

# DESIGN & PROTOTYPAGE

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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:**


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

**FIRST NAME:**  **MIDDLE INITIAL:**


**LAST NAME:**

**ADDRESS:**   
  
 (International use only)

**CITY:**

**STATE/PROVINCE:**    
Includes APO and FPO. Use "Other" if country is not USA or Canada.

**ZIP/POSTAL CODE:**

**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

# 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

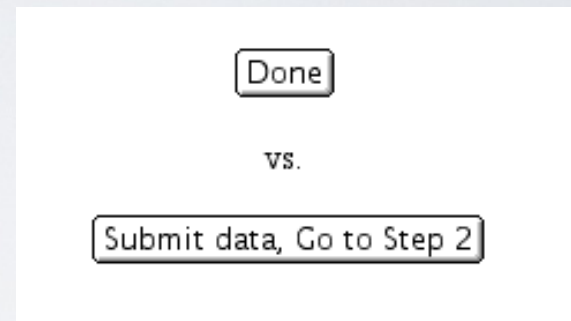
- Ease with which new users can begin effective interaction
- Performance improvement from session to session
- Principles
  - Predictability, Synthesizability, Familiarity, Generalizability, and Consistency

# 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". To the right is a search bar with the placeholder text "Enter an artist or song name here" and a magnifying glass icon. Below the search bar, the user "Hi Anders T" is logged in. The main heading reads "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." Below this, 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. Overlaid on the right side of the page is a light blue pop-up window from Last.fm. The window has a red 'X' drawn across it. It contains the text "Hi uipatterns", "Your profile | Settings | Inbox", "Welcome to Last.fm", and "To get started, type in some of your favourite artists, separated with commas." Below this is a text input field and a "Save" button. At the bottom of the pop-up, it says "Get music recommendations based on the music in your library." and "Download the Scrobbler to fill your library automatically from your media player or iPod." with icons for various music players.

# PREDICTABILITY

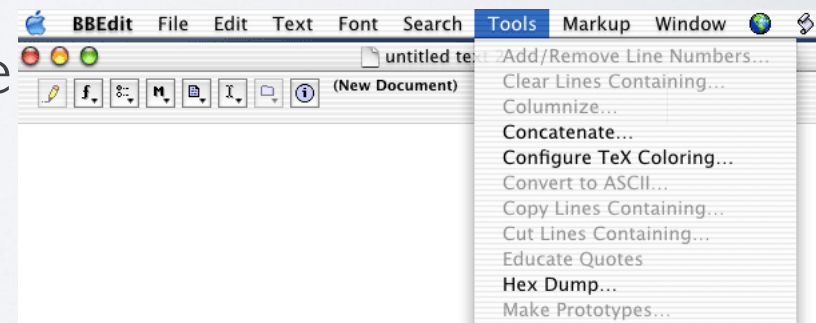
- I think that this action will do...



- Operation visibility – can see all available actions

- e.g. menus versus command-line

- Grayed menu items



# PREDICTABILITY

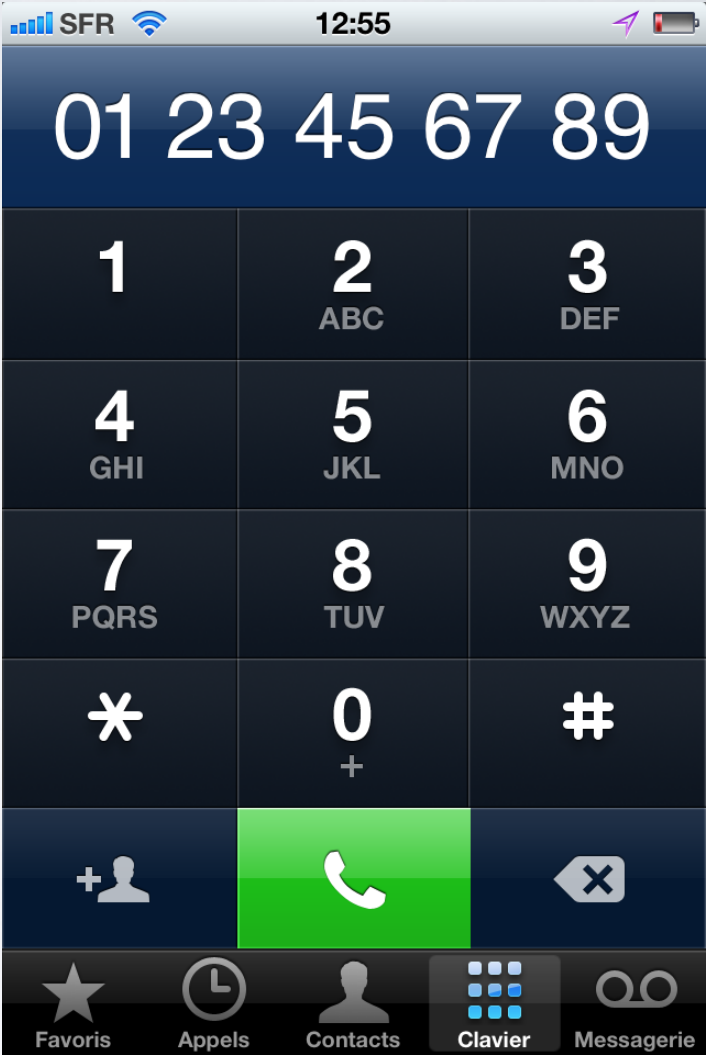
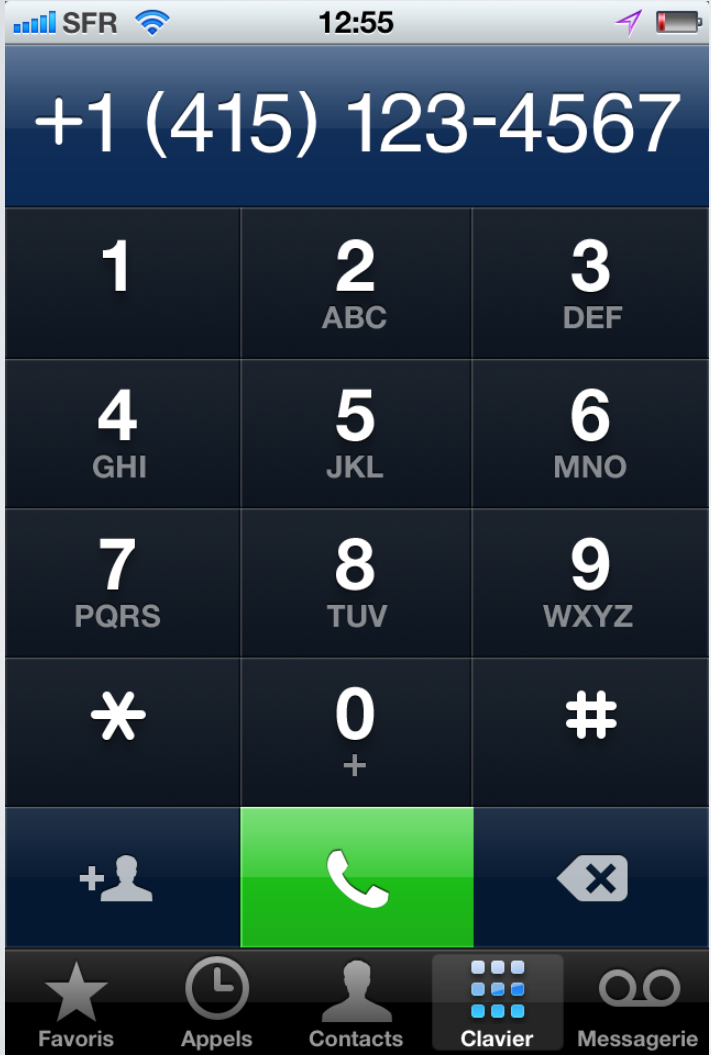


VS.





