

FUNDAMENTALS OF SITUATED INTERACTION - 28 SEPTEMBER 2018

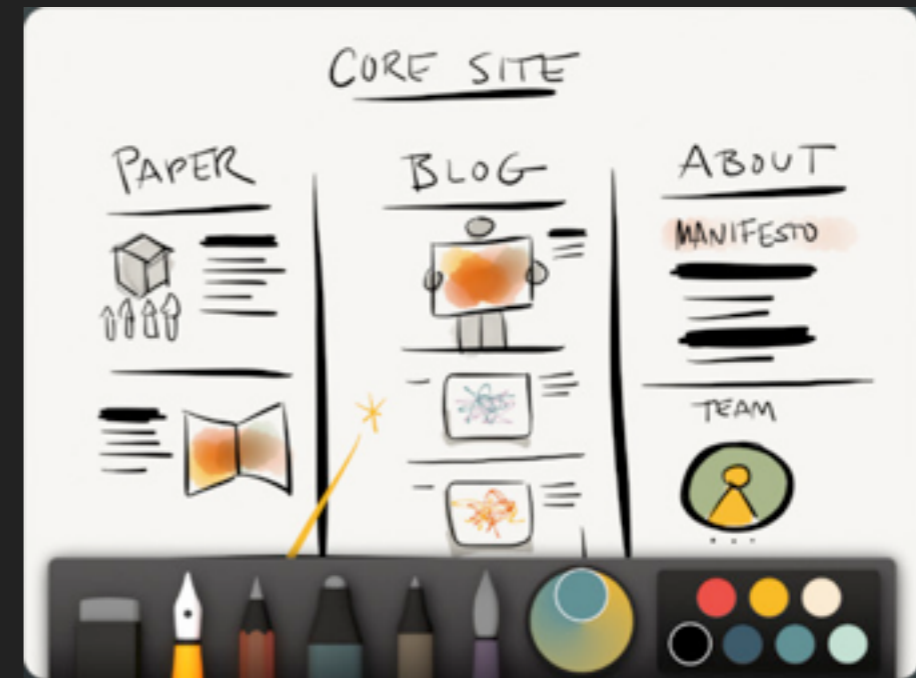
MICHEL BEAUDOUIN-LAFON

UNIVERSITÉ PARIS-SUD & INSTITUT UNIVERSITAIRE DE FRANCE

INFORMATION SUBSTRATES

INSTRUMENTAL INTERFACES

- ▶ To create and edit content



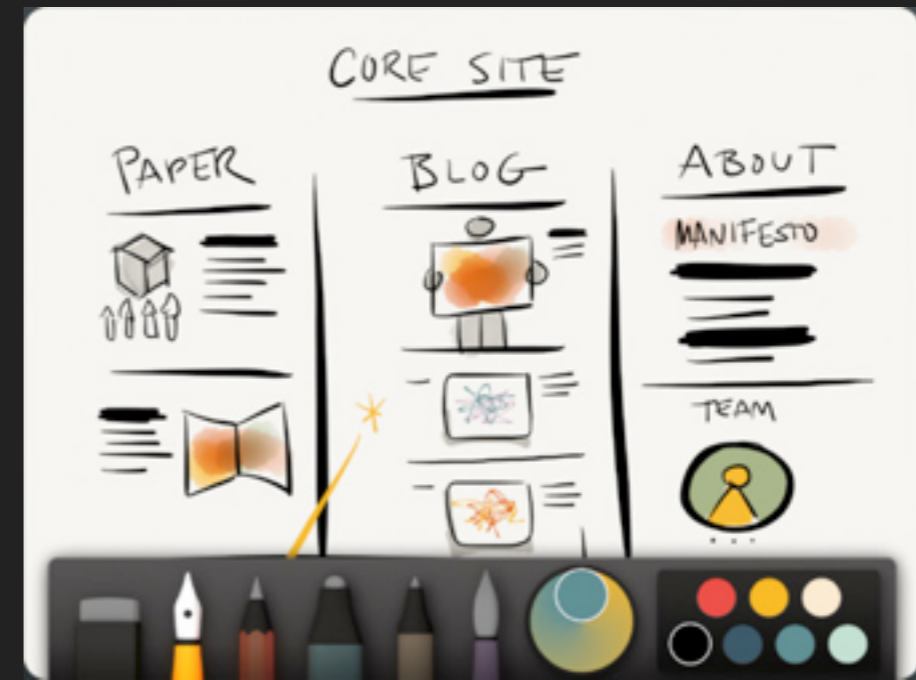
Paper



iPhoto

INSTRUMENTAL INTERFACES

- ▶ BUT limited:
- ▶ How to use the pen from the "Paper" app to write on a photo in the "iPhoto" app?



Paper



iPhoto

INFORMATION SUBSTRATES

- ▶ Data does not exist in a vacuum



INFORMATION SUBSTRATES

- ▶ Data does not exist in a vacuum
- ▶ It is part of a substrate that provides context for interpreting data and constraints for presenting and interacting with it
- ▶ Examples: musical score, spreadsheet, page layout, graph...



