



Links

Linking means that users will select and click on

a hypertext link on a starting page (usually the homepage), which then causes a new page to load. Users continue toward their goal by finding and clicking on subsequent links.

To ensure that links are effectively used, designers should use meaningful link labels (making sure that link names are consistent with their targets), provide consistent clickability cues (avoiding misleading cues), and designate when links have been clicked.

Whenever possible, designers should use text for links rather than graphics. Text links usually provide much better information about the target than do graphics.

Relative Importance:

Strength of Evidence:


Guideline: Provide sufficient cues to clearly indicate to users that an item is clickable.

Comments: Users should not be expected to move the cursor around a website ('minesweeping') to determine what is clickable. Using the eyes to quickly survey the options is much faster than 'minesweeping.' Similarly, relying on mouseovers to designate links can confuse newer users, and slow all users as they are uncertain about which items are links.

Be consistent in your use of underlining, bullets, arrows, and other symbols such that they always indicate clickability or never suggest clickability. For example, using images as both links and as decoration slows users as it forces them to study the image to discern its clickability.

Items that are in the top center of the page, or left and right panels have a high probability of being considered links. This is particularly true if the linked element looks like a real-world tab or pushbutton.

Sources: Bailey, 2000b; Bailey, Koyani and Nall, 2000; Farkas and Farkas, 2000; Lynch and Horton, 2002; Tullis, 2001.

Example:



Despite the non-traditional use of colors, the right-facing arrows are very strong clickability cues for users.

A bulleted list of blue, underlined text. These are very strong clickability cues for users.

10:2 Avoid Misleading Cues to Click

Relative Importance:

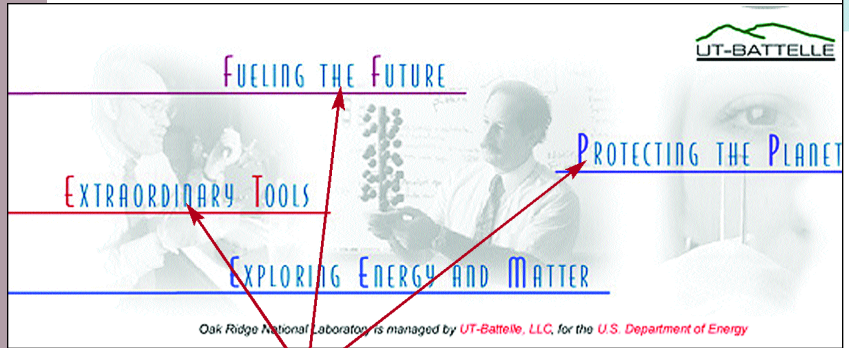
 Strength of Evidence:

Guideline: Ensure that items that are not clickable do not have characteristics that suggest that they are clickable.

Comments: Symbols usually must be combined with at least one other cue that suggests clickability. In one study, users were observed to click on a major heading with some link characteristics, but the heading was not actually a link. However, to some users bullets and arrows may suggest clickability, even when they contain no other clickability cues (underlining, blue coloration, etc.). This slows users as they debate whether the items are links.

Sources: Bailey, Koyani and Nall, 2000; Evans, 1998; Spool, et al., 1997.

Example:

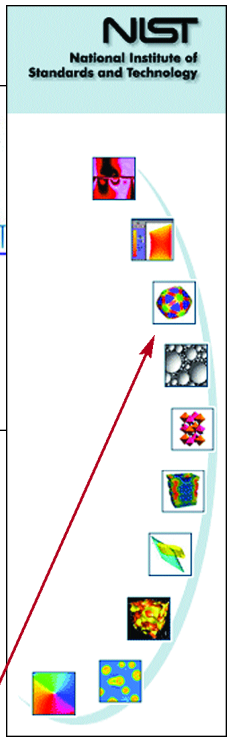


These items appear clickable, but are not. This design may confuse users because the items are underlined and are demonstratively different, and thus attract the users' attention.

This is a good example of misleading the user—blue text and underlined text placed at the top center of the page, and yet none of these are clickable.



