DON'T MAKE ME THINK - REVISITED

A COMMON SENSE APPROACH TO WEB AND MOBILE USABILITY

AUTHOR: STEVE KRUG

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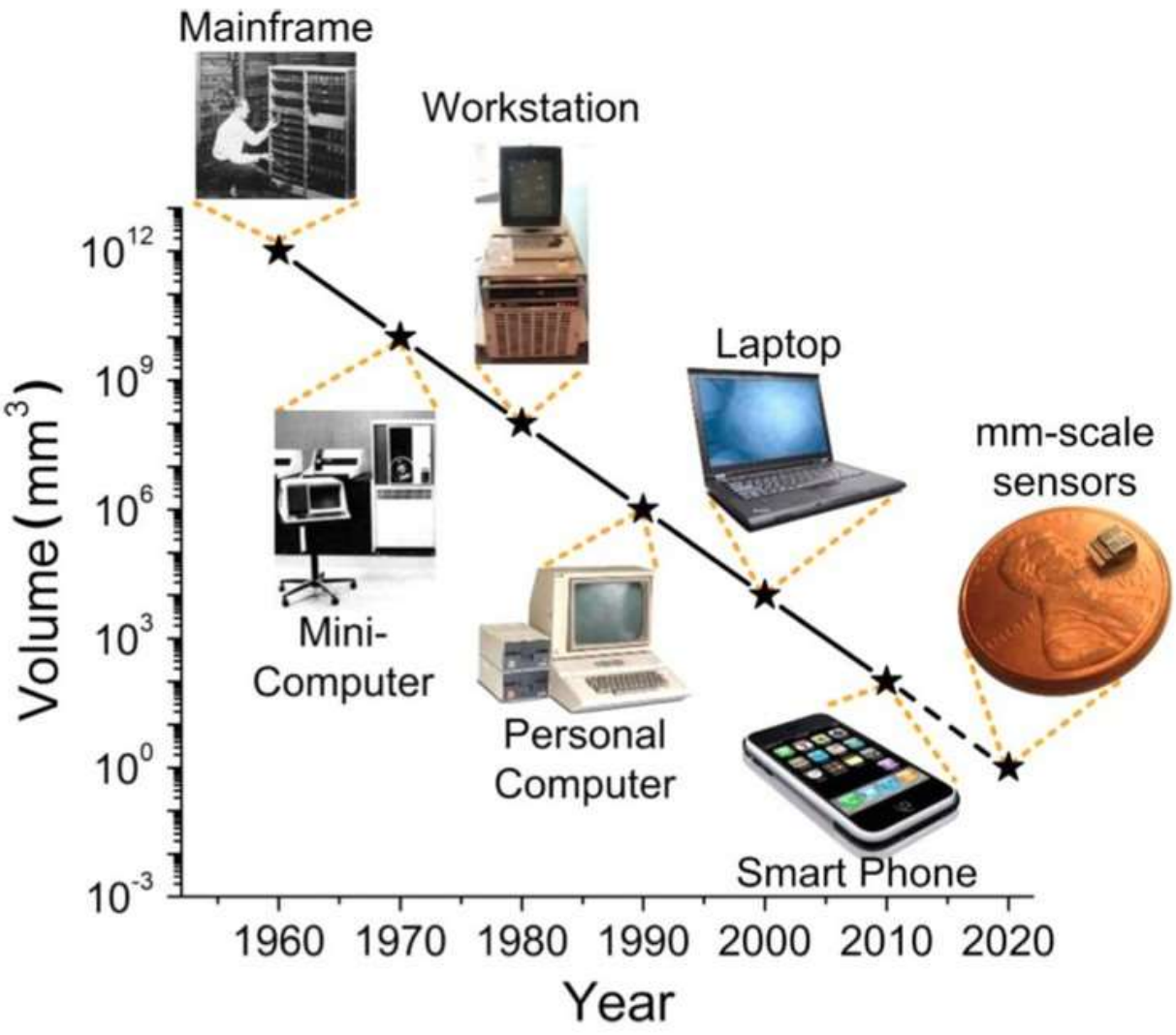
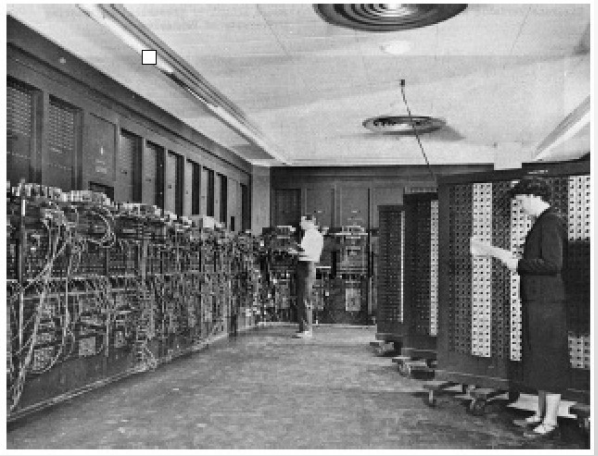


TECHNOLOGY GOT ITS HANDS ON SOME STEROIDS

PROGRAMMABLE COMPUTERS

- ENIAC (ELECTRONIC NUMERICAL INTEGRATOR AND COMPUTER)
  - BUILT IN THE 1940S
  - AMONG THE FIRST COMPUTERS TO EMPLOY THE STORED-PROGRAM CONCEPT
- A MODERN COMPUTER HAS FOUR MAJOR KINDS OF COMPONENTS:
  - INPUT DEVICE(S) – EXAMPLES?
  - OUTPUT DEVICE(S) – EXAMPLES?
  - MEMORY – FOR DATA STORAGE, BOTH TEMPORARY & PERMANENT
  - PROCESSOR – FOR DOING COMPUTATIONS



TRANSISTORS

- A VARIETY OF DEVICES HAVE BEEN USED TO REPRESENT DIGITS AND TO CONTROL THE OPERATION OF COMPUTING MACHINES
- IN THE 1940S:
  - BARDEEN, BRATTAIN, AND SHOCKLEY INVENTED THE **TRANSISTOR**, WHICH IS AN ELECTRONIC SWITCH WITH NO MOVING PARTS
- IN THE 1950S AND 1960S:
  - KILBY, NOYCE, AND OTHERS USED TRANSISTORS TO DEVELOP **INTEGRATED CIRCUITS**
  - DEVISED A WAY TO MANUFACTURE THOUSANDS – LATER, MILLIONS AND BILLIONS – OF TRANSISTORS ON A SINGLE WAFER OF SILICON
- A SINGLE **CHIP** CONTAINS:
  - AN INTEGRATED CIRCUIT
  - A CERAMIC OR PLASTIC CASE
  - EXTERNAL PINS TO ATTACH IT TO A **CIRCUIT BOARD**

TRANSISTORS

Noyce and businessman Gordon Moore commercialized this technology by co-founding Intel Corporation in 1968

Manufacturing technologies improved in the 1950s and 1960s:

engineers were able to pack many more transistors per unit area on silicon wafers

Moore's law: Moore observed that the number of components within an integrated circuit was doubling every 18 months.

- The trend has continued pretty steadily since then.
- But transistors can be only so small!

Combating miniaturization challenges:

Intel, AMD (Advanced Micro Devices) and others now make processors that feature multiple processing **cores** that perform calculations in parallel with each other

MOORE'S LAW (TILL 2016)

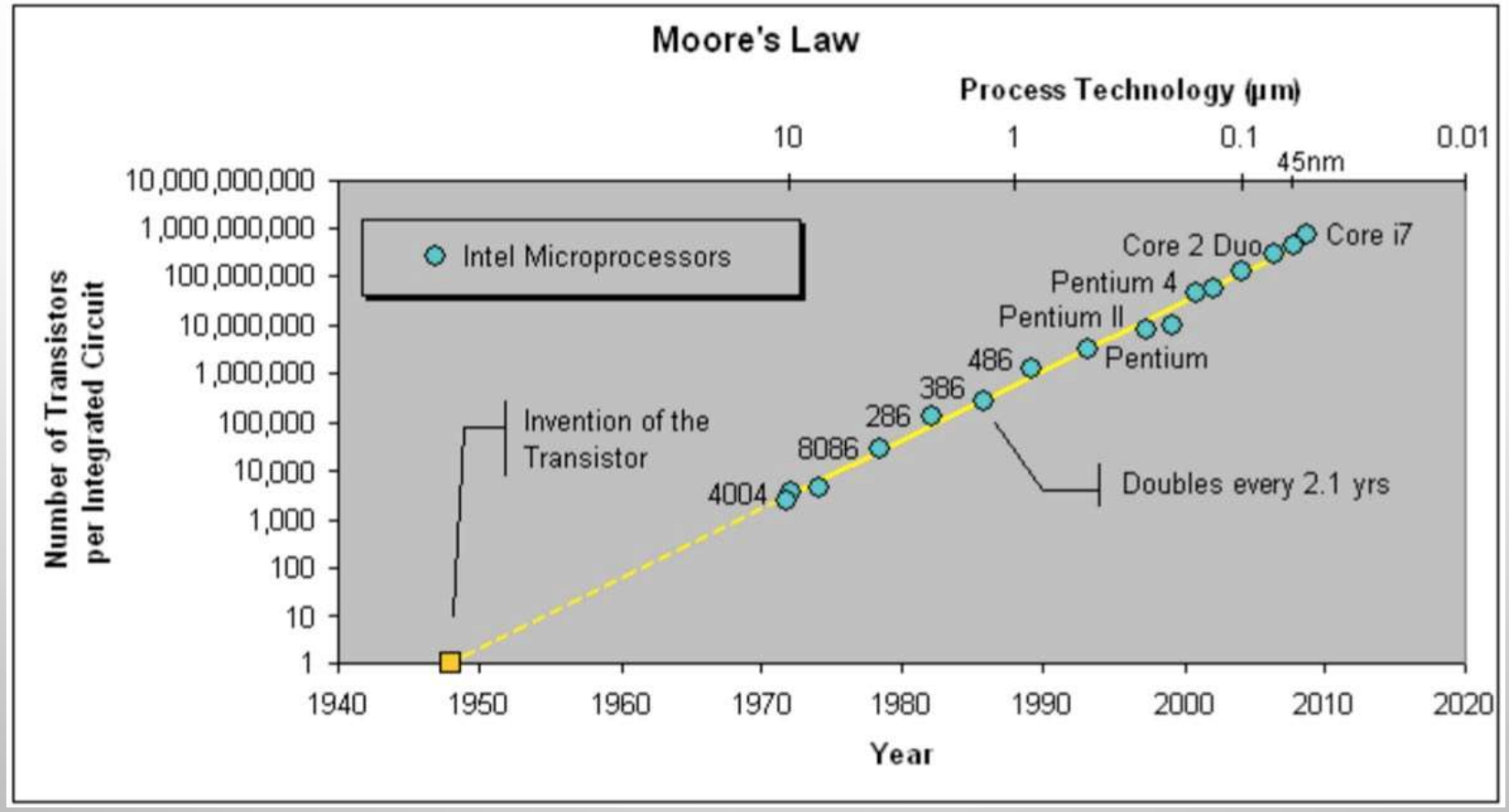
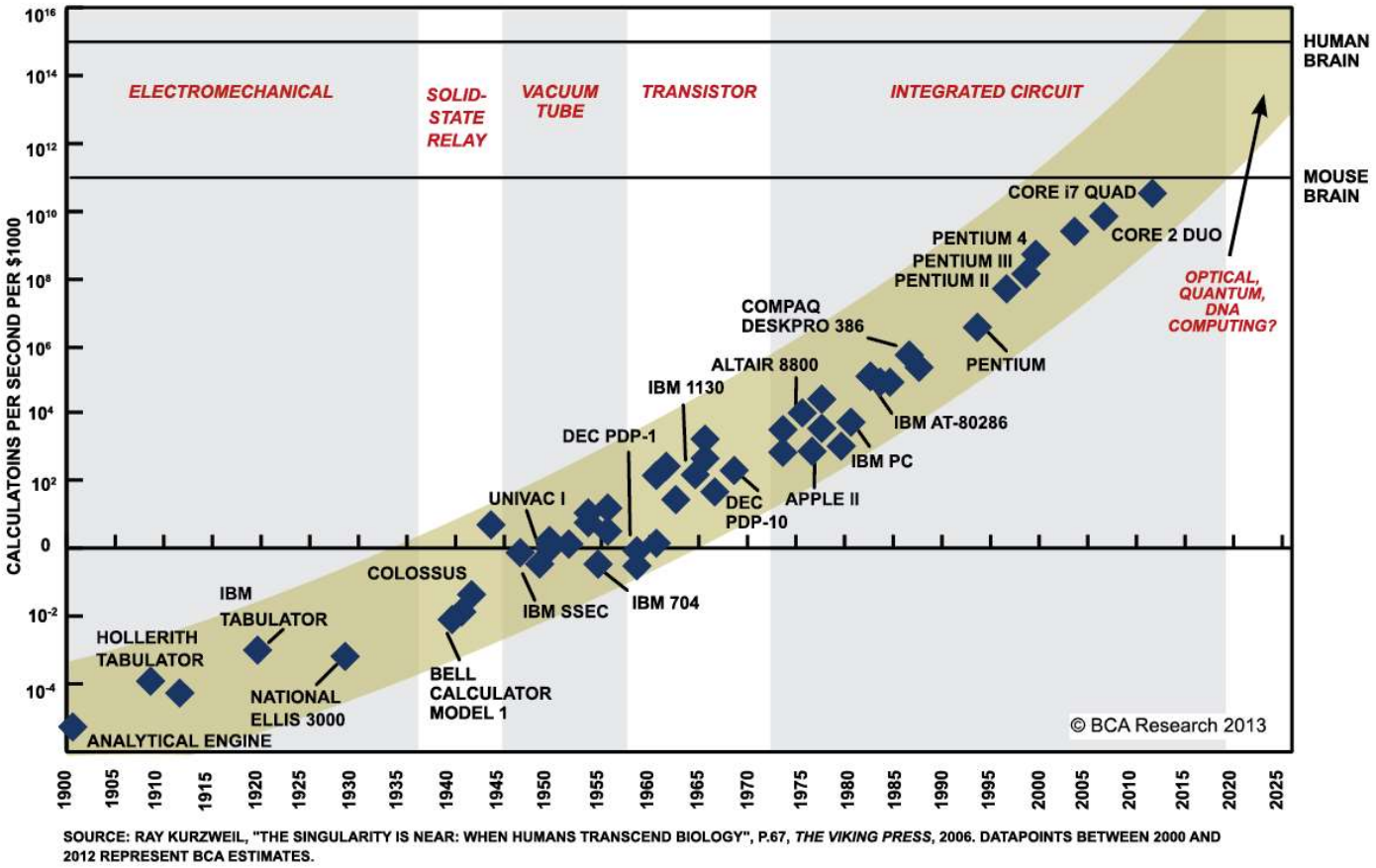


Figure taken from: https://fossbytes.com/moores-law-is-finally-dead-rest-in-peace-moores-law/

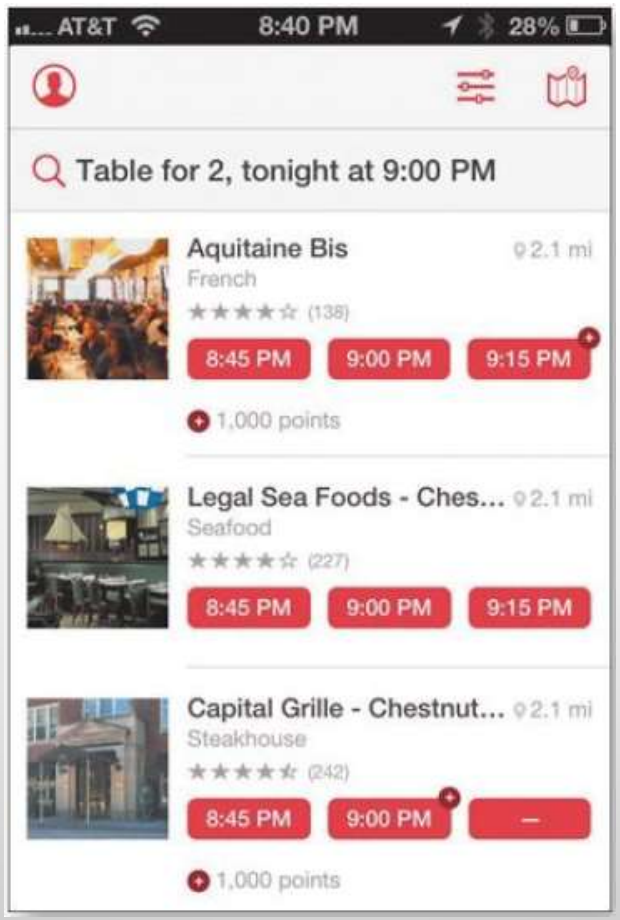
MOORE'S LAW (TILL 2016)



SOURCE: RAY KURZWEIL, "THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY", P.67, *THE VIKING PRESS*, 2006. DATAPOINTS BETWEEN 2000 AND 2012 REPRESENT BCA ESTIMATES.