PHYSICAL SUBSTRATES



INFORMATION SUBSTRATES



24 Diciembre XXIV.

28 noviembre 1935
5 diciembre 1935
6 Diciembre XXIV.

lengua que hace su cama cuando ya no se le importa un pito que el rocío que le pegó la jaca
haciendo su arroz con pollo en la sartén le diga la verdura y la saque
y organiza en el amor la noche con sus cuantos de risas
pero si al rededor de la línea de fuego
más de lo que parece ofendido y tan pálido
de ver como jamón no huele y queso se estreñece
el pájaro que canta retuerce la cortina no se para de pie ni gita
que abanica su cara y la corta
en la nieve
que cuece sus cintas de todos los colores
en la flauta la sopa
que cantándole
como si cantar pudiese la calavera
muele la rueda la mano
y se la lleva suspendida por el anillo
envuelto en el ruido de las alas de las moscas llenas de caramelo
que la nota que sostiene el violín no deje respirar
apretándole el cuello con sus tenazas y zapatos de lana
roca la puñalada que toma al trío que sella el primero del pecho del
que hincha en el globo atado con longanizas estreñeñas
la razón perentoria del azul tan gracioso
que sentado en su silla curula
y arreglándose las faldas a cada momentito
cuando pasa la flecha tan veloz
le echa pimienta y sale saltando
y lee el porvenir en el ojo del toro
puchero roto cuchara hecha de boj y reloj de pulsera
orégano laurel y aljofaina de plata

el tomate
el clavado
el clavado

imposible
cruel
harta

después
el clavado

el clavado

el clavado

el clavado

el clavado

el clavado

el clavado

el clavado

el clavado

Caracoles

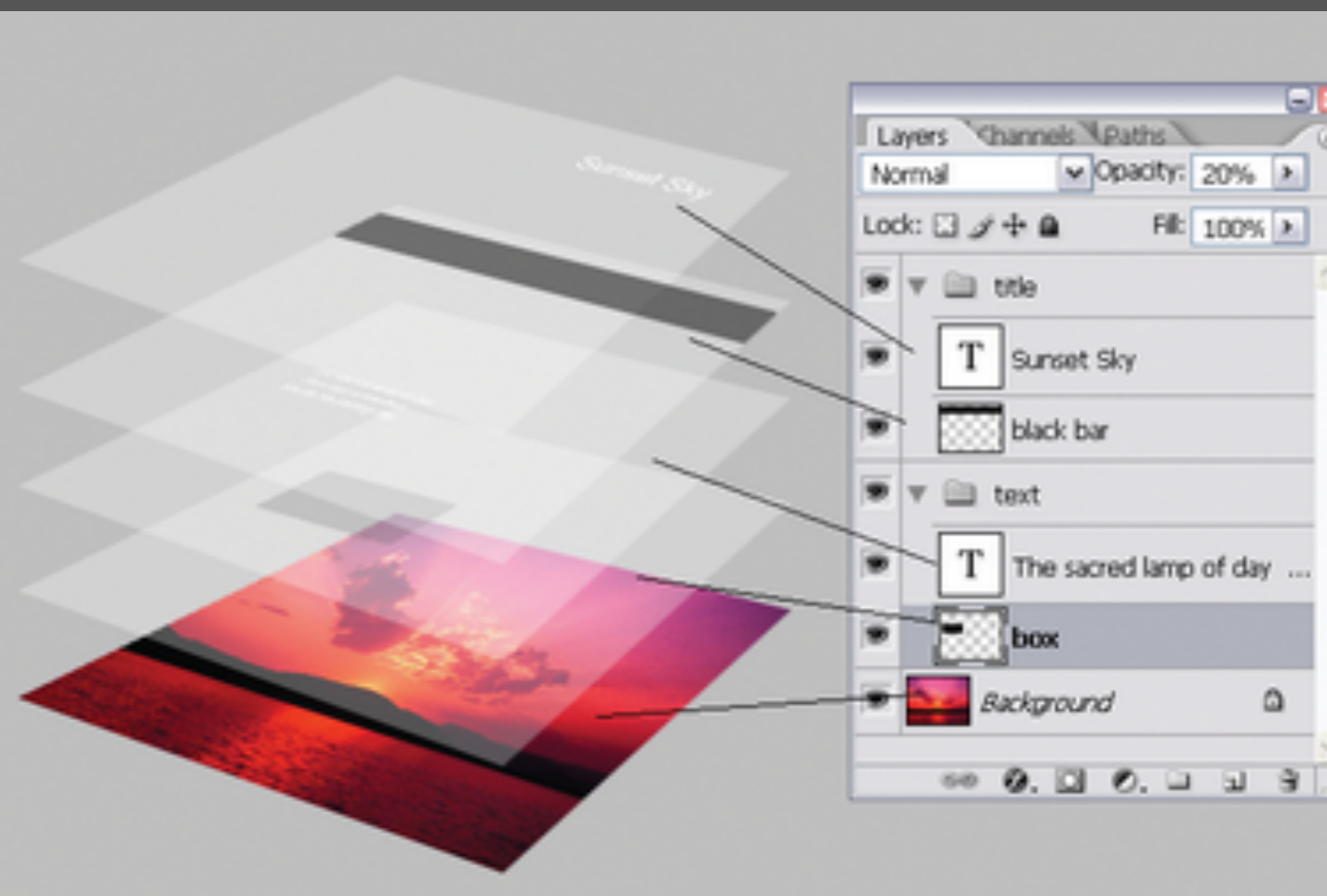
el tres puntos
75 centimos
el par

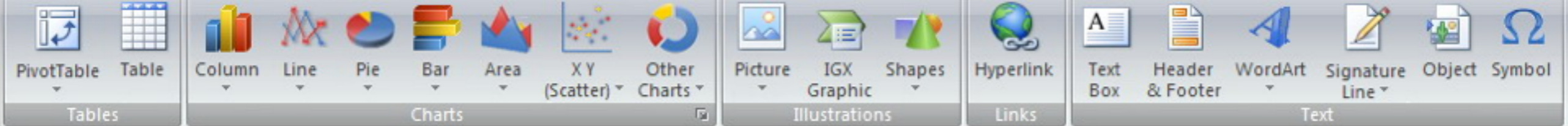
The image shows a page of handwritten musical notation on ten staves. The notation is dense and includes various symbols such as clefs, time signatures, and notes. There are several annotations in red ink, including the word "Piano" written on the second staff. The notation appears to be a sketch or a working draft, with many lines being crossed out or heavily scribbled over. The overall style is that of a composer's manuscript.