Two of these graphics are not clickable—if a user 'mouses-over' one of them, they are likely to think that they are all not clickable. If one graphic is clickable, they should all be clickable.



10:3 Use Text for Links

Relative Importance:

 Strength of Evidence:

Guideline: Use text links rather than image links.

Comments: In general, text links are more easily recognized as clickable. Text links usually download faster, are preferred by users, and should change colors after being selected. It is usually easier to convey a link's destination in text, rather than with the use of an image.

In one study, users showed considerable confusion regarding whether or not certain images were clickable. This was true even for images that contained words. Users could not tell if the images were clickable without placing their cursor over them ('minesweeping'). Requiring users to 'minesweep' to determine what is clickable slows them down.

Another benefit to using text links is that users with text-only and deactivated graphical browsers can see the navigation options.

Sources: Farkas and Farkas, 2000; Mobrand and Spyridakis, 2002; Nielsen, 2000; Spool, et al., 1997.

Example:

The meaning of these three images are fairly clear, even if the accompanying text was not present.



The meanings of these two image links are not obvious at first glance.

See page xxi for detailed descriptions of the rating scales

10:4 Use Meaningful Link Labels

Guideline: Use link labels and concepts that are meaningful, understandable, and easily differentiated by users rather than designers.

Comments: To avoid user confusion, use link labels that clearly differentiate one link from another. Users should be able to look at each link and learn something about the link's destination. Using terms like "Click Here" can be counterproductive.

Clear labeling is especially important as users navigate down through the available links. The more decisions that users are required to make concerning links, the more opportunities they have to make a wrong decision.

Sources: Bailey, Koyani and Nall, 2000; Coney and Steehouder, 2000; Evans, 1998; Farkas and Farkas, 2000; IEEE; Larson and Czerwinski, 1998; Miller and Remington, 2000; Mobrand and Spyridakis, 2002; Nielsen and Tahir, 2002; Spool, et al., 1997; Spyridakis, 2000.

Example: 'COOL' refers to an application that allows users to search for all jobs within the Department of Commerce (not just the Census Bureau.) This link does a poor job in explaining itself.

Professional: Student, Entry, & Mid-Career **Opportunities for All U.S. Nationwide**

COOL: Opportunities for previous Federal Employees

NEW EMPLOYEE
 ✓ Pre-Appointment
 ✓ Benefits

Learn About Cancer
 Learn about different types of cancer, risk factors, prevention, treatment, and more. You can also read stories of hope from people whose lives have been touched by cancer and get the latest news.

- Stories of Hope**
Discover what others have faced, how they have fought, and what they have learned about life and love in their experiences with cancer.
- Talking About Cancer**
Learn how to talk about your experience to people who are close to you and those outside your inner circle.
- Treatment Decision Tools**
Get a detailed profile of a specific type of cancer to make informed choices about treatment.
- Getting Specific**
Get information and resources for a specific type of cancer wherever you see this head
- All About Cancer**
Get answers to all your questions about can
- Other Information Sources**
Browse other Web sites on cancer, books of cancer, and related information on our site.

Relative Importance:
 12340

Strength of Evidence:
 12340

See page xxi for detailed descriptions of the rating scales
12340

10:5 Match Link Names with Their Destination Pages

Guideline: Make the link text consistent with the title or headings on the destination (i.e., target) page.

Comments: Closely matched links and destination targets help provide the necessary feedback to users that they have reached the intended page.

If users will have to click more than once to get to a specific target destination, avoid repeating the exact same link wording over and over because users can be confused if the links at each level are identical or even very similar. In one study, after users clicked on a link entitled "First Aid," the next page had three options. One of them was again titled "First Aid." The two "First Aid" links went to different places. Users tended to click on another option on the second page because they thought that they had already reached "First Aid."

Sources: Bailey, Koyani and Nall, 2000; Levine, 1996; Mobrand and Spyridakis, 2002.

