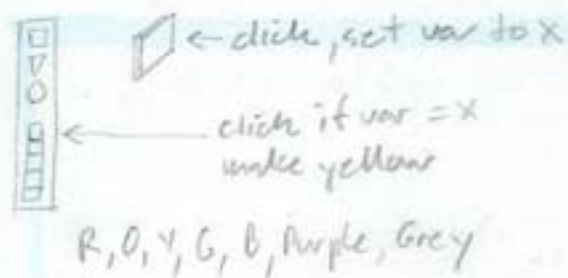


← how do control this 3rd line?



- So • Generic geometric shapes
- Colour coded

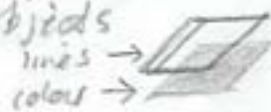
How select colour?



TWO METHODS

• Change Object — requires making up more objects

• Change colour — requires rebuilding objects



— and using RGB values

\* But once setup, endless colour range

/\* Swapping MovieClips

Use, my\_mc.attachMovie(idName, newName, depth [, initObject])

EG

```
on (release) {
    thing.attachMovie( "circle", "circle1", 2 );
}
```

Use MovieClip.removeMovieClip() to remove

```
*/
_root.icon_change_butt.onPress = function() {
    tagbar1._width = 200;
    _root.b2.attachMovie("ipod_icon", "ipod_icon", 2);
    _root.b2.blue_box_gpx._alpha=0;
};
```



Floating overlay could be semi-transparent

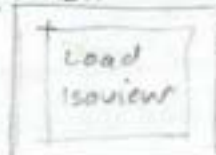
MMW AM July 7

- Add text labels to "groups"
- ↳ can pull from web page?
- Isoview can open in-page is OK
- Video cam test — can record initial reactions.

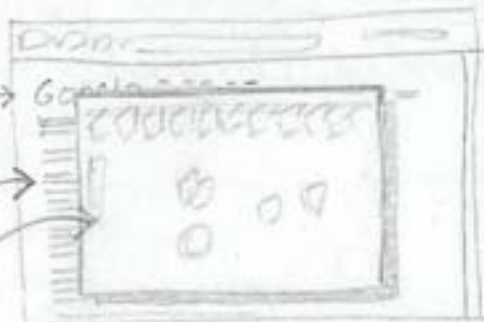
THIS DIDN'T WORK!!

Too many actions failed, setups, rollers etc — go back to adding a web page into the background to "fake" a float-over panel

FLASH



Browsers



Isoview is loadmovieclip into SWF

Make transparent

\* Draggable?



Need a "double click" go to URL.  
 Keys - eg Ctrl, Space, do not work  
 inside the browser - only as lone SWF!  
 We already have Press & Release on  
 the P's - so need to watch conflicts.

on Press - start Drag Function  
 - timer function

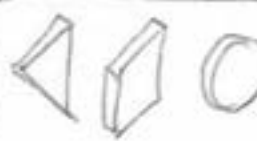
on Release - stop Drag  
 - IF timer within range  
 - go to URL

on Press // First click  
 - set timer

// Second click  
 - If timer = (timer + 1sec)  
 - go to

Else  
 reset / delete

Fast & more up P2, P13, P15, P16  
 Fix - 9

 "Group Identifiers"

**VERY CLEVER** double click  
 script - totally original - works well!

\_root.pl.zone.onPress = function() {

bar.width += 50;

if (bar.width >= 100) {

getURL("pl.html", "\_self");

}

bar.onEnterFrame = function() {

bar.width -= 1;

};

};

→ Each click add 50 pixels to bar length

→ And if bar gets to 100 (two clicks)...

→ go to URL

→ however, be quick, because  
 the bar will soon shrink back  
 to original size

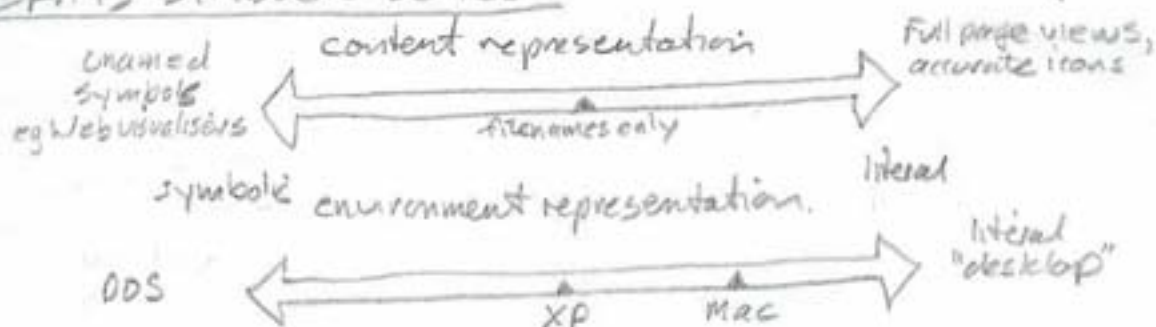
(add delete this)

IF new windows opens \_self, then when  
 returning to isource, It does not retain state!

This means we have to open: • new window  
 • new tab

New tab is not controllable by htm / flash!  
 JUST HAVE TO LIVE WITH THAT!

## "GRAS" SYMBOLIC SCALE





A study of user-behaviour when confronted with an interface that conveys functionality, has an integrated visual style, but also uses non-specific visual forms.

- reaction (based on experience) in response to visual statement
- ability to recognise and use symbolic functionality
- ability to apply meaning to non-specific elements