Figure taken from: https://www.extremetech.com/extreme/210872-extremetech-explains-what-is-moores-law

AT&T
10:18 AM
51%
Locations
1st Floor
Set Away
Indoor Temperature
Target
69°
62°
Outdoor: 65°
At 6:00 PM the target will be set to 70°
Communicating directly with thermostat
HEAT
Mode
AUTO
Fan
OFF
Hold
Schedule
Runtime
Settings


AT&T
8:40 PM
28%
Table for 2, tonight at 9:00 PM
Aquitaine Bis
2.1 mi
French
(138)
8:45 PM
9:00 PM
9:15 PM
1,000 points
Legal Sea Foods - Ches...
2.1 mi
Seafood
(227)
8:45 PM
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9:15 PM
Capital Grille - Chestnut...
2.1 mi
Steakhouse
(242)
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9:00 PM
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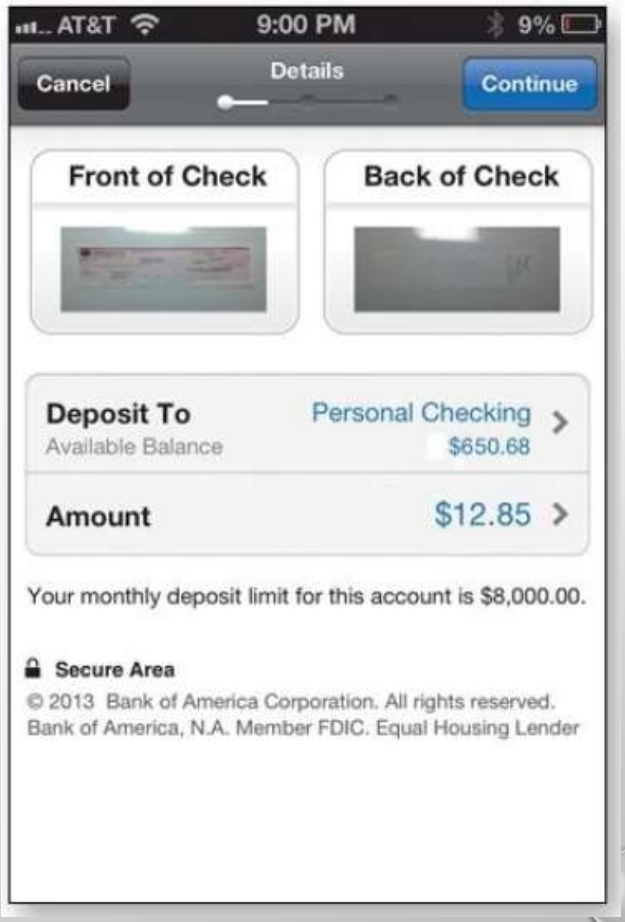
AT&T
9:00 PM
9%
Cancel
Details
Continue
Front of Check
Back of Check
Deposit To
Personal Checking
Available Balance
$650.68
Amount
$12.85
Your monthly deposit limit for this account is $8,000.00.
Secure Area
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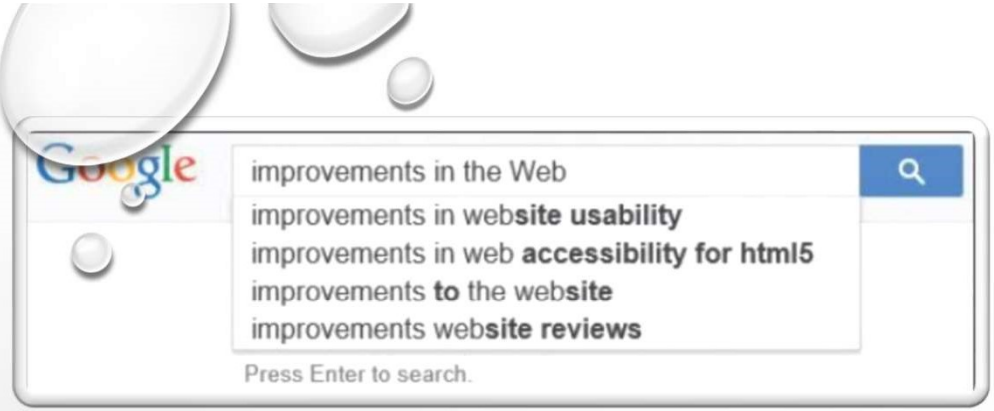
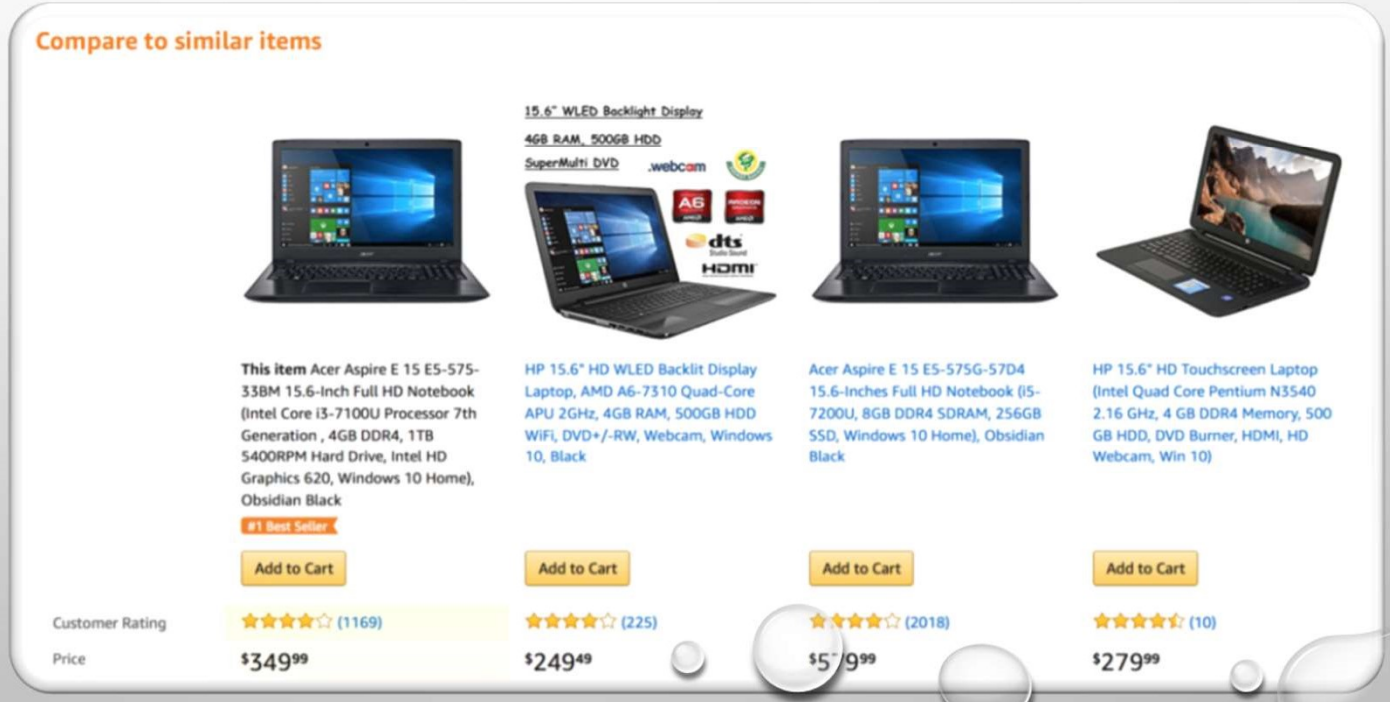
LIST MOBILE APPS YOU COMMONLY USE

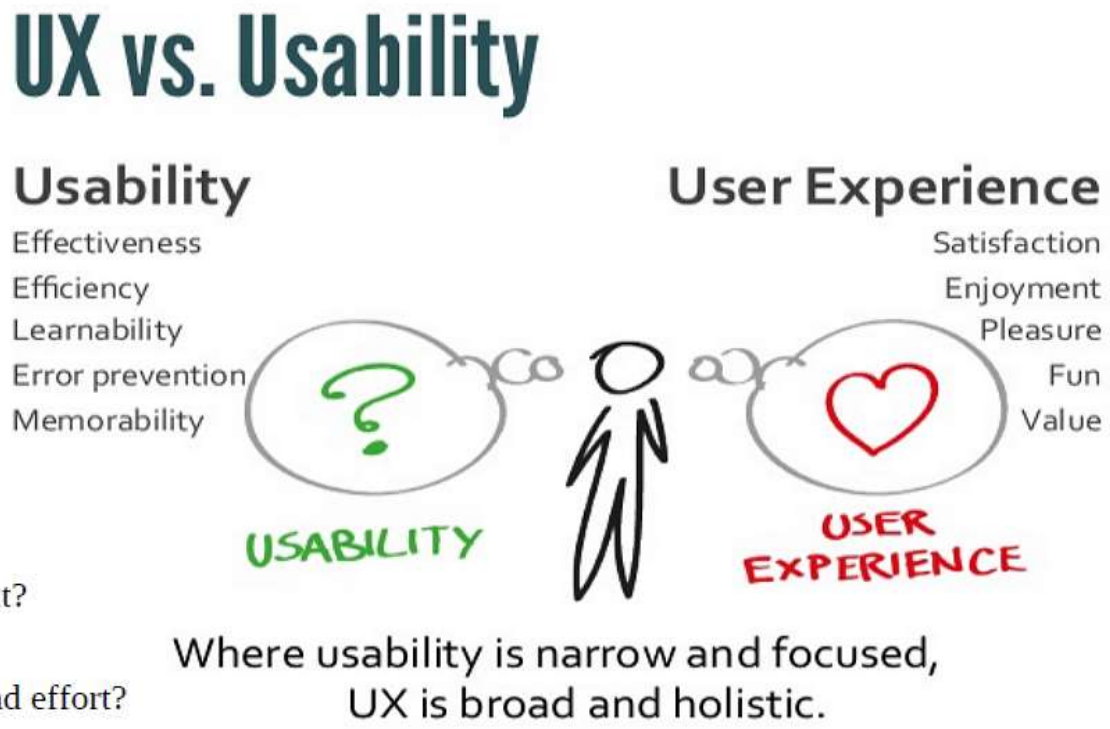


THE WEB ITSELF KEPT IMPROVING!

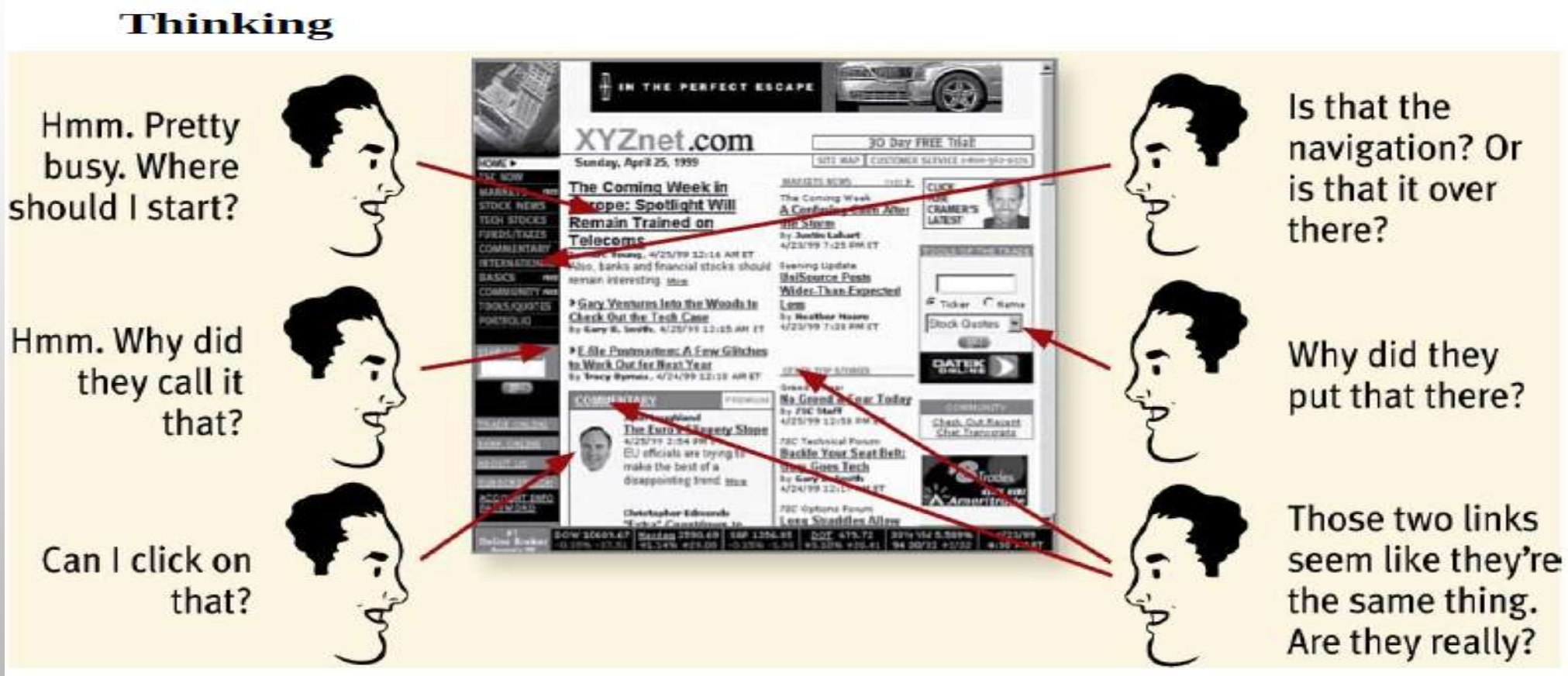


USABILITY WENT MAINSTREAM

- **Useful:** Does it do something people need done?
- **Learnable:** Can people figure out how to use it?
- **Memorable:** Do they have to relearn it each time they use it?
- **Effective:** Does it get the job done?
- **Efficient:** Does it do it with a reasonable amount of time and effort?
- **Desirable:** Do people want it?

