

LEVERAGING INFORMATION ARCHITECTURE WITHIN UX INTERACTION DESIGN

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UX MAGIC



INTERACTION DESIGN
FOUNDATION

Semantic Interaction Design is a foundational method for building digital experiences with the **lowest cognitive load** (highest degree of usability)

This method leverages directly maps an applications functional taxonomy into both an information architecture and UX visualization patterns.

What

Semantic IxD is a proven (cognitive science based) **scalable** UX design method that ensures maximum usability is achieved **10X** more effectively & efficiently than current UX practice today.

Origin of Semantic Interaction Design (IxD) theory goes back decades!

Human Factors Cognitive Ergonomics:

- Task action grammar/Complexity models
- Reisner (1979)
- Spence and Apperley (1984)



Cognitive Science:

- Stages of Action (Norman 2015)
- Design by Levels (Foley 1995)
- Activity Theory (Nardi 1996)
- Consistency (Shneiderman 1988)

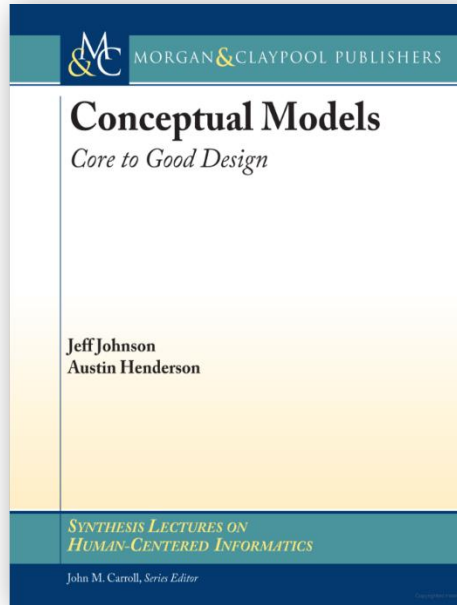


Computer Science

- Objected-Oriented UI (Collins 1995)

Science starts here

2012



Practice Foundation

2020



Complete System

Innovative IxD method – value proposition

Deliver designs **faster/smarter**

- Fewer iterations
- Minimize feature creep rework
- Fewer stakeholder meetings
- Science based tradeoff discussions (not opinions, not trial & error)

10X

Efficiency
(your labor)

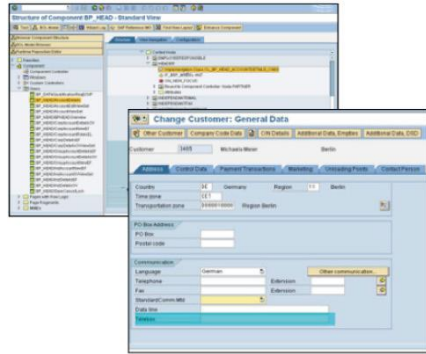
Deliver **optimal UX** designs

- Minimum number of screens
- Shortest flows
- Lowest cognitive load possible
- Ready to scale for next version

10X

Effectiveness
(design quality)

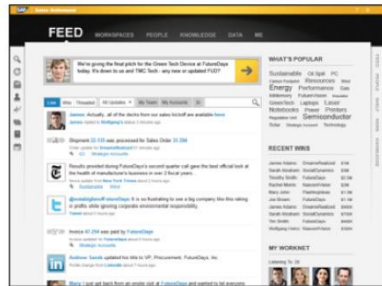
Can you support **the 10X claim?**



100's of screens



100's of screens



10's of screens



5 screens

= Over a **100X**
Improvement!

Before - Can you support this 10x claim?

The image displays a complex medical software interface with several overlapping windows. The top window is titled 'Manager' and contains a menu bar (File, Workup, Assessments, Manage Tx, View, Pharmacy, System Admin, Window, Applications, Help) and a toolbar with icons for various functions like 'Open', 'Summary', 'History', 'Flow Sheet', 'Vital Signs', 'Exam', 'TextOrder', 'Rx', 'Phys Order', 'Notes', 'Billing Ev', 'Drug Admin', 'Prov Appr', and 'Reports'. Below the menu is an 'Open Patient' window with tabs for 'Visit', 'Patient', and 'Reminders'. It shows fields for 'Last Name' (testaria), 'First Name' (patient), 'Date of Birth' (00/00/0000 +/- 5 Years), 'Primary ID', 'Provider', and 'Institution'. A 'New Patient' window is overlaid on top, with tabs for 'General', 'Patient IDs', 'Temporary Address', 'Contacts', 'Demographics', 'Providers', 'Referrals', 'Photograph', and 'Preferences'. It contains fields for 'Last Name', 'First Name', 'Middle Name', 'Other Names', 'Date of Birth', 'Sex', 'SIN/SS Country', 'SIN/SS', 'Status', 'Deceased', 'Date of Death', 'Cause of Death', 'Clinical Trial Patient', and 'Track Adverse Events'. A 'Print...' button is at the bottom left. The 'Modify Medical History' window is overlaid on the 'New Patient' window, with tabs for 'Medical', 'Procedure / Surgical', and 'Gynecologic'. It features a table with columns for 'Select', 'Valid', 'Procedure / Surgical', 'Comment', 'Age', 'Date', and 'Code'. The table lists various surgical procedures, with 'Appendectomy' and 'Biopsy' checked. Below the table is a checkbox for 'No remarkable Surgical History' and buttons for 'Add', 'Error', 'OK', and 'Cancel'. At the bottom right, there are checkboxes for 'Surgical History', 'No Change', and 'Reviewed/Updated'.

800+ screens

After - Can you support this claim?

= An **18X** Improvement!

The screenshots illustrate the following features:

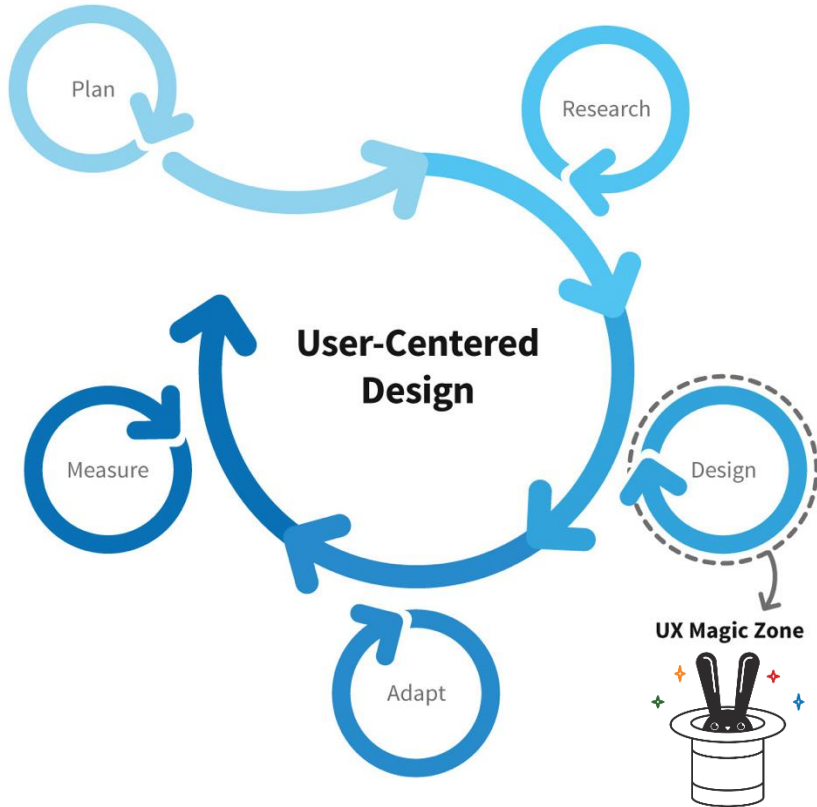
- Calendar View:** Shows a list of appointments for Hazel Taylor, including times, locations, and providers (e.g., Beth Smith, Rossi White, Maria Fuentealba, Adam Kitrolakis, Henrietta Morgenstern).
- Patient Profile:** Displays vital signs (Pain survey: 82 +5 ↑, CBC: 3 values out of range) and a list of tasks (e.g., "Kept me waiting 2 hrs...", "Meet with dietician", "Profile: Allergy information updated").
- Lab Results:** Shows a CBC (Complete Blood Count) for Hazel Taylor with a table of values and a trend graph for Hemoglobin (Hg) from July 22 to August 19, 2015. The graph shows a significant drop in hemoglobin levels.
- Message:** A message from Dr. Rosie Stratford, M.D. asking, "Is this normal? After my radiation treatment yesterday ...".

45 screens (5 main ones)

When

At the heart of the User Centered Design step.

Focus – **Only Interaction Design** step (not full UCD life cycle)



- Other phases are important too
- Necessary but not sufficient

Why

Because **Design Darwinism** does not work!

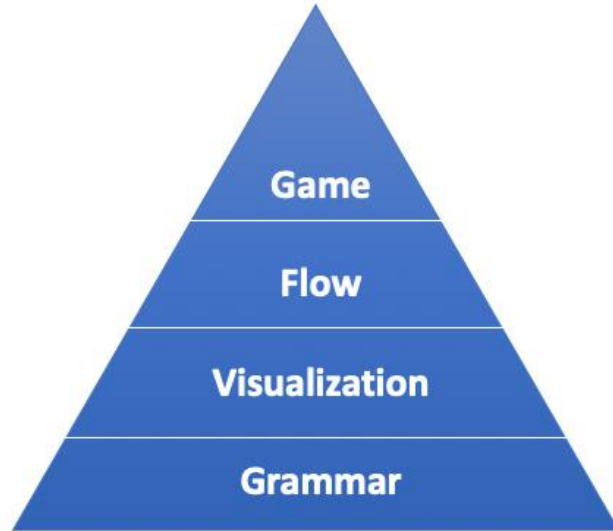
Current design methods don't scale to complex systems, are inefficient and often lead to product failure at significant expense because

Real quality is not achieved by eliminating defects – occurs through design


*Design Darwinism = Believing A/B testing is a legitimate form of iteration

How (theory)

Leverage **2 cognitive** science principles at **4 modular levels** of Interaction Design



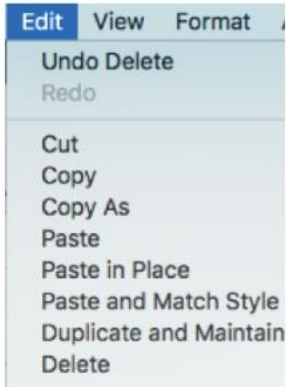
Cognitive Science Foundation of **Semantic Interaction Design**

1. **Language** is the basis of conscious **thought**
2. Language **grammar** correlates with cognitive **complexity**
 - Cognitive load in Interaction Design can be measured (lab)
 -  Cognitive load for Interaction Design can be predicted in advance

Simple Graphical User Interface (GUI) **Semantic** Example (Interaction Design Grammar)

