

## Good Design Is As Easy as 1-2-3

- 1. Learn the principles.**  
They're simpler than you might think.
- 2. Recognize when you're not using them.**  
Put it into words -- name the problem.
- 3. Apply the principles.**  
You'll be amazed.

## Good design is as easy as . . .

- 1** **Learn the principles.**  
*They're simpler than you might think.*
- 2** **Recognize when you're not using them.**  
*Put it into words — name the problem.*
- 3** **Apply the principles.**  
*You'll be amazed.*



**IME-USP**

# **Princípios de Interação Humano-Computador**

MAC0446/MAC5786

## **CRAP**

Contraste, repetição, alinhamento e proximidade

Baseado nas notas de aula de  
Saul Greenberg

Prof. Carlos Hitoshi Morimoto  
Departamento de Ciência da Computação - IME/USP  
<http://www.ime.usp.br/~hitoshi>

2020S1

A first lesson in Graphical Design

Contrast

Repetition

Alignment

Proximity

Example: [this page](#).

home page

[Original](#)

[Proximity 2](#)

[Alignment 3](#)

[Contrast 4](#)

[Repetition 5](#)

# A First Lesson in Graphical Design

**C**ontrast

**R**epetition

**A**lignment

**P**roximity

## Examples

[This page](#)

[Saul's Home Page](#)

[Proximity](#)

[Alignment](#)

[Contrast](#)

[Repetition](#)

# CRAP

**C**ontraste

**R**epetição

**A**linhamento

**P**roximidade

# CRAP

## Contraste

Mostre coisas diferentes *diferentes*

Realce elementos dominantes

Reduza elementos não dominantes

Cria dinâmica

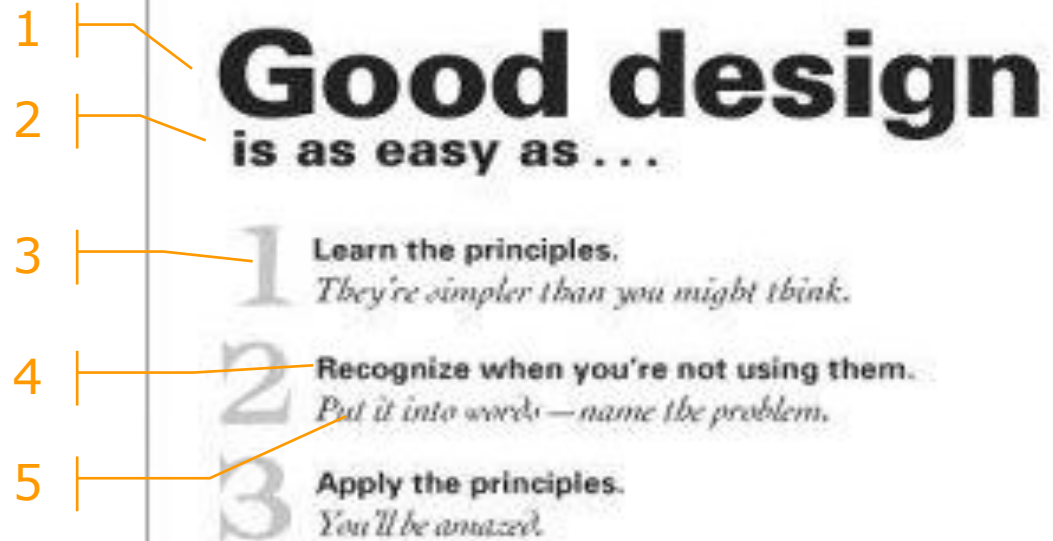
## Repetição

## Alinhamento

## Proximidade

### Good Design Is As Easy as 1-2-3

1. **Learn the principles.**  
They're simpler than you might think.
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Put it into words -- name the problem.
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You'll be amazed.



# CRAP

**C**ontraste

**R**epetição

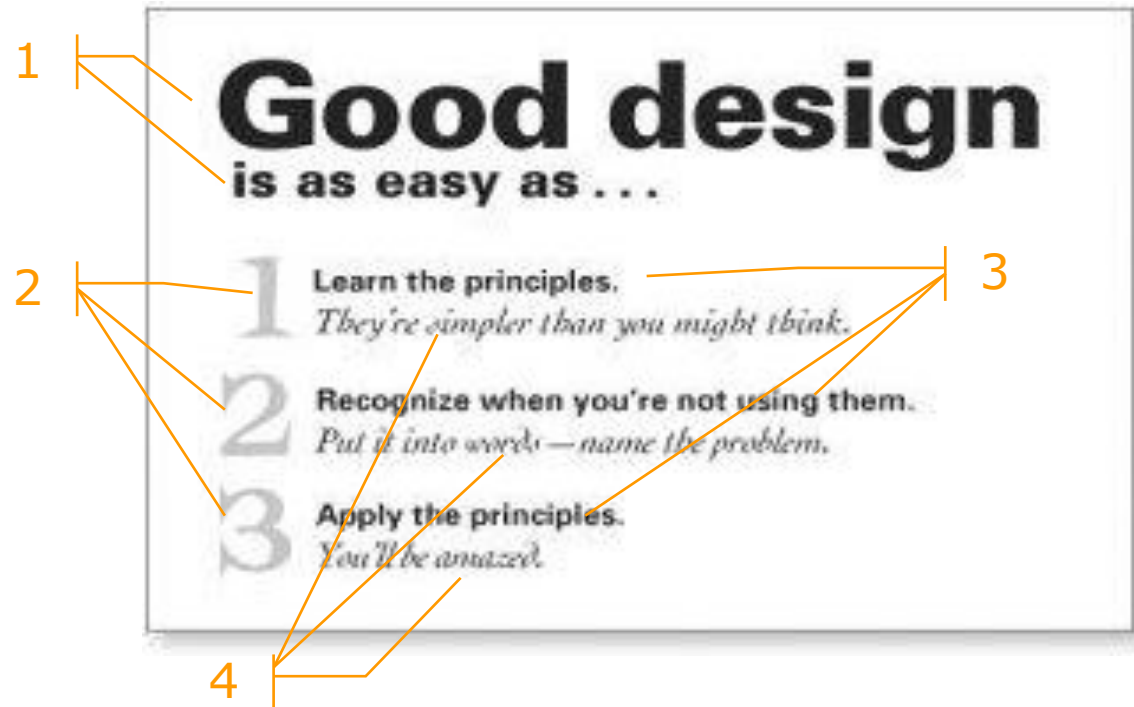
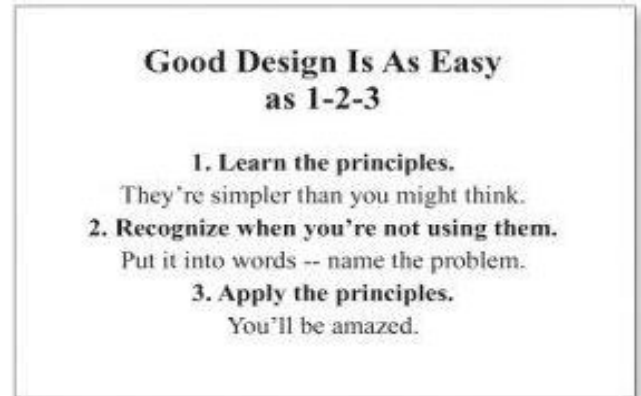
Repita o design pela interface

