

Shneiderman's Eight Golden Rules of interface design

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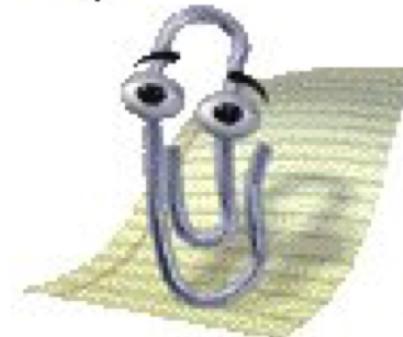
About me: <http://works.bepress.com/mtebe/>

What is an Odd Interface?



Motorola Razr

It looks like your keyboard is
working correctly.



Clippy
the Office Assistant

Introduction

Ben Shneiderman* consolidated known tacit knowledge and practice guidelines which are used intuitively by graphic Interface designers - into a set of eight general guidelines for the use of computer science specialist who were being introduced to Visual Graphic designers' work of designing interactive GUI interfaces. Along with 'looks' the usability of a software depended on functionality

****GUI:Graphic User Interface**



* Bend Shneiderman founded the HCI Lab at the University of Maryland , USA. He is known for Nassi-Shnerderman diagrams used in the field of Software Engineering.

- There is ample empirical evidence published in HCI literature which collaborates and consolidates the applicability of the eight guide lines.
 - These are intended more as guidelines rather than ‘rules’ to be strictly adhered to at every step.
 - They are useful for designers as well as software engineers involved in design of interfaces.
- Using these eight guidelines it is possible to distinguish a good interface design from a bad one especially from the Human - User interaction point of view.
- These have been put forth in a concise and understandable manner by Ben Shneiderman.

● It needs to be noted that apart from these eight there are

many more similar useful pointers available in HCI and Usability literature.



● While merely or blindly applying these eight guidelines is not necessarily going to guarantee a good interface ‘design’, they are useful in heuristic evaluation to identify GUIs that fall out of normal ‘pattern’. The guidelines can be used to rate GUI’s as good or bad.

**Users don't love
great user interfaces.**

**They hate poorly
designed ones!**

Bulk Rename Utility

File Actions Options Help

Name	New Name	Sub...	Type	Size
DSCN5495.JPG	Liechtenstein_Ferien_2009_184.JPG	JPEG...	0 MB	
DSCN5496.JPG	Liechtenstein_Ferien_2009_185.JPG	JPEG...	0 MB	
DSCN5497.JPG	Liechtenstein_Ferien_2009_186.JPG	JPEG...	0 MB	
DSCN5498.JPG	Liechtenstein_Ferien_2009_187.JPG	JPEG...	0 MB	
DSCN5499.JPG	Liechtenstein_Ferien_2009_188.JPG	JPEG...	0 MB	
DSCN5500.JPG	Liechtenstein_Ferien_2009_189.JPG	JPEG...	0 MB	
DSCN5501.JPG	Liechtenstein_Ferien_2009_190.JPG	JPEG...	0 MB	
DSCN5502.JPG	Liechtenstein_Ferien_2009_191.JPG	JPEG...	0 MB	

RegEx (1) R
Match
Replace
 Include Ext.

Repl. (3) R
Replace
With
 Match Case

Remove (5) R
First n Last n
From to
Chars
Words

Add (7) R
Prefix
Insert
at pos.
Suffix
 Word Space

Auto Date (8) R
Mode
Type
Fmt
Sep. Seg.
Custom
 Cent. Off.

Numbering (10) R
Mode at
Start Incr.
Pad Sep.
Break Folder
Type
Roman Numerals None

File (2) R
Name

Case (4) R
Same Excep.

Move/Copy (6) R
None None Sep.

Append Folder Name (9) R
Name Sep. Levels

Extension (11) R
Same

Selections (12)
Filter Folders Hidden
 Match Case Files Subfolders
Name Len Min Max
Path Len Min Max

New Location (13)
Path
 Copy not Move

** Working on multiple computers? Synchronize your files across computers with **ViceVersa PRO**. [Click Here To Find Out More ...](#)

114 Objects (111 Selected) Favourite

Objective of the rules

- Increase the productivity of the user
 - Less user's error
 - Subjective satisfaction
- Increase feeling of competence
- Increase mastery over the system
- Increase control over the system

Ben Shneiderman's Eight Golden Rules of Interface Design

From:

**“Designing the User Interface:
Strategies for Effective Human-Computer Interaction.”**

I. Strive for consistency

Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout.

Workflows / Processes

Functionality

Appearance

Terminology

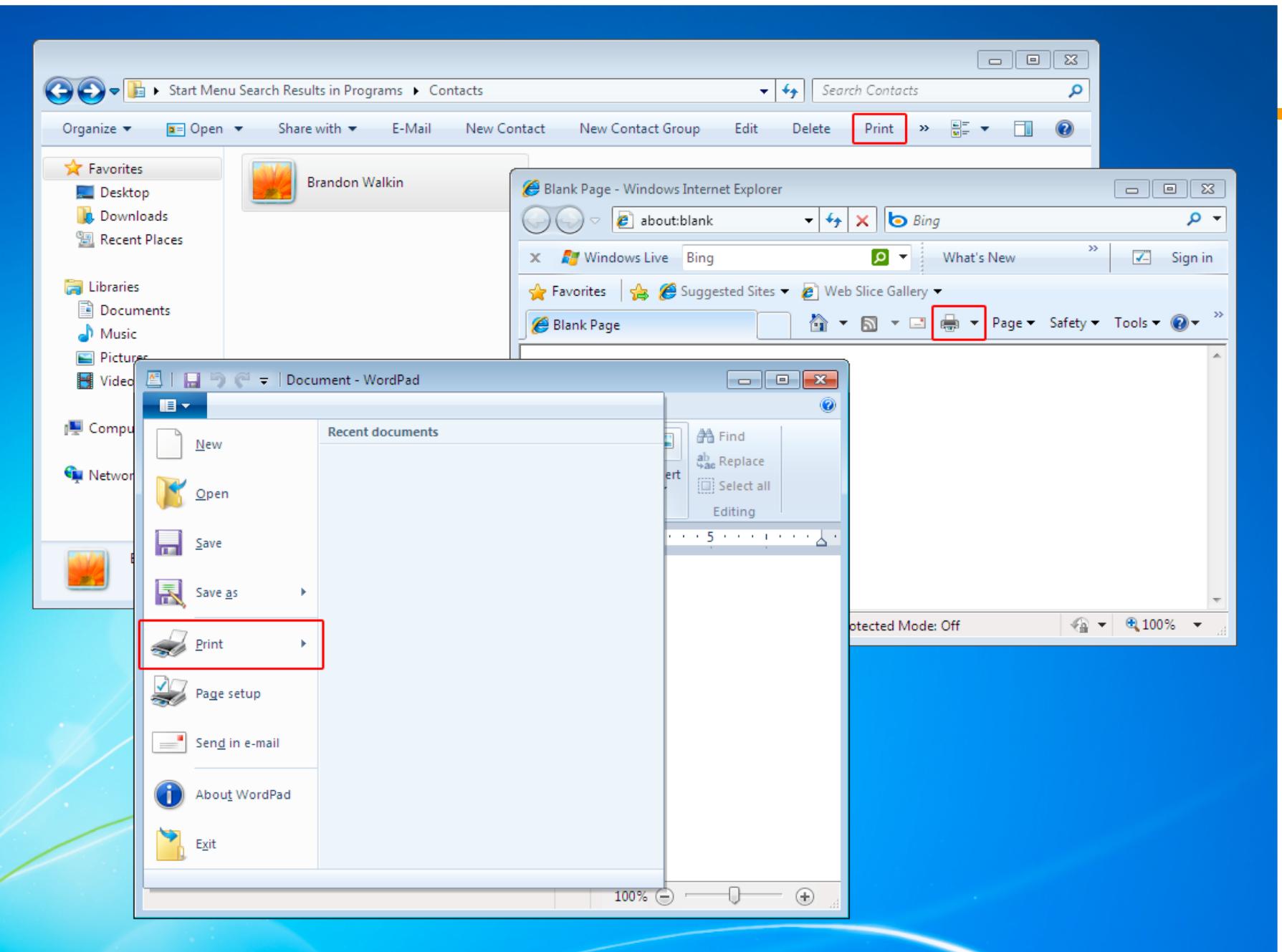
1. Strive for Consistency

- The inconsistency in interface results
 - Longer time to learn
 - Will cause more errors
 - Will slow down users
 - Will be harder for users to remember

