

Introduction to Human-Computer Interaction

User Interface Design

Lecture 5

Petra Isenberg

petra.isenberg@inria.fr



with acknowledgements to:
Anastasia Bezerianos, Anthony Tang, Nic
Marquardt, Tobias Isenberg, Raimund
Dachselt

recap: graphical user interface

interface

that uses *output* peripherals (screen, projector)

+

some *input* peripherals (mouse, pen) that provide *relative positions w.r.t.* the *output* peripherals

to

allow reference to aspects on the interface using pointing (thus linking input/output)

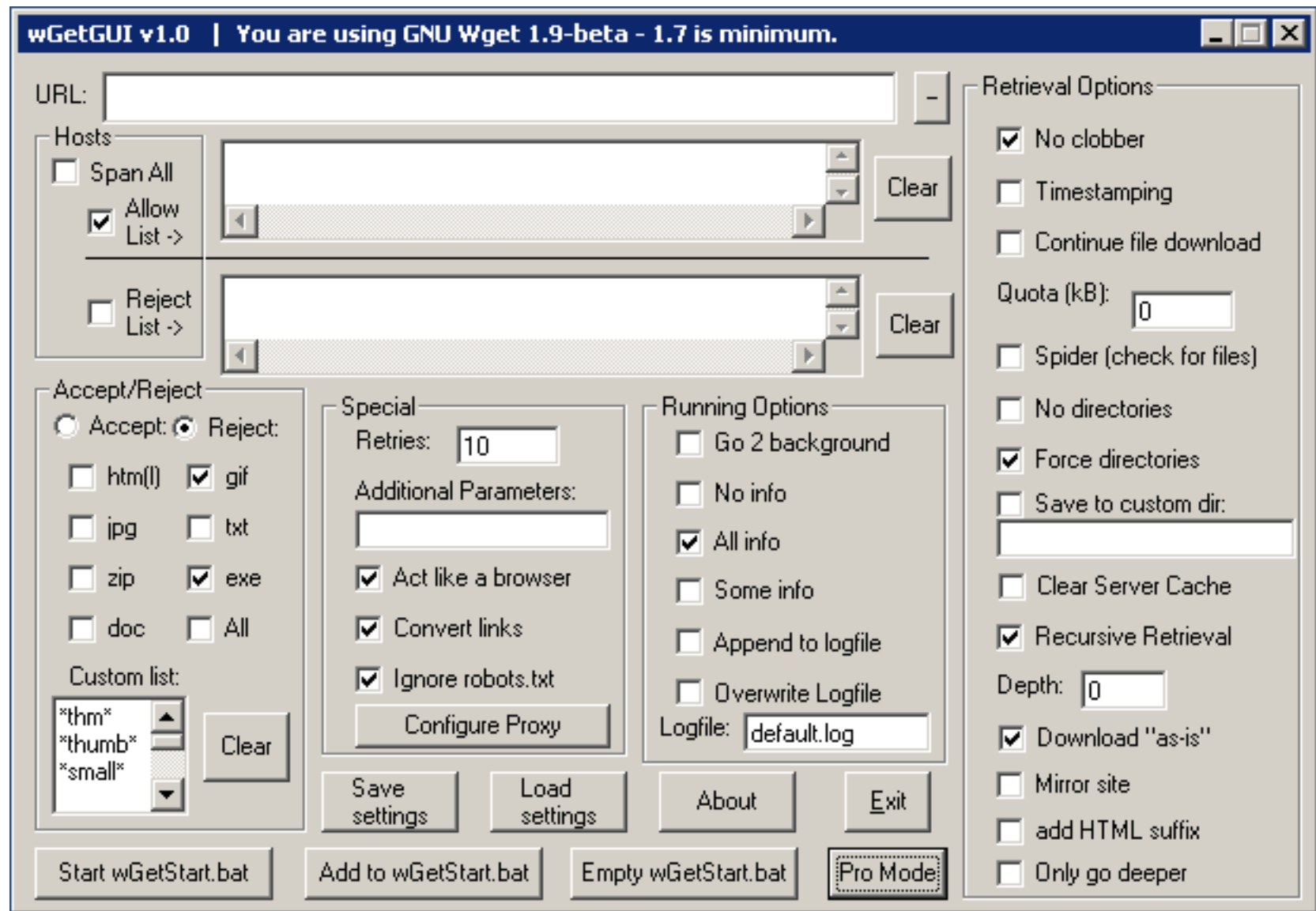
*what makes a **good** gui?*

- what makes an interface easy, hard, or “natural”?

wget

- GNU Wget is a free software package for retrieving files using HTTP, HTTPS and FTP, the most widely-used Internet protocols. It is a non-interactive commandline tool, so it may easily be called from scripts, cron jobs, terminals without X-Windows support, etc.
- GNU Wget has many features to make retrieving large files or mirroring entire web or FTP sites easy, including:
 - Can resume aborted downloads, using REST and RANGE
 - Can use filename wild cards and recursively mirror directories
 - NLS-based message files for many different languages
 - Optionally converts absolute links in downloaded documents to relative, so that downloaded documents may link to each other locally
 - ...

wGetGUI v1.0



URL to download:

- Start the grabbing! ?

Simple

Standard

direct .bat access

You can change the options for each URL you add to the top textbox. If you have added all that you want to the job list, start the grabbing.

Empty the job list before adding new URLs

Behaviour
Do you want wget to be polite or aggressive?
 polite aggressive

Amount of the Download
When you enter a page as starting URL, what do you want to download?
 single page only single page with images and stuff All pages on that server, if they are underneath the start page All pages on that server

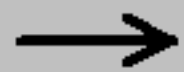
Saving Location
 This directory Named like the server Custom Directory:

What to download?
 only younger files than on disk only files with names not yet on disk
When downloading...
 ...a single file: rename earlier file
 ...many files: overwrite earlier files

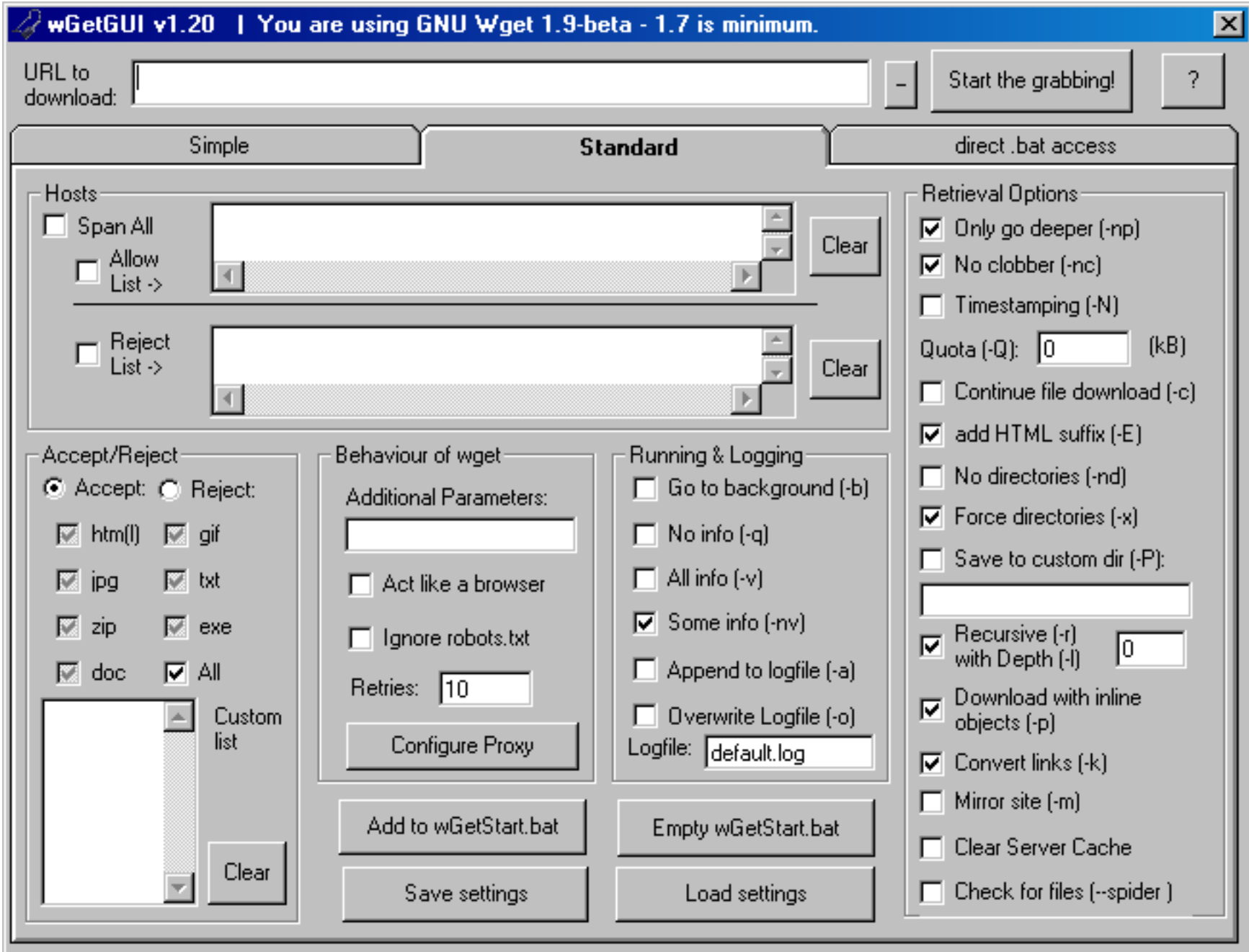
Afterwards
After the download, should wget convert the links and filenames to make offline browsing easier?
 convert Convert but backup the original files Don't convert

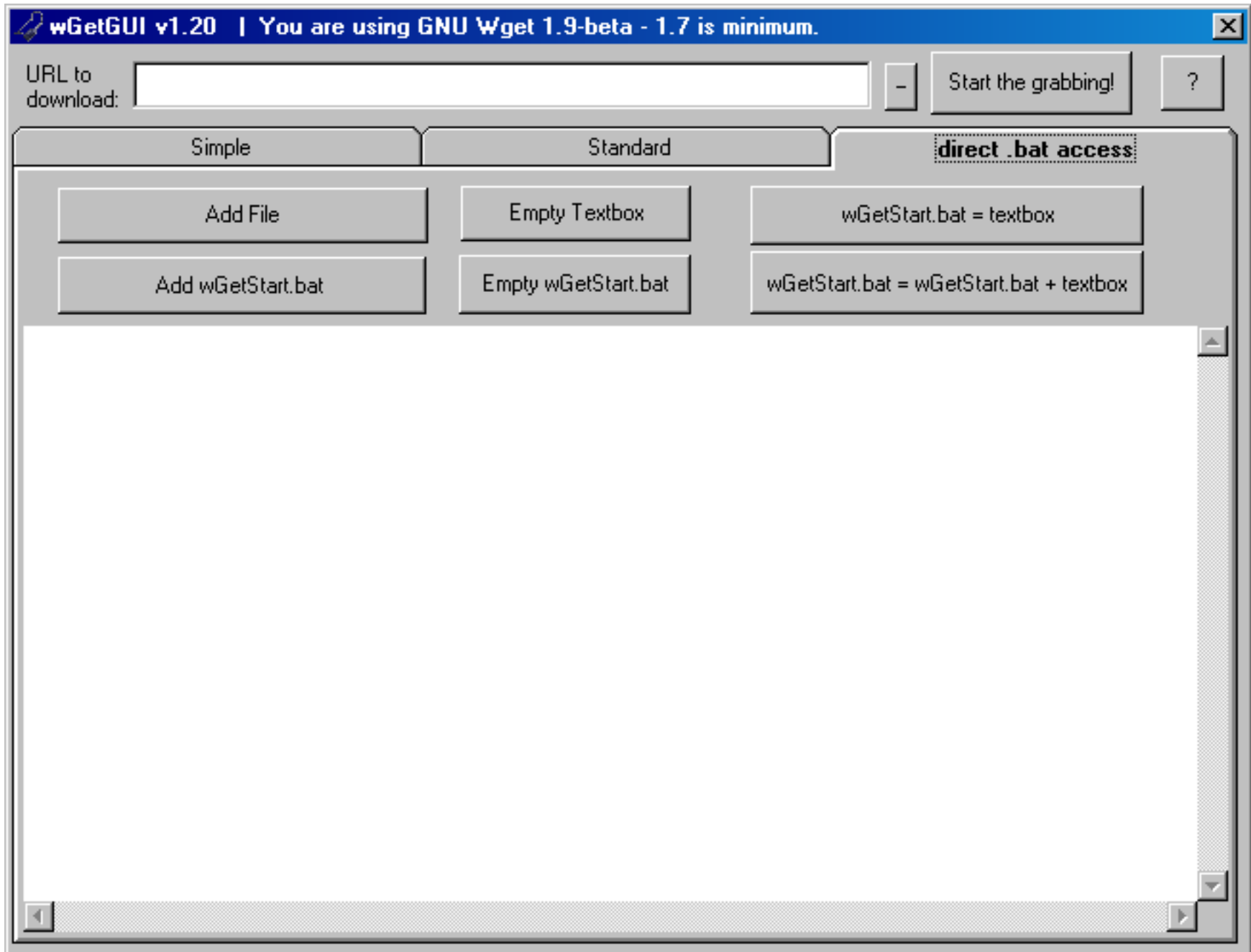


Add the URL with these options to the job list



Start the Grabbing!





SO...

- We probably don't need to run a usability study on this design, because intuitively, we see that there are "things that are wrong" with the current design.
- How can we formalize this idea of "using our intuition" so that it is more systematic, and less haphazard?

design and usability heuristics

- **general principles** for interaction design
- **rules of thumb**; focus the designer's mind on the user and the main requirements
- vague on detail but **capture high level knowledge**

heuristics: Ben Shneiderman and Jakob Nielsen



http://en.wikipedia.org/wiki/Ben_Shneiderman



http://en.wikipedia.org/wiki/Jakob_Nielsen_%28usability_consultant%29

Shneiderman's golden rules

1. strive for **consistency**
2. enable frequent users to use **shortcuts**
3. offer informative **feedback**
4. design dialog to **yield closure**
5. offer **simple error handling**
6. permit easy **reversal of actions**
7. support internal locus of **control**
8. **reduce short-term memory load**

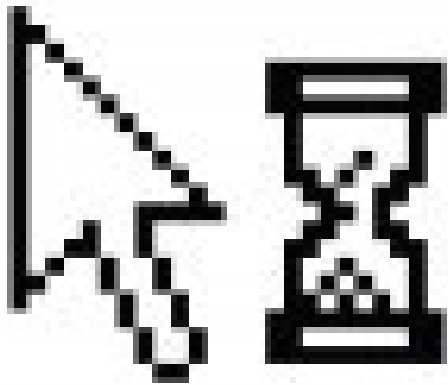
Jakob Nielsen's Heuristics

- 1. Visibility of system status**
- 2. Match between system and real world**
- 3. User control and freedom**
- 4. Consistency and standards**
- 5. Error prevention**
- 6. Recognition over recall**
- 7. Flexibility and efficiency of use**
- 8. Aesthetic and minimalist design**
- 9. Help users recognize, diagnose, and recover from errors**
- 10. help and documentation**

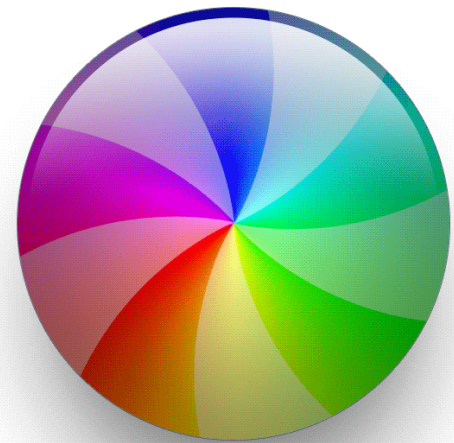
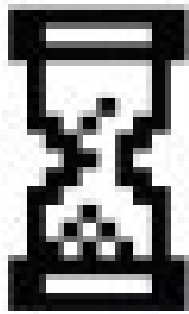
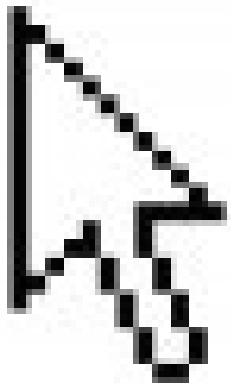
1 | *visibility of system status*

- for every operator action, there should be some **system feedback**.
- for frequent and minor actions, the response can be modest, while for infrequent and major actions, the response should be more substantial.

1 | *visibility of system status*



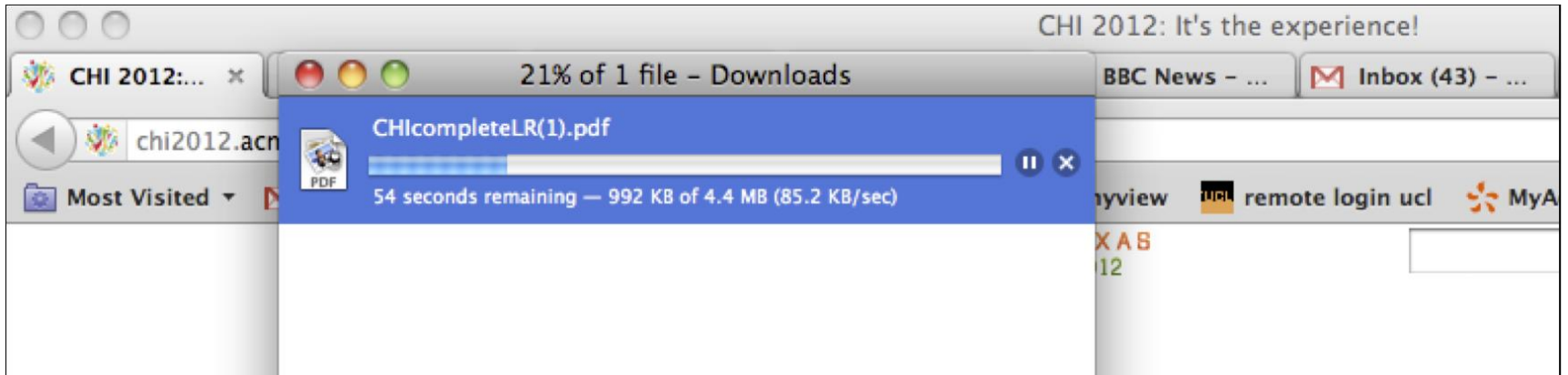
1 | *visibility of system status*



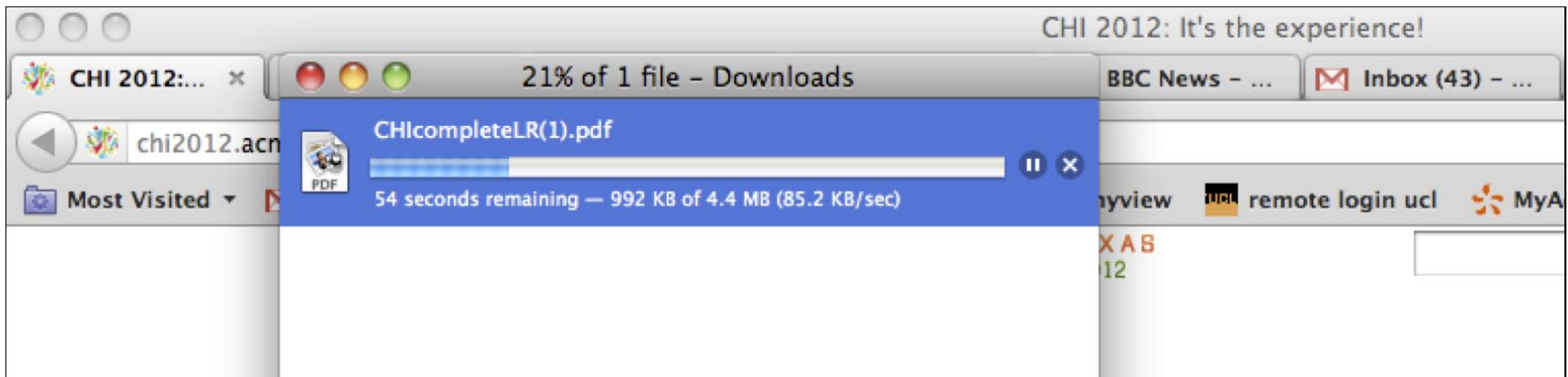
interlude: response time

- 3 main time limits (determined by human perceptual abilities) to keep in mind when optimizing app performance.
 - ~0.1 second: limit for making user feel system reacts instantaneously
 - ~1.0 second: limit for user's flow of thought to stay uninterrupted. Normally no special feedback needed yet for delays <1.0s
 - 10 seconds: limit for keeping a user's attention. Feedback necessary.