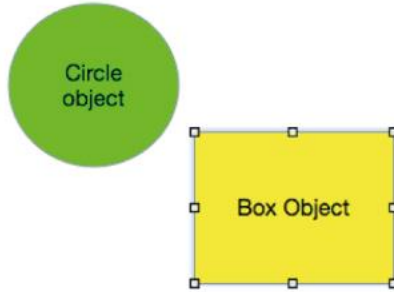
Grammar

Actions



Menu

Objects



Canvas

Attributes



Inspector Dialog Box

Consistency vs. Cognitive Load

Sloppy Application IA



ACTIONS



OBJECTS

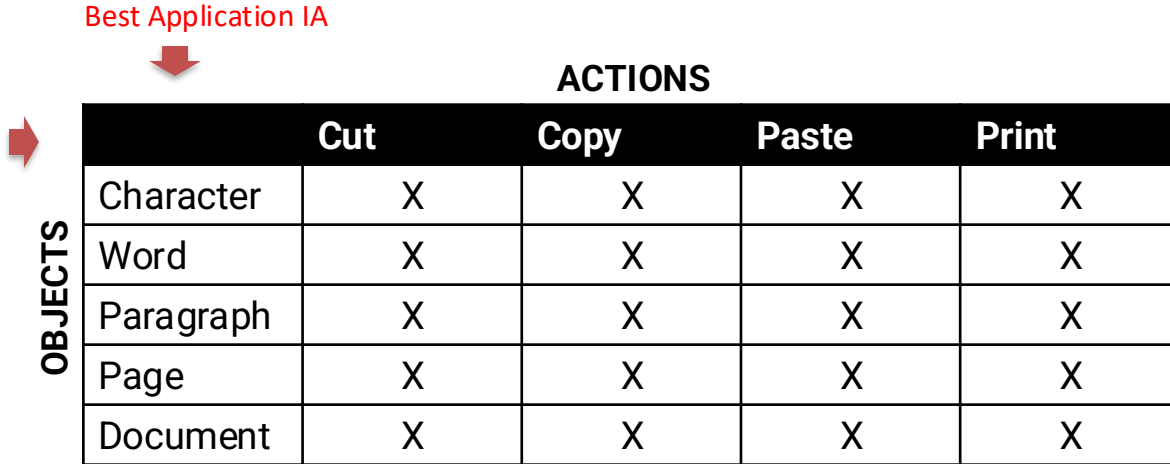
	Cut	Remove	Copy	Duplicate	Paste	Stamp	Print	Publish
Character	X		X		X			X
Word		X		X		X	X	
Paragraph		X	X		X		X	
Page		X		X		X		X
Document	X		X		X			X

Sparse Object-Action Grammar

Sparse is BAD!

Consistency vs. Cognitive Load

Best Application IA



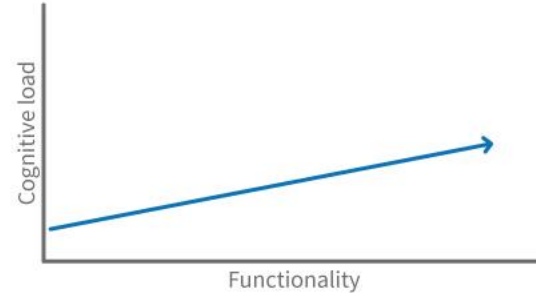
		ACTIONS			
		Cut	Copy	Paste	Print
OBJECTS	Character	X	X	X	X
	Word	X	X	X	X
	Paragraph	X	X	X	X
	Page	X	X	X	X
	Document	X	X	X	X

Dense Object-Action Grammar

Consistency vs. Cognitive Load **Calculation**

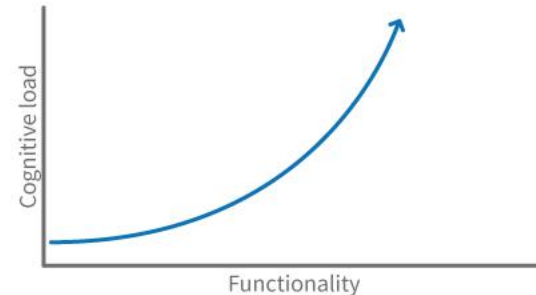
Dense matrix: Load on human memory = **Actions + Objects**

		Actions			
		Cut	Copy	Paste	Print
Objects	Character	X	X	X	X
	Word	X	X	X	X
	Paragraph	X	X	X	X
	Page	X	X	X	X
	Document	X	X	X	X

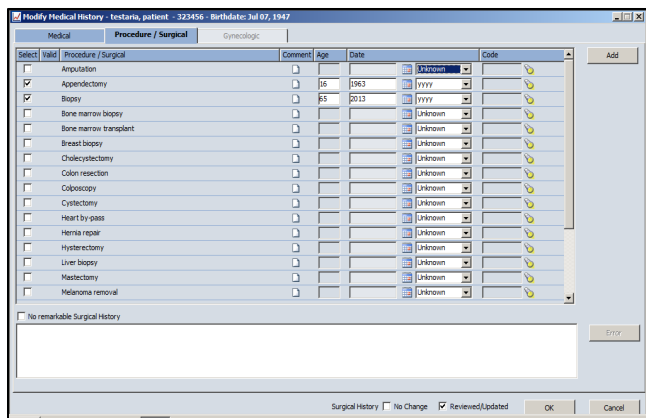


Sparse matrix: Load on human memory = **Actions x Objects**

		Actions							
		Cut	Remove	Copy	Duplicate	Paste	Stamp	Print	Publish
Objects	Character	X		X		X			X
	Word		X		X		X	X	
	Paragraph		X	X		X		X	
	Page		X		X		X		X
	Document	X		X		X			X



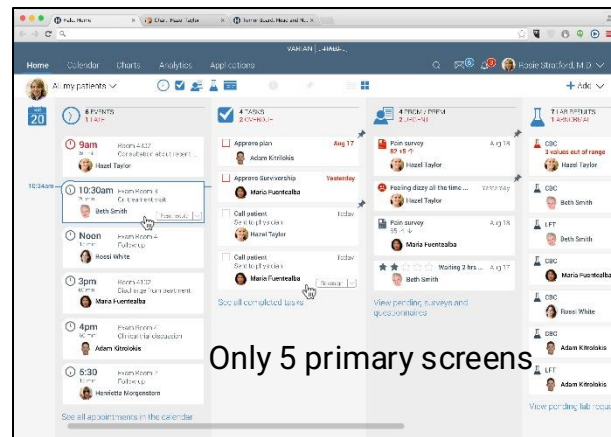
Real Conceptual Model 10x deconstruction in practice!



800
Screens



45
Screens



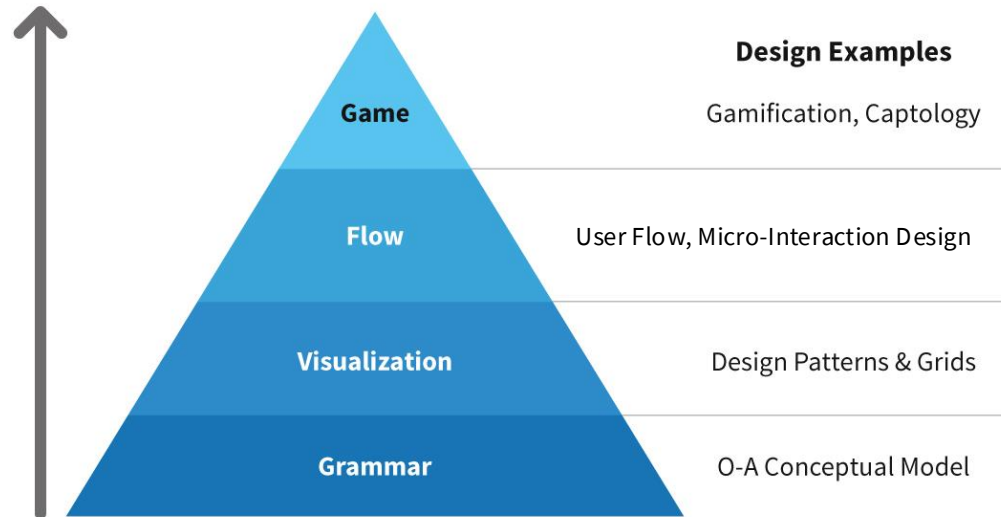
Only 5 primary screens

	Create	Update	Void	Accept	Reject	Delegate	Approve	Refer	Transfer
Patient	X	X		X	X			X	X
Medical record	X	X	X	X	X	X	X	X	X
Treatment plan	X	X	X	X	X	X	X		X
Appointment	X	X	X			X		X	
Task	X	X	X	X	X	X	X	X	
Messages	X	X	X			X		X	X
Note	X	X				X		X	X
Care team	X	X				X	X	X	X

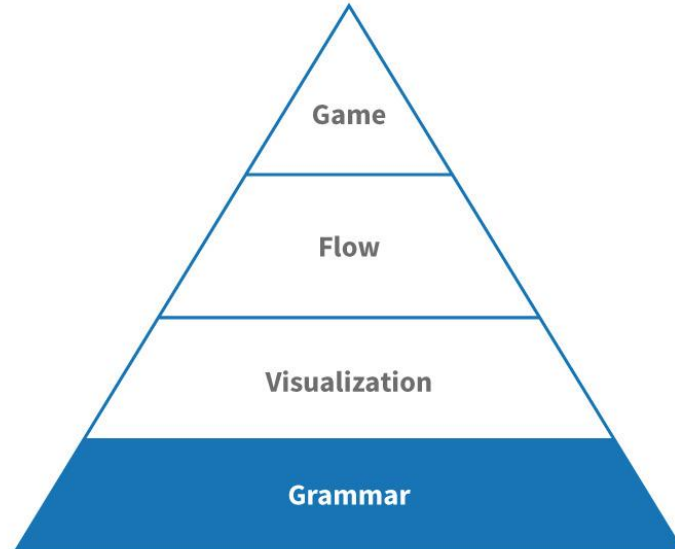
Only 8 objects and 9 actions can describe an entire EMR solution

How (practice)

Apply Semantic Interaction Design across all 4 modular **framework** levels



Layer 1- Grammar



Where do Objects and Actions come from?

Linguistic structure can be mapped to experience design as follows:

Language construct	UX construct	Example
Noun	Object	Box
Verb	Action	Copy
Adjective	Attribute	Color (Yellow)

Process



Define the
Objects and
Actions



Enumerate the
Attributes for every
Object



Prioritize the
object / action
pairs

Conversion of User Stories into conceptual model

Each story expresses a different user goal and can be easily analyzed to identify the nouns, verbs and adjectives the sentence contains.

“As a **parent** I want to **find** a **friendly** **dog** that will help teach my **children** to be responsible.”