# CHUNKING





# FLEXIBILITY

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

# ROBUSTNESS

- Observability
- Recoverability
- Responsiveness
- Task Conformance

# OBSERVABILITY

```
translator.py x
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 >

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

**Trip Summary**

**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 Fri 27 Jul	CDG	Nonstop	8h 55m	DL 28	Economy (U)	View Seats	

**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



# ENTONNOIR DE PROCESSUS

- Version simplifiée de l'interface
  - Adaptée pour focaliser sur le processus impliqué
  - Évite de distractions, confusion





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

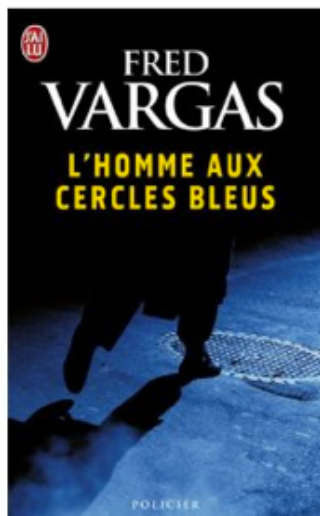
Découvrez nos offres Éclair  
Des promotions exceptionnelles,  
quelques heures pour en profiter !

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

Votre compte | Aide

Toutes nos boutiques  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)  (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
<input type="checkbox"/> Poche	EUR 4,75	EUR 3,00	EUR 2,00
<input checked="" type="checkbox"/> Broché, 16 juin 2005	EUR 5,32	EUR 4,50	EUR 1,61
<input type="checkbox"/> Poche	--	--	EUR 0,89

Quantité :

ou

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

