# Putting Script Manager to Work

Joe Bosurgi

BOSURGI1

Manager, International & Linguistic Engineering

CLARIS Corporation

# Putting Script Manager to Work:
# The Organisational Challenge
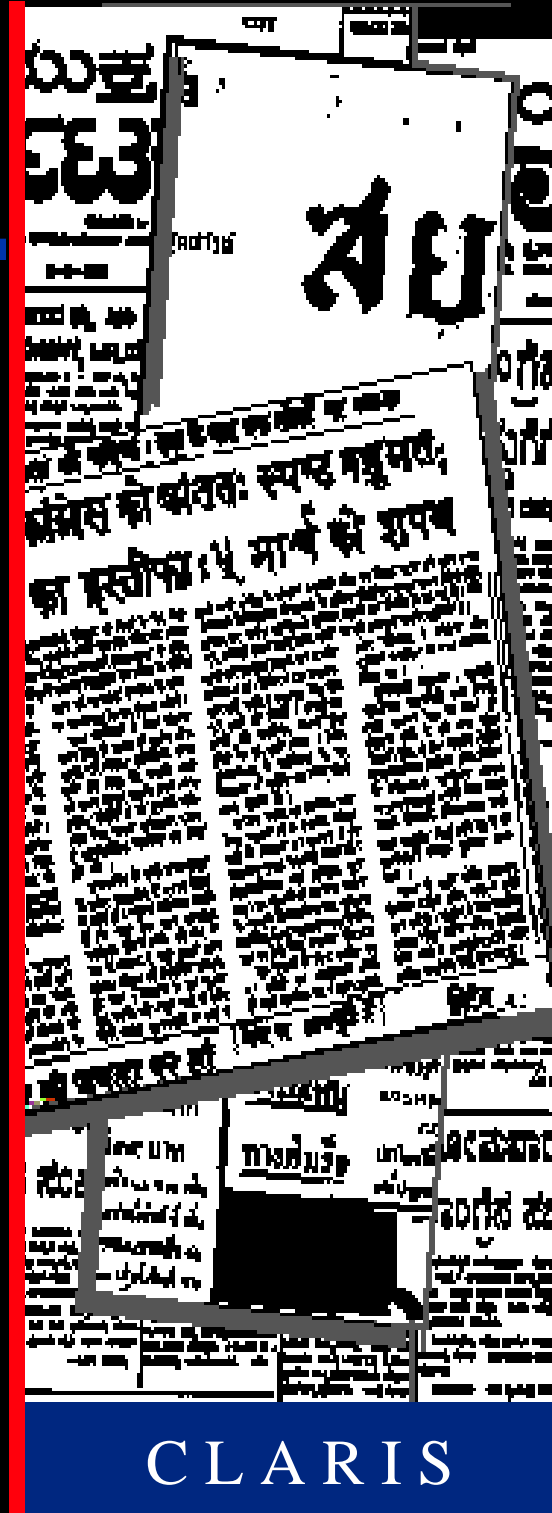
# Issues and Trade-Offs

- Technical
    - Speed
    - Code Size
    - Functionality
    - Reliability
- Marketing
    - Time to Market(s)
    - Coverage
    - Speed and Size
- Organisational Infrastructure
    - Marketing
    - Sales
    - Engineering
    - SQA
    - Documentation