“As an **elderly widow** living alone I want to **adopt** a **dog** for my **protection**”

“As a **runner** I need an **active** **dog** that can fit into my exercise routine”

“As a happy **owner** I want to **share** **photos** of my new **dog** with the **MatchDog** **community**”

“As a **pet lover** I would like to **donate** so **MatchDog** can grow its service and help others”

The sentences above are color coded as follows:

Noun > Object

Verb > Action

Adjective > Attribute

Do the math! – **7X difference** in cognitive load

Objects	Donate	Adopt	Join	Schedule	Share	Surrender
Animal	X	X		X	X	X
Money	X		X			X
Services	X			X		X
Info/Ed		X			X	
People		X		X	X	X
Events		X				
Calendar				X	X	X
Advocacy						
Community				X		
Organization		X		X	X	
Shop						

Table 4: A first-draft Object-Action matrix (too sparse and redundant)

Objects	Donate	Adopt	Schedule	Share	Learn
Dog	X	X	X	X	X
Owner	X	X	X	X	X
Organization	X		X	X	X
Money	X		X		

Table 5: Compact Object-Action matrix

Table 4 calculation: **Objects x Actions = 66**

Table 5 calculation: **Objects + Actions = 9**

9 divided by 66 is approximately 14% or **7.3X improvement**

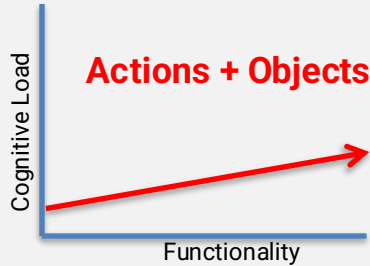
Figure out the Object Attributes!

Animal	Money	People	Services	Event
Species	Donation	Employee	Medical	type
Age	Sponsorship	Customer	Adoption	time
Breed	Volunteer	Board M.	Membership	place
Health	Vehicle	Vet	Volunteer	cost
Personality		Volunteer		duration
Exercise				attendees
Kids friendly				
Other pets				

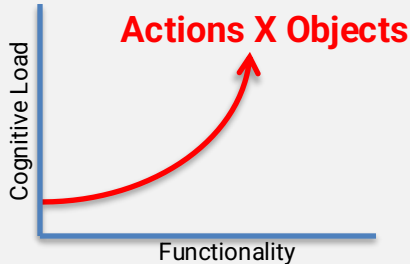
Attributes don't add significant cognitive load!

They rely on **recognition** not **recall** (the two types of human memory)

Use this knowledge immediately

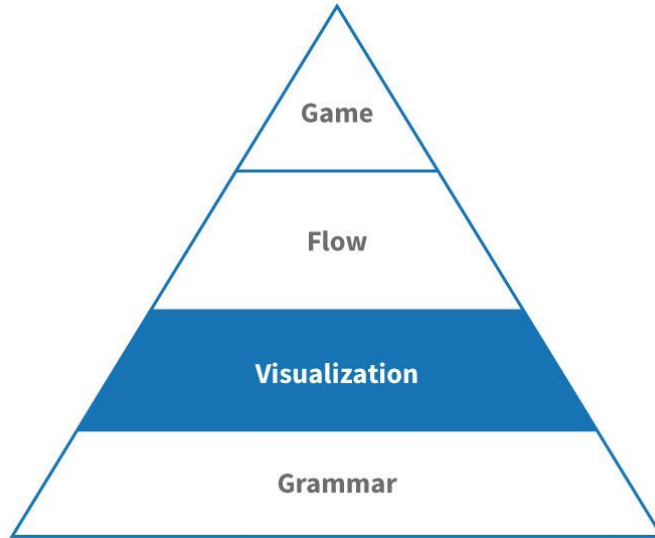


Versus

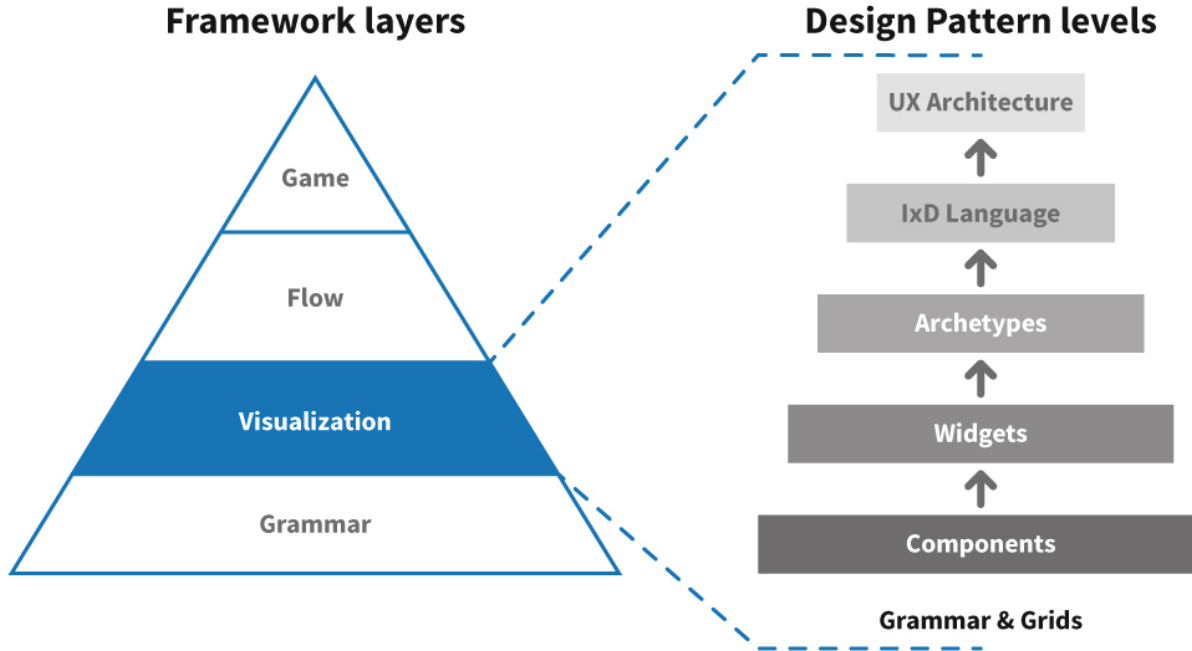


1. Alternative Heuristic **evaluation method**
 - assess cognitive load
 - find mismatches between user mental model and UX
2. UX **Design** method of new projects
 - Minimize screen count and complexity (increase quality)
 - Prioritize tasks before creating mocks (save time)
3. UX **Evolution** of existing products
 - Add features as new **attributes of existing objects**
 - Minimizes complexity
 - Slows growth of cognitive load (due to feature creep)

Layer 2 - Visualization



Visualization Deconstruction



All pattern levels are optimized to present and manipulate **actions, objects** and **attributes** in different ways

Building a Calendar Page UX

Components

Buttons
labels



Widget (little)

Grid
35 buttons
42 labels



Widget (bigger)

Change month icons
Show selection
"Today" button



Calendar Archetype Screen

Day/Week views
Add button
Search box
Color coding

1
2
S
M
T
W
T
F
S



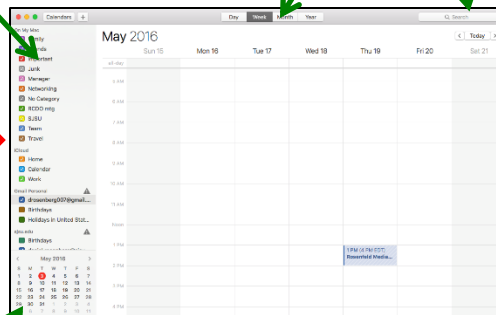
S	M	T	W	T	F	S
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3



December 2008

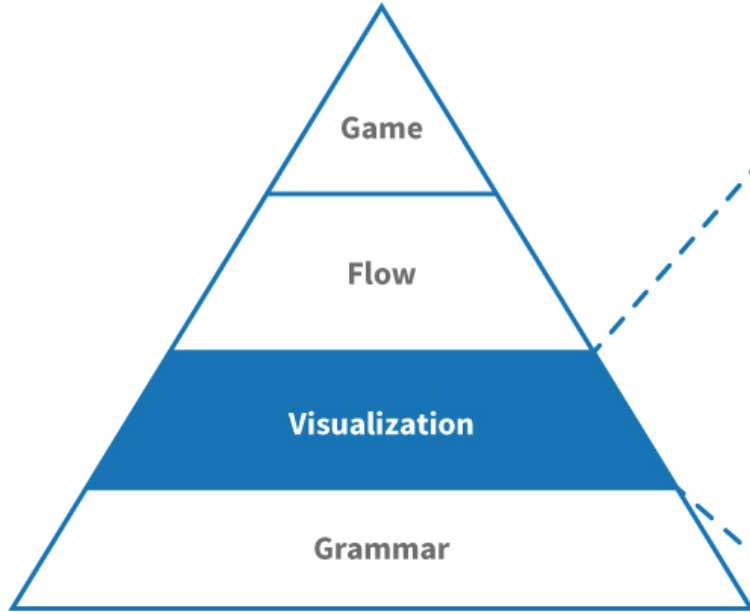
S	M	T	W	T	F	S
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