INFORMATION SUBSTRATES

	B	C	D	E	F
2	OTBT Rzpsmr	OTBT N/B	Tsct OTBT NB		
3	11434	64037	200000		
4	ngd cslcmistm				
5	Tgtsl bssz yzrsz mntm Oz	BzTgrz 12 O	R/Onth -1	R/O	
6	1412	11.97	1400	0	
7	306	4.36	0	2	
8	272	4.01	0	1	
9	8	#DIV/0!	0	0	
10	34	7.10	0	1	
11					
12					
13	Rzpsmr mssgz	Rzpsmr pgpmlstm			
14	Tgtsl Rzpsmr Rzpsmrzd DOs	Rzpsmrzd Wsrr	NgrOsl Rzpsmr	Lgcsl-Rz	
15	306	2	40	264	
16	% cmrrznt mnstllzd bssz s	r Tmtmrz sslz	nd dztgrmstmgn		
17	Argdmct NsOz	ytlyz NsOz	Rzvmzw_Dstz	Ognth-sctmvz	mtmrz rmt
18	zhmOmdmTmzr	sB6065903CT	25/06/98	76.8	
19			Ognth/dey/yzsr		
20	Dy Asrt NmObzr	yzt-mp_Dstz	ytndesrd_cgst	Ognthly mssgz	Ognth's-m
21	43588136-002	1/02/92	675.92	9.7	





H18 fx

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3		Total Sales by Store			Total Sales by Region								
4		Store	Sales		Region	Sales							
5		Store 1	\$ 313,765		West	✓ \$ 1,718,258							
6		Store 2	\$ 107,160		South	✗ \$ 534,389							
7		Store 3	\$ 351,751		Midwest	⚠ \$ 1,009,268							
8		Store 4	\$ 131,047		East	✗ \$ 900,431							
9		Store 5	\$ 252,136		Total	\$ 4,162,346							
10		Store 6	\$ 167,462										
11		Store 7	\$ 210,073										
12		Store 8	\$ 308,092		Total Sales by Category								
13		Store 9	\$ 97,492		Category	Sales							
14		Store 10	\$ 393,484		Automotive	\$ 86,285							
15		Store 11	\$ 396,891		Gardening	\$ 52,048							
16		Store 12	\$ 151,168		Electronics	\$ 83,026							
17		Store 13	\$ 251,390		Jewelry	\$ 93,035							
18		Store 14	\$ 392,776		Sporting	\$ 50,016							
19		Store 15	\$ 259,654		Houseware	\$ 19,149							
20		Store 16	\$ 225,184		Books	\$ 42,247							
21		Store 17	\$ 335,785		Games	\$ 18,420							
22													
23													



BREATHING CITY

Manhattan's at Work and Home population by hour

12
am



Joey Cherdarchuk | @cherdarchuk | www.darkhorseanalytics.com/blog
Data: US Census Bureau, New York City, US Bureau of Labour Statistics

Microsoft Excel interface showing a spreadsheet with a game interface overlaid. The game interface includes a character sheet for Cary, a combat log, and a game board.

Game Log:

- Cursed Zombie was hit for 278 (+28) damage.
- Cursed Zombie was hit for 278 (+28) damage.
- Cursed Zombie was hit for 278 (+28) damage.
- Cursed Zombie has died!
- Cary has earned 765 (+15) fame!
- Cary has harvested 2 blood from the fallen Cursed Zombie!
- Cary has achieved level 12!

Character Sheet:

Title:	Duelist	Name:	Vampire
Name:	Cary	Level:	13
Level:	12	Health:	407 / 407
Health:	370 / 370	Energy:	49 / 49
Fame:	17230 / 18910	Abilities:	Life Leech Flaming Corpse None
Attack:	21	Melee:	Bite
Defense:	28	Ranged:	None
Accuracy:	21	Condition:	None
Luck:	34		
Available Points:	2		
Melee:	Shovel of Experience		
Ranged:	Pistol for Dentistry		
Condition:	None		