Example:

U.S. Environmental Protection Agency

Browse EPA Topics
 Recent Additions | Contact Us | Print Version Search: [Advanced Search](#)
[EPA Home](#) > [Browse EPA Topics](#)

The following list organizes EPA topics into broad categories. A [much longer list](#) presents EPA topics alphabetically.

Alphabetical List of all Topics

- Air**
Acid Rain, Global Warming, Emissions...
- Cleanup**
Brownfields, Superfund, Corrective Action...
- Compliance & Enforcement**
Complaints, Compliance Assistance...
- Economics**
- Industry**
Small Business, Permits, Reporting...
- International Cooperation**
Border Issues, Technical Assistance...
- Pesticides**
Insecticides, Registration, Food Safety...
- Pollutants/Toxics**
Lead, Dioxins, Chemicals, Radiation...

U.S. Environmental Protection Agency

Recursos en Español
 Contact Us | Print Version Search:
[EPA Home](#) > [Recursos en Español](#)

Bienvenidos a Recursos en Español. Aquí encontrarán documentos y sitios de la EPA sobre varios temas. Hay cinco secciones: Vida Diaria, Vida Profesional, Protegiendo a los Niños, Emergencias en el Medio Ambiente, y Otros Recursos en Español. Abajo hay una descripción de cada sección.

Vida Diaria **Vida Profesional**

Familiarícese con las situaciones del medio ambiente y con los riesgos al medio ambiente y a la salud humana causados por la contaminación. Los documentos incluidos aquí tratan sobre situaciones que enfrentamos en nuestro día a día.

Protegiendo a los Niños **Emergencias en el Medio Ambiente**

Aumentando el conocimiento sobre posibles amenazas ambientales a los niños. Encuentre información sobre la nueva [Oficina de Protección de la Salud Infantil](#).

Otros Recursos en Español **Leyes y Tratados en Español**

Enlaces hacia otros sitios en la Red del Internet en español donde se encuentra información de interés relativa al medio ambiente.

Enlaces hacia otros sitios en la Red del Internet en español donde se encuentra información sobre los tratados internacionales relativos al medio ambiente.

[[EPA Página Principal](#) | [Explore Otros Temas](#) | [Lo Nuevo](#) | [Comentarios](#) | [Buscar](#)]
 Información sobre el sitio central de la EPA sobre Internet

Link text in the left navigation panel is identical to the headings found on the destination page.

10:6 Ensure that Embedded Links are Descriptive

Guideline: When using embedded links, the link text should accurately describe the link's destination.

Comments: Users tend to ignore the text that surrounds each embedded link; therefore do not create embedded links that use the surrounding text to add clues about the link's destination.

Sources: Bailey, Koyani and Nall, 2000; Bernard and Hull, 2002; Card, et al., 2001; Chi, Pirolli and Pitkow, 2000; Evans, 1998; Farkas and Farkas, 2000; Mobrand and Spyridakis, 2002; Sawyer and Schroeder, 2000; Spool, et al., 1997.

Example: These embedded links are well designed—because the entire organization name is a link, the user does not have to read the surrounding text to understand the destination of the embedded link.

Relative Importance:



Strength of Evidence:



the Intelligence Community and exercises the powers of the Director when the Director's position is vacant or in the Director's absence or disability.

The Associate Director of Central Intelligence for Homeland Security, Office of the Director of Central Intelligence, ensures the flow of intelligence in support of homeland defense. The current director is [Winston P. Wiley](#).

The Executive Director of the Central Intelligence Agency membership five mission centers with duties that are: Officer, Security, Human Resources and Global Support.

The [Directorate of Intelligence](#), the analytical branch of intelligence analysis on key foreign issues. The current director is [Jami A. Misck](#).

The [Directorate of Science and Technology](#) creates and manages the mission. The current director is [Donald M. Kerr](#).

The Directorate of Operations is responsible for the Agency's operations.

The [Center for the Study of Intelligence](#) maintains the Agency's historical materials and promotes the study of intelligence as a discipline.

The Directorate of Intelligence, the analytical branch of intelligence analysis on key foreign issues. The current director is [Jami A. Misck](#).