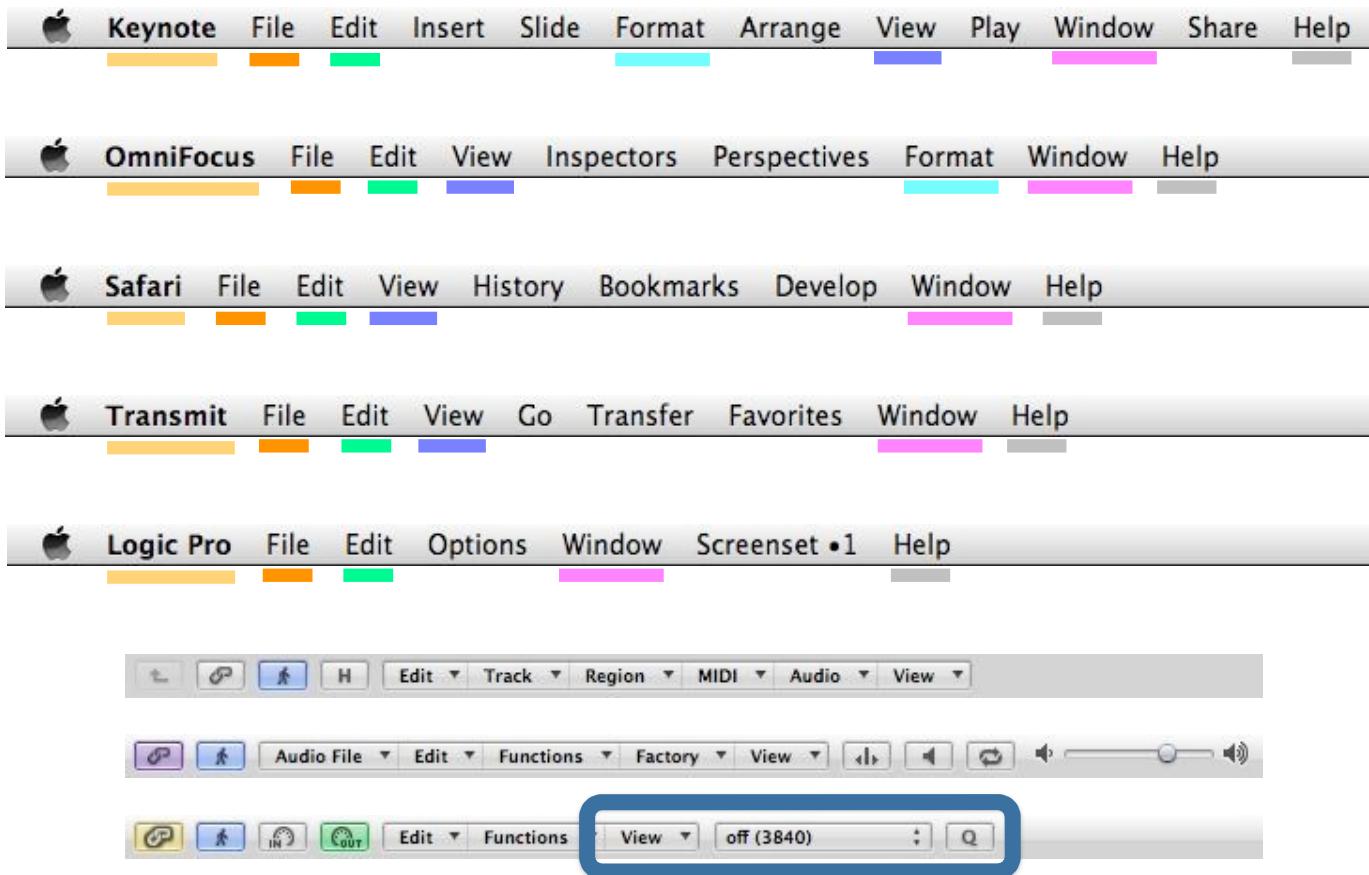
1

Strive For Consistency

- Similar situations = consistent sequences of actions
- Leverage user's pre-existing knowledge
- Internal consistency
 - Terminology used throughout product
 - Consistent text attributes throughout interface
 - External consistency
 - Across products/applications



1. Strive for consistency



1. Strive for consistency



1. Strive for consistency

Official Apple Store - Buy iPad mini, iPad, iPhone 5, MacBook Pro with Retina display, Mac mini, and more. - Apple Store (U.S.)
store.apple.com/us

Store Mac iPod iPhone iPad iTunes Support

Apple Store Questions? Call 1-800-MY-APPLE

Welcome to the Apple Store

Shop Mac Shop iPad Shop iPhone Shop iPod

Fast, free shipping on orders over \$50.

Popular Accessories

- Apple TV
- For iPad**
- AirPrint Printers
- App-Enabled Accessories
- Cables & Docks
- Cases
- Charging Devices
- Headphones
- Keyboards
- Speakers
- more...

For iPhone

- App-Enabled Accessories
- Cases
- Cables & Docks
- Car Accessories

iPad mini
Every inch an iPad.
from \$329
Buy now



More Stores

- Education Store
- Business Store
- International Stores
- Government & Military

Apple Retail Stores

Store Services

iTunes Gift Cards



An iTunes Gift Card lets recipients choose from thousands of apps for iPhone and iPod touch, plus music, movies, and more — all at the iTunes

1. Strive for consistency



1. Strive for consistency



1. Strive for consistency



2. Enable frequent users to use shortcuts

- *Enable frequent users to use shortcuts*, such as abbreviations, special key sequences and macros, to perform regular, familiar actions more quickly.



2

Enable Frequent Users to Use Shortcuts

- As frequency of use increases, users desire to
 - Reduce number of interactions
 - Increase pace of interaction
- Basically break some Golden Rules for the elite users

2. Enable frequent users to use shortcuts

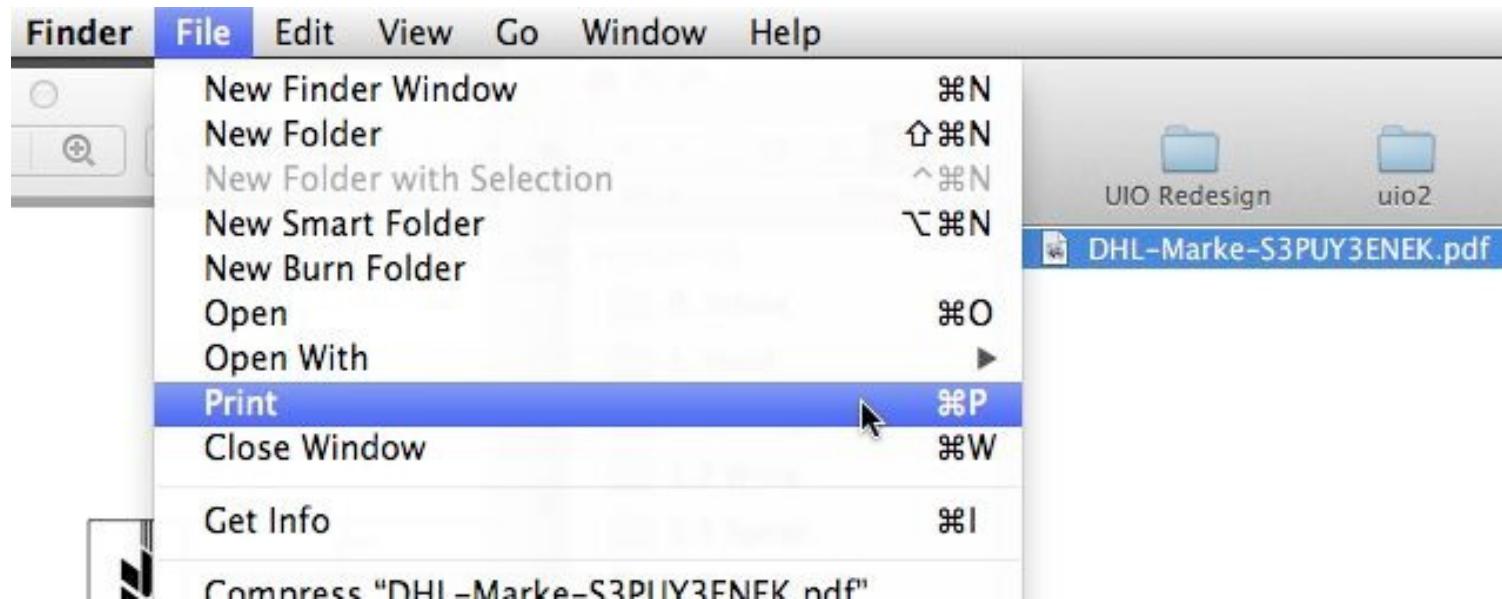
As the frequency of use increases, so do the user's desires to reduce the number of interactions and to increase the pace of interaction. Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.