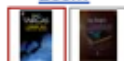
### Plus de choix

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

Vous l'avez déjà ?

[Partager](#)

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

[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&oldPurchasek

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

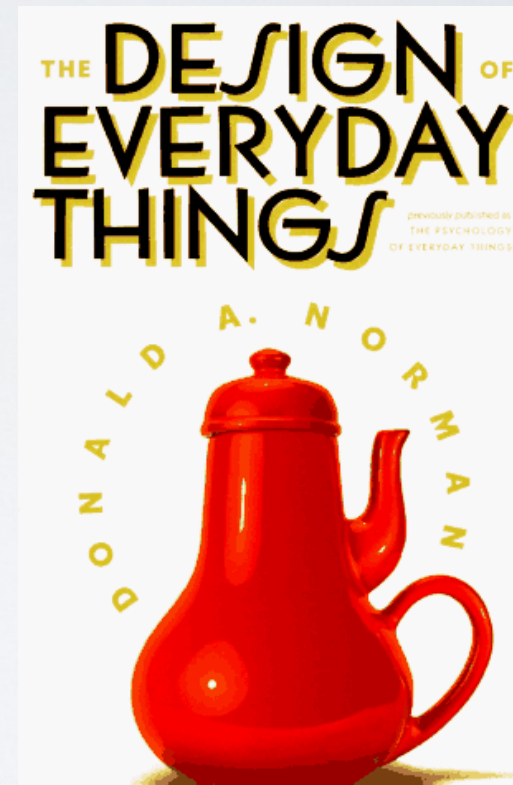
# MODÈLES MENTAUX

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

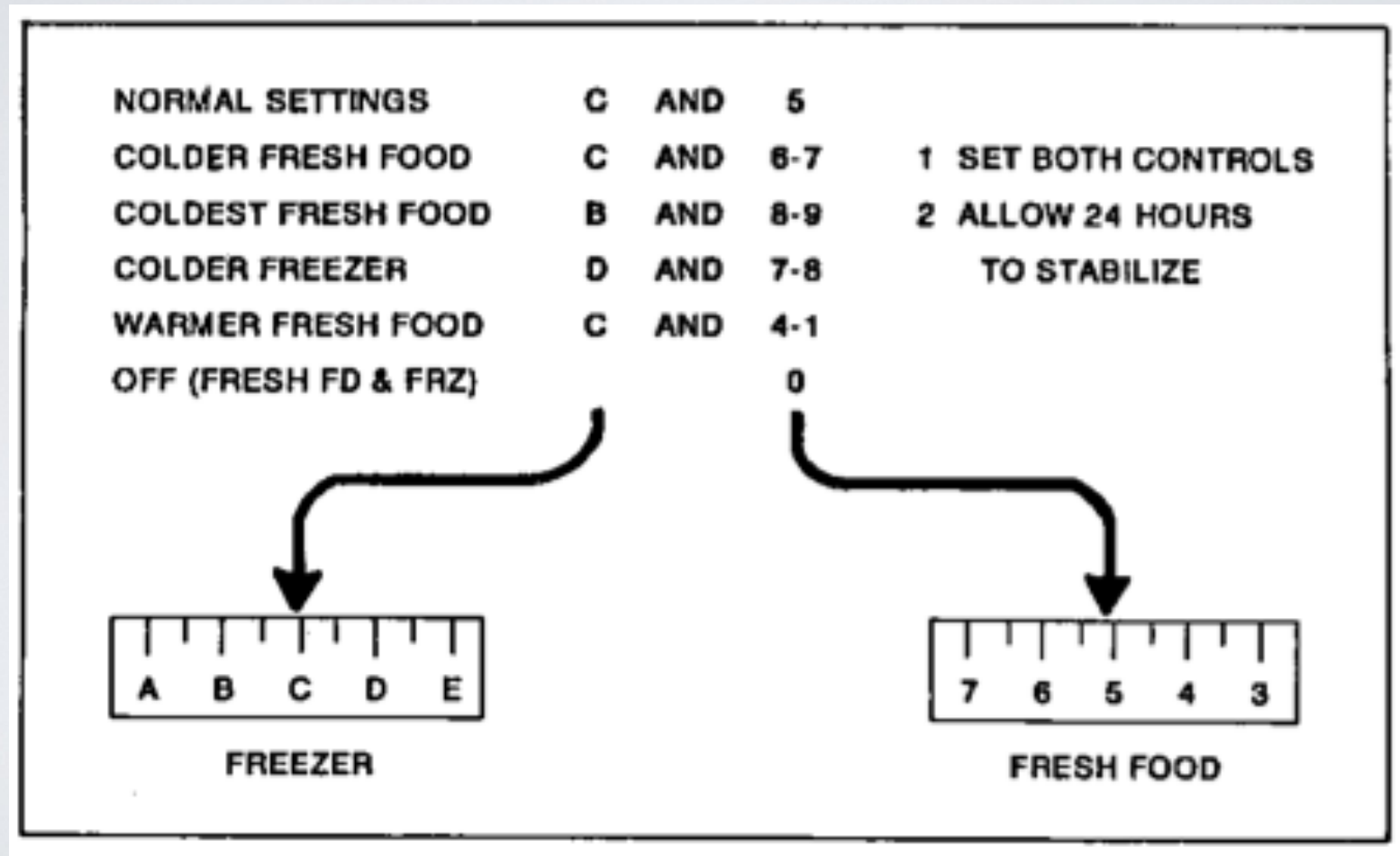


# DON NORMAN

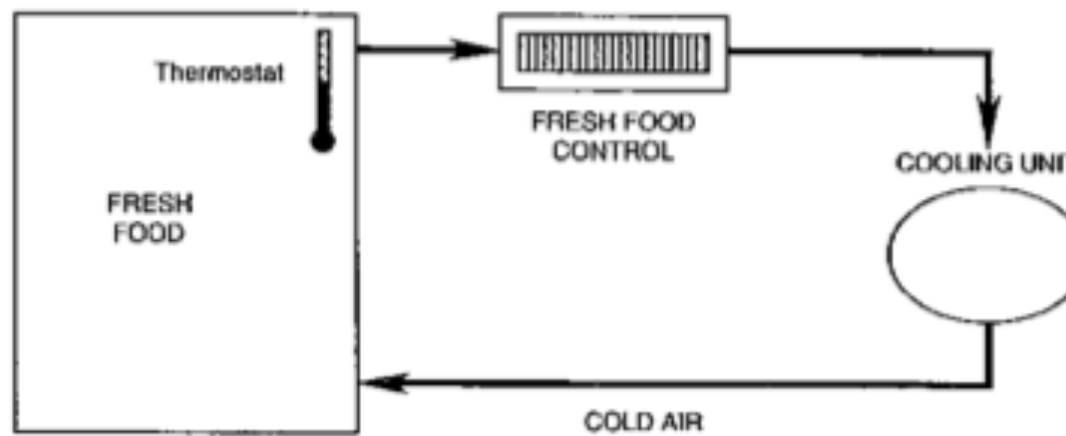
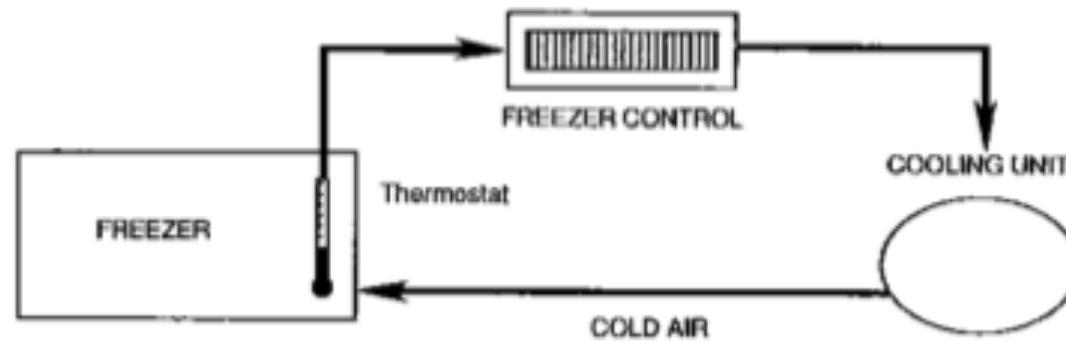
- Design of Everyday Things



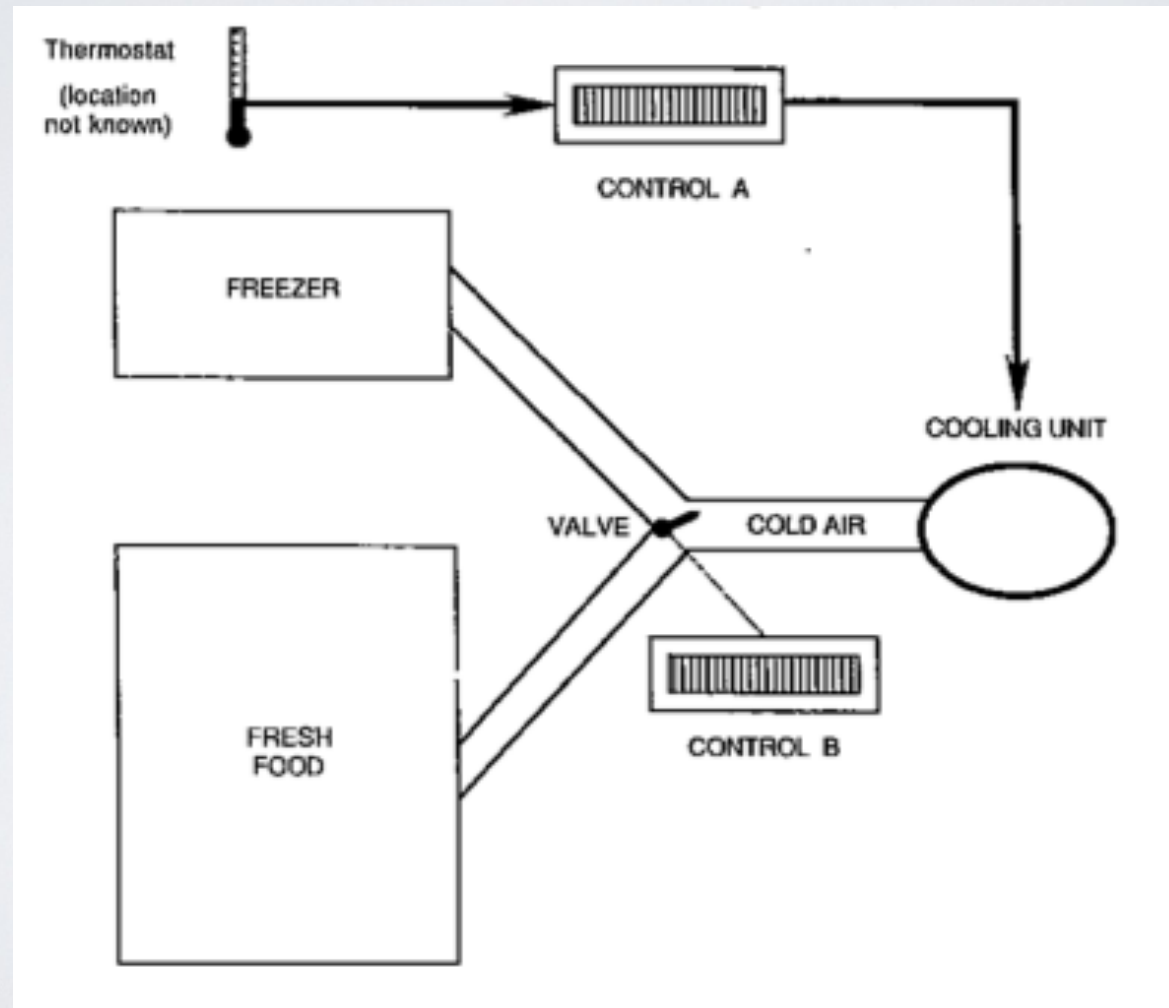
# INTERFACE D'UN FRIGO



# MODÈLE D'UN FRIGO

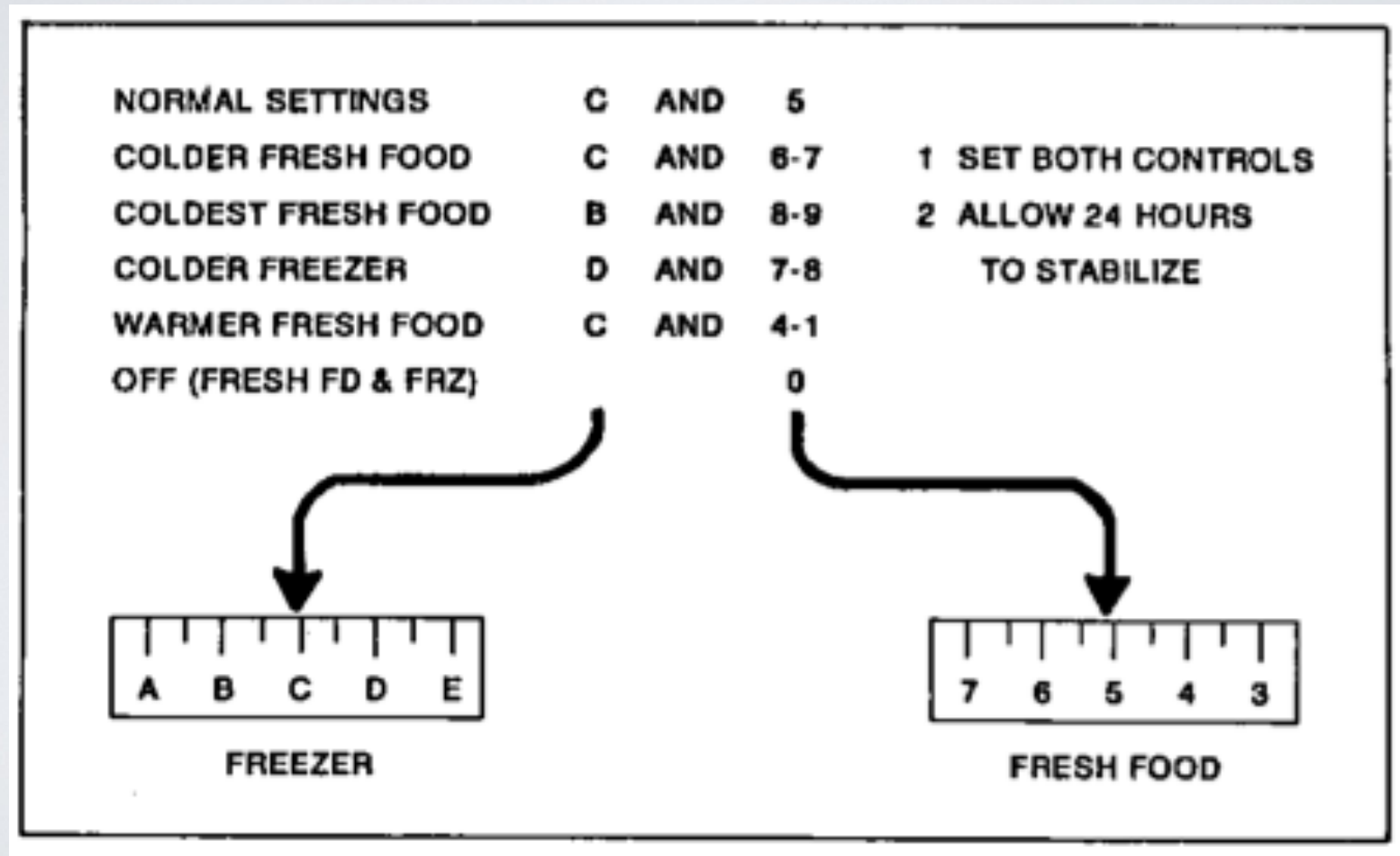


# MODÈLE D'UN FRIGO

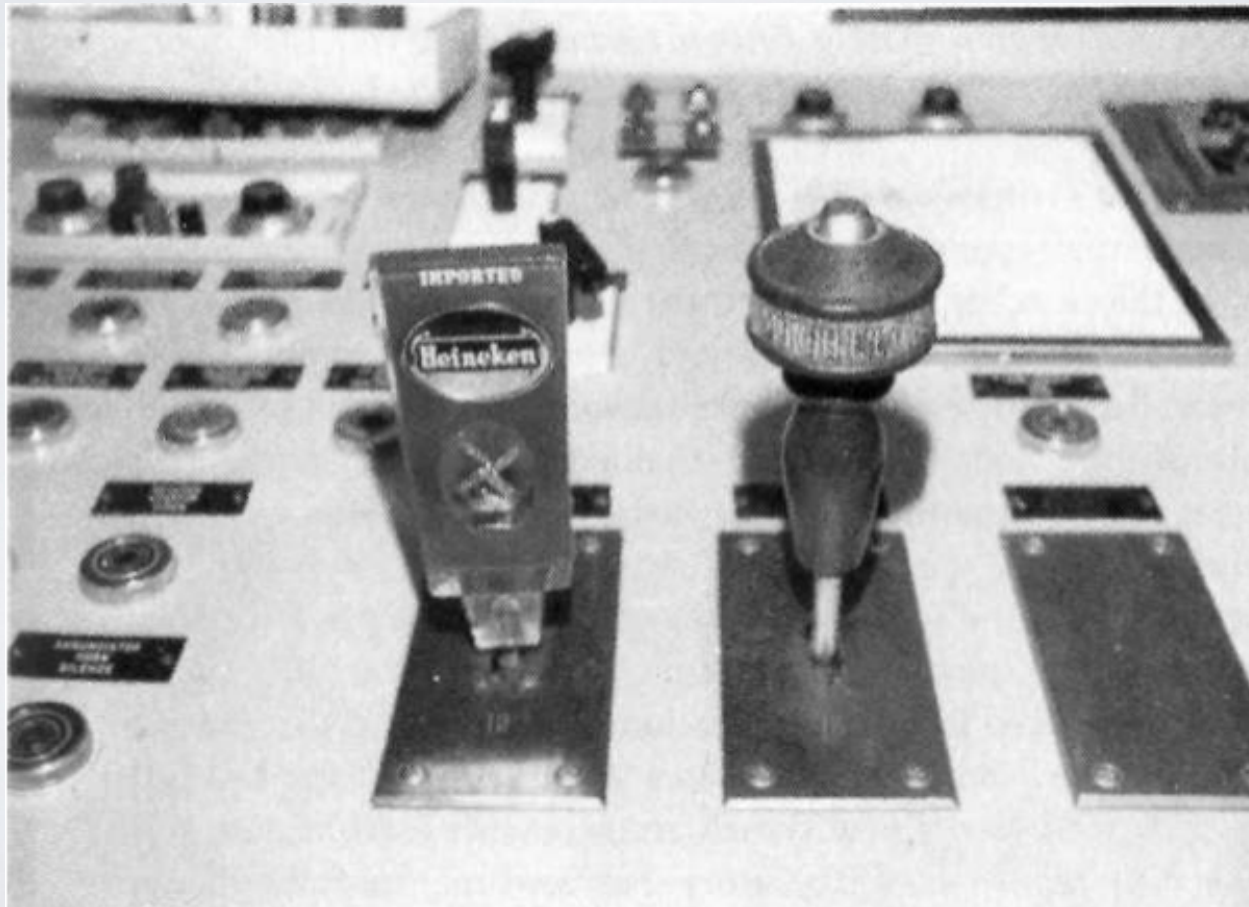




# INTERFACE D'UN FRIGO



# MAKE CONTROLS LOOK & FEEL DIFFERENT



# PARADOX OF CHOICE



# Apple Store

Questions? [Call 1-800-MY-APPLE](#)

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
---	--	--	---	--

**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

## 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

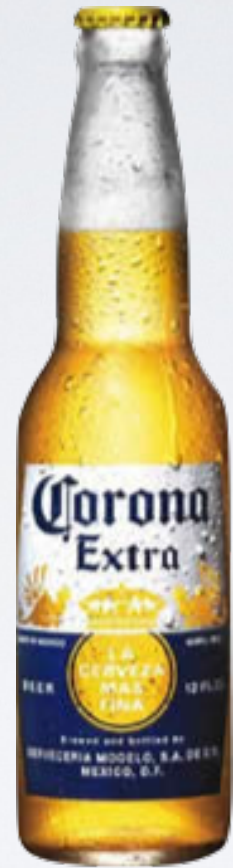
## Top Sellers

1. Apple Magic Mouse
2. Apple Remote

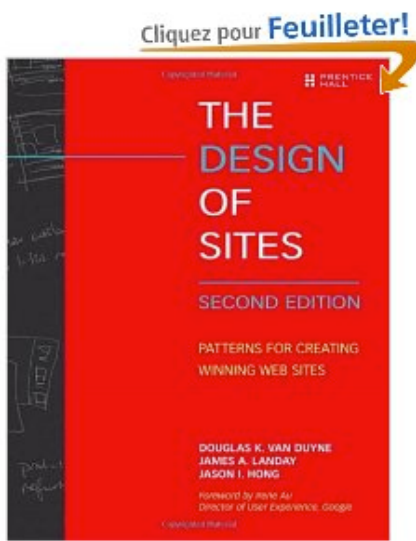


# INVOKE SCARCITY

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