Consistência

Cria unidade

**A**linhamento

**P**roximidade



# CRAP

**C**ontraste

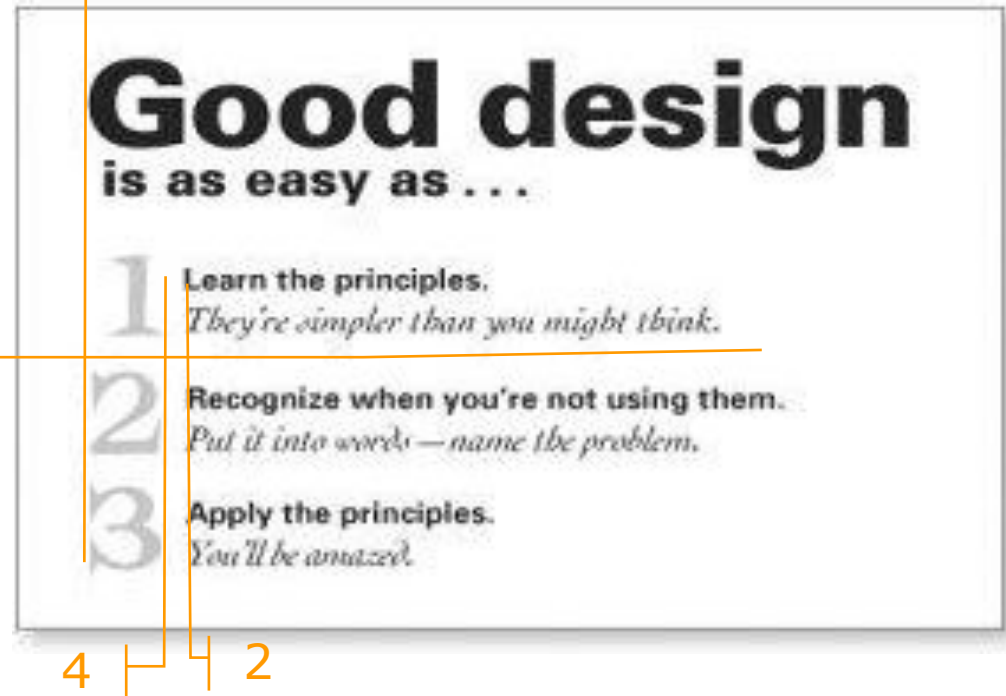
**R**epetição

**A**linhamento

Cria um fluxo visual

Conecta elementos visualmente

**P**roximidade





# CRAP

**C**ontraste

**R**epetição

**A**linhamento

**P**roximidade

Agrupe elementos relacionados

Separe os não relacionados

**Good Design Is As Easy  
as 1-2-3**

- 1. Learn the principles.**  
They're simpler than you might think.
- 2. Recognize when you're not using them.**  
Put it into words -- name the problem.
- 3. Apply the principles.**  
You'll be amazed.

1

**Good design**  
is as easy as ...

**1** Learn the principles.  
*They're simpler than you might think.*

**2** Recognize when you're not using them.  
*Put it into words -- name the problem.*

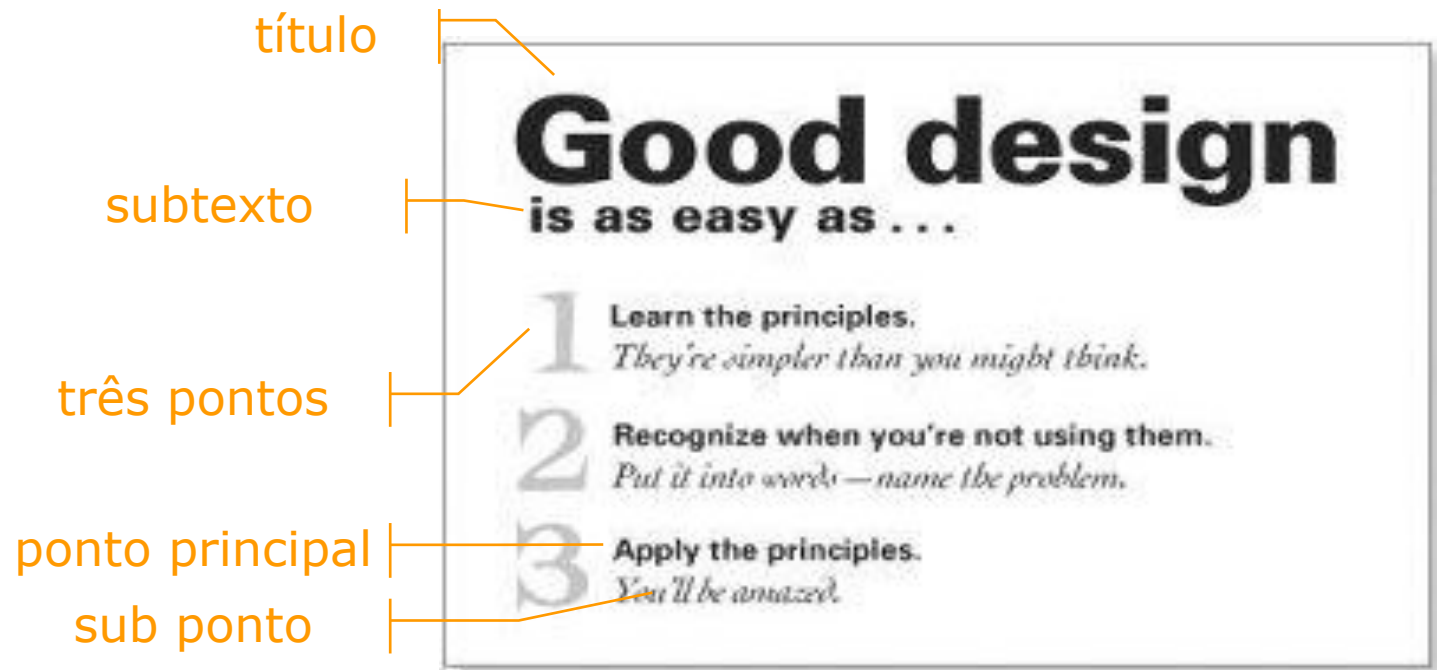
**3** Apply the principles.  
*You'll be amazed.*

2

3

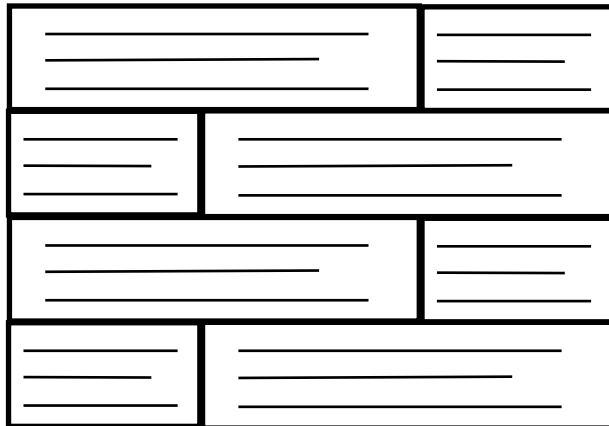
# Para onde vai o seu olhar?