Keyboard shortcuts

Hidden “Power User” features

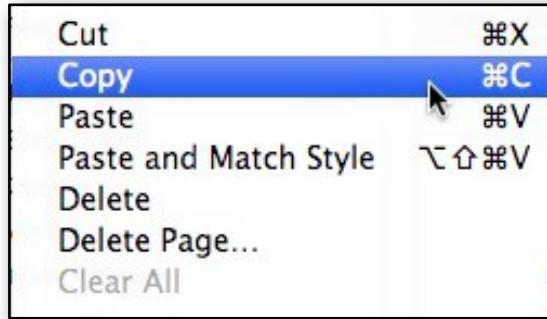
Automation

2. Enable frequent users to use shortcuts



2. Enable frequent users to use shortcuts

Level 1



Level 2

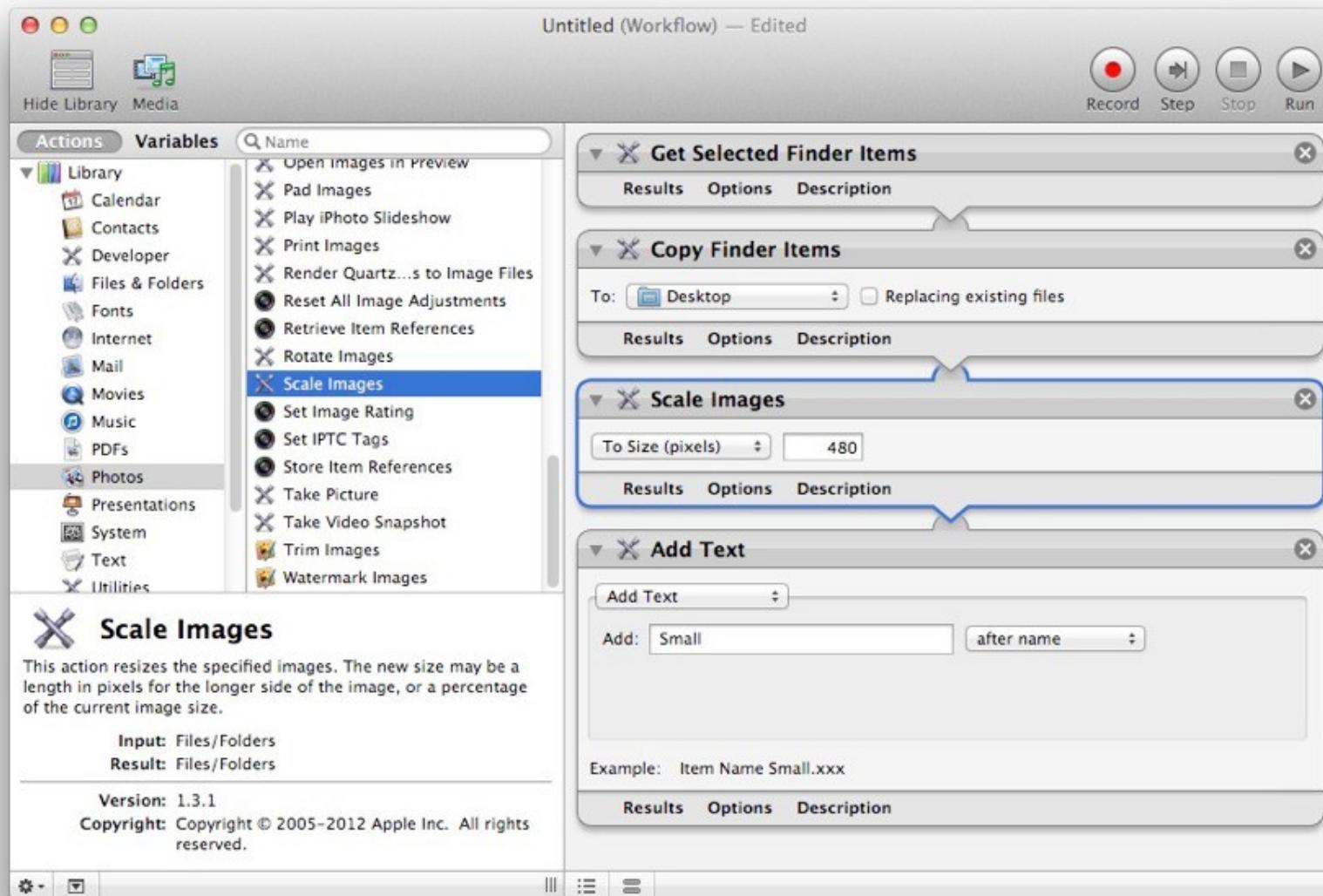
⌘C / ⌘V

Level 3

Golden Rules for Website Design, and what they mean for your web business' bottom line
Golden Rules for Website Design

A website's ease of use has a direct, measurable impact on its success. The easier it is for

2. Enable frequent users to use shortcuts



3. Offer informative feedback

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.

Relevant

Fits importance and urgency

Comprehensible and meaningful

Within appropriate context (time & place)

3. Offer informative feedback

0, I s

Experiencing
cause and effect

Respond to
mouse click,
key press,...

I,0 s

Taking turns in
a conversation

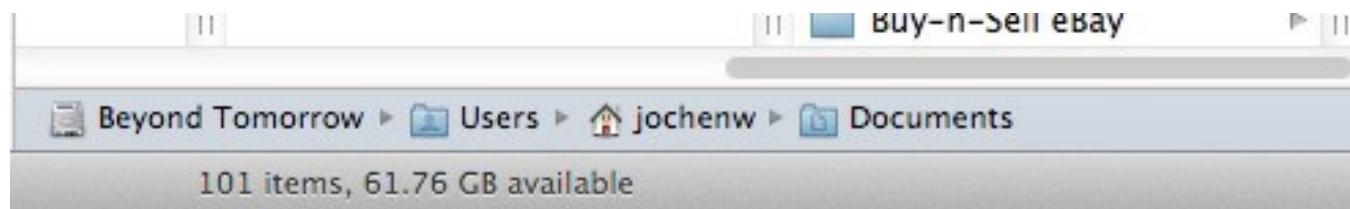
Open window,
bring up progress
bar / spinner,...

10 s

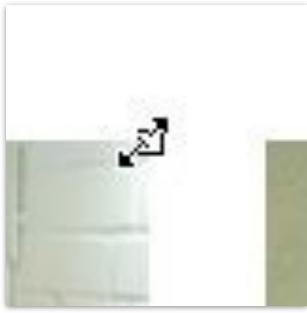
Typical human
attention span

Wake machine,
load file into app,
start printing,...

3. Offer informative feedback



3. Offer informative feedback



4. Design dialog to yield closure

Sequences of actions should be organized into groups with a beginning, middle, and end. The informative feedback at the completion of a group of actions gives the operators the satisfaction of accomplishment, a sense of relief, the signal to drop contingency plans and options from their minds, and an indication that the way is clear to prepare for the next group of actions.