The Directorate of Science and Technology creates and manages the mission. The current director is [Donald M. Kerr](#).

In this example, the user must read the surrounding text to gain clues as to the link's destination. In many cases, users will not read that text.

the economy, efficiency, and effectiveness of the Federal Government through financial audits, program reviews and evaluations, analyses, legal opinions, investigations, and other services. GAO's activities are designed to ensure the executive branch's accountability to the Congress under the Constitution and the government's accountability to the American people. GAO is dedicated to good government through its commitment to the core values of accountability, integrity, and reliability.

[from the Comptroller General](#)

[David M. Walker, Comptroller General of the United States Selected Speeches, Writings, and Press Statements](#), February 7, 2002 [View](#)

[GAO's Performance and Accountability Report 2002](#), [Highlights](#), and [related materials](#) including the Strategic Plan 2002-2007

[GAO Reports](#)

[Operational Ability](#), Today's Reports, [Highlights](#), Special Reports, [Collections](#) including [Desert Shield and Desert Storm Reports](#)

[GAO's Real-Practical Checklist - Information about current and recently closed bid protests](#), [GAO Policies and Procedures Manual for Guidance to Federal Agencies](#)

[Investigations, and other services. GAO's activities are designed to ensure the executive branch's accountability to the Congress under the Constitution and the government's accountability to the American people. GAO is dedicated to good government through its commitment to the core values of accountability, integrity, and reliability.](#)

See page xxi for detailed descriptions of the rating scales



10:7 Repeat Important Links

Guideline: Ensure that important content can be accessed from more than one link.

Comments: Establishing more than one way to access the exact same information can help some users find what they need. When certain information is critical to the success of the website, provide more than one link to the information. Different users may try different ways to find information depending on their own interpretations of a problem and the layout of a page. Some users find important links easily when they have a certain label, while others may recognize the link best with an alternative name.

Sources: Bernard, Hull and Drake, 2001; Detweiler and Omanson, 1996; Ivory, Sinha and Hearst, 2000; Ivory, Sinha and Hearst, 2001; Levine, 1996; Nall, Koyani and Lafond, 2001; Nielsen and Tahir, 2002; Spain, 1999; Spool, Klee and Schroeder, 2000.

Example: Multiple links provide users with alternative routes for finding the same information.

If the user misses the "Hours" link in the left panel, they still have a chance to find the header in the content panel.

Relative Importance:



Strength of Evidence:



Visitor Information

- Hours
- Maps
- Directions
- Tours
- Museum Stores
- Dining
- Tips for Visiting
- Security and Policies

Visitor Information for:

- Kids & Families
- Groups
- Visitors with Disabilities
- Foreign Language Speakers

Types of Cancer

[What You Need To Know About™ Cancer Index](#)
Information about detection, symptoms, diagnosis, and treatment of many types of cancer.

*** Common Cancers**

- Bladder Cancer
- Breast Cancer
- Colon Cancer
- Endometrial Cancer
- Head and Neck Cancer
- Leukemia
- Lung Cancer
- Melanoma
- Non-Hodgkins Lymphoma
- Ovarian Cancer
- Prostate Cancer
- Rectal Cancer

*** Childhood/Pediatric Cancers**

- Childhood Cancers Home Page

*** Cancers by Body Location/System**

- AIDS-Related
- Bone
- Brain
- Breast
- Digestive/Gastrointestinal
- Endocrine
- Eye
- Genitourinary
- Germ Cell
- Gynecologic
- Head and Neck
- Hematologic/Blood
- Leukemia
- Lung
- Lymphoma
- Musculoskeletal
- Neurologic
- Pregnancy and Cancer
- Respiratory/Thoracic
- Skin
- Unknown Primary

Alphabetical List of Cancers

A B C D E F G H I J **K** L M N O P Q R S T U V W X Y Z

Hours

Most museums are open daily, 10am-5:30pm, except December 25.

10:8 Designate Used Links

Guideline: Use color changes to indicate to users when a link has been visited.