CRAP combina esses elementos para indicar como “ler” o design gráfico

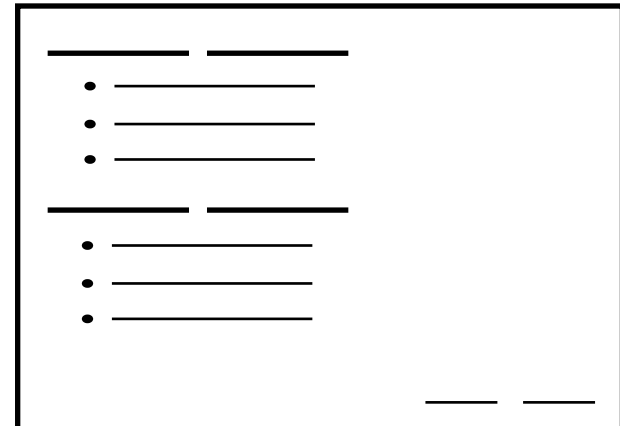


# Para onde vai o seu olhar?

Caixas não criam uma  
boa estrutura



CRAP conserta

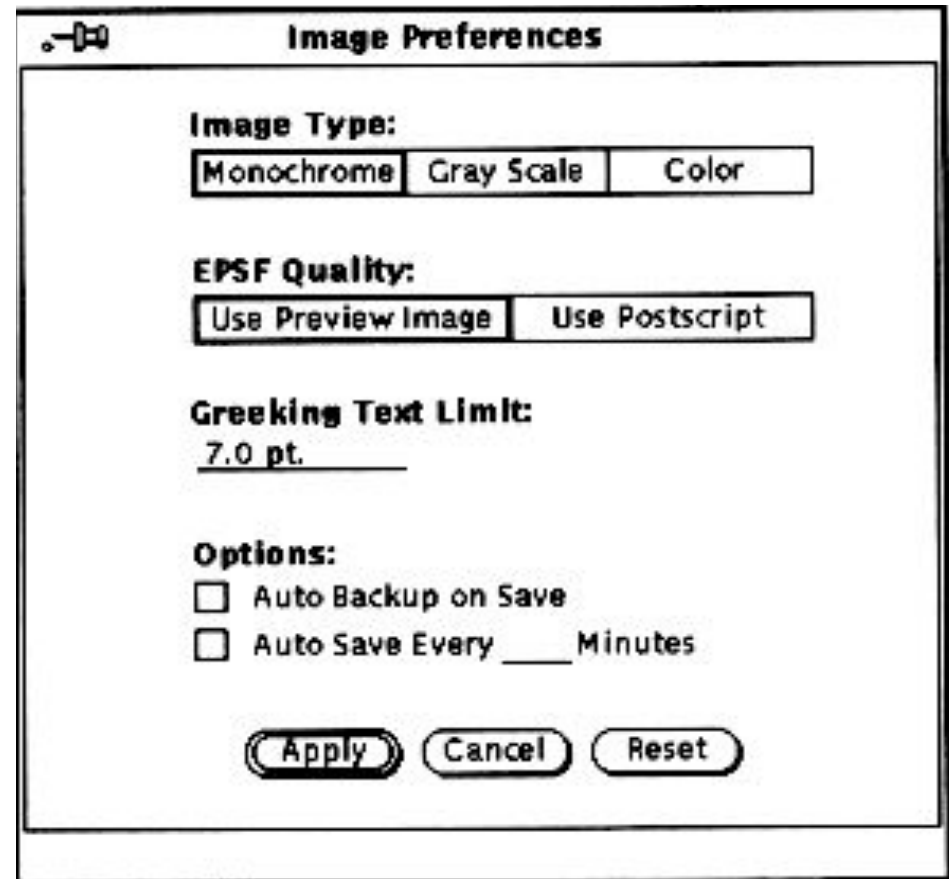


# Para onde vai o seu olhar?

Algum contraste e proximidade fraca

Cria uma estrutura ambígua

Itens entrelaçados

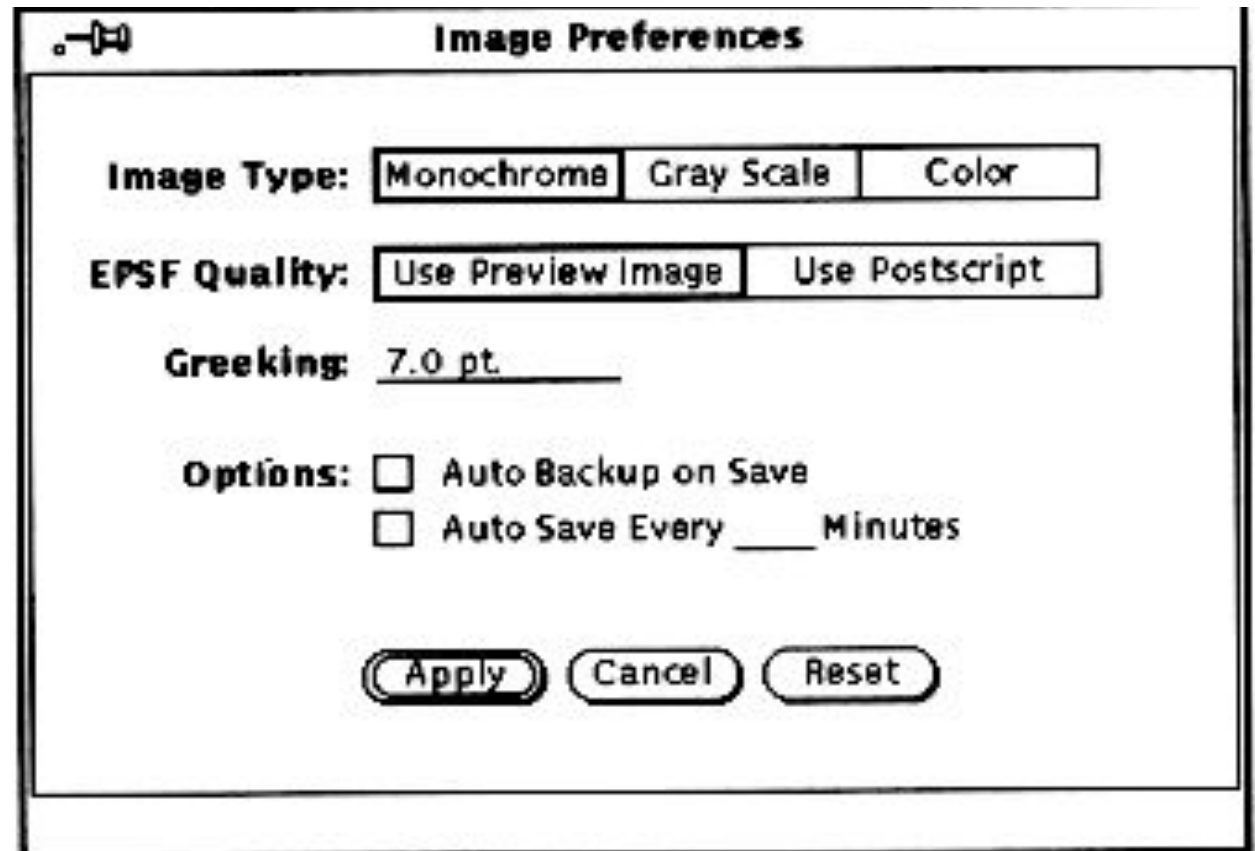


# Para onde vai o seu olhar?

Maior proximidade

Divisão  
esquerda/direita

Sem ambiguidade



# Para onde vai o seu olhar?

## A maior proximidade facilita

- Agrupamento
- Use espaço (negativo) vazio
- Estrutura explícita é um substituto pobre

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Mmmm: <input type="text"/>
Mmmm: <input type="text"/>
Mmmm: <input type="text"/>
Mmmm: <input type="text"/>
Mmmm: <input type="text"/>

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Mmmm:

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## Examples

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### Research

[GroupLab project](#) describes research by my group

[Publications](#) by our group; most available in HTML, PDF, and postscript

[Project snapshots](#) describes select projects done in Grouplab

[Grouplab software repository](#)

[Grouplab people](#)

### Graduate Students

I have a few openings for MSc and PhD students who are interested in Human Computer Interaction and / or Computer Supported Cooperative Work. [Some research and project ideas honors and graduate students](#)

*Courses offered this year*

[CPSC 481](#): Foundations and Principles of Human Computer Interaction

**Original**



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[CPSC 581](#): Human Computer Interaction II: Interaction Design  
[CPSC 601.13](#): Computer Supported Cooperative Work

**Proximidade**

[Saul Greenberg](#) [GroupLab](#) [Dept Computer Science](#) [University of Calgary](#) **GroupLab**  
The University of Calgary

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**Previous Years:** [CPSC 681](#): Research Methodologies in Human Computer Interaction  
[CPSC 699](#): Research Methodology for Computer Science (old!)  
[CPSC 601.48](#): Special Topics: Heuristic Evaluation

**Alinhamento**



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**CPSC 699:** Research Methodology for Computer Science (old!)  
**CPSC 601.48:** Special Topics: Heuristic Evaluation  
**CPSC 601.56:** Advanced Topics in HCI: Media Spaces and Casual Interaction  
**SENG 609.05:** Graphical User Interfaces: Design and Usability  
**SENG 609.06:** Special Topics in Human Computer Interaction  
**Ego alert:** My entry on U Calgary's 'Great Teachers' Web Site

## Administration

**Ethics Committee** for research with human subjects; I am the chair



Saul Greenberg [GroupLab](#) [Dept Computer Science](#) [University of Calgary](#)

# Saul Greenberg Professor

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**Repetição**

Form Title -- (appears above URL in most browsers and is used by WWW search)		Background Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk		000080
E-Mail responses to (will not appear on)	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	<input type="radio"/> Mailto
Send Order	Clear Form	<input checked="" type="radio"/> CGI
Scrolling Status Bar Message (max length = 200 characters)		
****WebMania 1.5b with Image Map Wizard is here!****		
<a href="#">&lt;&lt; Prev Tab</a>		<a href="#">Next Tab &gt;&gt;</a>

### Sem alinhamento

- sem fluxo

### Contraste pobre

- não é possível distinguir os rótulos coloridos dos campos de edição

### Repetição pobre

- os botões não se parecem botões

### Estruturas explícitas substitui proximidade

- os blocos competem com o alinhamento

# Advanced FAX Settings



Aptiva Communication Center

## Speaker setting

On  On until connect  Off

Wait  seconds for connection

Retry after  seconds      Number of retries

## Resolution

Fine  Standard

Maximum transmit rate:

Paper size:

Use custom editor:

Save

Cancel

Help



Students, draw anywhere on this slide!