Grouping of actions

Explicit completion of an action

Well-defined options for the next step

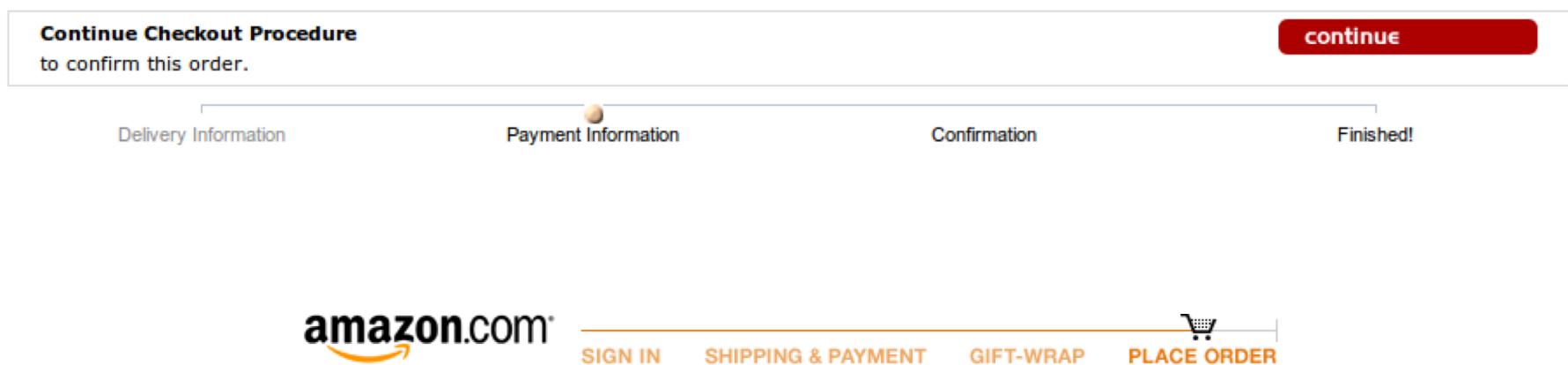
4

Design Dialogues to Yield Closure

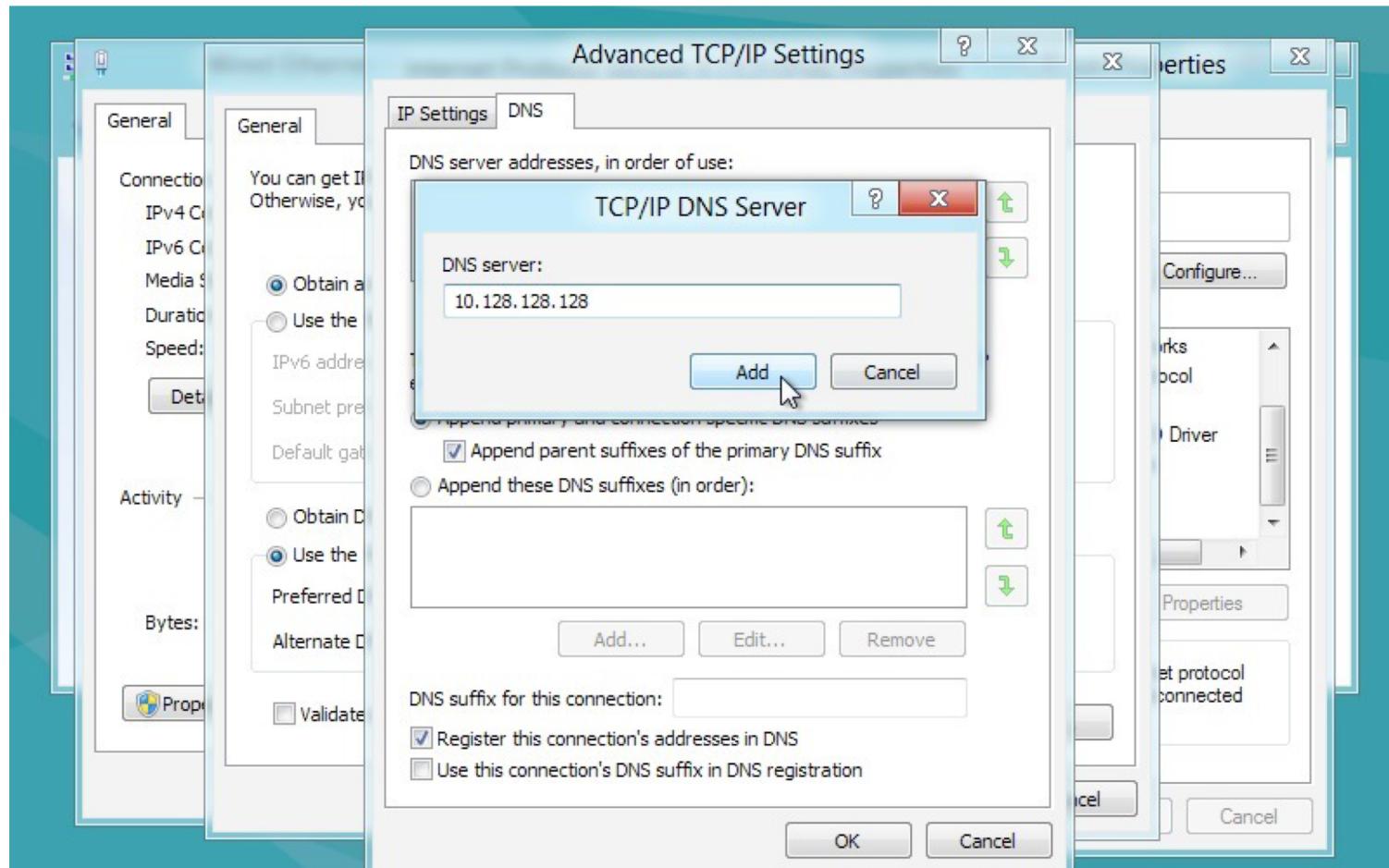
- Organize sequences of actions
 - Beginning
 - Middle
 - End
- Ensure user knows when a “conversation” or task is at an end
 - They feel it is complete
 - Allows them to drop contingency plans
 - Puts them at ease

Examples of Closure

Delivery Information is done
Then Payment Information
Then Confirmation



4. Design dialog to yield closure



4. Design dialog to yield closure

cart **» checkout » receipt**

safe easy fast

[Cancel and Continue Shopping](#)

step 1: your email

Email*

That email address doesn't belong to any previously saved accounts. Please select "create an account" below if you'd like to save your details for your next visit.

Checkout as a Guest
 Create an Account

Password

Retype Password

step 2: your billing address

item	quantity	price
AKG Q460 Quincy Jones -Black Code: 002-012-0461 Weight: 1.1 LBS	1	\$109.00
		Subtotal: \$109.00
		Shipping & Handling: \$6.00
		Order Total: \$115.00

5. Offer simple error handling

As much as possible, design the system so the user cannot make a serious error. If an error is made, the system should be able to detect the error and offer simple, comprehensible mechanisms for handling the error.

Error prevention over error correction

Automatic detection of errors

Clear error notifications

Hints for solving the problem

3. Offer simple error handling



This content is currently unavailable

The page you requested cannot be displayed right now. It may be temporarily unavailable, the link you clicked on may have expired, or you may not have permission to view this page.

- [Return home](#)

3. Offer simple error handling

A screenshot of a Yelp 404 error page. The page is titled "Yelp - Page not found (Error 404)". The URL in the address bar is "yelp.com/latraviata". The main content features a large red header with the Yelp logo. Below the header, there's a cartoon illustration of a dog wearing a red cap and a red sweater, holding a pipe, labeled "Detective Darwin". The main text message is "Doggone it! The page you're looking for cannot be found." It includes a subtext: "Detective Darwin here, hot on the case of the missing webpage! I will try my best to sniff it out, but I need your help with some basic clicking (I lack the opposable thumbs to do it myself). You should either go back, go home, or search for what you need below. Elementary, my dear Yelper." Below the text are search fields for "Search for" and "Near", with "fort collins" entered in the "Near" field. A red "Search" button is next to the "Near" field. At the bottom, there are links for navigation and legal information.

Yelp – Page not found (Error 404)

yelp.com/latraviata

Doggone it! The page you're looking for cannot be found.

Detective Darwin here, hot on the case of the missing webpage! I will try my best to sniff it out, but I need your help with some basic clicking (I lack the opposable thumbs to do it myself).

You should either go back, go home, or search for what you need below. Elementary, my dear Yelper.