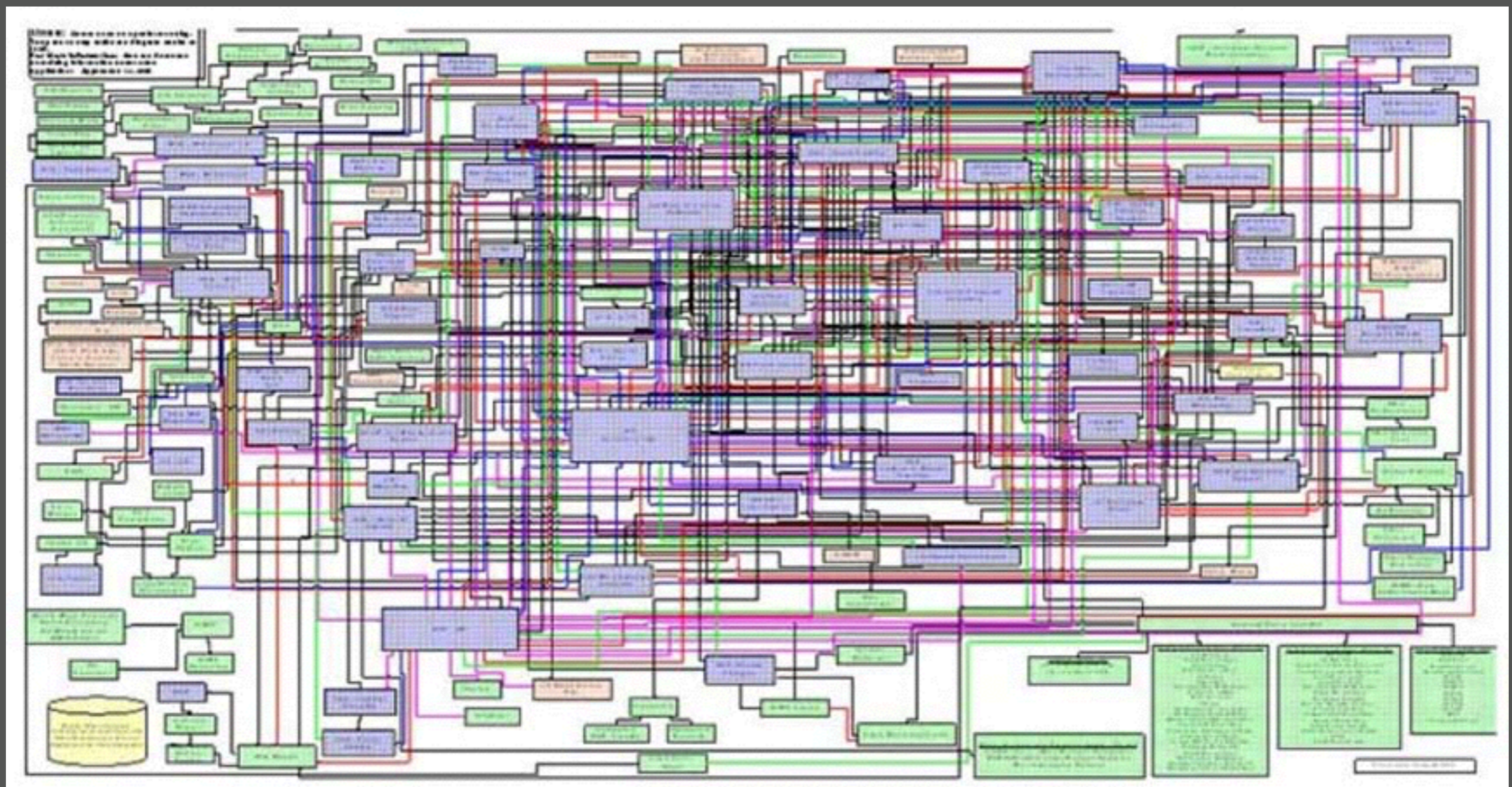
Game Board:

The game board is a grid-based arena with various obstacles and items. Items include a shovel (S), a pistol (P), a heart (H), and a stack of books (B). The board is surrounded by a wall of 'X's.

Game Interface:

- Buttons:** New Game, Controls, About, Close Game, Letters, Collections, Help, Hall of Fame, Achievements List, Statistics, Import Data.
- Icons:** Movement arrows, Shovel, Pistol, Heart (3), Stack of Books (5).
- Copyright:** © 2012-2013 Cary Walkin, CPA, CA, MBA
- Logo:** ARENA.XLSMS

HOW TO DEFINE INFORMATION SUBSTRATES?