### 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 55,39 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

Partager

Partagez vos propres images client  
Rechercher dans ce livre

### Descriptions du produit

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

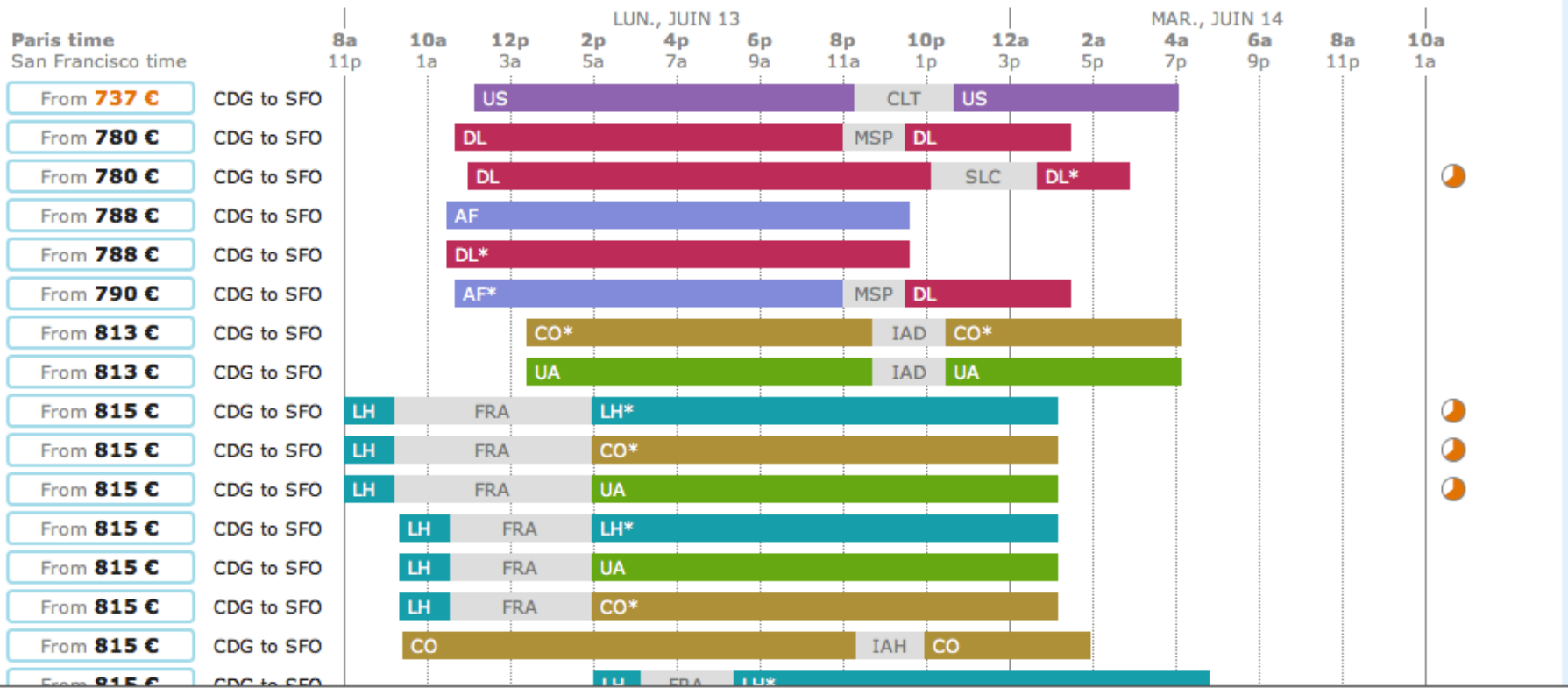
CLT

juin 21

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

Complete trips Individual flights Time bars

PRICE FROM/TO AIRLINE DEPART ARRIVE DURATION STOPS ADVISORY





[ Source : James Hudson, PayPal ]



[ Source : James Hudson, PayPal ]



Before



Extra gentle for the most sensitive skin.

Start with ultra sensitive skin, add the chemicals and moisture of urine and stools, and you have diaper rash.



After



Extra gentle for the most sensitive skin.

Start with sensitive skin, add the chemicals and moisture of urine and stools, and you have diaper rash.





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

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



66 % conversion

[ Source : James Hudson, PayPal ]

Account login

Email address

jahudson@paypal.com

PayPal password

Go to

My account

Log In

Forgot your [email address](#) or [password](#)?

New to PayPal? [Sign up](#).

Top questions

→ [Why use PayPal when I have credit cards?](#)

