

# Design & Prototypage

James Eagan

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Ce cours a été développé en partie par des membres des départements IHM de Georgia Tech et Télécom ParisTech. La liste de contributeurs inclut Gregory Abowd, Al Badre, James Eagan, Jim Foley, Elizabeth Mynatt, Jeff Pierce, Colin Potts, Chris Shaw, John Stasko, et Bruce Walker. Ces matériaux peuvent être utilisés avec attribution pour des buts non-lucratifs.

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## Add/Update Shipping Information

**We found an error while verifying your shipping address.**

We've marked the problem in red for you.

Update the address book of

Required information is marked in **GREEN CAPS**.

[HELP](#) for questions about shipping.

**NICKNAME:**

MYSELF

Please assign a "nickname" for the person you're shipping to.  
You may change or delete this information at any time.

**FIRST NAME:**

DOUGLAS

**MIDDLE INITIAL:**

**LAST NAME:**

**ADDRESS:**

245 SAN JOSE RD

(International use only)

**CITY:**

LOS GATOS

**STATE/PROVINCE:**

California

Includes APO and FPO. Use "Other" if country is not USA or Canada.

**ZIP/POSTAL CODE:**

95333

**COUNTRY:**

Select a country

**SHIPPING METHOD:**

In the U.S.: [HELP](#)

Standard UPS

(2 business days plus

International: [HELP](#)

Canada Canada Post

(4-10 business days)



# Usability Principles

- Many different kinds
  - No cookbooks, checklists, magic recipes
  - Shneiderman, *Designing the User Interface*
  - Dix, Finlay, Abowd, Beale, *Human-Computer Interaction*



# Usability Principles

- Learnability
  - Support for learning for users of all levels
- Flexibility
  - Multiple ways for performing tasks
- Robustness
  - Support recovery

# Learnability

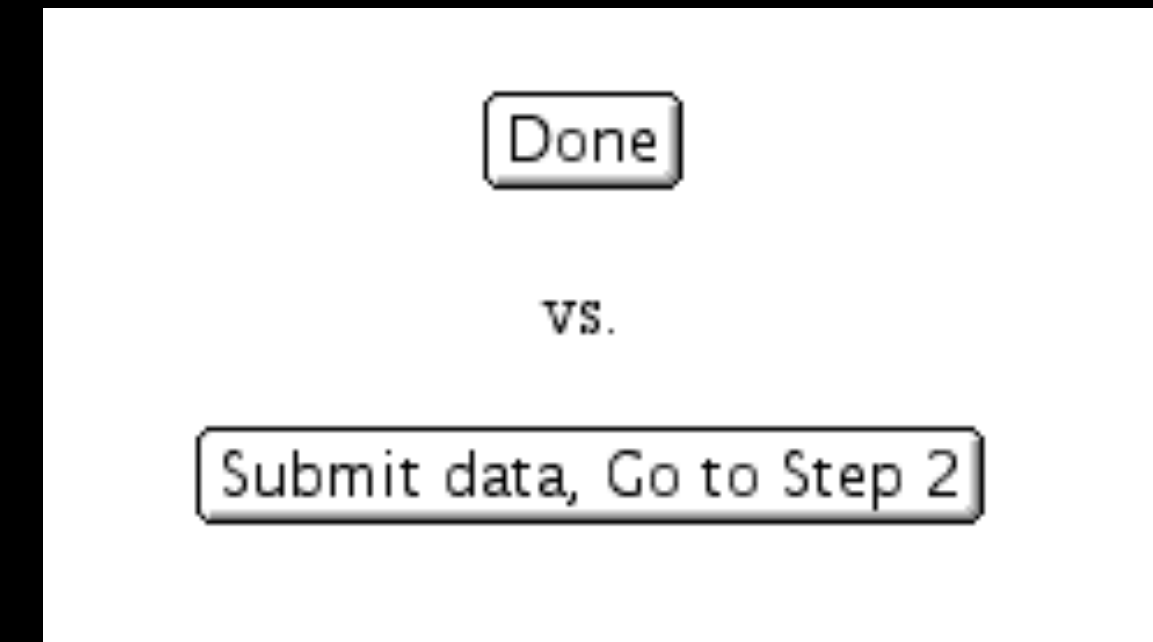
- Ease with which new users can begin effective interaction
- Performance improvement from session to session
- Principles
  - Predictability, Synthesizability, Familiarity, Generalizability, and Consistency

# Recognition over Recall

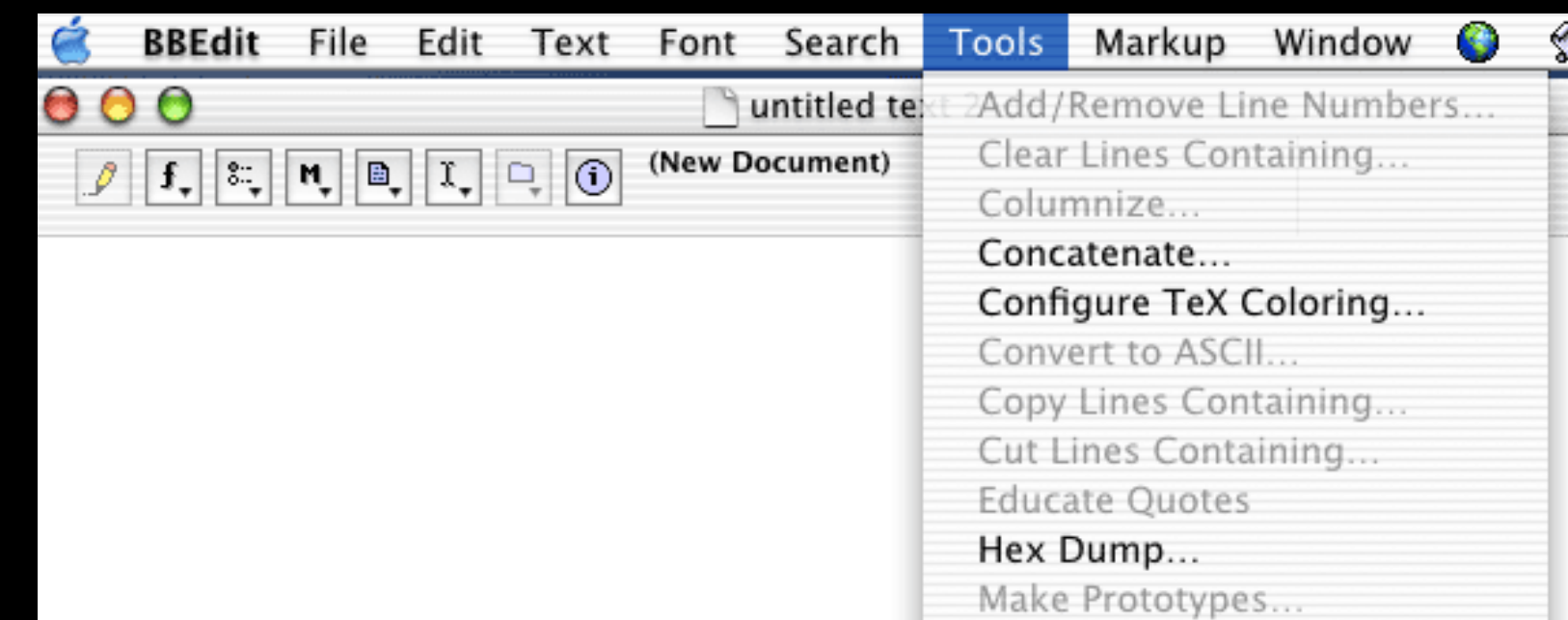
The image shows a screenshot of the iLike website. At the top left, the logo "iLike." is followed by the text "/ Rate artists". A search bar on the top right contains the placeholder text "Enter an artist or song name here". Below the logo, the user "Hi Anders T" is logged in. The main heading is "Tell us which artists you like", with a subtext: "We'll recommend you new music and calculate your music compatibility with your friends on iLike. The more artists you rate, the better." A grid of artist cards is displayed, each with a photo and an "iLike" button. The visible artists are Thievery, Carrie Underwood, Keith Urban, Leona Lewis, Radiohead, and The Beatles. A modal window from Last.fm is overlaid on the right side, featuring a "Hi uipatens" header, a "Welcome to Last.fm" message, a text input field with the instruction "To get started, type in some of your favourite artists, separated with commas.", a "Save" button, and a "Get music recommendations based on the music in your library." section with a "Download the Scrobber" link and icons for iTunes, Last.fm, and other services. The modal window is crossed out with a large red 'X'.

# Predictability

- I think that this action will do...



- Operation visibility – can see all available actions
  - e.g. menus versus command-line
  - Grayed menu items





# Predictability

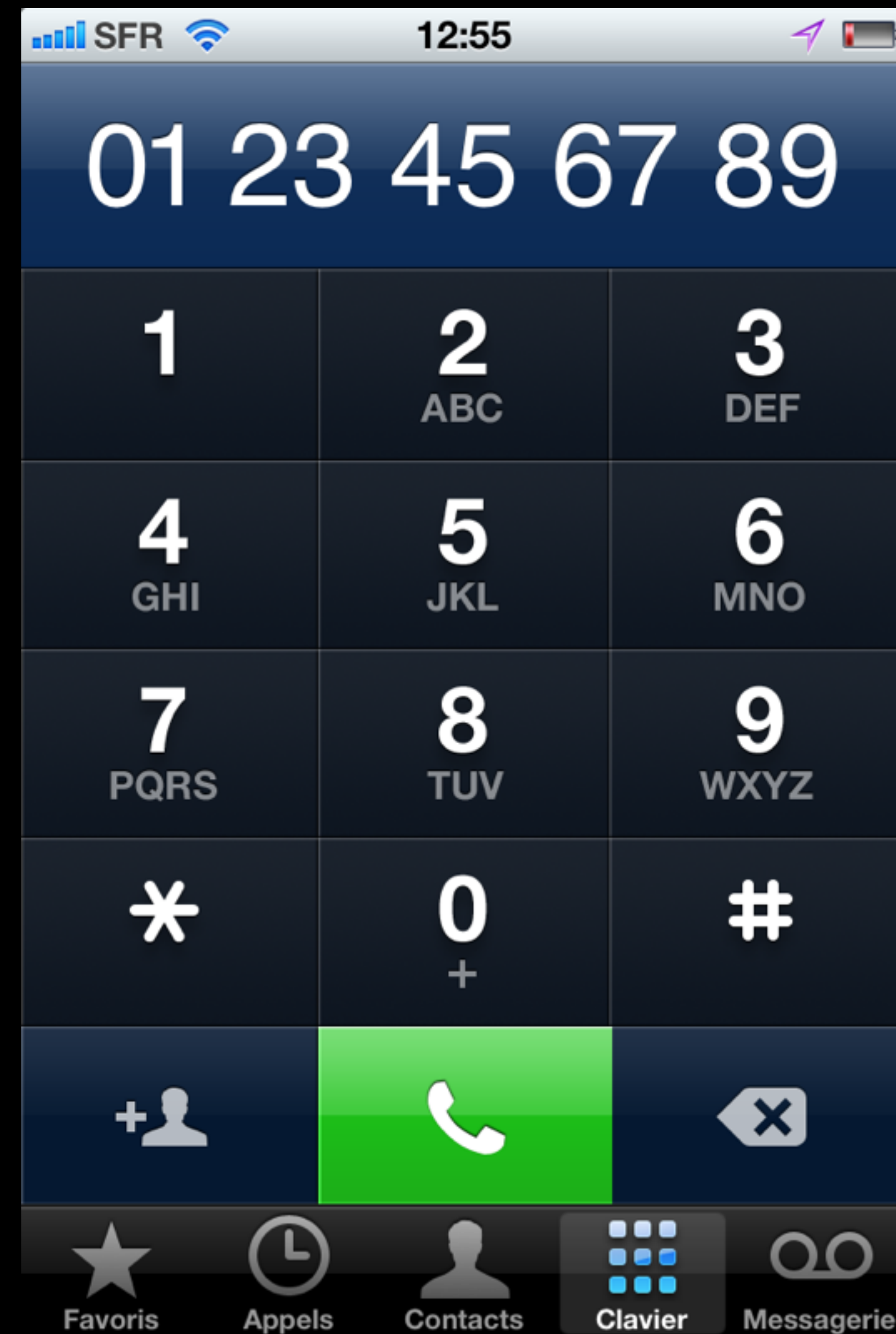
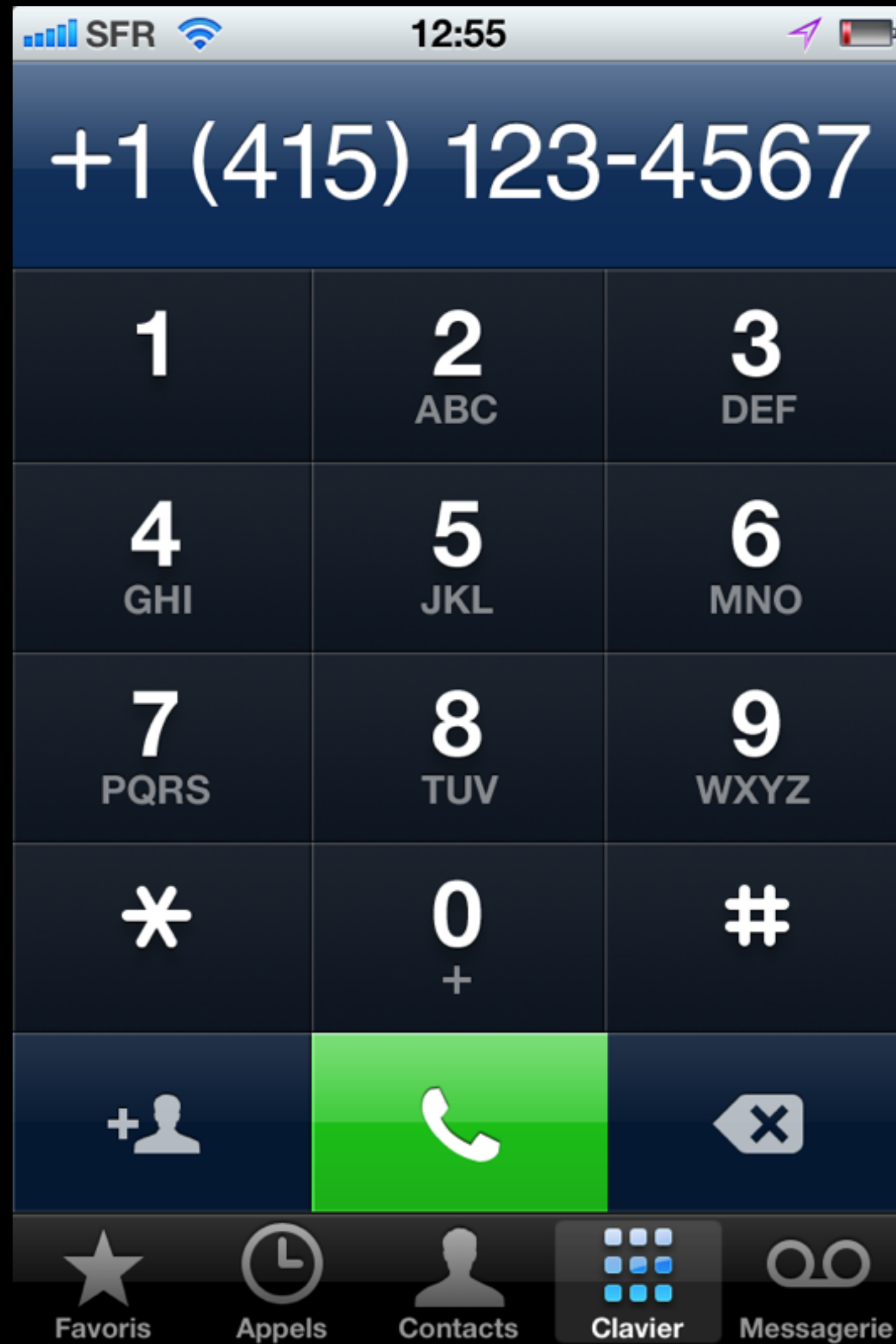


VS.