# Organisational Strategy

- Timing and Alliances

- Win-win's, Success Stories

- Plan Internationalisation Investment

- Market Internationalisation Investment

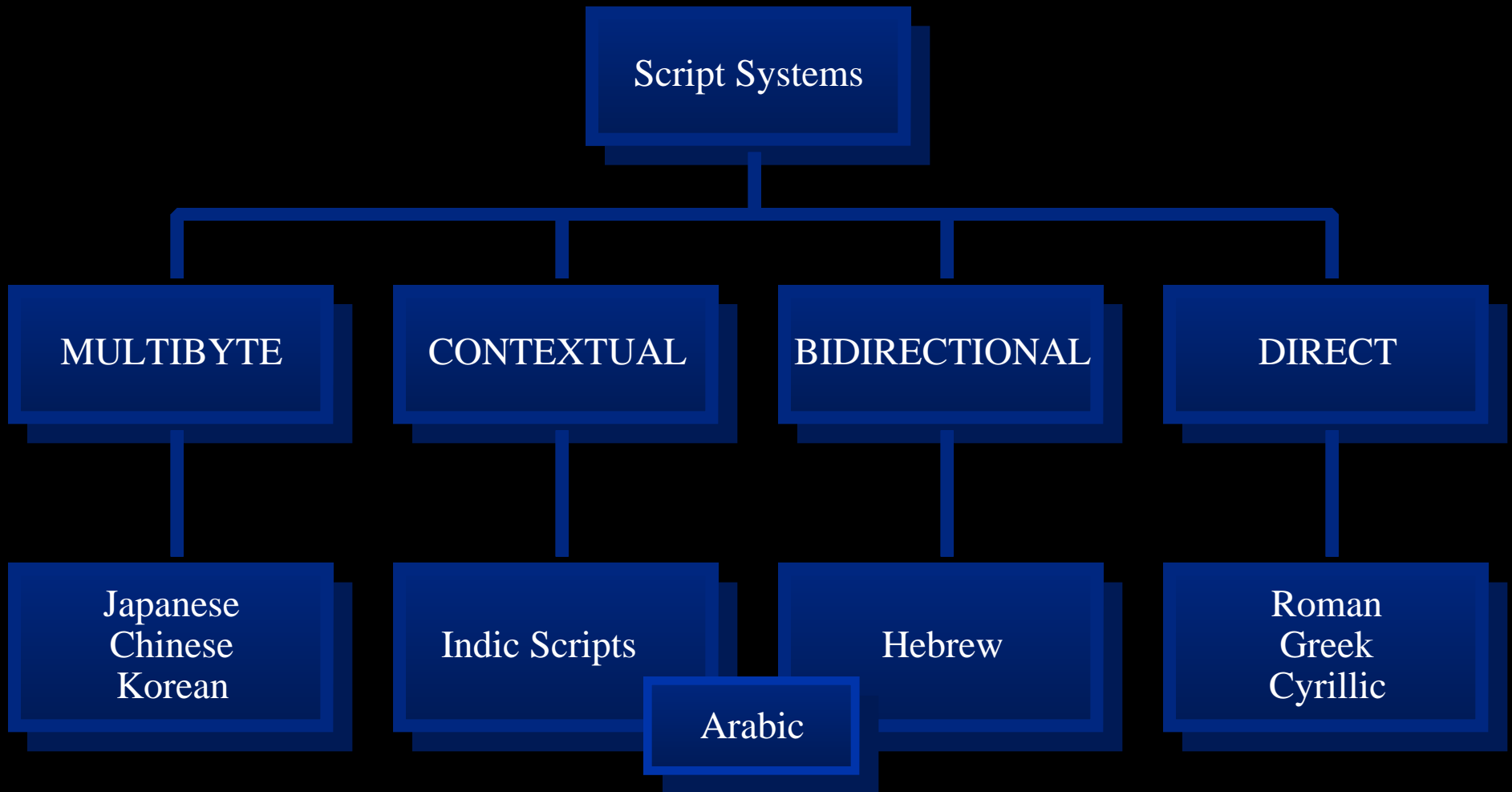- Get Long-Term Commitment from Top Management