Select Today

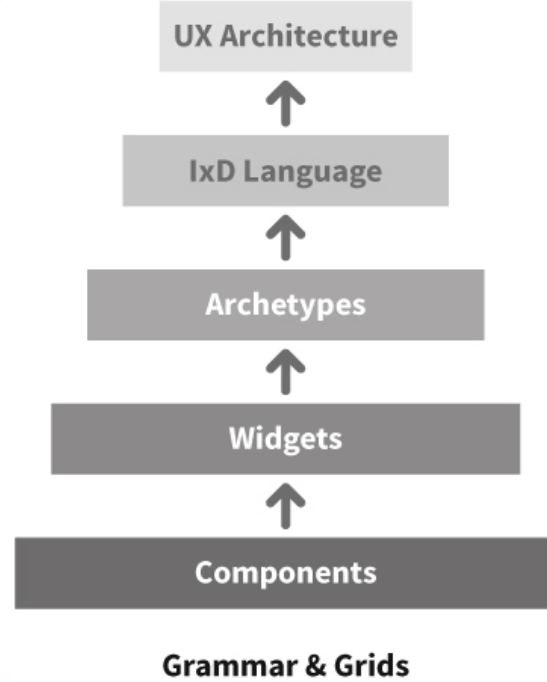


Visualization Deconstruction

Framework layers



Design Pattern levels



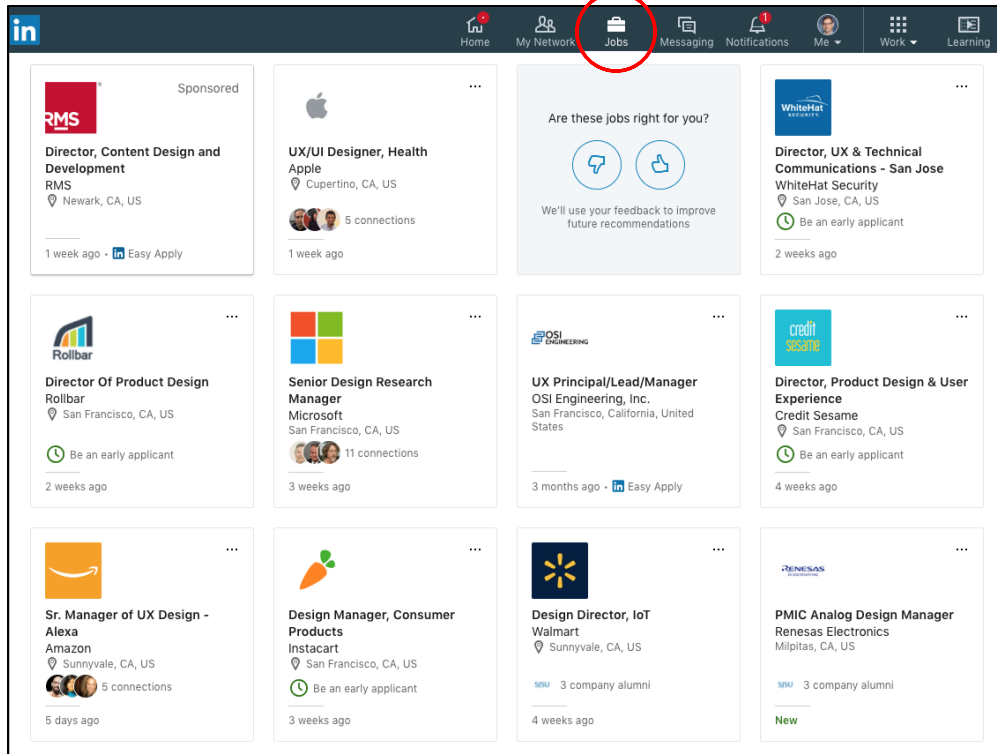


Component Patterns

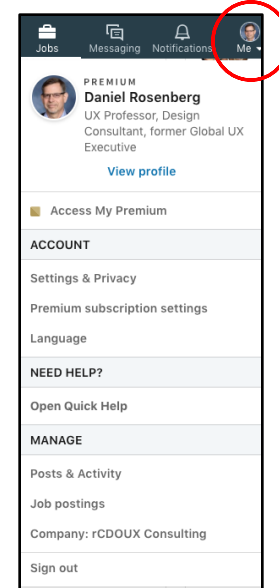
Name	Attribute	Action	Object	Logic/Behavior
Label	x	x	x	The name attribute of anything, in hypertext a navigate action
Radio button	X			Selection of on state within a set of many attributes
Toggle Button	X			On/off state for only one attribute
Checkbox	X			One of many states of given attribute
Drop list	X			A collection of attribute values
Combo box	X	X		A collection of attribute values with the action to add a new attribute in place
Value Slider	X			Point and click way to choose the numeric value of an attribute
Button		X		Click to execute action it represents
Hypertext link		X		Special case of button with only action to be view/navigate
Icon	x	X		Mostly for actions, some can show visual state
Field (value)	X			Type a value which represents an attribute (typically on of many) for a parent object
Text entry box	X		x	Mostly for annotation which is an attribute
Menu	x	X		Mostly for actions but sometimes change the state of an attribute
Tabs	x		X	Used for granular unit of division for functionality

Legend: X (Primary) x (Secondary)

Example – Menu as **Actions** versus **Objects**



Menu of Jobs (**Objects**)



Menu of **Actions** related to profile

Bad Example

Tabs = 2
Attributes
and 1
Action

The screenshot shows a Yelp interface with a red header. The search bar contains "Find tacos, cheap dinner, Max's" and "Near san jose, CA". Navigation links include Home, About Me, Write a Review, Find Friends, Messages, Talk, and Events. A message bar at the top has three buttons: "Inbox (1) Message", "Sent (0) Messages", and "Write New Message" (circled in blue). The main content area is titled "Your Review" and shows a conversation between Bill F. and Arian H. Arian H.'s review of Patxi's Pizza is shown with a 5-star rating and text: "Authentic Chicago style pizza! Honestly, the people that work here are SO nice, specially the manager Ben! I've been here twice (once in the store, once delivery) and both times the guys were genuinely nice, chatty, and helpful. Another bonus about this place is they're open late! Awesome! Oh... and the pizza, pasta, garlic twists are great too! Strongly recommended." Bill F.'s response says: "Hello Arian - thanks for the 5-stare review! We don't offer pasta or garlic twists at Patxi's; maybe you have us mixed up with another restaurant? We do have great manager named Ben, though!". At the bottom, there is a "Reply Now" button, a note that the owner cannot message until the review is updated, and a "Delete" link. The footer contains links for About, Help, More, Languages, and Countries.

yelp Find tacos, cheap dinner, Max's Near san jose, CA

Home About Me **Write a Review** Find Friends Messages Talk Events

Inbox (1) Message Sent (0) Messages **Write New Message**

Your Review Prev | Next
Between Bill F. and Arian H. Page Bottom ↓

Arian H.
Your review of Patxi's Pizza
★★★★★ 1 year ago
Authentic Chicago style pizza!
Honestly, the people that work here are SO nice, specially the manager Ben! I've been here twice (once in the store, once delivery) and both times the guys were genuinely nice, chatty, and helpful. Another bonus about this place is they're open late! Awesome! Oh... and the pizza, pasta, garlic twists are great too! Strongly recommended.

Bill F. **Owner** 1 year ago
Block & Report Owner
Hello Arian - thanks for the 5-stare review! We don't offer pasta or garlic twists at Patxi's; maybe you have us mixed up with another restaurant? We do have great manager named Ben, though!

Reply Now Page Top ↑

This owner cannot message you until you reply or update your review. Prefer not to be contacted by owners?

Delete Flag this conversation

About
About Yelp
Yelp Blog
Press
Investor Relations
Terms of Service
Privacy Policy

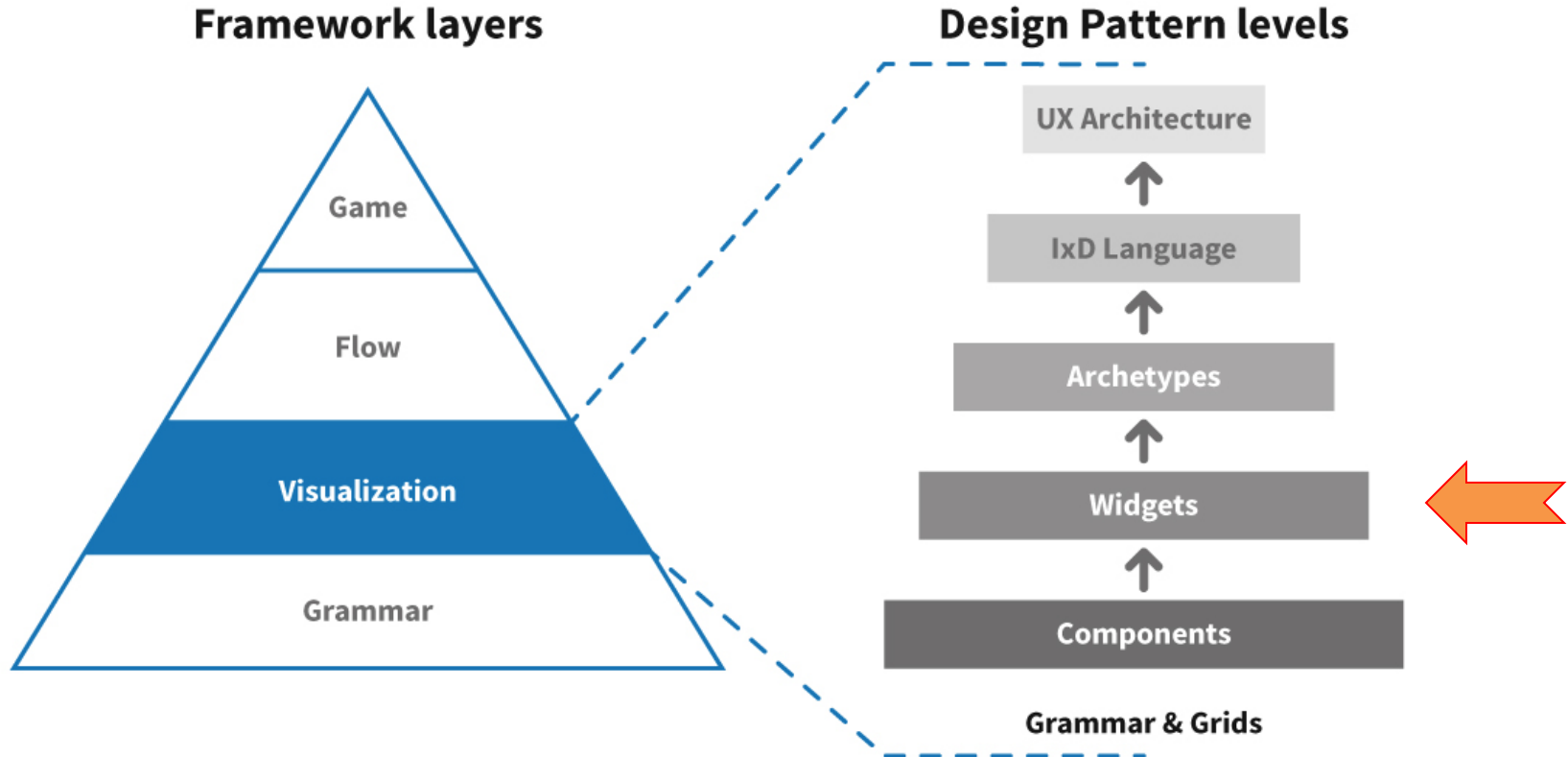
Help
FAQ
Advertise
Content Guidelines
Contact Yelp
Business Support
Developers

More
Careers
Yelp Mobile
The Weekly Yelp
Yelp SeatMe
RSS
Top Searches

Languages
English

Countries
United States

Visualization Deconstruction

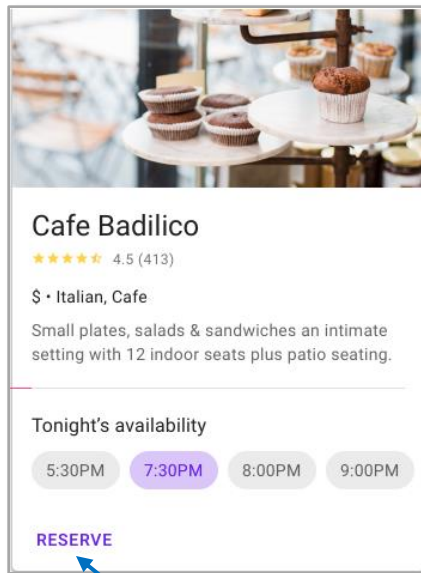




Widget Patterns

Name	Attribute	Action	Object	Logic/Behavior
List			X	Table with one column (can be horizontal like a Carrousel or Cover flow)
Table	x		X	Table itself or each row can be an object
Tree control			X	Represents hierarchy of Object
H-Grid				Combination of tree and table, so set attributes be shown as well
Master-detail	X		X	Combination of list of objects and its attributes or Attributes and sub-attributes
Form	x		X	Logically represents an object, fields and controls inside are attributes
Card	x		X	Expanding (Detail)/Collapsing (Summary) element used for a series of object.
Chat box		x	X	Conversation is an object as are the people you have it with
Filter panel	X	X		Uses the action of turning on/off specific attributes to filter data
Shuttle control			X	Two list boxes side by side that allow the selection of objects
Picker	X			Visual palette for colors, fonts, shadow and other visual attributes
Wizard	x	X		Context maybe one object, purposes is to set attributes and commit on final action
Property sheet	X			Container of attributes of given object type
Leader board	X		X	Gamification list of object (people or avatars) sorted in top to worst order
Media control		X		Stop, start, fast forward audio or video