→ [What can I do with PayPal?](#)

→ [Is PayPal free to use?](#)



PayPal Shopping

Get up to **20% off** top brands.

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

Pay With:

Pay online

- › [Learn how](#) PayPal works.
- › [Shop without exposing](#) your financial information.
- › [Send money](#) to friends and family around the world.

[Sign up](#)

Get paid online

- › [Accept payments](#) for your eBay listings.
- › [Start accepting credit cards](#) on your website.
- › [See all the ways](#) to get paid online.

[Sign up](#)

PayPal Shopping

Get up to **20% off** top brands.



[Find Deals](#)

# BESOINS UTILISATEUR

# MOTIVATION

- User

- Low motivation, discretionary use

- Low motivation, mandatory use

- High motivation, due to fear

- High motivation, due to interest

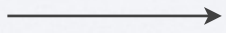
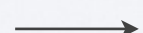
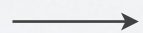
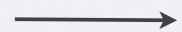
- Design goal

- 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

# 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

IDEA



motivation

METAPHOR



meaning

MODEL



modes

DISPLAY



mapping



ERROR



SCENARIO



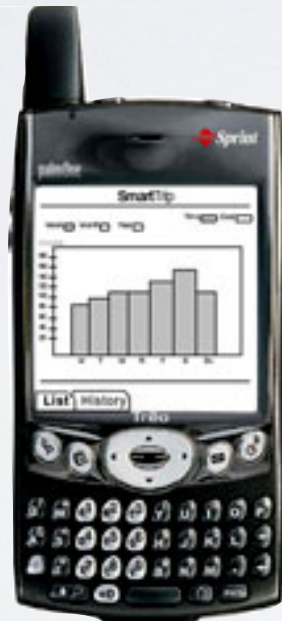
TASK



CONTROL



# PAPER & PHYSICAL PROTOTYPING





VARO

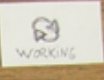