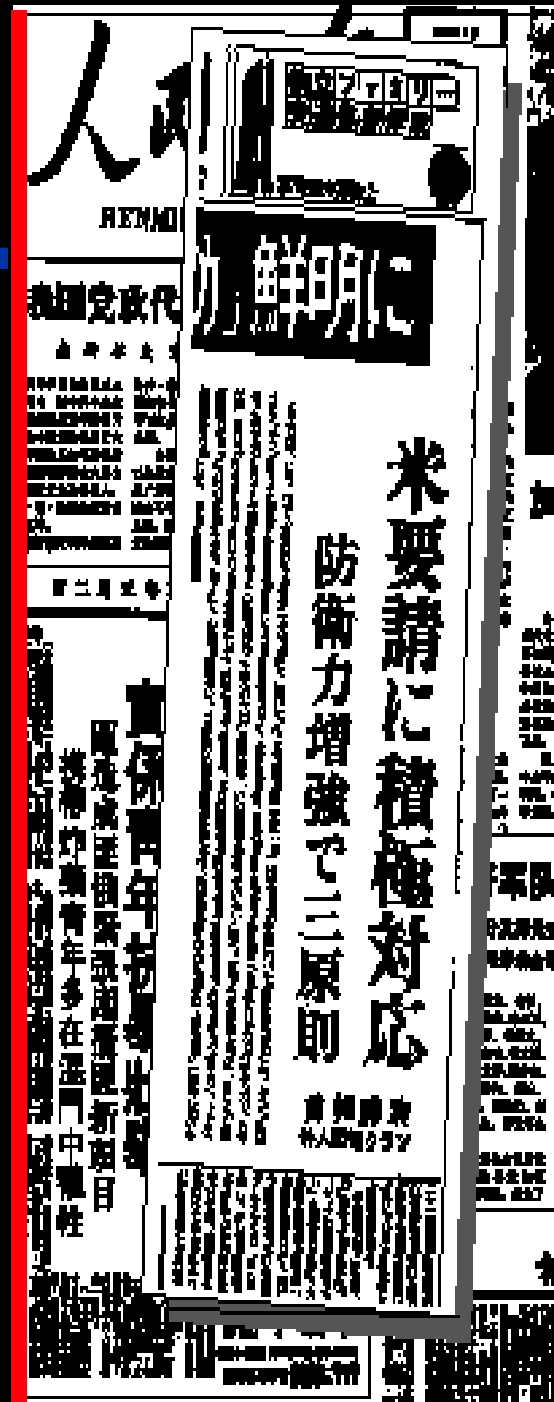# Putting Script Manager to Work:
## The Technical Challenge

# Types of Script Systems

```
                          ┌─────────────────┐
                          │  Script Systems │
                          └─────────────────┘
                                   │
     ┌──────────────┬──────────────┼──────────────┬──────────────┐
     │              │              │              │              │
┌─────────┐   ┌─────────────┐  ┌──────────────┐  ┌─────────┐
│MULTIBYTE│   │ CONTEXTUAL  │  │BIDIRECTIONAL │  │ DIRECT  │
└─────────┘   └─────────────┘  └──────────────┘  └─────────┘
     │              │                 │               │
┌─────────┐   ┌─────────────┐  ┌──────────────┐  ┌─────────┐
│Japanese │   │Indic Scripts│  │   Hebrew     │  │ Roman   │
│Chinese  │   └─────────────┘  └──────────────┘  │ Greek   │
│Korean   │      ┌────────┐                       │Cyrillic │
└─────────┘      │ Arabic │                       └─────────┘
                 └────────┘
```