1 | *visibility of system status*



1 | *visibility of system status*



feedback depends on response time:

< 1 s : just show outcome

~ 1 s : show feedback that activity is underway

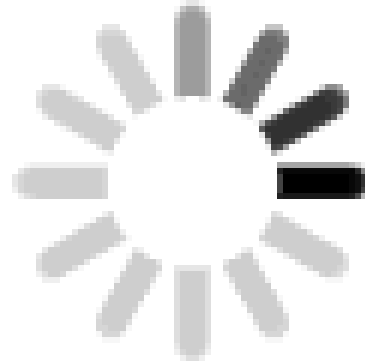
> 1 s : show fractional progress

1 | *visibility of system status*

if unknown time for execution (try to avoid!):

1 | *visibility of system status*

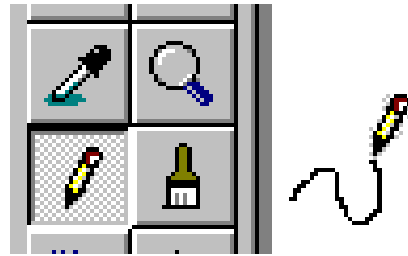
if unknown time for execution (try to avoid!):



1 | *visibility of system status*

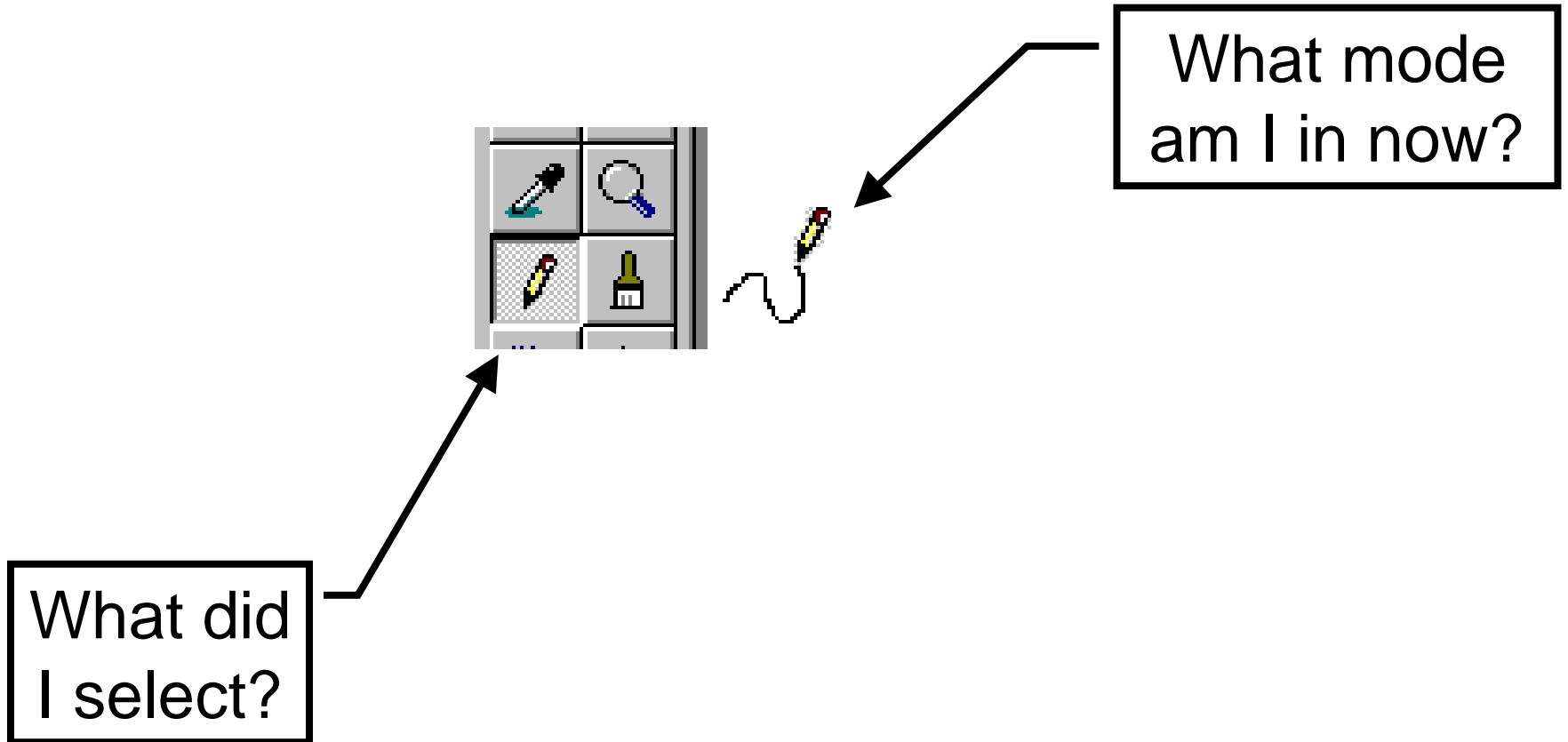


1 | *visibility of system status*

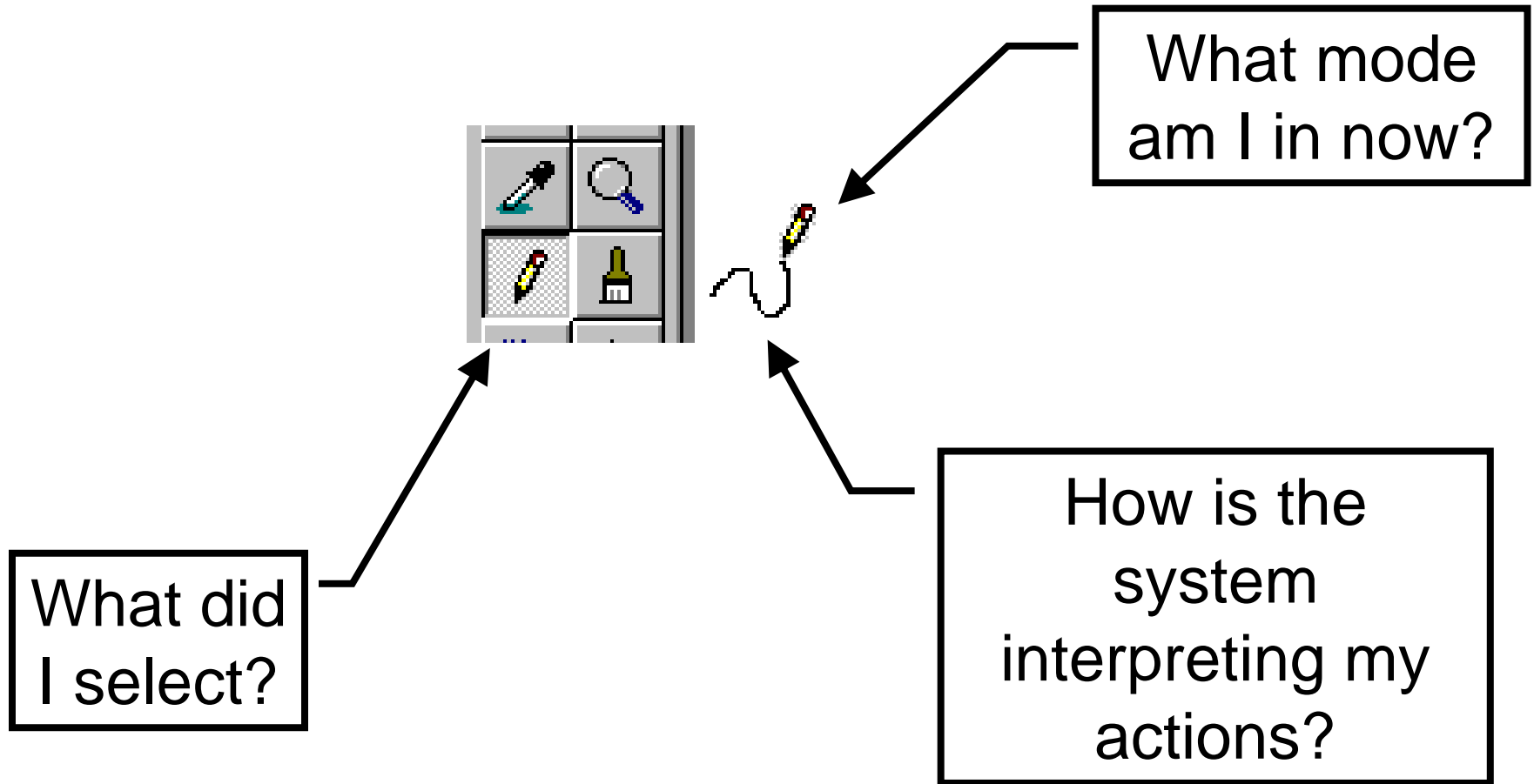


What did
I select?

1 | *visibility of system status*



1 | *visibility of system status*



interlude: modes

modes are problematic

- people forget what mode they are in, and functionality seems arbitrarily limited.



No one remembers what mode they're in



Universal remote controls can control a variety of devices

Buttons are overloaded (e.g. "up", "down", "left", "right", "OK"), so that pressing it will control a device depending on which mode the device is in.

This one indicates (by a blinking light) which device is being activated, but it doesn't suck any less.

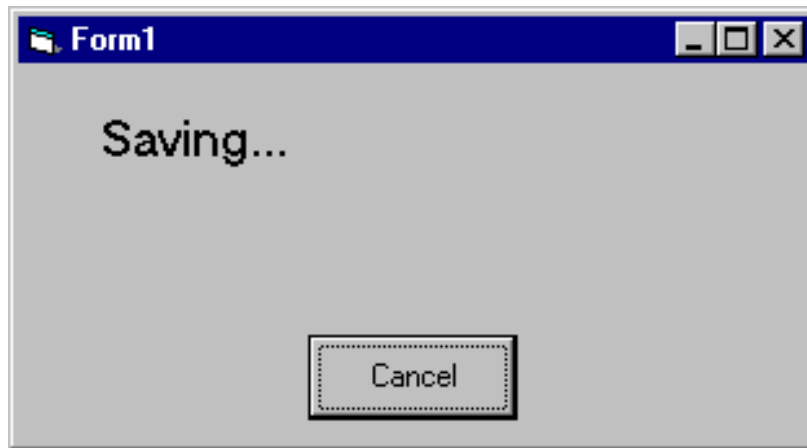
Modes » One more...



MAKE GIFS AT GIFSOUP.COM

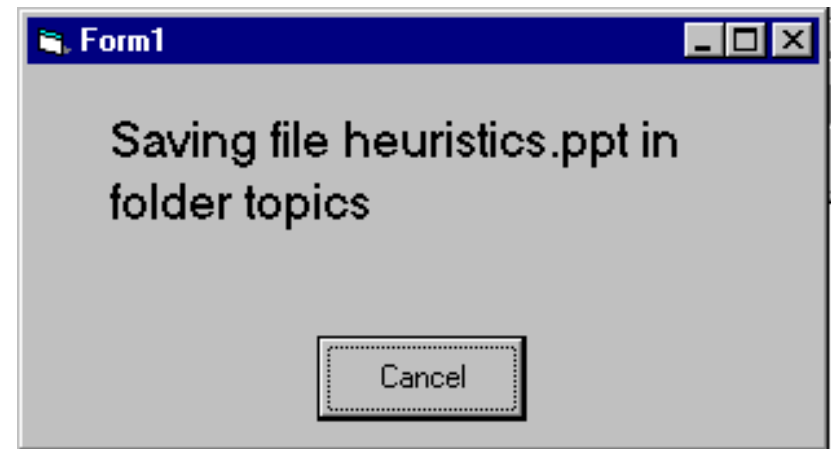
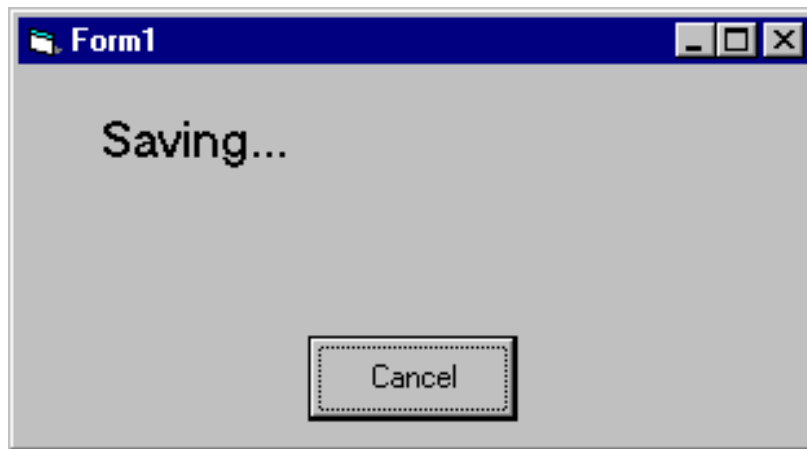
1 | *visibility of system status*

- be as specific as possible, based on user's input



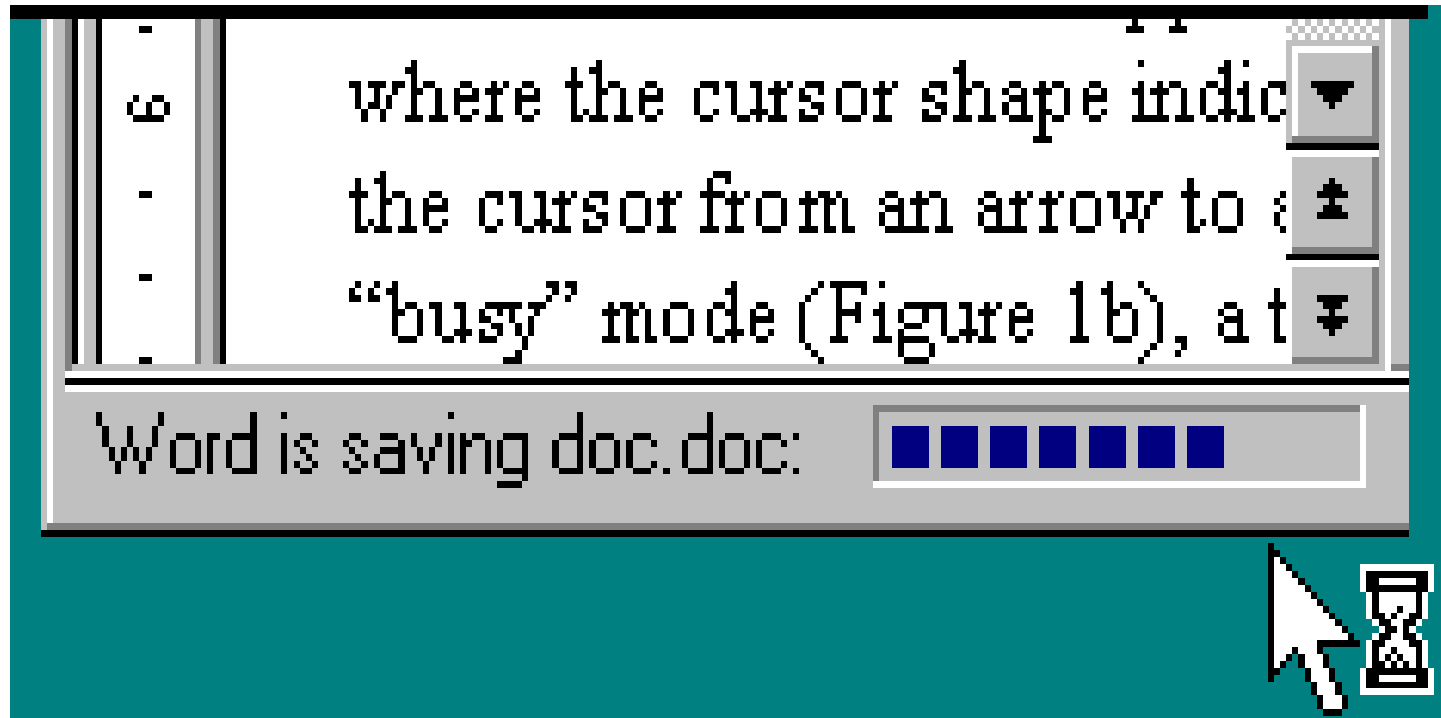
1 | *visibility of system status*

- be as specific as possible, based on user's input



1 | *visibility of system status*

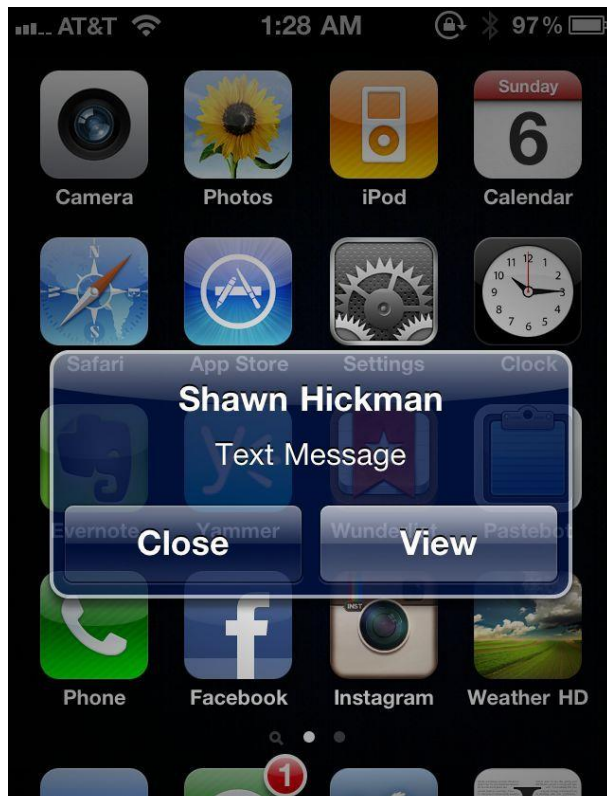
- best within the **context of the action**



1 | *visibility of system status*

- Best within the **context of the action**

Try to avoid modal dialogs where possible.

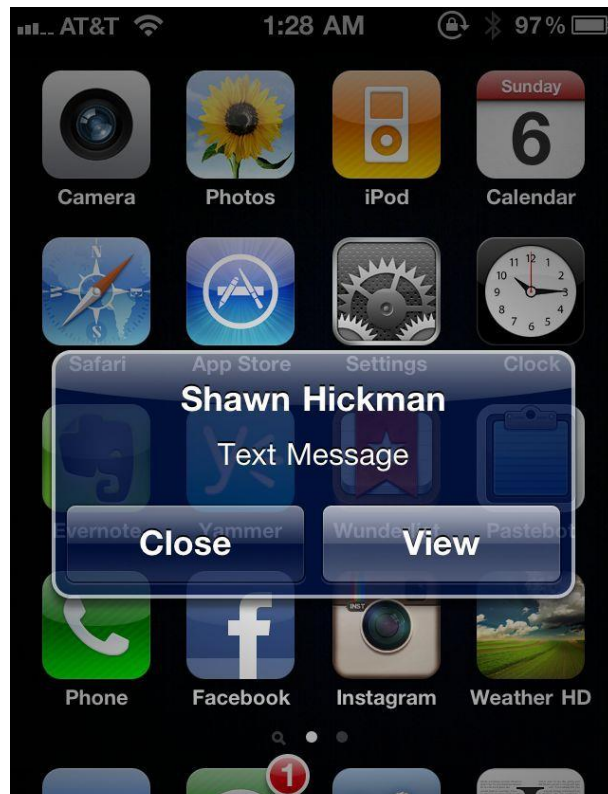


1 | *visibility of system status*

- best within the **context of the action**

Try to avoid modal dialogs where possible.

Often better: subtle notifications about events.



