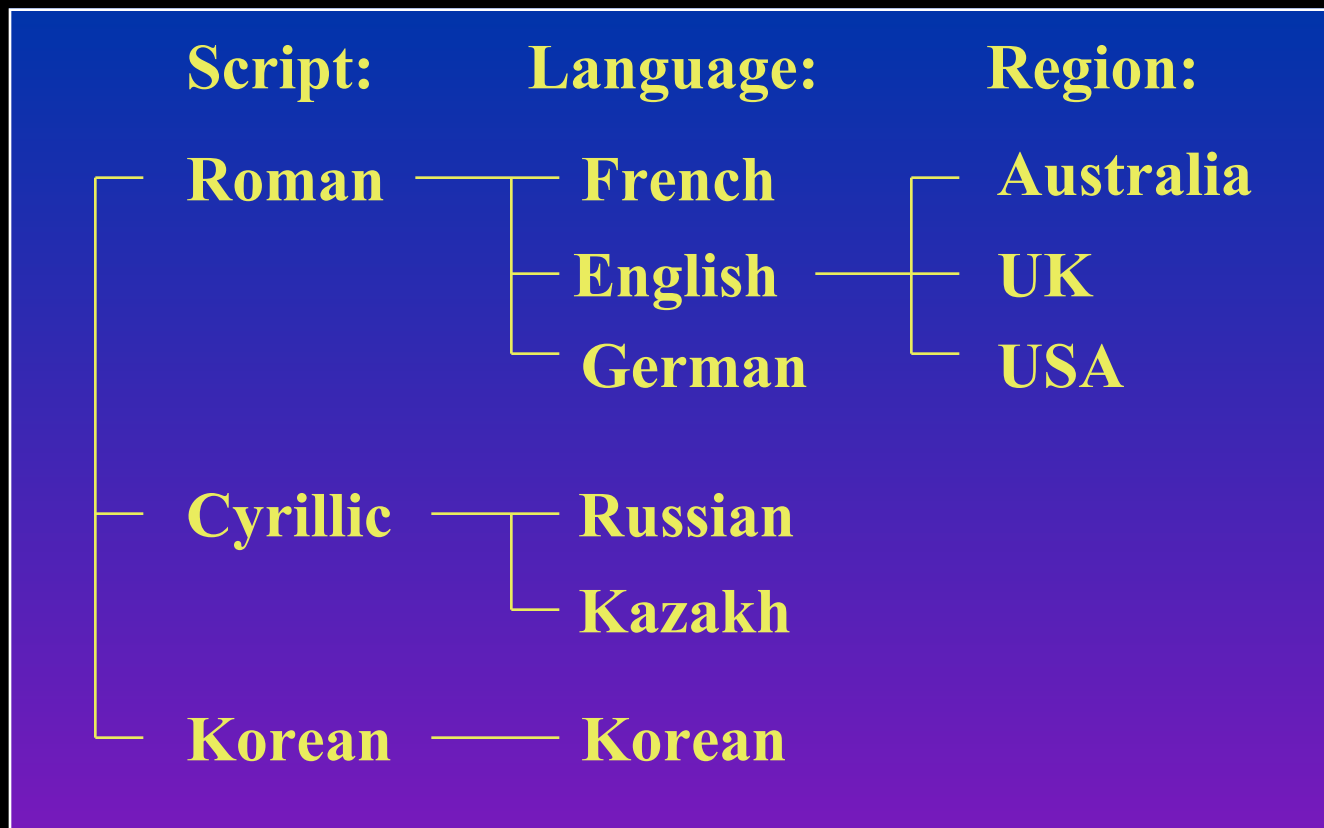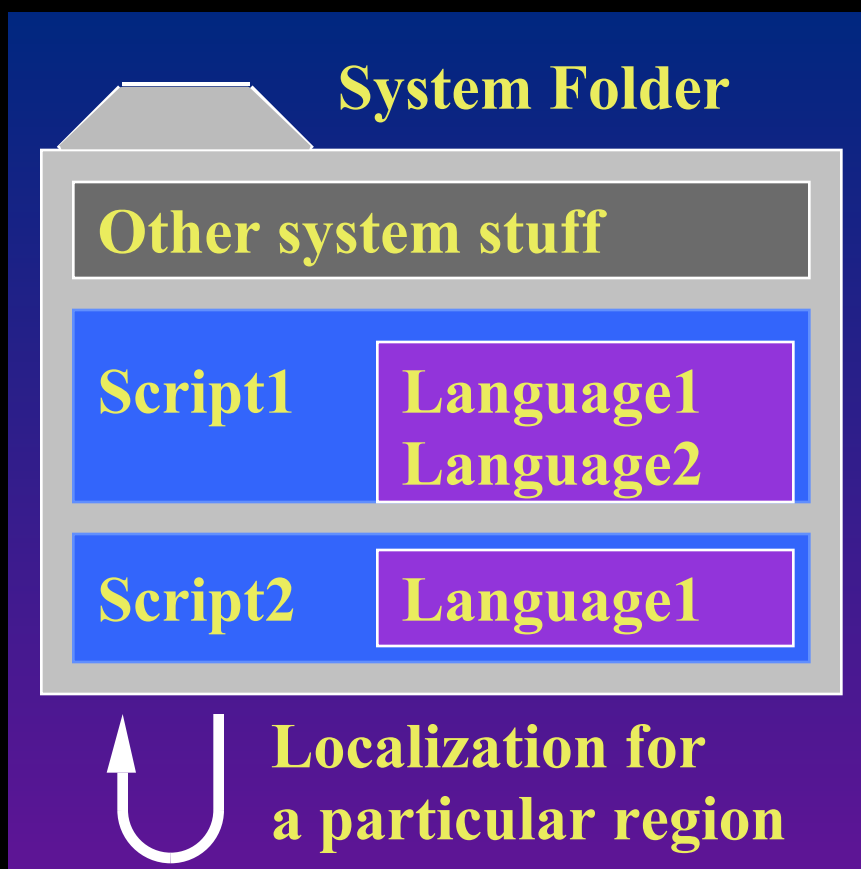# Technical Challenges of International Design