Comments: Generally, it is best to use the default text link colors (blue as an unvisited location/link and purple as a visited location/link). Link colors help users understand which parts of a website they have visited. In one study, providing this type of feedback was the only variable found to improve the user's speed of finding information. If a user selects one link, and there are other links to the same target, make sure all links to that target change color.

Sources: Evans, 1998; Nielsen and Tahir, 2002; Nielsen, 1996a; Nielsen, 1999b; Nielsen, 1999c; Spool, et al., 1997; Tullis, 2001.

Example:

Opportunities

- [Access America for Seniors](#)
- [Government Benefits](#)
- [Nonprofit Gateway](#)
- [Procurement](#)
- [Small Business Opportunities](#)
- [Technology Transfer](#)
- [USDA /1890 National Scholars Program](#)
- [USDA Debarment and Suspension](#)
- [Contacts](#)
- [U.S. State and Local Gateway](#)

Employment:

- [USDA](#)
- [Intern Programs](#)
- [All Federal Government](#)
- [USDA Telework Center](#)
- [Senior Executive Service Candidate Development Program](#)

Schools / IMSOs -- Air Force

[Advanced Airlift Tactics Training Center](#), St Jose

[Air Command & Staff College](#), Maxwell AFB AL

[Air Education and Training Command](#), Randolp

[Air Force Institute of Technology](#), Wright-Patterson

[Air University](#), Maxwell AFB AL

[Air War College](#), Maxwell AFB AL

[Altus AFB OK](#)

[College for Enlisted Professional Military Educa](#)

[Columbus AFB MS](#)

[Fairchild AFB WA](#)

[Goodfellow AFB TX](#)

[Inter-American Air Forces Academy](#), Lackland A

[Joint Special Operations University](#), Hurlburt Fi

[Keesler AFB MS](#)

[Lackland AFB TX](#)

[Little Rock AFB AR](#)

[Luke AFB AZ](#)

[Randolph AFB TX](#)

[School of Aerospace Medicine](#), Brooks AFB TX

[Sheppard AFB TX](#), [IMSO](#)

[Squadron Officer School](#), Maxwell AFB AL

[Tyndall AFB FL](#)

[Vance AFB OK](#)

[Wright-Patterson AFB OH](#)

A poor design choice. Unvisited links are in green, whereas visited links are in blue—users expect blue to denote an unvisited link.

A good design choice—unvisited links are shown in blue, and visited links are shown in purple. Note the conventional use of colors for visited and unvisited links.

Relative Importance:
12340

Strength of Evidence:
12000

10:9 Link to Related Content

Guideline: Provide links to other pages in the website with related content.

Comments: Users expect designers to know their websites well enough to provide a full list of options to related content.

Sources: Koyani and Nall, 1999.

Example:

Related Links

Latest Business News

[War Spurs Fears of Another Recession](#) (The Washington Post, 3/28/03)

[U.N. Nears Approval of Using Oil to Buy Iraq Aid](#) (The Washington Post, 3/28/03)

[Lawmakers Tell TSA to Reduce Excess of Screeners](#) (The Washington Post, 3/28/03)

[Business Section](#)

[Technology Section](#)

Special Report

[Military](#)

Columnist

Washington Post reporter Steve Vogel covers local runs every other week.

Full Coverage

[More National Security News](#)

[Full Mideast Coverage](#)

Graphic

Sniper Shootings: Interactive map shows details of victims and ballistics. (Flash 6)



Recent Stories

- [Sniper Case Judge Assails Leaks](#) (The Washington Post, Apr 19, 2003)
- [Moose's Dispute On Book Escalates](#) (The Washington Post, Apr 18, 2003)
- [Sniper Suspect Faces More Disciplinary Action](#) (Associated Press, Apr 17, 2003)
- [Malvo Faces Jail Discipline](#) (The Washington Post, Apr 17, 2003)
- [Moose Asks For Review Of Book Ban](#) (The Washington Post, Apr 15, 2003)
- [More Shootings Coverage](#)

Photo Gallery

Sniper Shootings: The region's schools felt like fortresses as helicopters flew overhead and jittery parents walked their children to class.