# Chunking



# Flexibility

- Minimize modality, Multithreading, Task Migratability, Substitutivity, Customizability

# Robustness

- Observability
- Recoverability
- Responsiveness
- Task Conformance



# Observability

```
translator.py x UNREGISTERED
1 |# -*- coding: utf-8 -*-
2 |#
3 |# Python State Machines
4 |#
5 |# Copyright 2007-2011, Université Paris-Sud
6 |# by Michel Beaudouin-Lafon (mbl at lri . fr)
7 |# and James R. Eagan (code at my last name dot me)
8 |#
9 |# This program is free software: you can redistribute it and/or modify
10|# it under the terms of the GNU Lesser General Public License as published by
11|# the Free Software Foundation, either version 3 of the License, or
12|# (at your option) any later version.
13|#
14|# This program is distributed in the hope that it will be useful,
15|# but WITHOUT ANY WARRANTY; without even the implied warranty of
16|# MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
17|# GNU General Public License for more details.
18|#
19|# You should have received a copy of the GNU General Public License
20|# and GNU Lesser General Public License along with this program.
21|# If not, see <http://www.gnu.org/licenses/>.
22|
23|from __future__ import with_statement
24|
25|import os
26|from os import stat
27|import py_compile
28|import re
29|import sys
30|
31|_indent_exp_str = ur'^(\s*)'
32|_indent_exp = re.compile(_indent_exp_str)
33|_state_exp_str = ur'^\s*State\s+(?P<name>[-A-Za-z0-9_])\s*(?:\(\s*(?P<parent>[-A-Za-z0-9_]'
34|_state_exp = re.compile(_state_exp_str)
35|_transition_exp_str = ur'^\s*Transition\s+(?P<name>[-A-Za-z0-9_])\s*' \
36|ur'\(\s*self\s*,\s*(?P<args>.*)\)\s*(?:>\s*(?P<target>.*?)\s*)?:'
37|_transition_exp = re.compile(_transition_exp_str)
```

Line 1, Column 1 Spaces: 4 Python

# Observability

Delta - Book a flight

http://www.delta.com/booking/findFlights.do#top

Google

Home | Comment/Complaint? | Need Help? | Search

DELTA SKYTEAM

Planning Tools v Travel Information v SkyMiles® v

SkyMiles# or Email PIN Last Name Log In >  Remember Me SkyMiles # or PIN reminder Join SkyMiles >

Trip Summary

1 Search Flights 2 Select Trip 3 Passenger Info 4 Review/Purchase 5 Done

You selected these flights:


<b>OUTBOUND</b>	Thu, 19 Jul 2012	10:55AM	CDG	to	2:20PM	ATL	Nonstop	DL 8504 <sup>1</sup>	Show Details
10:55AM	CDG	2:20PM	ATL	Nonstop	9h 25m	DL 8504 <sup>1</sup>	Economy (L)	View Seats	
Operated by: <sup>1</sup> Air France									
<b>RETURN</b>	Thu, 26 Jul 2012	3:15PM	ATL	to	Fri 27 Jul 6:10AM	CDG	Nonstop	DL 28	Show Details
3:15PM	ATL	6:10AM	CDG	Nonstop	8h 55m	DL 28	Economy (U)	View Seats	
		Fri 27 Jul							

**ADD FLEXIBILITY TO BUSINESS CLASS**

Enjoy the perks, keep the flexibility

- o No fees when travel plans change
- o Attentive service, luxurious surroundings
- o First on, first off

Upgrade to Flex Business for only €2980.50 more per person each way Includes taxes & fees







L'homme aux cercles bleus: Amazon.fr: Fred Vargas: Livres

http://www.amazon.fr/Lhomme-cercles-bleus-Fred-Vargas/dp/2290349224/ref=sr\_1

InfoVis Music Blogs TinyURL! [admin] Docs LRI DOI GA DL

amazon.fr

Bonjour James Eagan. Découvrez nos conseils personnalisés. (Vous n'êtes pas James ?)

Chez James | Nos bonnes affaires | Chèques-cadeaux | Listes et idées cadeaux

Quantité : 1

Ajouter au panier

ou

Identifiez-vous pour activer la commande 1-Click.

Ajoutez à votre liste d'envies

Plus de choix

62 neufs & d'occasion à partir de EUR 1,61

Vous l'avez déjà ? Vendez le vôtre

Partager

Rechercher Livres en français

Livres

Recherche détaillée Nos rubriques Actu du livre Meilleures ventes Livres anglais et étrangers Bonnes affaires Livres d'occasion Cliquez pour feuilleter

**L'homme aux cercles bleus [Broché]**

Fred Vargas (Auteur)

★★★★☆ (39 commentaires client) J'aime (5)

Prix conseillé : ~~EUR 5,60~~

Prix : **EUR 5,32** LIVRAISON GRATUITE [En savoir plus.](#)

Économisez : EUR 0,28 (5%)

**En stock.**

Expédié et vendu par Amazon.fr. Emballage cadeau disponible.

22 neufs à partir de EUR 4,50 40 d'occasion à partir de EUR 1,61

Formats	Prix Amazon	Neuf à partir de	Occasion à partir de
+ Poche	EUR 4,75	EUR 3,00	EUR 2,00
Broché, 16 juin 2005	EUR 5,32	EUR 4,50	EUR 1,61
+ Poche	--	--	EUR 0,89

ZOOMER Zoom

Voir 1 image client

Partagez vos propres images client

Éditeur : découvrez comment les clients peuvent feuilleter et chercher au cœur de ce livre.

**Produits fréquemment achetés ensemble**

Prix pour les trois: **EUR 14,06**

Ajouter ces trois articles au panier

Afficher la disponibilité du produit et le mode de livraison



Sélectionner une adresse de livraison – Processus de paiement Amazon.fr

https://www.amazon.fr/gp/buy/signin/handlers/continue.html?ie=UTF8&oldPurchaseId

amazon.fr BIENVENUE **ADRESSE** ARTICLES EMBALLAGE LIVRAISON PAIEMENT VALIDATION

### Choisissez une adresse de livraison

Sélectionnez ci-dessous l'adresse de votre choix en cliquant sur le bouton « Envoyer à cette adresse » correspondant ou entrez une [nouvelle adresse](#). Vous pouvez aussi choisir la livraison en relais Kiala à partir de la rubrique ci-dessous « Chercher un nouveau Point Relais ». Certains produits volumineux, et les produits vendus et expédiés par des vendeurs tiers de notre plateforme Marketplace, ne peuvent pas bénéficier de la livraison en Relais Kiala ([En savoir plus](#)) **Kiala**

Vous souhaitez [chercher un nouveau Point Relais ?](#)

#### Carnet d'adresses de James Eagan : adresses personnelles

<p>Envoyer à cette adresse</p> <p><b>James Eagan</b> 2708 Noble Creek Dr Atlanta, GA 30327 États-Unis</p> <p>Modifier Supprimer</p>	<p>Envoyer à cette adresse</p> <p><b>James Eagan</b> 517 Douglass Ave Richland, WA 99352 États-Unis</p> <p>Modifier Supprimer</p>
<p>Envoyer à cette adresse</p> <p><b>EAGAN James</b> Cityssimo n° 219947834 80 rue Léon Frot Paris, 75011 France</p> <p>Modifier Supprimer</p>	<p>Envoyer à cette adresse</p> <p><b>EAGAN James</b> 276 bis rue du Faubourg Saint-Antoine Paris, 75012 France</p> <p>Modifier Supprimer</p>
<p>Envoyer à cette adresse</p>	<p>Envoyer à cette adresse</p>

# Modèles Mentaux

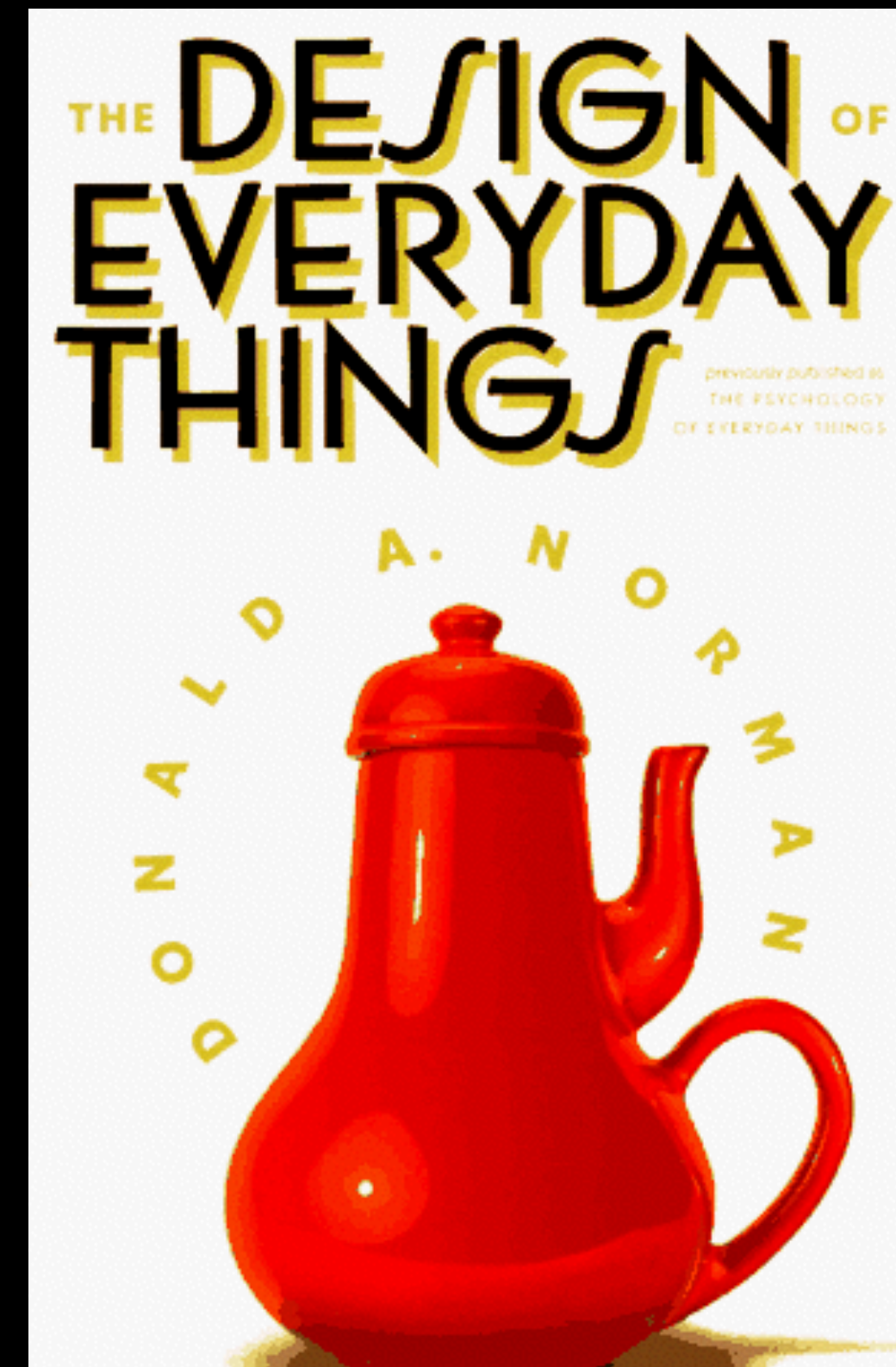
- La représentation mentale de l'utilisateur du système
- Sa perception de comment marche le système



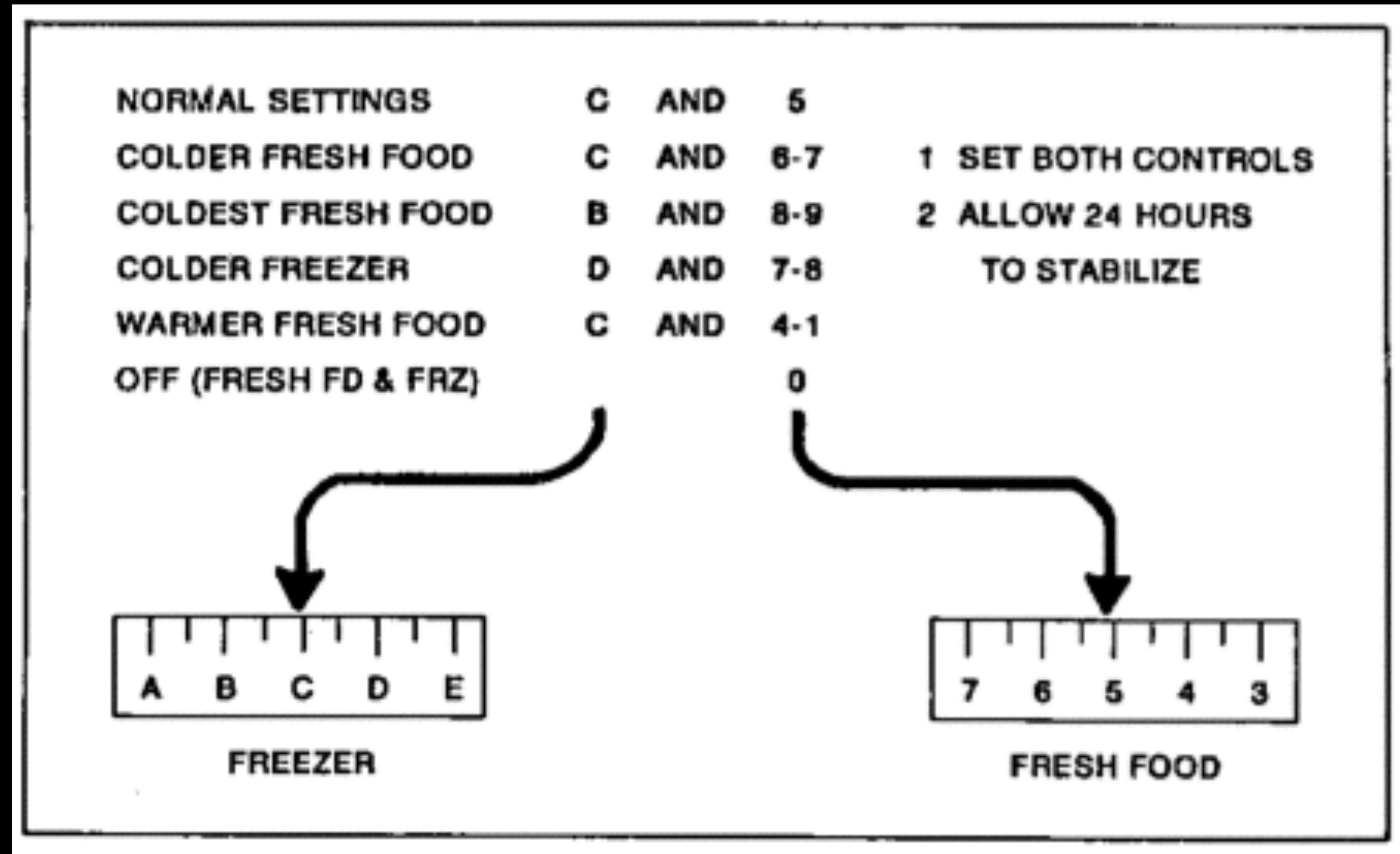


# Don Norman

- Design of Everyday Things

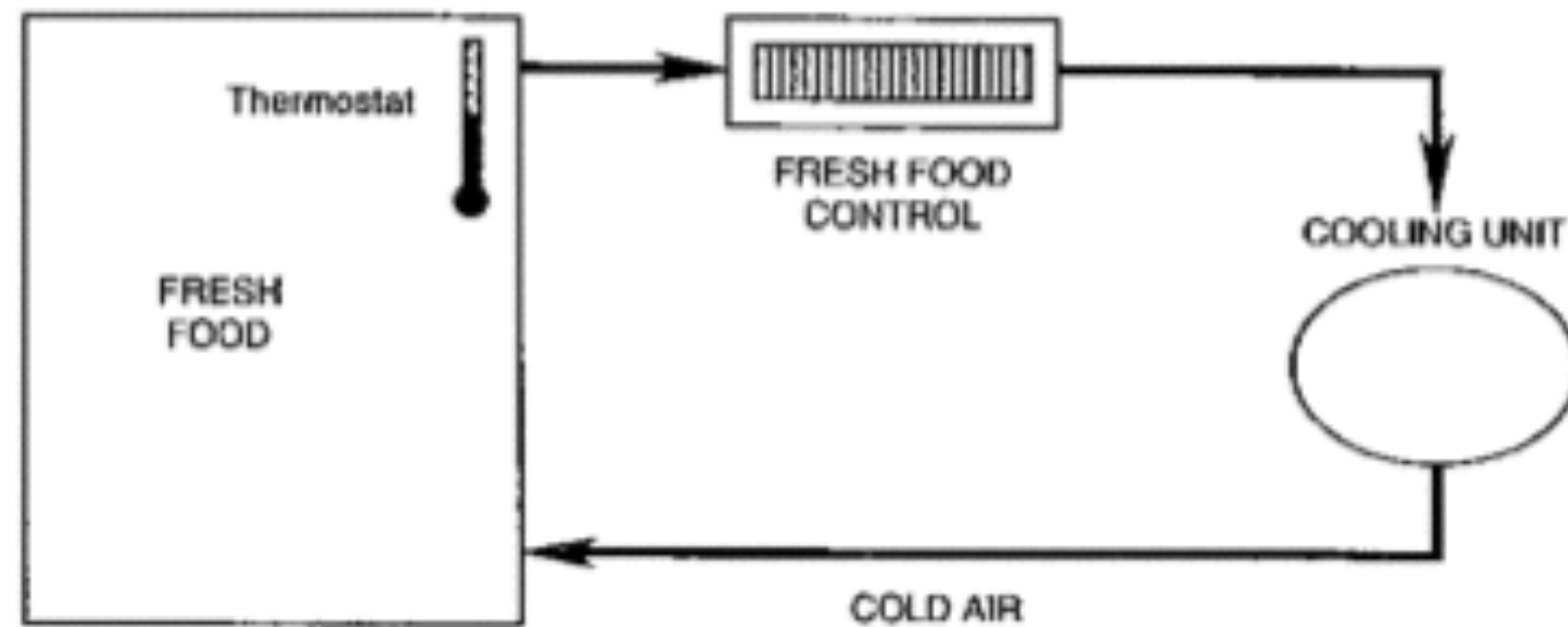
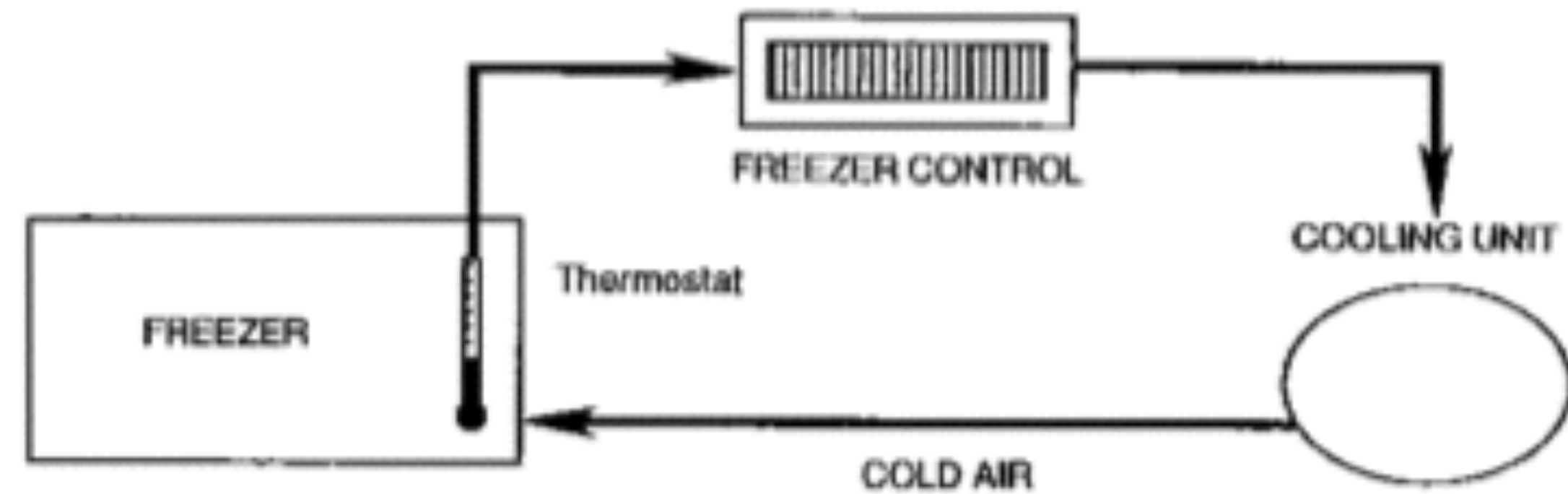