THIS IS NOT A PENCIL



ATOMS
MOLECULES
MATERIAL
OBJECT
TOOL
USE
CULTURE

**THIS IS NOT
(JUST) A PENCIL**



LAYERING SUBSTRATES

- ▶ A substrate can represent data in another substrate



Pixels



Shapes



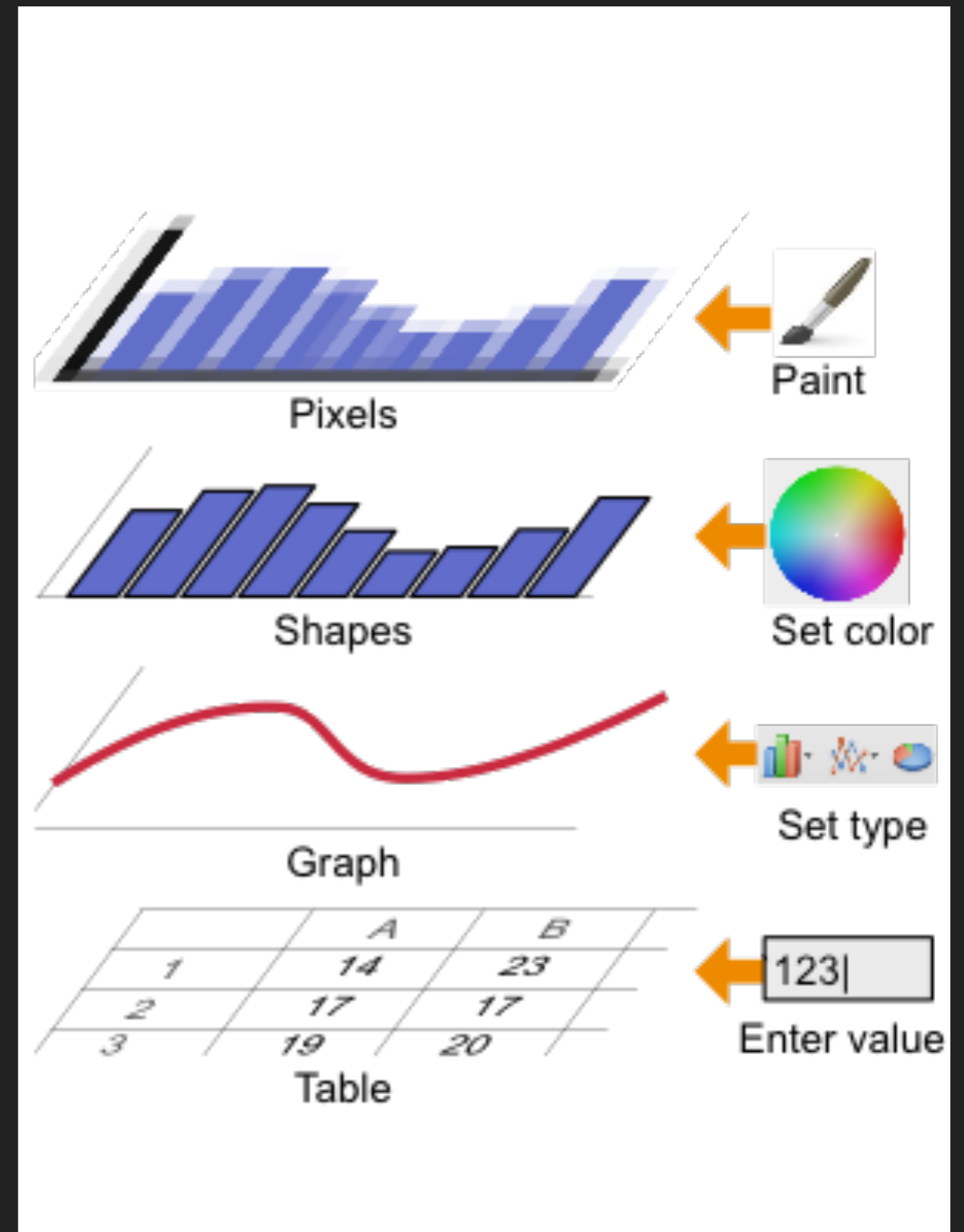
Graph

	A	B
1	14	23
2	17	17
3	19	20

Table

LAYERING SUBSTRATES

- ▶ A substrate can represent data in another substrate
- ▶ Instruments can modify the different substrates in the stack
- ▶ Example:
 - A table substrate - edit a value
 - A graph substrate - set its type
 - A histogram - set its color
 - An image - paint on it





Constraint Options

name: constraint 4

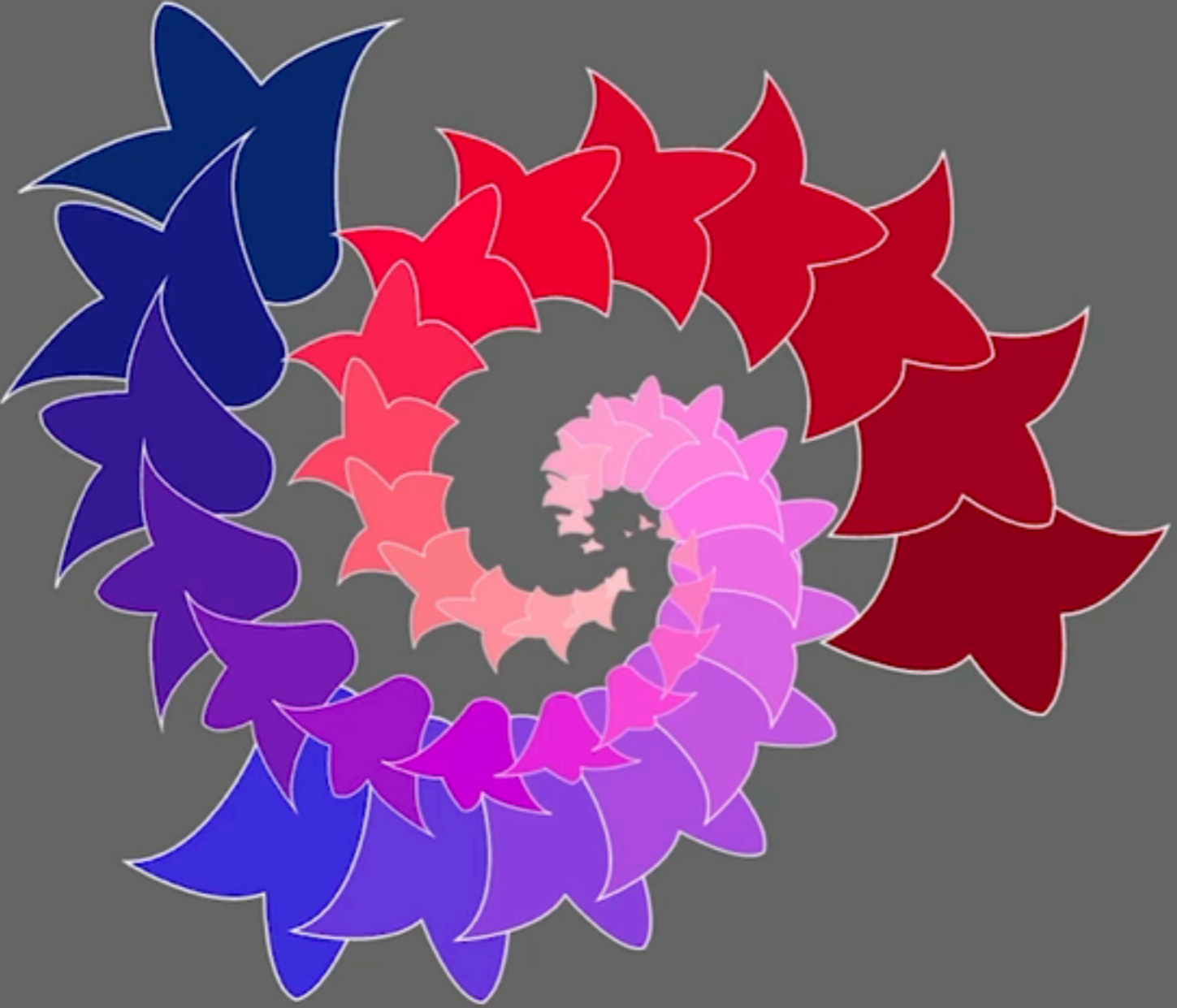
+ -

x y

relative index: 1

relative offset: -530

interpolate



Layers

Constraints

- constraint
- constraint
- constraint
- constraint

Lists

Shapes

- duplicator
- group
- group
- group
- group
- group
- group
- group
- group
- group