Additional Information

[U.S. Department of Commerce Website](#)

[Office of The Chief Financial Officer](#)

Other Acquisition Related Sites

[FedBiz Opps](#)

[FirstGov](#)

[Where in Federal Contracting?](#)

Relative Importance:
12340

Strength of Evidence:
12000

See page xxi for detailed descriptions of the rating scales

10:10 Link to Supportive Information

Guideline: Provide links to supportive information.

Comments: Use links to provide definitions and descriptions to clarify technical concepts or jargon, so that less knowledgeable users can successfully use the website. For example, provide links to a dictionary, glossary definitions, and sections dedicated to providing more information.

Sources: Farkas and Farkas, 2000; Levine, 1996; Morrell, et al., 2002; Zimmerman and Prickett, 2000.

Example:

Relative Importance:



Strength of Evidence:



Tests that examine the breasts are used to detect (find) and diagnose breast cancer.

If an abnormality is found, one or all of the following tests may be used:

- **Ultrasound:** A test that uses sound waves to create images of areas inside the body. sound waves are bounced off internal **tissues** and organs. The echoes are changed into called **sonograms**. The doctor can identify **tumors** by looking at the sonogram.
- **Mammogram:** A special **x-ray** of the breast that may find tumors that are too small to mammogram can be performed with little risk to the **fetus**. Mammograms in pregnant appear negative even though cancer is present.
- **Biopsy:** The removal of **cells**, tissue, or disease.

Clicking on a highlighted word brings up a 'pop-up' box which provides the user with the definition of the selected word.

Definition

sonogram (SON-o-gram):

A computer picture of areas inside the body created by bouncing high-energy sound waves (ultrasound) off internal tissues or organs. Also called an ultrasonogram.

[Dictionary](#)

[Print this page](#)

See page xxi for detailed descriptions of the rating scales



10:11 Use Appropriate Text Link Lengths

Guideline: Make text links long enough to be understood, but short enough to minimize wrapping.

Comments: A single word text link may not give enough information about the link's destination. A link that is several words may be difficult to read quickly, particularly if it wraps to another line. Generally, it is best if text links do not extend more than one line. However, one study found that when users scan prose text, links of nine to ten words elicit better performance than shorter or longer links. Keep in mind that it is not always possible to control how links will look to all users because browser settings and screen resolutions can vary.

Sources: Card, et al., 2001; Chi, Pirolli and Pitkow, 2000; Evans, 1998; Levine, 1996; Nielsen and Tahir, 2002; Nielsen, 2000; Sawyer and Schroeder, 2000; Spool, et al., 1997.

Relative Importance:



Strength of Evidence:



Example:

Text links should not wrap to a second line. They should be used to highlight a particular word or short phrase in a sentence, not an entire sentence.

Whenever possible, text links should only cover one line.

10:12 Indicate Internal vs. External Links

Guideline: Indicate to users when a link will move them to a different location on the same page or to a new page on a different website.

Comments: One study showed that users tend to assume that links will take them to another page within the same website. When this assumption is not true, users can become confused. Designers should try to notify users when they are simply moving down a page, or leaving the site altogether.

Sources: Nall, Koyani and Lafond, 2001; Nielsen and Tahir, 2002; Spool, et al., 1997.

Example:

Add URL addresses below links to help users determine where they are going. By seeing .gov and .com the user is also alerted to the type of site they will visit.

[Research-Based Web Design & Usability Guidelines](http://usability.gov/guidelines)
http://usability.gov/guidelines

- Provides guidelines for improving Web design, navigation, functionality
- Includes findings from Web design and usability literature identified by the National Cancer Institute and provides references

[Web Design Guidelines: Design in Action](http://www-3.ibm.com/ibm/easy/eou_ext.nsf/Publish/572)
http://www-3.ibm.com/ibm/easy/eou_ext.nsf/Publish/572

- Provides guidelines on Web site planning, design, production, and maintenance
- Offers guidelines on e-commerce

[Web Publishing Guide](http://www.ieee.org/web/developers/style/)
http://www.ieee.org/web/developers/style/

Relative Importance:



Strength of Evidence:



Acid Rain Sourcebook
This site is a student's first source book including activities, information, and planning, including planning, hance

Become an IPM Super Sleuth [EXIT disclaimer](#)

Created with support from EPA and the National Foundation for IPM can teach you about Integrated Pest Management using word games

Best Management Practices for Soil Erosion software
This downloadable program provides information on soil erosion worldwide, including what causes erosion

You are exiting the White House Web Server

"Exit disclaimer" graphic informs user that the link will take them to a new website.