# Leiaute Bagunçado

**xbugtool 2.0 Beta 2** Server: e|mer-bb.Corp

Load ▾ Store Submit ▾ View Print ▾ Reset ▾ Props Gen. Help ▾

Bug Id: \_\_\_\_\_ Cc: \_\_\_\_\_ Mode:

Category ▾ \_\_\_\_\_ Priority: 

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

Subcategory... \_\_\_\_\_ Severity: 

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

Resp Mgr... \_\_\_\_\_ Bug/Rfe: 

bug	rfe
-----	-----

State ▾ \_\_\_\_\_ Responsible Engineer: \_\_\_\_\_

Synopsis: \_\_\_\_\_

Keywords: \_\_\_\_\_

State triggers:

- 
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- ▾
- ▾

▾

Duplicate of: \_\_\_\_\_ Interest list: \_\_\_\_\_

Patch id: \_\_\_\_\_ See also (bugids): \_\_\_\_\_

History:

Submitter	:	_____	Date:	_____
Generic SVR4 problem?:		<input type="button" value="no"/> <input type="button" value="yes"/>		
Dispatch operator	:	_____	Date:	_____
Evaluator	:	_____	Date:	_____
Commit operator	:	_____	Date:	_____
Fix operator	:	_____	Date:	_____



Arrumando o leiaute

The screenshot shows the Bugtool application window. At the top, there are menu buttons for Report, View, Props, and Help, and a Mode selector with 'Create' and 'Edit' options. The main form contains several fields: Bug ID (empty), Category (XView), Subcategory (library), Release (1.0), Status (Submitted), Type (Bug), Priority (1-5), and Severity (1-5). Below these are text areas for Synopsis, Keywords, Pub Summary, See also, and Interest List. A tabbed interface below has tabs for Description, Work Around, Suggested Fix, Comments, and Evaluation. The Description tab is active, showing a large empty text area with a scroll bar. At the bottom, there are fields for Root Cause (documentation-confusing), Same as, Resp Mgr (none), Resp Engr (none), Hook 1, Hook 2, and a list of flags including 'Fix Affects Documentation' and 'Generic SQR Problem'.

**Bugtool**

Report View Props Help Mode: Create Edit

Bug ID: \_\_\_\_\_ Type: Bug RFE

Category: XView Priority: 1 2 3 4 5

Subcategory: library Severity: 1 2 3 4 5

Release: 1.0

Status: Submitted

Synopsis: \_\_\_\_\_

Keywords: \_\_\_\_\_

Pub Summary: \_\_\_\_\_

See also: \_\_\_\_\_

Interest List: \_\_\_\_\_

Description Work Around Suggested Fix Comments Evaluation

+

Root Cause: documentation-confusing

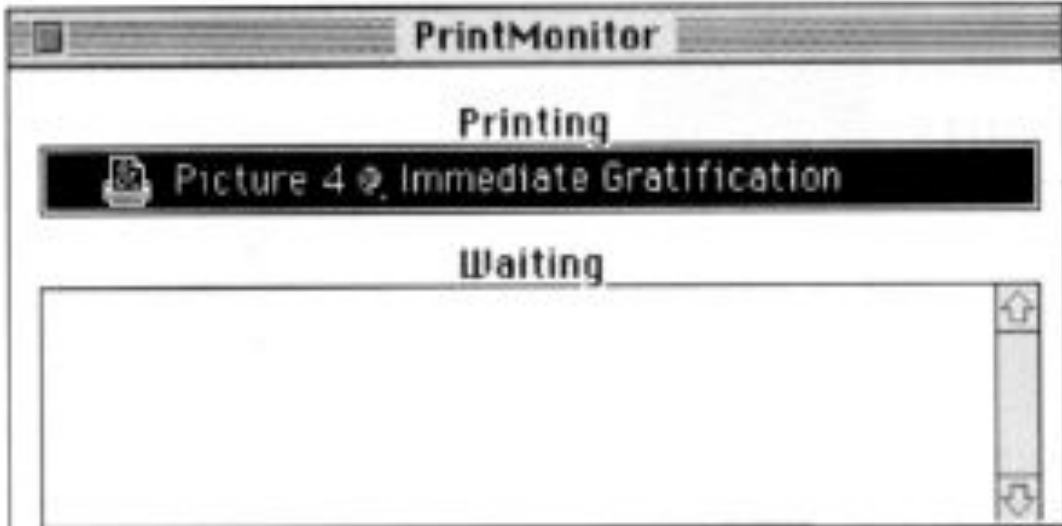
Same as: \_\_\_\_\_

Resp Mgr: none Hook 1: \_\_\_\_\_

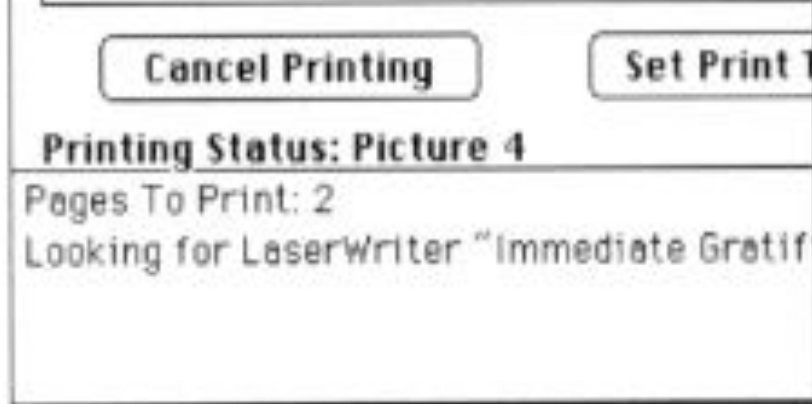
Resp Engr: none Hook 2: \_\_\_\_\_

Flags:  Fix Affects Documentation  
 Generic SQR Problem

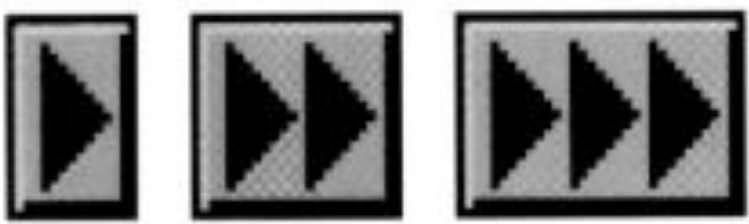
Tensão espacial



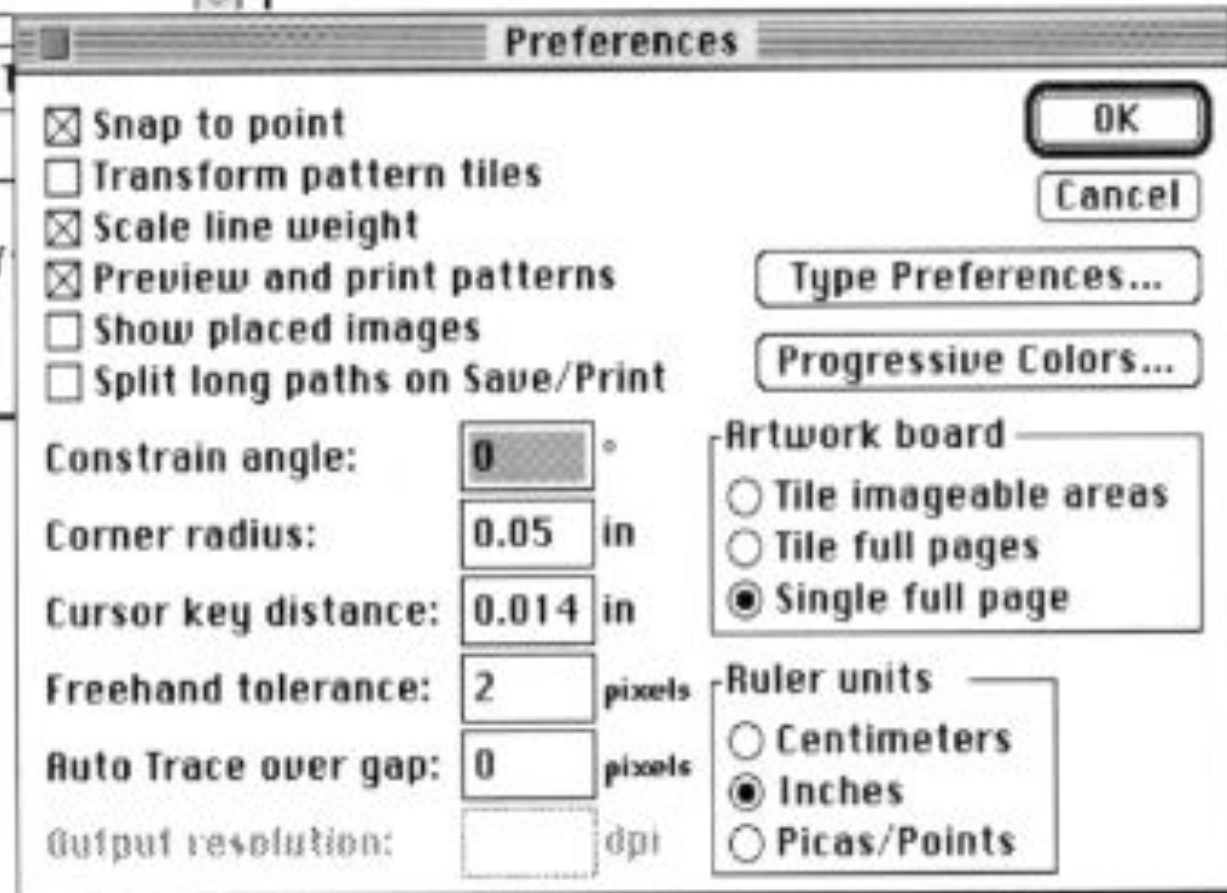
(d)

