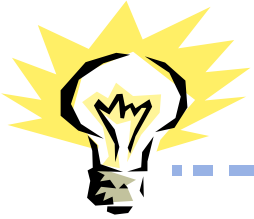


# International(ization/isation) Issues

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Think Globally, Act Universally

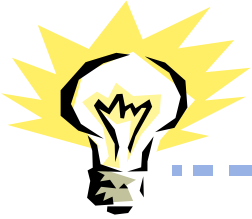
Hat tip to Jim Foley for many of these slides.



# Globalization Outline

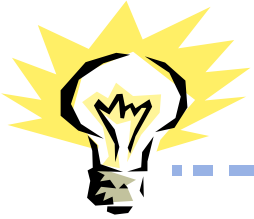
---

- What are the issues
- Bad Examples
- Why Important
- Principles
- How to Do It – Tools, Lifecycle
- WWW
- Resources



## Some of the Issues

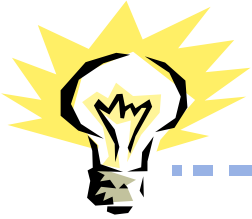
- Special characters – e.g. ä, ñ, ø (and sort order)
- Left-to-right versus right-to-left
- Date and time formats
- Numeric and currency formats
- Weights and measures
- Telephone numbers and addresses
- Names and titles (Mr., Ms., Mme.)
- ID numbers
- Capitalization and punctuation
- Sorting sequences
- Icons, buttons, colors
- Pluralization, grammar, spelling
- Culture, Etiquette, policies, tone, formality, metaphors



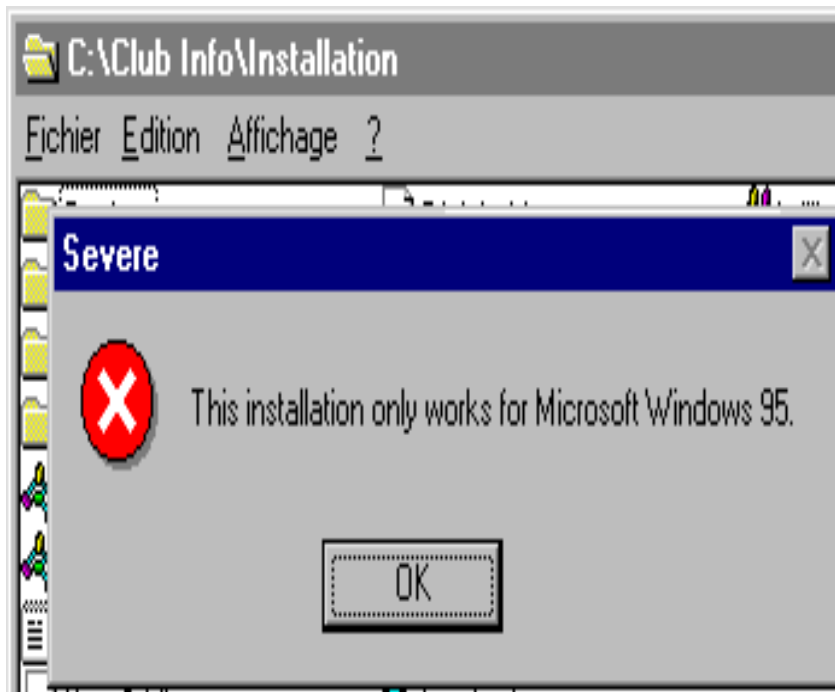
# Types of Globalization Issues

---

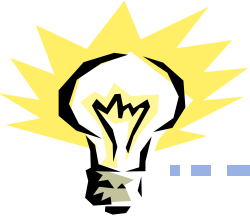
- Comprehensibility
- Usability
- Desirability
  
- These move from easier to harder



# Bad Examples – Pardon My French



- Look at the menus
- Look at the dialog box
- Incomplete translation !



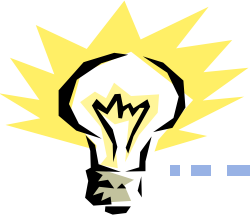
## Bad Examples – We Are the World?