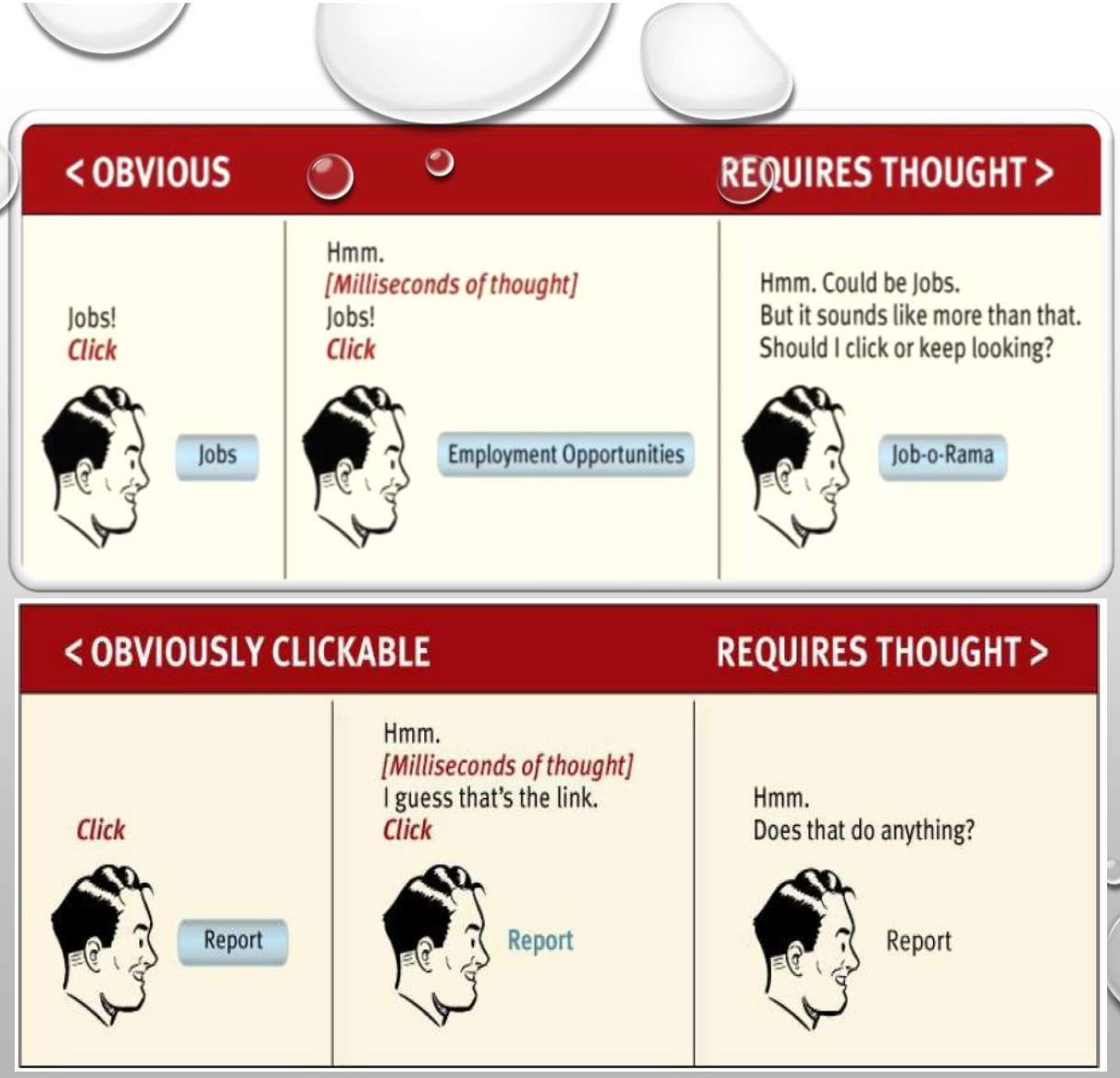


FIRST LAW OF USABILITY



FIRST LAW OF USABILITY

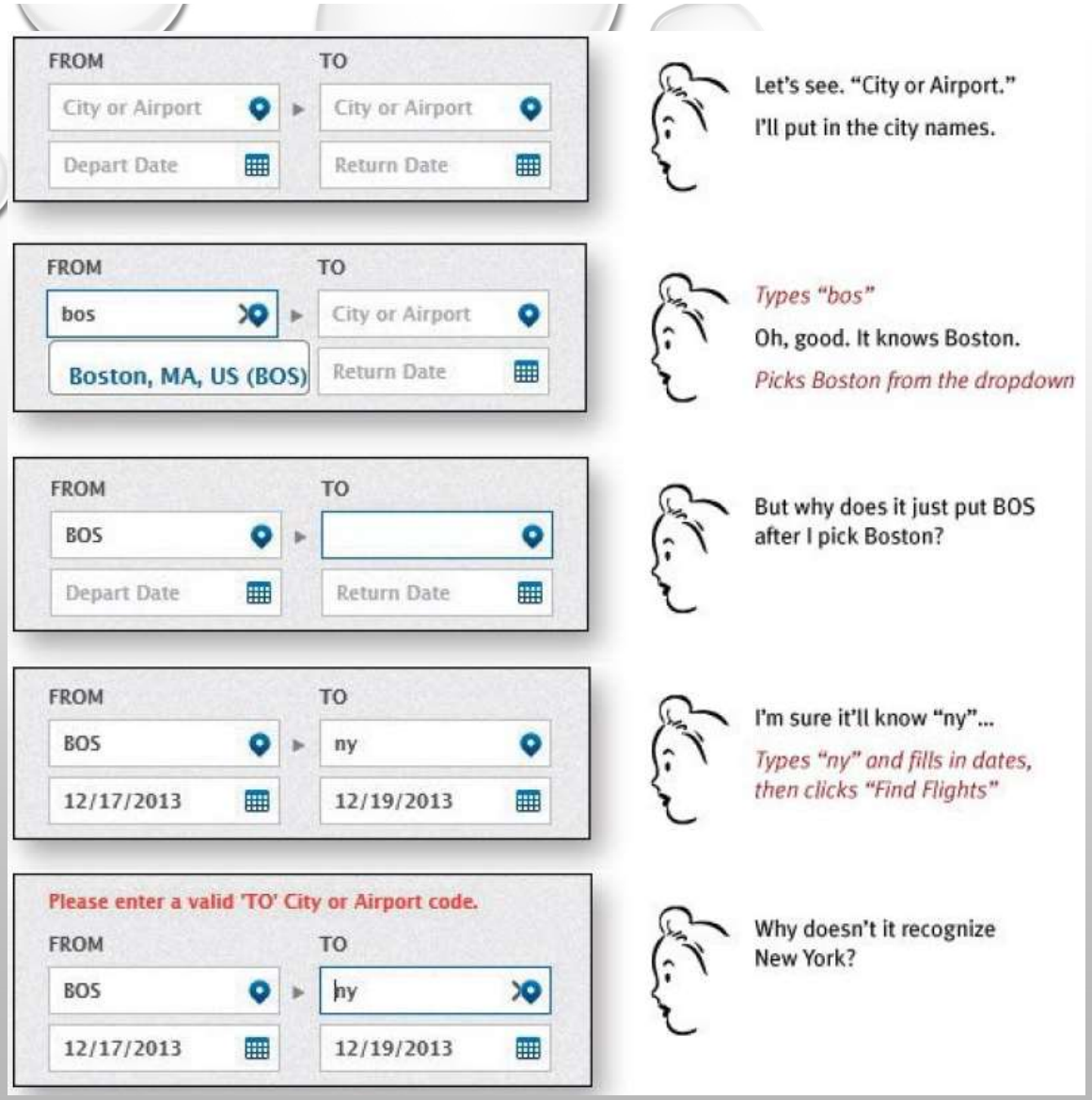
- **DON'T MAKE ME THINK!**
  - NOTHING IMPORTANT SHOULD EVER BE MORE THAN TWO CLICKS AWAY..
  - SEE HTTPS://WWW.MEDIAMARKT.NL/



THINGS THAT MAKE US THINK

NAMES – XYZ CORP IS HIRING

UNCLICKABLE LINKS OR BUTTONS

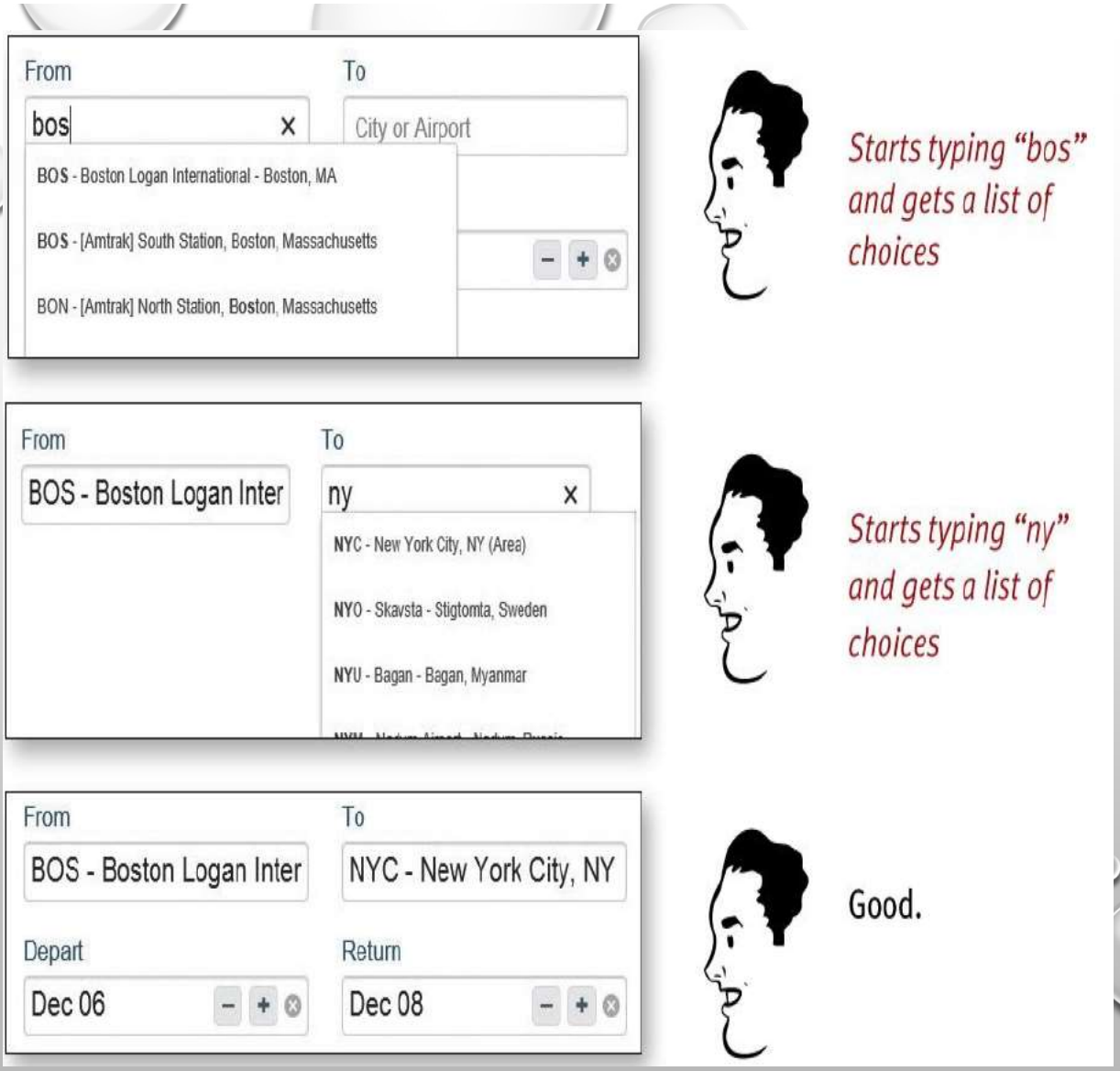


THINGS THAT MAKE US THINK

BOOKING A FLIGHT

– CHOICES DO NOT MAKE SENSE

TRY WITH THE SITES OF YOUR CHOICE AND RECORD THE OBSERVATION



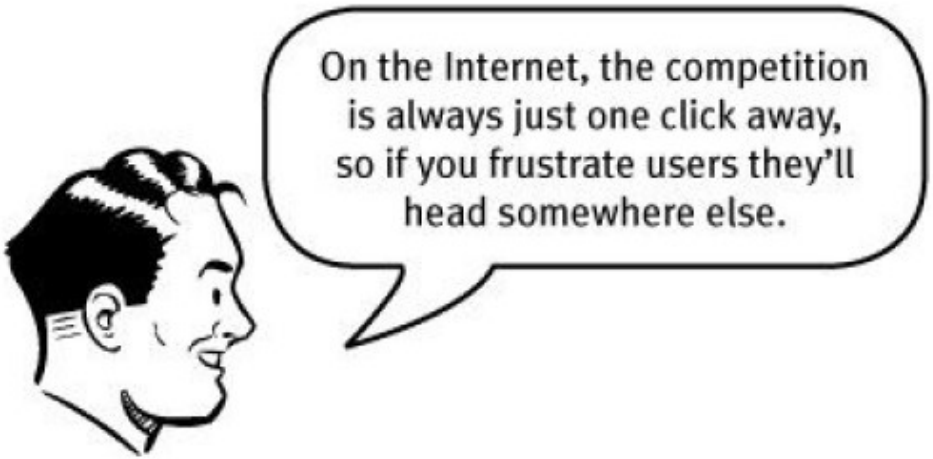
THINGS THAT MAKE US THINK

BOOKING A FLIGHT

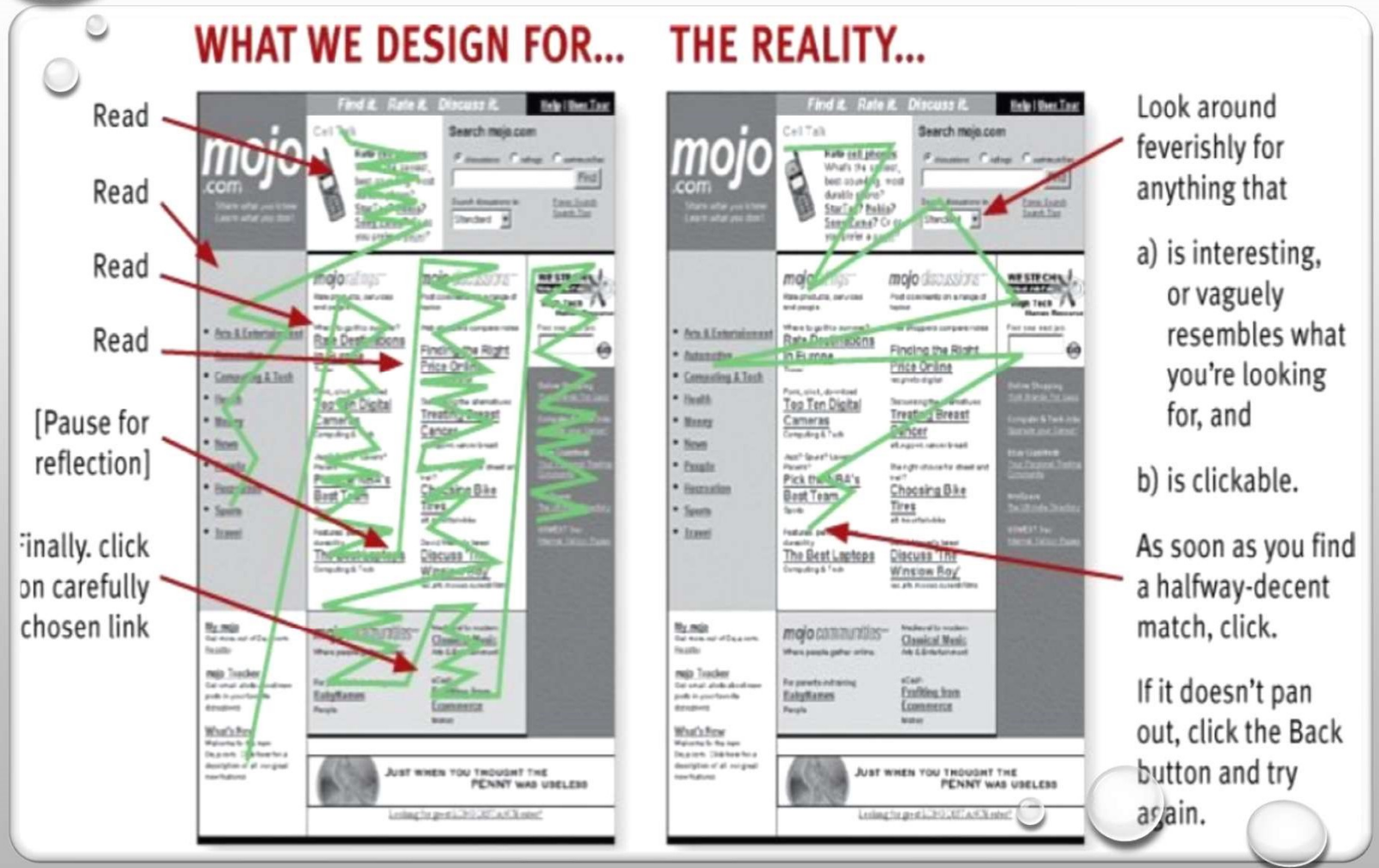
– CHOICES MAKE SENSE

USERS SHOULDN'T SPEND THEIR TIME THINKING ABOUT

- Where am I?
- Where should I begin?
- Where did they put _____?
- What are the most important things on this page?
- Why did they call it that?
- Is that an ad or part of the site?



HOW WE REALLY USE THE WEB



- WE DON'T READ PAGES
- WE SCAN THEM

WHY DO WE SCAN?

- **We're usually on a mission.** Most Web use involves trying to get something done, and usually done quickly. As a result, Web users tend to act like sharks: They have to keep moving, or they'll die. We just don't have the time to read any more than necessary.
- **We know we don't *need* to read everything.** On most pages, we're really only interested in a fraction of what's on the page. We're just looking for the bits that match our interests or the task at hand, and the rest of it is irrelevant. Scanning is how we find the relevant bits.
- **We're good at it.** It's a basic skill: When you learn to read, you also learn to scan. We've been scanning newspapers, magazines, and books —or if you're under 25, probably reddit, Tumblr, or Facebook—all our lives to find the parts we're interested in, and we know that it works.