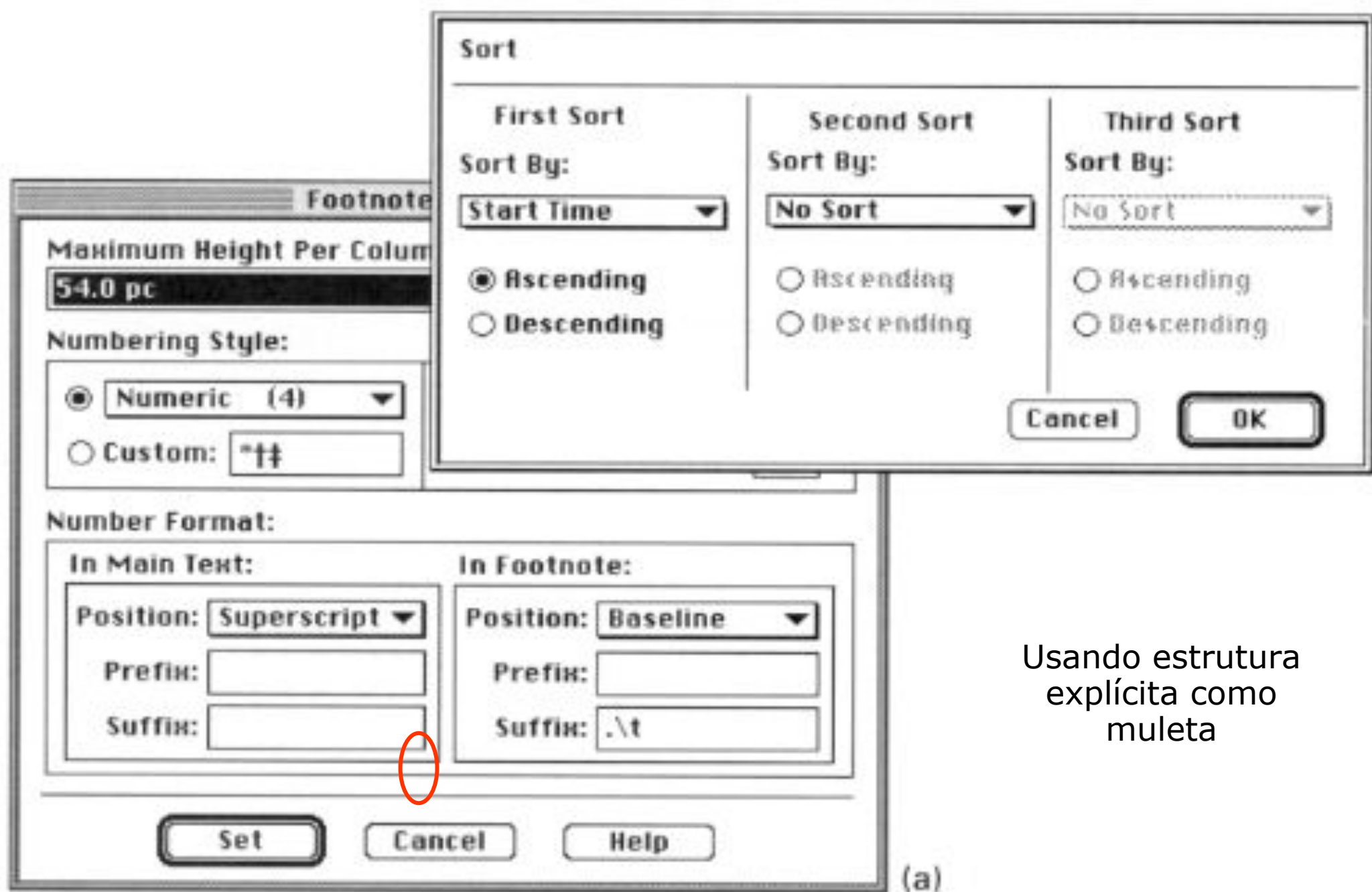


(a)



(b)

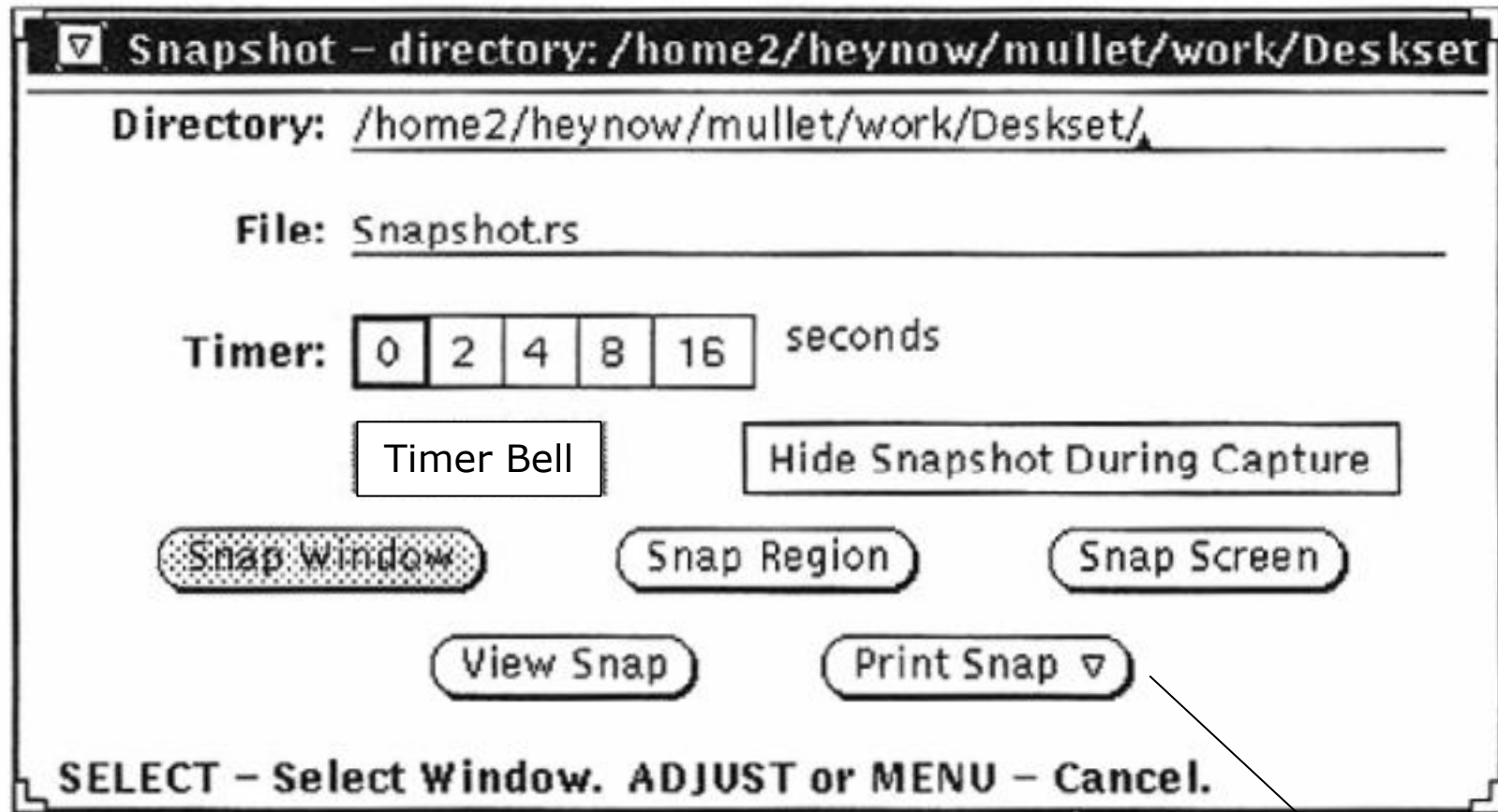




Usando estrutura explícita como muleta

(a)