Name:

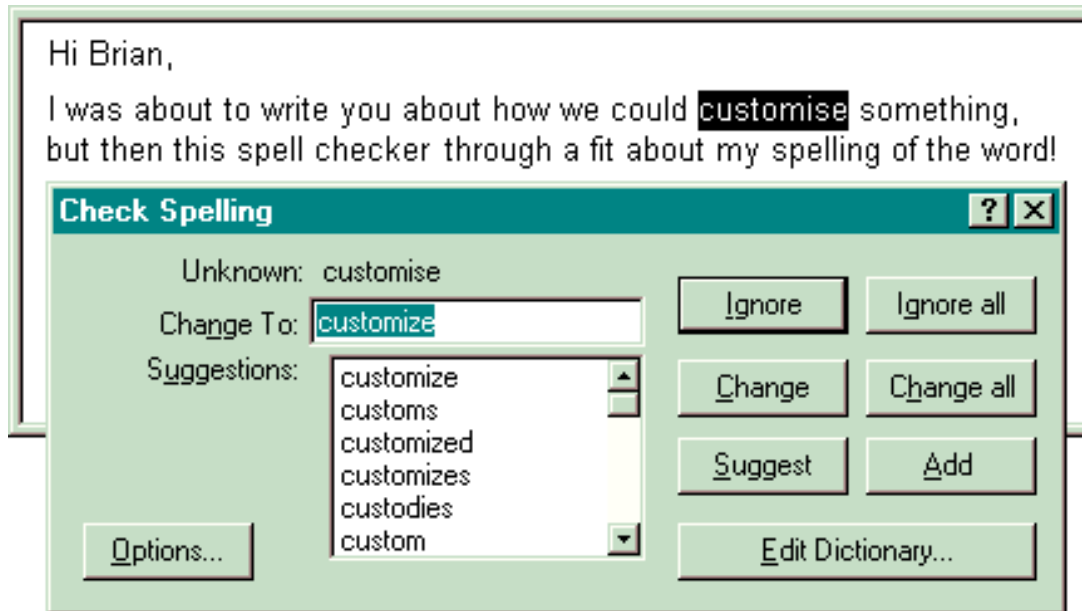
Address:

City:  State:  Zip:

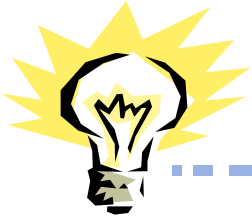
- What do you mean you don't have a state?
- What do you mean you don't have a zip code?
  - ❖ Some other countries use "postal code"
- Very US-centric – especially if fields are required!



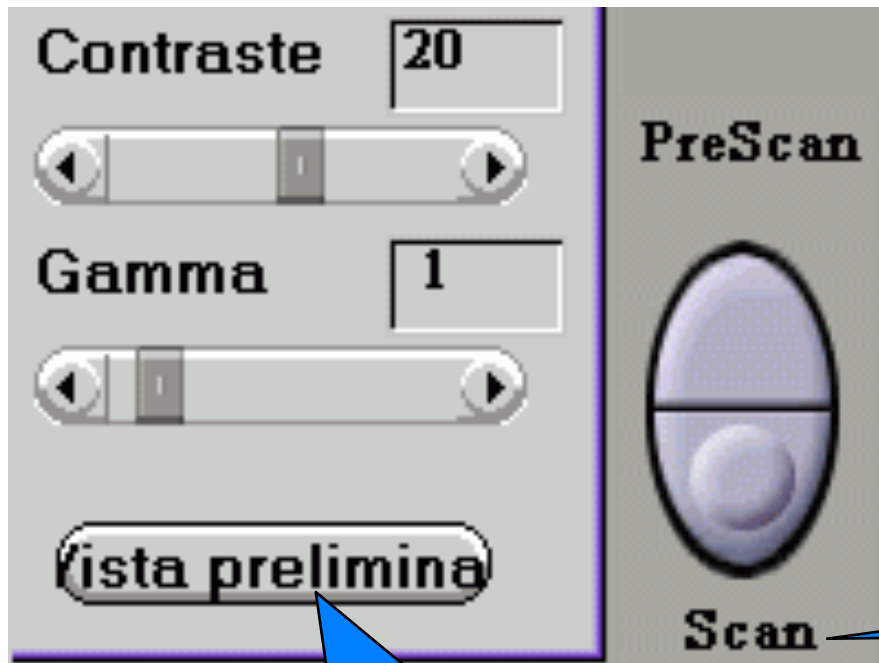
# Bad Examples – The British Empire?



- The user swears that this is really how you spell *customize*
- Even within a given language – such as English – there are variations
- Canadians/British/Australians spell a lot of words differently than we do
- More US-centricism
- Good Example – Microsoft Word recognizes lots of languages, even Catalan



## Bad Example – If the Shoe Fits?

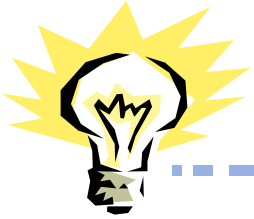


- Number of letters in word with same meaning varies a lot
- Some languages might not have exactly the right word and need a phrase

"*Preview*" fits in button, but "*Vista Preliminar*" does not!

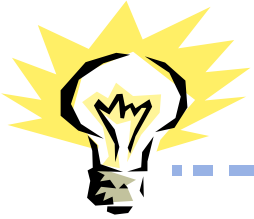
BTW – is "*Scan*" a Spanish word?