# Interface d'un Frigo

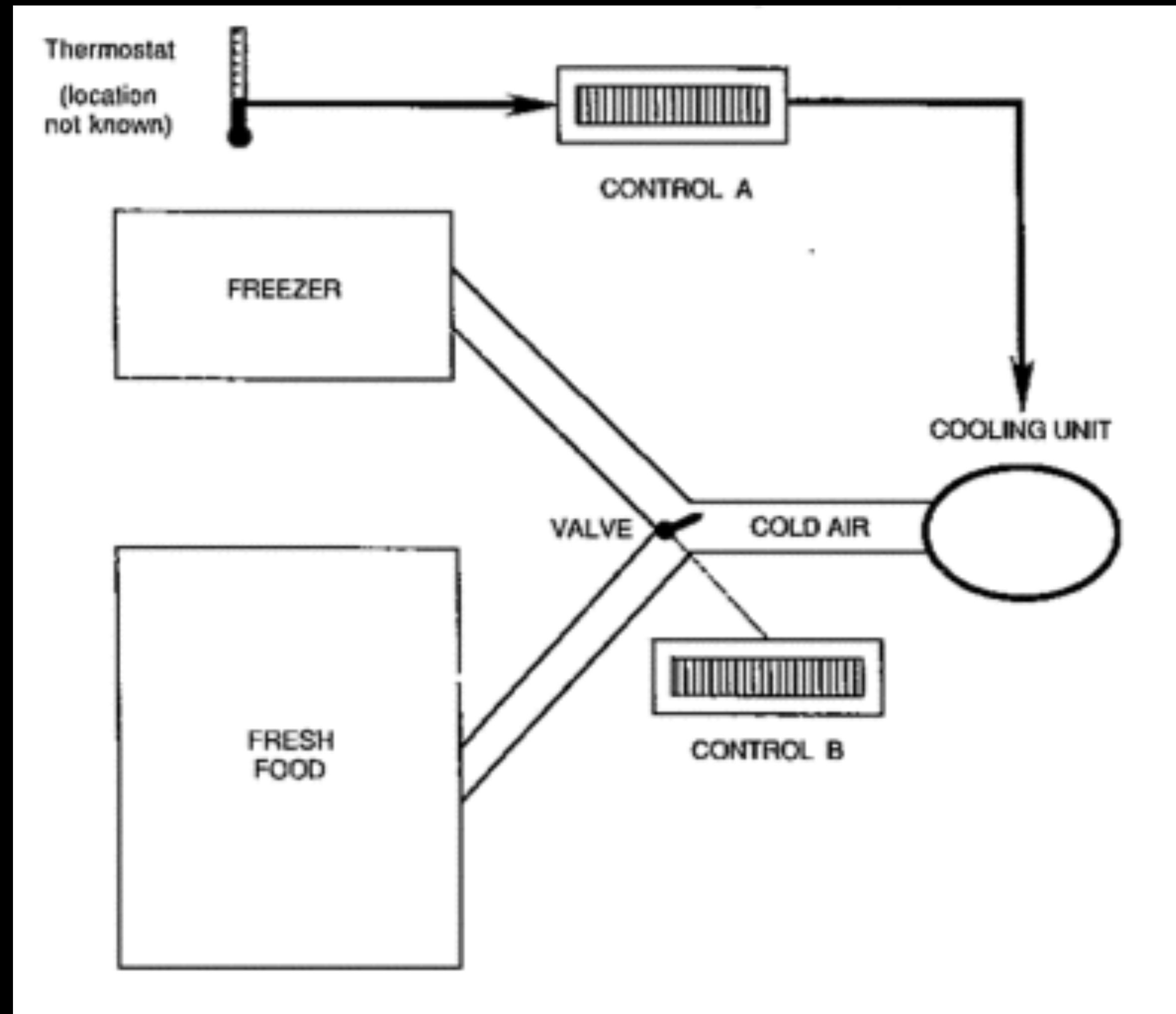




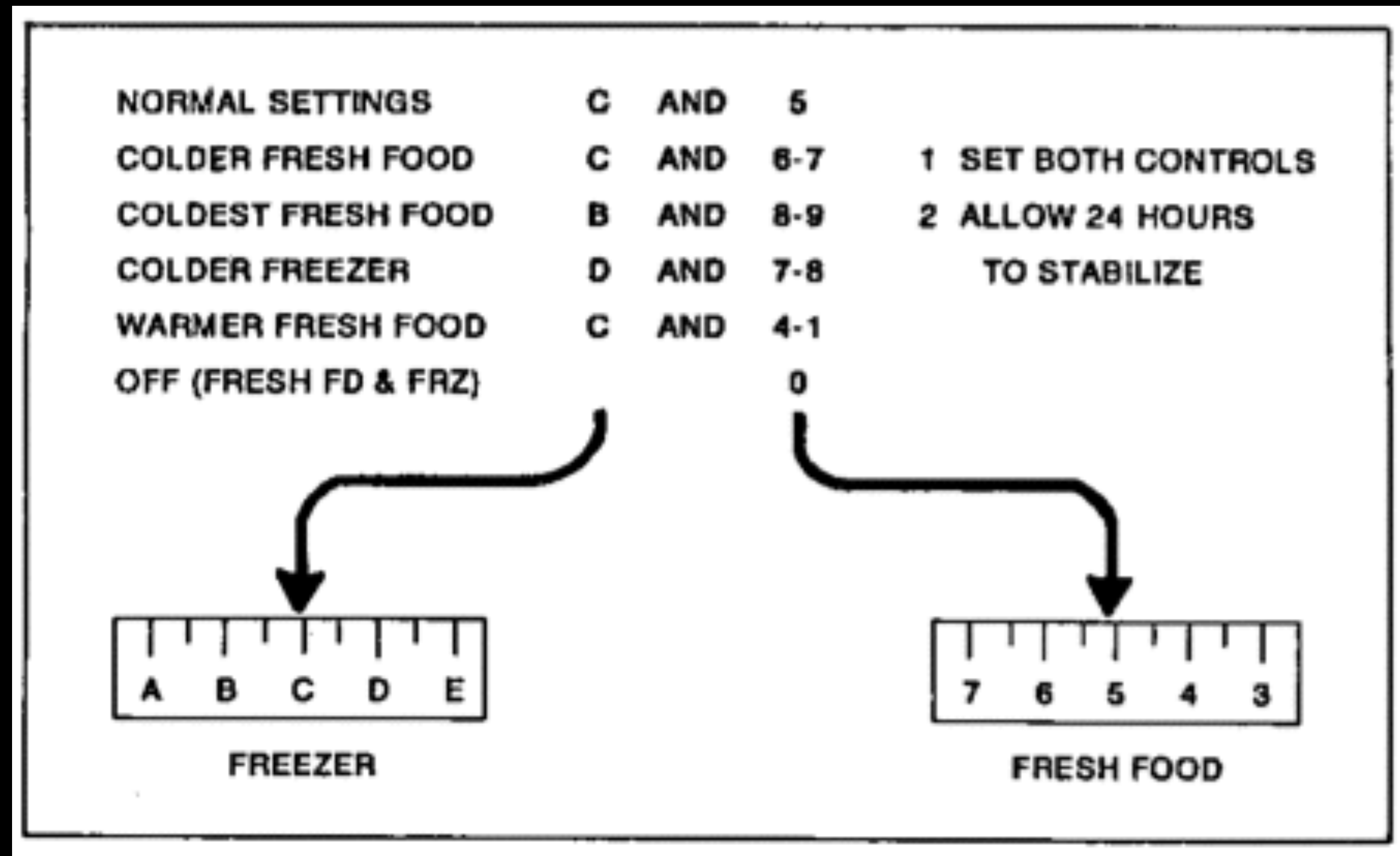
# Modèle d'un Frigo



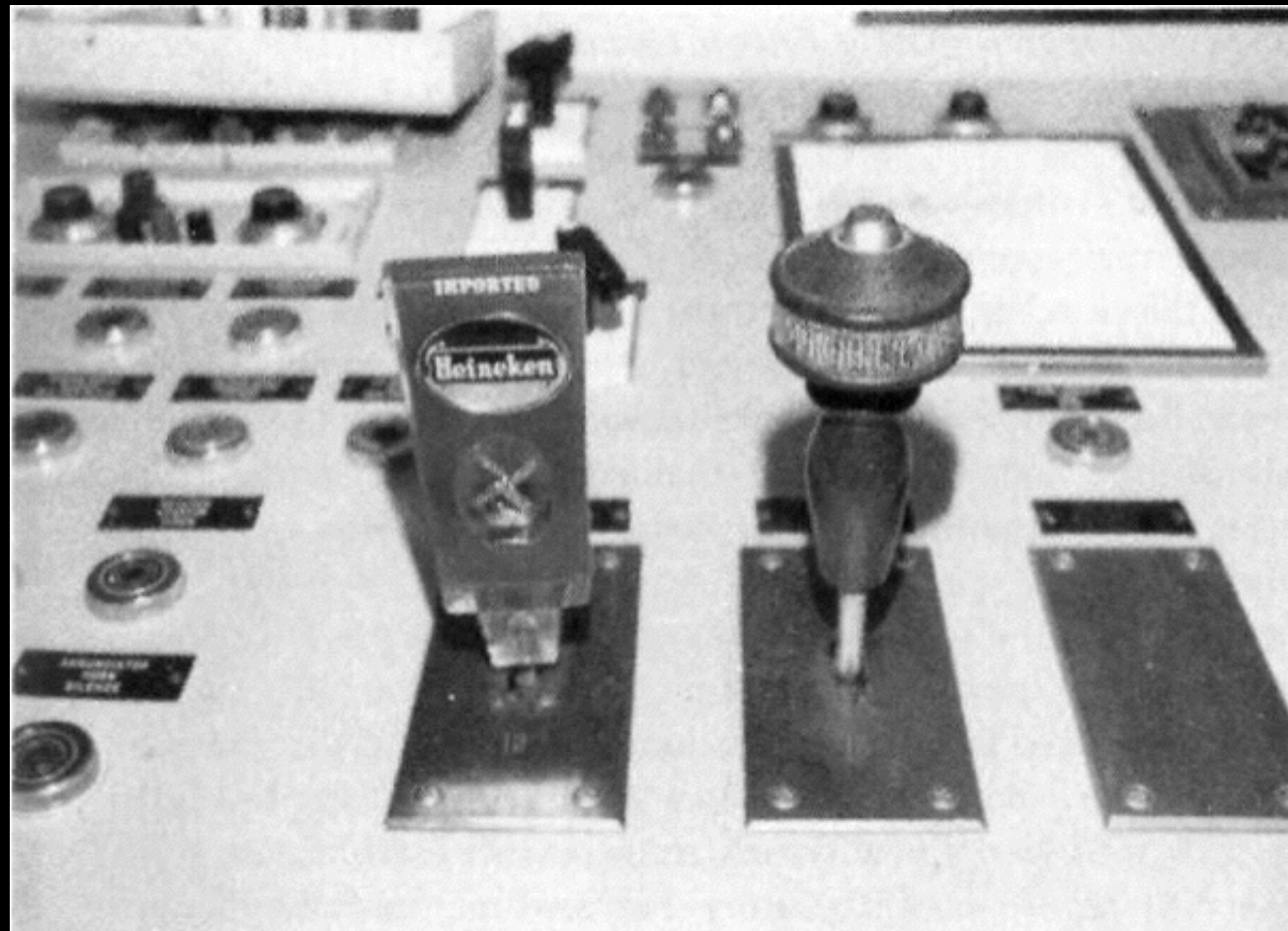
# Modèle d'un Frigo



# Interface d'un Frigo



# Make Controls Look & Feel Different





# Paradox of Choice





# Apple Store

Questions? [Call 1-800-MY-APPLE](tel:1800MYAPPLE)

Shop Mac

Help Account Cart

## Departments

- Shop Mac
- Shop iPod
- Shop iPhone
- Shop iPad
- Mac Accessories
- Mac Software
- iPod Accessories
- iPhone Accessories
- iPad Accessories

## Mac Family

- MacBook Air
- MacBook Pro
- Mac mini
- iMac
- Mac Pro
- Mac Accessories

 <b>MacBook Air</b> From \$999	 <b>MacBook Pro</b> From \$1199	 <b>Mac mini</b> From \$599	 <b>iMac</b> From \$1199	 <b>Mac Pro</b> From \$2499
--	--	--	---	--

## New for Mac

- OS X Lion USB Thumb Drive
- Apple Thunderbolt Display (27-inch)
- Apple Thunderbolt cable (2.0 m)
- Microsoft Office for Mac Home and Student...
- Apple HDMI to HDMI Cable (1.8 m)
- Magic Trackpad
- Apple Battery Charger
- Apple 85W MagSafe Power Adapter (for 15- and...
- Apple Magic Mouse
- Apple Remote

### MacBook Air

Wireless Printing   New from Adobe   Office for Mac 2011



## The new, faster MacBook Air.

Everyone should have a notebook this advanced. And now everyone can

## Top Sellers

1. Apple Magic Mouse
2. Apple Remote

# Invoke Scarcity

- If it costs a lot, it must be good!
- Only two left in this size!







Bonjour James Eagan. Découvrez nos conseils personnalisés. (Vous n'êtes pas James ?)

Fête des Pères : idées cadeaux

Chez James | Nos bonnes affaires | Chèques-cadeaux | Listes et idées cadeaux

Votre compte | Aide

Toutes nos boutiques

Rechercher

Livres anglais et étrangers

GO

2 Panier

Liste d'envies

Livres anglais et étrangers

Recherche détaillée

Nos rubriques

Nouveautés

Meilleures ventes

Bonnes affaires

Livres audio

Tous les livres

Vendez !

Cliquez pour **Feuilleter!**



## The Design of Sites: Patterns for Creating Winning Web Sites [Anglais] [Broché]

[Douglas K. van Duyne](#) (Auteur), [James A. Landay](#) (Auteur), [Jason I. Hong](#) (Auteur)

★★★★★ (1 commentaire client) **J'aime** (0)

Prix : **EUR 55,83** **LIVRAISON GRATUITE** [En savoir plus.](#)

**En stock.**

Expédié et vendu par Amazon.fr. Emballage cadeau disponible.

Plus que 1 ex (réapprovisionnement en cours). Commandez vite !

**22 neufs** à partir de EUR 55,59 **6 d'occasion** à partir de EUR 32,74

Quantité : 1

**Ajouter au panier**

ou

[Identifiez-vous](#) pour activer la commande 1-Click.