Card Control – Semantic error example



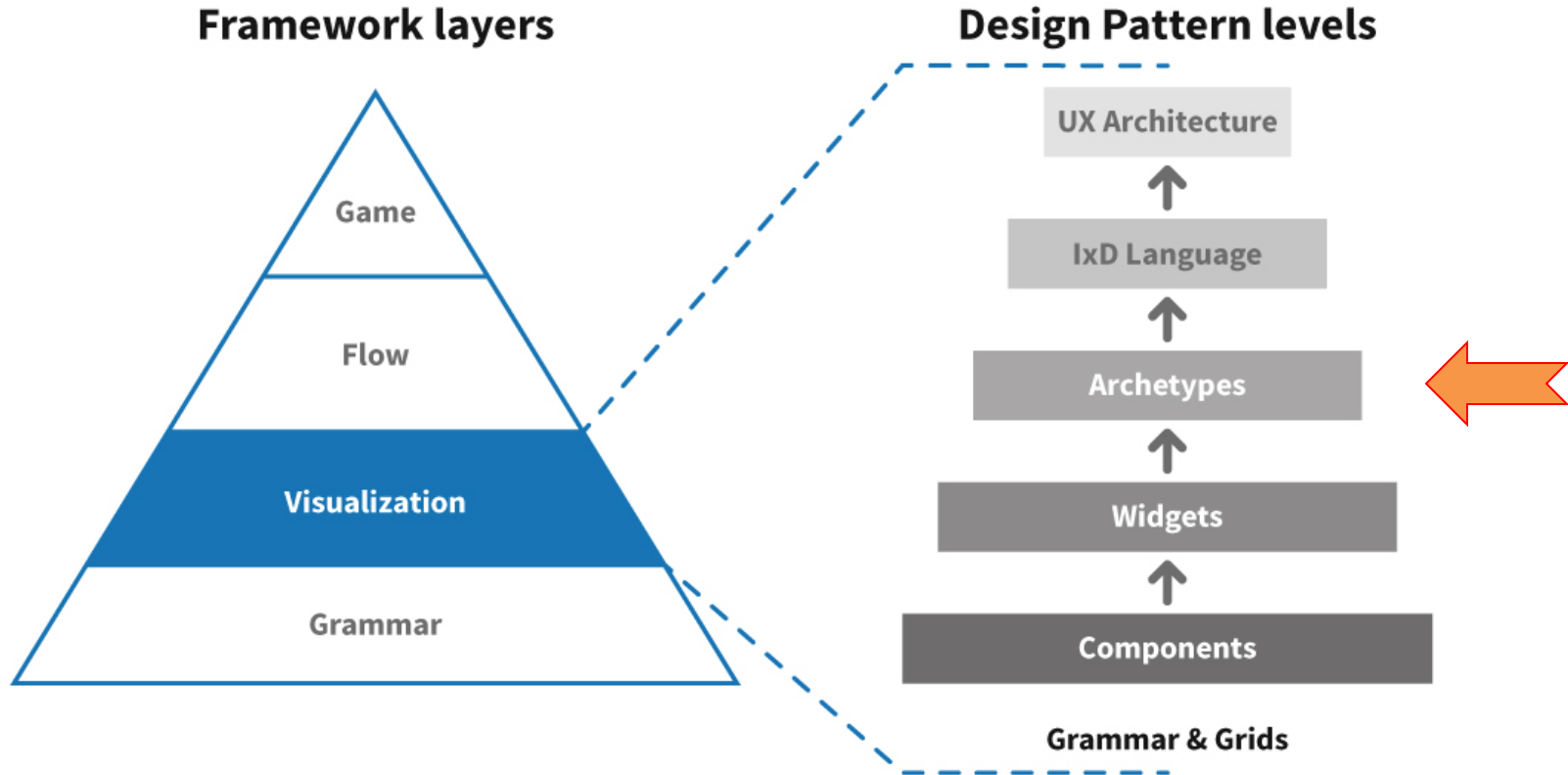
Local action
(CM transactional)

Many attributes inside card



Local action
(not grammar relevant)

Visualization Deconstruction





Screen Archetype Patterns

Name	Attribute	Action	Object	Logic/Behavior
Menu page		x	X	Object usage can have implicit or explicit selection, to display actions mostly a list
Catalog	X	X	X	Select item to purchase (put in cart)
Funnel	X	X	X	eCommerce "Shopping Cart" to pay and ship. As seen in tax preparation apps.
Desktop	X	X	X	Select item to object to open/run
Portal	X		X	iFrames represent object, content within attributes
Workflow	X	X	X	Multiple step process spanning a single object, actions and attributes embedded
Social	X	x	x	Organized content over time, mostly attributes of people, people are the object
Container organizer	X		X	Master-Master level for object, detail are content of object plus search and create
Tool & Canvas	X	X	X	Objects in canvas, (could be simple box or full engineering CAD drawing)
Workspace	X	X	X	Combines editors, prop sheet and toolbars
Administration tool	X	X	X	Object on the left in hierarchy, props on right
Dashboard	X		X	Frames represent objects, content inside are attributes, filters in panels or toolbars
Report	X		X	Report is the parent object, content is attributes of same
Calendar	X	x	X	Representation of time in a grid or linear layout (top to bottom or left to right)

Legend: X (Primary) x (Secondary)

Archetype: Social (Feed and suggestions)

The image shows a screenshot of a Facebook social feed interface. The interface is divided into several sections:

- Left Sidebar (Navigation):** Contains navigation options such as News Feed, Messenger, Watch, Marketplace, Shortcuts (SJSU HFES), Explore (Groups, Pages, Events, Fundraisers, Saved), and Create (Ad, Page, Group, Event, Fundraiser).
- Top Bar (Global Actions):** Includes a search bar, user profile (Daniel), Home button, Find Friends, and notification icons.
- Center Feed (Feed Widget):** The main content area containing:
 - A "Create Post" section with a text input "What's on your mind, Daniel?" and options for Photo/Video, Tag Friends, and Feeling/Activ...
 - A post by Pinkie Hansen: "Today is the 15th anniversary of my kidney transplant. Thanks to Lyle for donating my gift of life. I am so blessed to have such a wonderful support system of family and friends." with 38 comments.
 - Comments from Barbara Kenyon, Pinkie Hansen, Margery Irvin, and Gary Hess.
 - A "Write a comment..." input field at the bottom.
- Right Sidebar (Local Actions):** Contains:
 - "Stories" section with "Add to Your Story" button.
 - "Suggested Groups" section with "BOND...JAMES BOND" (4,548 members) and "Bluegrass Music Trade and Swap" (7,555 members).
 - "Friend Requests" section with "See All" link.

Annotations on the left side of the image identify components:

- Objects:** Points to the left sidebar navigation.
- Action:** Points to the "Create Post" section.
- Attribute filters:** Points to the "Explore" section.
- Actions:** Points to the "Create" section.

Annotations on the right side of the image identify components:

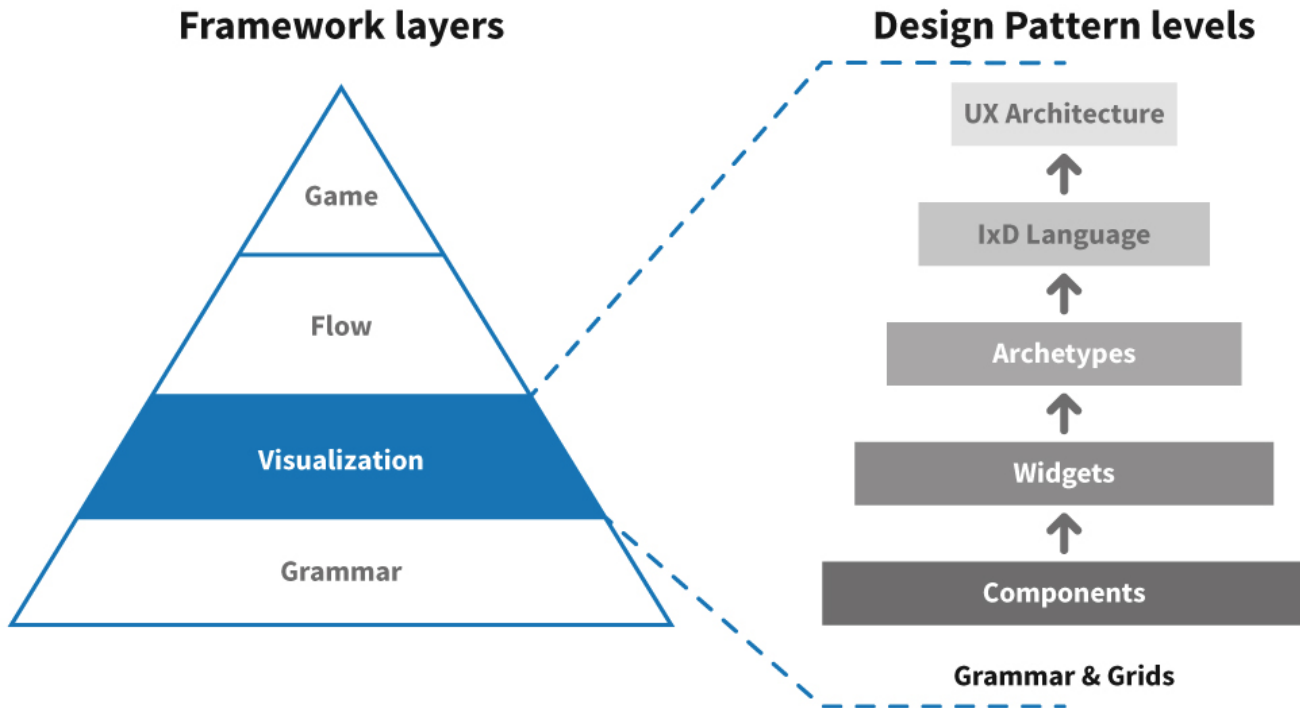
- Global Actions:** Points to the top bar.
- Local Actions:** Points to the "Add to Your Story" button, "Join" buttons for groups, and "See All" links.

Additional annotations within the feed include:

- Object:** Points to the post title "Object".
- Content = Attribute:** Points to the comment section.

At the bottom center, the text "Feed Widget in the center" is displayed.

Visualization Deconstruction



Medical Interaction Design Language examples – IA at multiple UX layer

1. Behavior the **Appointment Object** inside different archetypes
2. Consistent use of the **Void Action** to remove errors

A day in the life of...