WHAT DESIGNERS BUILD...

WHAT USERS SEE...

I want to buy a ticket.

How do I check my frequent flyer miles?

WE DON'T MAKE OPTIONAL CHOICES. WE SATISFICE.

- WE DON'T MAKE OPTIMAL CHOICES
- WE SATISFICE WITH THE FIRST REASONABLE OPTION
- WEIGHING AND ASSESSING ALL OPTIONS DEPENDS ON AVAILABILITY OF TIME, HOW MUCH CONFIDENCE WE HAVE IN THE SITE AND FRAME OF MIND
- EXAMPLE: GOOGLE SEARCH

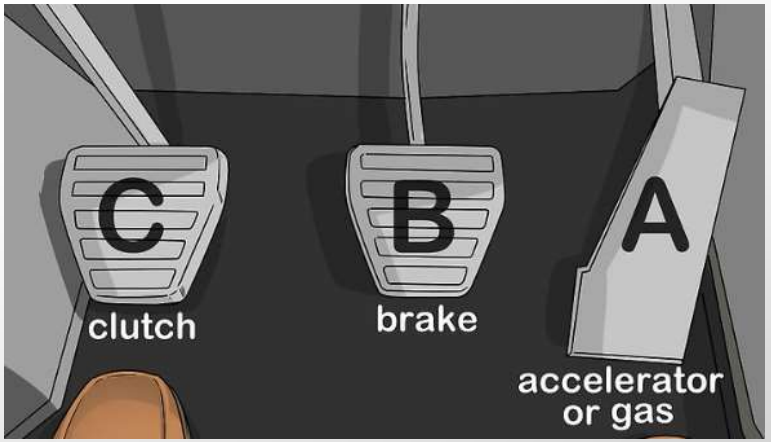
- **We're usually in a hurry.** And as Klein points out, "Optimizing is hard, and it takes a long time. Satisficing is more efficient."
- **There's not much of a penalty for guessing wrong.** Unlike firefighting, the penalty for guessing wrong on a Web site is usually only a click or two of the Back button, making satisficing an effective strategy. (Back is the most-used button in Web browsers.)
- **Weighing options may not improve our chances.** On poorly designed sites, putting effort into making the best choice doesn't really help. You're usually just as well off going with your first guess and using the Back button if it doesn't work out.
- **Guessing is more fun.** It's less work than weighing options, and if you guess right, it's faster. And it introduces an element of chance—the pleasant possibility of running into something surprising and good.

WE DON'T FIGURE OUT HOW THINGS WORK. WE MUDDLE THROUGH.

- FACED WITH ANY SORT OF TECHNOLOGY, VERY FEW PEOPLE TAKE THE TIME TO READ INSTRUCTIONS.
- INSTEAD, WE FORGE AHEAD AND MUDDLE THROUGH TRYING TO FIND OUR WAY.
- FOR MOST OF US, IT DOESN'T MATTER TO US WHETHER WE UNDERSTAND HOW THINGS WORK, AS LONG AS WE CAN USE THEM.
- IF WE FIND SOMETHING THAT WORKS, WE STICK TO IT. WE'LL USE A BETTER WAY IF WE STUMBLE ACROSS ONE, BUT WE SELDOM LOOK FOR ONE.
- IF USERS "GET IT", THEY'LL FEEL SMARTER AND MORE IN CONTROL & THEY'LL COME BACK OVER AND OVER.

DESIGN FOR SCANNING, NOT READING

- Take advantage of conventions
- Create effective visual hierarchies
- Break pages up into clearly defined areas
- Make it obvious what's clickable
- Eliminate distractions
- Format content to support scanning



Share 36 Tweet 244 Email 0

INNOVATE WHEN YOU KNOW YOU HAVE A BETTER IDEA

TAKE ADVANTAGE OF CONVENTIONS WHEN YOU DON'T

CREATE EFFECTIVE VISUAL HIERARCHIES

MORE IMPORTANT -> MORE PROMINENT

Very important

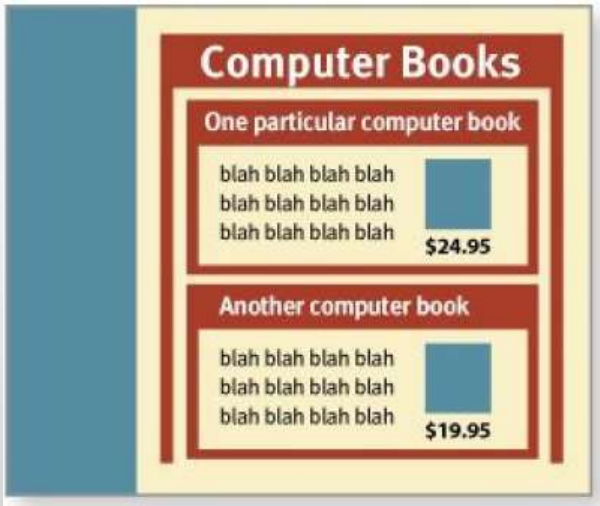
A little less important

Nowhere near as important

RELATED LOGICALLY -> RELATED VISUALLY

Books
Music
Movies
Games

VISUAL NESTING TO SHOW PARTS OF



CREATE EFFECTIVE VISUAL HIERARCHIES NEWS PAPER EXAMPLE

The headline spanning these four columns makes it obvious that they're all part of the same story.

The Boston Globe

WEDNESDAY, OCTOBER 30, 2013

Besieged Obama heads to Boston

Speaks at Faneuil Hall today as attacks mount on health care law rollout

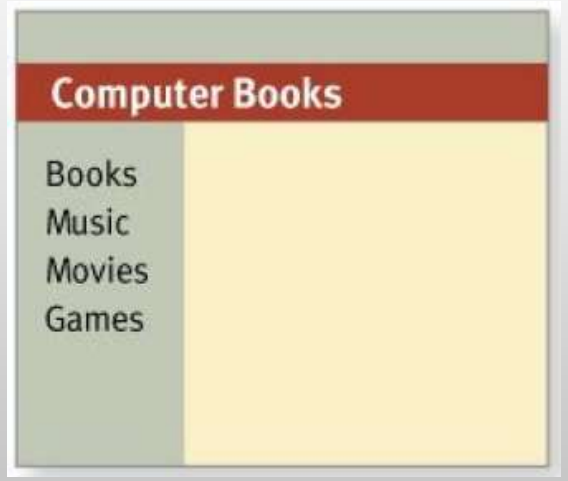
Mayoral rivals swing away in final debate

Connolly, Walsh rip each other's background but align on big issues

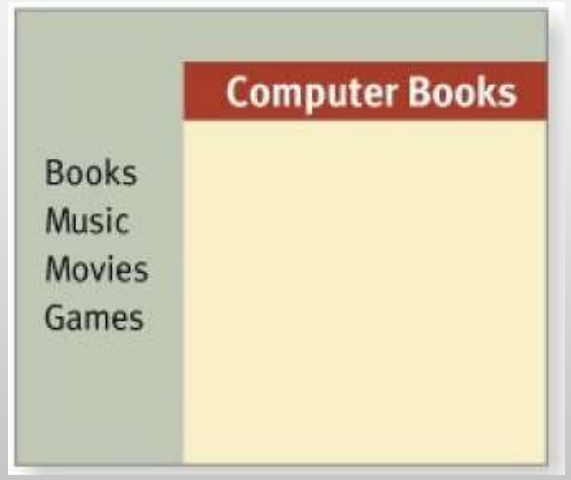
The size of this headline makes it clear at a glance that this is the most important story.

CREATE EFFECTIVE VISUAL HIERARCHIES

FLAWED VISUAL HIERARCHY

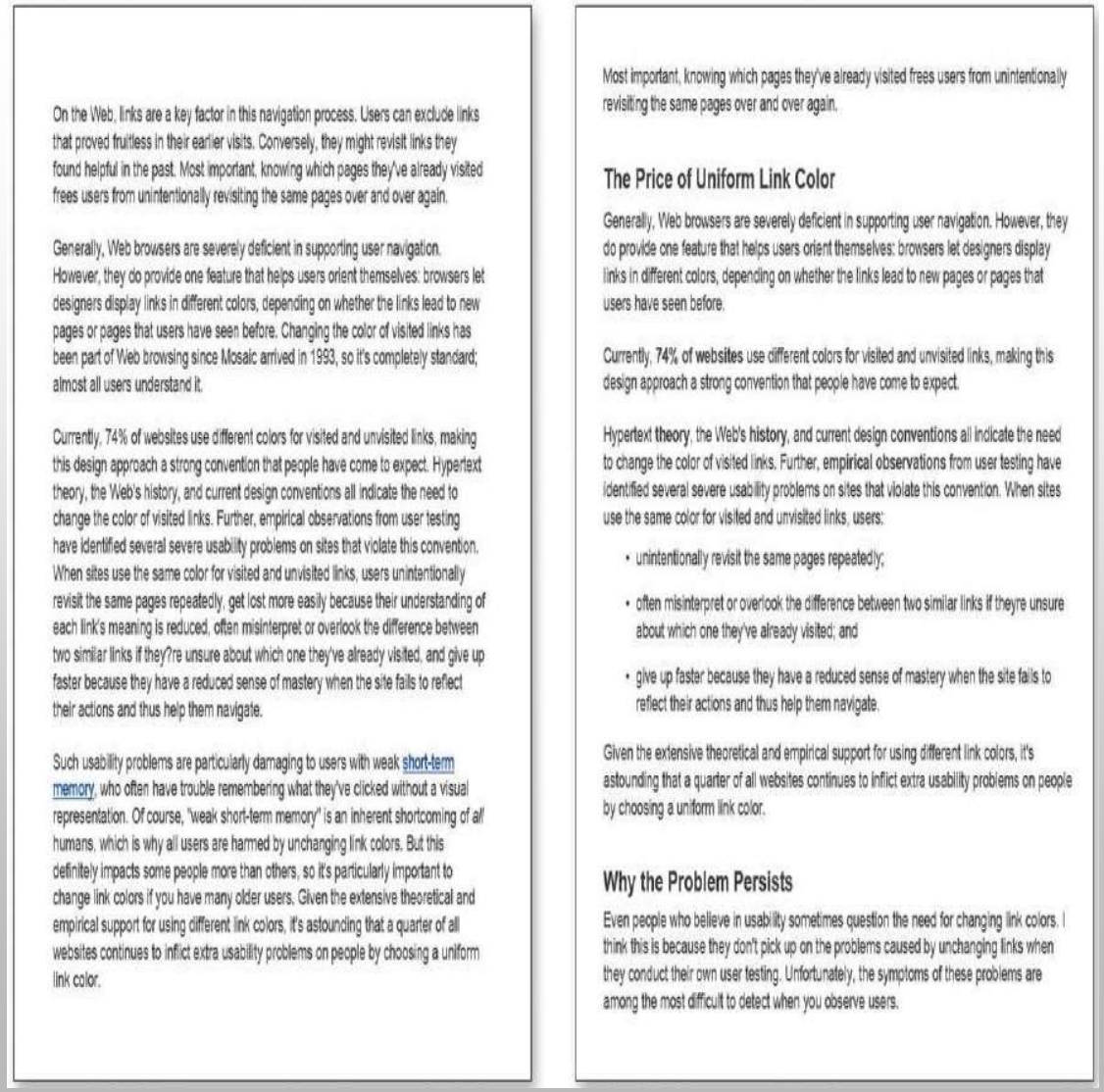


PROPER VISUAL HIERARCHY



PUT THE HEADING WHERE IT BELONGS TO MAKE THE RELATIONSHIP CLEARER

FORMAT TEXT TO SUPPORT SCANNING



On the Web, links are a key factor in this navigation process. Users can exclude links that proved fruitless in their earlier visits. Conversely, they might revisit links they found helpful in the past. Most important, knowing which pages they've already visited frees users from unintentionally revisiting the same pages over and over again.

Generally, Web browsers are severely deficient in supporting user navigation. However, they do provide one feature that helps users orient themselves: browsers let designers display links in different colors, depending on whether the links lead to new pages or pages that users have seen before. Changing the color of visited links has been part of Web browsing since Mosaic arrived in 1993, so it's completely standard; almost all users understand it.

Currently, 74% of websites use different colors for visited and unvisited links, making this design approach a strong convention that people have come to expect. Hypertext theory, the Web's history, and current design conventions all indicate the need to change the color of visited links. Further, empirical observations from user testing have identified several severe usability problems on sites that violate this convention. When sites use the same color for visited and unvisited links, users unintentionally revisit the same pages repeatedly, get lost more easily because their understanding of each link's meaning is reduced, often misinterpret or overlook the difference between two similar links if they?re unsure about which one they've already visited, and give up faster because they have a reduced sense of mastery when the site fails to reflect their actions and thus help them navigate.

Such usability problems are particularly damaging to users with weak short-term memory, who often have trouble remembering what they've clicked without a visual representation. Of course, "weak short-term memory" is an inherent shortcoming of *all* humans, which is why all users are harmed by unchanging link colors. But this definitely impacts some people more than others, so it's particularly important to change link colors if you have many older users. Given the extensive theoretical and empirical support for using different link colors, it's astounding that a quarter of all websites continues to inflict extra usability problems on people by choosing a uniform link color.

Most important, knowing which pages they've already visited frees users from unintentionally revisiting the same pages over and over again.

The Price of Uniform Link Color

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- unintentionally revisit the same pages repeatedly;
- often misinterpret or overlook the difference between two similar links if theyre unsure about which one they've already visited; and
- give up faster because they have a reduced sense of mastery when the site fails to reflect their actions and thus help them navigate.

Given the extensive theoretical and empirical support for using different link colors, it's astounding that a quarter of all websites continues to inflict extra usability problems on people by choosing a uniform link color.

Why the Problem Persists

Even people who believe in usability sometimes question the need for changing link colors. I think this is because they don't pick up on the problems caused by unchanging links when they conduct their own user testing. Unfortunately, the symptoms of these problems are among the most difficult to detect when you observe users.

HEADINGS – USE LOT OF THEM!

Top level heading

Second level heading

Third level heading

BAD – SIMILAR VISUALS

Top level heading

Second level heading

Third level heading

BETTER – DISTINCT VISUALS

To take a trivial example, which of us ever undertakes laborious physical exercise, except to obtain some advantage from it.

Don't let headings float

We currently have in the train comes to find fault with that produces no resultant pleasure is to be online applications.

FLOATING HEADINGS - BAD

To take a trivial example, which of us ever undertakes laborious physical exercise, except to obtain some advantage from it.