Topics...

- Scripts, languages, and localization
- Multiscript systems
- Applications in a multiscript environment
  - Displaying and sorting names of HFS objects
  - Saving the script of a name
  - TextEdit, other useful utilities
- New justified text capabilities

Script and Language Hierarchy

Script:	Language:	Region:
Roman	French	Australia
	English	UK
	German	USA
Cyrillic	Russian	
	Kazakh	
Korean	Korean	

Script Capability and Localization

System Folder

Other system stuff

Script1   **Language1**
Language2

Script2   **Language1**
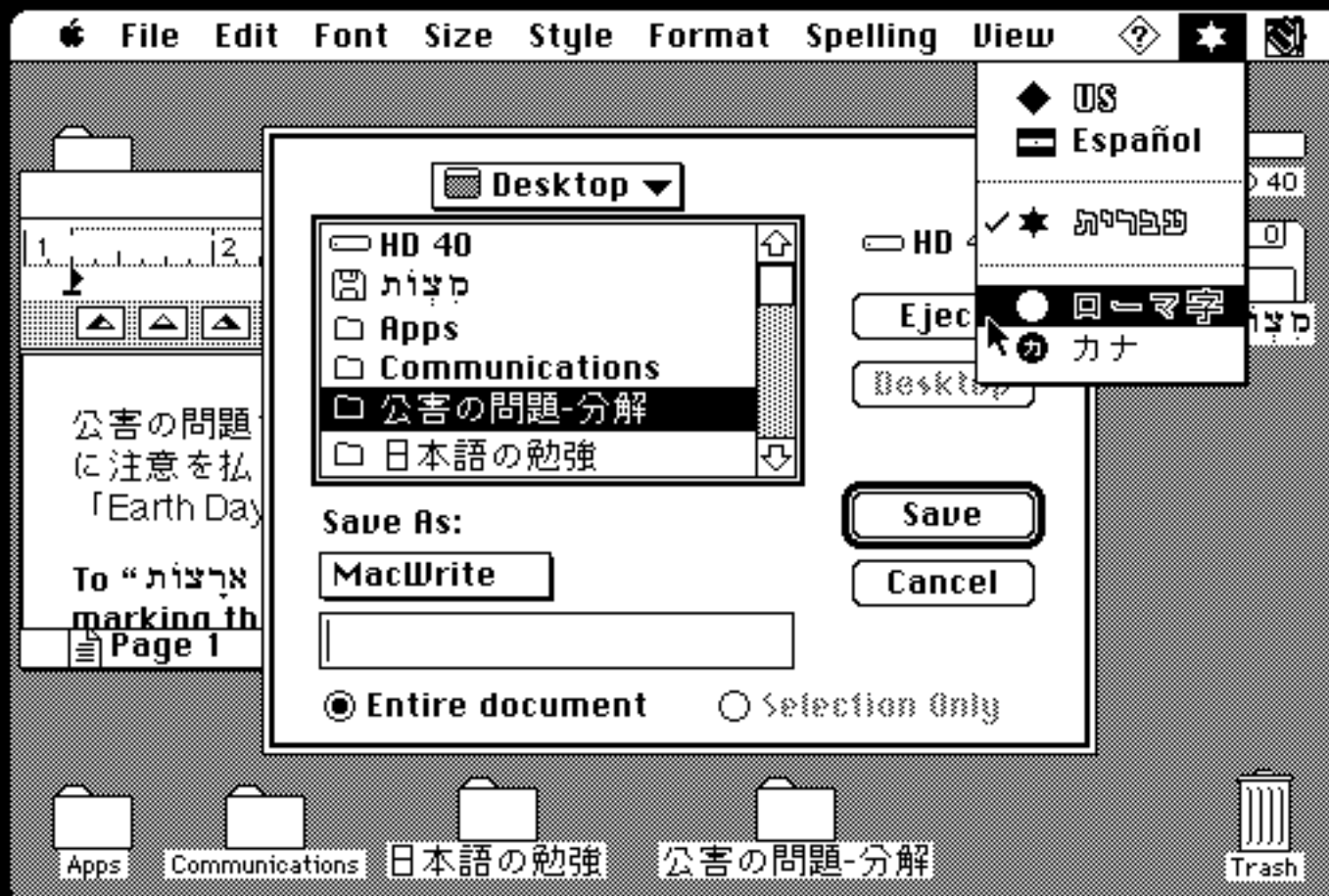
**Localization for
a particular region**

- Script capability is added to a system
- Localization applies to system and script capability
- Localization may require script capability
- Multiscript - beyond localization!