EMR Conceptual Model

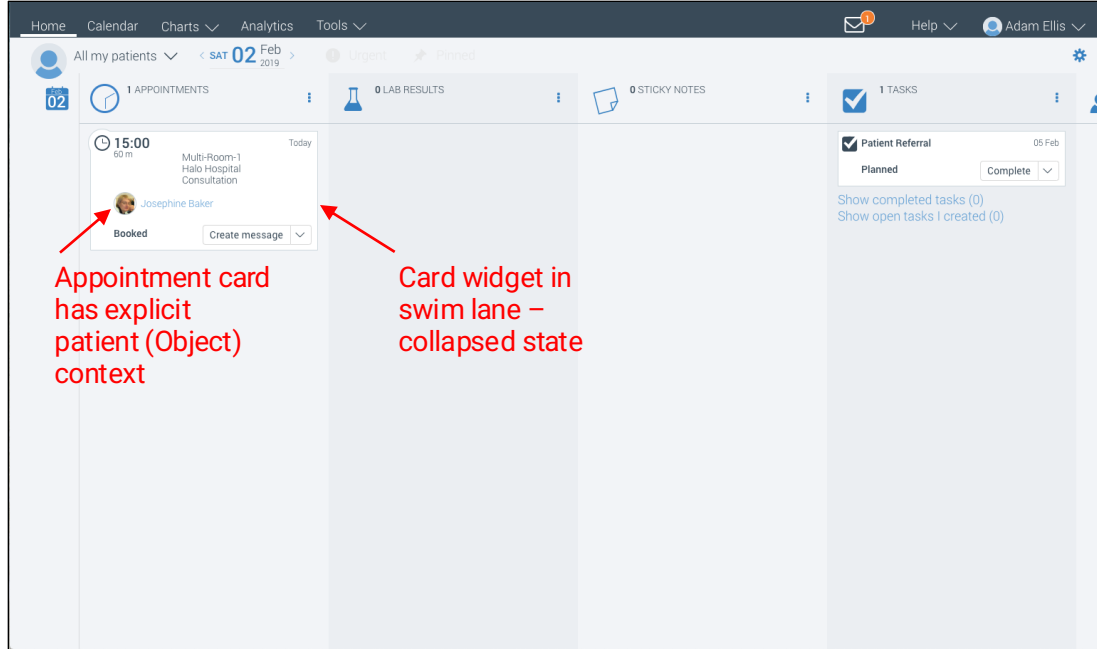
Application IA



	Create	Update	Void	Accept	Reject	Delegate	Approve	Refer	Transfer
Patient	X	X		X	X			X	X
Medical record	X	X	X	X	X	X	X	X	X
Treatment plan	X	X	X	X	X	X	X		X
Appointment	X	X	X			X		X	
Task	X	X	X	X	X	X	X	X	
Messages	X	X	X			X		X	X
Note	X	X				X		X	X
Care team	X	X				X	X	X	X