[Ajoutez à votre liste d'envies](#)

### Plus de choix

**28 neufs & d'occasion** à partir de EUR 32,74

Vous l'avez déjà ? **Vendez le vôtre**

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[Partagez vos propres images client](#)

[Rechercher dans ce livre](#)

## Descriptions du produit

Matrix - Flights

http://matrix.itasoftware.com/view/flights?session=d6bae5ea-16ef-4e2a-861d-7c892a9a4

Round trip: Paris to San Francisco, juin 13-20

Complete trips Individual flights Time bars

PRICE AIRLINE DEPART ARRIVE DURATION FROM/TO STOPS ADVISORY

737 € US Airways 11:10am 7:10pm 17h 0m CDG to SFO CLT  
7:25am 6:55am 14h 30m SFO to CDG CLT

Matrix - Flights

http://matrix.itasoftware.com/view/flights?session=d6bae5ea-16ef-4e2a-861d-7c892a9a4

Flight 1: Paris to San Francisco - lun., juin 13

Complete trips Individual flights Time bars

PRICE FROM/TO AIRLINE DEPART ARRIVE DURATION STOPS ADVISORY

Paris time	San Francisco time	8a 11p	10a 1a	12p 3a	2p 5a	4p 7a	6p 9a	8p 11a	10p 1p	12a 3p	2a 5p	4a 7p	6a 9p	8a 11p	10a 1a
From 737 €	CDG to SFO			US					CLT	US					
From 780 €	CDG to SFO			DL					MSP	DL					
From 780 €	CDG to SFO			DL						SLC		DL*			
From 788 €	CDG to SFO			AF											
From 788 €	CDG to SFO			DL*											
From 790 €	CDG to SFO			AF*					MSP	DL					
From 813 €	CDG to SFO									IAD	CO*				
From 813 €	CDG to SFO			UA					IAD	UA					
From 815 €	CDG to SFO	LH		FRA					LH*						
From 815 €	CDG to SFO	LH		FRA					CO*						
From 815 €	CDG to SFO	LH		FRA					UA						
From 815 €	CDG to SFO		LH	FRA					LH*						
From 815 €	CDG to SFO		LH	FRA					UA						
From 815 €	CDG to SFO		LH	FRA					CO*						
From 815 €	CDG to SFO								CO			IAH		CO	
From 815 €	CDG to SFO								LH	FRA	LUX				









Before	After
 <p><b>Extra gentle for the most sensitive skin.</b></p> <p><small>Start with ultra sensitive skin, add the chemicals and moisture of urine and stools, and you have diaper rash.</small></p> 	 <p><b>Extra gentle for the most sensitive skin.</b></p> <p><small>Start with ultra sensitive skin, add the chemicals and moisture of urine and stools, and you have diaper rash.</small></p> 

Affordable Dog Insurance - Covers 80% Of Your Vet Bill; Request A Free Quote & Start Your Pets Coverage Today!

Get Your Free Quote

Pet Name:

Pet Type:  Dog  Cat

Select Breed:

Spayed/Neutered?  Yes  No

Pet Date of Birth

Gender:  Female  Male

Your Zip Code:

Email:

We value your privacy and will not sell or give your information to anyone. Period.

[Get My Free Quote](#)

Simple & Easy



33 % conversion

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Get Your Free Quote

Pet Name:

Pet Type:  Dog  Cat

Select Breed:

Spayed/Neutered?  Yes  No

Pet Date of Birth

Gender:  Female  Male

Your Zip Code:

Email:

We value your privacy and will not sell or give your information to anyone. Period.

[Get My Free Quote](#)

Simple & Easy



66 % conversion



Account login

Email address  
jahudson@paypal.com

PayPal password

Go to  
My account

Log In

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It's like music to your ears. [Find Deals](#)



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# Slips & errors

- Slip — on sait ce qu'il faut faire, mais on ne le fait pas

« Ce matni un lapin a tué un chaussure »



# Erreur de closure



# Besoins Utilisateur



# Motivation

- User
  - Low motivation, discretionary use →
  - Low motivation, mandatory use →
  - High motivation, due to fear →
  - High motivation, due to interest →
- Design goal
  - Ease of learning
  - Control, power
  - Ease of learning, robustness, control
  - Power, ease of use

# Knowledge & Experience

Experience

task

system

Design goals:

low

low

– Many syntactic & semantic prompts

high

high

– Efficient commands, concise syntax

low

high

– Semantic help facilities

high

low

– Lots of syntactic prompting

# Job & Task Implications

- Frequency of use
  - High — Ease of use
  - Low — Ease of learning & remembering
- Task implications
  - High — Ease of use
  - Low — Ease of learning
- System use
  - Mandatory — Ease of use
  - Discretionary — Ease of learning





# Define Tasks

- Consider the *whole* system
- Determine *who or what* should perform each task and each step :  
*e.g.* the system remembers the login, but the user remembers the password
- Determine criteria: efficiency, cognitive effort, time
  - Task *x* should take no more than *y* seconds
  - A new user should be able to create a new account in 5 minutes

# Brainstorming

# Brainstorming

- Génération d'idées
- Marche mieux si tout le monde a déjà fait une réflexion initiale
- Tout le monde propose d'idées
- On ne les critique pas

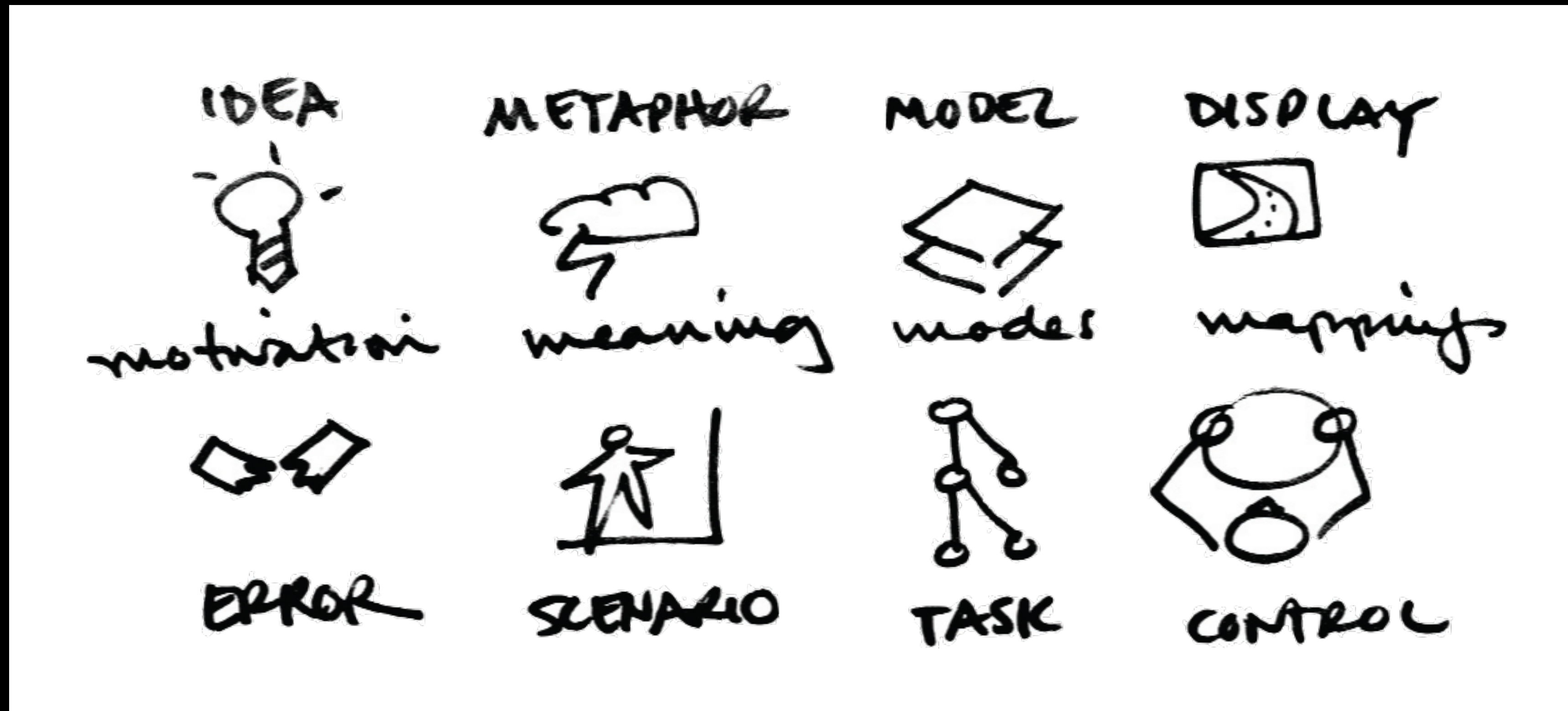
# Design & Prototyping



# Prototyping the Interface

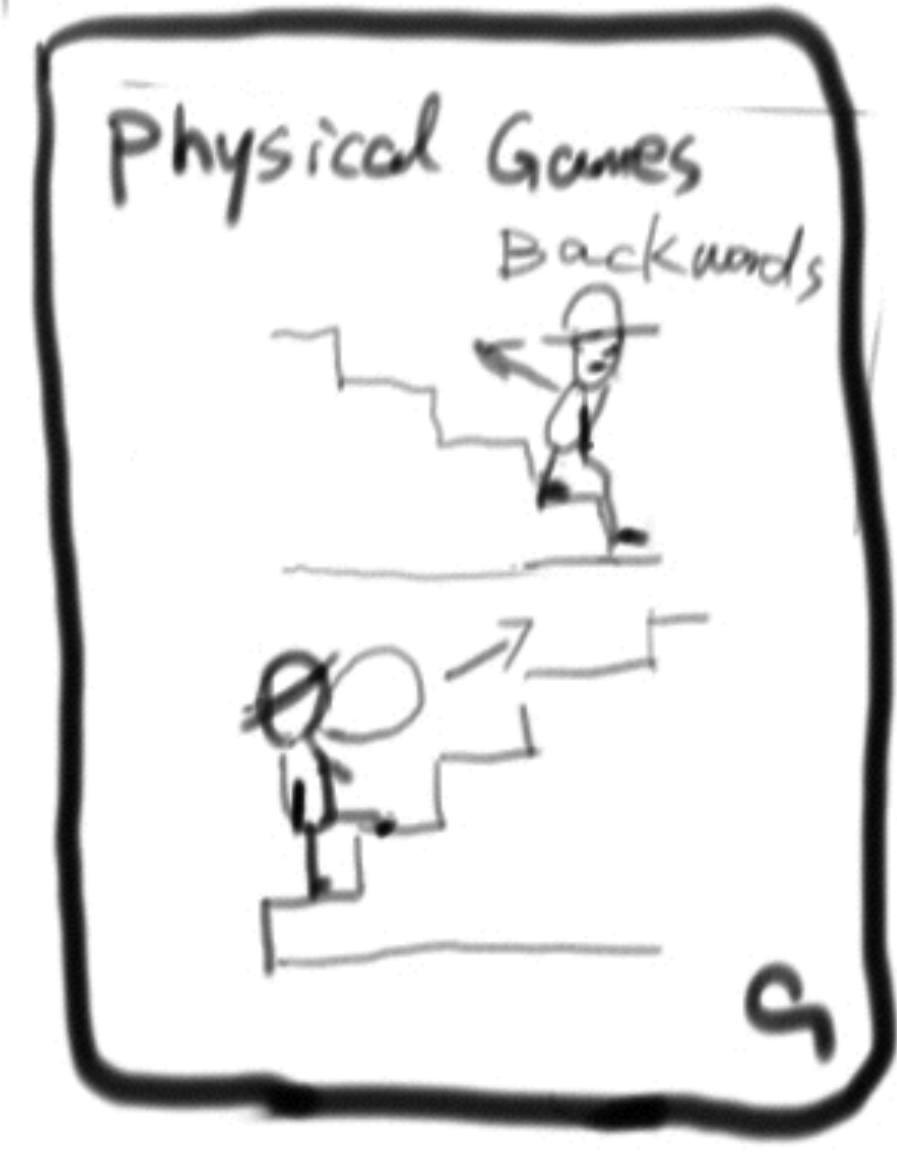
- Why prototype?
  - Creating the system is expensive
- Start with low-fidelity mockups
- Progress to prototypes
  - Storyboards, task diagrams, *etc.*

# Design the Interface



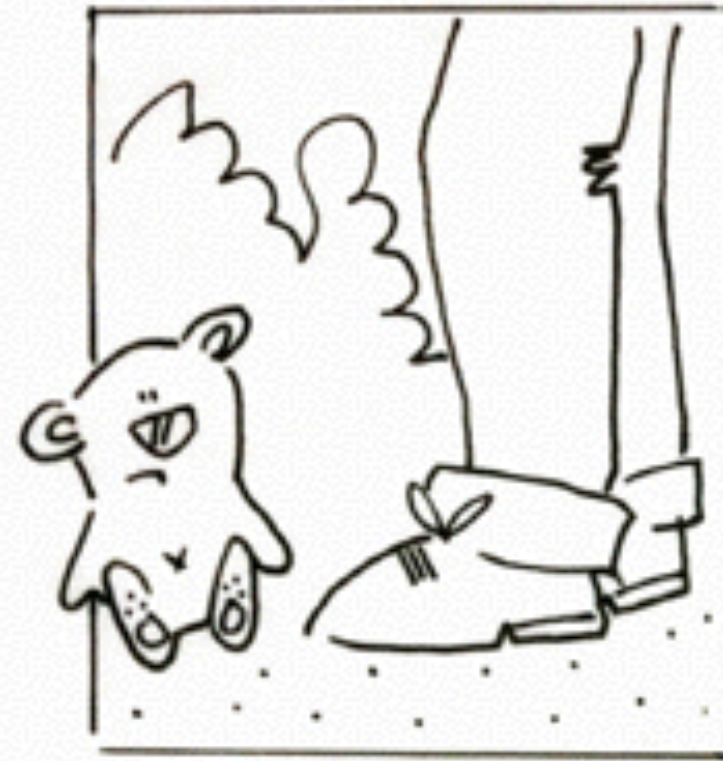
# Storyboards

- Shows off
  - Sequence
  - Tasks
  - Context
- Rarely shows interface itself

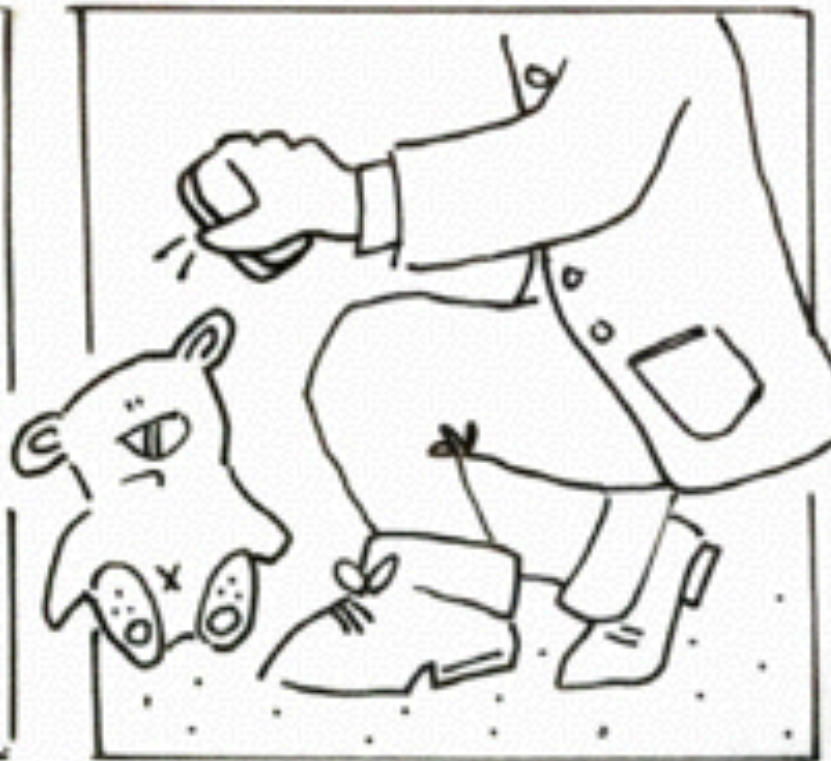




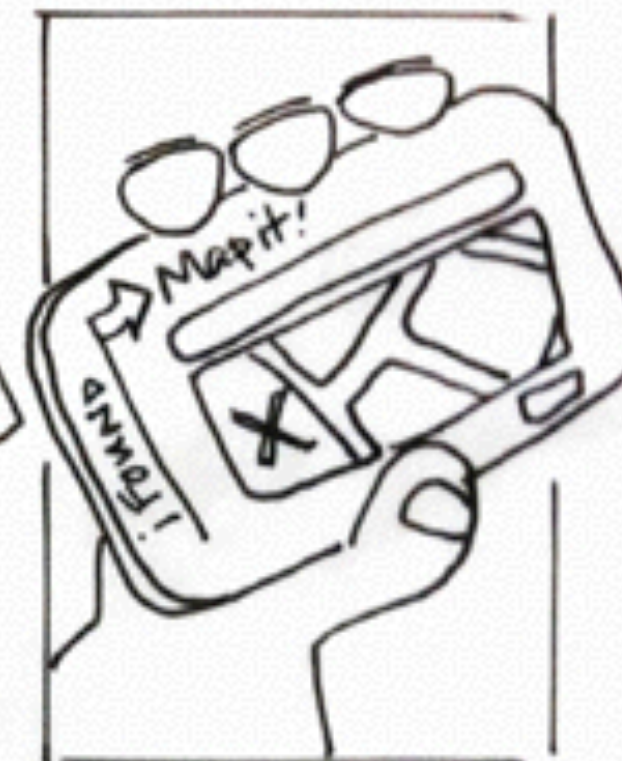
## STORYBOARD: iFound®



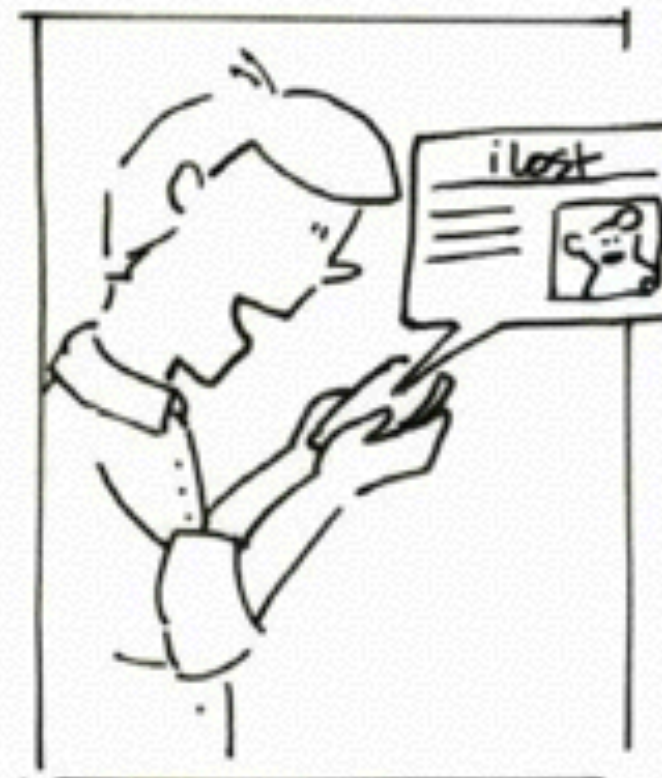
On a walk through the park, Marco stumbles across a teddy bear fallen on the side of the path.