Clicking an outside link leads to this "interim" page that warns users of their imminent transfer to a non-whitehouse.gov website.

You are exiting the White House Web Server

Thank you for visiting our site.

You will now access <http://www.achp.gov/>

We hope your visit was informative and enjoyable.

To comment on this service, send feedback to the [Web Development Team](#)

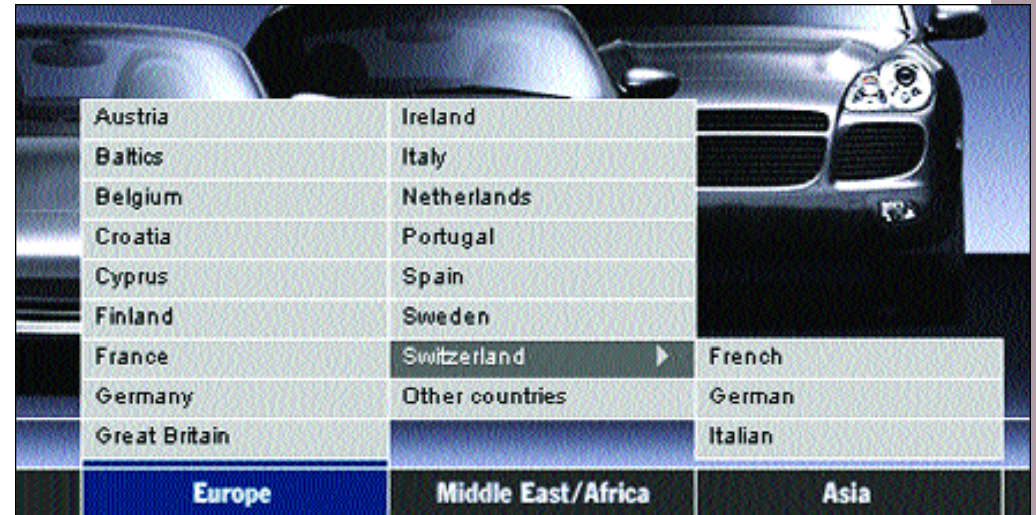
10:13 Use 'Pointing-and-Clicking'

Guideline: 'Pointing-and-clicking,' rather than 'mousing-over,' is preferred when selecting menu items from a cascading menu structure.

Comments: One study found that when compared with the 'mouseover' method, the 'point-and-click' method takes eighteen percent less time, elicits fewer errors, and is preferred by users.

Sources: Chaparro, Minnaert and Phipps, 2000.

Example:



This site relies on users to 'mouse-over' the main links (shown on the bottom of the page) to reveal the sub-menu links (shown extending to the right in gray). The use of this 'mouseover' method is slower than 'pointing-and-clicking.'

Relative Importance:



Strength of Evidence:



See page xxi for detailed descriptions of the rating scales



10:14 Clarify Clickable Regions of Images

Guideline: If any part of an image is clickable, ensure that the entire image is clickable or that the clickable sections are obvious.

Relative Importance:



Strength of Evidence:



Comments: Users should not be required to use the mouse pointer to discover clickable areas of images. For example, in a map of the United States, if individual states are clickable, sufficient cues should be given to indicate the clickable states.

Sources: Detweiler and Omanson, 1996; Levine, 1996; Lim and Wogalter, 2000.

Example:

Dramatically different colors delineate clickable regions.



this service

The use of white space between clickable regions in this image map define the boundaries of each individual "hot" area.