Only 8 objects and 9 actions can describe an entire EMR solution

Interaction Design Language: Object Example - Appointment

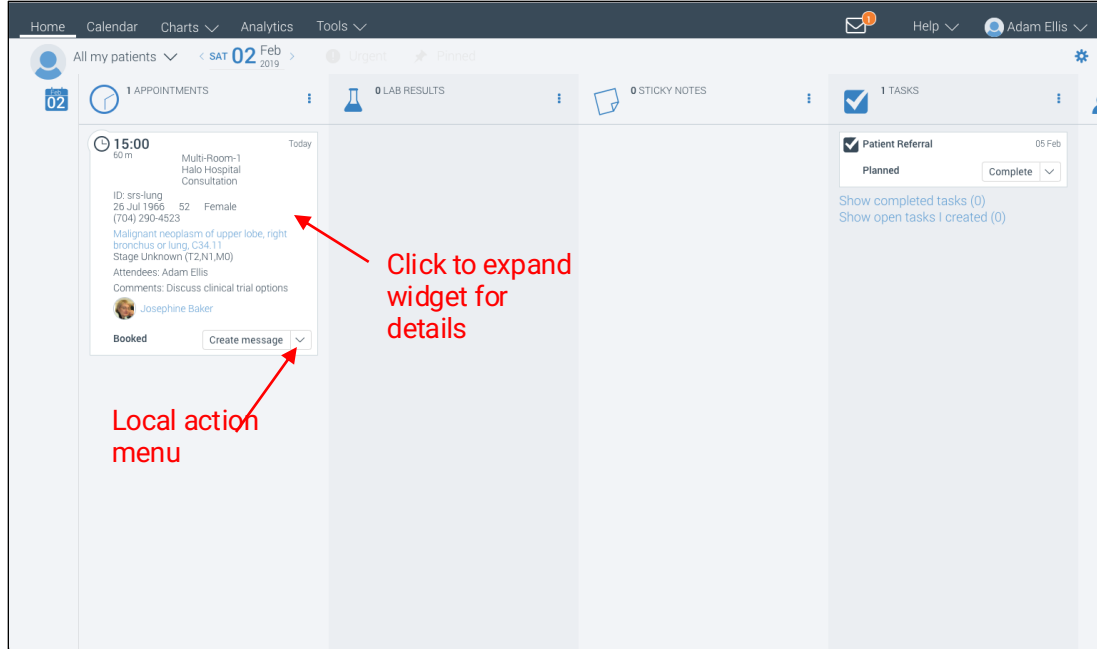


Appointment card has explicit patient (Object) context

Card widget in swim lane – collapsed state

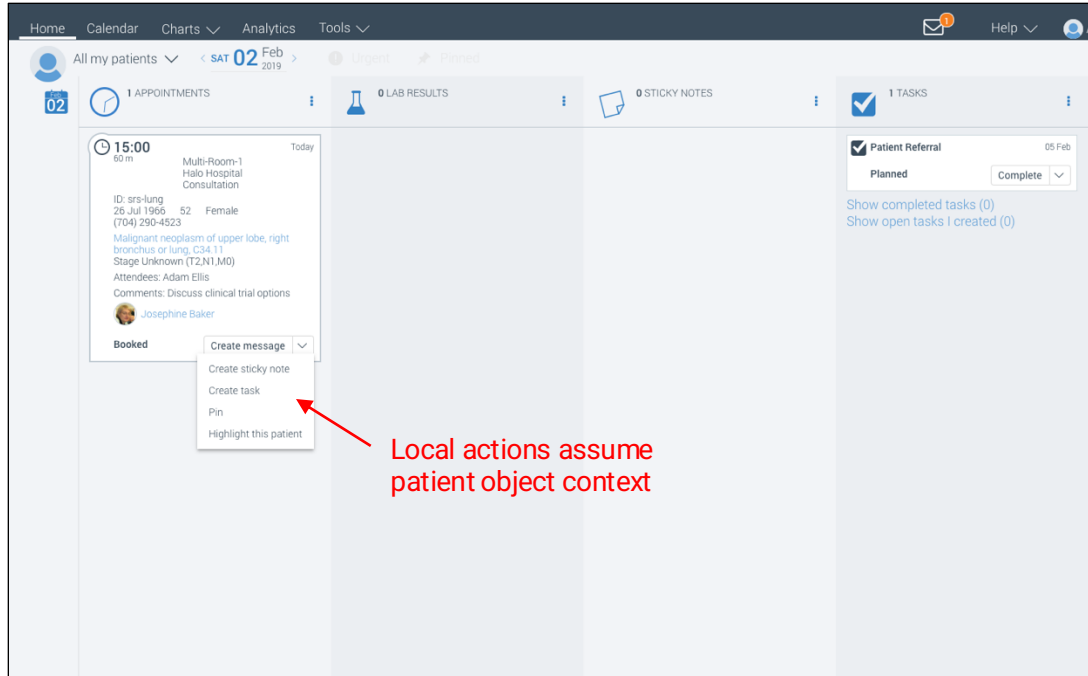
Swimlane Archetype Pattern

Interaction Design Language: Object Example - Appointment



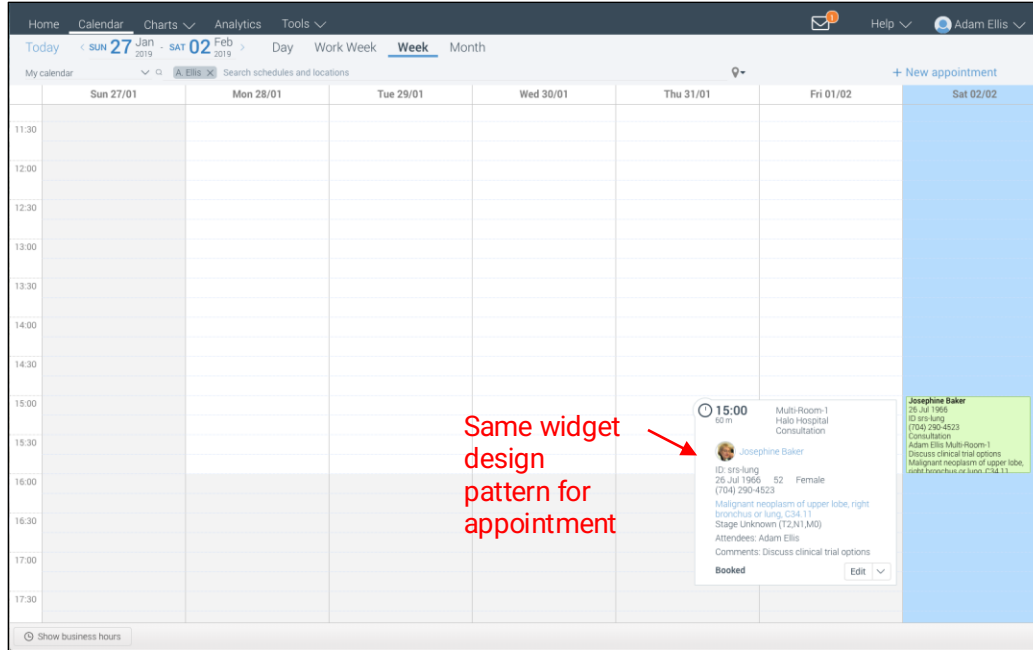
Swimlane Archetype Pattern

Interaction Design Language: Object Example - Appointment



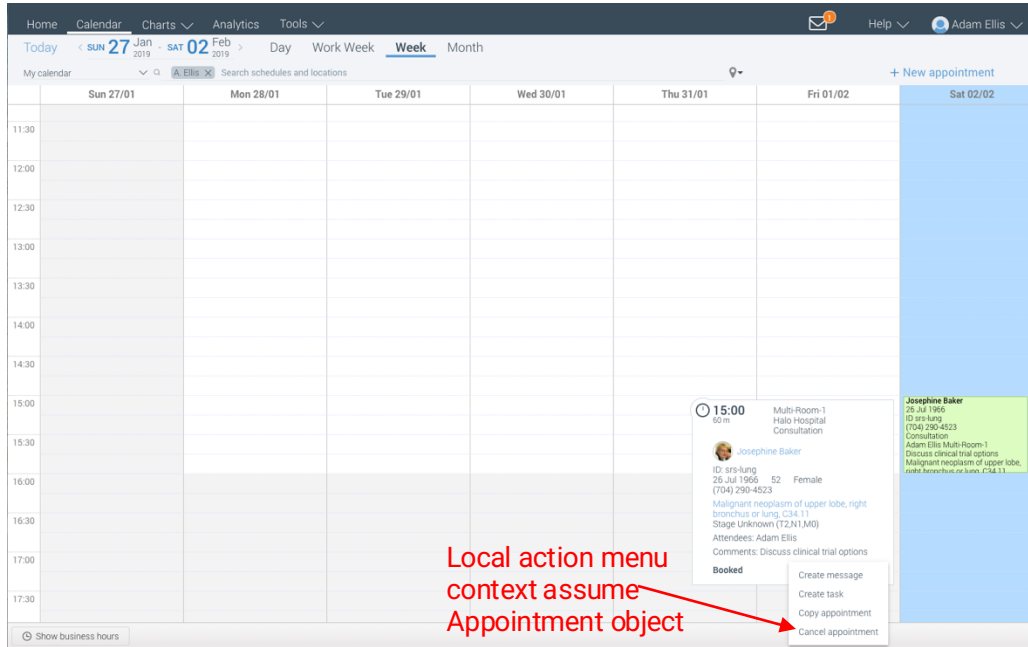
Swimlane Archetype Pattern

Interaction Design Language: Object Example - Appointment



Calendar Archetype Pattern

Interaction Design Language: Object Example - Appointment



Local action menu
context assume
Appointment object

Calendar Archetype Pattern

Interaction Design Language: Object Example - Appointment

The screenshot displays a patient portal for Josephine Baker, a 62-year-old female with a diagnosis of malignant neoplasm of the upper lobe, right bronchus or lung. The interface includes a navigation bar with tabs for Summary, Diagnosis, Documents, Journal Notes, Forms, Reviews, Patient Health, Treatment, Imaging, CarePulse, Survivorship Demo, Patient Information, and Patient Insi. A timeline at the top shows dates from 2019 Jan 9 to 2019 Feb 15. Below the timeline are three main content areas: Diagnosis, Radiotherapy treatment, and Lab results. The Radiotherapy treatment section is divided into Right Lung and Mediastinum, each with a table of treatment details. The Lab results section shows a Creatinine test on 29 Jan. The Appointments section shows a 15:00 appointment on 29 Jan at Multi-Room-1, Habo Hospital.

Diagnosis

Primary: Malignant neoplasm of upper lobe, right bronchus or lung
Stage Unknown (T2N1M0)

Radiotherapy treatment 1 course(s)

RT - Active - 09 Jan 2019

	Fractions	cGy
Total	33	6600.0
Delivered	15	3000.0
Remaining	18	

RxDose/Fraction: 200 (cGy)
Elapsed Days: 21

Frequency:
First Treatment: 09 Jan 2019
Last Treatment: 29 Jan 2019

	Fractions	cGy
Total	33	1980.0
Delivered	15	900.0
Remaining	18	

RxDose/Fraction: 60 (cGy)
Elapsed Days: 21

Frequency:
First Treatment: 09 Jan 2019
Last Treatment: 29 Jan 2019

Lab results

Creatinine 29 Jan

3 more

Appointments

15:00 60 m Today

Multi-Room-1
Habo Hospital
Consultation

Malignant neoplasm of upper lobe, right bronchus or lung, C34.11
Stage Unknown (T2N1M0)
Attendees: Adam Ellis
Comments: Discuss clinical trial options

Booked

Next upcoming appointment summary in widget

Portal Archetype Pattern

Conceptual model

Application IA



	Create	Update	Void	Accept	Reject	Delegate	Approve	Refer	Transfer
Patient	X	X		X	X			X	X
Medical record	X	X	X	X	X	X	X	X	X
Treatment plan	X	X	X	X	X	X	X		X
Appointment	X	X	X			X		X	
Task	X	X	X	X	X	X	X	X	
Messages	X	X	X			X		X	X
Note	X	X				X		X	X
Care team	X	X				X	X	X	X

Only 8 objects and 9 actions can describe an entire EMR solution

Interaction Design Language: Action

Example – Void Data

The screenshot shows an EMR interface for a patient named Erna McDougall. The 'Diagnosis' tab is active, displaying a list of diagnoses. The 'Include voided' checkbox is highlighted with a red circle. A dropdown menu is open for the first diagnosis, 'Malignant neoplasm of prostate', showing options: 'Recurrence', 'Metastasis', and 'Void diagnosis'. A red arrow points from the text 'Void action – removes mistake. Data is never “deleted” in an EMR for forensic reasons' to the 'Void diagnosis' option.

Erna McDougall | 26 Jul 1966 (52) Female | Malignant neoplasm of prostate | + New for Erna

Summary | **Diagnosis** | Documents | Journal Notes | Forms | Reviews | Patient Health | Treatment | Imaging | CarePulse | Survivorship Demo | f >

Active ▾ | All ▾ | Include voided | + Add

30 Jan 2019
Malignant neoplasm of prostate
Approved: Staff Entry
Active

30 Jan 2019
Intraductal carcinoma in situ of unspecified breast
Stage Unknown
Approved: Staff Entry
Active

Recurrence
Metastasis
Void diagnosis

Void action – removes mistake. Data is never “deleted” in an EMR for forensic reasons

Canvas Archetype Pattern

Interaction Design Language: Action Example – Void Data

The screenshot displays a medical diagnosis interface for a patient named Erna McDougall. The patient's details include a date of birth of 26 Jul 1966 (52) Female and a medical record number of 00IGRT_210. The current diagnosis is 'Intraductal carcinoma in situ of unspecified breast' with a 'Stage Unknown'. The interface features a navigation bar with tabs for Summary, Diagnosis, Documents, Journal Notes, Forms, Reviews, Patient Health, Treatment, Imaging, CarePulse, and Survivorship Demo. Below the navigation bar, there are filters for 'Active' and 'All', and a checked 'Include voided' checkbox. A red arrow points to this checkbox with the text 'View control checked'. Two diagnosis cards are visible: one for 'Malignant neoplasm of prostate' dated 29-Jan-2019 and another for 'Intraductal carcinoma in situ of unspecified breast' dated 30 Jan 2019. A red arrow points to the word 'Active' in the first diagnosis card with the text 'Strikeout visualization for void data'.

Canvas Archetype Pattern

Interaction Design Language: Action Example – Void Data

The screenshot shows a medical record interface for a patient named Erna McDougall. The patient's details include a birth date of 26 Jul 1966 (52) Female and a medical ID of 00IGRT_210. The current diagnosis is 'Intraductal carcinoma in situ of unspecified breast, Stage Unknown'. The interface has a navigation bar with tabs for Summary, Diagnosis (selected), Documents, Journal Notes, Forms, Reviews, Patient Health, Treatment, Imaging, CarePulse, and Survivorship Demo. Below the navigation bar, there are filters for 'Active' and 'All', and a checkbox for 'Include voided' which is currently unchecked. A red arrow points to this checkbox with the text 'View control not checked'. A diagnosis card is visible on the left, showing the date '30 Jan 2019', the diagnosis name, and the status 'Active'. A red annotation next to the card reads 'Voided Diagnosis card widget removed from canvas'. A '+ Add' button is located in the top right corner of the main content area.

Canvas Archetype Pattern

Interaction Design Language: Action Example – Void Data

The screenshot shows a medical diagnosis card for a patient named Erna McDougall. The card is titled 'Intraductal carcinoma in situ of unspecified breast' and is dated 30 Jan 2019. The 'Staging' tab is selected, showing a 'Stage Unknown - 30 Jan 2019' entry. A 'Void this stage' action is visible next to the stage information. The card also displays a 'Distant Metastasis (M)' section with radio button options for M0, M0(+), and M1. The 'M1' option is selected. The card has a 'Save' button and a 'Cancel' button at the bottom.

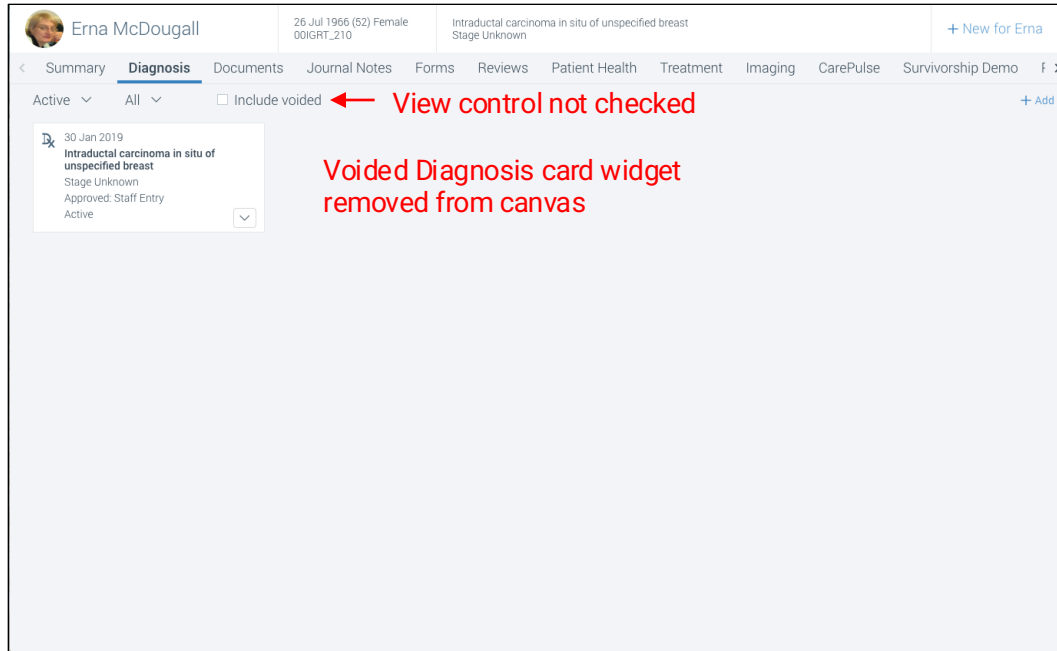
Two level tab widget embedded inside card widget

Void action can be applied to individual attributes at a detailed level within the diagnosis

Side note: Click to expand card "implicit action" behavior is identical to appointment card widget

Canvas Archetype Pattern

Interaction Design Language: Action Example – Void Data



Canvas Archetype Pattern

Interaction Design Language: Action Example – Void Data

Erna McDougall | 26 Jul 1966 (52) Female 00IGRT_210 | Intraductal carcinoma in situ of unspecified breast Stage Unknown | + New for Erna

< Summary Diagnosis **Documents** Journal Notes Forms Reviews Patient Health Treatment Imaging CarePulse Survivorship Demo F >