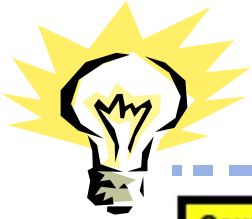
## Why Worry About It?

- Public Relations
- Legal Requirements
- Product success => profit, not loss
  - ❖ Population
    - US – 300,000,000
    - World – 6,000,000,000
  - ❖ Growing World-Wide Market
  - ❖ Competition



# Format

- Give users chance to express preferences for format for
  - ❖ dates
  - ❖ time
  - ❖ currency
  - ❖ numbers
  - ❖ address
  - ❖ phone numbers

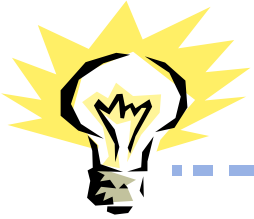


# Phone, Date, Time Formats

Country/Region	International Access Code	CCITT/ITU Code	Internal Phone Format
Egypt	00	20	(12) 3456789
Germany	00	49	12345-6789012345678
United States	011	1	(123) 456-7890
China	00	86	(10)65391188

Locale	Common Format	Short Format
ar_EG	٢٢ أغسطس، ٢٠٠٢	٢٠٠٢/٠٨/٢٢
de_DE	22. August 2002	22.08.2002
en_US	August 22, 2002	8/22/2002
zh_CN	2002年8月22日	2002-8-22

Locale	Common Format	24 hr clock as default time format?	Time Separator	Leading Zero
ar_EG	١١:٤٣:١٣ م	No	Colon	No
de_DE	23:43:13	Yes	Colon	Yes
en_US	11:43:13 PM	No	Colon	No
zh_CN	23 点 43 分 13 秒	Yes	N/A	No



# Forms Design

## ➤ Observe local conventions

Country

Address Line 1

Address Line 2

City

County

State

Zip Code

Country

Postal Code

Prefecture

City

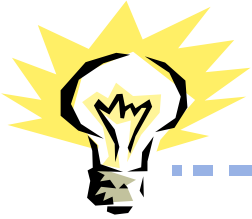
Address Line 1

Address Line 2

Address Line 3

Alternate Address

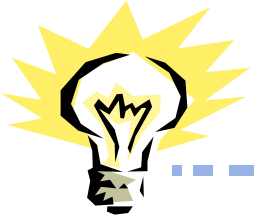
### Contrast of Generic US and Japanese Address Forms



# Color

Color	Western European	Japanese	Chinese	Arabic
Red	Danger, Aristocracy (France)	Anger, Danger	Joy, Festive Occasions	
Yellow	Caution, Cowardice	Nobility, Childish, Gaiety	Honor, Royalty	Happiness, Prosperity
Green	Safe, Sour, Criminality (France)	Future, Youth, Energy		Fertility, Strength
Blue	Masculinity, Sweet, Calm, Authority	Villainy		Virtue, Faith, Truth
White	Purity, Virtue	Death, Mourning	Death, Mourning	
Black	Death, Evil			

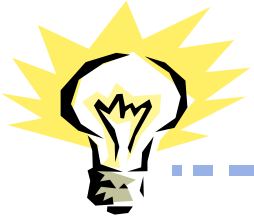
- Be sensitive to
  - ❖ Sacred colors
  - ❖ Political movement colors



# Sacred Colors

- Judeo-Christian: White, blue, gold, scarlet
- Islamic: green, light blue
- Buddhist: saffron yellow

From <http://zing.ncsl.nist.gov/hfweb/proceedings/marcus/index.html>



# Red and White – Meanings?

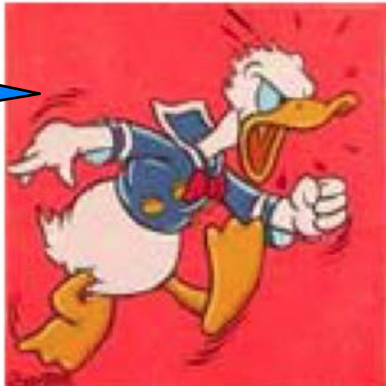
White in US:  
wedding, happiness



White in China:  
funeral, sadness

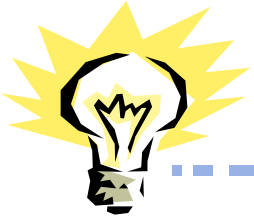


Red in US: anger



Red in China: good  
luck



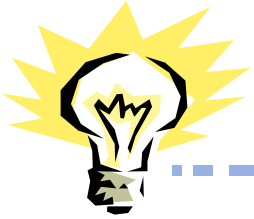


# Metaphor

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- GUI / Direct Manipulation approach based on analogy to real world objects
- Danger for globalization – if objects not same
  - ❖ Mailbox icon, telephone
  - ❖ File folders don't look the same in China or India or Europe
    - Think bookshelf, books, chapters ...