Multiscript–Key Points

- Non-Roman scripts are not necessarily the system script

- Users may install multiple non-Roman script systems

- The Finder can associate script codes with HFS objects (documents, folders, volumes)
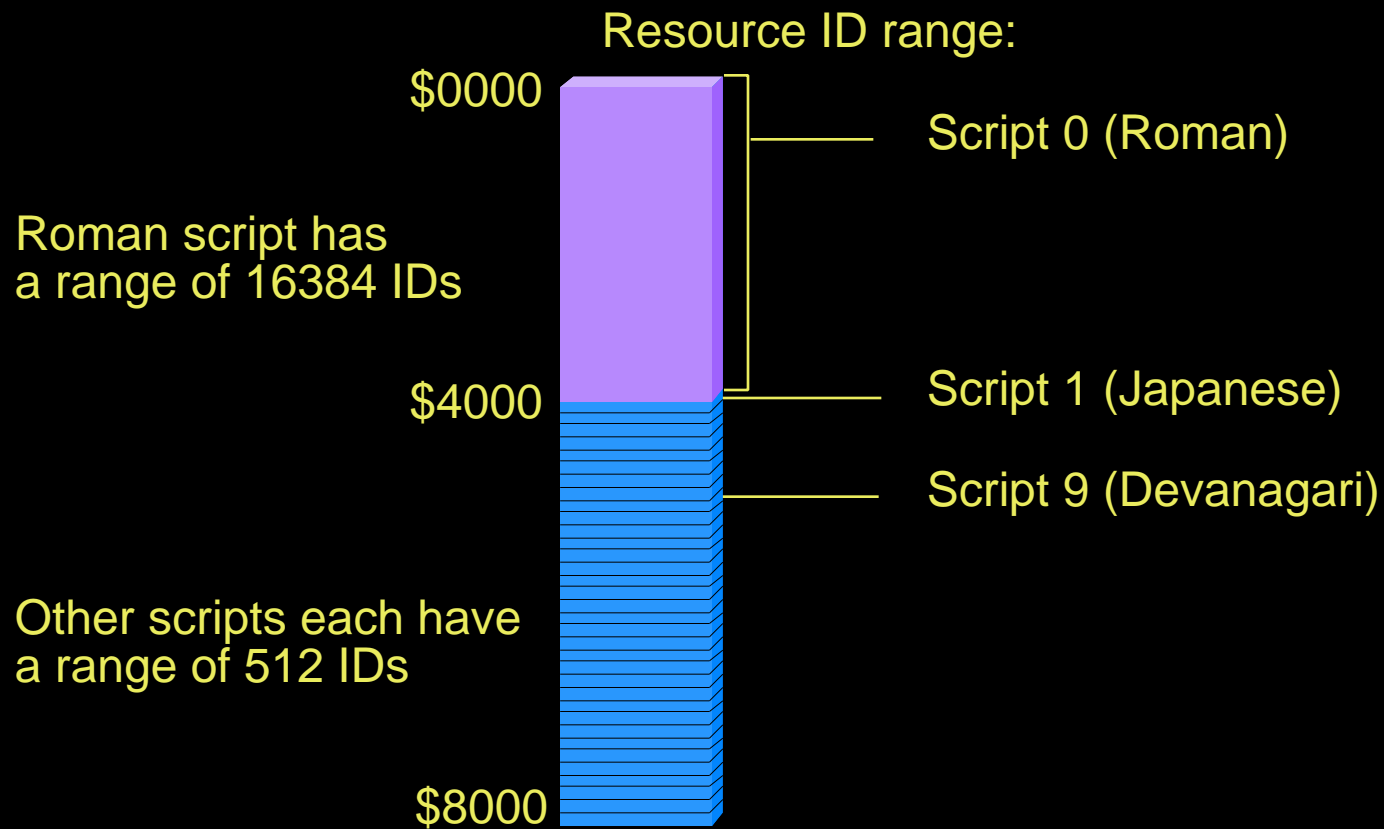
Multiscript in Action

Multiscript–How We Do It

- Formerly unused byte in Finder XInfo now used for script code
- If high bit zero (current files): no explicit script, assume system script
- Otherwise (new files): bits 0-6 explicitly specify a script
- No explicit script (yet) for zones…

Synchronizing Fonts and Scripts

- When the user enters the name of an HFS object:
  - Display the name in the correct font
  - Save the script code
- When displaying a previously entered name:
  - Retrieve the script code
  - Use it to set the font
- Standard files has new features that help…

Font to Script Mapping

Resource ID range:

$0000 — Script 0 (Roman)

Roman script has
a range of 16384 IDs

$4000 — Script 1 (Japanese)

Script 9 (Devanagari)

Other scripts each have
a range of 512 IDs

$8000

New Sorting Capabilities

- Get preferred sorting order for scripts and languages
- Sort strings in different scripts
- Extensions, optimizations:
  - You can explicitly specify the handle of the 'itl2' resource used for sorting
  - Improved caching

Other Helpful Things

- Styled TextEdit is Script Manager compatible!!
- New utilities for text truncation and substitution
- New utilities for localizable case conversion and stripping of diacritics
- Speedups: FindWord (new state table mechanism), Pixel2Char, StyledLineBreak