1	2	3	4	5			
FILE					●	✳	▨
NUMBER			+ + + 0 0 1 - - -		[Empty Panel]		
COLOR							
SIZE							
			PRINT		BACK TO DEFAULT		
					EXIT		





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/SHEET   2 PAGES/SHEET   4 PAGES/SHEET  
CANCEL



DUPLEX: [ ]  
LAYOUT: [ ]  
STAPLE: [ ]

ARE YOU SURE YOU WANT TO PRINT?  
YES NO

REQUEST ACCEPTED.

FULL COLOR  
BLACK & WHITE  
CANCEL

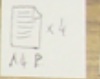


YOU ARE ALREADY ON PAGE 1  
OK

ARE YOU SURE YOU WANT TO LOAD THE DEFAULT CONFIGURATION?  
YES NO

SENDING THE REQUEST TO THE PRINTER  
⌚

PRINT IS OVER!



ARE YOU SURE YOU WANT TO QUIT?  
YES NO

AUTO   2 PAGES/SHEET  
0.25   UPPER

UPPER   INNER  
FINISHER PROOF   FINISHER SHEET  
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.ppt   500  
BLACK & WHITE   PLAIN  
File 2.ppt   A4 L

ORIGINAL  
A3 L   A4 L   A4 P  
A5 L   A5 P   A6 L  
SISB4 L   SISB5 L   SISB5 P  
SISB6 L   SPOST L   SPOST2 L  
SPOST P   LEGAL   LETTER L  
LETTER P   EXECUTIVE L   EXECUTIVE P  
CANCEL

SORT: [ ]  
TYPE: [ ]  
OUT/IN: [ ]

ABSOLUTE  
PUNCH  
PUNCH TRAY

ON  
OFF  
CANCEL

File 1.ppt  
File 2.ppt  
OK   CANCEL

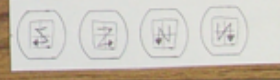
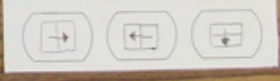
ARE YOU SURE YOU WANT TO SAVE THIS CONFIGURATION AS THE DEFAULT ONE?  
YES NO

BINDING TOP  
OFF  
FULL COLOR  
INNER   500  