Realizing it must be lost, he uses his mobile phone to photograph it where he found it, and takes the bear home.



Once home, Marco uploads the photo to iFound®. The MapIt! function uses the GPS from the photo to record where the bear was found.



As soon as the iFound® match list is generated, Marco sees a photo of the very same bear he has just found. He immediately contacts the finder and they arrange a way to get the bear back to its owner.



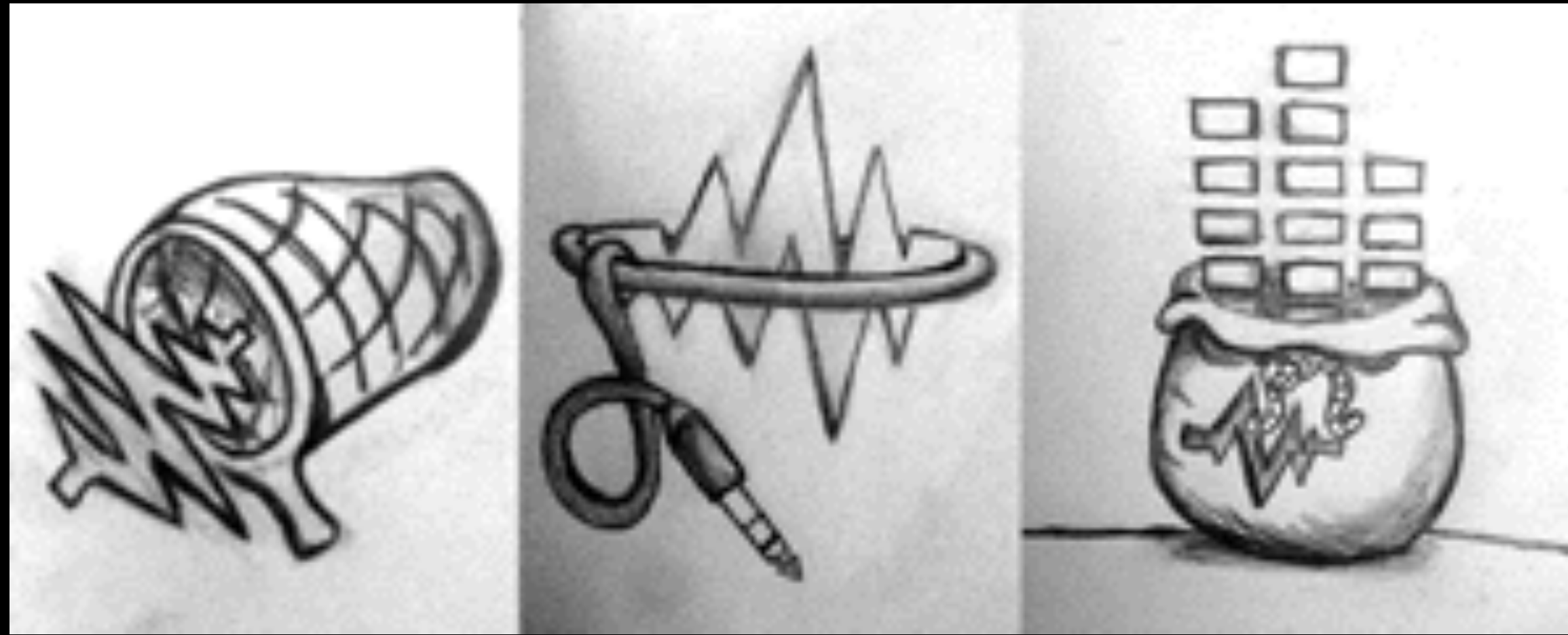
The teddy bear is handed off to a very relieved mom.



When it is recorded that the bear has made it safely home, Marco receives a 'thank you' email from iFound®, offering him a choice of coupons for anything from ice cream to flowers. Marco's choice provides useful information to corporate sponsors.



# Sketches





ess  
eed  
ing  
els.  
ent  
a  
vel  
an  
ct  
ot  
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till

INCREMENTAL



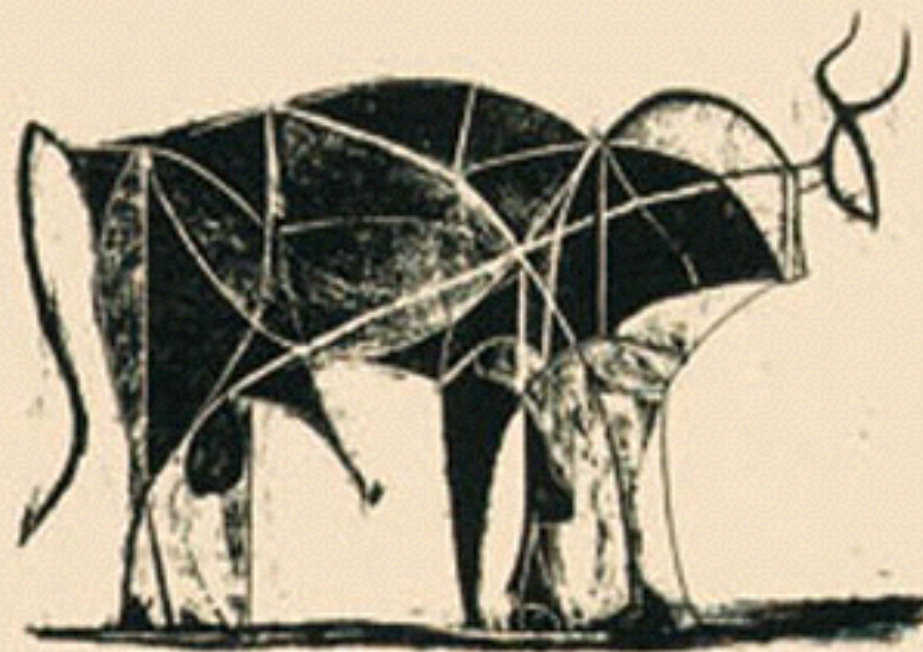
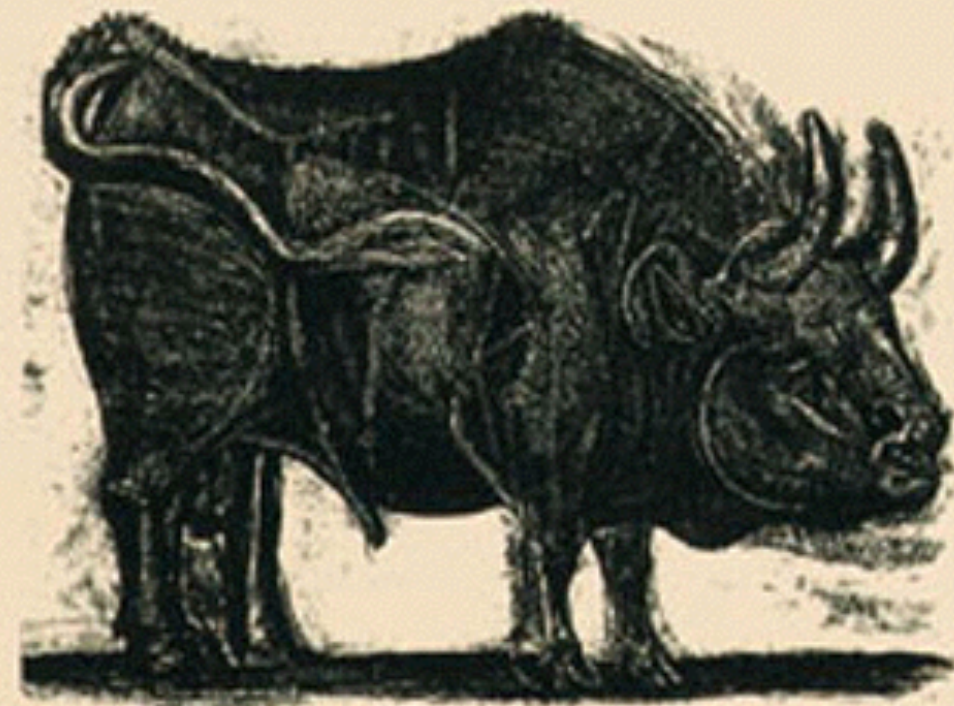
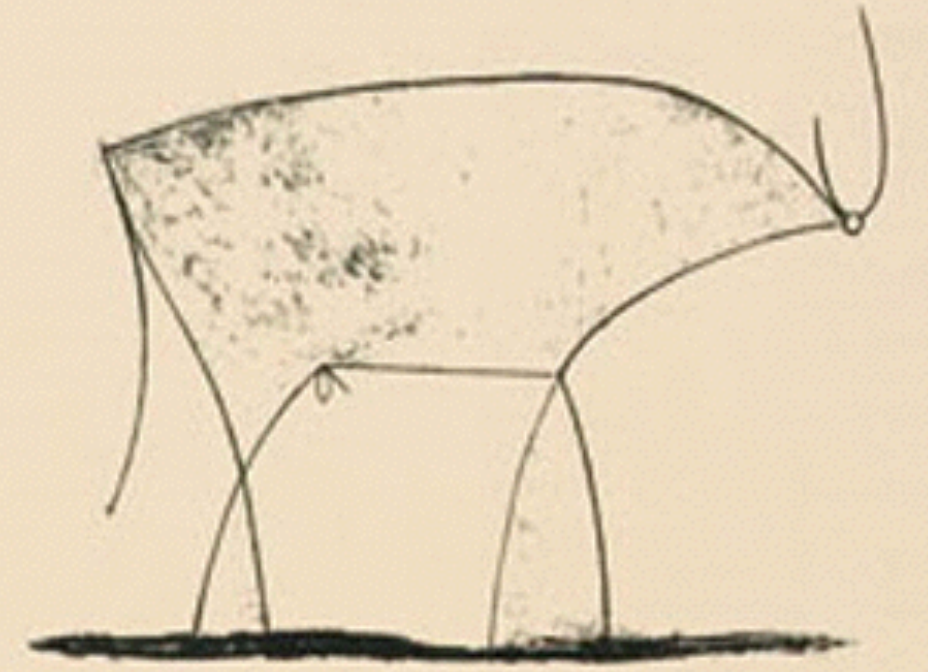
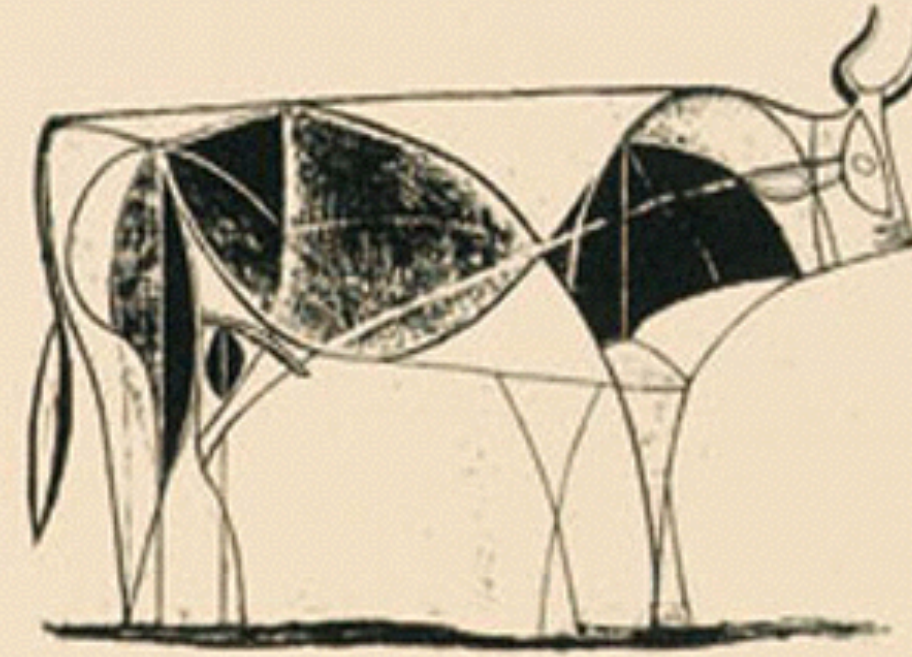
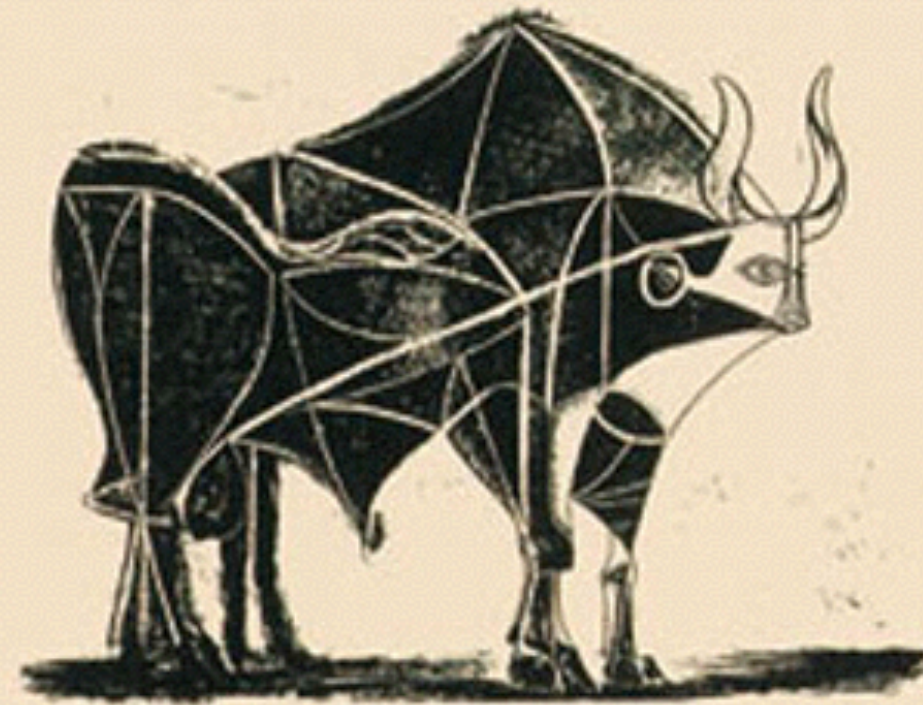
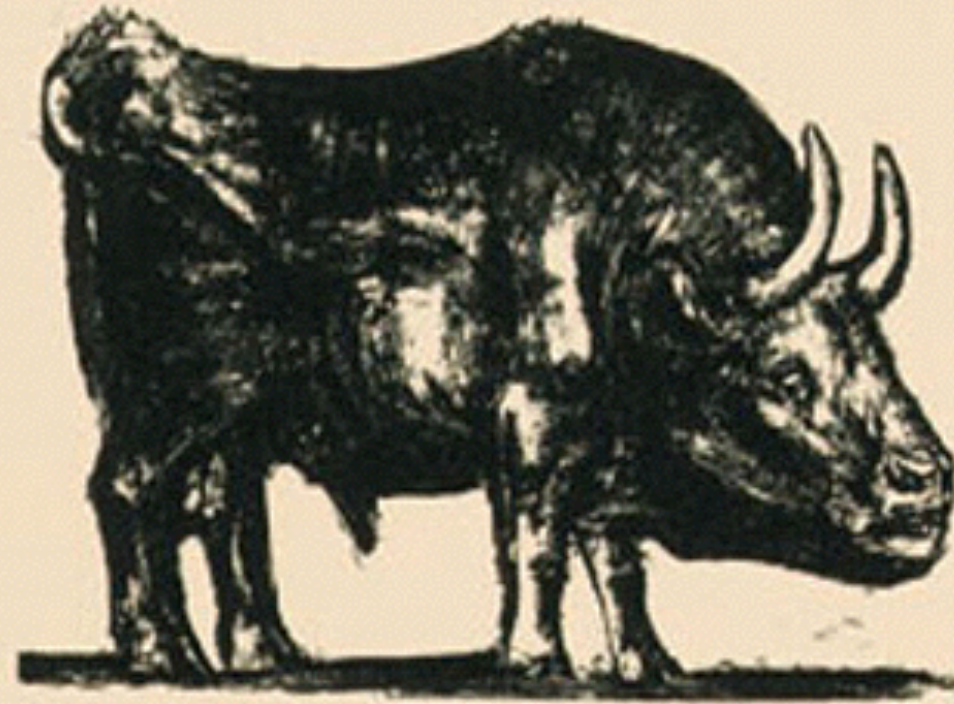
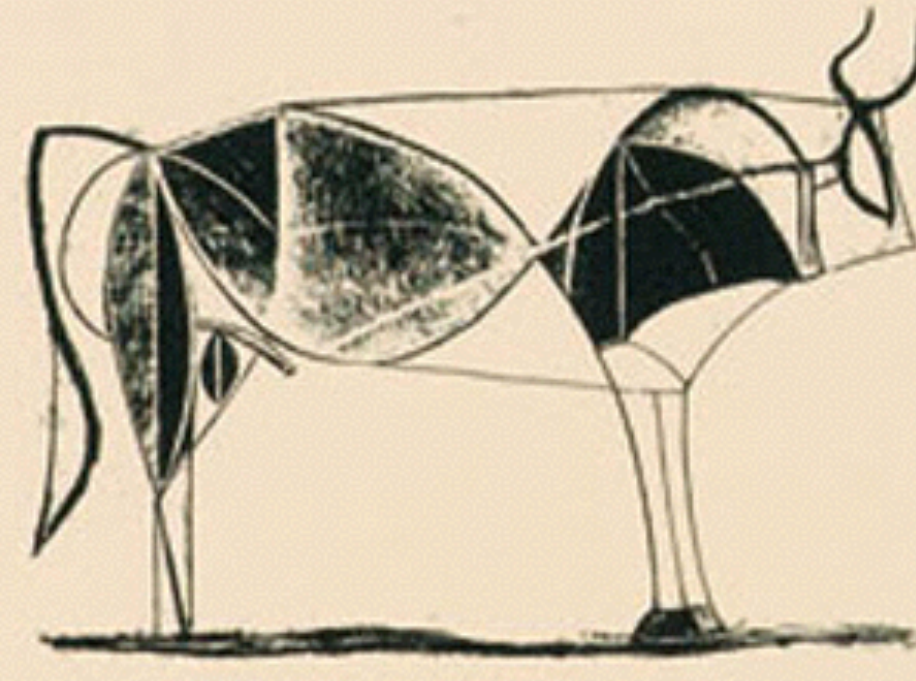
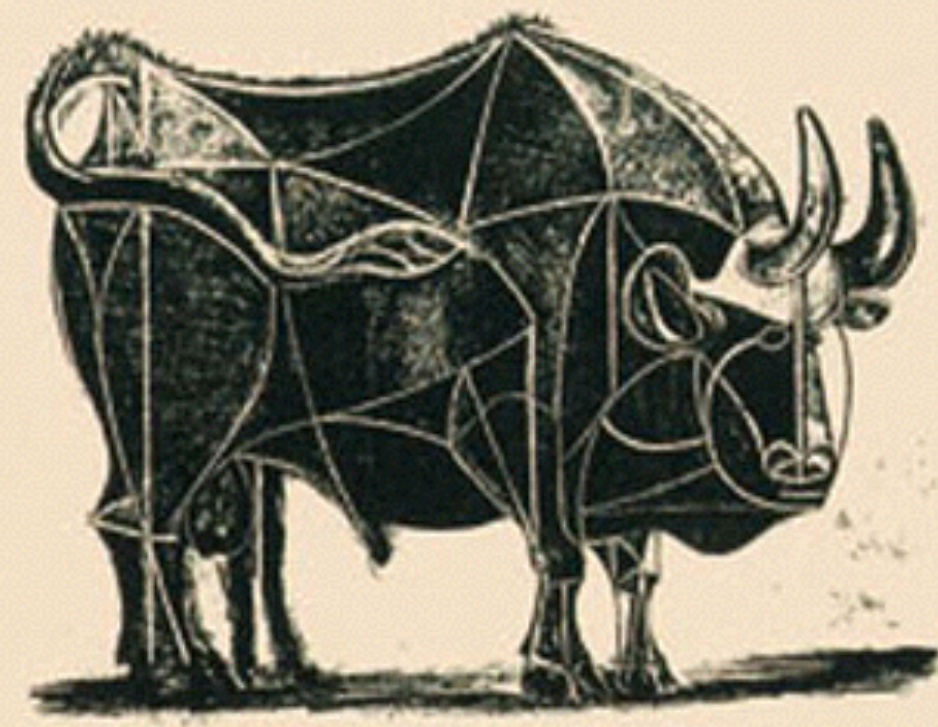
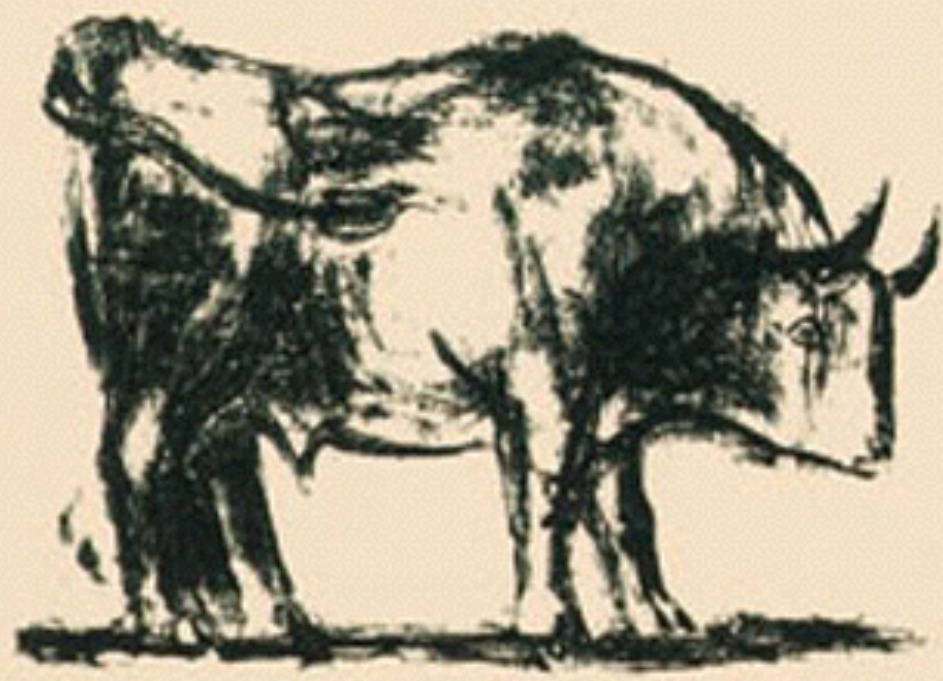
ITERATIVE