Search for

Near

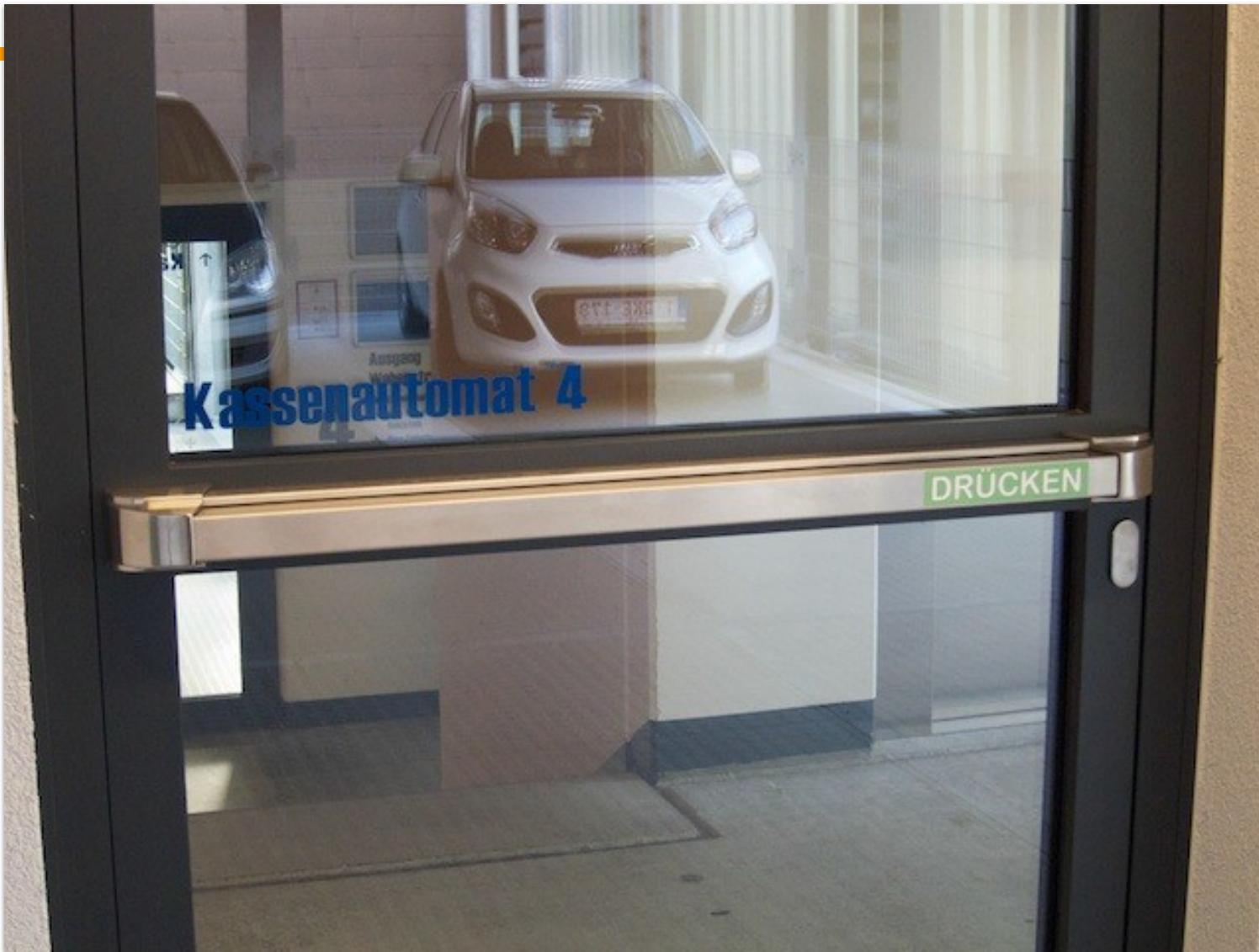
Search

[Navigate](#) | [Welcome](#) | [About Me](#) | [Write a Review](#) | [Invite Friends](#) | [Messaging](#) | [Talk](#) | [My Account](#)

[Get to Know Us](#) | [About Yelp](#) | [Advertise](#) | [FAQ](#) | [Privacy Policy](#) | [Terms of Service](#) | [Feedback](#) | [The Weekly Yelp](#) | [Yelp Blog](#)

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5. Offer simple error handling



5. Offer simple error handling

Your Name

Andy Geschäftsleitung

Edit

Apple ID and Primary Email Address

abc@something.com

You'll use your new Apple ID to sign in to services such as iTunes Online Store, and Game Center. Please note that you might be required to verify your email address before you can start using your new Apple ID.

Apple ID must:

- Be a valid email address
- Not already be in use
- Not use a domain owned by Apple

6. Permit easy reversal of actions

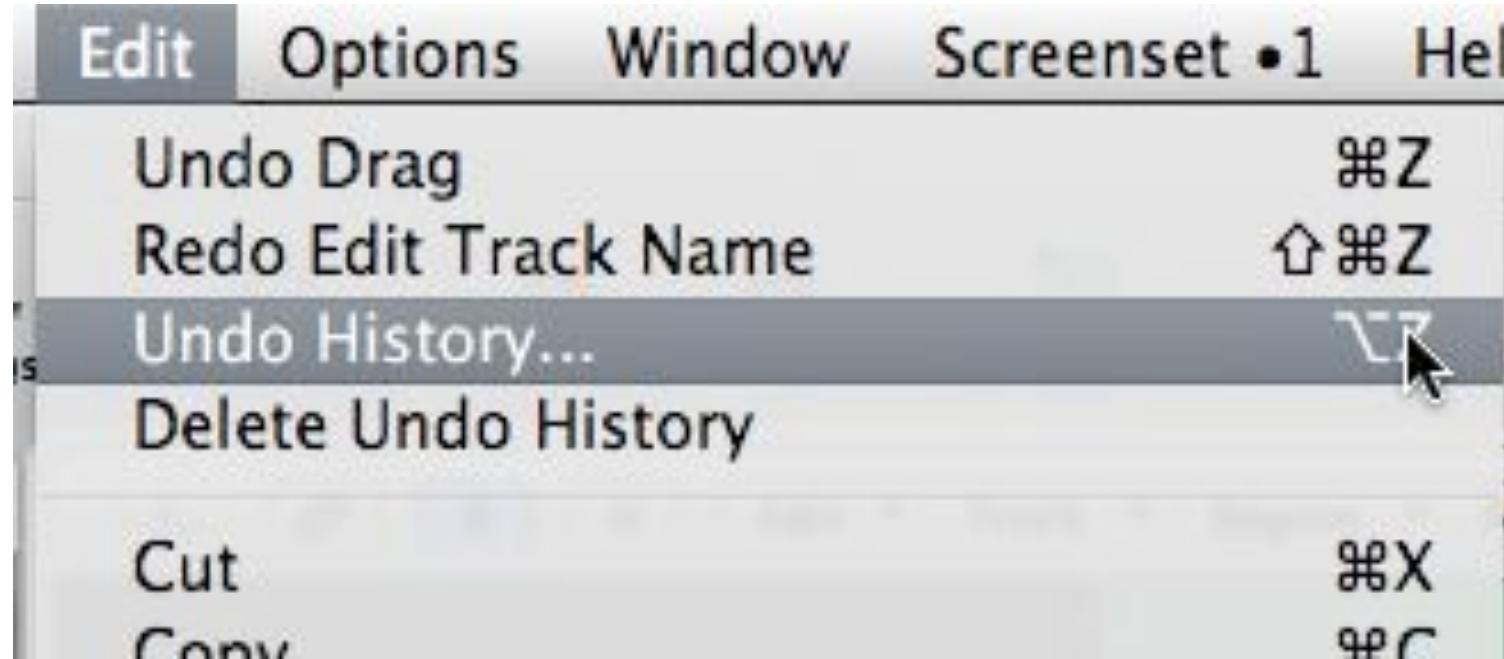
This feature relieves anxiety, since the user knows that errors can be undone; it thus encourages exploration of unfamiliar options. The units of reversibility may be a single action, a data entry, or a complete group of actions.