4 PAGES/SHEET  
AS P

SAVE AS DEFAULT  
SAVE AS ...  
LOAD

OFF  
LEFT TOP   RIGHT TOP  
BOOKLET   TOP 2 PORT  
LEFT 2 PORT   RIGHT 2 PORT  
CANCEL

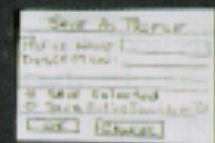
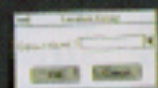
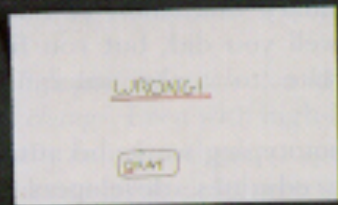
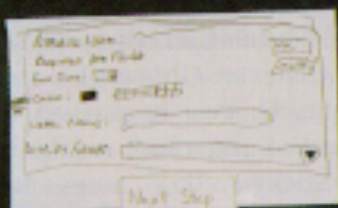
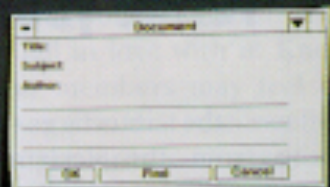
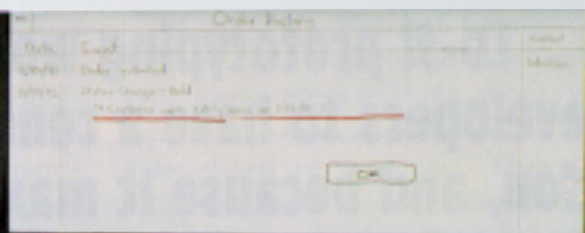
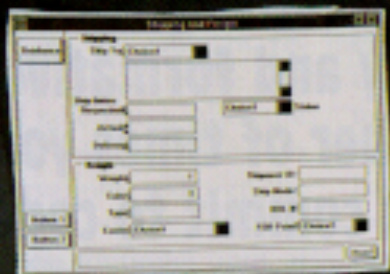
AUTO  
PLANE   LETTERHEAD   TRANSPARENT  
LABELS   RECYCLED   COLOR  
SPECIAL   SPECIAL2   SPECIAL3  
THICK   THICK2   THICKS  
THIN   HANDLETHICK   PLAN IN REG.  
CANCEL



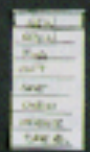
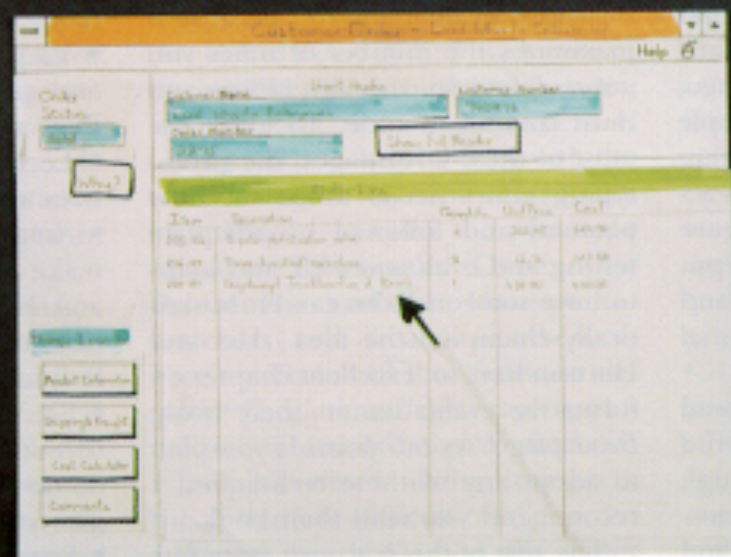
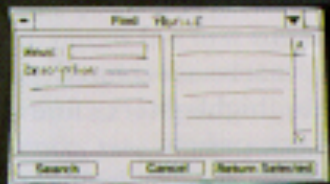
PLEASE PUT THE PDA ON THE PRINTER  
⌚

1 PAGE/SHEET  
0.25   A4 P  
LEFT 2 PORT





To Do



Customer			
1000	10	100	1000
1001	10	100	1000
1002	10	100	1000
1003	10	100	1000
1004	10	100	1000
1005	10	100	1000
1006	10	100	1000
1007	10	100	1000
1008	10	100	1000
1009	10	100	1000
1010	10	100	1000

Item	Description	Quantity	Unit Price	Cost
1000	Alpha-numeric order	1	100.00	100.00
1001	Beta-numeric order	10	100.00	1000.00
1002	Gamma-numeric order	1	100.00	100.00
1003	Delta-numeric order	1	100.00	100.00
				TOTAL
				1300.00
				1300.00
				1300.00



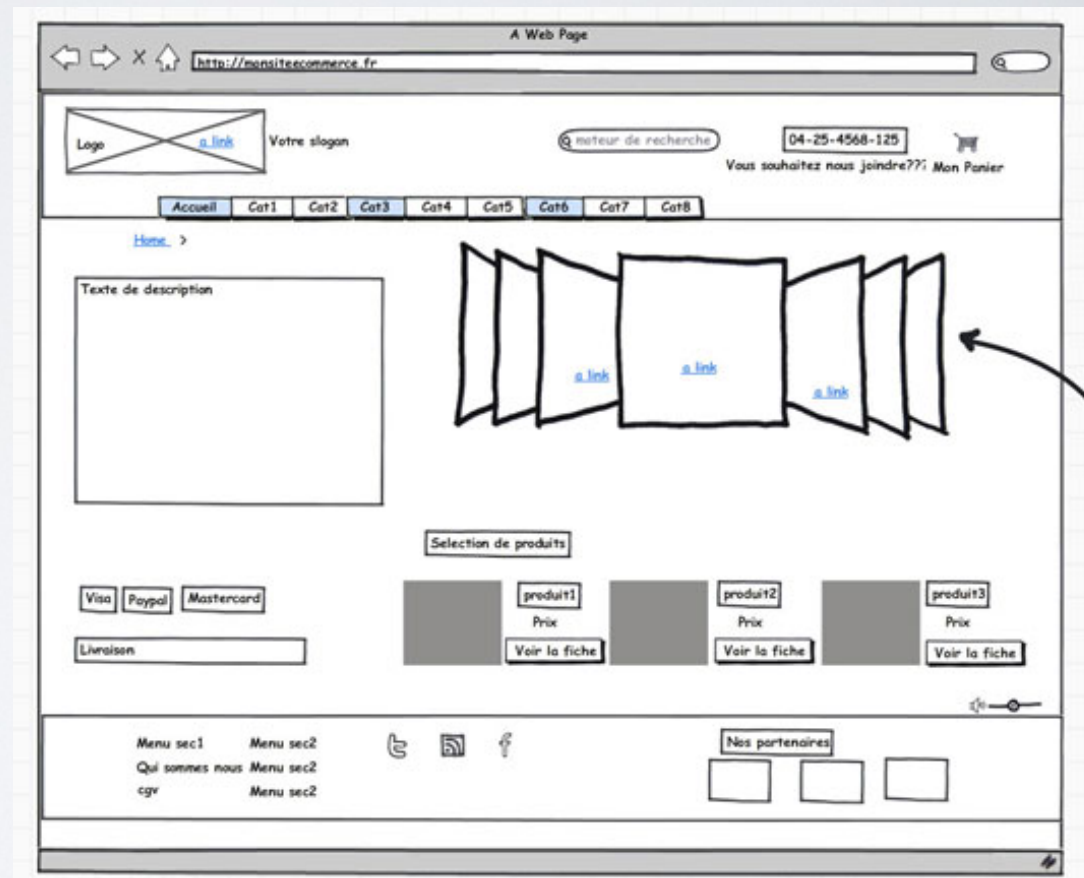