sk  
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nd  
ce  
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L





*Picasso*

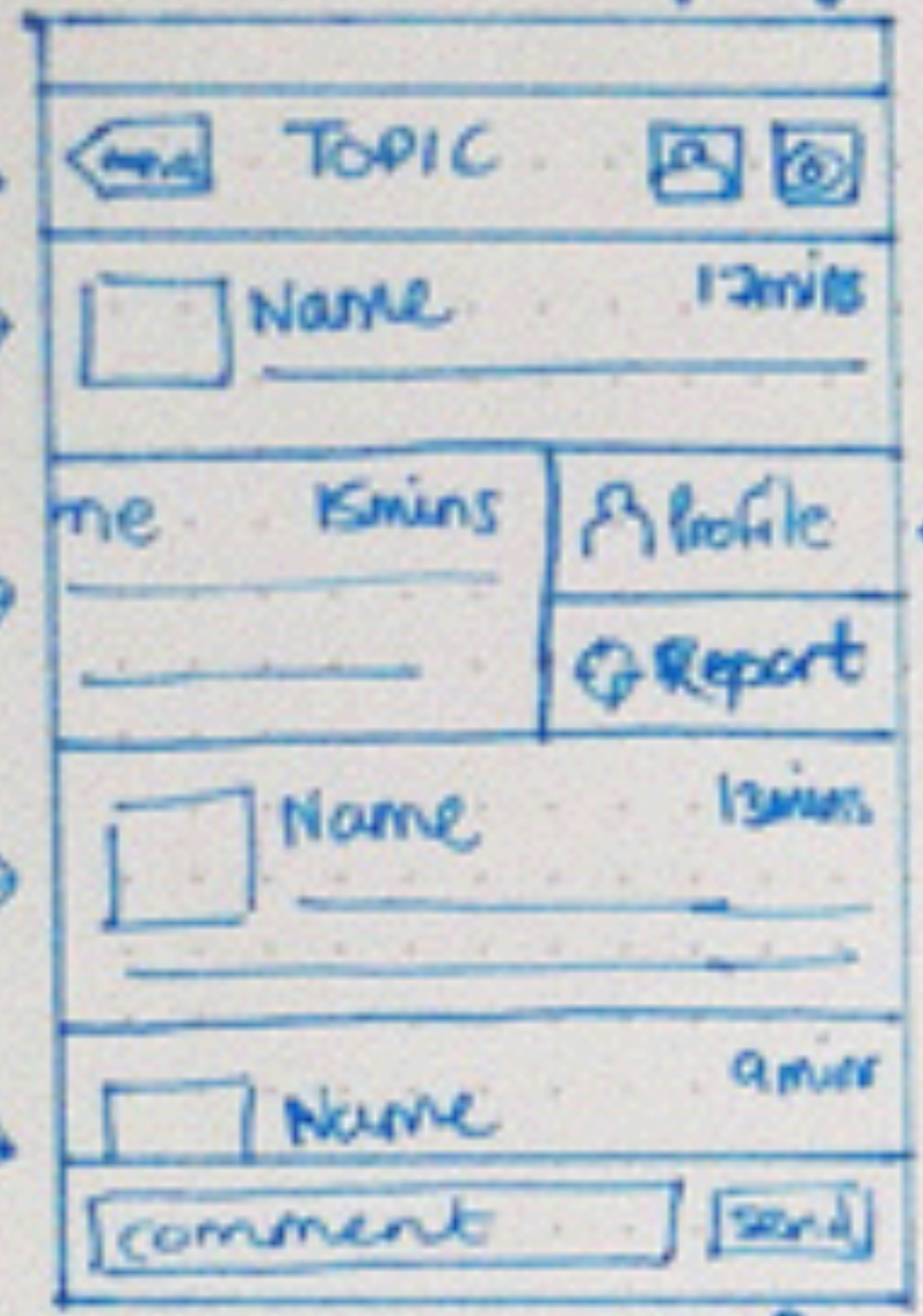


A

people settings

back to topics

messages



text field send button

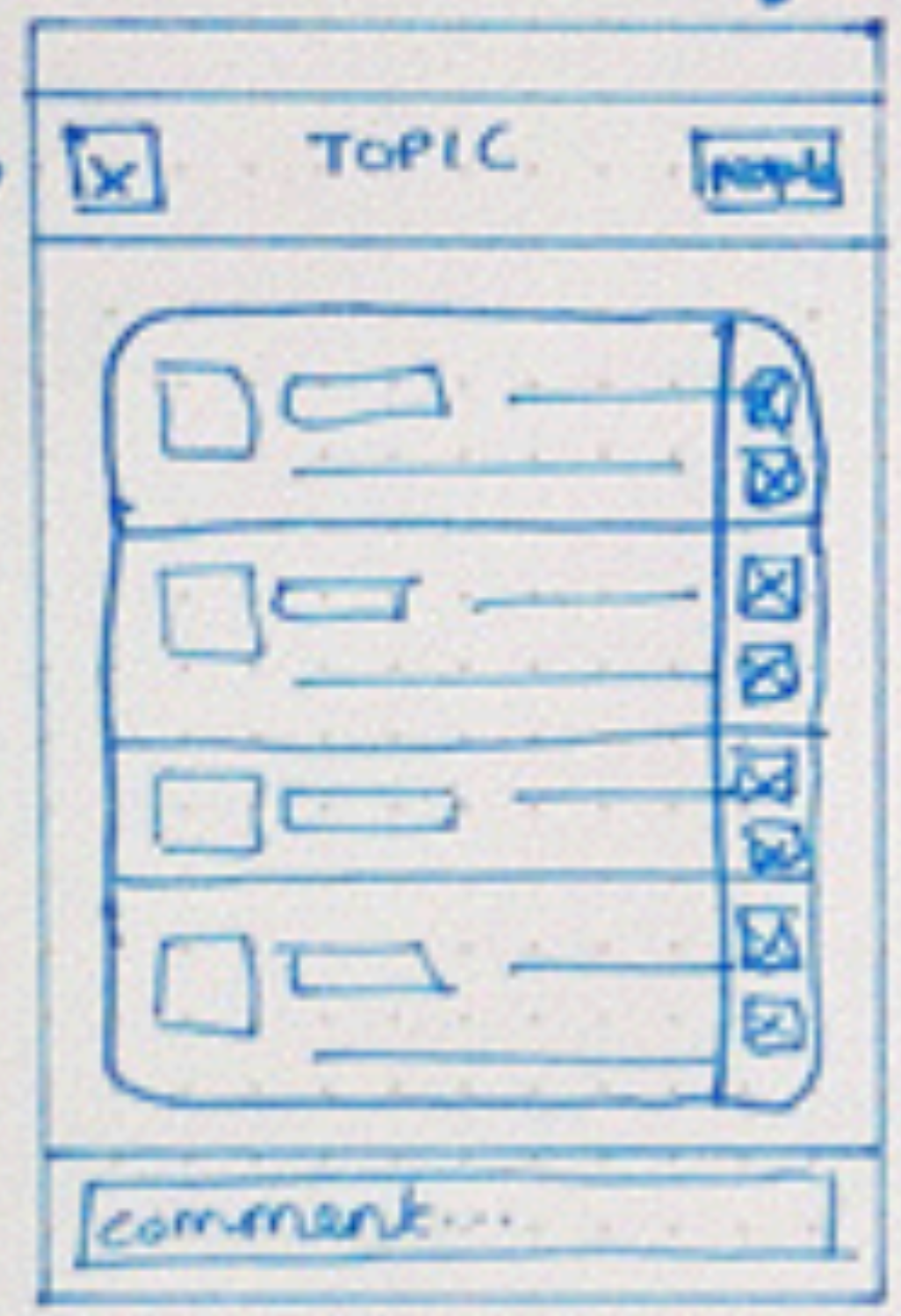
B

people

close

close

profile + report links



text field

send button appears on keypad.