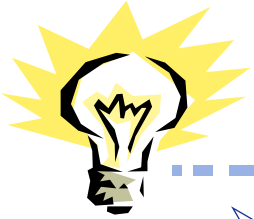




# Symbols

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- Avoid sports equipment, national monuments, holiday symbols etc. unfamiliar in other cultures
- Careful with animals, religious symbols, national flags, colors, hand gestures, gender or racial stereotypes
- Use ToolTips to explain symbols/icons that could be ambiguous
- Emoticons (such as 😊 ) vary – e.g. Japanese (^\_^)



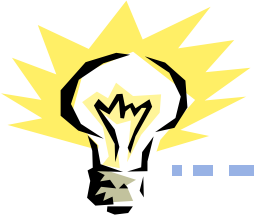
# Emoticons

- Study: East Asians more likely than Westerners to read the expression for 'fear' as 'surprise', and 'disgust' as 'anger.'
- People from different cultural groups observe different parts of the face when interpreting expression.
- East Asian participants tend to focus on eyes, while Western subjects took in the whole face, including the eyes and the mouth."

## East West differences in Emoticons

Emotion	West	East
'Happy'	:-)	(^_^)
'Sad'	:-(	(;_;) or (T_T)
'Surprise'	:-o	(o.o)

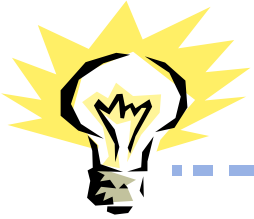
Representatio  
n of eyes  
more  
prominent



- Lots of examples, but here's one very interesting one:
- What does this mean?



<https://medium.com/@mroth/why-the-emoji-recycling-symbol-is-taking-over-twitter-65ad4b18b04b>



# Hand Gestures – Thumbs Up

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Thumbs up sign in most American and European cultures

going according to plans

Approval

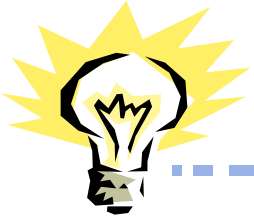
Rude & offensive in Islamic and Asian countries

In Australia

Means OK, but if move up and down => grave insult

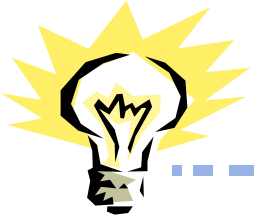


<https://socialmettle.com/hand-gestures-in-different-cultures>



# Use Universal Symbols



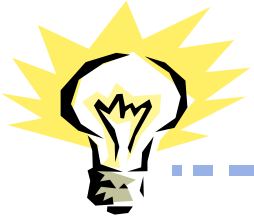


# Some “Icons” are Local

---



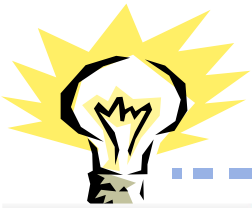
From <http://zing.ncsl.nist.gov/hfweb/proceedings/marcus/index.html>



# Local Icons



<http://courses.csail.mit.edu/6.831/archive/2008/lectures/L25-internationalization/L25-internationalization.html>