No interference with workflow

More freedom for the user

Single-action undo vs. action history

6. Permit easy reversal of actions



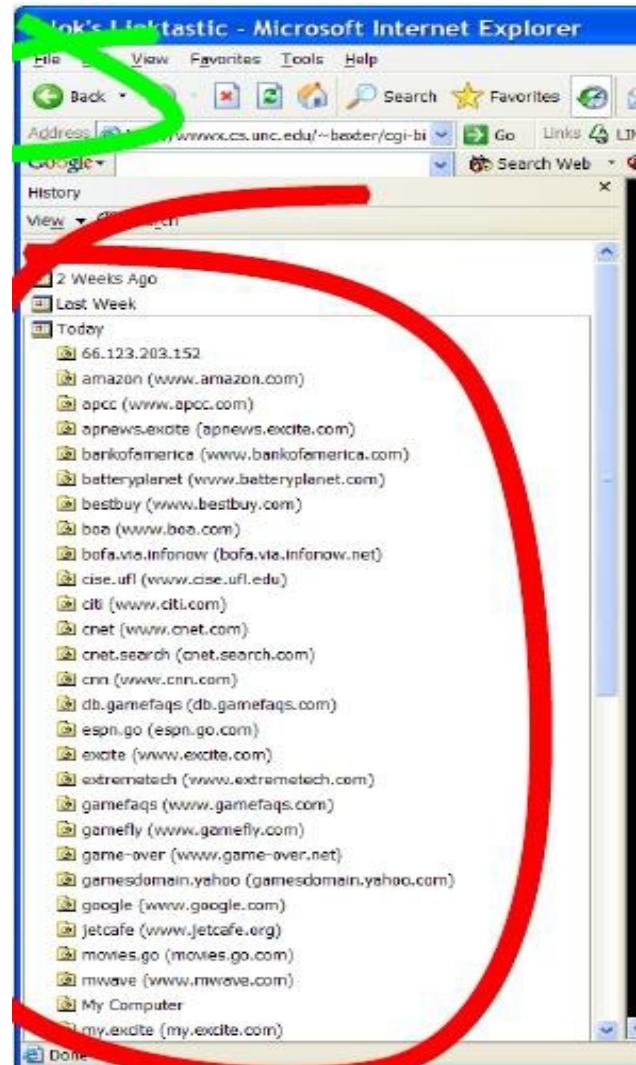
6. Permit easy reversal of actions

The Numbers Game - Undo History			
Number	Action	Date	Time
1	Loop "Chuck Vox.2" in "The Numbers Game", Size = 23 kB	17.10.2012	13:03:37
2	Delete "Trumpet 1.2" in "The Numbers Game", Size = 32 kB	17.10.2012	13:03:43
3	Drag , Size = 267 kB	17.10.2012	13:03:46
4	Edit Track Name	17.10.2012	13:03:53

Undo Redo

6. Permit Easy Reversal of Actions

- Permit Easy Reversal of Actions* in order to relieve anxiety and encourage exploration, since the user knows that he can always return to the previous state.



6. Permit easy reversal of actions



6. Permit easy reversal of actions

The image displays two side-by-side screenshots of Microsoft Word documents, illustrating design principles for easy reversal of actions.

Left Screenshot: A Microsoft Word document titled "4. Gestalte in sich abgeschlossene Dialoge". The main content area contains the following text:

Design dialog to yield closure

Sequences of actions should be organized into groups with a beginning, middle, and end. The informative feedback at the completion of a group of actions gives the operators the satisfaction of accomplishment, a sense of relief, the signal to drop contingency plans and options from their minds, and an indication that the way is clear to prepare for the next group of actions.

Below this text are three bullet points:

- Gruppierung von Arbeitsabläufen
- Klarer Abschluss eines Arbeitsschrittes
- Eindeutige Alternativen für den nächsten Schritt

The Word ribbon and sidebar are visible on the left, showing various styles and a list of recent documents.

Right Screenshot: A Microsoft Word document titled "Double-click to edit". The main content area contains the following text:

Double-click to edit

Below this text is a section titled "Beispiel: Keyboard Shortcuts" containing the following text:

Speziell Cmd-P im Finder → Öffnet dokument in der entsprechenden Anwendung und innerhalb der Anwendung gleich den Drucken-Dialog ==> Abkürzung für jedermann!!!

The Word ribbon and sidebar are visible on the left, showing various styles and a list of recent documents.

7: Internal Locus of Control

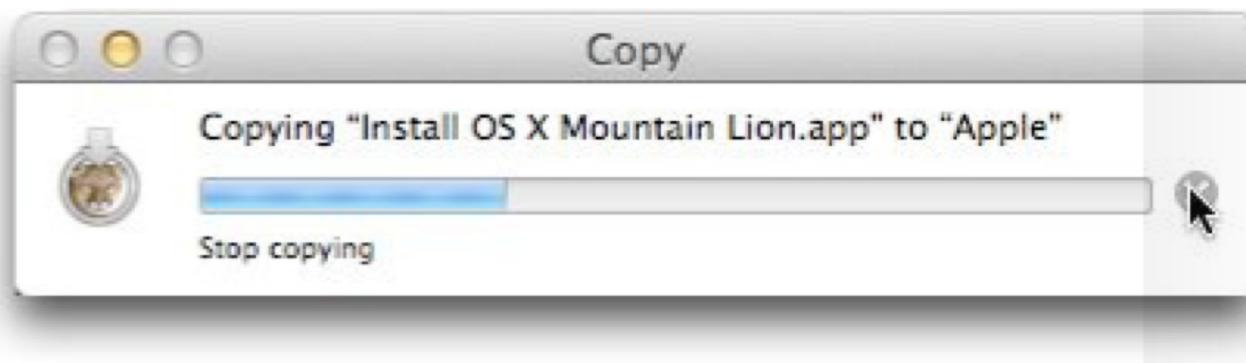
- Interface should be designed to **relief anxiety** and **dissatisfaction** from
 - Surprising system response
 - Inability or difficulty in obtaining necessary information
 - Inability to accomplish a desire task
- Users strongly desire the sense that the **system is user friendly** and it **responds to their actions** (as applied by the users according to their perceptions)

7. Support internal locus of control

Experienced operators strongly desire the sense that they are in charge of the system and that the system responds to their actions. Design the system to make users the initiators of actions rather than the responders.