1 | *visibility of system status*

Type new password:

Six-characters minimum; case sensitive

Password strength:

Strong



1 | *visibility of system status*



2 | *match between system and the real world*

2 | *match between system and the real world*

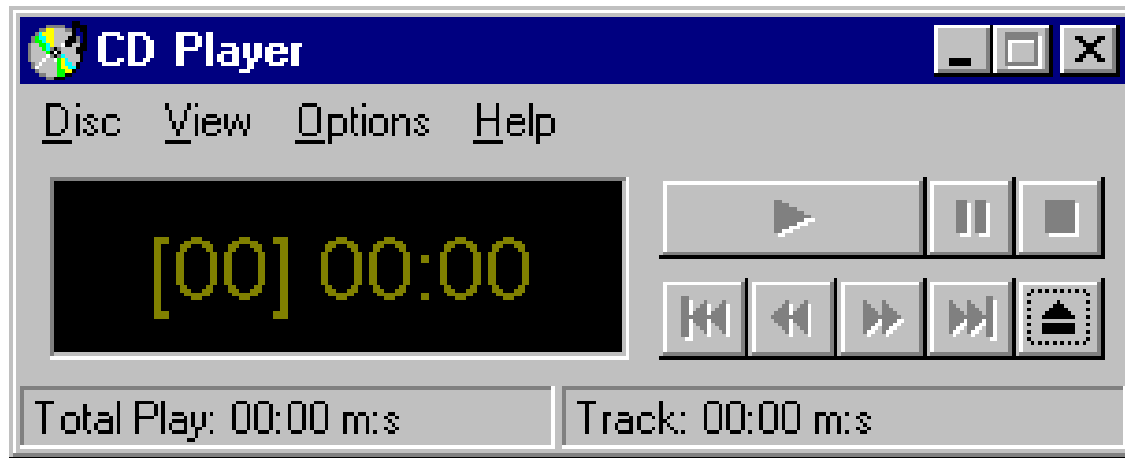
system should speak the user's language, with words, phrases and concepts familiar to the user, rather than system-oriented terms

follow real-world conventions: information should appear in natural and logical order based on user's expectations

remove modes

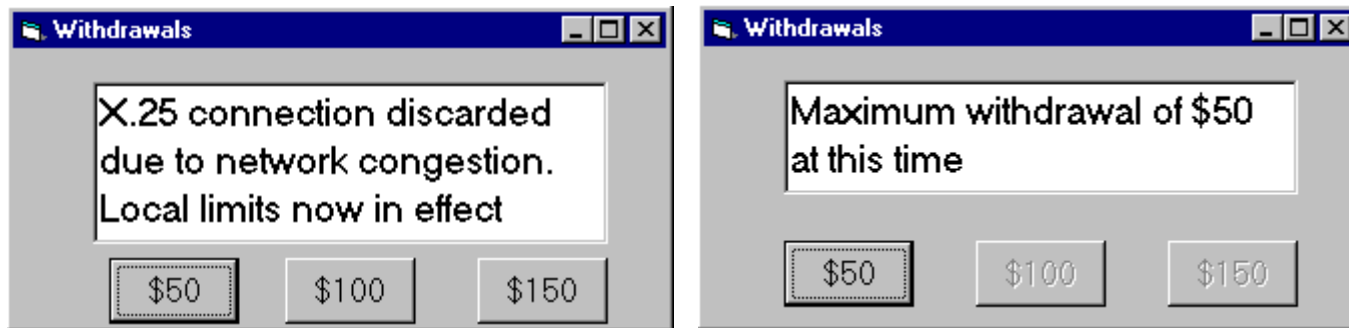
2 | *match between system and the real world*

- use the user's conceptual model
- match the users' task sequence
- minimize mapping between interface and task semantics



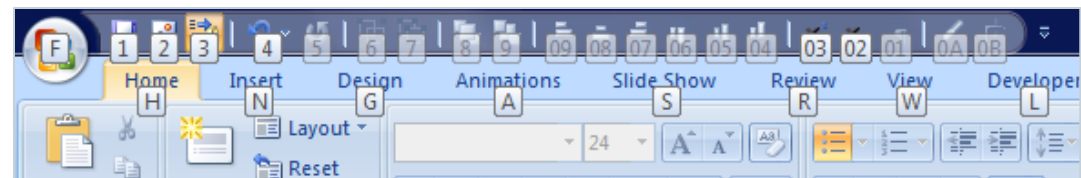
2 | *match between system and the real world*

- terminology based on user's language for the task



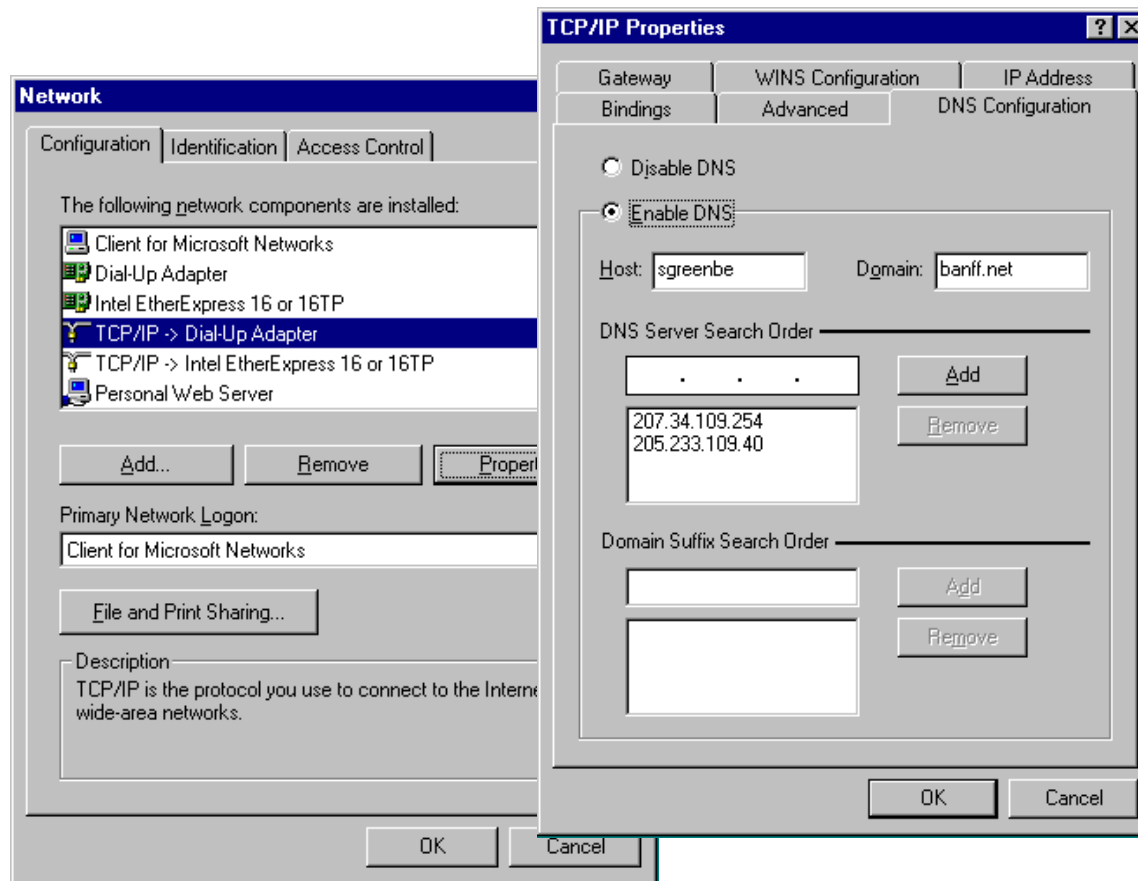
- use meaningful icons, abbreviations, & mnemonics

- (tooltip icon)
- Ctrl-S (abbreviation)
- ALT F S (mnemonic for menu action)



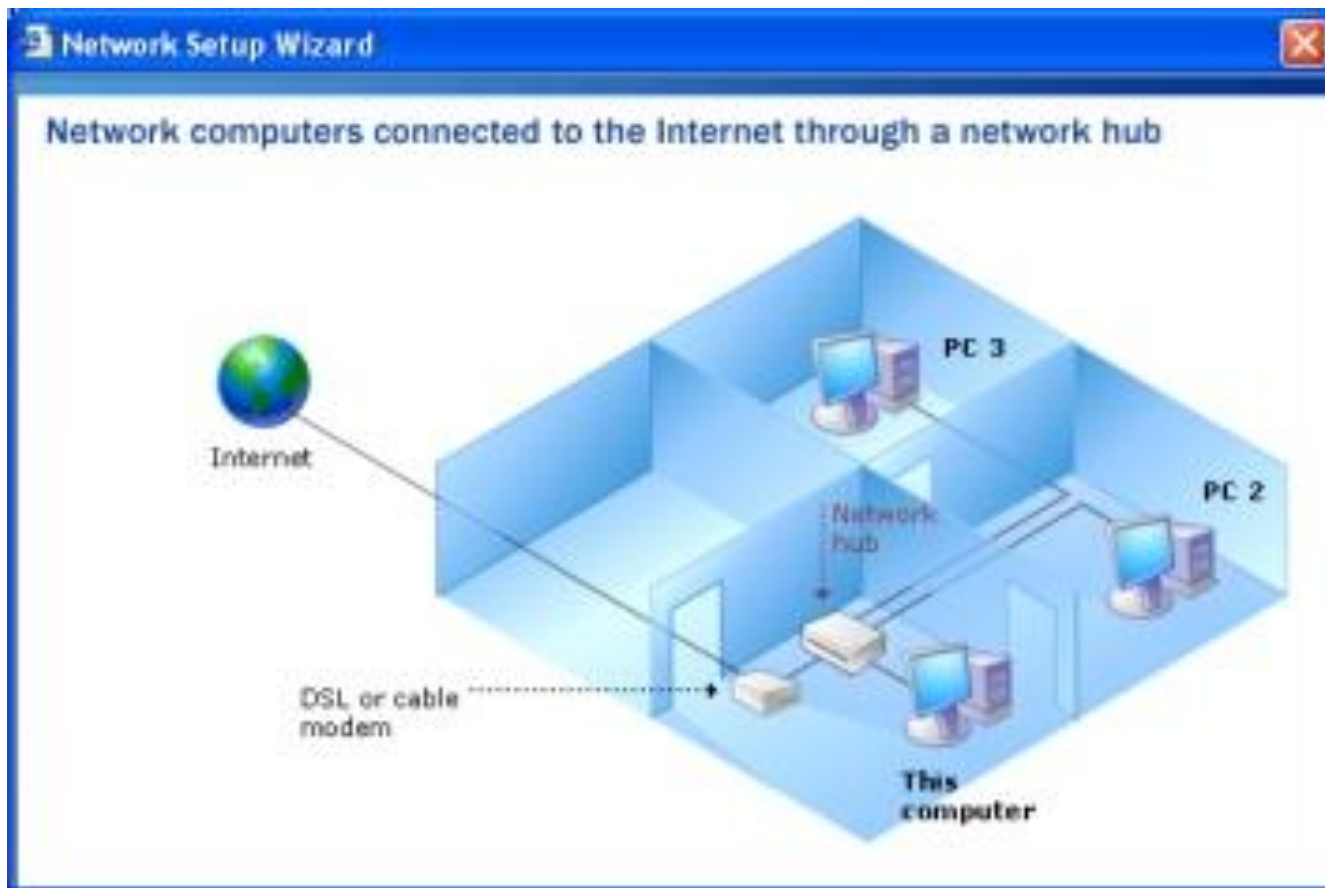
2 | *match between system and the real world*

Speak the user's language...



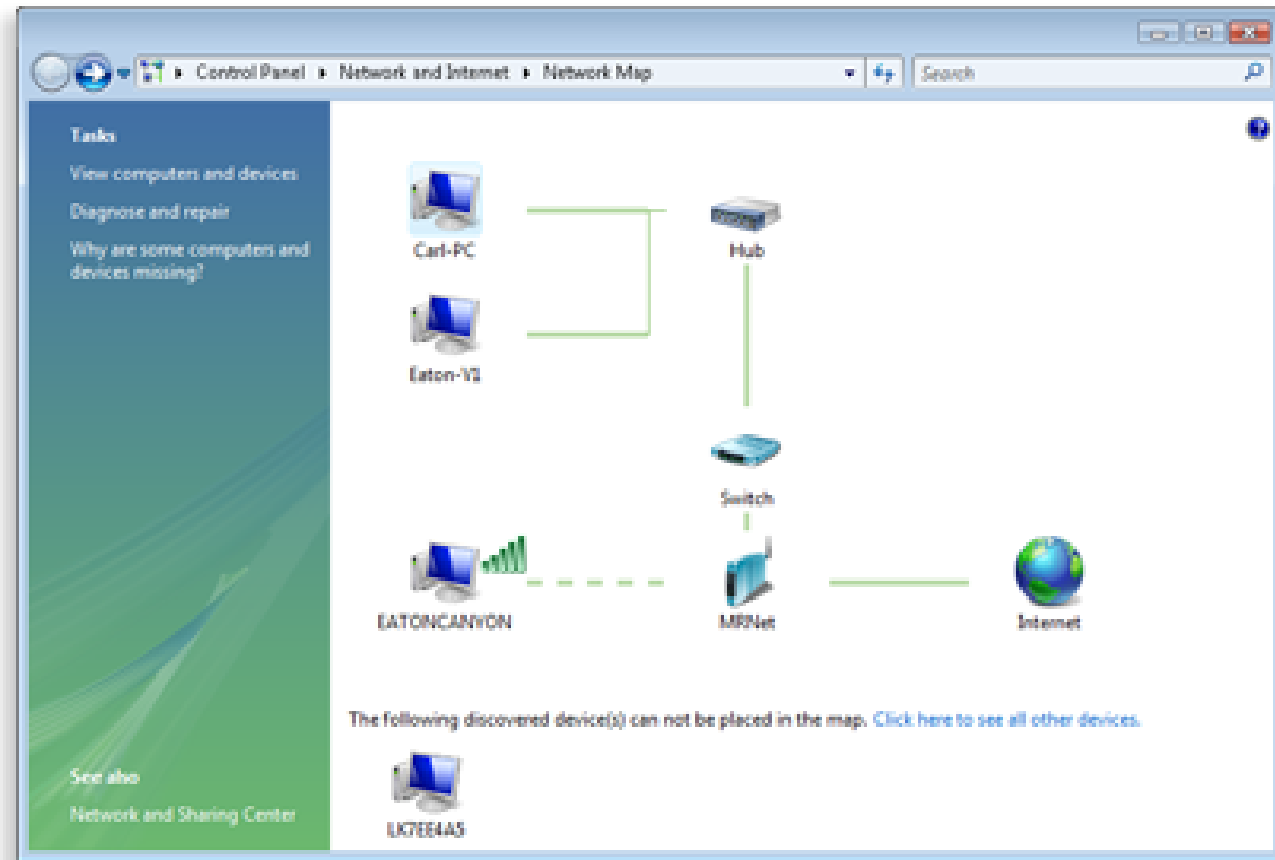
2 | *match between system and the real world*

speak the user's language...

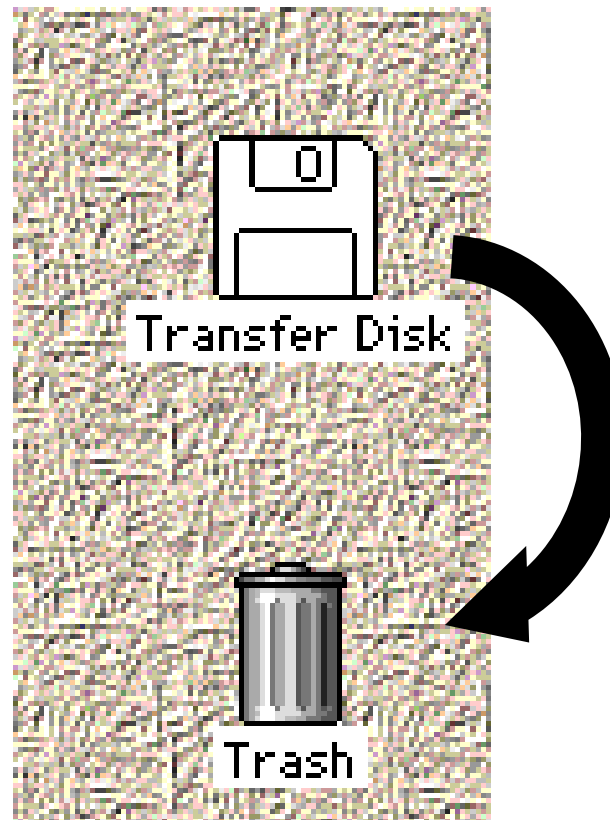


2 | *match between system and the real world*

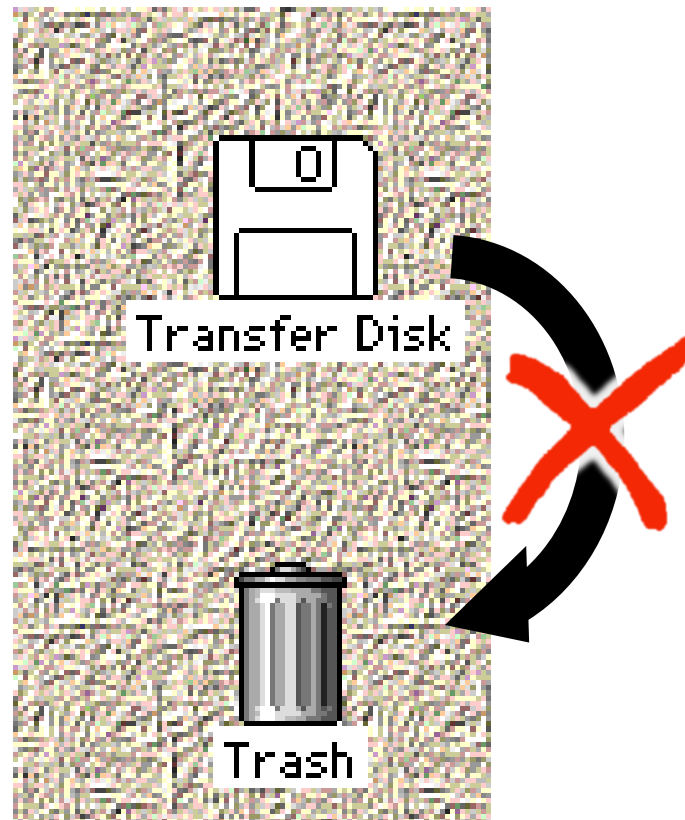
Speak the user's language...