C

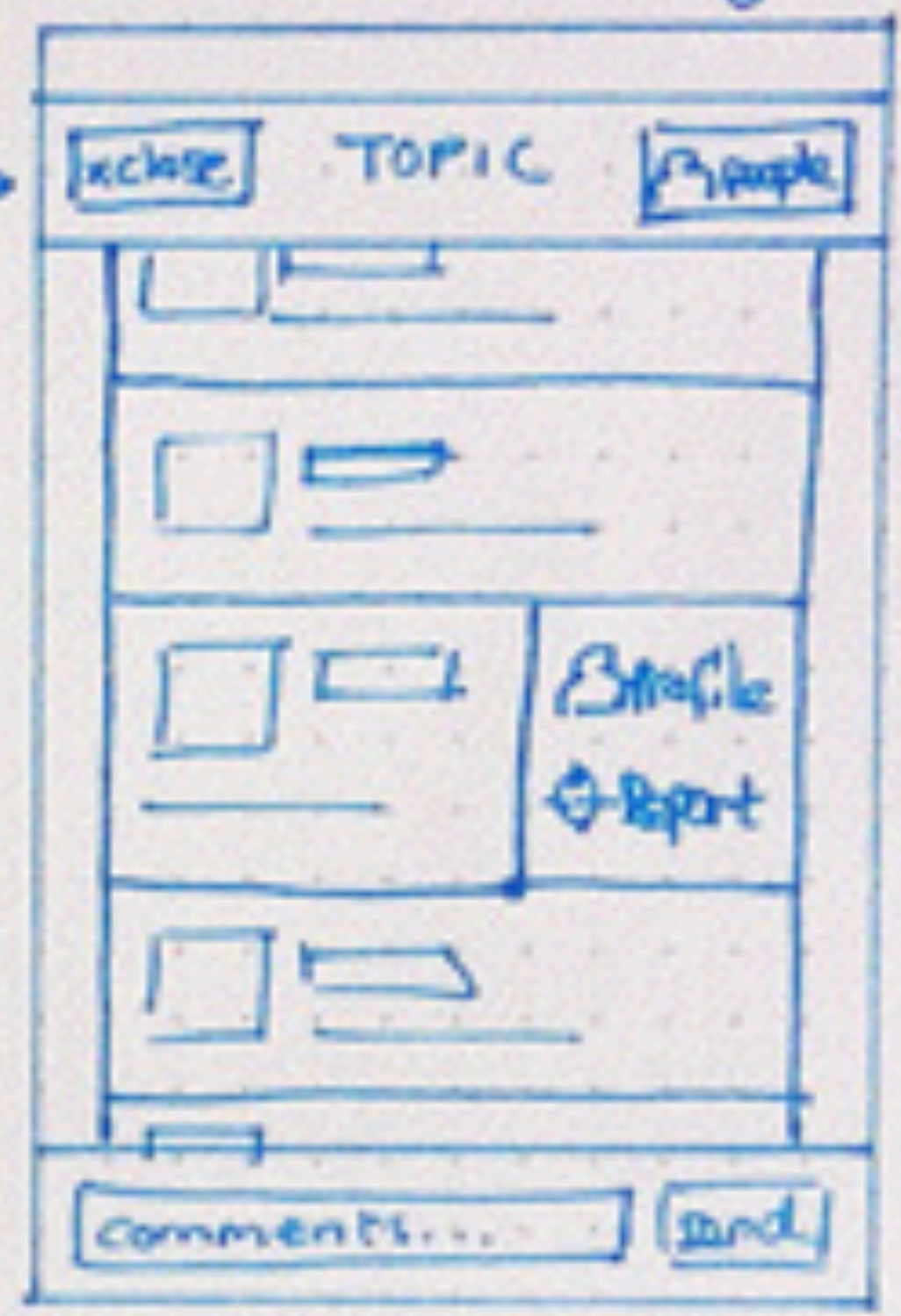
people

messages with side border

view profile

report user

slide message to reveal



text field send button



TIMESHEET: FRAGMENT

☰ TODAY SEP 13 ☰

"THIS IS YOUR LAST  
TIMESHEET. RESUME?"  
YES NO

CLIENT: BRUCE  
TASK

CLIENT: PROJECT  
TASK  
NOTE:

⌚ ⌘ ↺ ⌚ ...

SELECT DATE WIDGET

← TODAY DONE

< Sept 09 >

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	...			

⌚ ⌘ ↺ ⌚ ...

TIMER

← TODAY TIMER

SEPT 13, 2009 >

CLIENT: PROJECT  
TASK NAME >

3:17 >

ADD NOTE >

START NEW TIMER

⌚ ⌘ ↺ ⌚ ...

TIMER: EDIT TIME

← TIMER EDIT TIME

3:30

2 3 4 5

SELECT

⌚ ⌘ ↺ ⌚ ...

(NOT BUILDING - PASS II)

TIMESHEET (TODAY)

☰ WED 13 09 - TODAY ☰

CLIENT: BRUCE  
TASK 1.15

CLIENT: PROJECT  
TASK  
NOTE: [ ]

ACTIVE TIME →

⌚ ⌘ ↺ ⌚ ...

ADD NOTE

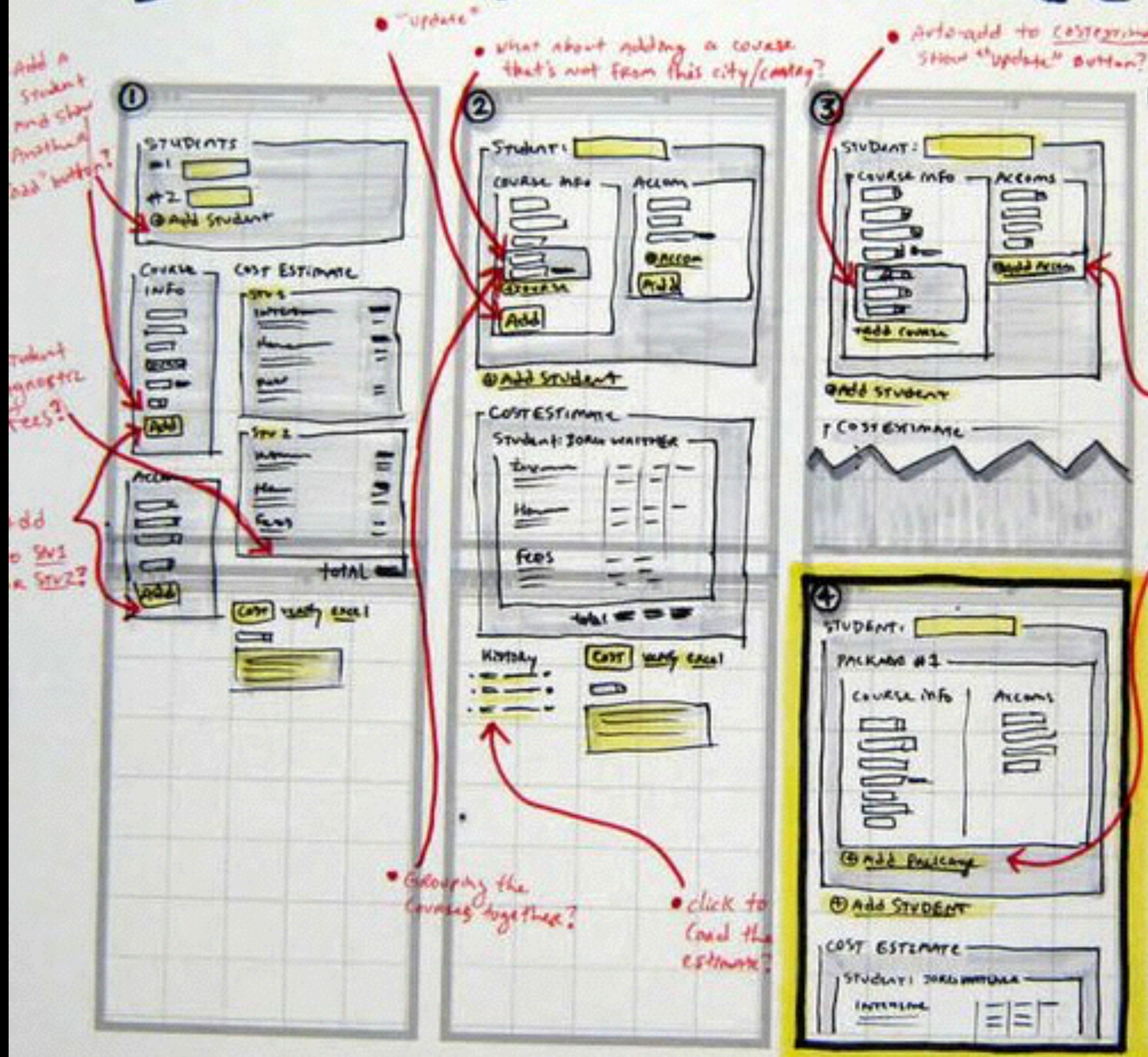
← TIMER ADD NOTE

Typing Note...

⌚ ⌘ ↺ ⌚ ...



# PERSON PAGE: FINAL NOTES



**Reconcile "Add Student"**

- Keep the COST ESTIMATE section, generally, the same.
- INCORPORATE OTHER NOTES...

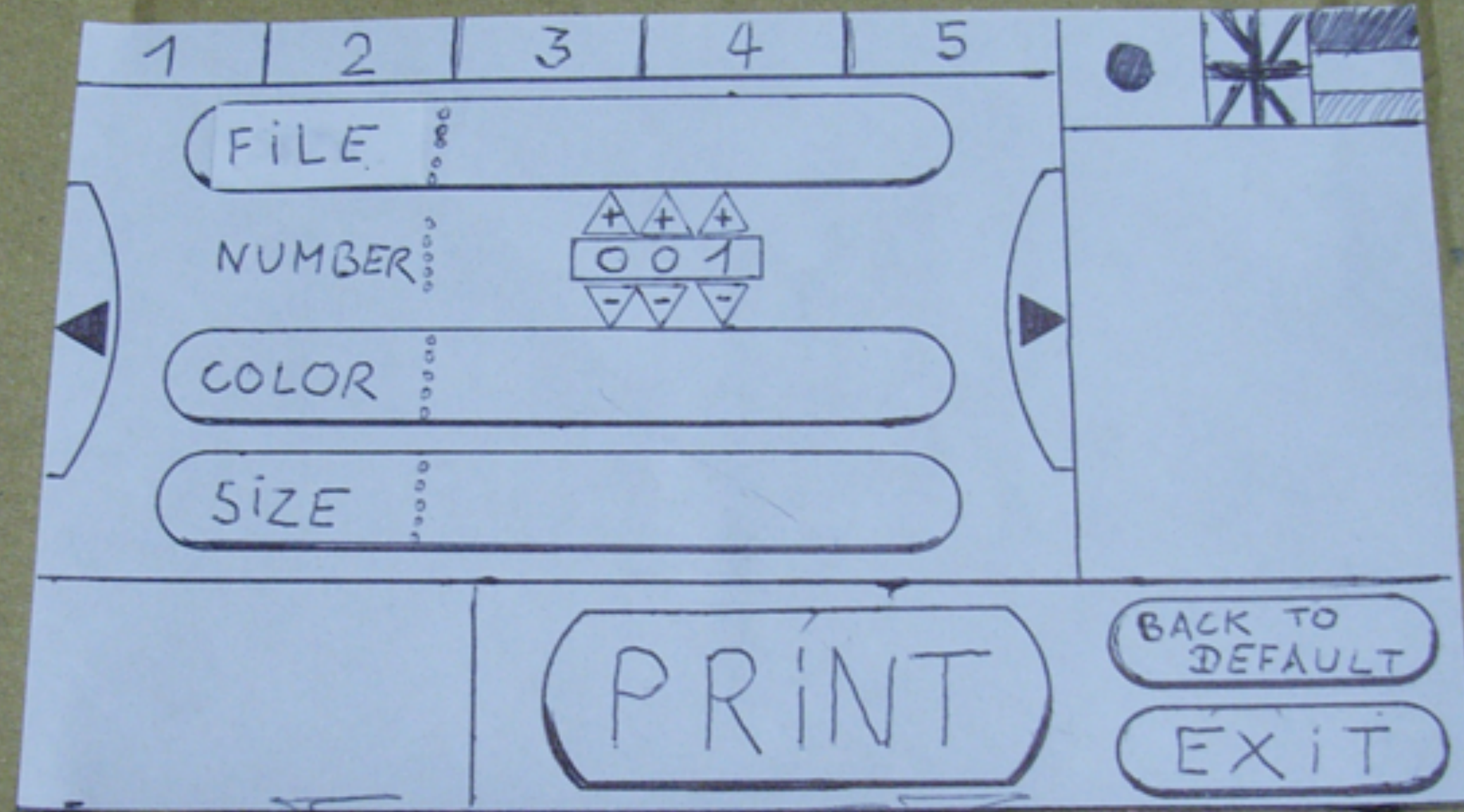


# Paper & Physical Prototyping





VARO







YOU HAVE CLICKED ON THE PREVIEW BOX. TO CHANGE YOUR SETTINGS, PLEASE USE THE BUTTONS ON THE LEFT AND THE NAVIGATION BUTTONS (← →)

OK

1 PAGE/SHY 2 PAGES/SHY 4 PAGES/SHY

CANCEL

ORIGINAL WORKING

DUPLEX

LAYOUT

STAPLE

ARE YOU SURE YOU WANT TO PRINT?

YES NO

REQUEST ACCEPTED.

2 3 4 5

FULL COLOR

BLACK & WHITE

CANCEL

x12 ORIGINAL A4 L

x1 ORIGINAL

YOU ARE ALREADY ON PAGE 1

OK

ARE YOU SURE YOU WANT TO LOAD THE DEFAULT CONFIGURATION?

YES NO

SENDING THE REQUEST TO THE PRINTER

⌚

PRINT IS OVER!

x12 ORIGINAL x15 ORIGINAL x12 A4 L x12 A4 L

x15 ORIGINAL x4 ORIGINAL x4 A4 P

ARE YOU SURE YOU WANT TO QUIT?

YES NO

AUTO 2 PAGES/SHEET

0.25 UPPER

UPPER INNER

FINISHER PROOF FINISHER SHIFT

FINISHER BOOKLET MANUAL

CANCEL

ALL BY PASS

TRAY 1 TRAY 2

TRAY 3 TRAY 4

CANCEL

BINDING TOP

BINDING LEFT BINDING RIGHT

OFF

CANCEL

400

600

CANCEL

TOP PORT

LEFT PORT RIGHT PORT

OFF

CANCEL

ORIGINAL ALL

File 1.pdf 100

BLACK & WHITE PLAIN

File 2.pdf A4 L

ORIGINAL

A3 L. A4 L. A4 P.

A5 L. A5 P. A6 L.

315B4 L. 315B5 L. 315B5 P.

315B6 L. 3POST L. 3POST P.

3POSTD P. LEGAL LETTER L.

LETTER P. EXECUTIVE L. EXECUTIVE P.

CANCEL

SORT

TYPE

OUT/IN

RESOLUTION

PUNCH

HAVER TRAY

ON

OFF

CANCEL

File 1.pdf

File 2.pdf

OK CANCEL

ARE YOU SURE YOU WANT TO SAVE THIS CONFIGURATION AS THE DEFAULT ONE?

YES NO

BINDING TOP

OFF

FULL COLOR

INNER 004

4 PAGES/SHEET

A5 P.

SAVE AS DEFAULT

SAVE AS ...

LOAD

OFF

LEFT TOP RIGHT TOP

BOOKLET TOP 2 PORT

LEFT 2 PORT RIGHT 2 PORT

CANCEL

AUTO

PLANE LETTERHEAD TRANSPARENCY

LABELS RECYCLED COLOR

SPECIAL SPECIAL2 SPECIAL3

THICK THICK2 THICK5

THIN MIDDLETHICK THIN OR REG.

CANCEL

Navigation arrows

Navigation icons

PLEASE PUT THE PDA ON THE PRINTER

⌚

1 PAGES/SHEET

012 A4 P.

LEFT 2 PORT



Shipping and Receipt

Customer: [ ]

Product: [ ]

Quantity: [ ]

Unit Price: [ ]

Total: [ ]

Shipping Cost: [ ]

Receipt Date: [ ]

Signature: [ ]

TIP - Please use correct units (MTR) to use of P&H (make)

OK

Cancel

Wrong!

OK

Order Entry

Date: [ ]

Order: [ ]

Order Type: [ ]

Order Status: [ ]

Order Total: [ ]

OK

Document

Title: [ ]

Subject: [ ]

Author: [ ]

OK

Find

Cancel

Address Form

Address: [ ]

City: [ ]

State: [ ]

Zip: [ ]

Next Step

WRONG!