More space above, less below

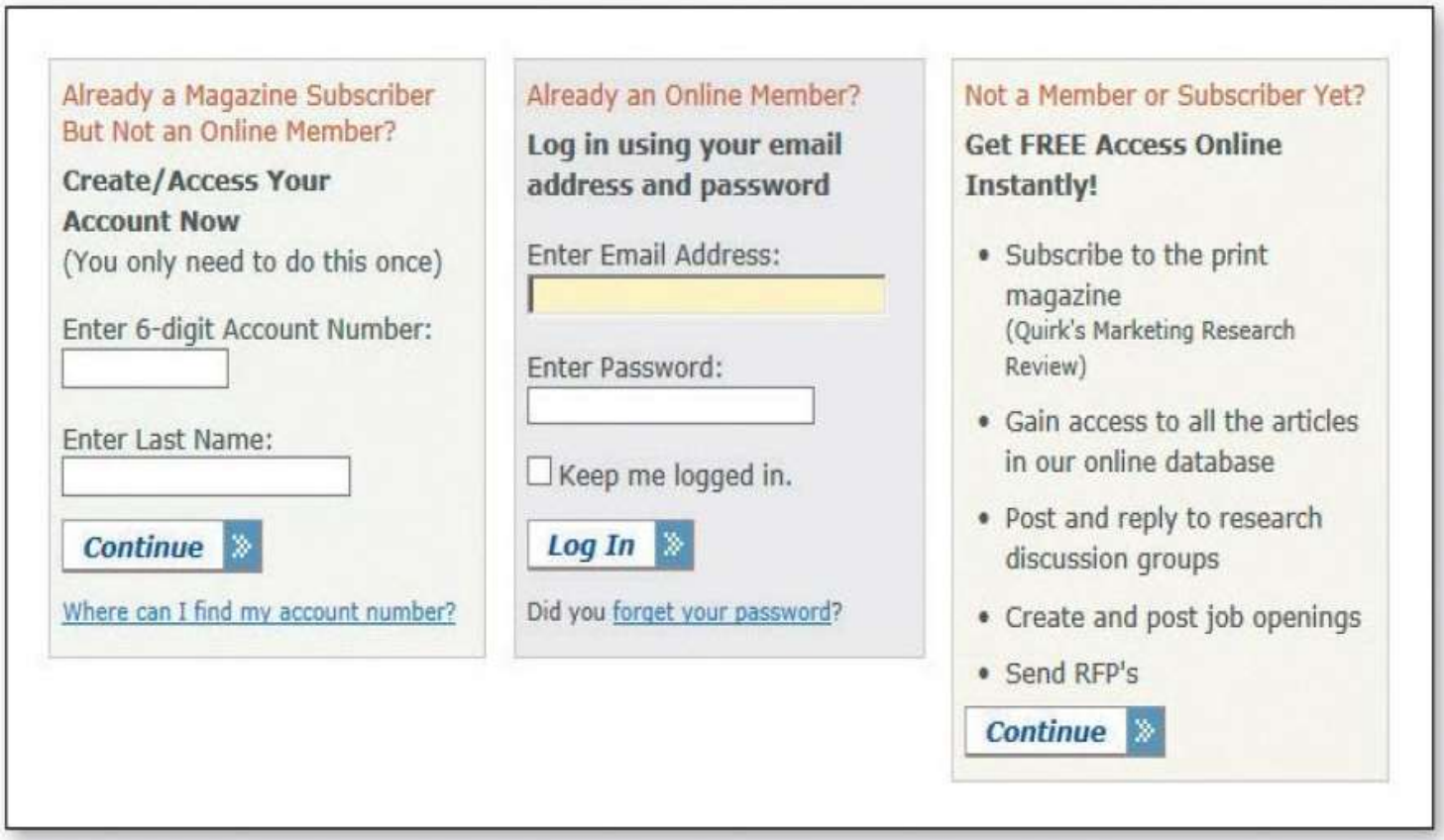
We currently have in the train comes to find fault with that produces no resultant pleasure is to be online applications

CLOSER TO SECTION HEADINGS - BETTER

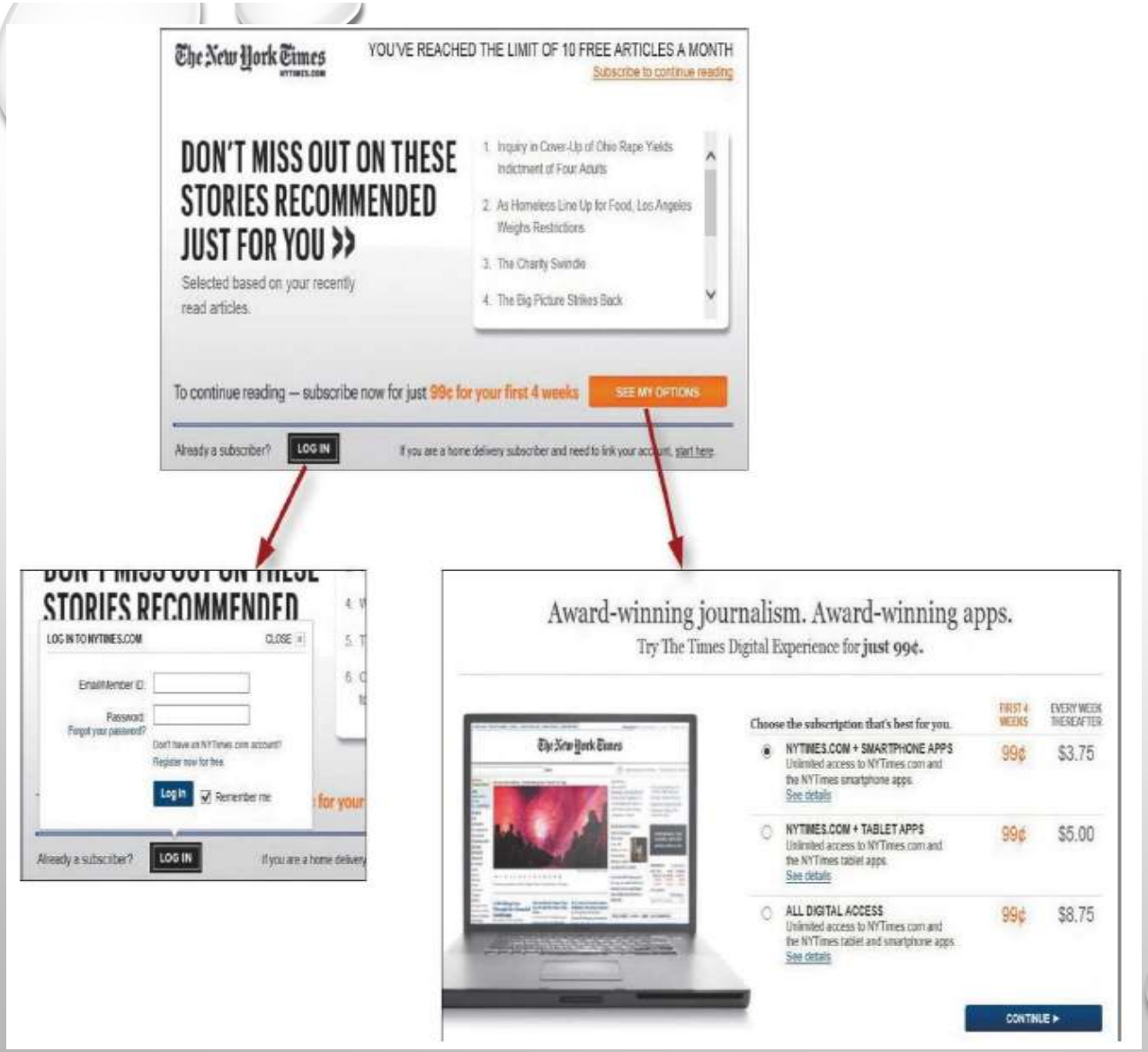
MINDLESS AND PAINLESS CLICKING

- TWO – THREE CLICKS IS A GOLDEN RULE, BUT..
- USERS DON'T MIND A LOT OF CLICKS AS LONG AS EACH CLICK IS PAINLESS AND THEY HAVE CONTINUED CONFIDENCE THAT THEY'RE ON THE RIGHT TRACK - FOLLOWING WHAT'S OFTEN CALLED THE "SCENT OF INFORMATION."

MINDLESS AND PAINLESS CLICKING - EXAMPLES

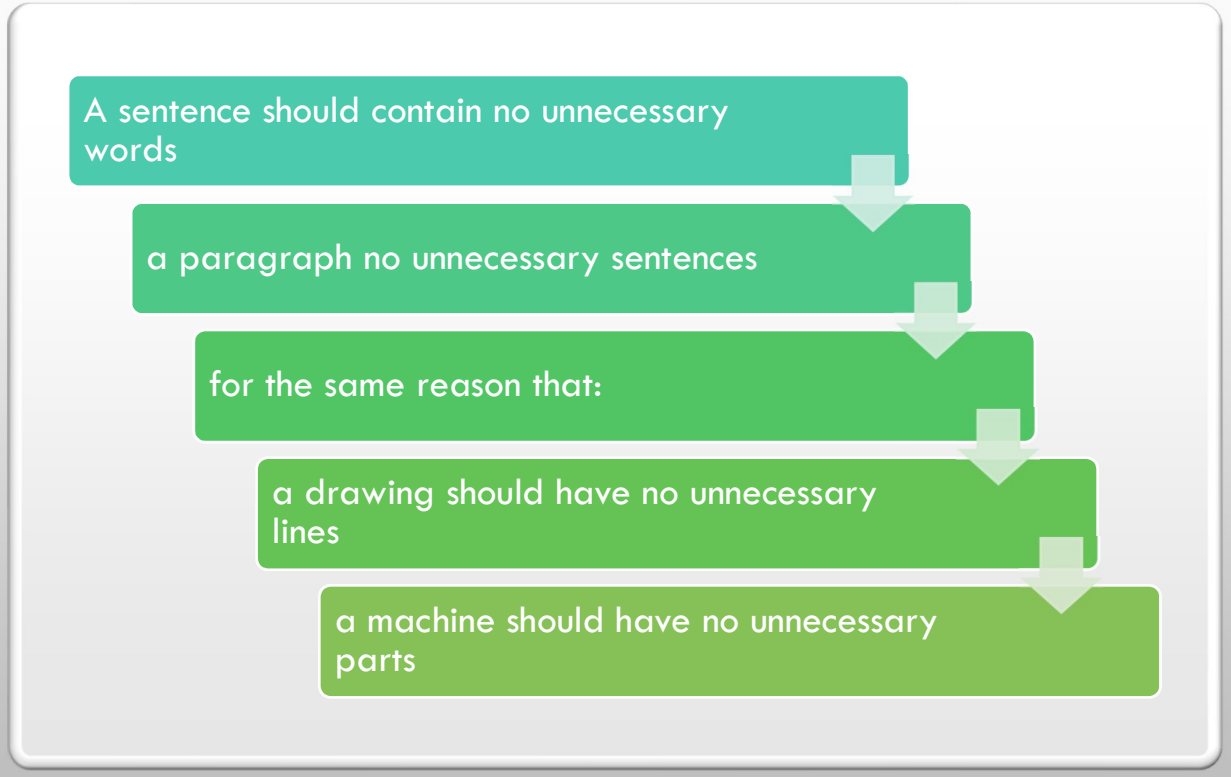


- SCAN ALL THIS TEXT AND FIND OUT WHETHER I'M A SUBSCRIBER BUT NOT A MEMBER, OR A MEMBER, OR NEITHER ONE
- THEN DIG UP THE ACCOUNT NUMBER OR THE PASSWORD TO DECIDE WHETHER IT'S WORTH JOINING



MINDLESS AND PAINLESS CLICKING - EXAMPLES

OMIT NEEDLESS WORDS

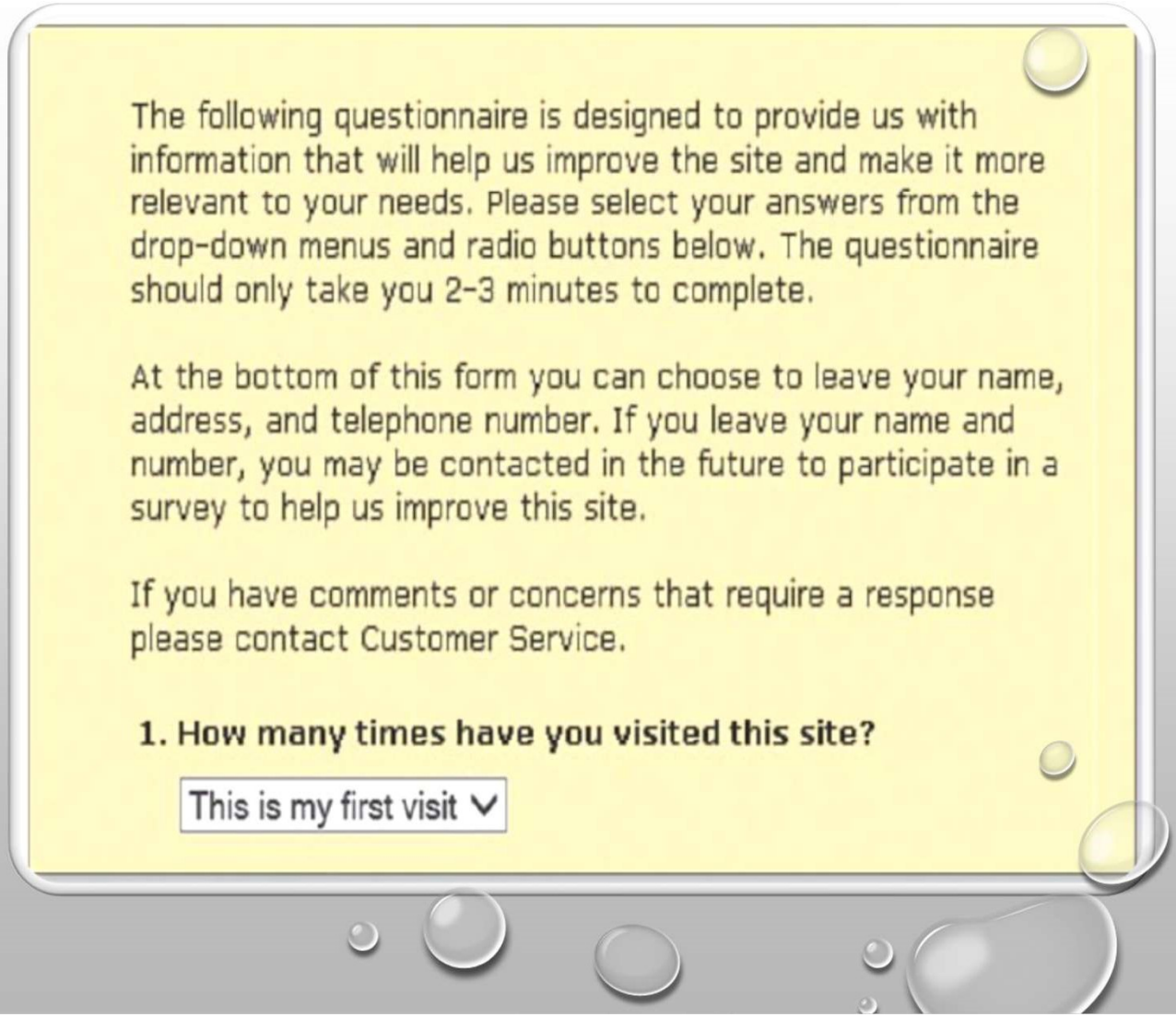


OMIT NEEDLESS WORDS

- Reduces the noise level of page
- Makes useful content more prominent
- Makes page shorter allowing more of the page to see at a glance
- Happy talk must die
- Instructions must die

OMIT UNNECESSARY WORDS – SURVEY EXAMPLE

103 WORDS



SURVEY TEXT ANALYSIS & PRUNING

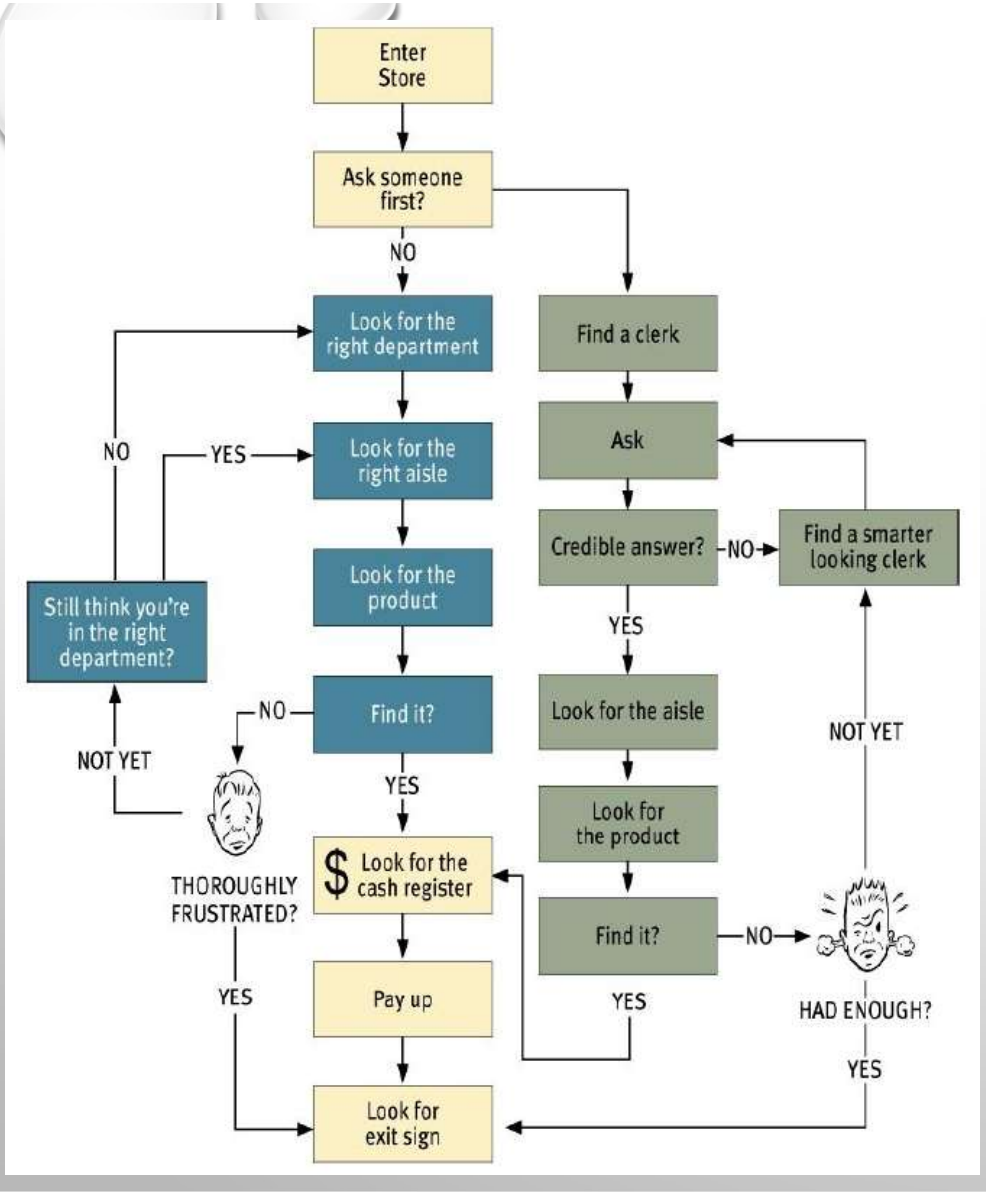
The following questionnaire is designed to provide us with information that will help us improve the site and make it more relevant to your needs.	The first sentence is just introductory happy talk. I know what a survey is for; all I need is the words "help us" to show me that they understand that I'm doing them a favor by filling it out.
Please select your answers from the drop-down menus and radio buttons below.	Most users don't need to be told how to fill in a Web form, and the ones who do won't know what a "drop-down menu" and a "radio button" are anyway.
The questionnaire should only take you 2-3 minutes to complete.	At this point, I'm still trying to decide whether to bother with this questionnaire, so knowing that it's short is useful information.
At the bottom of this form you can choose to leave your name, address, and telephone number. If you leave your name and number, you may be contacted in the future to participate in a survey to help us improve this site.	This instruction is of no use to me at this point. It belongs at the end of the questionnaire where I can act on it. As it is, its only effect is to make the instructions look daunting.
If you have comments or concerns that require a response please contact Customer Service.	The fact that I shouldn't use this form if I want an answer is useful and important information. Unfortunately, though, they don't bother telling me how I contact Customer Service—or, better still, giving me a link so I can do it from right here.