2 | *match between system and the real world*



2 | *match between system and the real world*



3 | *user control and freedom*

3 | *user control and freedom*

- **provide clearly marked exits**



3 | *user control and freedom*

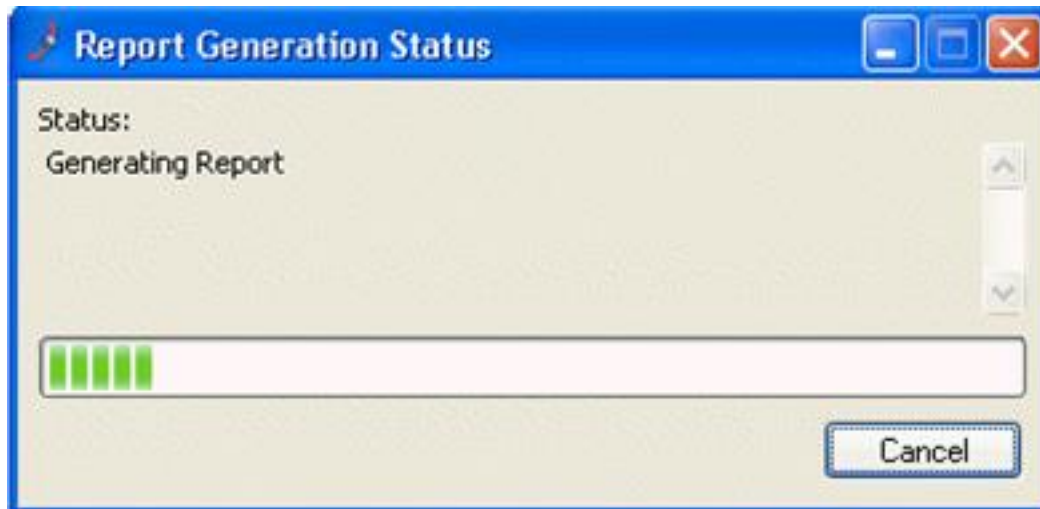
- **provide clearly marked exits**
- **users don't like to feel trapped by the computer**
 - should offer an easy way out of as many situations as possible

3 | *user control and freedom*

- **provide clearly marked exits**
- **users don't like to feel trapped by the computer**
 - should offer an easy way out of as many situations as possible
- **strategies:**
 - *Cancel button* (for dialogs waiting for user input)
 - *Universal Undo* (can get back to previous state)
 - *Interrupt* (especially for lengthy operations)
 - *Quit* (for leaving the program at any time)
 - *Defaults* (for restoring a property sheet)

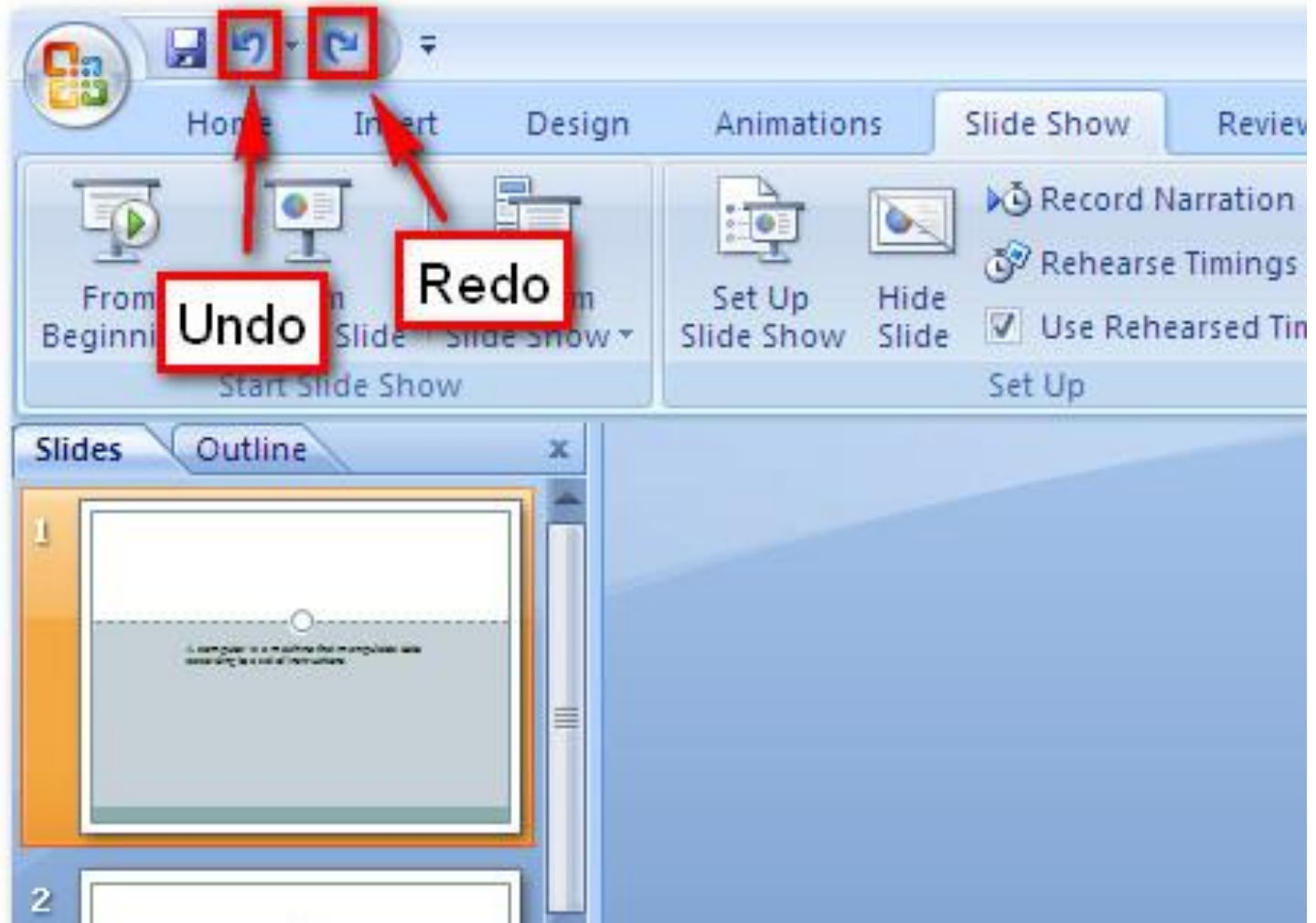
3| *user control and freedom*

- learning by exploring
- dealing with errors
- user is sentient, computer is not



Long actions
should be
cancelable

3 | *user control and freedom*

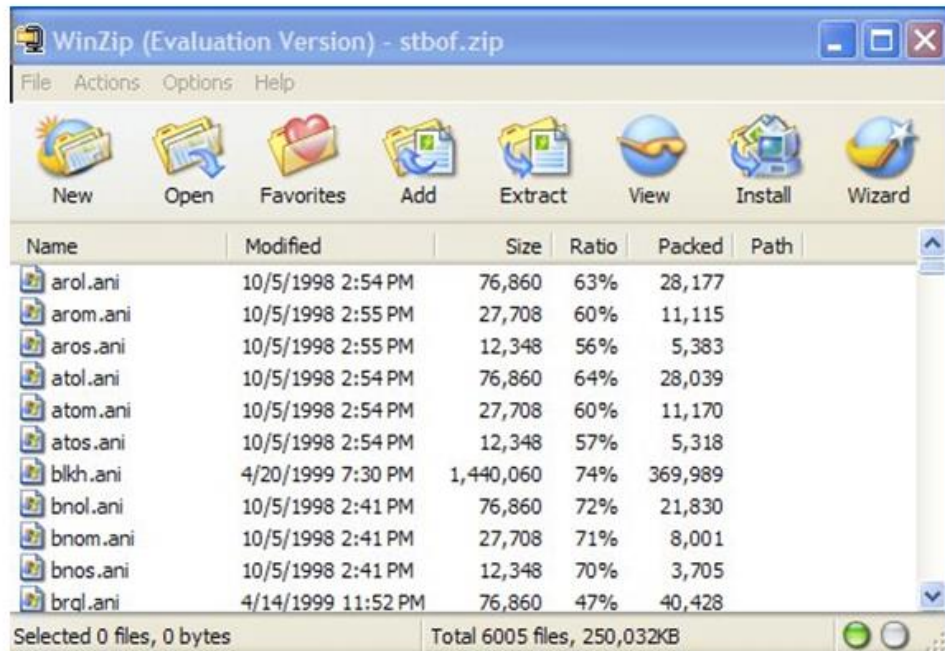


3| *user control and freedom*



Wizard

Center Stage



3 | *user control and freedom*

Calendar: New York to Honolulu

nights

January - February

Options marked  contain overnight flights. Choose your departure date

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 	2 	3 	4 	5 
		\$876	\$939	\$1,084	\$943	\$559
6 	7 	8 	9 	10 	11 	12 
\$447	\$716	\$651	\$611	\$435	\$435	\$576
13 	14 	15 	16 	17 	18 	19 
\$447	\$447	\$435	\$435	\$435	\$435	\$611
20 	21 	22 	23 	24 	25 	26 
\$447	\$447	\$435	\$435	\$435	\$435	\$447
27 	28 	29 	30 	31 		
\$447	\$447	\$435	\$435	\$435		

Lowest round trip fares, per passenger

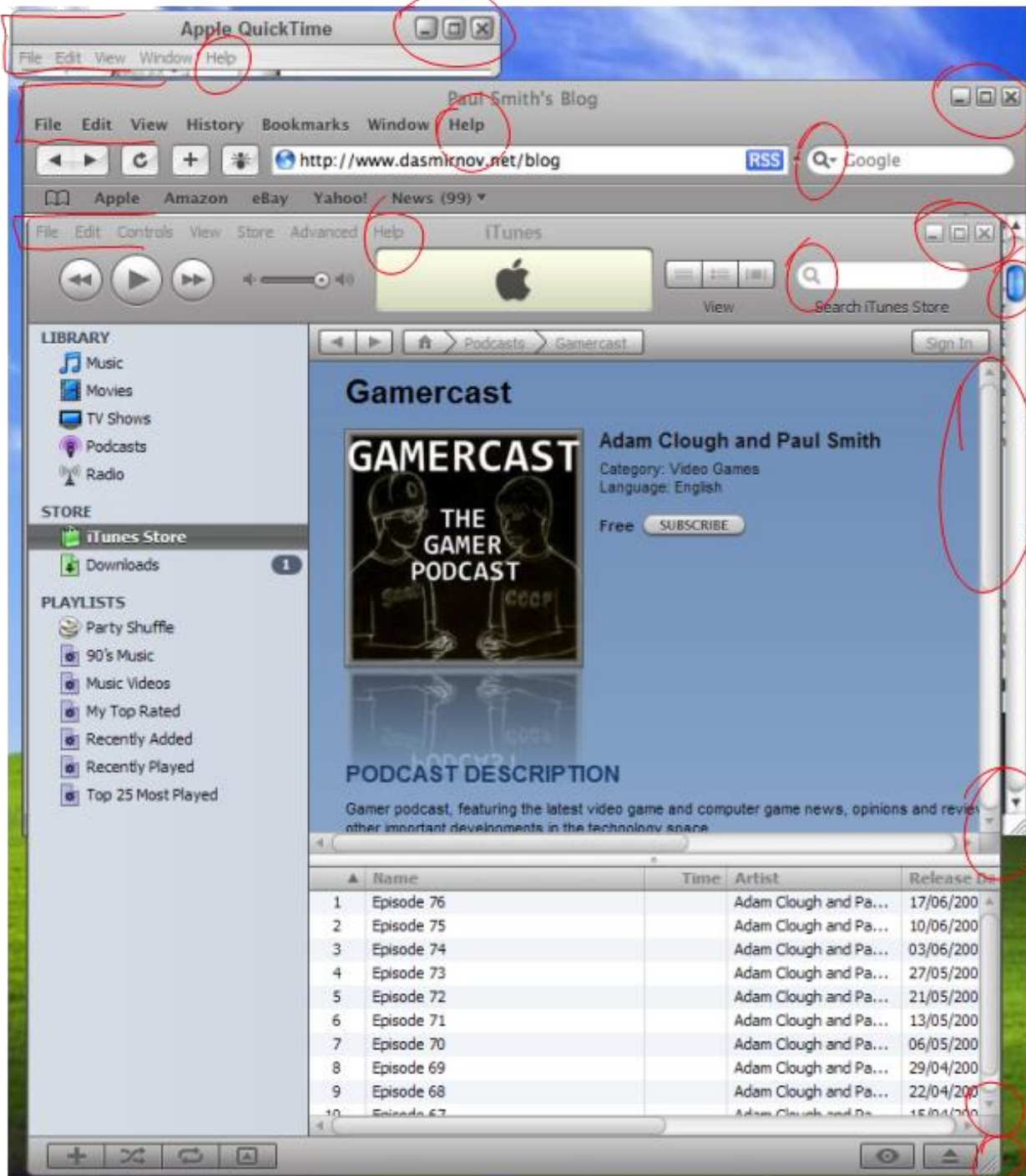
4 | *consistency and standards*

4 | *consistency and standards*

Users should not have to wonder whether different words, situations, or actions mean the same thing.

4 | *consistency and standards*

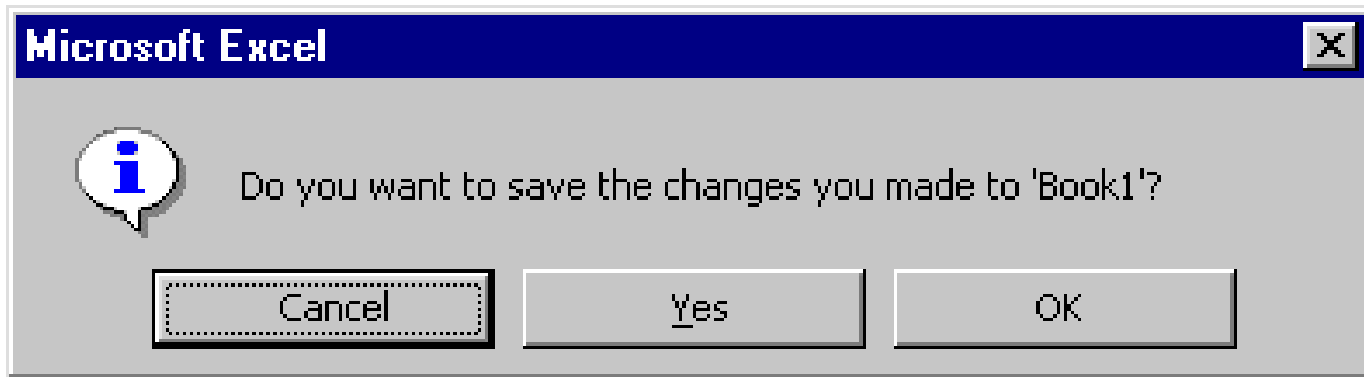
- **consistent syntax of input**



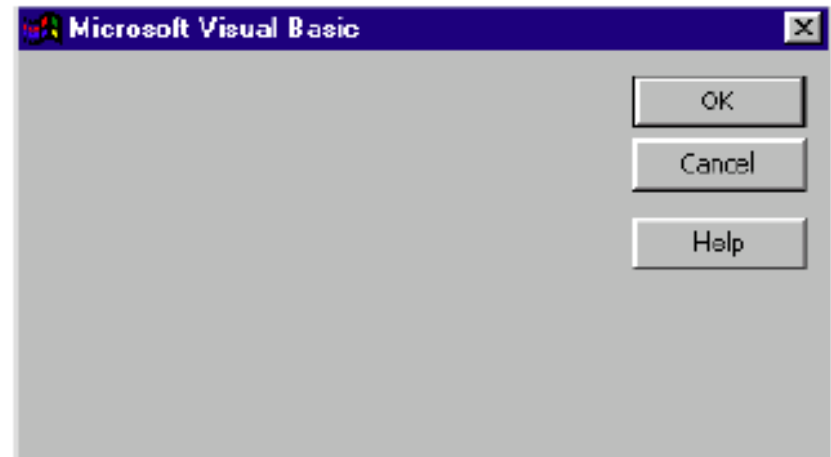
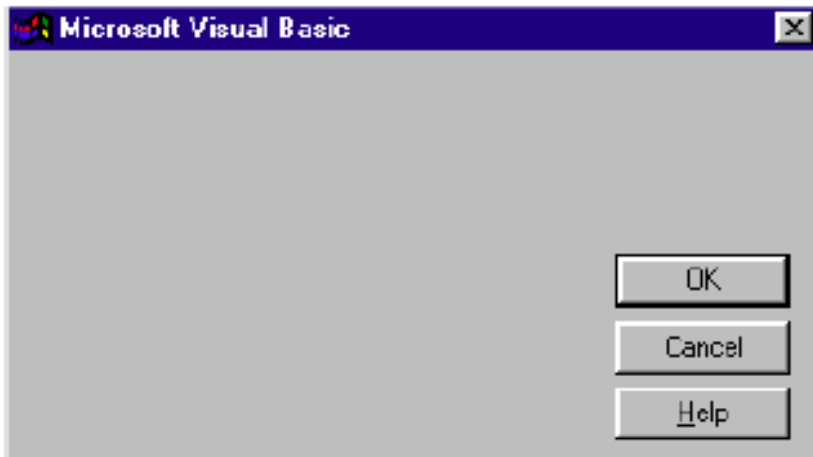
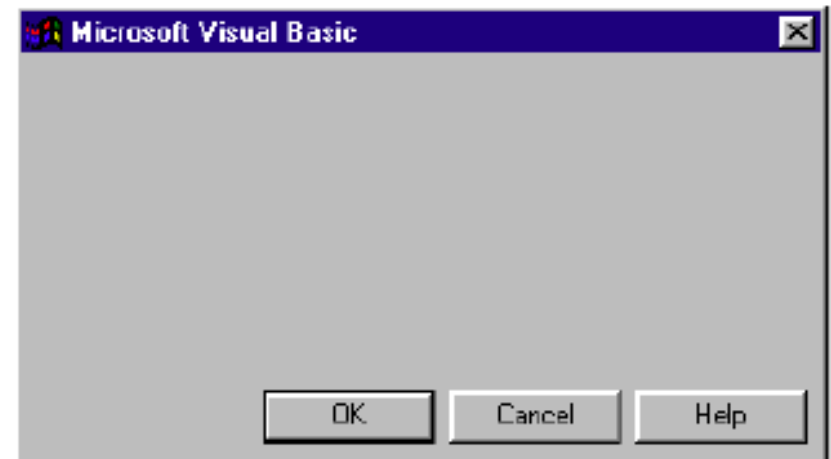
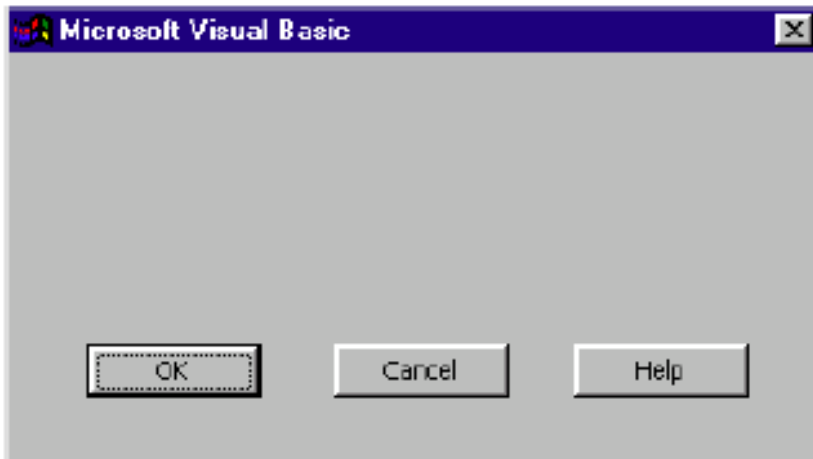
Apple hates
Windows users

4 | *consistency and standards*

- consistent syntax of input
- **consist language and graphics**
 - same visual appearance across the system (e.g. widgets)
 - same information/controls in same location on all windows

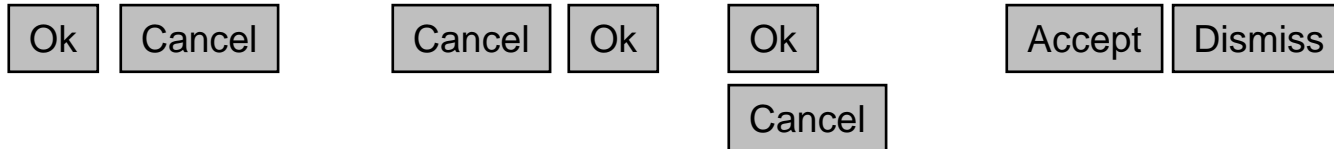


4 | *consistency and standards*



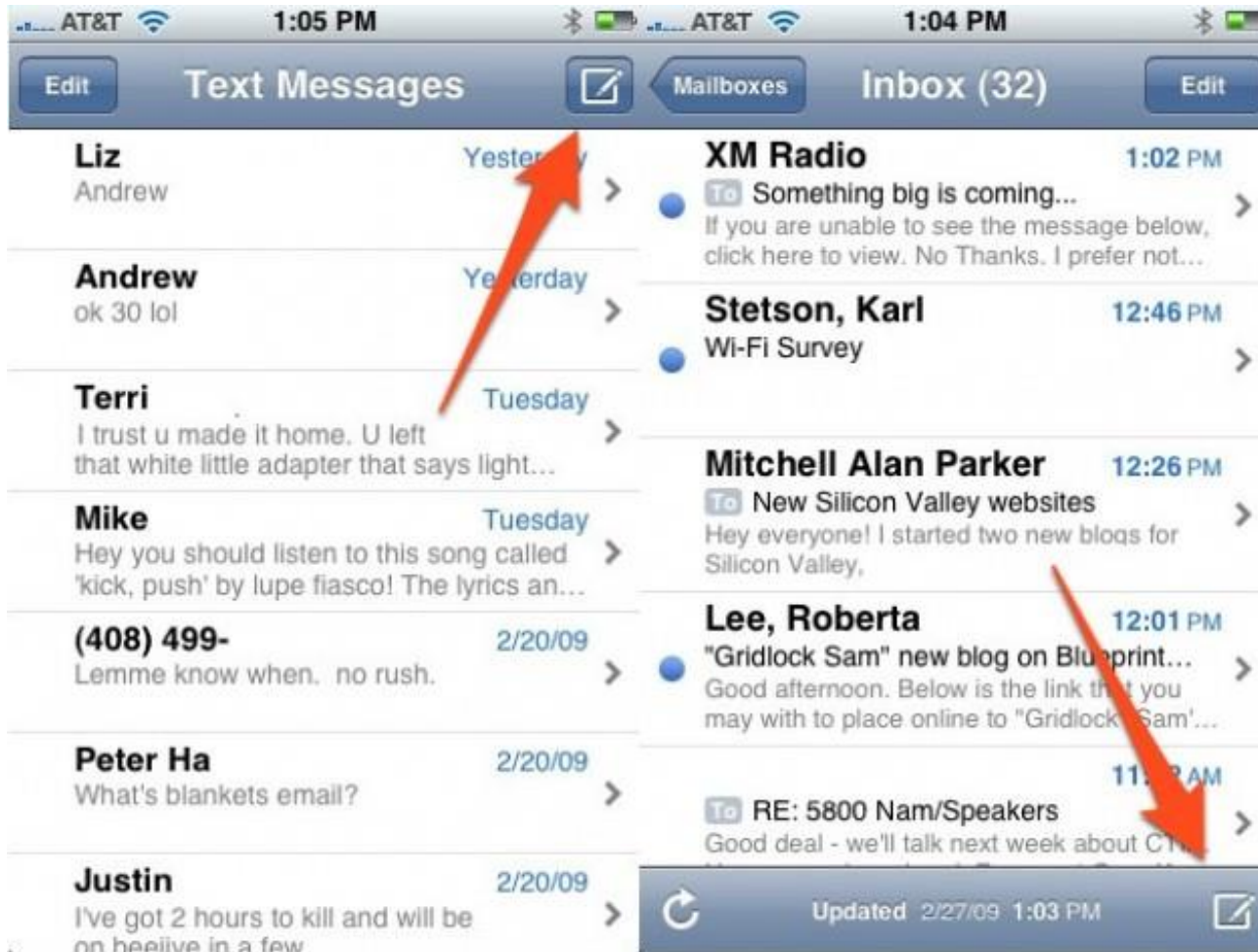
4 | *Consistency and standards*

- consistent syntax of input
- consist language and graphics
 - same visual appearance across the system (e.g. widgets)
 - same information/controls in same location on all windows



- **consistent effects**
 - commands, actions have same effect in equivalent situations
 - predictability

4 | consistency and standards



4 | *consistency and standards*

The image shows a screenshot of a web form with a grey background and a white border. The form is divided into two main sections: 'Subscriber' and 'Contact'. Each section has a title bar and several input fields. The 'Subscriber' section includes fields for 'Name', 'Account #', 'Tech. Re', and 'Status'. The 'Contact' section includes fields for 'Telephone', 'E-Mail', and 'St'. At the bottom of the form are two buttons: 'Save' and 'Cancel'.