# Exercício: aplique CRAP para melhorar esse design



Print Snap  
abre um  
menu

Print  
Load  
Save  
Save as

Snapshot - directory: /home2/heynew/mullet/work/Deskset

Directory: /home2/heynew/mullet/work/Deskset/

File: Snapshot.rs

Timer: 0 2 4 8 16 seconds

Timer Bell      Hide Snapshot During Capture

Snap Window      Snap Region      Snap Screen

View Snap      Print Snap ▾

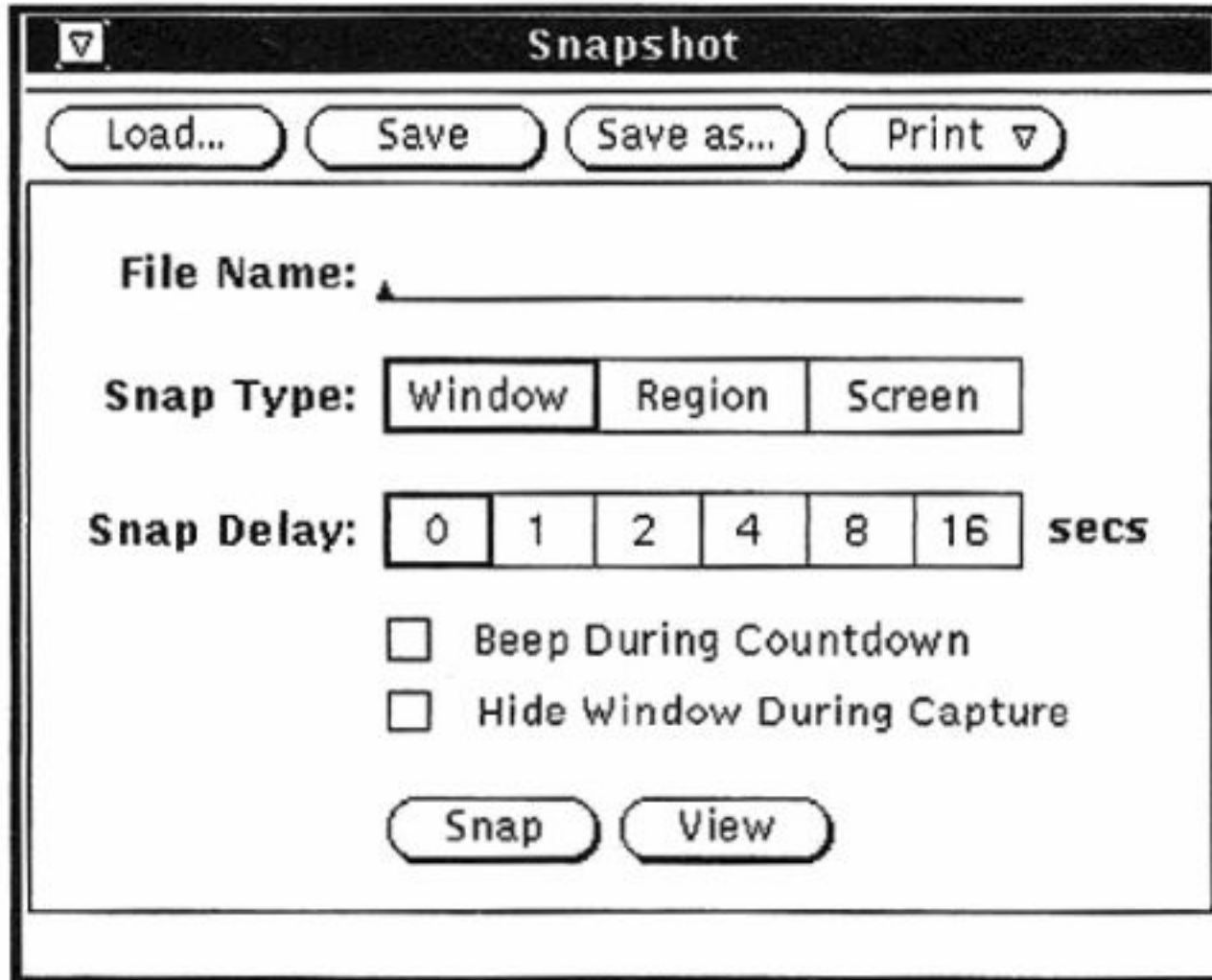
SELECT - Select Window. ADJUST or MENU - Cancel.

- Print
- Load
- Save
- Save as

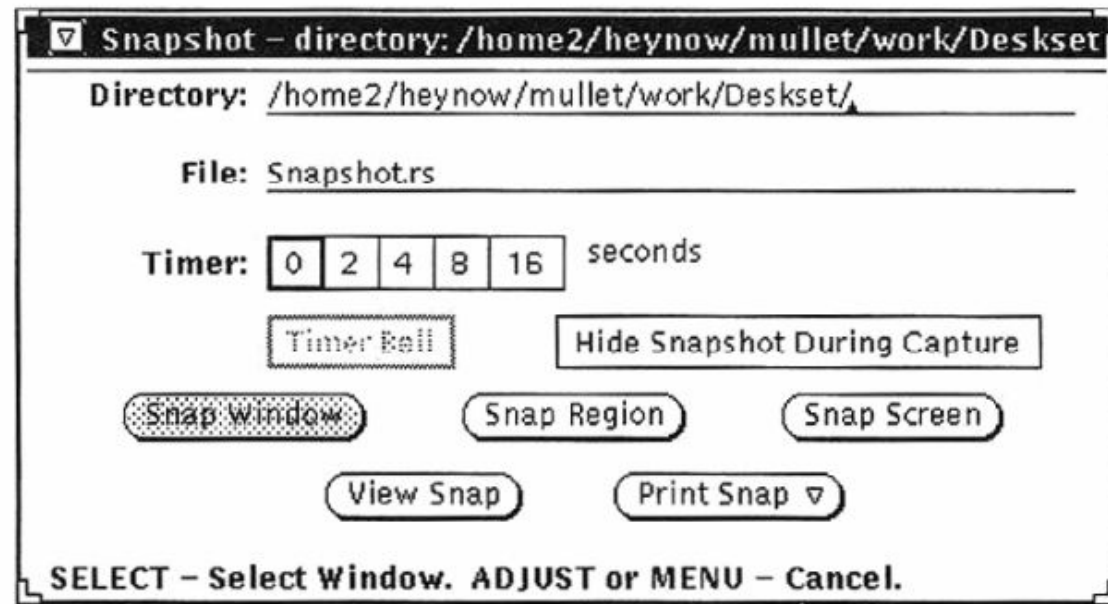
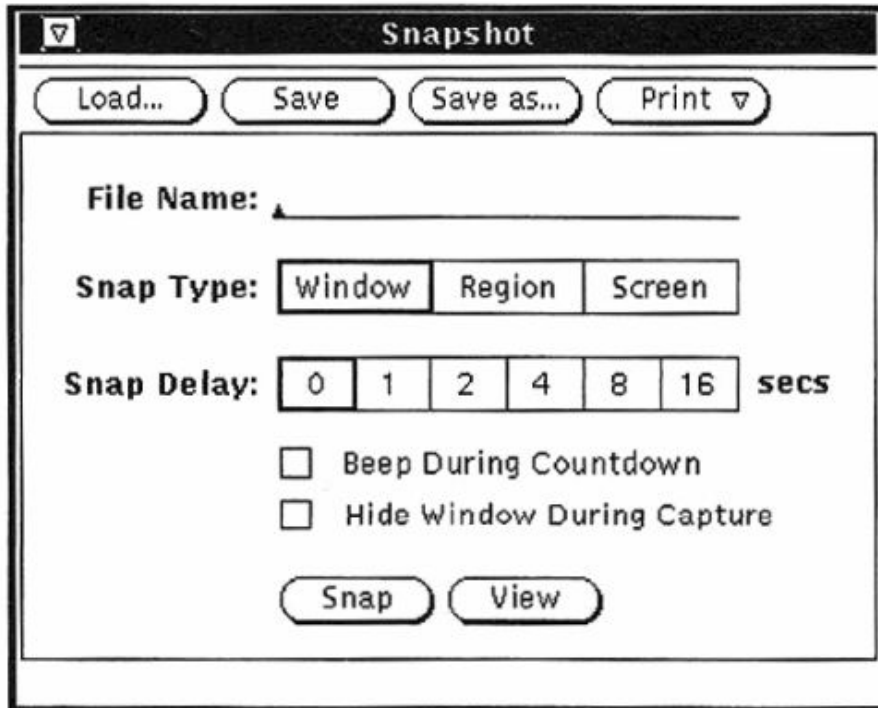


Students, draw anywhere on this slide!