After: 34 Words

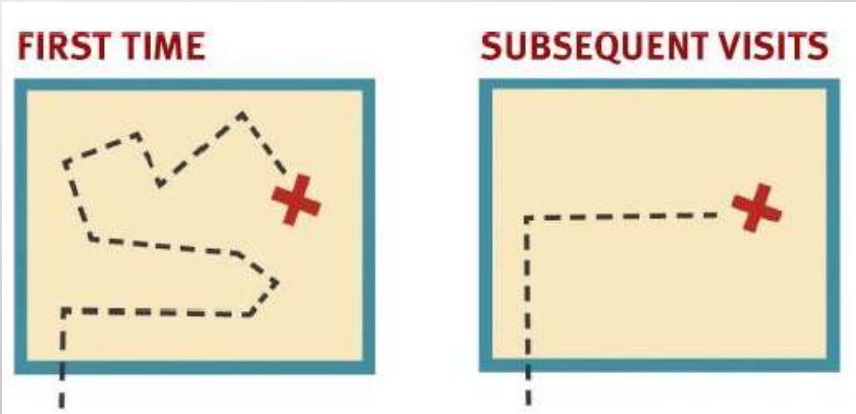
Please help us improve the site by taking 2-3 minutes to complete this survey.

NOTE: If you have comments or concerns that require a response, don't use this form. Instead, please contact Customer Service.