Subscriber

Name: Tech. Re

Account #: Status:

Contact


Telephone: E-Mail:

Address: St

4 | *consistency and standards*

these are **labels with a raised appearance.**

is it any surprise that people try and click on them?



The image shows a grey web form with several input fields and buttons. A large red 'X' is drawn over the 'Subscriber' label at the top. A line from the text box on the left points to this label. The form contains the following elements:

- Subscriber** (label, highlighted with a red X)
- Name:** (input field)
- Account #:** (input field)
- Technical Representative** (label, partially visible as 'Tech. Re')
- Status:** (label)
- Contact** (label)
- Telephone:** (input field)
- E-Mail:** (input field)
- Address:** (input field)
- State** (label, partially visible as 'St')
- Save** (button)
- Cancel** (button)

4 | *consistency and standards*

- principle of least surprise
 - similar things should act similarly
 - different things should look different
- adhere to platform guidelines
- consistent language, color, working, ordering
- consistent use of input syntax

4| *consistency and standards*

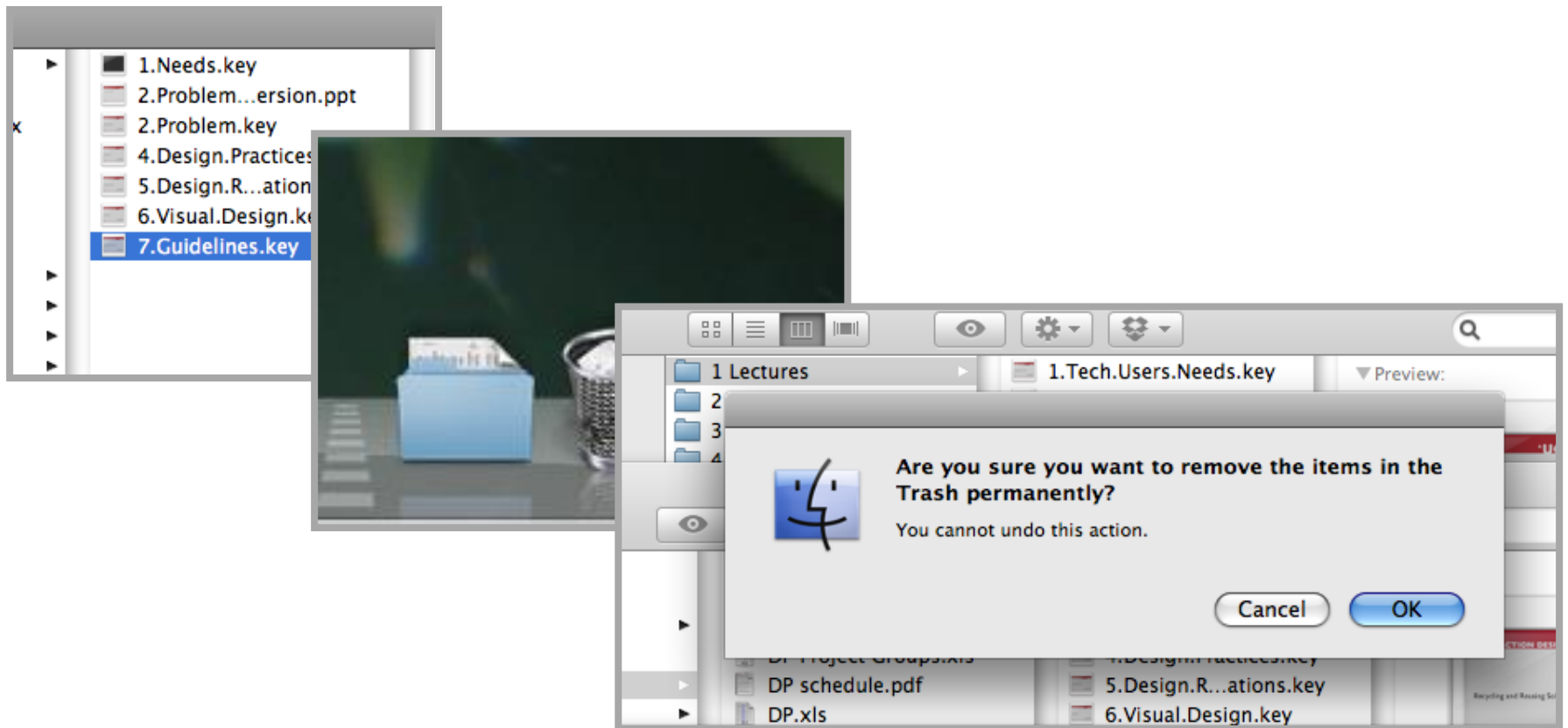
types of consistency:

- internal consistency
 - is the interface consistent with itself
- external consistency
 - is the design consistent with similar types of applications/applications on the platform
- metaphorical consistency
 - is the design consistent with the similar real-world entity/object

5 | *error prevention*



5 | *error prevention*

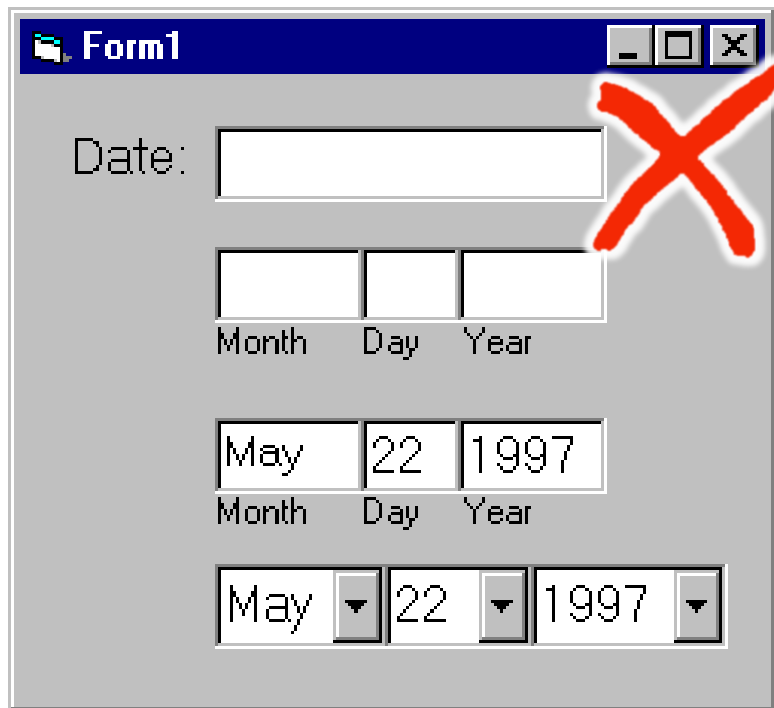


5 | *error prevention*

The image shows a Windows-style window titled "Form1" with a blue title bar and standard minimize, maximize, and close buttons. The window contains three different date input methods:

- Method 1:** A single text box with the label "Date:" to its left.
- Method 2:** Three separate text boxes arranged horizontally, with labels "Month", "Day", and "Year" positioned below each box.
- Method 3:** Three dropdown menus arranged horizontally, with labels "Month", "Day", and "Year" positioned below each menu. The selected values are "May", "22", and "1997".

5 | error prevention



Form1

Date:

Month Day Year

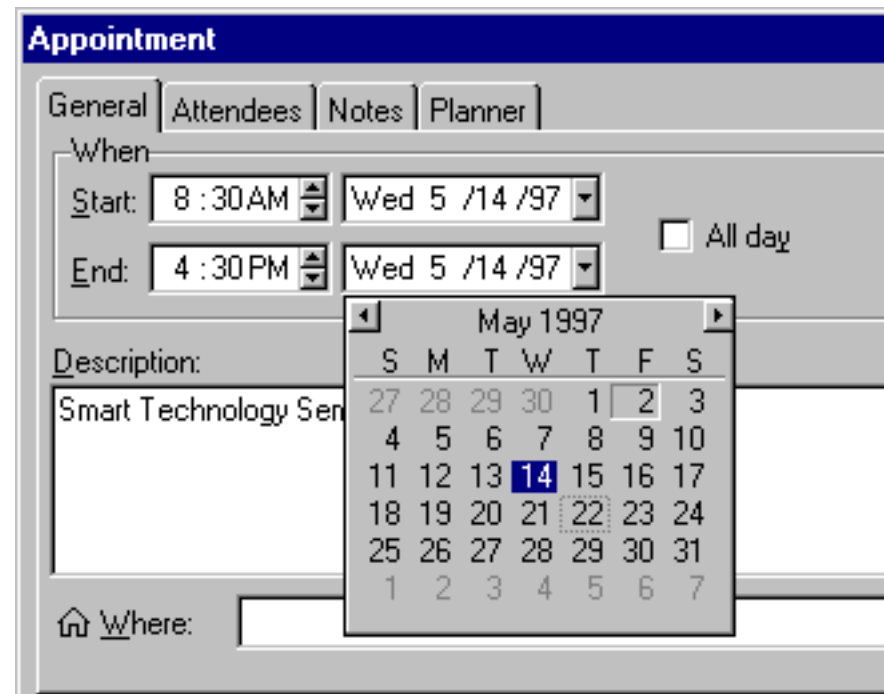
May 22 1997

Month Day Year

May 22 1997

A red 'X' is drawn over the date input field and the labels below it, indicating a lack of validation or an error state.

vs.



Appointment

General Attendees Notes Planner

When

Start: 8:30 AM Wed 5 /14 /97

End: 4:30 PM Wed 5 /14 /97

All day

Description:

Smart Technology Ser

Where:

May 1997

S	M	T	W	T	F	S
27	28	29	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	4	5	6	7

The appointment window features a date picker and a calendar view, providing a more robust and user-friendly interface for date selection.

5 | error prevention

Transactions

Date	Description	Category	Amount
6/7/10	Groceries	Food	\$155.00

42 ⌚ T = \$

Done

\$ 7 8 9 ✕

% 4 5 6 new→

★★★★★ 1 2 3

☑ +/- 0 . next←

5 | error prevention



The image shows a Google search interface with a dropdown menu for the search term 'amaz'. The dropdown lists suggestions with their respective result counts. A red dashed circle highlights the search input field.

Suggestion	Results
amazon	740,000,000 results
amazon uk	16,600,000 results
amazon.ca	21,200,000 results
amazao	5,730 results
amazapta	26,600 results
amazao salon	827 results
amazârmekhem	220 results
amazing	301,000,000 results

Additional links on the right side of the dropdown menu include [Advanced](#), [Preferences](#), and [Language](#). A [close](#) link is located at the bottom right of the dropdown menu.

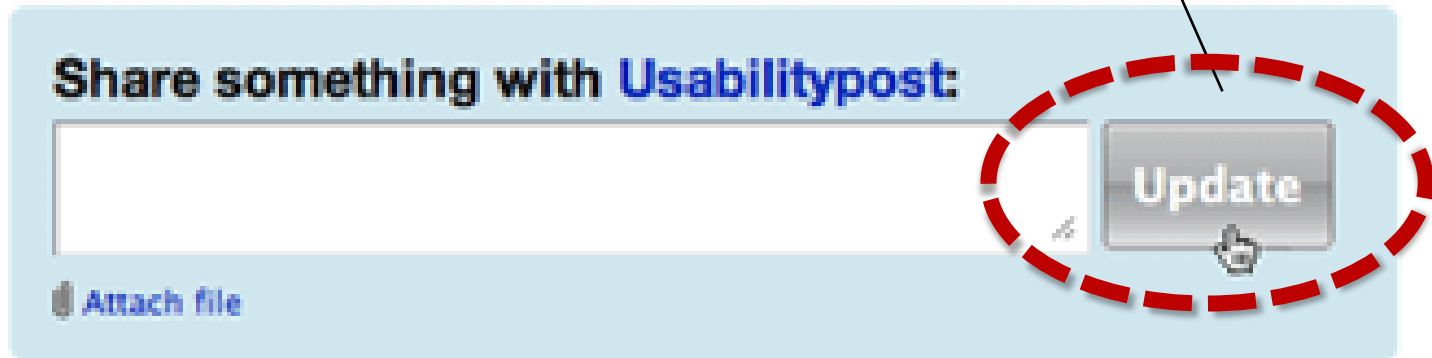
5 | *error prevention*

Share something with Usabilitypost:

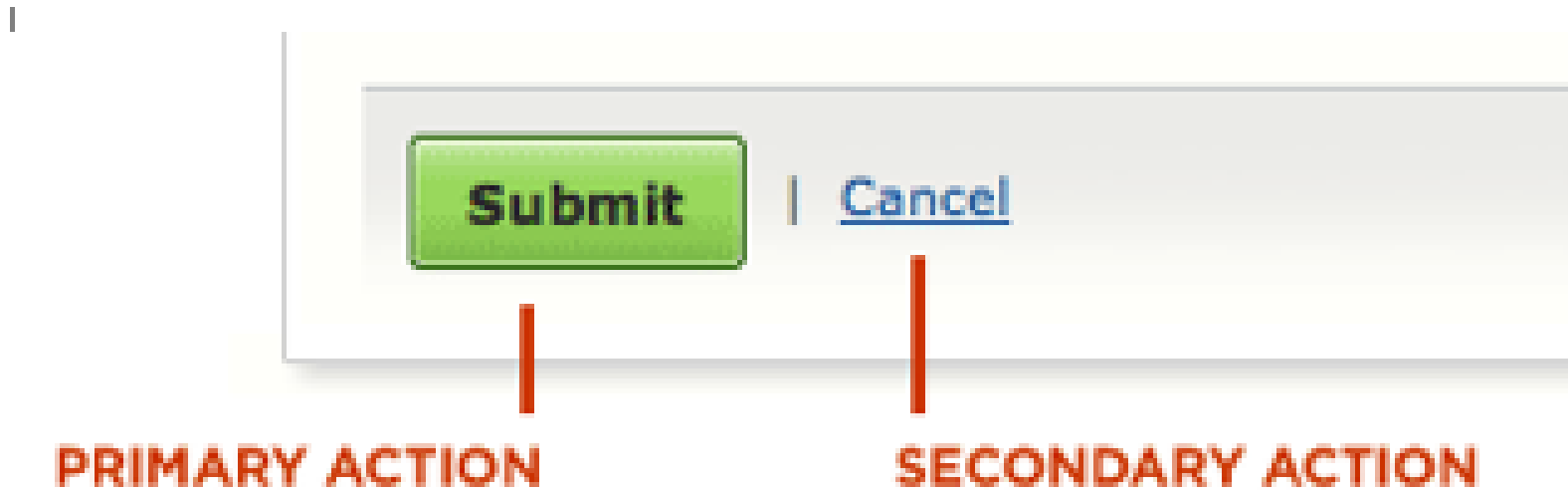

 [Attach file](#)

5 | *error prevention*

Button disabled when nothing entered



5 | *error prevention*



6 | *recognition rather than recall*

i686 GNU/Linux
Ubuntu 10.04.2 LTS

Welcome to Ubuntu!

* Documentation: <https://help.ubuntu.com/>

System information as of Thu Oct 13 18:39:03 UTC 2011

System load:	0.0	Processes:	95
Usage of /:	2.7% of 19.70GB	Users logged in:	0
Memory usage:	4%	IP address for eth0:	10.240.119.222
Swap usage:	0%		

Graph this data and manage this system at <https://landscape.canonical.com/>

42 packages can be updated.
27 updates are security updates.

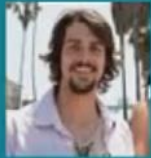
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in `/usr/share/doc/*/copyright`.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@srv-su22m:~#

Start

Favorites



Dave Landis

Surfs up!
I hope you're ready for s...