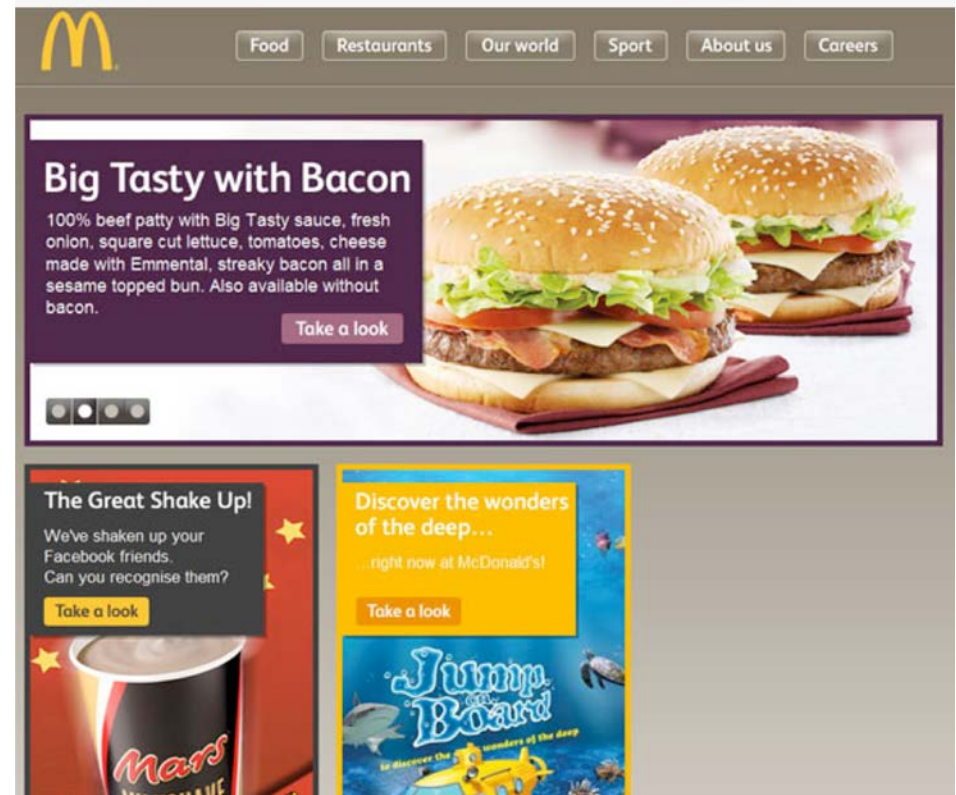


# Graphic Design

## MacDonald's (India)



## MacDonald's (UK)



<http://www.onextrapixel.com/2010/06/22/building-a-cross-cultural-web-design-for-a-wider-audience/>

Fall 2019

PSYCH / CS 6755

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# Localization Within Template - IBM

IBM - 中国

http://www.ibm.com/cn/zh/

IBM - 中国

中国 [选择]

系统要多快才能抓住稍纵即逝的商业机会?  
削减成本却不能减少收益, 你该怎么做?

→ 是时候提出更智慧的问题了! 看看怎样的科技才能让世界更好的运作

提出更智慧的问题, 了解怎样的科技能让世界更好的运作

IBM 推出针对大中型企业的五款基于 POWER7® 处理器的全新系统

刻注册参与 2010 IBM 云计算

IBM 新闻: 开发有道, 创新“智”造; 三大策略面向中国市场 IBM Rational 助中国产业创新

了解 选购 获取支持 个性化服务 关于 IBM

特色主题

- 欢迎进入智慧的十年
- 获得更智能的商业管理
- 探索 IBM 动态架构
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智慧的地球

- 产品询价
- 市场活动及视频
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→ 均可求助于企业信息架构解决方案

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France [changer]

Innovate 2010  
Rational Software Conference  
Le 19 octobre, à l'IBM Forum Bois-Colombes.

→ Découvrez l'agenda et inscrivez-vous

IBM News: IBM présente ses nouveaux systèmes POWER7 conçus pour gérer les applications les plus complexes

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Sujets à la une

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- Découvrez l'espace dédié "Electronique" d'IBM

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- Education et recherche

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Petites et moyennes entreprises

- IBM en région
- Portail PartnerWorld
- Utilisateurs IBM

Les nouvelles solutions de stockage IBM

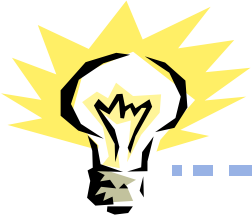
→ Le 12 octobre, à Paris

A propos d'IBM Données personnelles Contactez-nous Conditions d'utilisation Fils d'infos RSS Recrutement

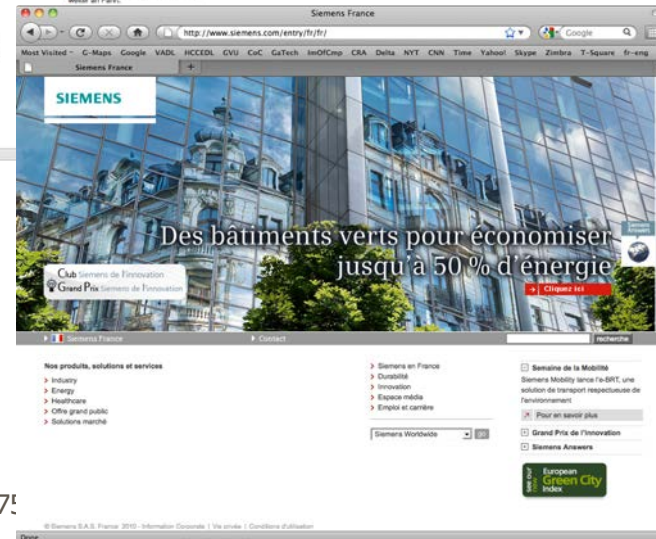
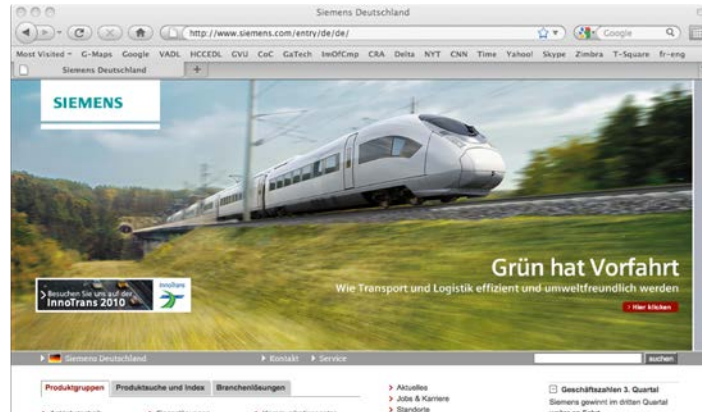
Fall 2019