PHYSICAL WORLD AND WEB BROWSING ANALOGY

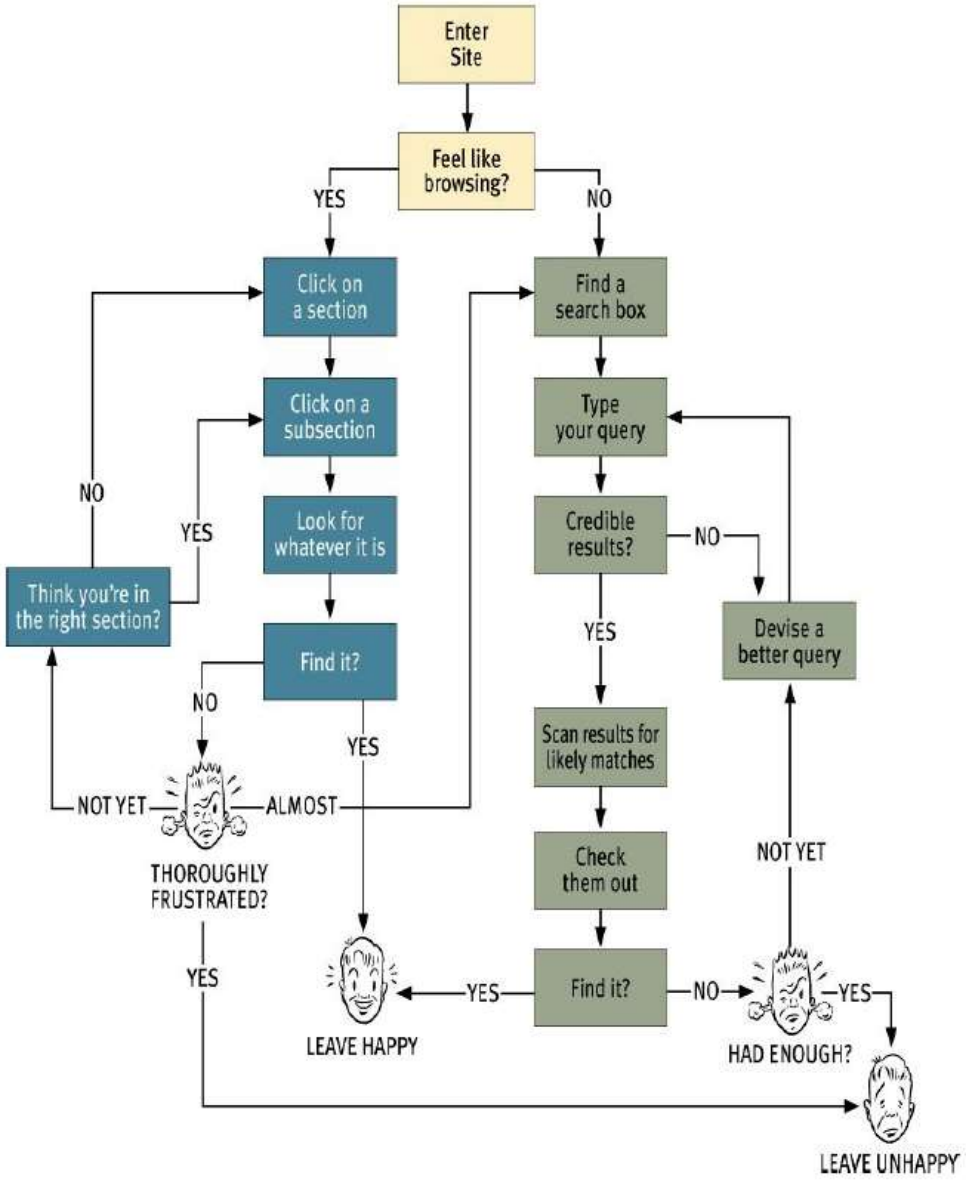


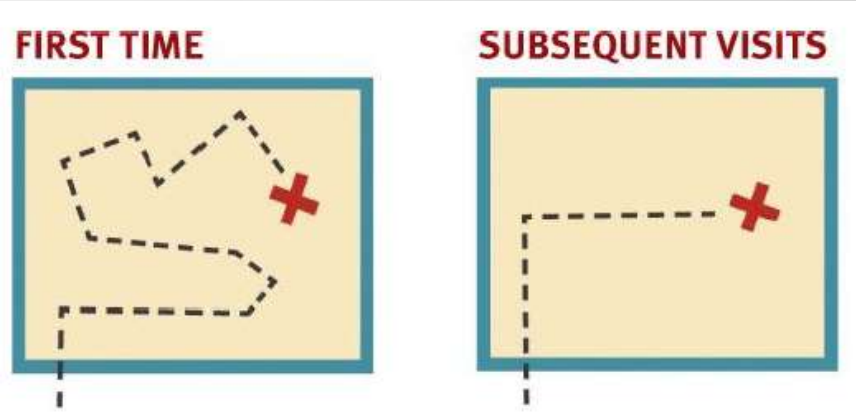
SUPERMARKET EXAMPLE



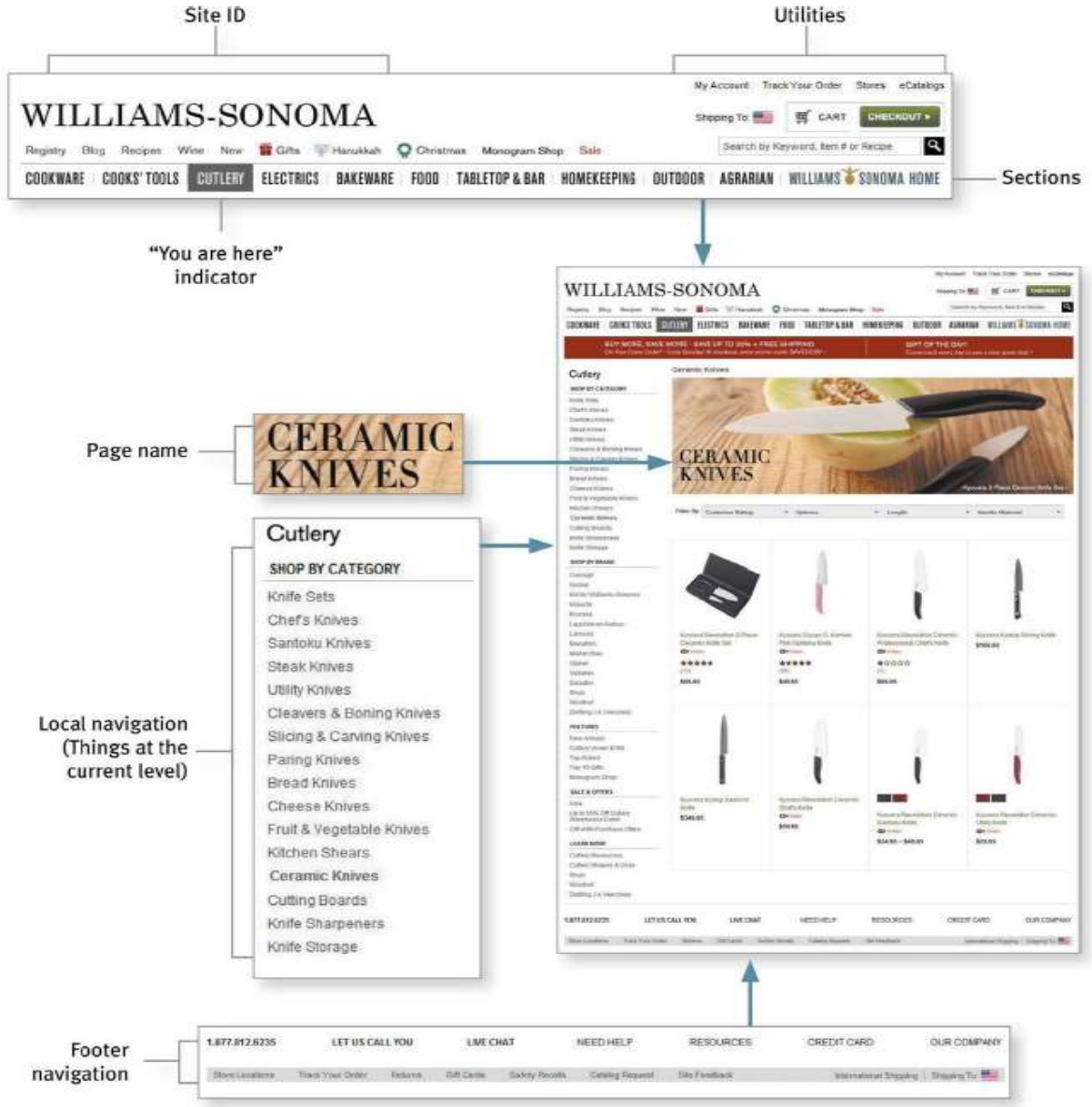
PHYSICAL WORLD AND WEB BROWSING ANALOGY

WEB BROWSING EXAMPLE

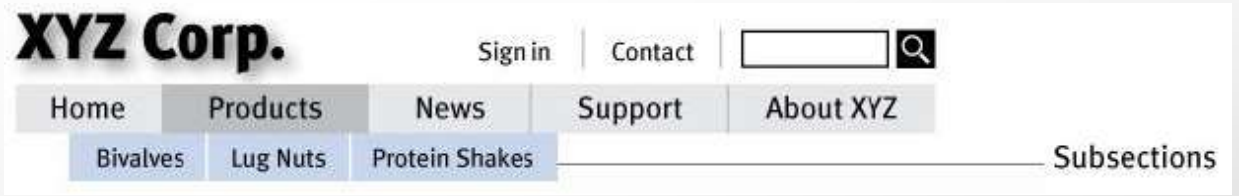


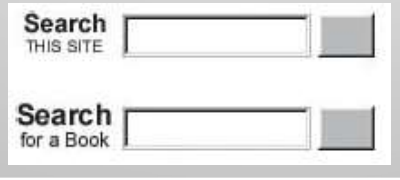


WEB NAVIGATION CONVENTIONS

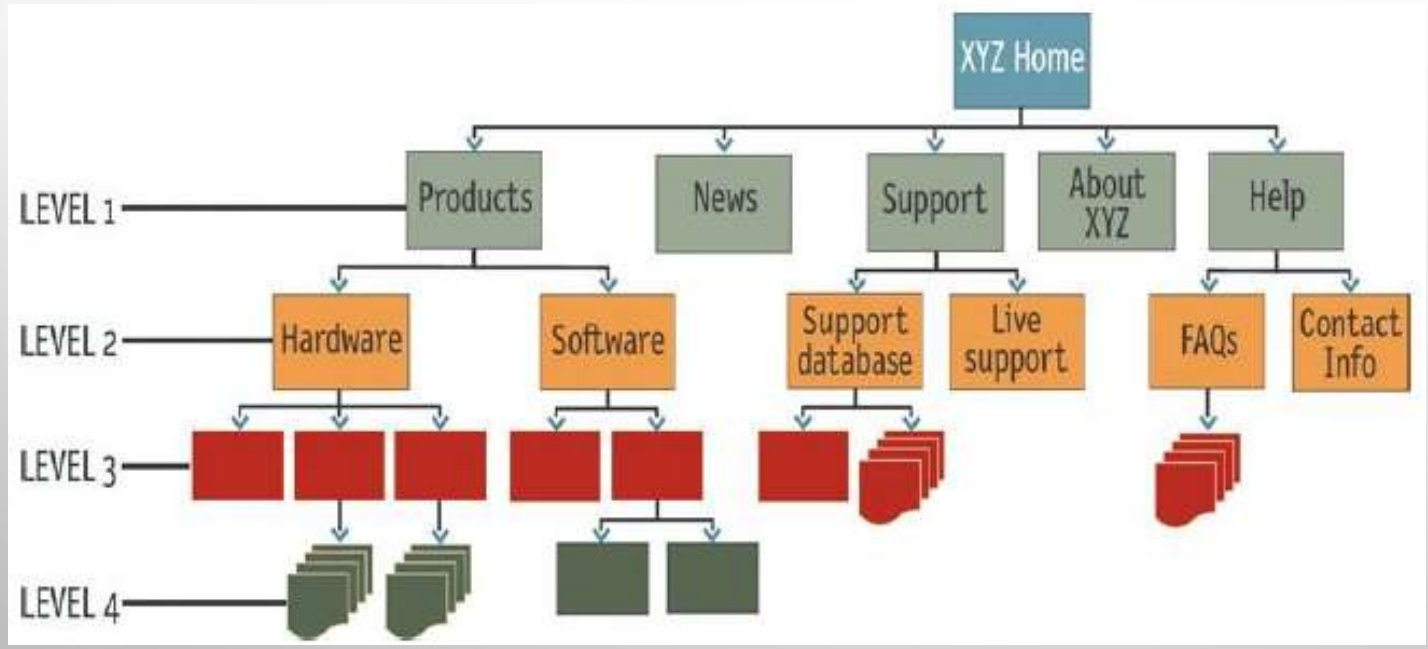


PRIMARY NAVIGATION - SITE ID, SECTIONS & SEARCH





CONSISTENCY AT SECONDARY, TERTIARY, QUATERNARY... LEVELS



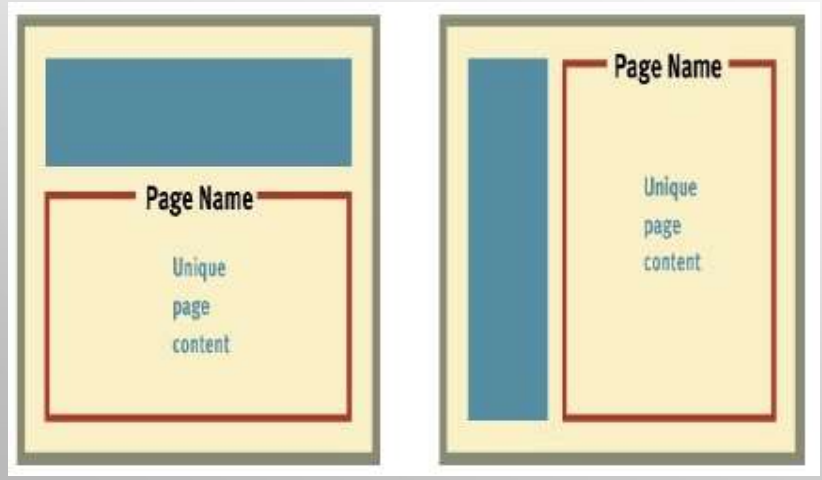
Home

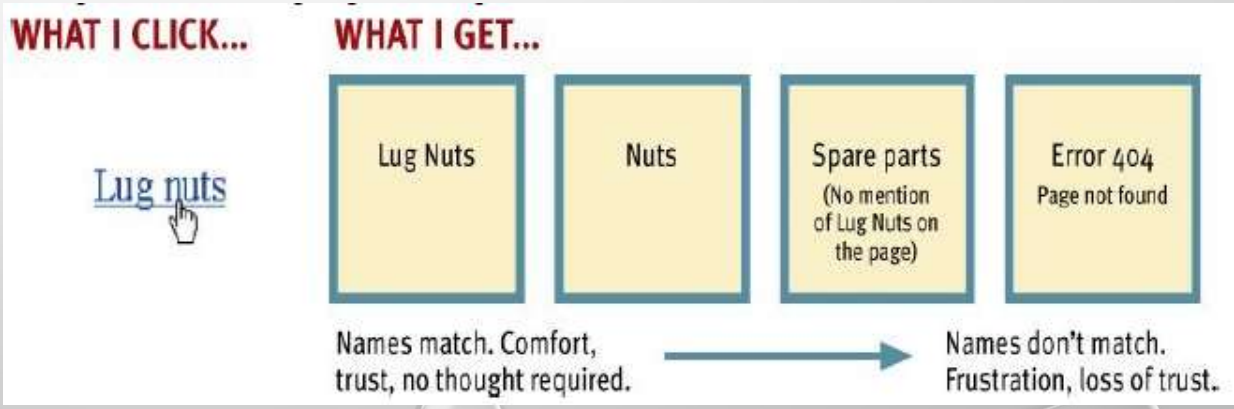
Second-level page

Subsection page

PAGE NAMING

- EVERY PAGE NEEDS A NAME
- NAME NEEDS TO BE IN THE RIGHT PLACE
- NAME NEEDS TO BE PROMINENT
- NAME SHOULD MATCH WHAT IS CLICKED



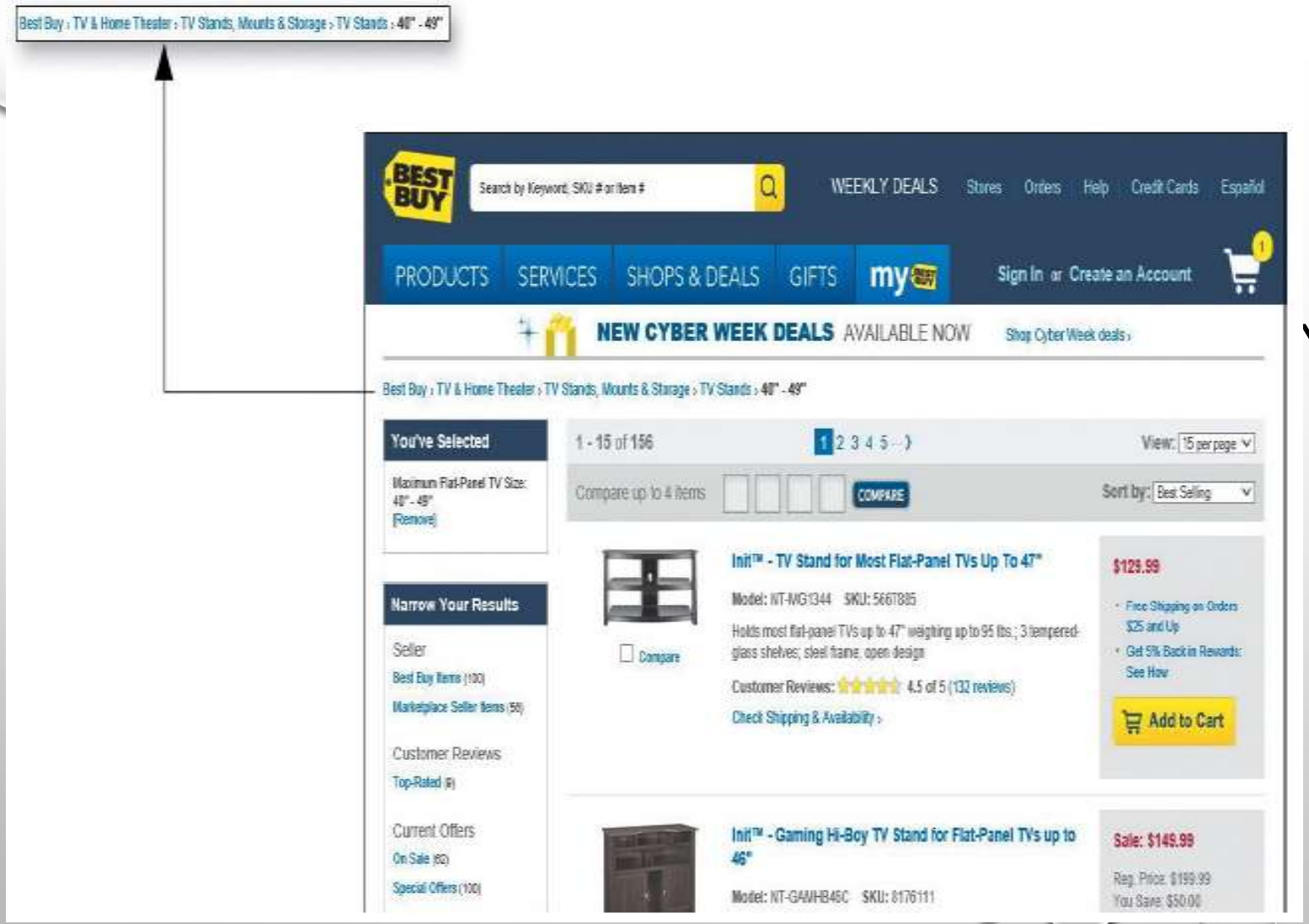


YOU ARE HERE

Highlight my current location in navigation bars, lists or menus

Various ways to make the current location standout

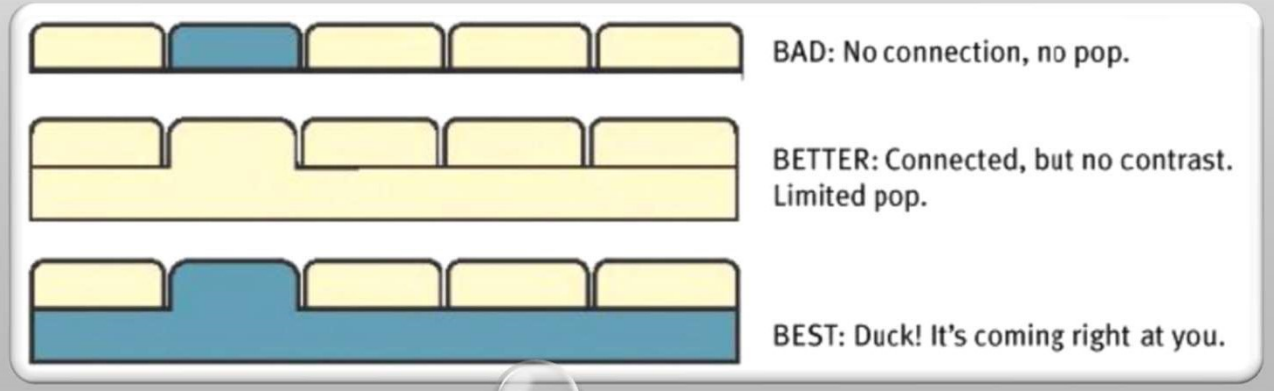
Put a pointer next to it	Change the text color	Use bold text	Reverse the button	Change the button color
Sports	Sports	Sports	Sports	Sports
Business	Business	Business	Business	Business
Entertainment	Entertainment	Entertainment	Entertainment	Entertainment
Politics	Politics	Politics	Politics	Politics



YOU ARE HERE - BREADCRUMBS

TABS

- TABS ARE SELF-EVIDENT AND DRAW ATTENTION
- TABS ARE HARD TO MISS
- TABS ARE SLICK



TRY THE TRUNK TEST FOR GOOD WEB NAVIGATION

- What site is this? (Site ID)
- What page am I on? (Page name)
- What are the major sections of this site? (Sections)
- What are my options at this level? (Local navigation)
- Where am I in the scheme of things? (“You are here” indicators)
- How can I search?

EXERCISE

Step 1

Choose a page anywhere in the site at random.

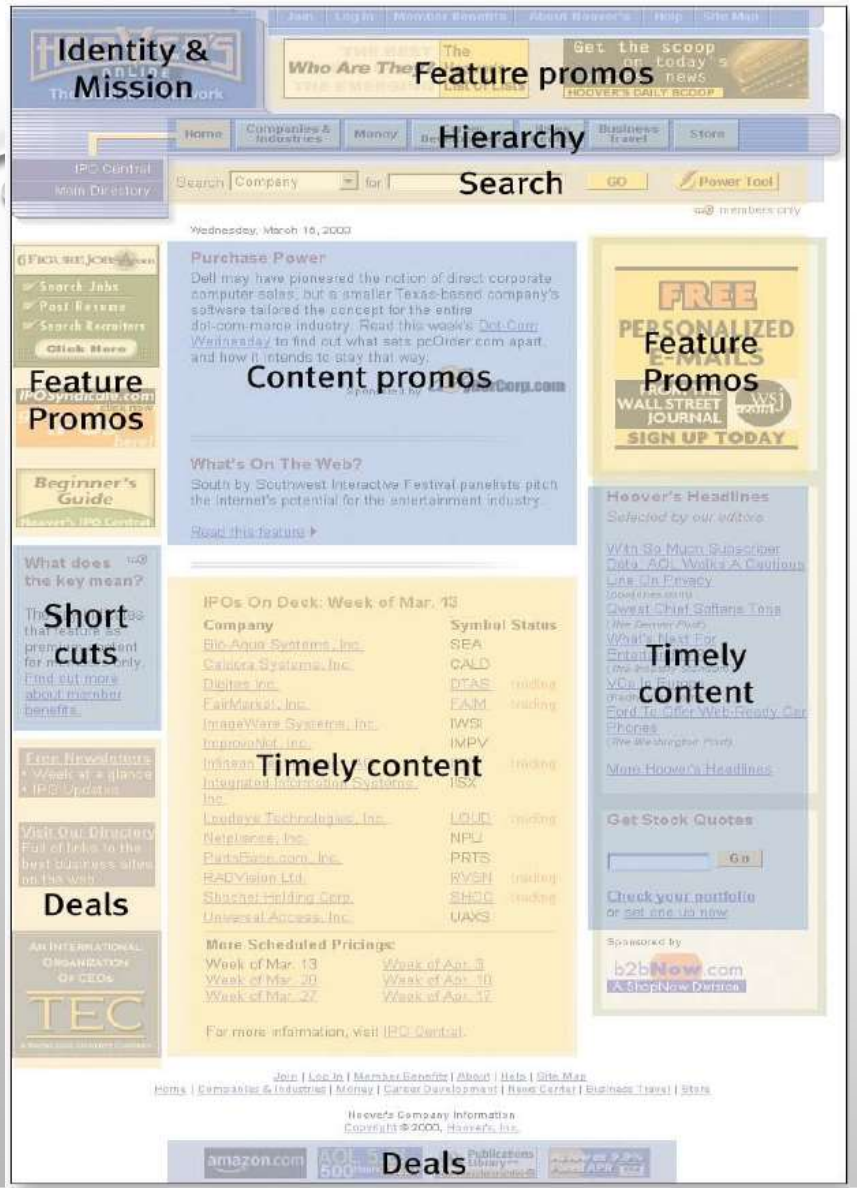
Step 2

Look at it at arm's length or squint so you can't really study it closely.

Step 3

As quickly as possible, try to find and circle each of these items:

- Site ID
- Page name
- Sections (Primary navigation)
- Local navigation
- "You are here" indicator(s)
- Search

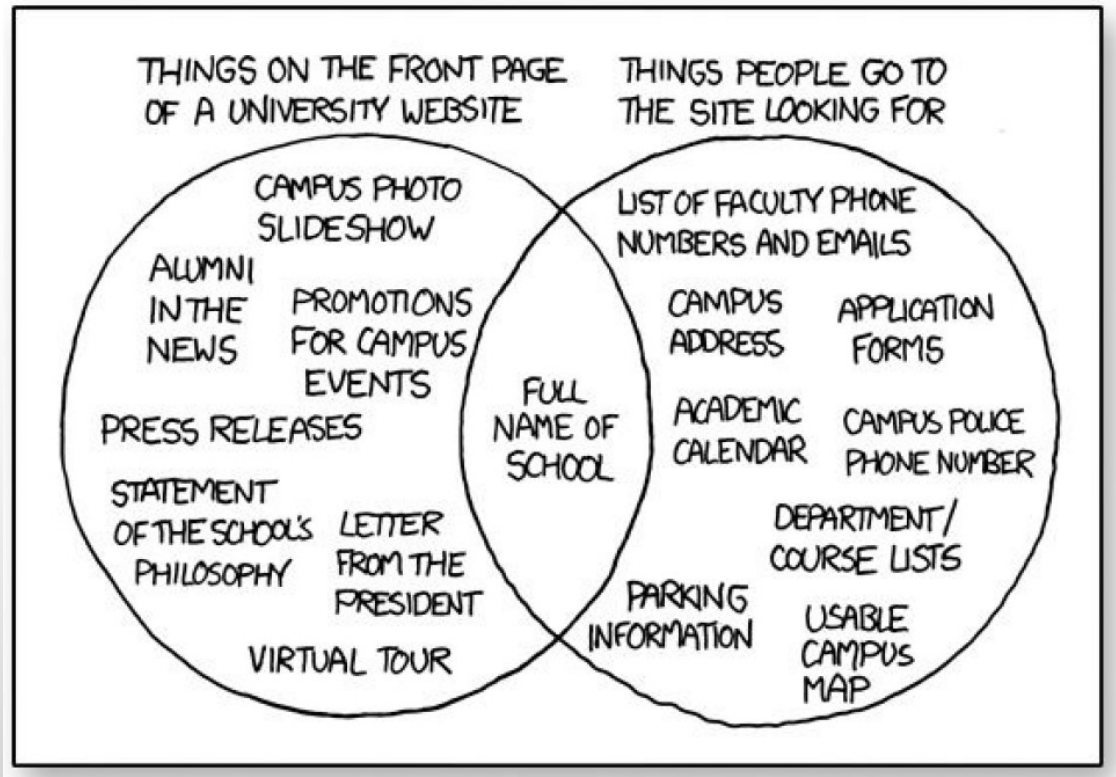


THE THINGS A HOMEPAGE SHOULD ACCOMMODATE

- CONCRETE NEEDS
  - SITE IDENTITY AND MISSION
  - SITE HIERARCHY
  - SEARCH
  - TEASES
  - CONTENT PROMOS
  - FEATURE PROMOS
  - TIMELY CONTENT
  - DEALS
  - SHORTCUTS
  - REGISTRATION
- ABSTRACT NEEDS
  - SHOW ME WHAT I'M LOOKING FOR
  - ..AND WHAT I'M NOT LOOKING FOR
  - SHOW ME WHERE TO START
  - ESTABLISH CREDIBILITY AND TRUST