2

Kayaking Lessons
12:00 PM–1:00 PM



31
Friday



Photos



57°

San Francisco
Clear

Today
72°/54° Clear

Tomorrow
73°/51° Clear

Weather



Internet Explorer



Help & Tips

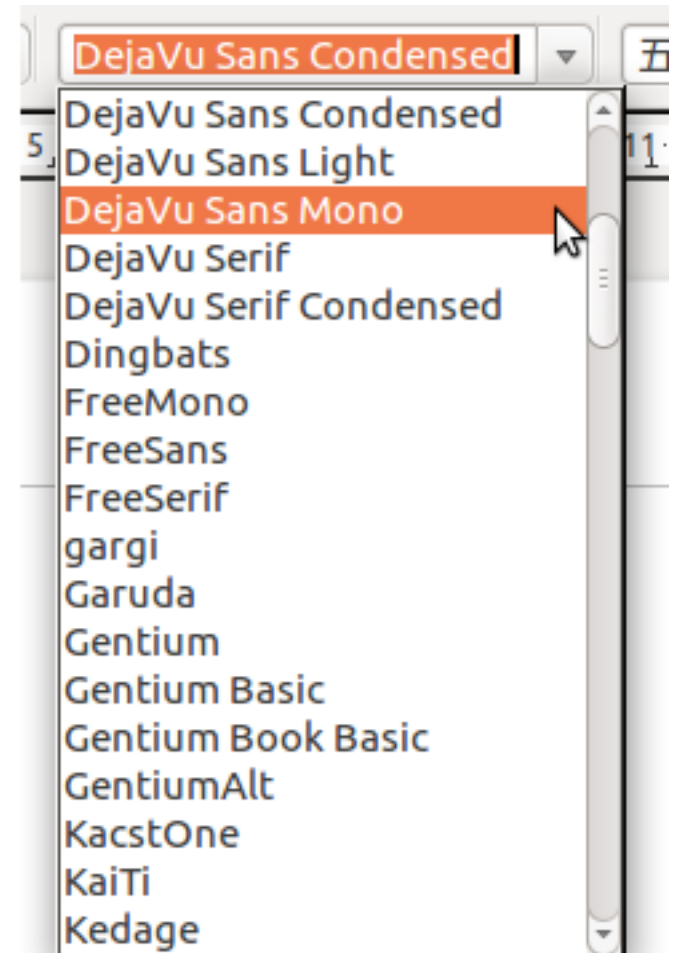
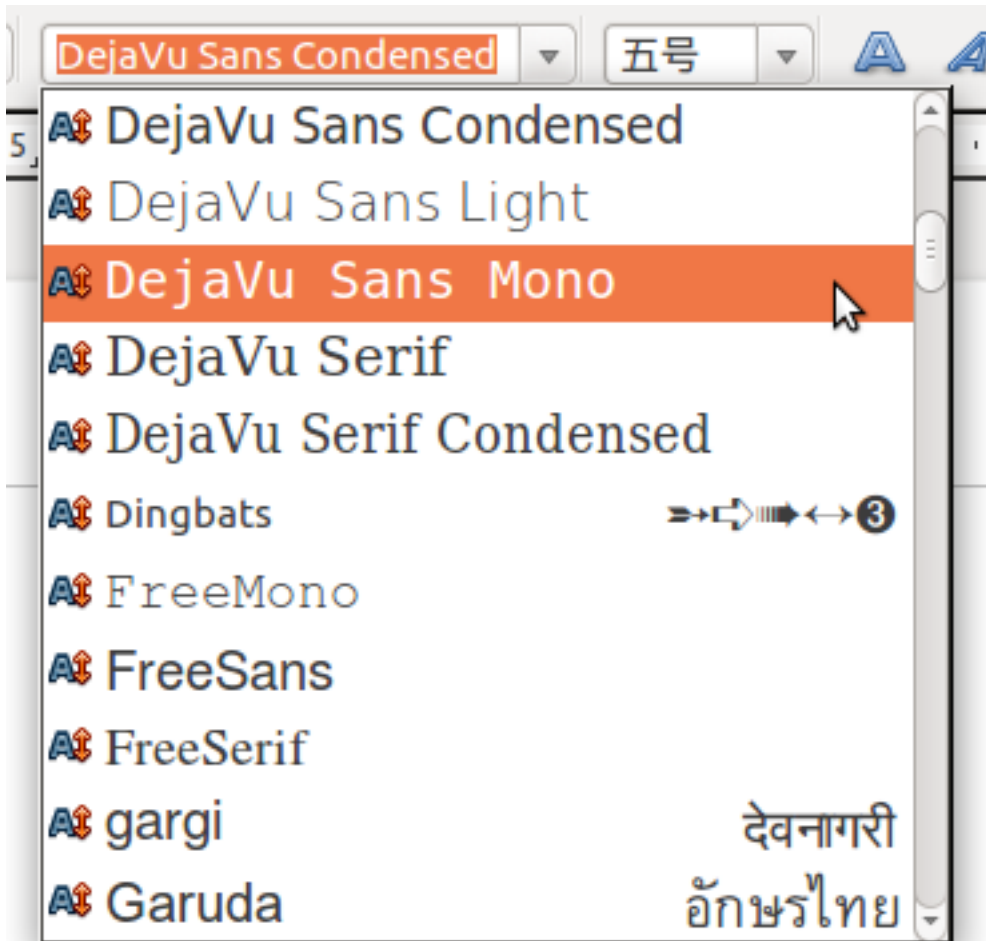


SkyDrive



Store

6 | *recognition rather than recall*



Document1 (Trial)

FILE HOME

Cut Copy Paste Format Painter

Clipboard

Calibri (Body) 11 A A Aa

Font

B I U abc x x A B Paragraph

AaBbCcDc AaBbCcDc AaBbCc AaBbCc AaBb AaBbCcDc AaBbCcDc AaBbCcDc AaBbCcDc

Styles

Normal No Spac... Heading 1 Heading 2 Title Subtitle Subtle Em... Emphasis

Find Replace Select

FILE INSERT

Cover Page Blank Page Page Break

Pages

Table Pictures Online Pictures Shapes SmartArt Chart Screenshot

Tables Illustrations

Apps for Office Online Video

Apps Media

Hyperlink Bookmark Cross-reference

Links

Comment Header Footer Page Number

Comments Header & Footer

Text Box Quick Parts WordArt Drop Cap Object

Text

Signature Line Date & Time

Equation Symbol

FILE DESIGN

Themes

Document Formatting

Paragraph Spacing Effects Set as Default

Watermark Page Color Page Borders

Page Background

FILE PAGE LAYOUT

Margins Orientation Size Columns Line Numbers Hyphenation

Page Setup

Indent Spacing

Left Right Before After

Paragraph

Position Wrap Text Bring Forward Send Backward Selection Pane Rotate

Arrange

FILE REFERENCES

Table of Contents Add Text Update Table

Table of Contents

Insert Endnote Next Footnote Show Notes

Footnotes

Manage Sources Style: APA Insert Citation Bibliography

Citations & Bibliography

Insert Table of Figures Update Table Cross-reference

Captions

Insert Index Update Index Mark Entry Mark Citation

Index

Insert Table of Authorities Update Table

Table of Authorities

FILE MAILINGS

Envelopes Labels Start Mail Merge Select Recipients Edit Recipient List

Create

Start Mail Merge

Highlight Merge Fields Address Block Greeting Line Insert Merge Field

Write & Insert Fields

Rules Match Fields Update Labels

Preview Results Find Recipient Check for Errors

Preview Results

Finish & Merge

Finish

FILE REVIEW

Spelling & Grammar Define Thesaurus Word Count

Proofing

Translate Language

Language

New Comment Delete Previous Next

Comments

Show Comments

Track Changes Reviewing Pane

Tracking

Simple Markup Show Markup Accept Reject Previous Next

Changes

Compare Block Authors Restrict Editing

Compare Protect

FILE VIEW

Read Mode Print Layout Web Layout Outline Draft

Views

Ruler Gridlines Navigation Pane

Show

Zoom 100%

One Page Multiple Pages Page Width

Zoom

New Window Arrange All Split

Window

View Side by Side Synchronous Scrolling Reset Window Position

Switch Windows

Macros

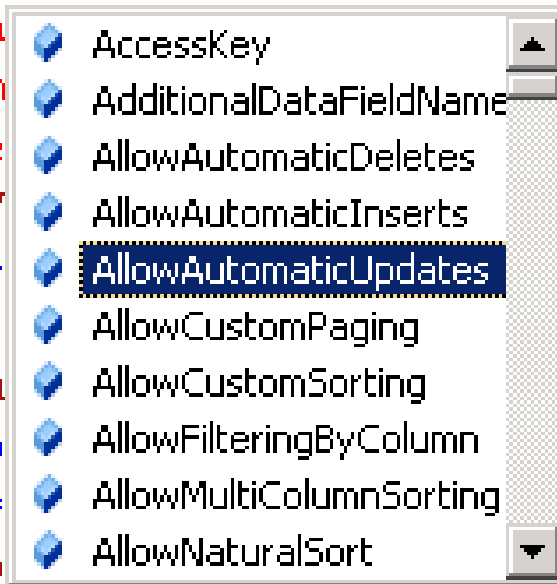
Macros

PAGE 1 OF 1 0 WORDS

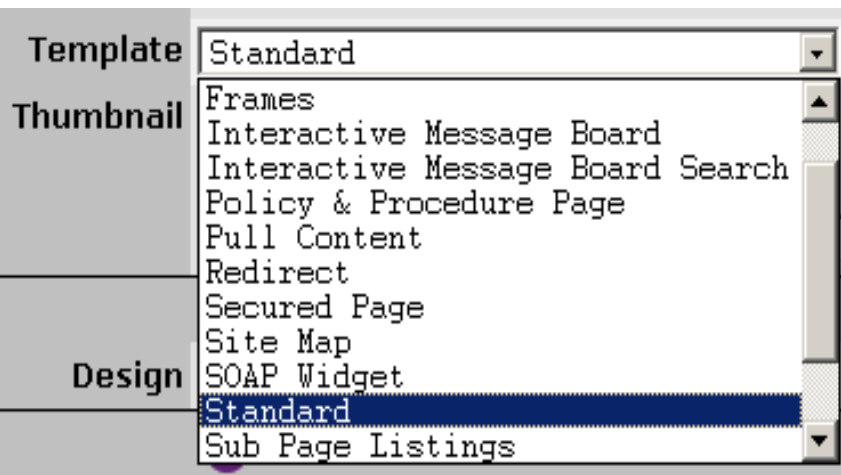
100%

6 | *recognition rather than recall*

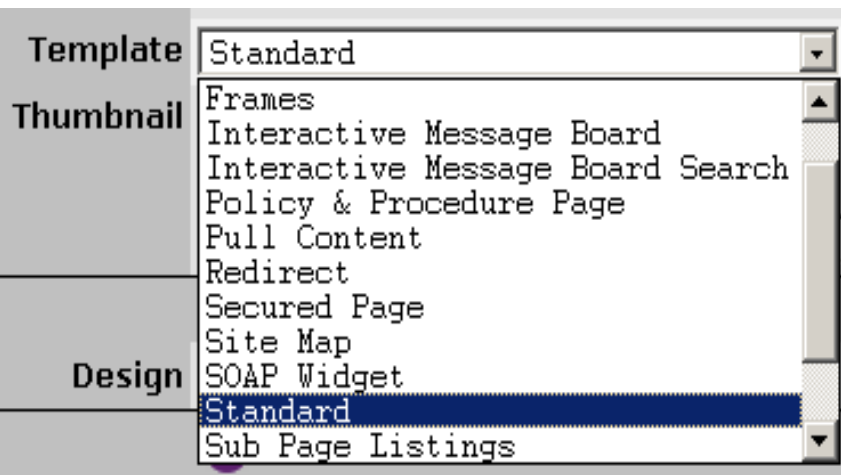
```
<telerik:RadGrid
  ID="RadGrid1"
  runat="server"
  DataSourceID="AccessDataSource1" SI
  <MasterTableView al
    autogenerated
    datakeyname
    datasource
  </MasterTableV
</telerik:RadGrid>
<asp:AccessDataSou
  DataFile="~/Ap
  SelectCommand=
</asp:AccessDataSo
```



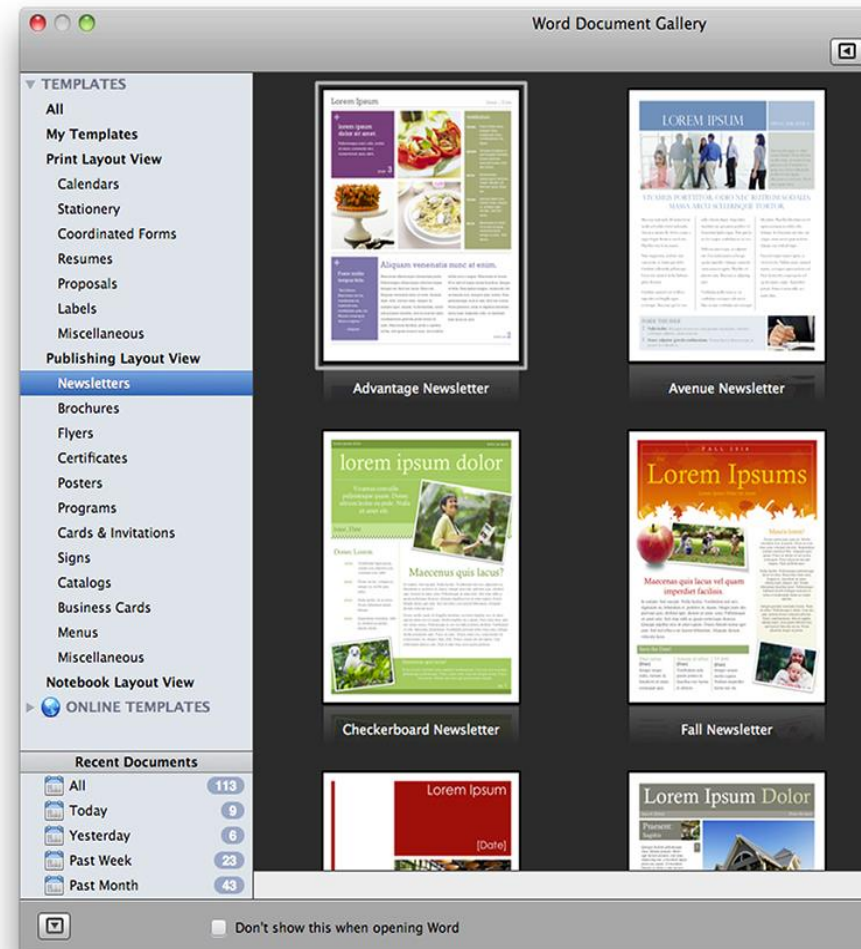
6 | *recognition rather than recall*



6 | *recognition rather than recall*



VS.



7 | *flexibility and efficiency of use*

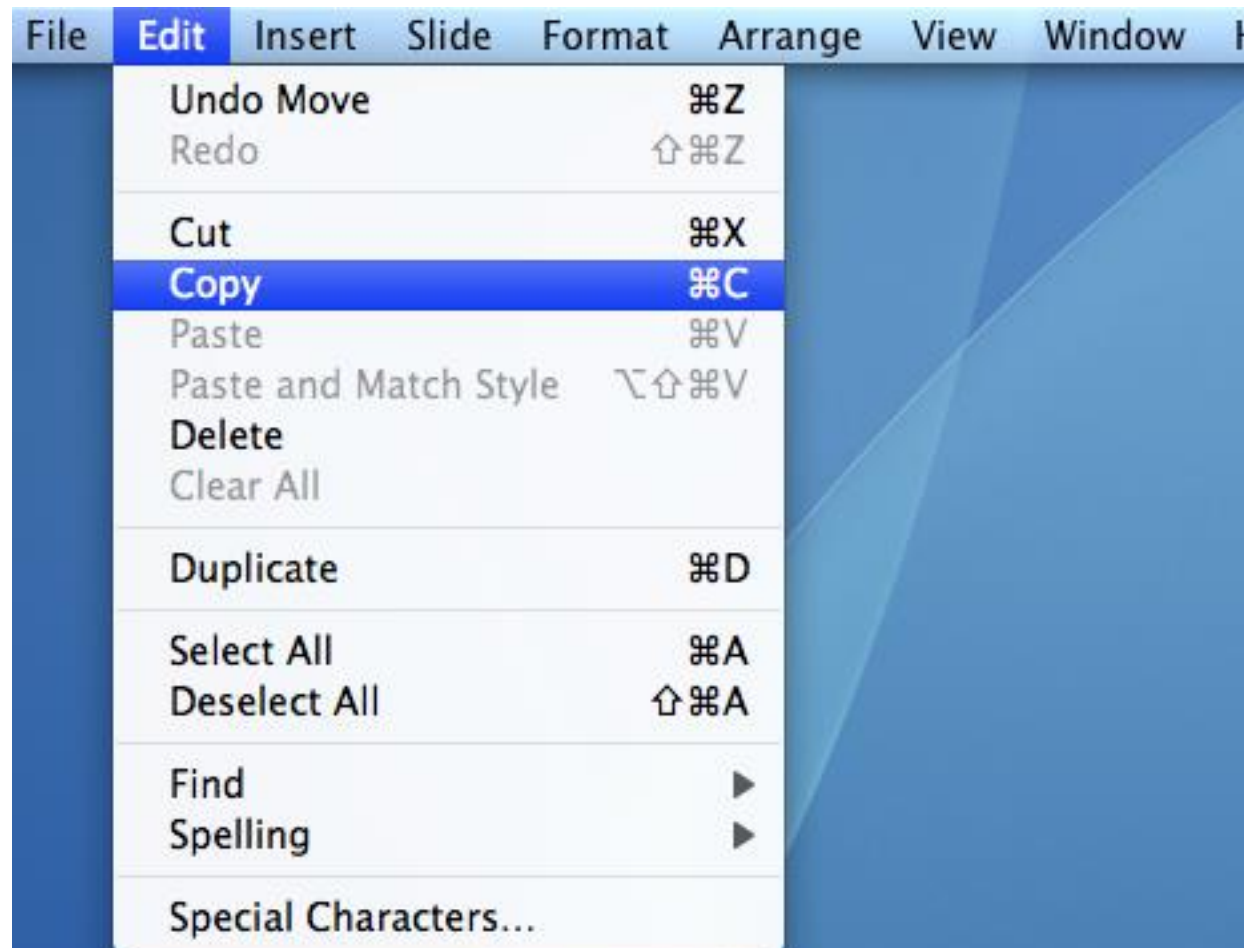
7 | *flexibility and efficiency of use*

As the frequency of use increases, so do the user's desires to reduce the number of interactions and to increase the pace of interaction.

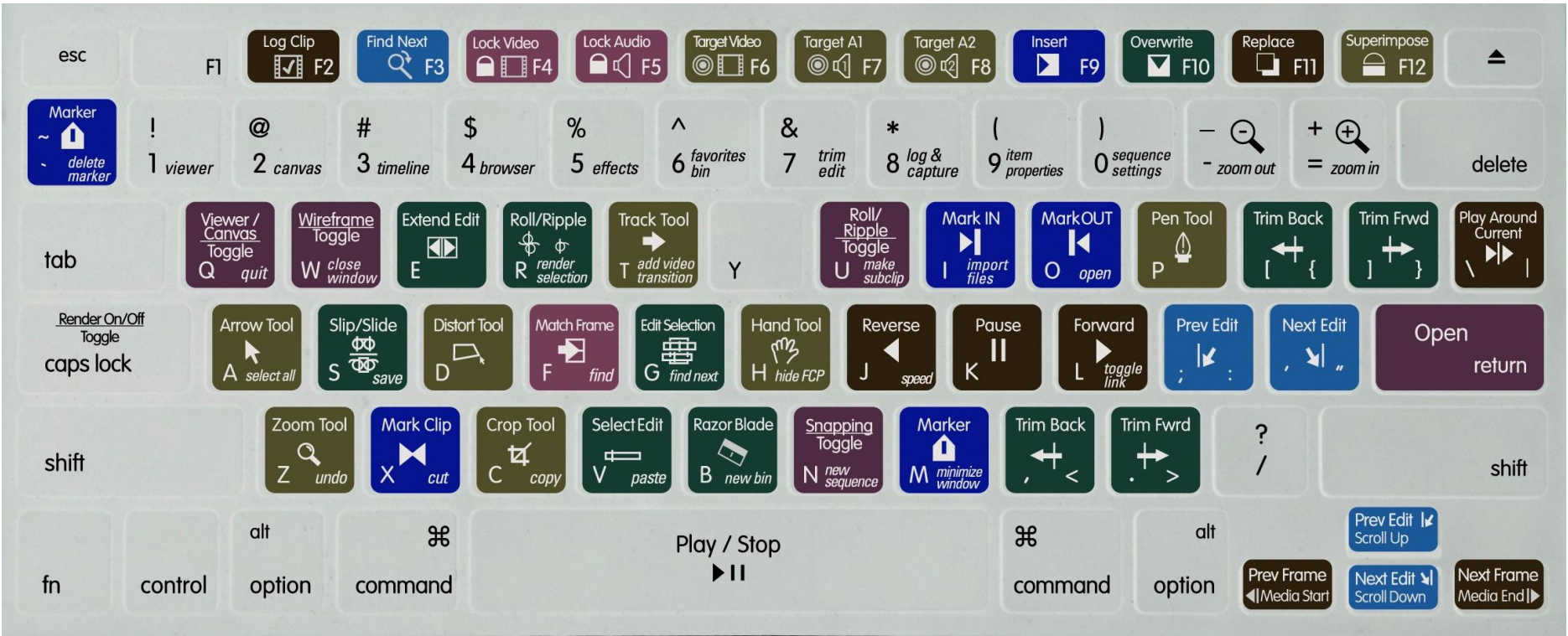
Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.