Documents (8) Include voided ← Same action design pattern + Upload

Document name	Date of service	Category	Added by	Status	Tags
Imaging Report	30 Jan 2019	Imaging Report	ssidesh ssidesh		
Survivorship care plan	30 Jan 2019	Survivorship	Erna McDougall		
Breast_Treatment_Binder	30 Jan 2019	DOCUMENT	Erna McDougall		
Survivorship care plan	30 Jan 2019	Survivorship	Erna McDougall		
Breast_Guideline	30 Jan 2019	GUIDELINE	Erna McDougall		
breast_pathology_report	30 Jan 2019	Pathology Report	Erna McDougall		
breast_pathology_slide_2	30 Jan 2019	Pathology Slides	Erna McDougall		
breast_pathology_slide_1	30 Jan 2019	Pathology Slides	Erna McDougall		

Menu (list) Archetype Pattern

Interaction Design Language: Action Example – Void Data

Erna McDougall | 26 Jul 1966 (52) Female | Intraductal carcinoma in situ of unspecified breast
00IGRT_210 | Stage Unknown | + New for Erna

< Summary Diagnosis Documents **Journal Notes** Forms Reviews Patient Health Treatment Imaging CarePulse Survivorship Demo f >

Show all Include voided ← Same action design pattern + Add

02 Feb 2019 14:17

Adam Ellis
Test note number 2 Edit

02 Feb 2019 14:17

Adam Ellis
Test note number 1 Edit
Void

Local action menu

Social (Clinical Notes - Feed) Archetype Pattern

Interaction Design Language: Action Example – Void Data

The screenshot displays a clinical notes interface for a patient named Erna McDougall. The interface includes a header with patient information and a navigation menu. The main content area shows a list of notes under the 'Journal Notes' tab. Two notes are visible, both dated 02 Feb 2019 14:17. The first note is by Adam Ellis and contains the text 'Test note number 2'. The second note is also by Adam Ellis and contains the text 'Test note number 1', which is struck through with a red line. Annotations in red text and arrows highlight specific design elements: 'Same action design pattern' points to the 'Include voided' checkbox; 'Strikeout visualization for void data' points to the red line through the text; and 'Local action menu disabled rule' points to a disabled 'Edit' button.

Erna McDougall | 26 Jul 1966 (52) Female | 00IGRT_210 | Intraductal carcinoma in situ of unspecified breast | Stage Unknown | + New for Erna

< Summary Diagnosis Documents **Journal Notes** Forms Reviews Patient Health Treatment Imaging CarePulse Survivorship Demo f >

Show all Include voided **Same action design pattern** + Add

02 Feb 2019 14:17

Adam Ellis
Test note number 2 Edit

02 Feb 2019 14:17

~~Adam Ellis~~
~~Test note number 1~~ **Strikeout visualization for void data**

Local action menu disabled rule

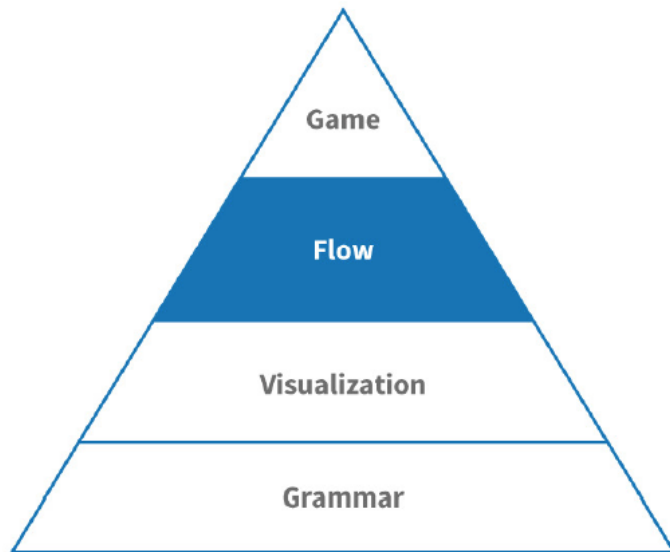
Social (Clinical Notes - Feed) Archetype Pattern

Who: **Digital Natives** recognize Interaction Design patterns

- **5B of the 7.7B** people on earth interpret GUI design patterns as Actions and Objects (Interaction Design Grammar)
 - Thanks to the internet and smart phone global penetration
- **The other 2.7B** whether **literate or not...**
 - Must linguistically associate physical world metaphors with on screen **objects and actions** to participate in HCI
 - They will be (self) taught based on their own natural language of **nouns and verbs** to understand what any new tool can do

99% of the digital product and service economy are in the first 5 Billion

Layer 3 - Flow



Use today:

Are you **minimizing the number of steps and screens** across all your entire product system?

Actions propel Objects through Flow

Actions

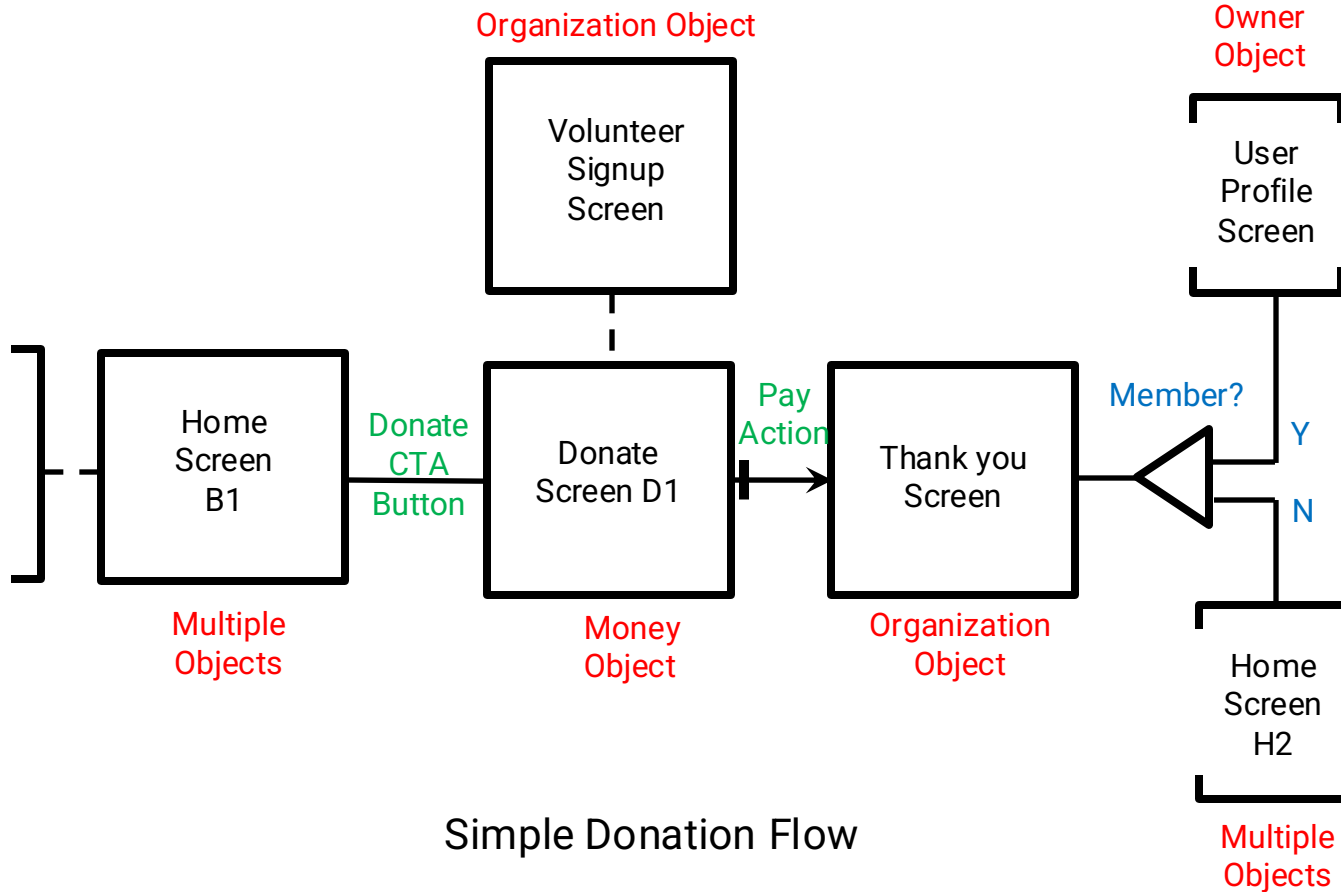
Objects	Donate	Adopt	Schedule	Share	Learn
Dog	X	X	X	X	X
Owner	X	X	X	X	X
Organization	X		X	X	X
Money	X		X		

Most BOXES will represent **OBJECTS**

Most LINES will represent **ACTIONS**

Simple Donation Flow

Actions propel Objects through Flow



DANIEL ROSENBERG

UX MAGIC

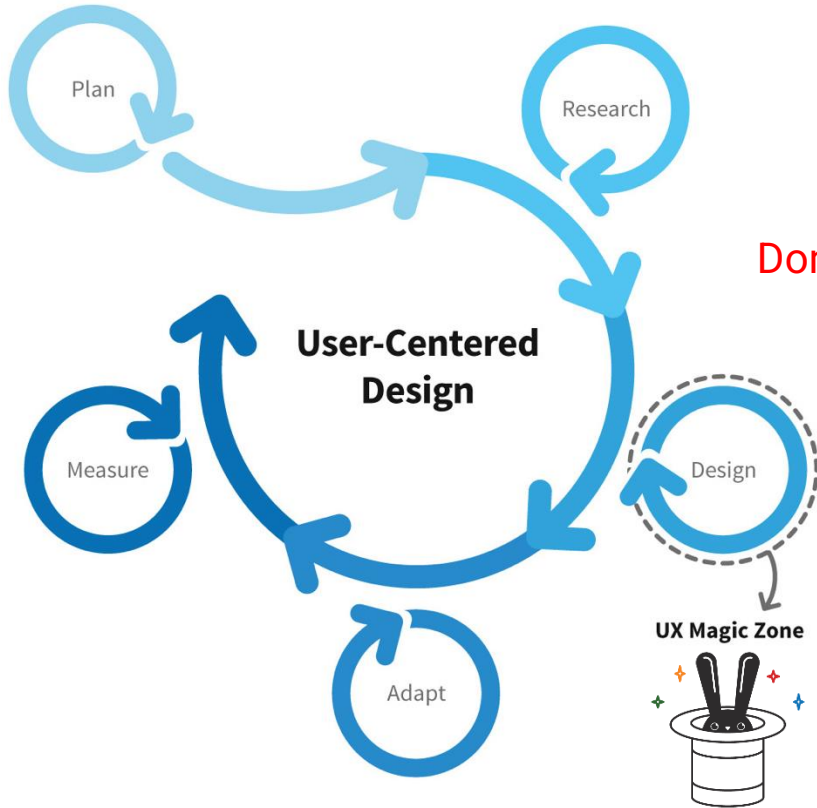


INTERACTION DESIGN
FOUNDATION

Semantic Interaction Design is a foundational method for building digital experiences with the **lowest cognitive load** (highest degree of usability)

This method leverages directly maps an applications functional taxonomy into both an information architecture and UX visualization patterns.

Semantic IxD – **Only Interaction Design** step



Don't forget to do the other UCD Steps!

The End – Q&A