PS

25



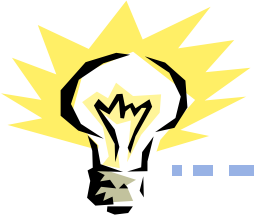
# Siemens



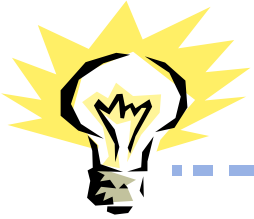
Fall 2019

CS 67!

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# Coca Cola



# Sound

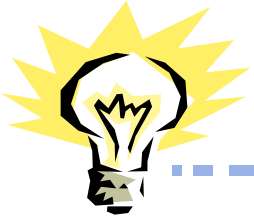
➤ Be careful with sounds – consider possible meanings

- ❖ Examples?
- ❖ Chevy Nova car



❖ Ring tones:

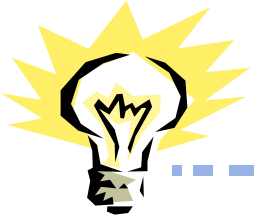
- ❖ <https://www.youtube.com/watch?v=2cNHQVSygJY>



# Legal Environments

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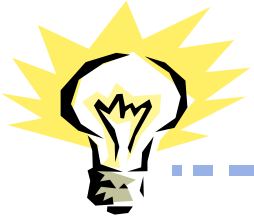
- Laws differ from country to country
  - ❖ E.g. in some countries it is illegal to directly position your product against the competition
  - ❖ India being one, I am told
  
- Privacy!
  
- Consider legalities of autonomous cars, and who is liable if they fail?



## Culture includes ...

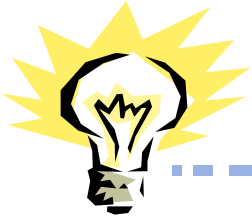
---

- Surface – visible – including simple things like currency, date and time formats, and more complex – dress, family relationships
- Unspoken & unconscious rules
  - ❖ Examples?



# Humor

- Is very culturally dependent
- May be dependent on language
- Doesn't tend to work well cross culturally

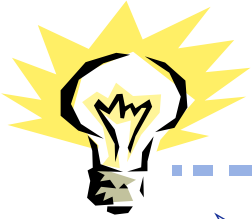


# Language

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- Modify keyboard mnemonics to fit target languages
- Translation difficult if program concatenates strings on-the-fly
- Use simple syntax – noun-verb-object
- Use consistent terminology – simplifies translation
- Watch out for country-specific terminology: elevator-lift, hood-bonnet, toilet-loo
- Avoid words with multiple meanings
- Visual puns may not translate
- Avoid difficult noun phrases (e.g. 3 nouns in a row)
- Avoid abbreviations and acronyms
- Avoid slang
- Avoid letters in bitmaps and toolbar icons

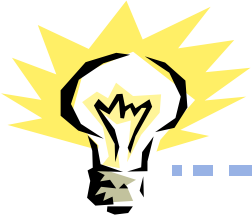




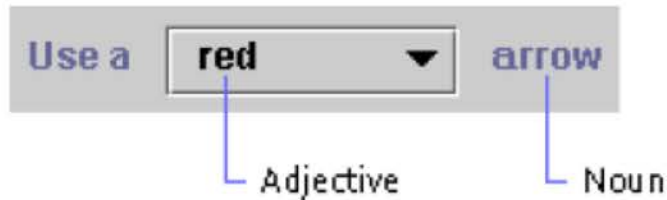
# Language

---

- Avoid overly friendly style
  - ❖ May be interpreted as condescending
- Watch out for gender, racial, national stereotypes
- If no translation exists, use original word
- Layout should follow left-to-right vs. right-to-left vs. vertical pattern of reading
  - ❖ MS Windows 2000/XP localization of Hebrew and Arabic handle right to left – make sure your application is “mirroring aware” so that text is not “flipped”
- Sorting sequences – where do ñ, ä, å, ë etc fit in?
- Translations should be done by native-speaker



# Don't Build-in Language Syntax!



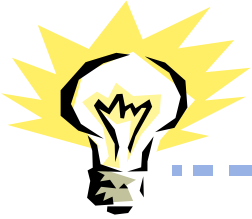
*Graphic courtesy of the Java Look and Feel Design Guidelines*

To anticipate variations in word order, a layout like the following should be used in the original version of the product.