7 | *flexibility and efficiency of use*

a) Keyboard shortcuts





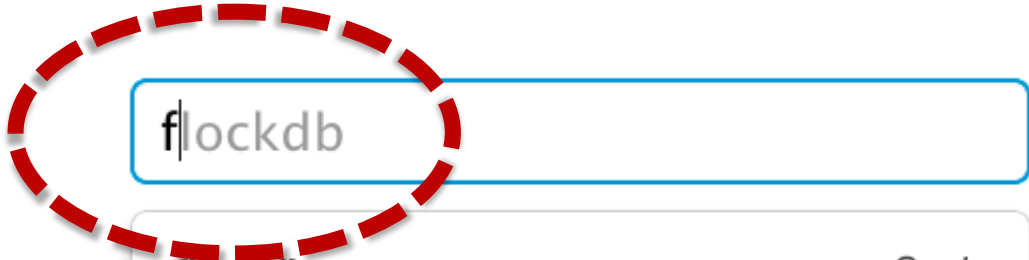




7 | *flexibility and efficiency of use*

b) auto-
complete

Open Source Projects by Twitter



flockdb	<i>Scala</i>
A distributed, fault-tolerant graph database	
flockdb-client	<i>Ruby</i>
A Ruby client library for FlockDB	
finagle	<i>Scala</i>
A fault tolerant, protocol-agnostic RPC system	
fatcache	<i>C</i>
Memcache on SSD	
flight	<i>JavaScript</i>
A lightweight, component-based JavaScript framework	

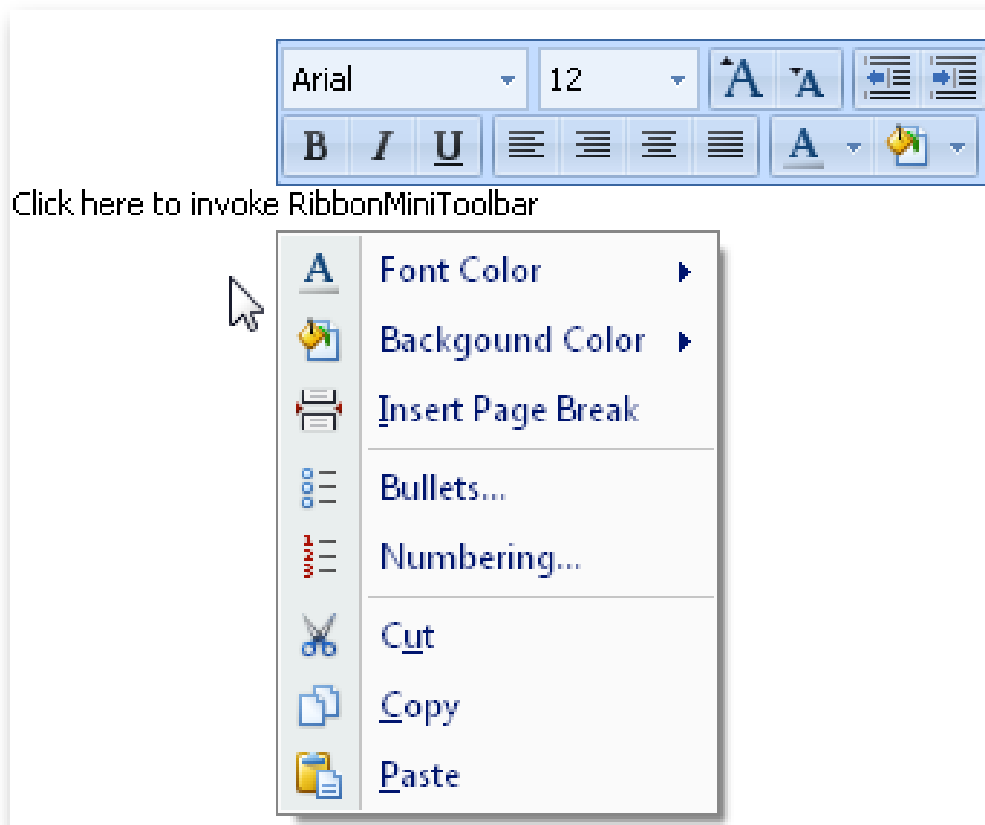
7 | *flexibility and efficiency of use*

c) History



7 | *flexibility and efficiency of use*

d) Context menus



7 | *flexibility and efficiency of use*

e) Type ahead (buffering, e.g., FIFO)

(entering input before the system is ready for it)



7 | *flexibility and efficiency of use*

designing for varying degrees of expertise

- **novice users**
 - restrict vocabulary to simple, necessary terms
 - minimal number of actions to achieve task
 - provide additional feedback
- **intermediate users**
 - use consistent structure and terminology for menus
 - emphasise recognition over recall
 - reference materials (on-line or printed)
- **expert users**
 - allow the user to optimize for speed
 - shortcuts: keystrokes, abbreviations, etc

7 | *flexibility and efficiency of use*



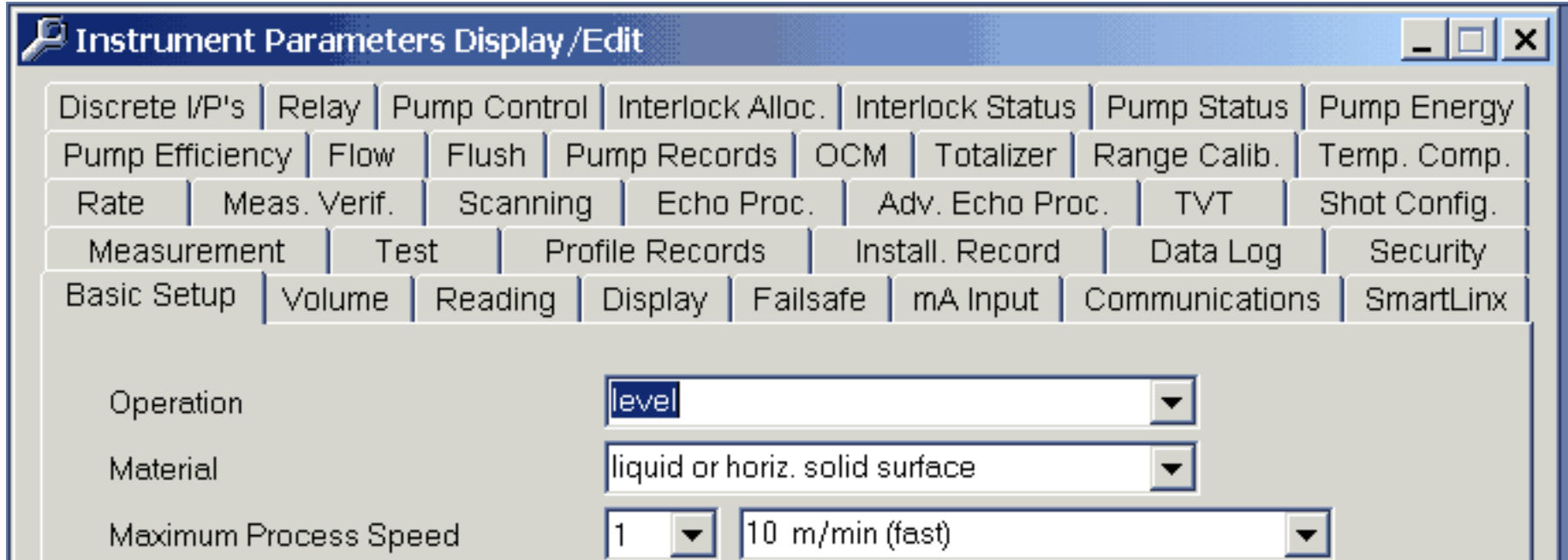
8 | *aesthetic and minimalist design*

8 | *aesthetic and minimalist design*

Present exactly the information the user needs

- less is more: less to learn, to get wrong, to distract...
- information should appear in natural order
 - related information is graphically clustered
 - order of accessing information matches user's expectations
- remove or hide irrelevant or rarely needed information
 - competes with important information on screen

8 | *aesthetic and minimalist design*



Google

Google Search

I'm Feeling Lucky

Search

HOME
27 October 2013

YAHOO
Yahoo.com

SIGN IN
New here? Sign up



YAHOO SITES

Edit

- Mail
- News
- Sport
- Dating
- Lifestyle
- Finance (FTSE 100 ↑)
- omg!
- Cars
- Movies
- Videos on Screen
- Shopping
- Games
- Messenger
- Weather (12°C)
- Answers
- Travel
- Horoscopes

Developing News: Follow the course of St Jude's storm as it sweeps into Britain from the south. [» Latest news](#)



Bale 'already lined up to leave Real Madrid'

Gareth Bale's awful start at Real Madrid has reportedly put a Premier League return in motion. [Destination >>](#)

- La Liga table
- Neymar dazzles in Clasico
- Suarez scores hat-trick



Latest on UK storm



Bale 'already set to leave Real'



Simpsons voice actress dies



Musician Lou Reed dies

1 - 4 of 80



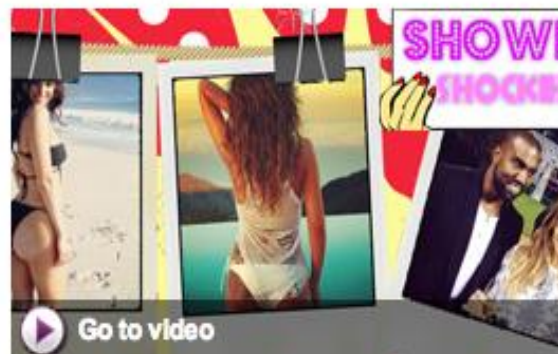
NEWS SPORT ENTERTAINMENT FINANCE

• Storm: Britain Prepares For '80mph Winds'

Trending now

- | | |
|----------------------|---------------------|
| 1. Indian Grand Prix | 6. Home insurance |
| 2. Weather warnings | 7. Dual fuel prices |
| 3. Premier League | 8. Rugby League V |
| 4. Sofa beds | 9. Strictly Come D |
| 5. Syria | 10. NFL London |

Editor's video picks



Kim, Cheryl: Who shocked us the most?



Comedy: When your mum joins Facebook sketch



The e...
Britis...
expl...

8 | *aesthetic and minimalist design*

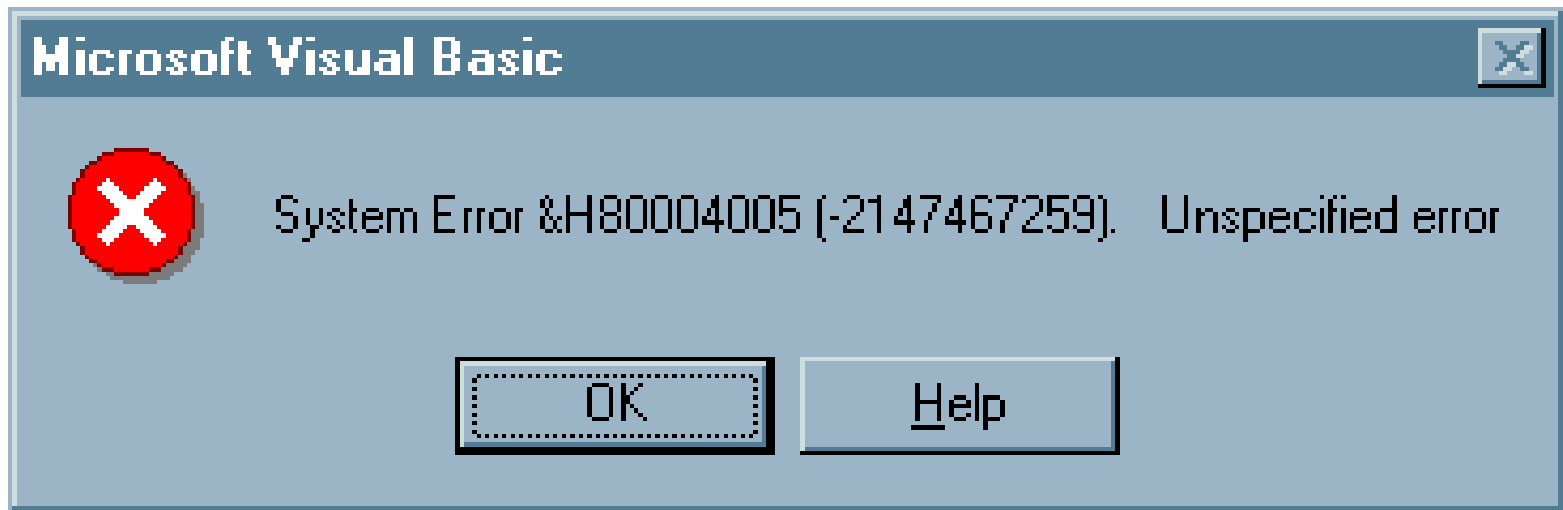


8 | *aesthetic and minimalist design*



9 | *help users recognize, diagnose, and recover
from errors*

9 | *help users recognize, diagnose, and recover from errors*



9| *recovering from errors*

example error messages:

- “Sorry, the request was unsuccessful”
 - How so?
- “E-Mail address is improperly formatted or contains invalid characters”
 - Which is it?
- “The password you entered has an incorrect number of characters. Please enter a password 6-16 characters long, using any combination of upper case letters, lower case letters, and numbers”
 - still sucks but I know what went wrong
- “could not log in. valid authentication credentials were not provided”
 - nerding out. People know the word “password” and “user name”

- Invalid email address entered
- Billing zipcode format is invalid.
- Missing a value for the required property: billzipcode
- Missing a value for the required property: billcity
- Missing a value for the required property: billaddress1
- Missing a value for the required property: login
- Missing a value for the required property: billstate

registration

1. Personal information

First * M Last *

Email (Login) *

Email me promotions?

Gender

2. Billing information

(Credit Card Mailing Address)

Care of

Address *

City *

Error messages are too far away from where they can be corrected.

Also, can we say “nerd language” for the error messages themselves?

be polite, never blame the user

ABORTED

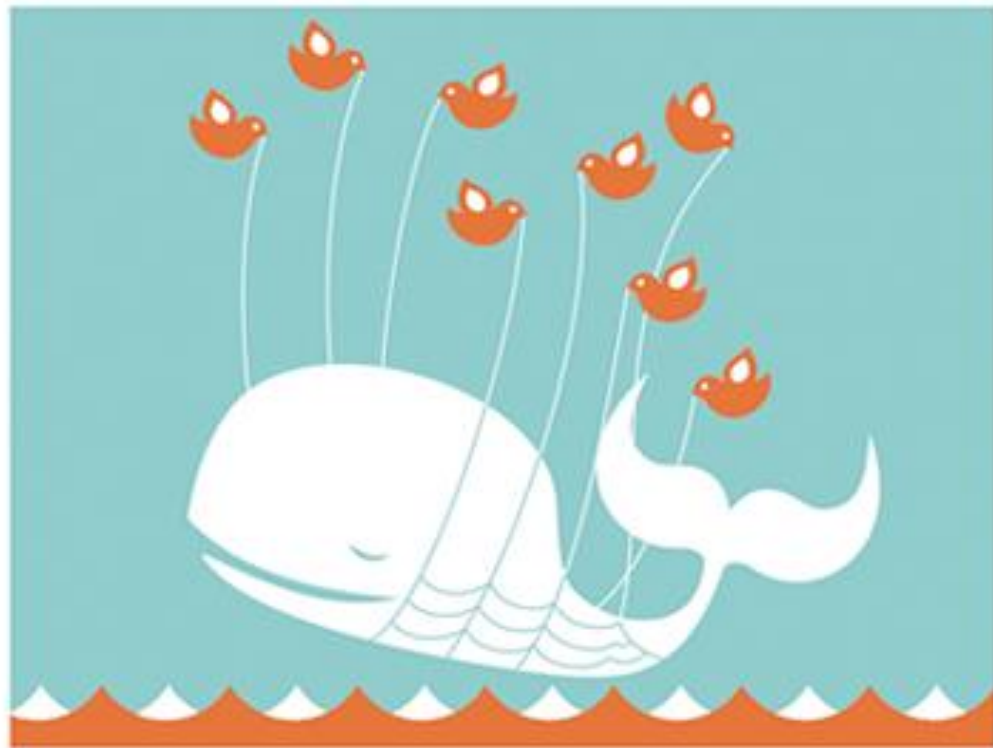


FATAL

ILLEGAL

Twitter is over capacity.

Too many tweets! Please wait a moment and try again.





www.google-news.com



Oops! Google Chrome could not find www.google-news.com

Did you mean: news.google.com

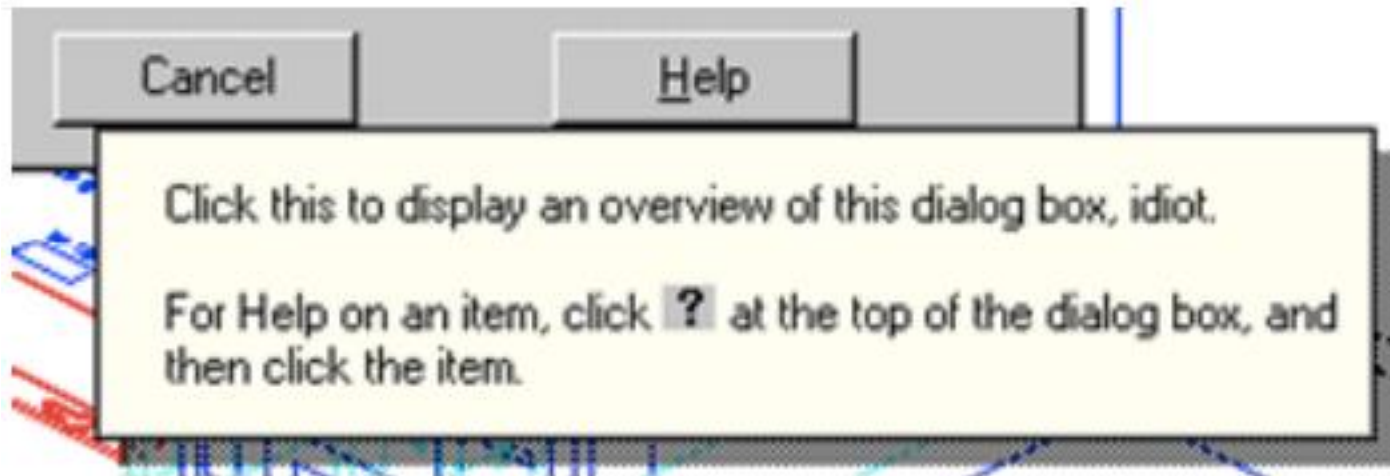
Additional suggestions:

- Search on Google:

[Google Chrome Help](#) - [Why am I seeing this page?](#)

©2013 Google - [Google Home](#)

be polite even when you're coding for yourself...



Source Interface Hall of Shame

Provide suggestions/examples

 Please enter your email address in this format: "youremail@domain.com".

» not “cannot open file”, but “cannot open file named paper.doc”

9 | *help users recognize, diagnose, and recover from errors*

The image shows a Google search interface. The search bar contains the text "ucl human computer interaction". A red dashed circle highlights the word "computer" in the search bar. Below the search bar, the "Web" tab is selected. The search results show "About 101,000 results (0.38 seconds)". A red dashed oval highlights the text "Showing results for [ucl human computer interaction](#) Search instead for ucl human computer interaction". Below this, there is a section for "Scholarly articles for [ucl human computer interaction](#)" with three results: "... the 'weakest link'—a [human/computer interaction ...](#) - Sasse - Cited by 334", "... of task analysis for [human-computer interaction](#) - Stanton - Cited by 229", and "Research methods for [human-computer interaction](#) - Cairns - Cited by 65". At the bottom, there is a result for "MSc [Human-Computer Interaction with Ergonomics - UCL](#)" with a green dot icon, followed by the URL "www.ucl.ac.uk > ... > Prospective Students > PaLS Masters programmes" and a dropdown arrow, and the text "UK/EU 2013/14: £NHS funded (FT). Overseas 2013/14: £21,000 (FT). Programme".

Google

ucl human computer interaction

Web Images Maps Shopping Videos More Search tools

About 101,000 results (0.38 seconds)

Showing results for [ucl human computer interaction](#)
Search instead for ucl human computer interaction

Scholarly articles for [ucl human computer interaction](#)

[... the 'weakest link'—a human/computer interaction ...](#) - Sasse - Cited by 334

[... of task analysis for human-computer interaction](#) - Stanton - Cited by 229

[Research methods for human-computer interaction](#) - Cairns - Cited by 65

MSc [Human-Computer Interaction with Ergonomics - UCL](#)

[www.ucl.ac.uk](#) > ... > Prospective Students > PaLS Masters programmes

UK/EU 2013/14: £NHS funded (FT). Overseas 2013/14: £21,000 (FT). Programme

9 | *help users recognize, diagnose, and recover from errors*

Or start a new account

Choose a username (no spaces)


 bert is already taken. Please choose a different username.