# International Functionality

- Text Editing, Layout, and Rendering

- Searching, Sorting, and Indexing

- Numeric Work

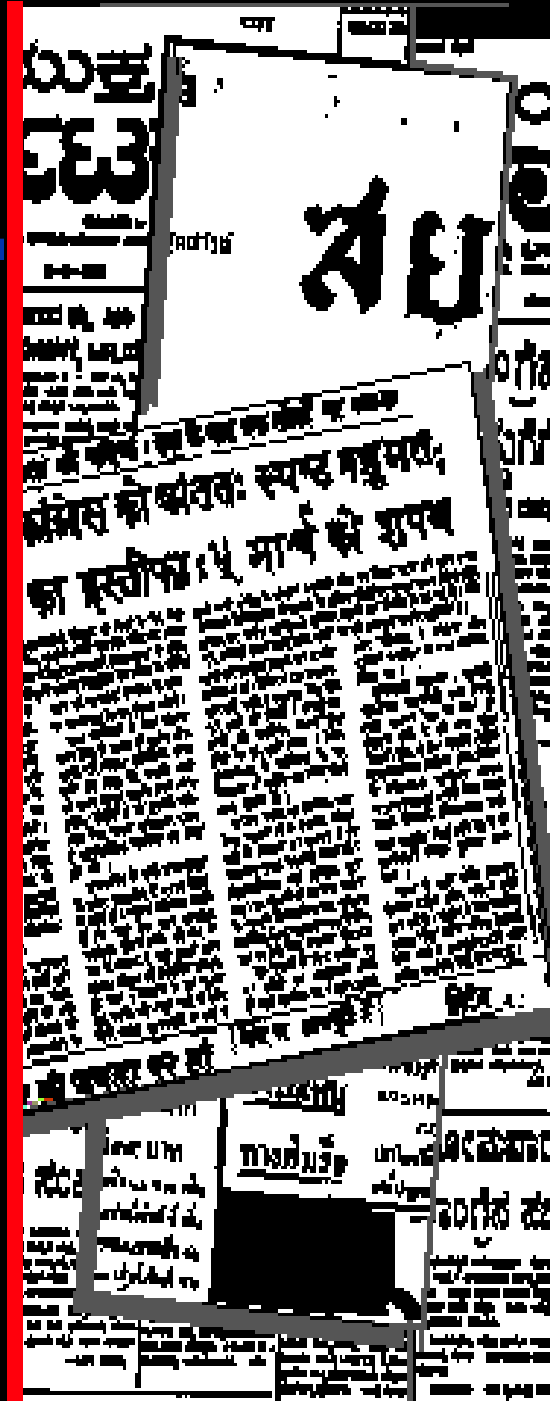- Tokenisation

- Other Issues

# When and How to Use Script Manager

- Basic International Functionality with Least Effort...

- ...but Plan for Costs - Nothing is Free

- Learning Curve and Testing

- When to Special-Case

- Promising Application Areas:
  - Spreadsheet, Database, Outliner, CAD

- Less Promising Application Areas:
  - Word Processor, Page Layout

# Text -
# Some Basic Issues

- Fonts
  - Line Spacing
  - Sizes
  - Default Font Assumptions

- Spacing
  - Width/Height Tables
  - Zero-Width Characters and Ligatures
  - Multiple Justification Models

- Font-Script Coordination
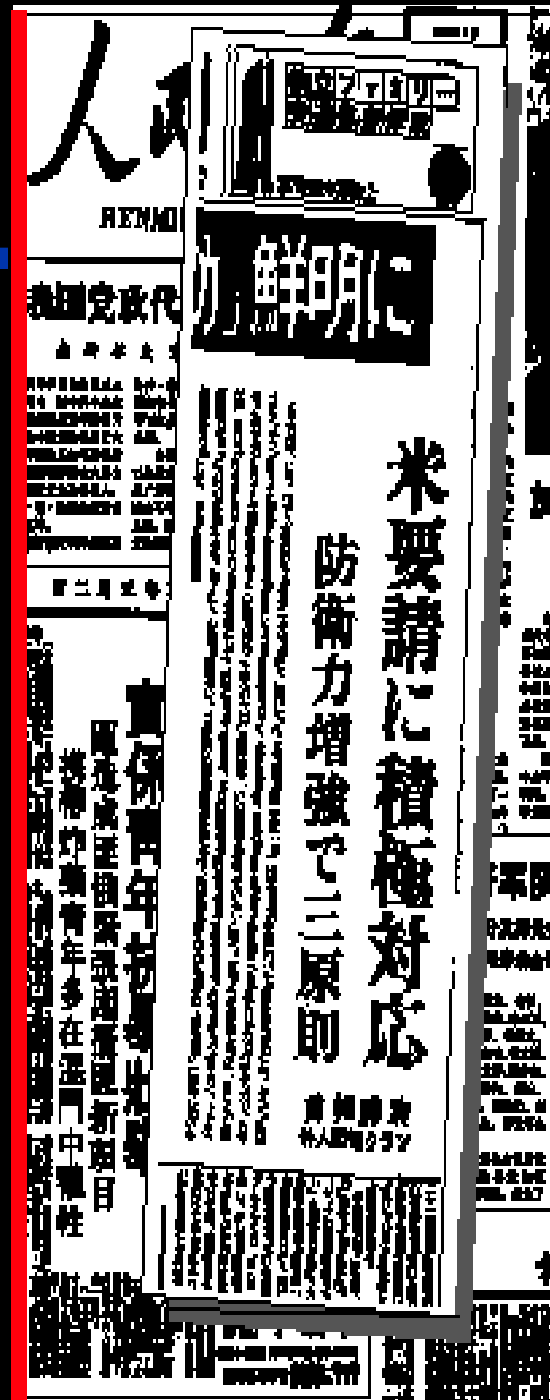  - Keyboard-Script Synchronisation
  - Font-Forcing