OK

OK

Cancel

Search & Filter

Filter: [ ]

OK

Cancel

Find Product

Search

Cancel

Return Selected

Customer Order - List of Products

Item	Description	Quantity	Unit Price	Total
10000	Apple Delicata 1000	1	200.00	200.00
10001	New Apple 1000	10	10.00	100.00
10002	Apple 1000	1	100.00	100.00

Product List

Product Selection

Quantity Input

Unit Selection

Comments

- Apple
- Banana
- Orange
- Pineapple
- Strawberry
- Watermelon
- Apple
- Banana
- Orange
- Pineapple
- Strawberry
- Watermelon

Inventory

ID	Description	Quantity
10000	Apple Delicata 1000	1
10001	New Apple 1000	10
10002	Apple 1000	1

Item	Description	Quantity	Total
10000	Apple Delicata 1000	1	200.00
10001	New Apple 1000	10	100.00
10002	Apple 1000	1	100.00
		<b>Subtotal</b>	<b>400.00</b>
		<b>Tax</b>	<b>40.00</b>
		<b>Total</b>	<b>440.00</b>



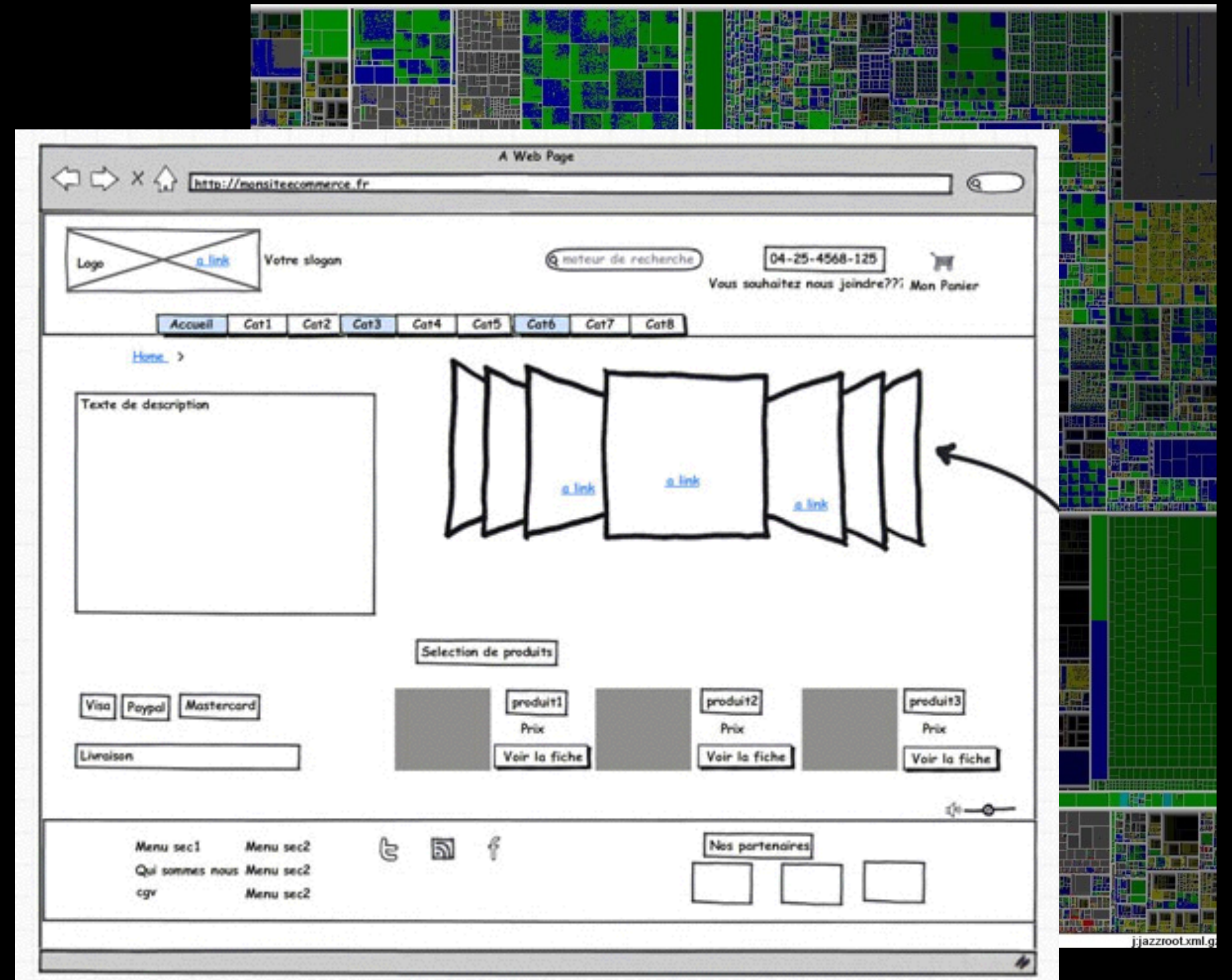


6/13/2002



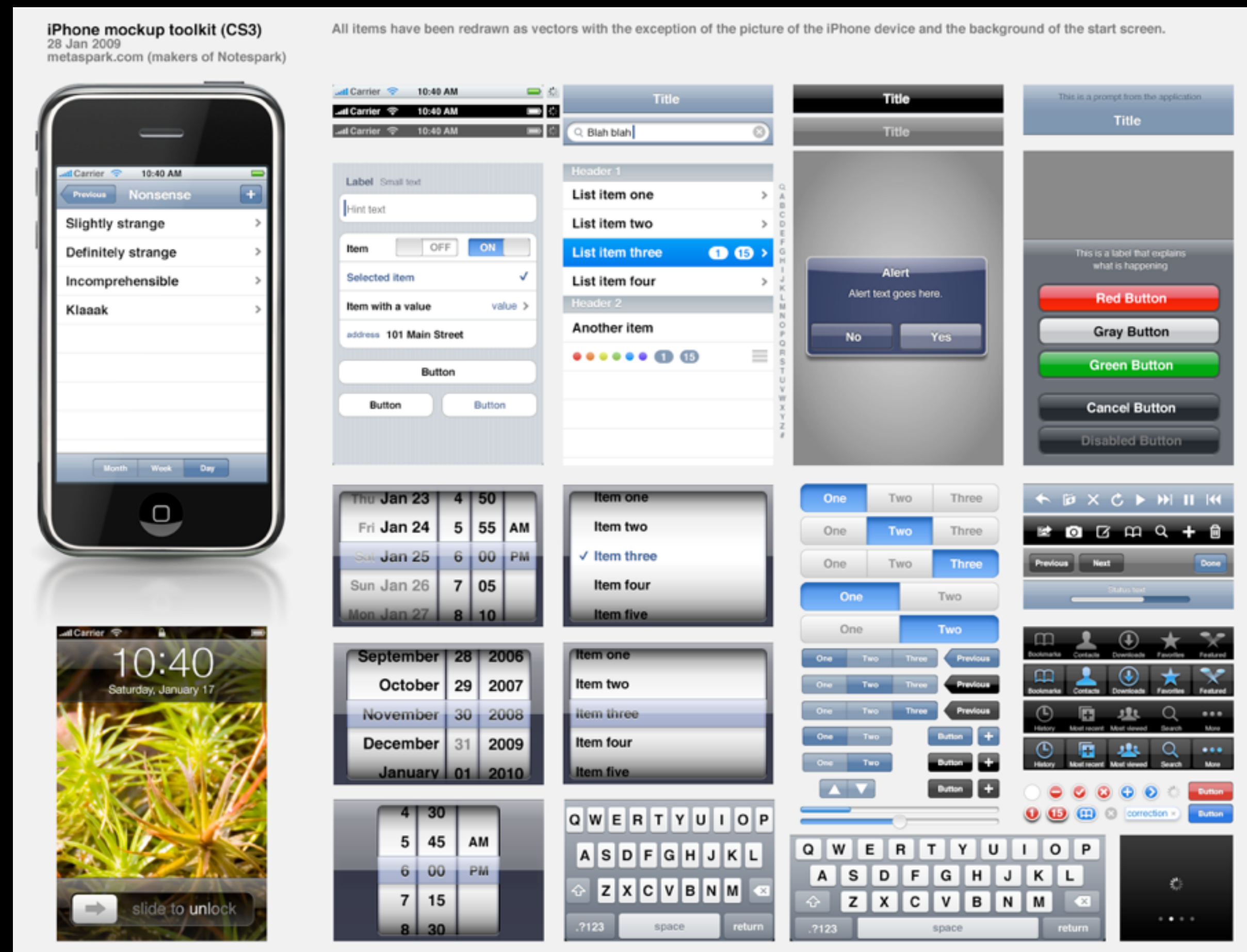
# Wireframe Prototypes

- Paper or digital
- Layout & functionality
- Tools :
  - OmniGraffle
  - Browser plugins
    - e.g. Pencil project





# 6. Prototypage : mockup









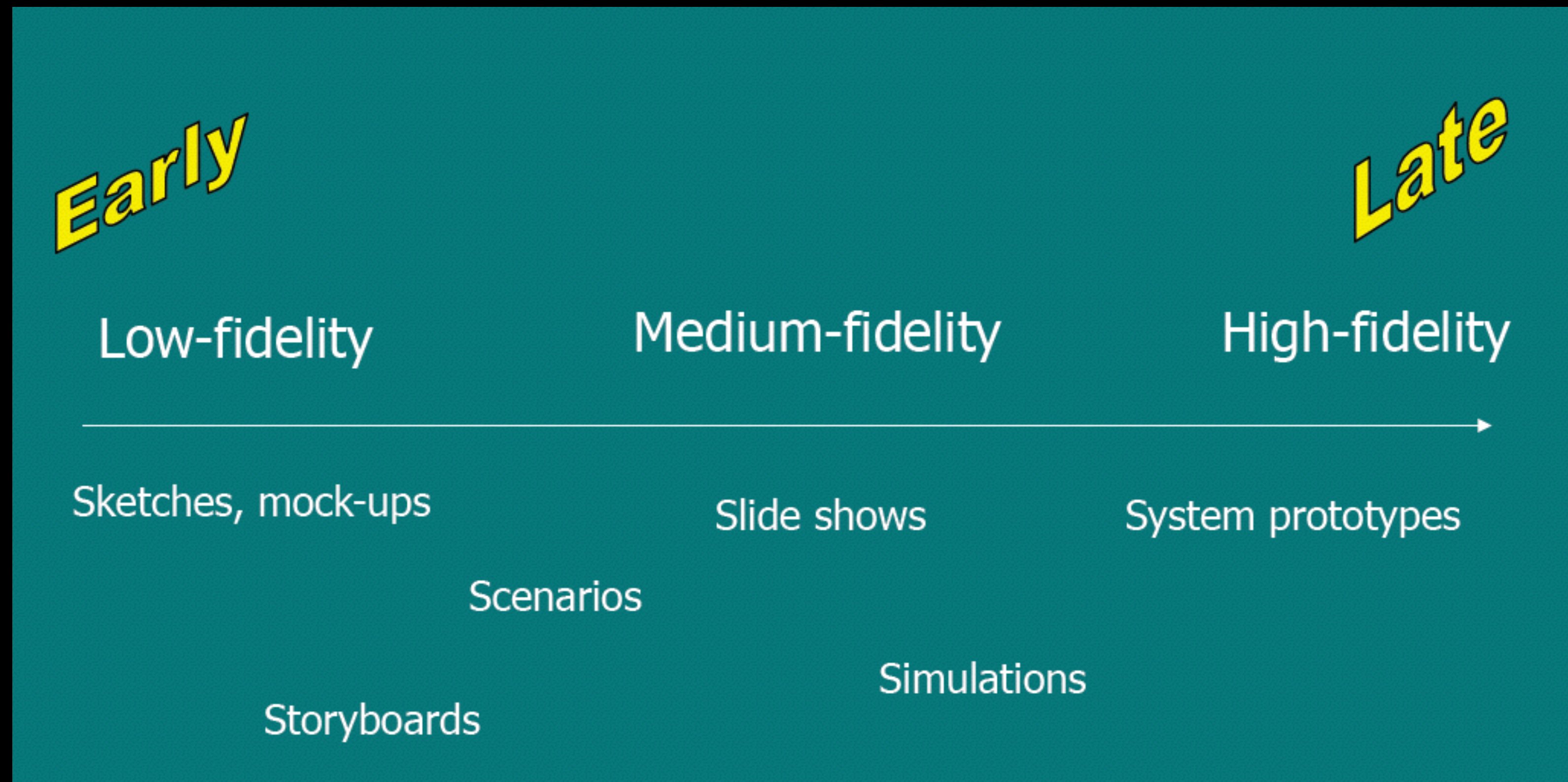
# Wizard of Oz

- Simulate the system with a human wizard





# Prototyping tools









# Projet

# Recolte de Besoins

- Identification des catégories d'utilisateurs
- Besoins de chaque type d'utilisateur
- Tâches ...



# Prototypes sur Papier

- Commencer avec des sketches
- Ignorer les détails, concentrer sur l'*idée*
- Au moins trois idées différentes
- Élaborer chaque idée afin d'explorer l'interaction, le flot, ...





# Why Test?

- Identify problems with software
- You are not your user
- The *earlier* you find your problems, the *cheaper* they are to fix

# Evaluation Methods

- Experimental, Observational
  - Typically with users
  - Controlled experiments based on usability requirements
- Predictive
  - (without users)



# Predictive Evaluation

- Idea:
  - Observational studies are expensive, time consuming
  - Let's predict rather than observe usage
  - Save resources (quick, cheap)

# Approach

- Expert review
  - HCI professional (not a real user) interacts with the system, tries to find usability problems
- Ideally:
  - Has not used previous prototypes
  - Knows the problem domain
  - Understands the user's perspective



# Predictive Evaluation Methods

- Heuristic Evaluation
- “Discount” usability testing
- Cognitive Walkthrough

# Heuristic Evaluation

- Developed by Jakob Nielsen ([www.useit.com](http://www.useit.com))
- Several experts evaluate the system according to simple and general heuristics



# Method

- Determine inputs
- Evaluate the system
- Collect observations
- Rank by severity

# Inputs

- Who are the experts?
  - Learn domain, practices
- What is the prototype to evaluate?
  - Mock-ups, storyboards, ... or even a working system



- Reviewers evaluate system according to high-level usability principles :

# Process

- Perform at least two passes
  - Look at each screen
  - Flow from screen to screen
- At each step, evaluate according to heuristics
- Look for problems:
  - Subjective (if you think its a problem, it is)



# Debriefing

- Gather all identified problems
  - Identify which ones aren't really problems
  - Group, classify
  - Document and record the problems

# Order by Severity

- Scale from 0 to 4
- Based on:
  - Frequency
  - Impact
  - Persistence
  - Market impact



# Advantages

- Cheap, good for small companies that can't afford more
- Can be performed on mockups
- Experienced evaluators ideal
- According to Nielsen, 5 evaluators find 75% of problems

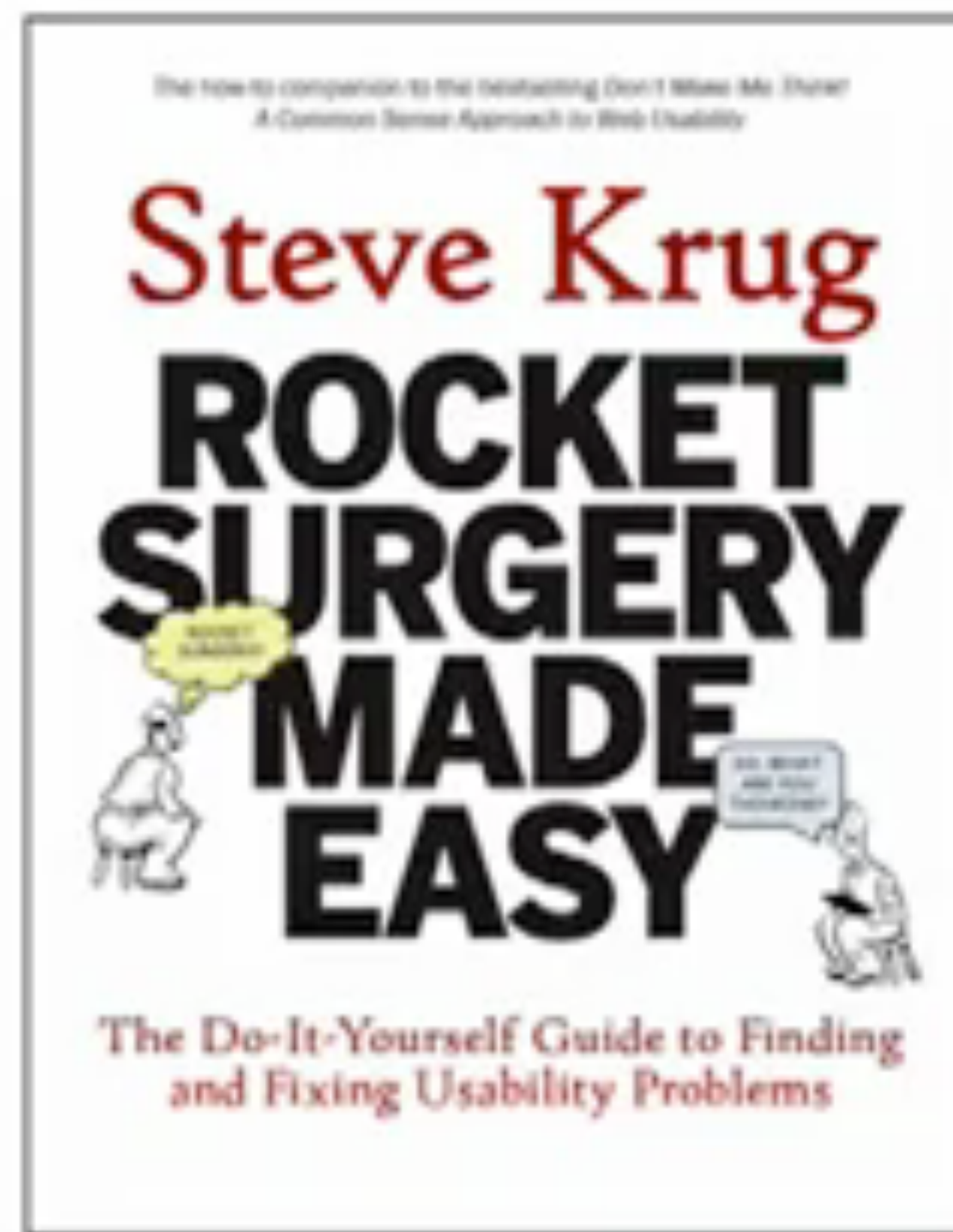
# Limitations

- Evaluation is subjective, depends on reviewer expertise
- Are these the right heuristics?
- Are the identified problems really problems?



# Demo Usability Test

for readers of



Rev. 1.1 / February 3, 2010  
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