*Graphic courtesy of the Java Look and Feel Design Guidelines*

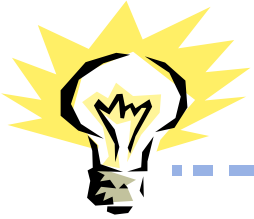
Now the word order is correct in both French and English.



# Right-to-Left Languages

Flip more than just the text

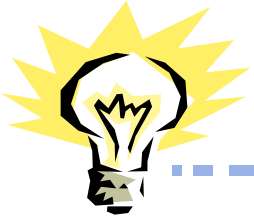




# Globalizing UI Design Process

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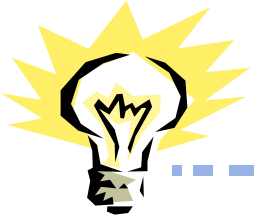
- Start with user analysis – identifying user communities and their characteristics
- What varies – which ones are most important?
- Include people internationally in feedback process
  - ❖ Requirements determination
  - ❖ Usability
  - ❖ Beta testing



# Globalizing UI Design Process

---

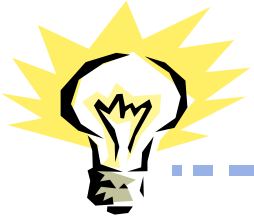
- Ensure developers are familiar with globalization issues
- Ensure test team can recognize globalization problems
- Planning should specifically identify globalization impacts – to avoid surprises and cost-overruns later
- Some effort produces a more globalized product than no effort



# WWW Globalization

---

- Log files can show country of visitors
- Remote usability testing possible
- Language
  - ❖ IP addresses -> correct starting language
  - ❖ Language-specific start pages - have unique URLs
  - ❖ Allow user to specify language - typically with flags
  - ❖ User preferences or cookies
- Times - what city/country, GMT
- E-commerce conventions vary
  - ❖ Payment and delivery options, return policies

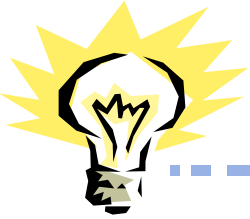


# Software Tools to Facilitate

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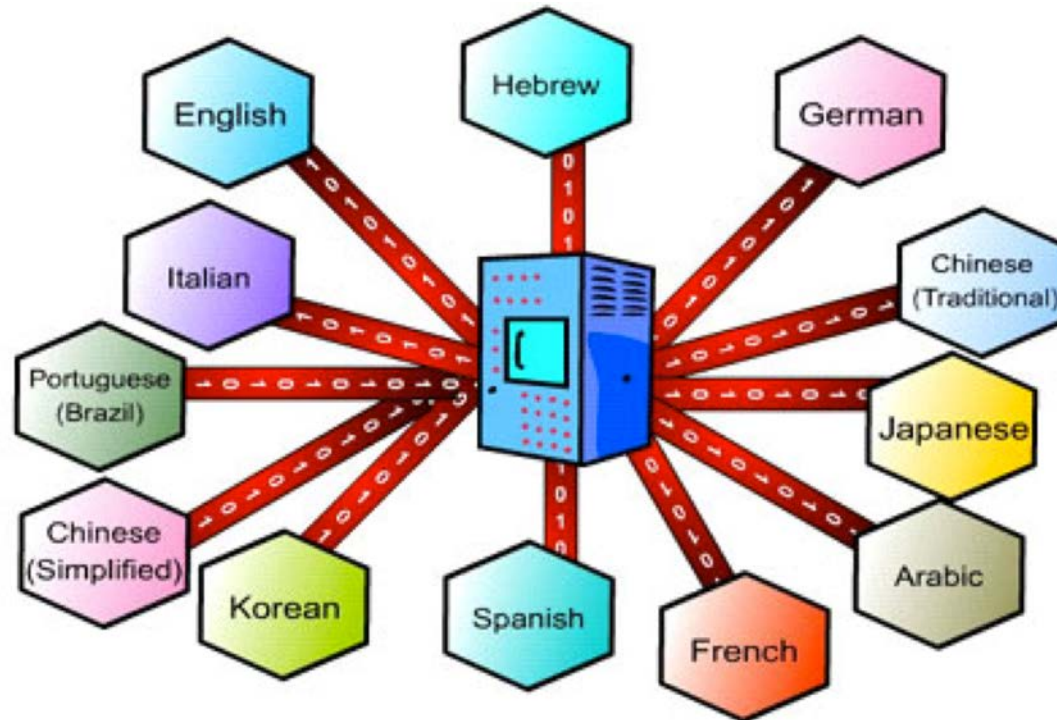
## ➤ MS Windows Locales