**The user commands, the system obeys
Strongly relies on Informative Feedback
“The Principle of Least Surprise”**

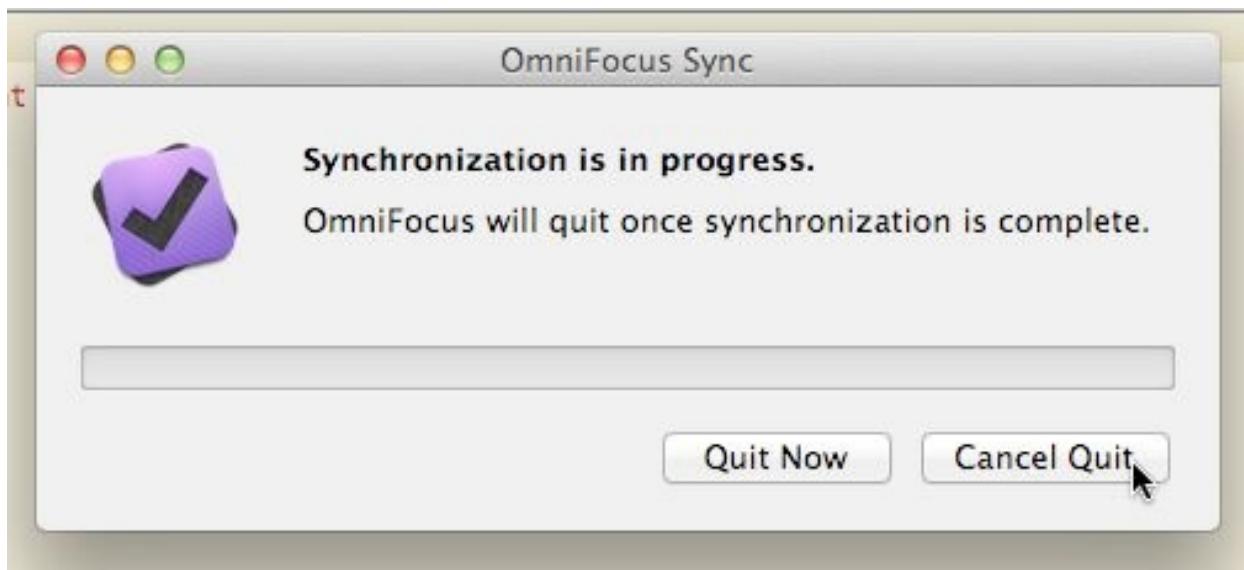
7. Support internal locus of control



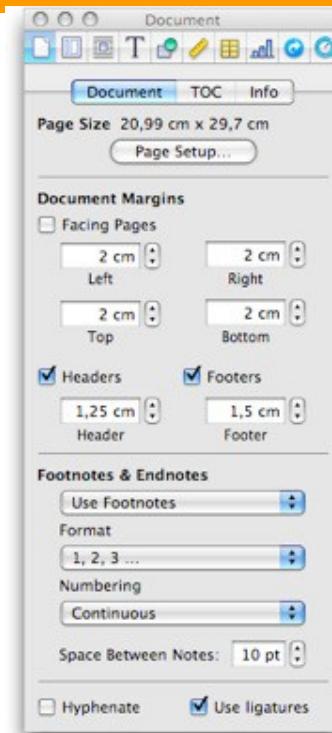
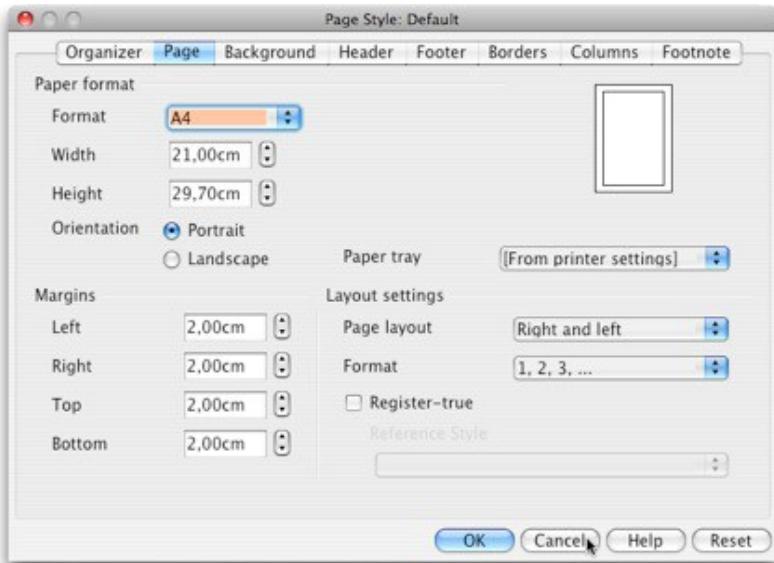
7. Support internal locus of control



7. Support internal locus of control



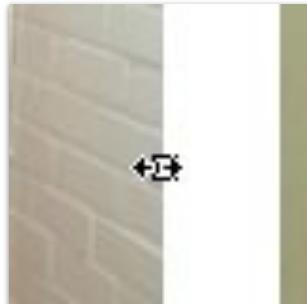
7. Support internal locus of control



**modal
dialog box**

**non-modal
inspector**

7. Support internal locus of control



click and drag
resize



click and drag + ⌘
rotate

7. Support internal locus of control

Edit your address.

Enter or edit the information on this page.

Country/Region

Company/Institution

Address Line 1

Address Line 2

Town/City

State/Province

Zip Code

7. Support internal locus of control

- Time-outs are

POORLY WILL

The word "POORLY" is written in a bold, black, sans-serif font. The letter "WILL" is also in a bold, black font. Overlaid on the "WILL" letters is a large, solid red circle positioned over the "P". The "WILL" letters are partially obscured by the red circle.

7. Support internal locus of control



Hotel
Alarm
Clocks

7. Support internal locus of control

Sehr geehrter DHL Kunde,

da über einen längeren Zeitraum keine Aktion Ihrerseits vorgenommen wurde, haben wir aus Sicherheitsgründen Ihre Sitzung automatisch beendet.

Bitte starten Sie die DHL Online Frankierung mit einem neuen Warenkorb.
Ihr DHL Team

[Neuer Warenkorb](#)

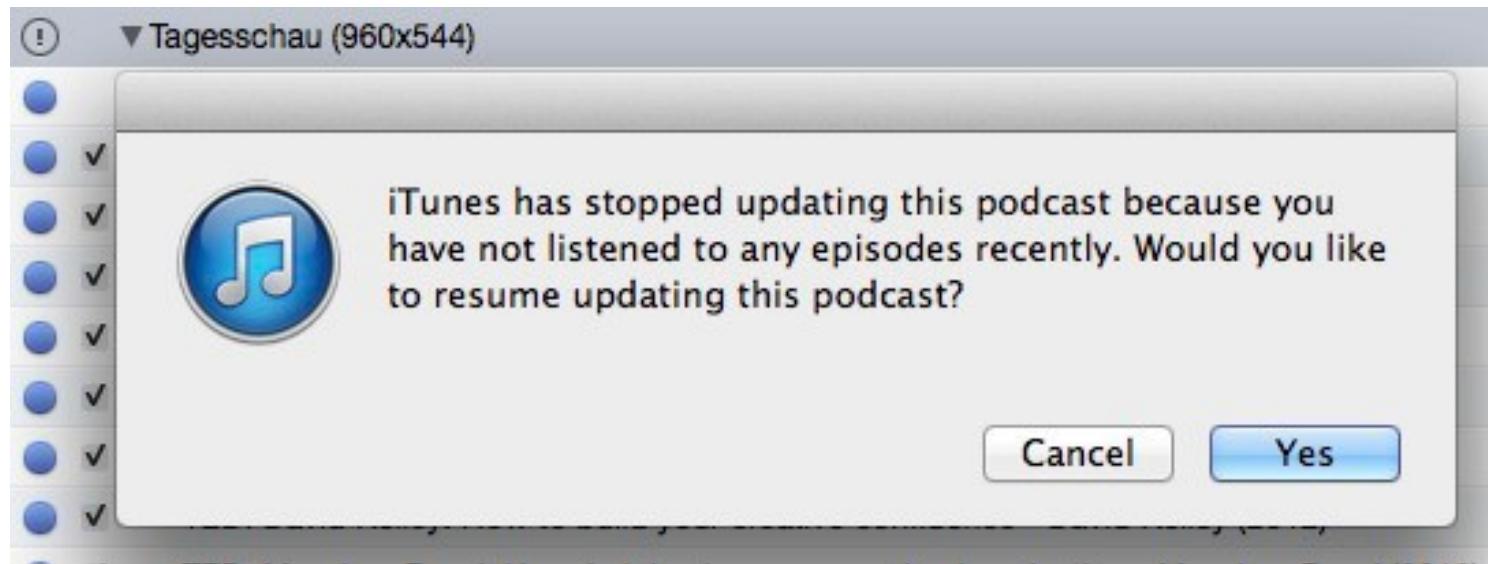
Dear DHL customer,

since no actions were initiated on your part for a longer period of time, we have automatically closed your session for security reasons.

Please start DHL Online Postage with a new shopping cart.
Your DHL Team

[New Shopping Cart](#)

7. Support internal locus of control



8. Reduce short-term memory load

- *The limitation of human information processing in short-term memory requires that displays be kept simple, multiple page displays be consolidated, window-motion frequency be reduced, and sufficient training time be allotted for codes, mnemonics, and sequences of actions.*
 - Clear structure:
 - windows, dialogs, app in its entirety
 - “Recognition over Recall” Implicit help

Short-term Memory Load

(cont)

- Users tend to “Chunk”
 - Group related items
 - Recode information
- Recent research shows more like 2 – 4 “chunks”
- Present the most important ideas to the user
- Provide a means to drill down to further-nested ideas
- Look for chunks of familiarity that leverage recognition not recall
 - Familiarity
 - Uniformity

Examples of Reducing Memory Load

- Population stereotypes can be cues
 - Link colour ([unvisited](#), [visited](#))
 - Think twice about passwords
 - Uses a chunk up
- Pagination
 - Can make long articles easier to digest, reference
 - Consider cross-page recall
 - Makes finding, searching, scanning difficult
 - Hard to print or save

Index	
Article Index	
Article Index	
Page: 1 - Index	
Page: 2 - A Crash Course in CPU Architecture	
Page: 3 - Superscalar to the Rescue	
Page: 4 - Putting it in Perspective	
Page: 5 - More Detail on ARM11 vs. Cortex A8	
Page: 6 - The CPU and its Performance	
Page: 7 - The GPU and its Performance	
Page: 8 - Camera and Video Capture	5
Page: 9 - The Screen	
Page: 10 - A Testament to Honesty about Battery Lif...	
Page: 11 - Gaming Battery Life: Expectedly Worse	
Page: 12 - The Rest of the Time: Improved Battery L...	
Page: 13 - Voice Recognition	
Page: 14 - The Compass	
Page: 15 - The Inevitable Comparison: 3GS vs. Palm ...	
Page: 16 - Final Words	

8. Reduce short-term memory load

- 7 ± 2
- “Chunks” of Information

8. Reduce short term memory load

1. Strive for Consistency
2. Cater to Universal Usability
3. Offer Informative feedback
4. Design Dialogs to yield closure
5. Prevent Errors
6. Permit easy reversal of actions
7. Support internal locus of control
- 8. Reduce short term memory load**

94 56 781029

Easier to remember
if chunked into
smaller sets

94 56 7 810 29

Care not load the cognitive short term memory of the user by expecting user to remember several sequences , actions and their consequences at a time. Means loading their short term memory while interacting.