6/13/2002



# WIREFRAME PROTOTYPES

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

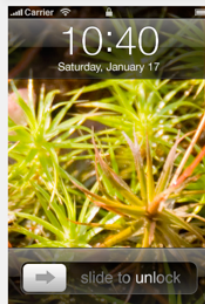
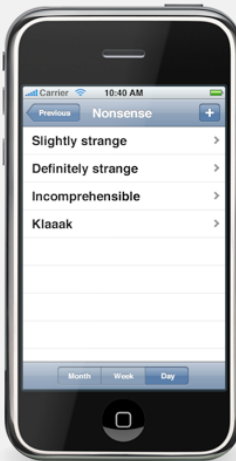


# CONCEPTION : UCD

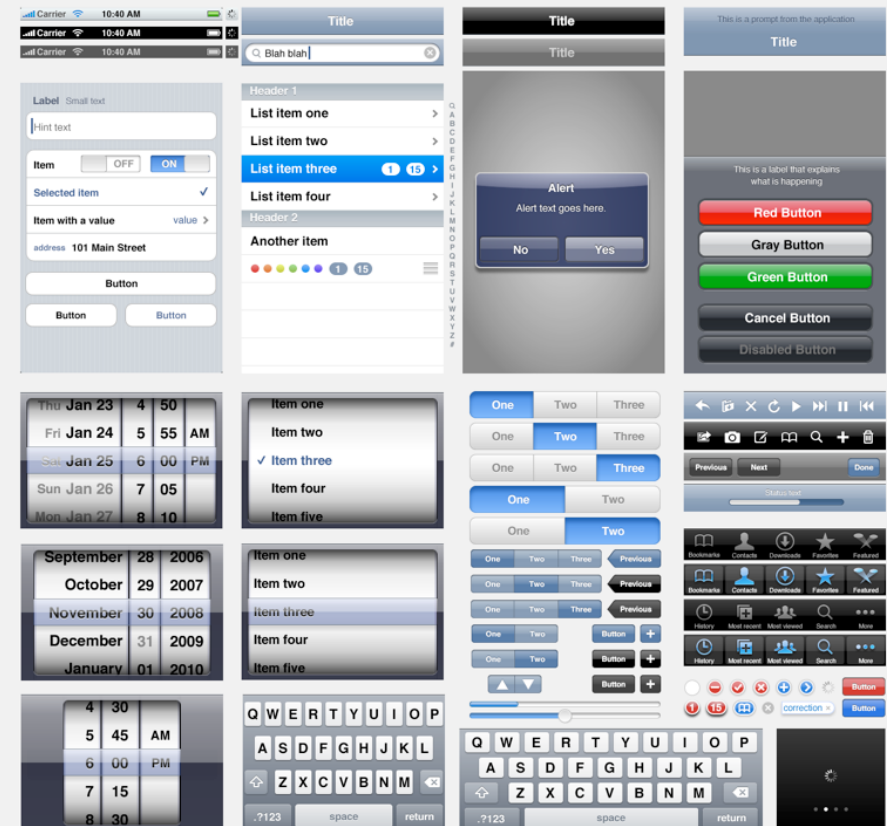
## 6. Prototypage : mockup

- plus fidèle
- look & feel
- pixel prêt
- Outils :
  - Suite Adobe CS
  - OmniGraffle

iPhone mockup toolkit (CS3)  
28 Jan 2009  
metaspark.com (makers of Notspark)



All items have been redrawn as vectors with the exception of the picture of the iPhone device and the background of the start screen.



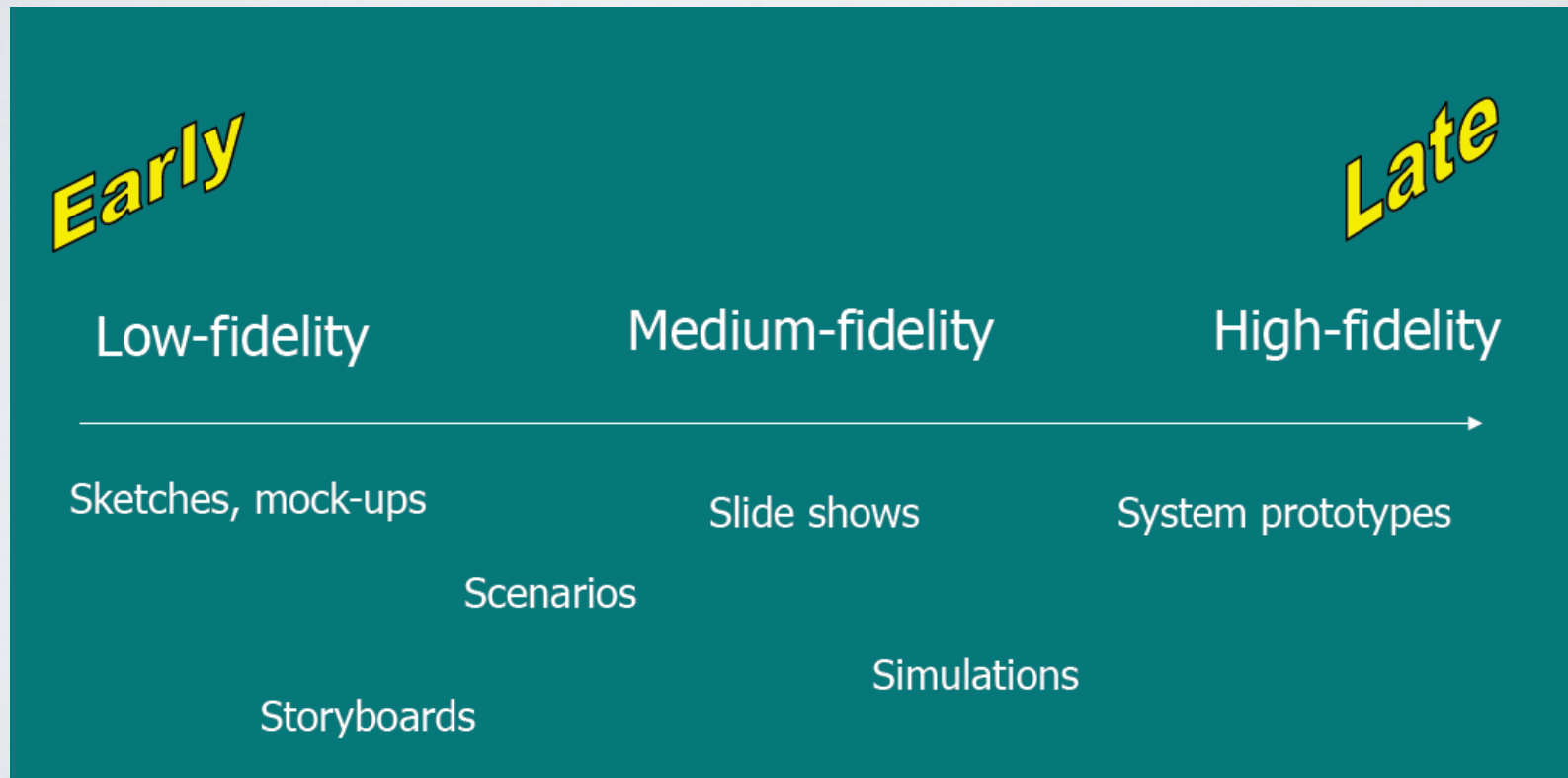


# WIZARD OF OZ

- 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, ...

# USER TESTING & EVALUATION



# 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

# EVALUATION METHOD

- Reviewers evaluate system according to high-level usability principles :
- Use simple and natural dialog
- Speak user's language
- Minimize memory load
- Be consistent
- Provide feedback
- Provide clearly-marked exits
- Provide shortcuts
- Provide good error messages
- Prevent errors



# 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 finds 75% of problems

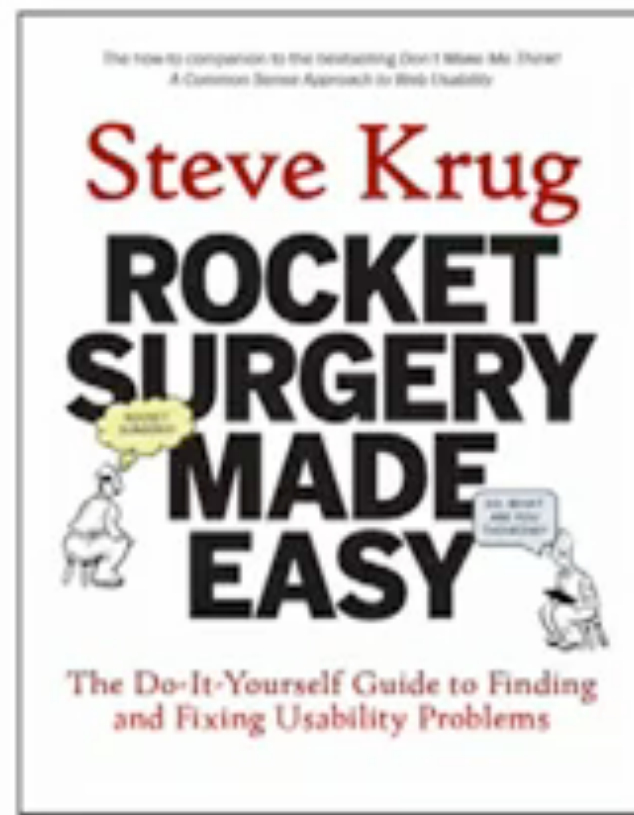


# LIMITATIONS

- 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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