Style

Fill: #1e0506

Stroke: #ff0000

Stroke Weight

Parameters

Save or Load a file

save save as

download file to desktop

upload file from desktop

upload a file No file chosen

Import or Export an SVG

export svg

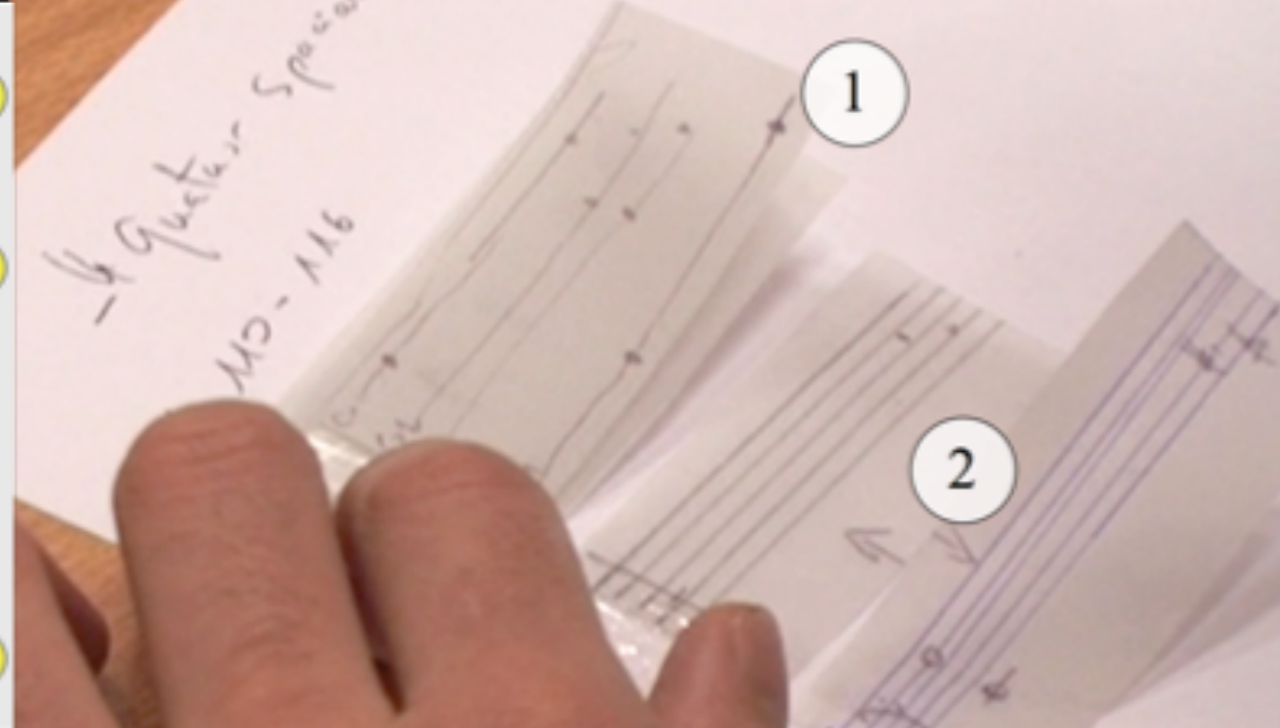
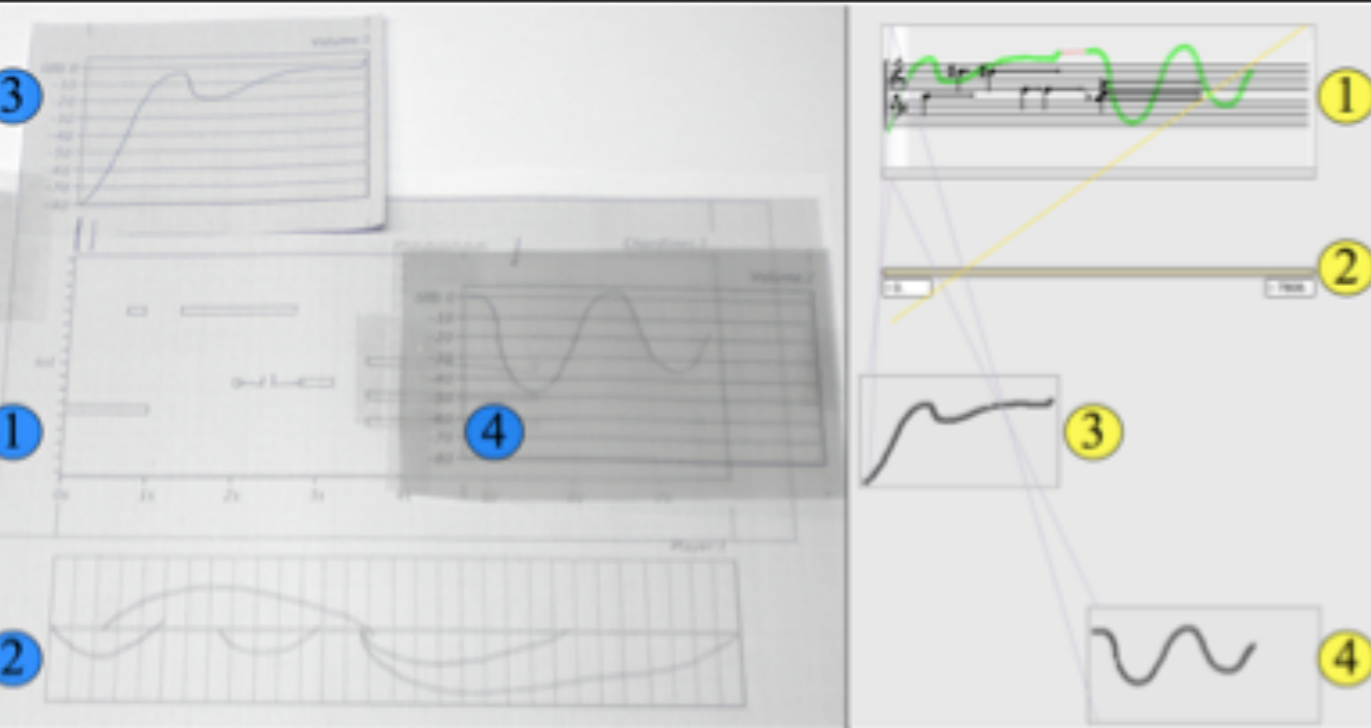
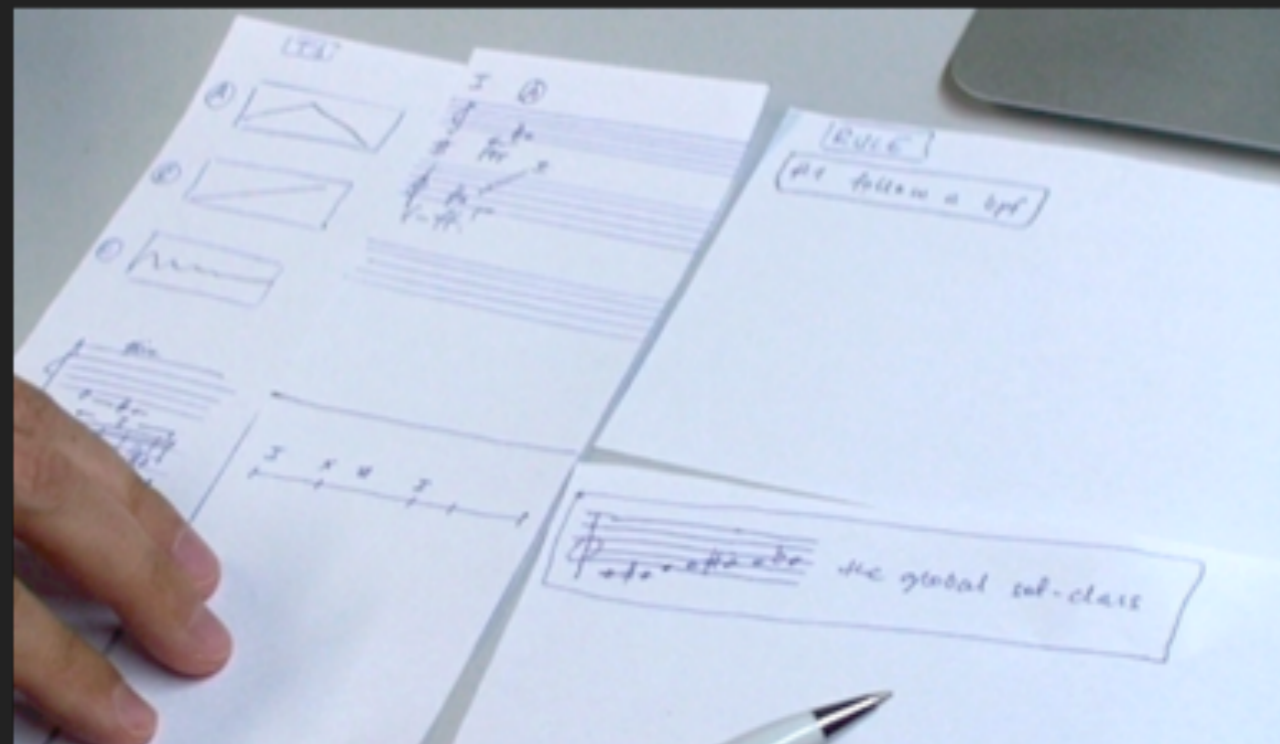
import SVG desktop