# Alternativa



# Alternativa x Original



# Grades

## Linhas verticais e horizontais para localizar componentes

Alinhe componentes relacionados

## Organização

Contraste para realçar elementos dominantes

Agrupe elementos por proximidade

Mostre a estrutura organizacional

Alinhamento

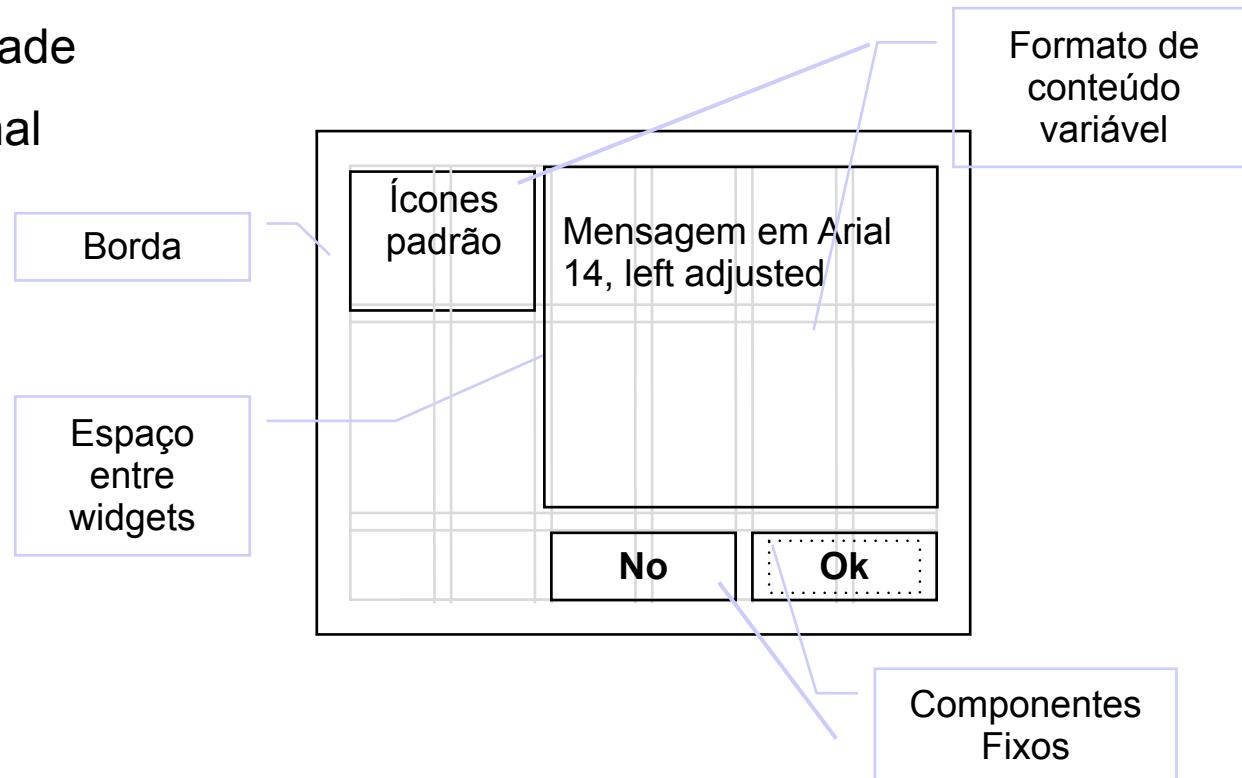
## Consistência

Lugares

Formatos

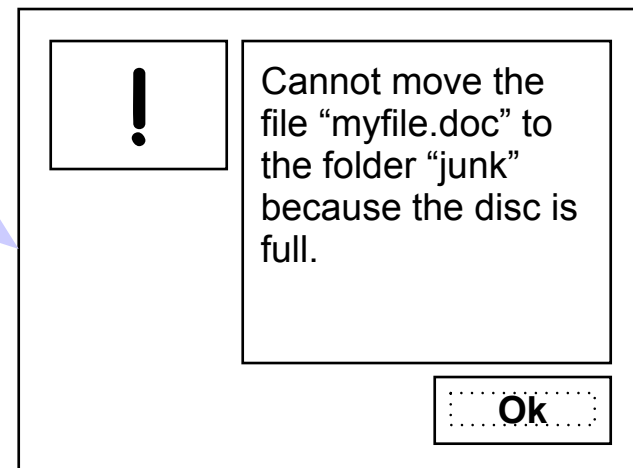
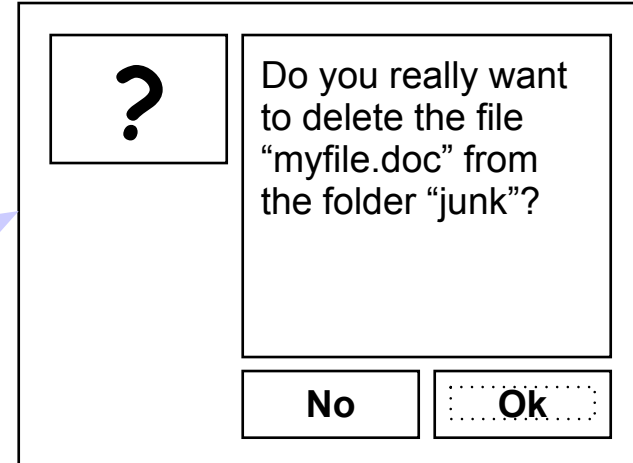
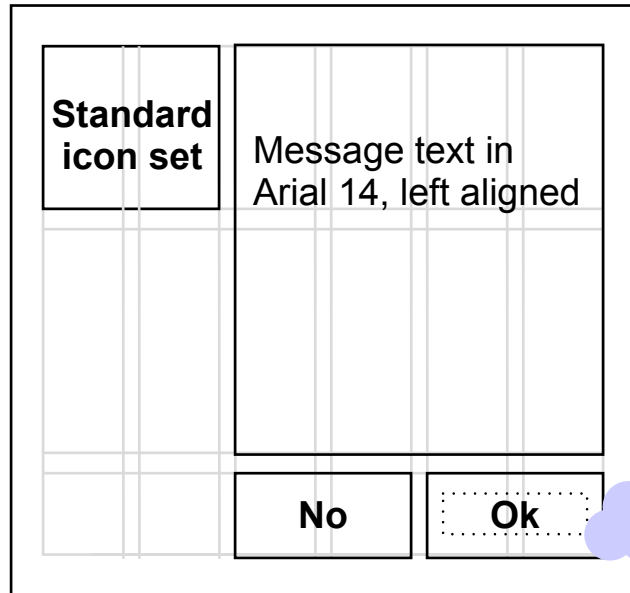
Repetição