Millers* 7 chunks of information is often prescribed as a solution to limit short term memory. In psychological experiments it has been found that the short term memory can hold 7 +- 2 bits called chunks of information. Long sequential actins requiring more than 7 chunks need to be broken down into smaller chunks.

*G.A. Miller; The Magical number seven, plus or minus two: some limits on our capacity to process information. Psychplogical review, 63(2):81-97, 1956.

8. Reduce short-term memory load

cart **» checkout » receipt**

safe easy fast

[Cancel and Continue Shopping](#)

step 1: your email

Email*

Please enter your email address.

Checkout as a Guest
 Create or use an Account

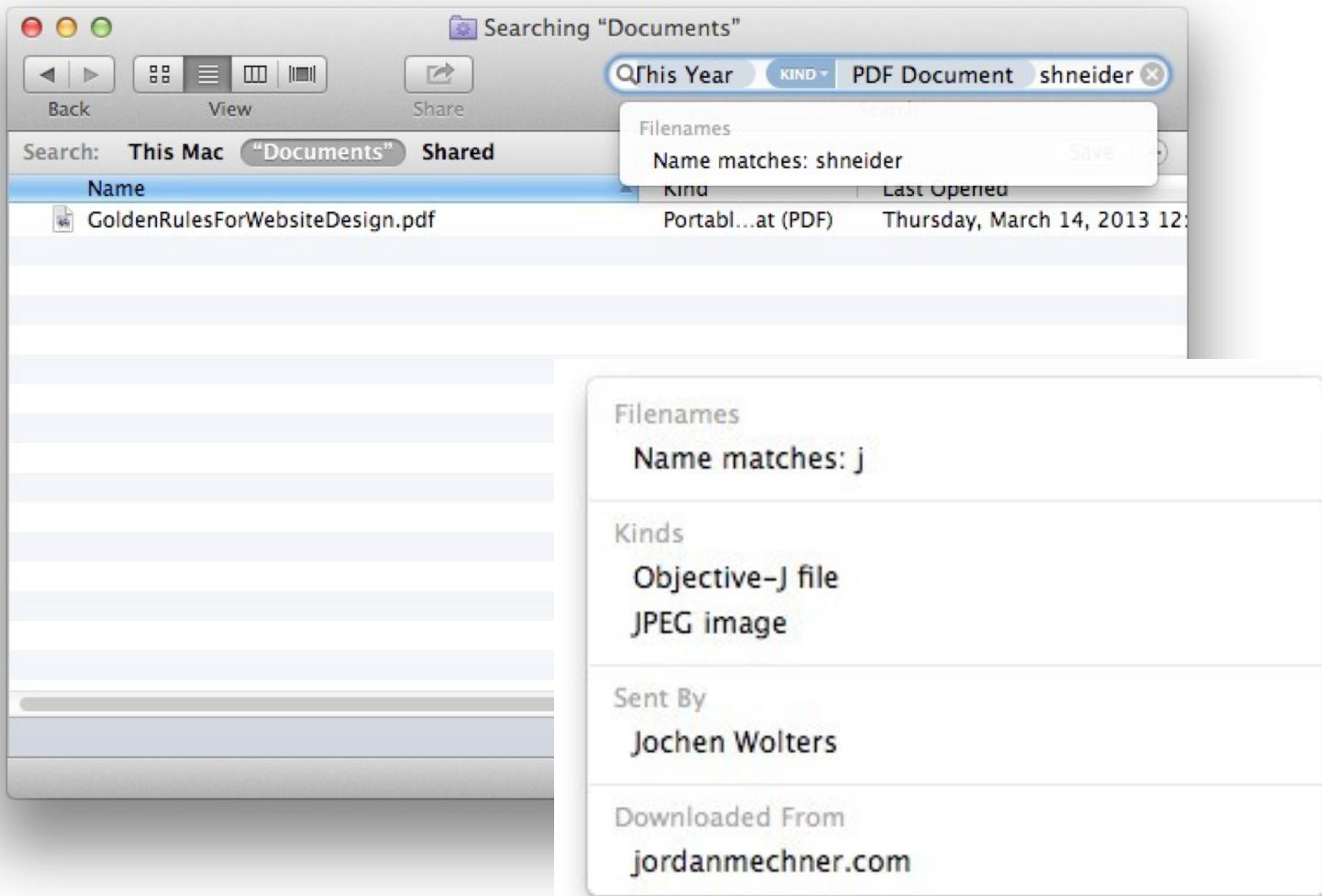
item	quantity	price
AKG Q460 Quincy Jones -Black Code: 002-012-0461 Weight: 1.1 LBS	1	\$109.00
		Subtotal: \$109.00
		Shipping & Handling: TBD
		Order Total: \$109.00

amazon.com

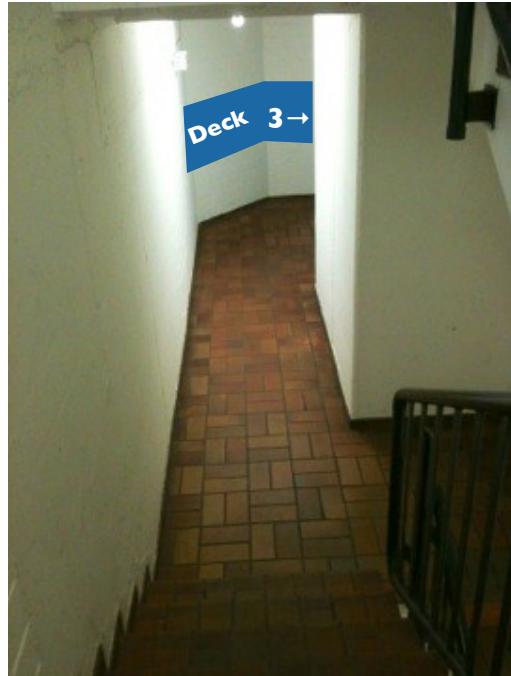
SIGN IN SHIPPING & PAYMENT GIFT-WRAP PLACE ORDER

source top:<http://www.headphone.com/>

8. Reduce short-term memory load



8. Reduce short-term memory load



Examples of Reducing Memory Load

- Population stereotypes can be cues
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Page: 16 - Final Words	

A Very Powerful Recognition Tool

Google baworld vancouver 2009

Search: the web pages from Canada

Web [Show options...](#)

Did you mean: [**ba world** vancouver 2009](#)

[ProjectWorld and BusinessAnalystWorld - ProjectWorld ...](#) - 2 visits - 15 Sep
ProjectWorld * BusinessAnalystWorld **Vancouver 2009** ... Projectworld*
BusinessAnalystWorld **Vancouver** attendees earn 1 PDR/PDU (Professional Development ...
www.projectworldcanada.com/vancouver/vancouver.html - [Cached](#) - [Similar](#) -

[ProjectWorld and BusinessAnalystWorld - ProjectWorld ...](#)
ProjectWorld * BusinessAnalystWorld Toronto **2009**. Thank you to all who attended
ProjectWorld*BusinessAnalystWorld **2009** in Toronto! ...
projectworldcanada.com/toronto/ - [Cached](#) - [Similar](#) -

[Business Analyst World - Business Analyst World](#)
Home; Select a City. USA. Boston · Chicago · Denver · Minneapolis · Philadelphia · Seattle.
CANADA. Edmonton · Ottawa · Toronto · **Vancouver**. AUSTRALIA ...
www.businessanalystworld.com/ - [Cached](#) - [Similar](#) -

Ben Shneiderman's

Eight Golden Rules of Interface Design

- 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**