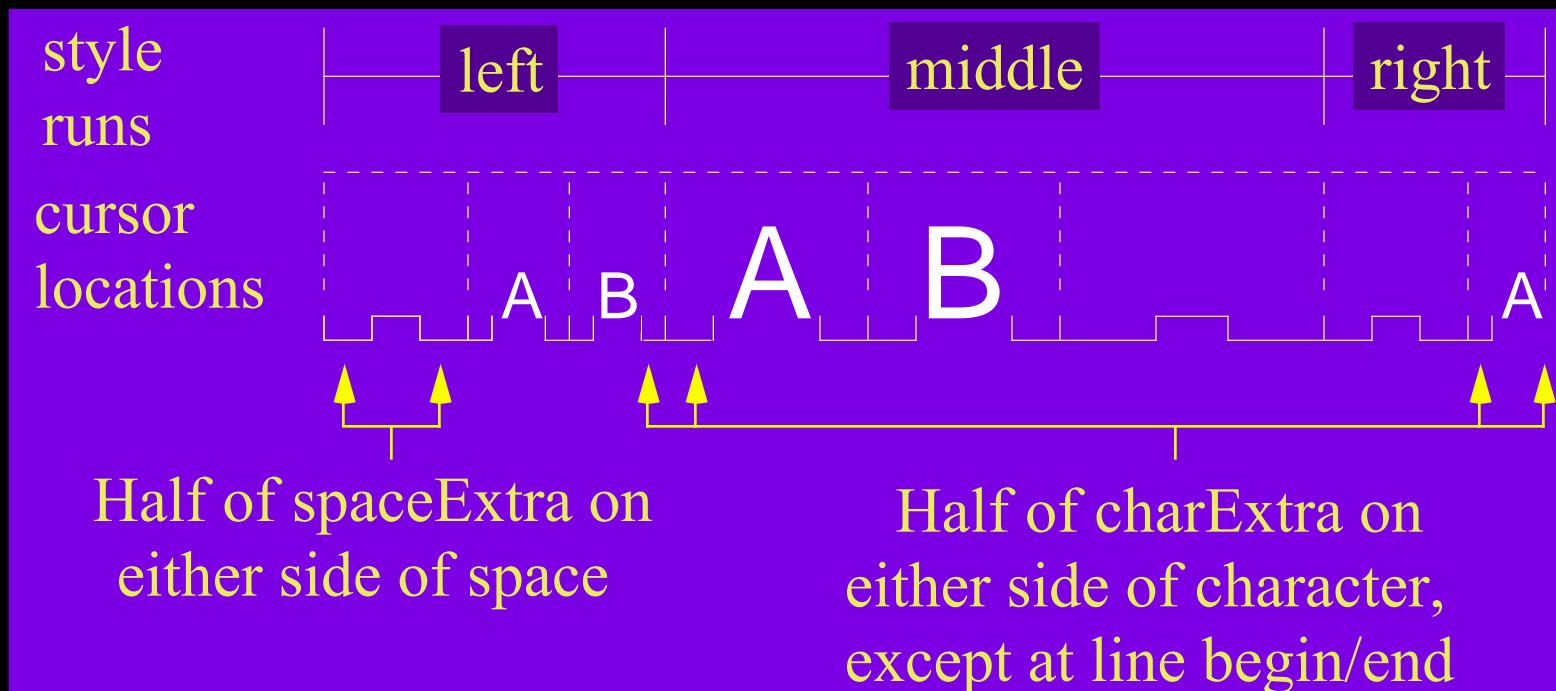# Problems With the Old Routines for Justified Text

- No intercharacter spacing in Roman
- Not enough information to correctly handle spacing between style runs anyway
- Occasional printing problems with justified text on non-Roman system

Features of New Routines
for Justified Text

- New parameter specifies position of style run in a line
- Handle intercharacter spacing, even on old GrafPorts
- Offsets are LONG, widths are FIXED
- New Picture opcodes - printing works with intercharacter spacing

Justification Model for Roman

Note that this is just an interim solution!

Multiscript Demo