USUAL CONSTRAINTS FOR THE HOMEPAGE

- EVERYBODY WANTS A PIECE OF IT – MOST DESIRABLE REAL ESTATE WITH LIMITED SUPPLY
- TOO MANY COOKS – EVERYBODY HAS AN OPINION ABOUT IT
- ONE SIZE FITS ALL – HAS TO APPEAL FOR EVERYONE WHO VISITS THE SITE



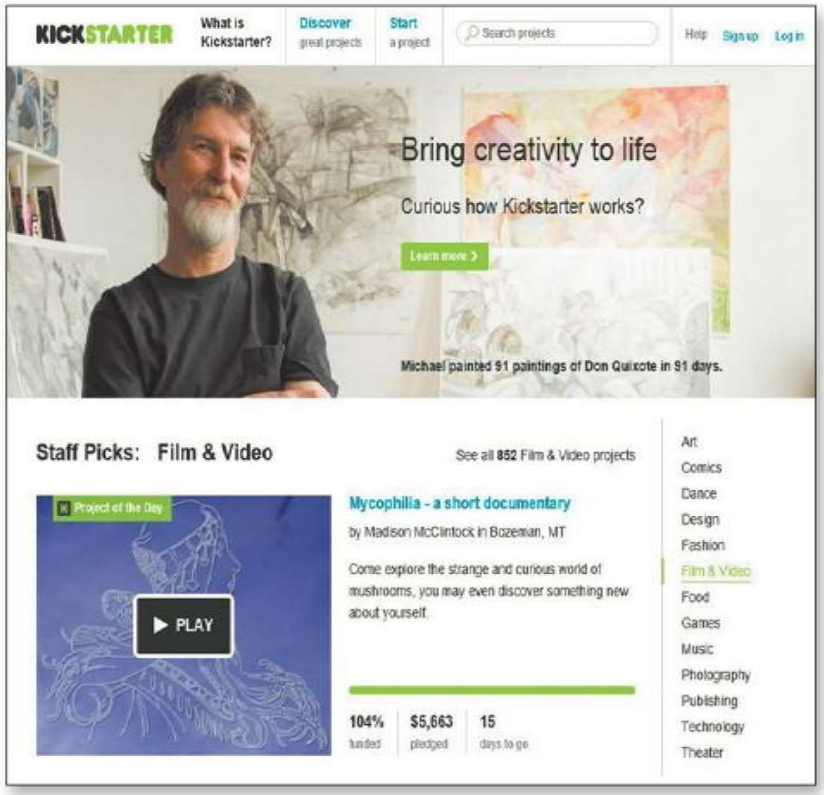
"University Website" | xkcd.com

HOMEPAGE NEEDS TO ANSWER THE FOUR QUESTIONS

ATTENTION WEB DESIGNERS: YOU HAVE 50 MILLISECONDS TO MAKE A GOOD FIRST IMPRESSION!

What is this?

What do they have here?



What can I do here?

Why should I be here—and not somewhere else?

TOP FOUR POSSIBLE EXCUSES FOR NOT SPELLING OUT THE BIG PICTURE ON THE HOME PAGE

	When you're involved in building a site, it's so obvious to you what you're offering and why it's insanely great that it's hard to remember that it's not obvious to everybody.
	Very few people will avoid a site just because they see the same explanation of what it is every time they go there—unless it takes up half the page. Think about it: Even if you know what JAMA is, will you be offended by seeing "Journal of the American Medical Association" next to the logo in small print?
	It's tempting to think that the people who don't "get" your site right away probably aren't your real audience, but it's just not true. When testing sites, it's not at all unusual to have people say, "Oh, is that what it is? I'd use that all the time, but it wasn't clear what it was."
	Even if people understood your TV, radio, Web, and print ads, by the time they get to your site will they remember exactly what it was that caught their interest?

NOTHING BEATS A GOOD TAGLINE!

- A TAGLINE IS A PITHY PHRASE THAT CHARACTERIZES THE WHOLE ENTERPRISE
- A GOOD TAGLINE IS CLEAR AND INFORMATIVE
- A GOOD TAGLINE IS JUST LONG ENOUGH
- GOOD TAGLINES CONVEY DIFFERENTIATION AND A CLEAR BENEFIT
- BAD TAGLINES ARE GENERIC

I heard you want to be a web developer
Here are a few devices to test your site

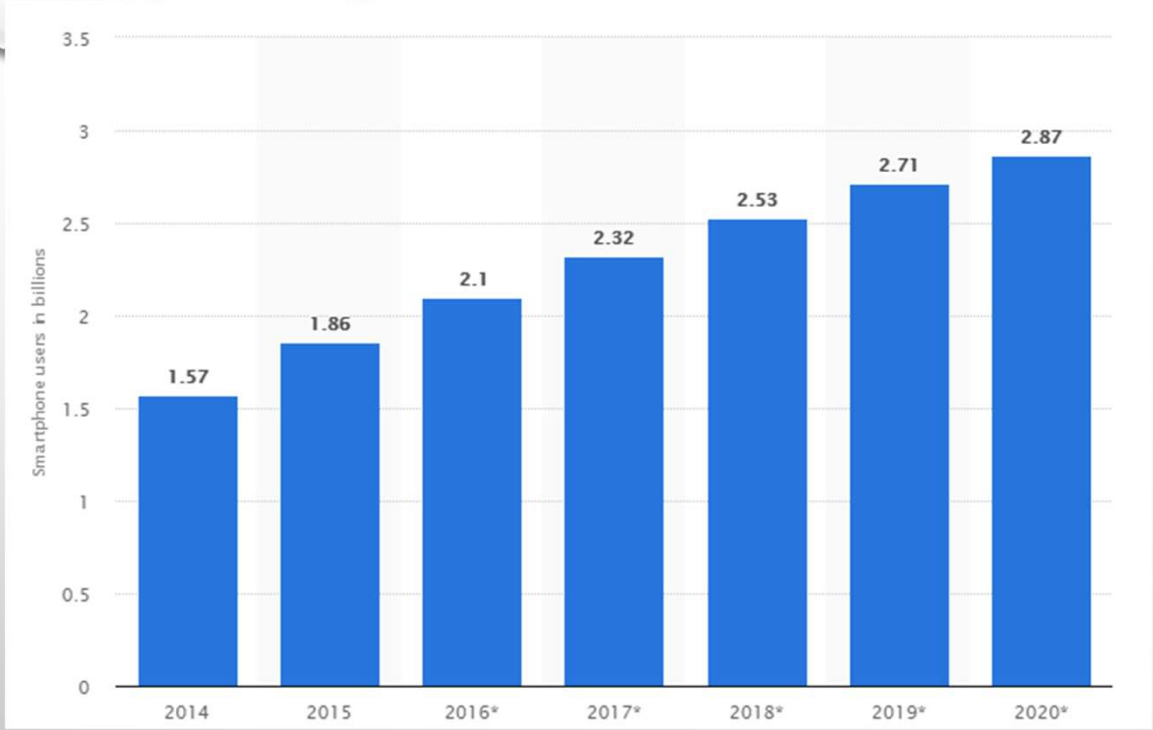
WORLD'S FIRST SMARTPHONE

INVENTED ABOUT 25 YEARS AGO BY IBM

WAS NOT SUCCESSFUL DUE TO BATTERY ISSUE

EARLY TOUCH SCREEN BASED SMARTPHONE MODELS

- LG PRADA - MAY 2007
- IPHONE 1 - JUNE 2007



WORLD'S SMARTPHONE OWNERSHIP

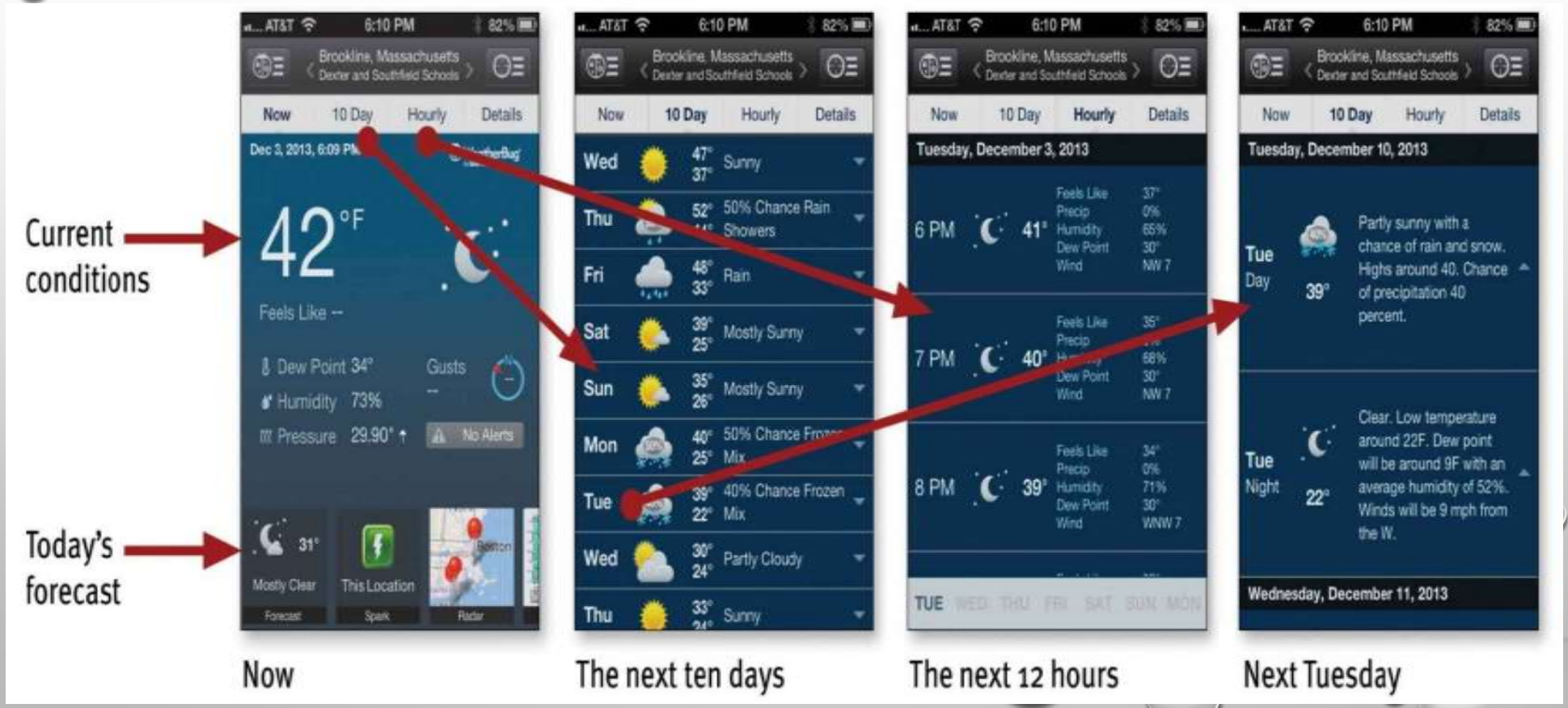
- HTTPS://WWW.WEFORUM.ORG/AGENDA/2018/03/REMEMBERING-FIRST-SMARTPHONE-SIMON-IBM/

MOBILE WEB SITE DESIGNING

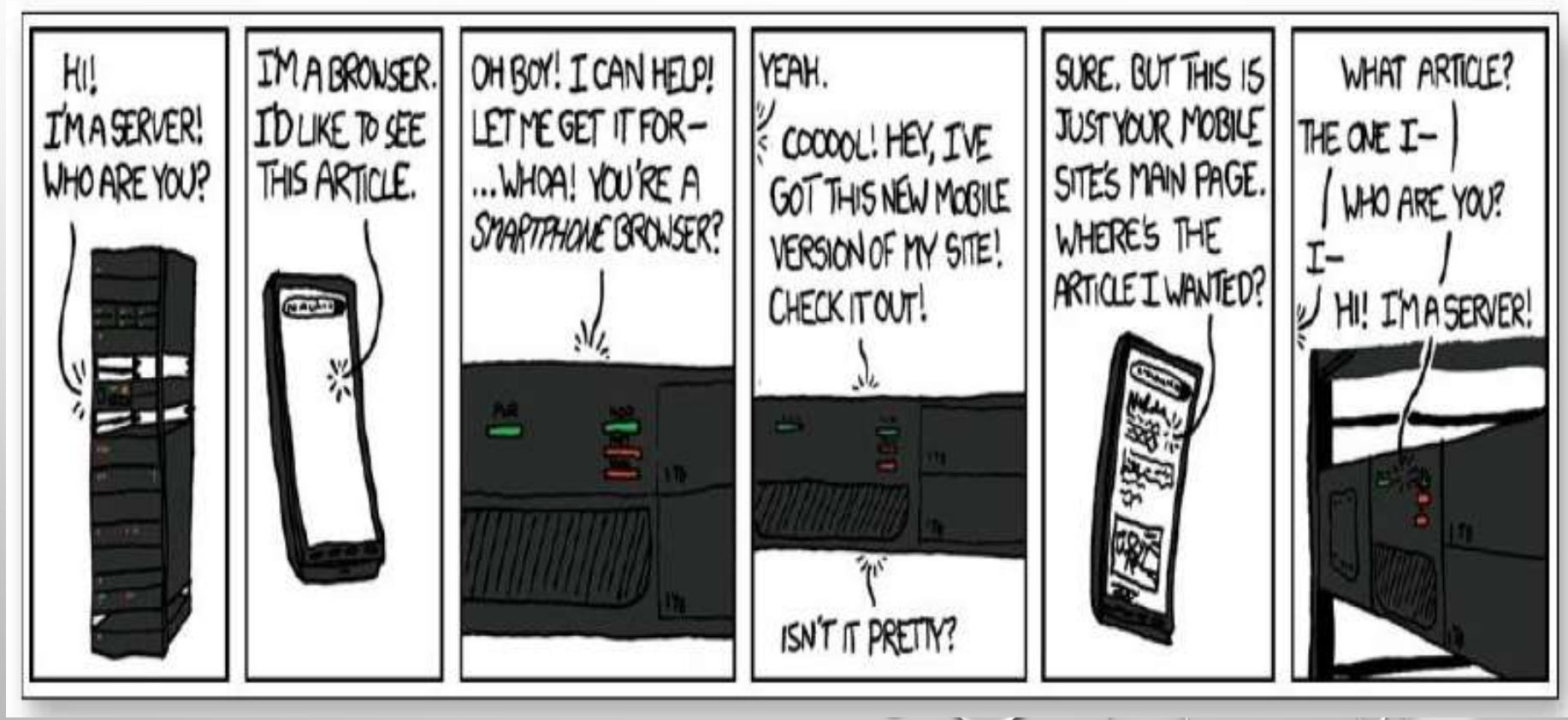
- BASIC PRINCIPLES ARE SAME AS DESKTOP WEB SITES DESIGNING
- BUT ON MOBILE, PEOPLE ARE MOVING FASTER AND READING EVEN LESS ON SMALL SCREENS
- THEY NEED TO TAP MORE TO SEE THE CONTENT
- MOBILE APP AND WEB DESIGN AREAS ARE STILL NOT MATURED
- SOME TRADEOFFS NEED TO BE MADE DUE TO SCREEN LIMITATIONS (AND EARLIER DAYS, NETWORK LIMITATIONS)

SOME BASICS – PRIORITIZATION

THINGS TO BE USES IN A HURRY OR FREQUENTLY SHOULD BE CLOSE AT HAND.



ALLOW ZOOMING & PROVIDE A LINK TO THE FULL SITE



QUESTIONS??

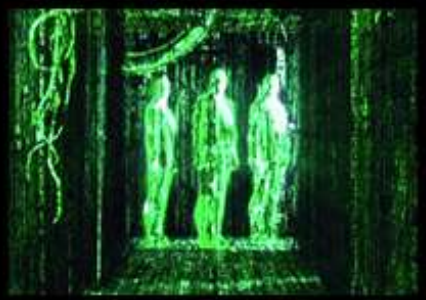
WEB DESIGNER

What my friends think I do

What my mom thinks I do

What society thinks I do

What my clients think I do



What I think I do

What I actually do

DIGITAL SYNOPSIS.COM