Choose a password

 Passwords must be at least 6 characters and can only contain letters and numbers.

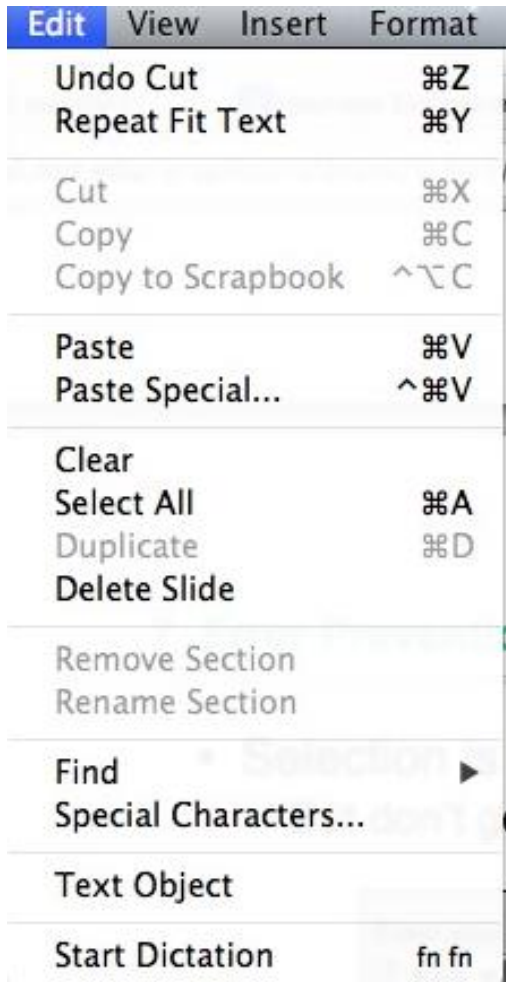
Retype password

Email address (must be real)

 The email provided does not appear to be valid

Send me occasional Digg updates.

prevention techniques (on the small)



Grey out illegal commands

Avoid typing errors through selection



Source: Interface Hall of Shame

error types

- slips (and lapses)
 - failure to correctly execute a procedure
 - slip is a failure of execution; lapse is a failure of memory
 - typically found in skilled behaviour
- mistakes
 - using wrong procedure for goal
 - typically found in rule-based behaviour or problem-solving behaviour

slips (and lapses)

- capture error
 - frequently done activity takes charge instead of intended one
 - leave your house, and end up walking toward school instead of to the grocery store
- description error
 - intended action similar to others that are possible
 - pour orange juice on cereal
 - throwing shirt into toilet instead of into hamper

slips (and lapses)

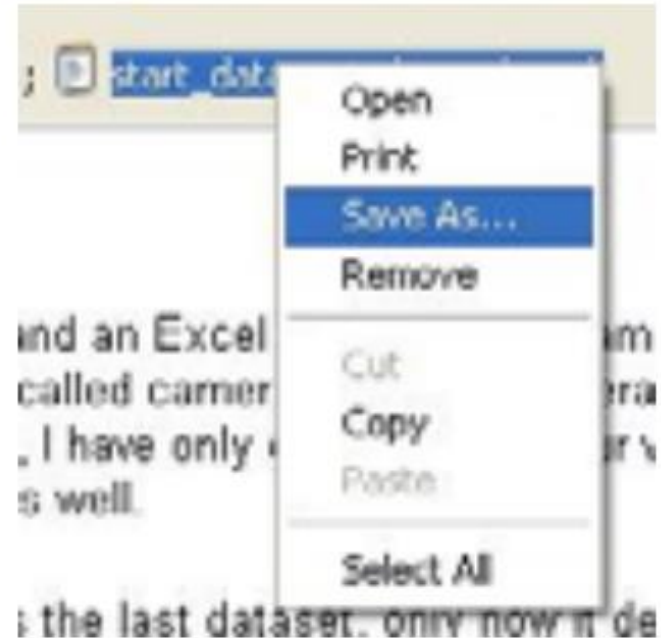
- Loss of intention
 - forgetting the goal partway
 - walking into a room, forgetting why you went there
- omissions due to interruption
 - get coat out, interrupted by phone call; then go out without coat
- omissions due to already satisfied goal
 - walking away from ATM w/o card
 - walking away from copier without originals

slips (and lapses)

- Mode errors
 - people do actions in one mode thinking they are in another
 - refer to a file that's in a different directory
 - looking for commands / menu options that are not relevant

preventing capture and description slips

- avoiding habitual action sequences with identical prefixes
- avoid actions with very similar descriptions
- keep dangerous commands away from common ones



what do you think of this redesign?

<u>U</u> ndo	Ctrl+Z
Cu <u>t</u>	Ctrl+X
<u>C</u> opy	Ctrl+C
<u>P</u> aste	Ctrl+V
De <u>l</u> ete	Del
<u>F</u> ind...	Ctrl+F
Find <u>N</u> ext	F3
<u>R</u> eplace...	Ctrl+H
<u>G</u> o To...	Ctrl+G
Select <u>A</u> ll	Ctrl+A
Time/ <u>D</u> ate	F5



<u>U</u> ndo	Ctrl+Z
Cu <u>t</u>	Ctrl+X
<u>C</u> opy	Ctrl+C
<u>P</u> aste	Ctrl+V
De <u>l</u> ete	Del
<u>F</u> ind...	Ctrl+F
Find <u>N</u> ext	F3
<u>R</u> eplace...	Ctrl+H
<u>G</u> o To...	Ctrl+G
Select <u>A</u> ll	Ctrl+A
Time/ <u>D</u> ate	F5

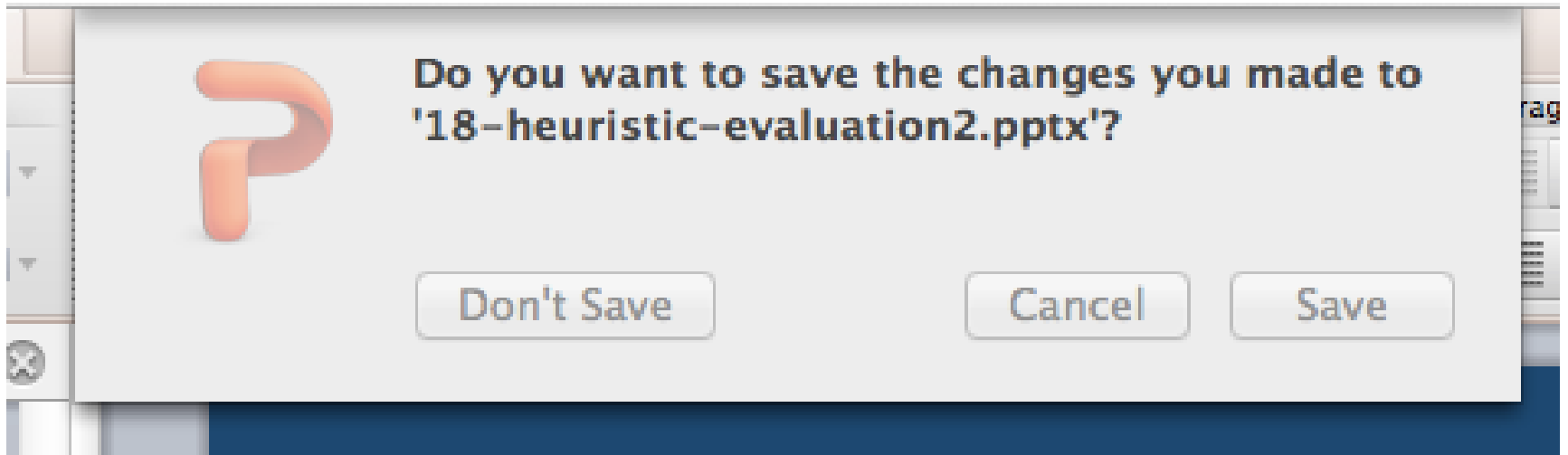
preventing mode errors

- eliminate modes
- increase visibility of mode
- spring-loaded or temporary modes
- disjoint action sets in different modes

avoiding lapses

- keep procedures short
- minimize interruptions
- use forcing functions
 - automatic transmission: you must hold down brake to shift out of Park
 - must take card out of ATM before you get your money

confirmation dialogs



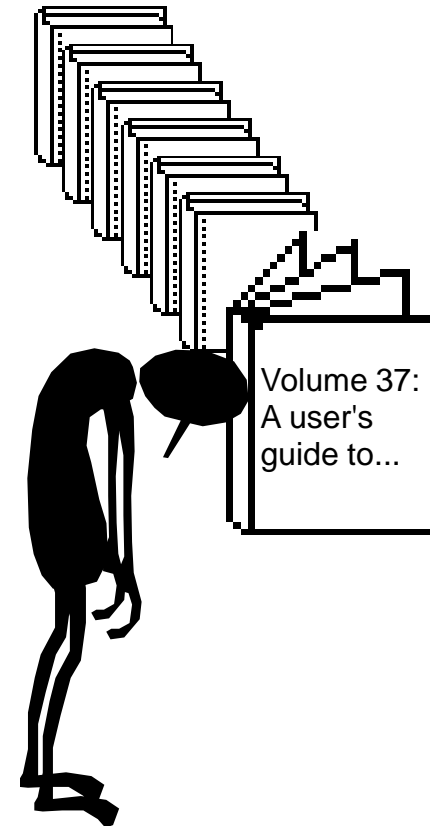
9 | help users recognize, diagnose, and recover from errors

- design to prevent errors from occurring
- eliminate error-prone conditions
- present users with a confirmation option before they commit to the action
- provide undo

10 | help and documentation

10 | *help and documentation*

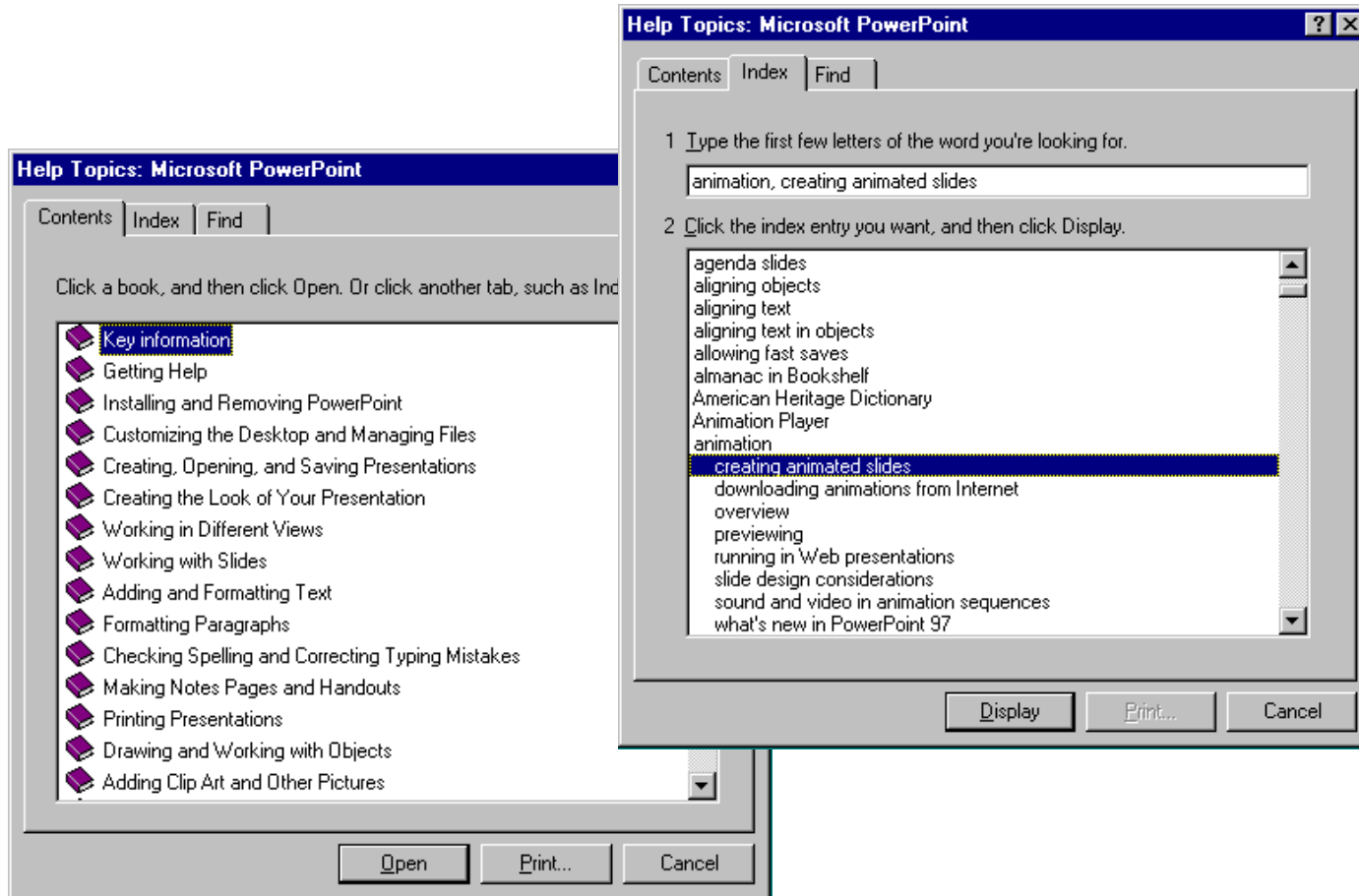
- **help is not a replacement for bad design**
- **simple systems:**
 - walk up and use; minimal instructions
- **most other systems:**
 - feature rich
 - simple things should be simple
 - learning path for advanced features



10 | help and documentation

- **Many users do not read manuals**
- Help usually needed when users are in some kind of panic
 - paper manuals unavailable in many businesses
 - online documentation better, faster, up-to-date
 - good search/lookup tools
 - online help specific to current context

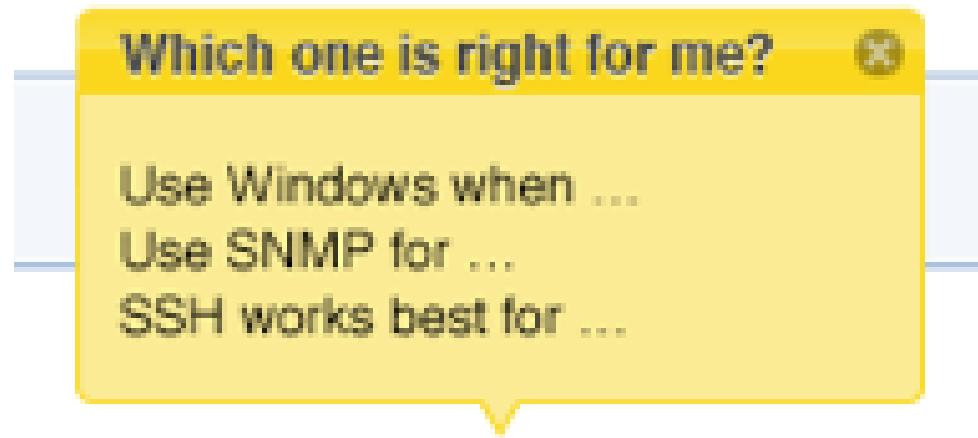
types of help: search and index



types of help: tutorials



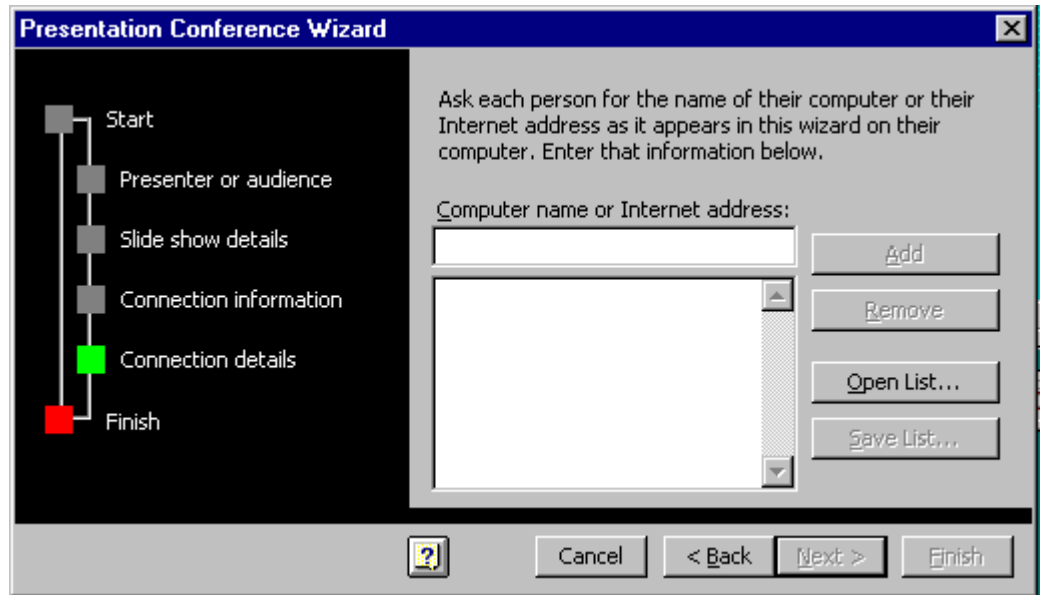
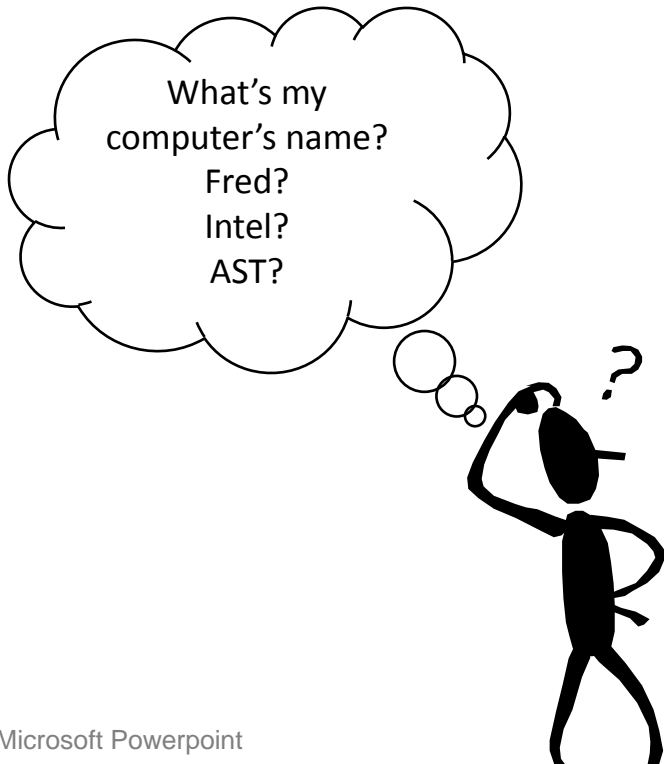
types of help: mouse-over/hover information



e following: 

types of help: Wizards

- walks user through typical tasks
- *but* dangerous if user gets stuck



Jakob Nielsen's Heuristics

- 1. Visibility of system status**
- 2. Match between system and real world**
- 3. User control and freedom**
- 4. Consistency and standards**
- 5. Error prevention**
- 6. Recognition over recall**
- 7. Flexibility and efficiency of use**
- 8. Aesthetic and minimalist design**
- 9. Help users recognize, diagnose, and recover from errors**
- 10. help and documentation**

Shneiderman's golden rules

1. strive for **consistency**
2. enable frequent users to use **shortcuts**
3. offer informative **feedback**
4. design dialog to **yield closure**
5. offer **simple error handling**
6. permit easy **reversal of actions**
7. support internal locus of **control**
8. **reduce short-term memory load**

LAB

Exam

- 3h maximum
- will consist of:
 - general course questions from the first 6 lectures
 - “what is the design life cycle”
 - “name three techniques for user requirements analysis”
 - creative tasks
 - imagine you have to idea to design a new x ...
 - “who are your users and stakeholders”
 - “what would be their tasks”
 - sketch 5 ideas for a new technique for x ...

Exam

- no material allowed in exam
 - that means:
 - exam questions will be general
 - I do not ask you to memorize tiny details