Organização

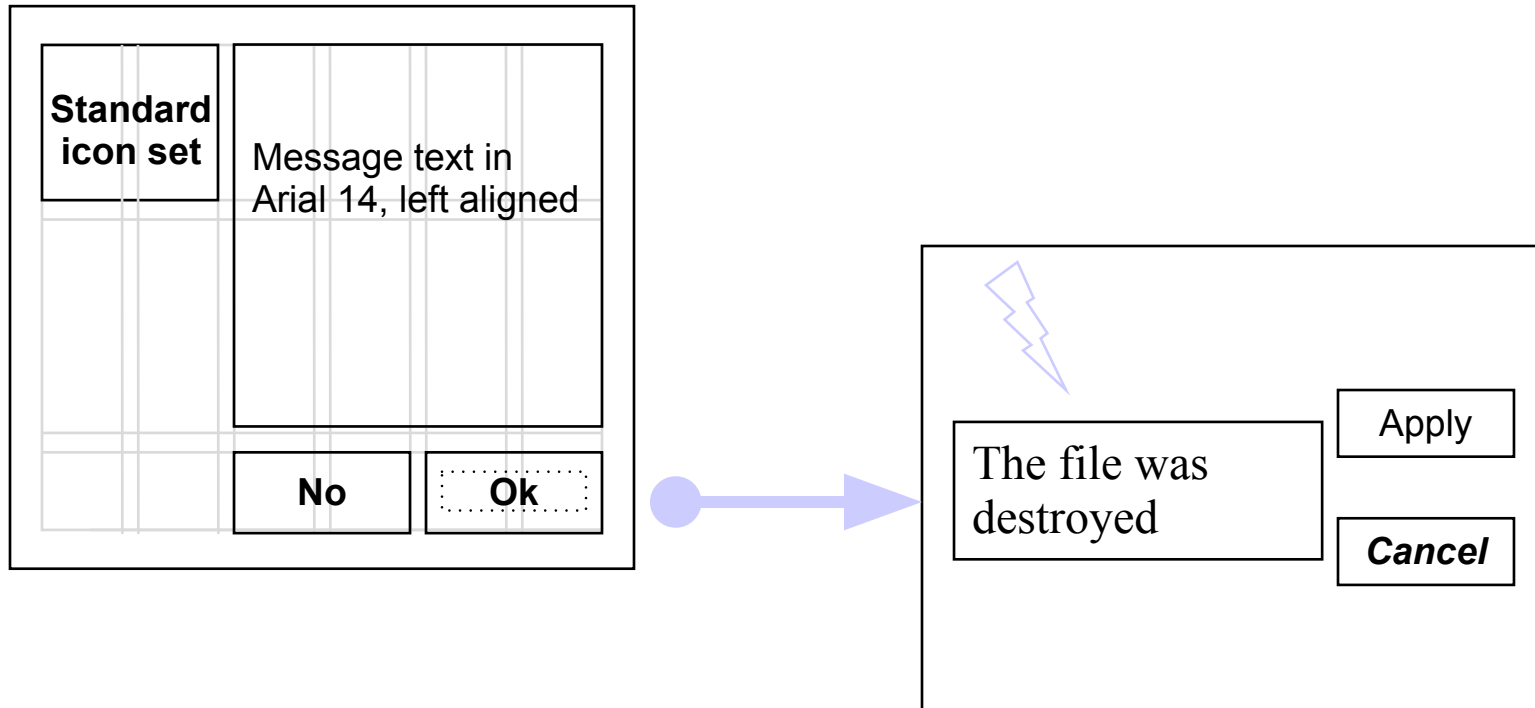




# Use a grade: Consistência



# Sem grade: Inconsistência



# Outro exemplo de grade

Hierarquia de 2 níveis

- tabulação
- contraste

Lógica do fluxo organizacional

The screenshot shows a window titled "Grid for Form Type 1" with a grid background. The grid contains several elements: a heading "Heading 1", three labels ("Label"), a text field, a combo box, a large multiline text field, another heading "Heading 1", and four checkboxes arranged in a 2x2 grid. At the bottom, there are "Apply" and "Cancel" buttons. Red lines connect the text boxes to specific elements in the grid.

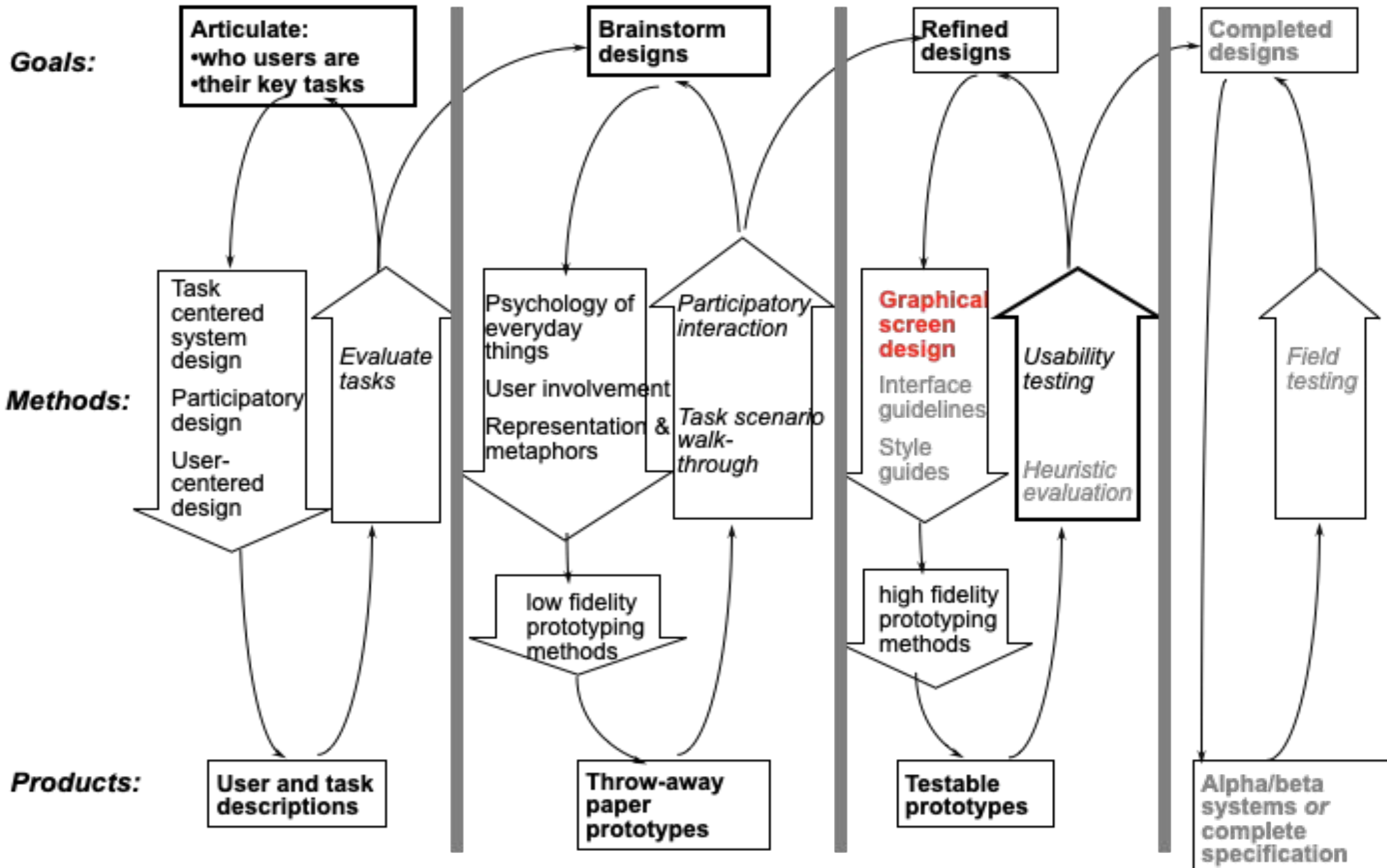


The screenshot shows a window titled "Note Sender" with a form layout. It includes a "Send to" section with "Name" (Saul Greenberg) and "Email" (saul@cpsc.ucalgary.ca) fields. A "Message" section contains a text area with the message: "Hi Saul, Lets get together for lunch, Perhaps tomorrow? Judy". An "Instructions" section has a "Type" dropdown (Normal mail), a checked "Include attachments" checkbox, and an unchecked "Carbon copy" checkbox. "Apply" and "Cancel" buttons are at the bottom.

Alinhamento conecta os elementos visuais em uma sequência

Agrupamento usando espaço em branco

# Interface Design and Usability Engineering



Para saber mais

<http://saul.cpsc.ucalgary.ca/public/Lectures/GracticalDesign-Part1-Crap.pptx>

<http://saul.cpsc.ucalgary.ca/public/Lectures/GracticalDesign-Part2-Analyzing.pptx>