# Text -
# Direction Issues

- Beyond Left-to-Right...
  - Bidirectionality
  - Vertical Text
  - Local Changes in Direction
  - Multiple Directions

- Cursor Management

- Discontiguous Highlighting

- Line Redraw and Format-Run Sequencing Routines

# Text - Variable-Length Characters

- Logical vs. Physical Characters

- Backspacing, Deletion, Insertion, Selection, Buffer Management

- Highlighting and Cursor Positioning

- Characters vs. Glyphs and Diacritics
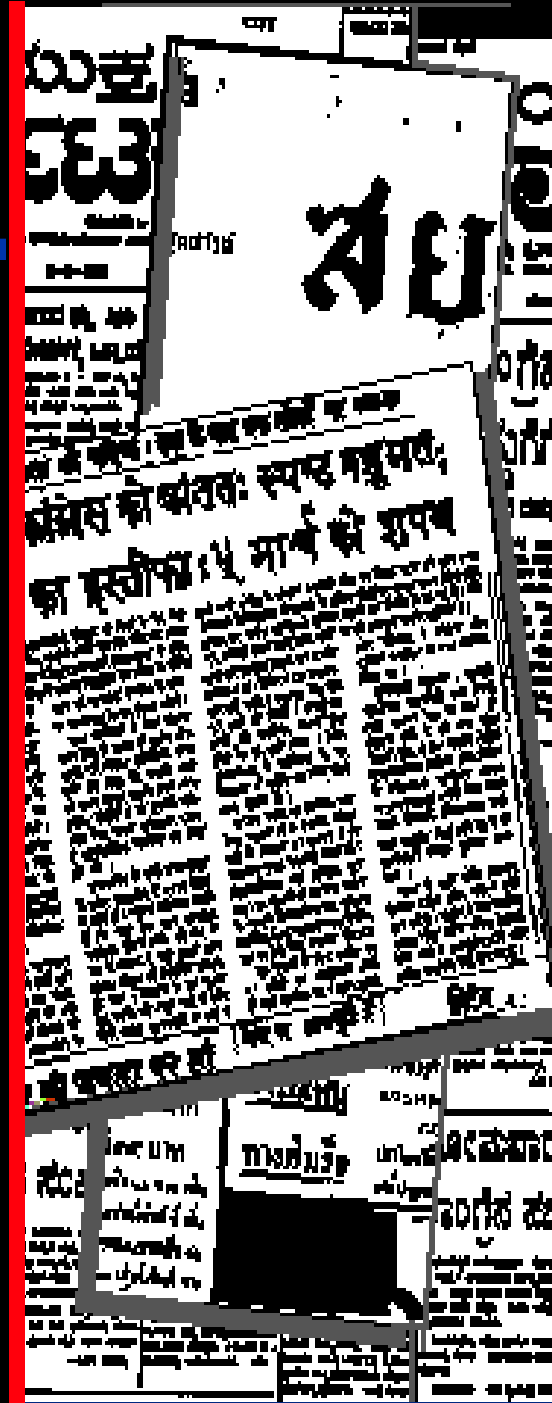
- CharByte, ParseTable, and CharType

# Data Issues -
# Sorting and Searching

- Normalisation and Indexing

- Sorting

- Hashing, Compression, Import/Export

- Encoding Collisions

# Calculation and Analysis

- Numeric Work
  - Currencies, Number Representation, Calculations

- Tokenisation
  - Performance and Syntactical Issues
  - Interapplication Communication

- Dates and Times
  - Arabic, Hebrew, Japanese
  - Investigate Script Manager Functions Carefully

# Other Problem Areas

- Field Size Assumptions

- Separator/Units Assumptions

- Keyboard Shortcut Problems
  - Taboo Combinations
  - Test with Real Keyboards

- System Version Dependencies