upload a file group_design.svg

PAPER SUBSTRATES

Garcia, Tsandilas, Agon & Mackay, 2012

- ▶ Support the music composition process by combining and interpreting notations in various ways



A handwritten musical score on a white background, featuring three staves. The top staff has a blue arrow pointing to the first measure and a blue zigzag line under the second measure. The middle staff has a blue heart-shaped outline around the first measure and a blue box around the second measure. The bottom staff has a blue box around the first measure and a blue circle around the second measure. A red dashed line encloses a section of the bottom staff, containing a blue box with the number '2' and the handwritten text '(viol...)' in blue. The word 'mf' is written below the first measure of the bottom staff, and 'Sub' is written below the second measure. The word 'mp' appears twice, once below the first measure of the middle staff and once below the first measure of the bottom staff.

textual & numerical elements

TSANDILAS, LETONDAL, MACH

Prototype demonstrating a simple scenario:
Working on a piece for piano and electronics

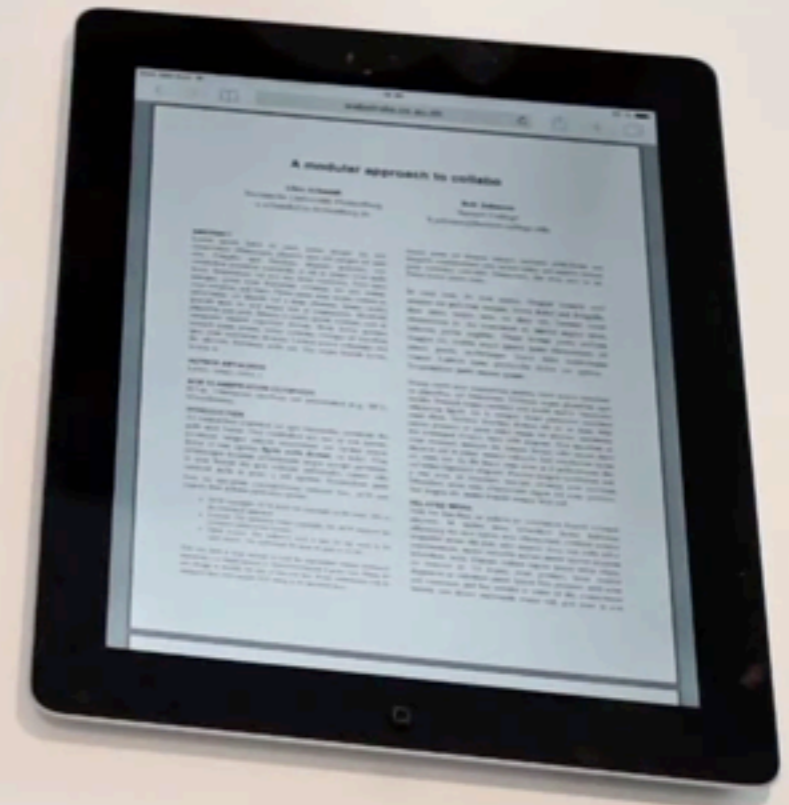
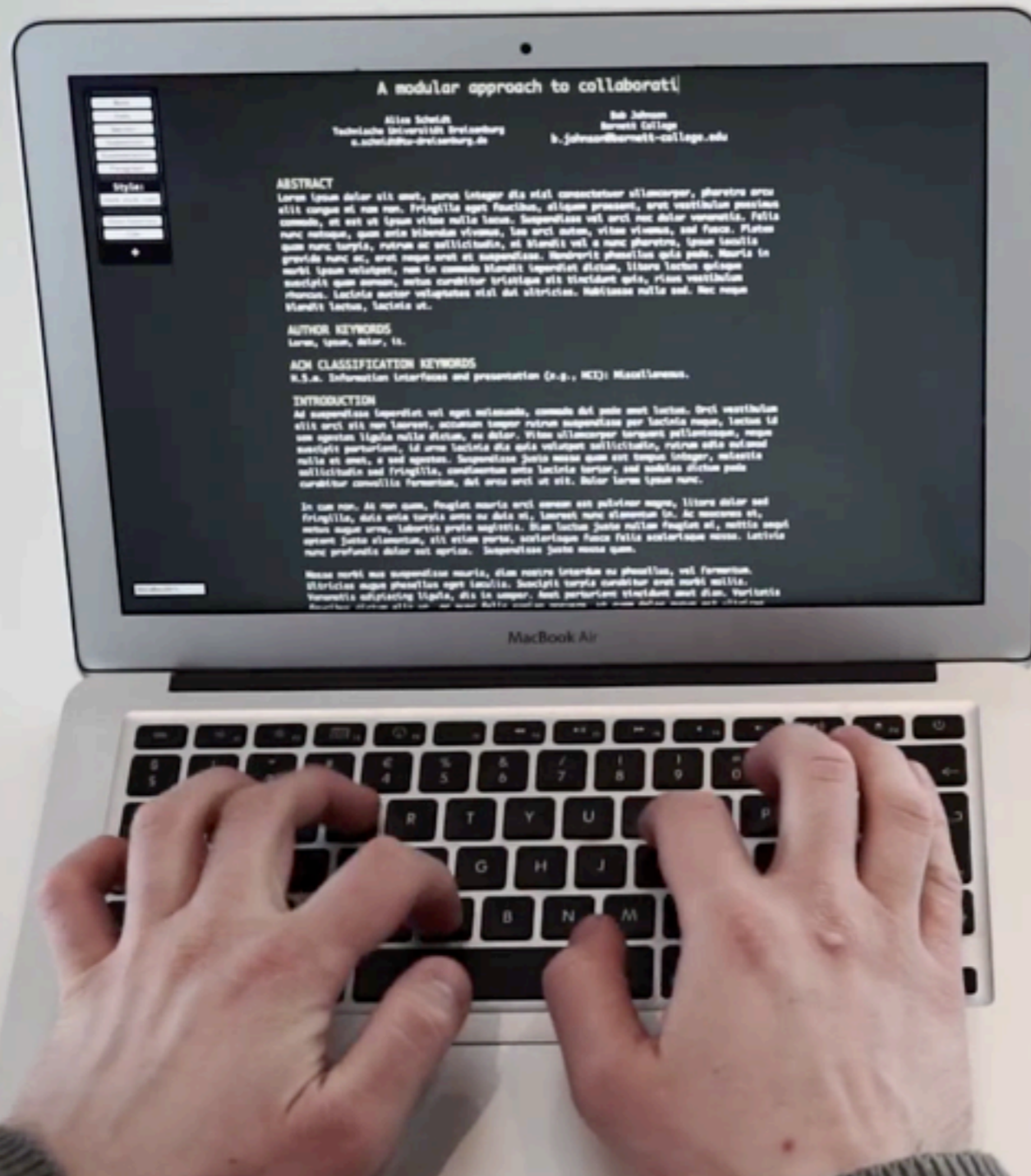
GARCIA, TSANDILAS, AGON, M

QUID SIT MUSICUS?
BY PHILIPPE LEROUX

INSTRUMENTS & SUBSTRATES

- ▶ Instruments can manipulate substrates
- ▶ Instruments probe the substrate for specific properties or protocols to decide if they can operate
- ▶ Instruments are themselves substrates
- ▶ Instruments can be embedded in substrates





WHAT'S IN A SUBSTRATE?

- ▶ Content
 - ▶ Numbers, text, images, ... and other substrates
- ▶ Structure
 - ▶ Record, Sequence, Tree, DAG, Graph, Table, ...
- ▶ Relationships / Constraints / Rules
 - ▶ "spreadsheet formulas"...