- ❖ User preference information
  - input language, keyboard layout, sorting order, formats for numbers, dates, currencies, time
- ❖ Can specify user locale, input locale, and system locale
- ❖ Windows User Interface can be displayed in different languages – 90% localized



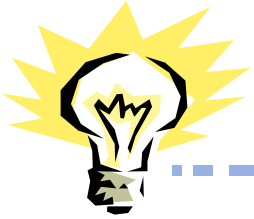
# Goal – Software Localization

- Localize one application to many locales

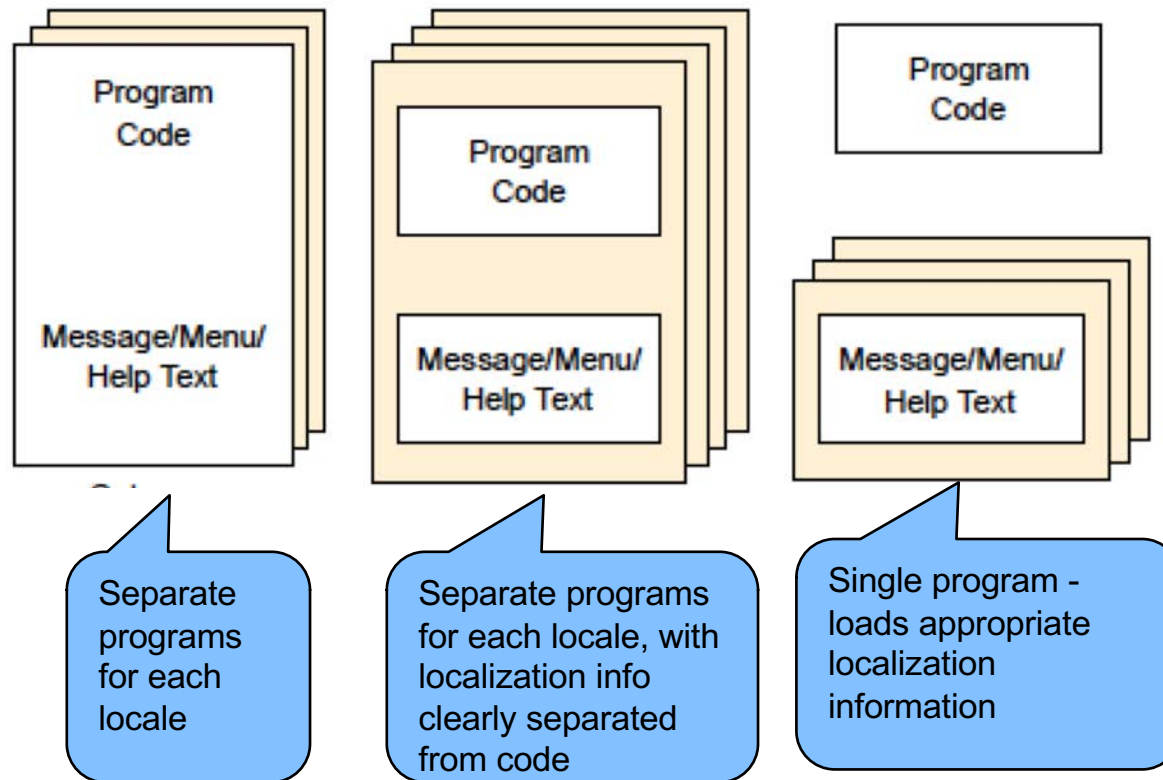


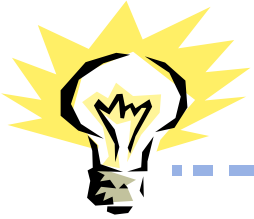
<http://publib-b.boulder.ibm.com/Redbooks.nsf/9445fa5b416f6e32852569ae006bb65f/0e82655a11b205f085256bbd00788b6c?OpenDocument>





# Three Localization Methods

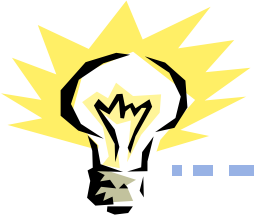




## iPhone SDK Supports

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- "An iPhone application should be internationalized and have a language.lproj directory for each language it supports.
- In addition to providing localized versions of your application's custom resources, you can also localize your application icon (Icon.png), default image (Default.png), and Settings icon (Icon-Settings.png) by placing files with the same name in your language-specific project directories.



# Localizing

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- Ensure user interface text is isolated from code – put in files
- Store multiple versions of same string if used more than one place
- Avoid text in bitmaps and icons
- Do not generate text strings on-the-fly
- Test localized applications on all language variants