

# The Development of Adobe-Japan1-4 OpenType Fonts

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*<ftp://ftp.oreilly.com/pub/examples/nutshell/cjkv/unicode/iuc17-c15-lunde-slides.pdf>*

# Why Adobe-Japan1-4 & OpenType?

- The development of an “open” glyph set that serves most of the professional and commercial printing needs in Japan
  - Adobe-Japan1-4
- A truly cross-platform font format that is suitable for sophisticated users
  - OpenType with Unicode encoding as default
- Ultimate success depends on *both* Adobe-Japan1-4 and OpenType
  - Larger glyph complement
  - Advanced typographic features
  - Other important font tables and overrides
  - Original typeface designs, such as Kozuka Mincho & Gothic

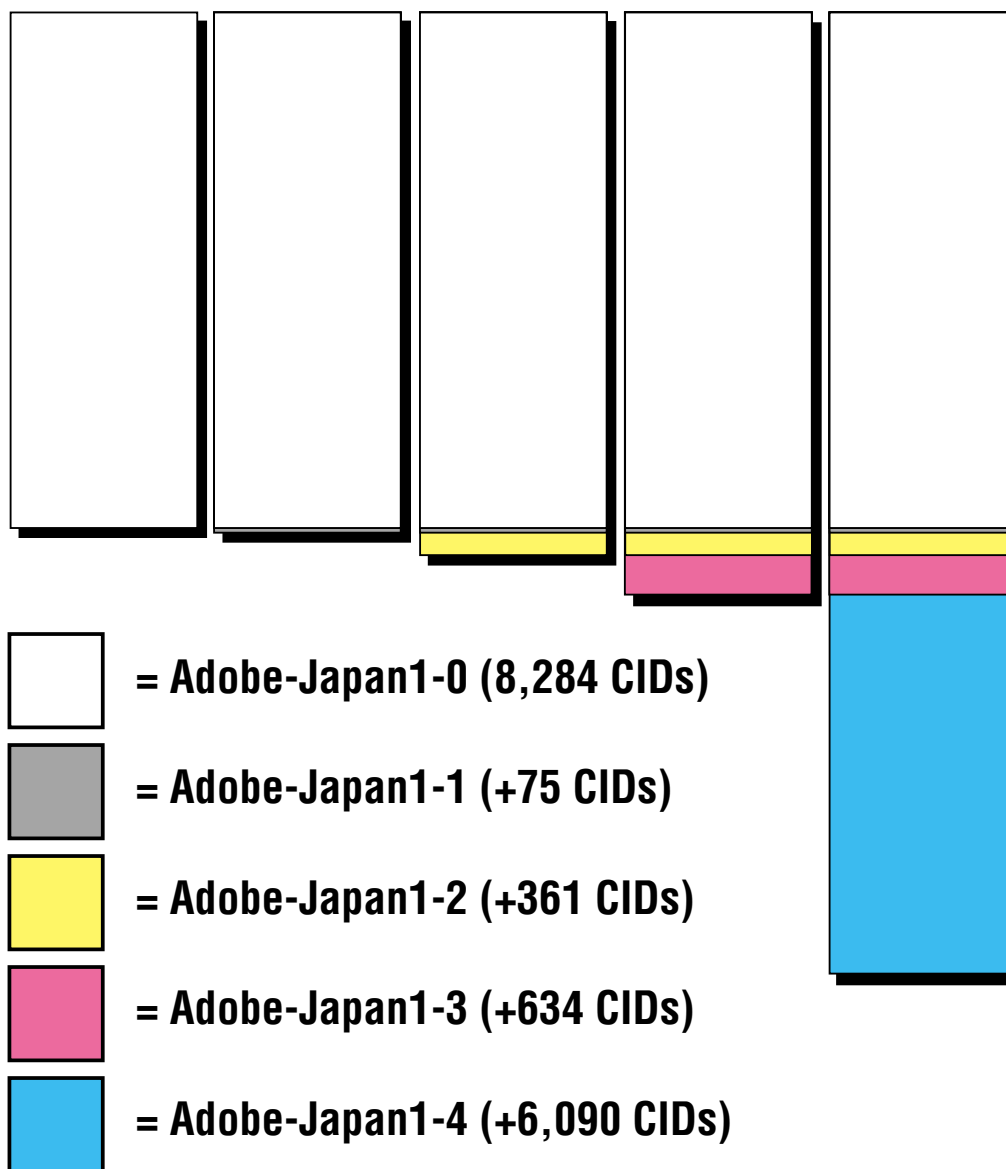
# History of Adobe-Japan1-4

- Began as Supplement 0 (Adobe-Japan1-0) in 1992–1993
  - Equivalent to OCF (Original Composite Font) glyph set
  - 8,284 CIDs (Character IDs)
- Supplements 1 and 2 (Adobe-Japan1-1 & Adobe-Japan1-2) defined simultaneously in 1994–1995
  - Supplement 1 (+75 CIDs) added support for JIS90 and the KanjiTalk7 character set
  - Supplement 2 (+361 CIDs) added support for the IBM extensions
- Supplement 3 (Adobe-Japan1-3) defined in 1998 to support OpenType
  - Added 634 pre-rotated forms of all non–full-width glyphs

# History of Adobe-Japan1-4 (Cont'd)

- Supplement 4 (Adobe-Japan1-4) defined in early 2000
  - Satisfies most of the professional/commercial printing needs
  - Added 6,090 glyphs
  - Complete set of genuine italic Latin glyphs
  - Two styles of fractions
  - Nearly 2,000 annotated forms
  - Latin, kana, and kanji ligatures
  - Additional punctuation and symbols
  - Horizontally- and vertically-optimized kana glyphs
  - Ruby glyphs
  - Over 2,000 kanji and kanji variants
- Documented in Adobe Technical Note #5078  
*<http://partners.adobe.com/asn/developer/technotes.html>*

# History of Adobe-Japan1-4 (Cont'd)

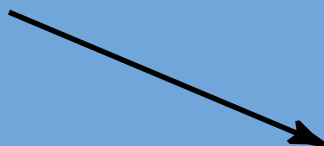


# OpenType Typographic Features

- **Glyph substitution ('GSUB' table)**
  - One-to-one substitution (such as 'jp78' and 'jp83')
  - Many-to-one substitution ('dlig', 'frac', and 'liga')
  - One-from-*n* substitution ('aalt', 'nalt', and 'trad')
- **Glyph positioning ('GPOS' table)**
  - Half-width and proportional alternate metrics features—  
'halt', 'palt', 'vhal', and 'vpal'
  - Kerning features—'kern' and 'vkrn'
- **Features are made accessible through applications**
  - User-invoked features (such as 'ital' and 'trad')
  - Application-invoked features (such as 'vert' and 'vrt2')

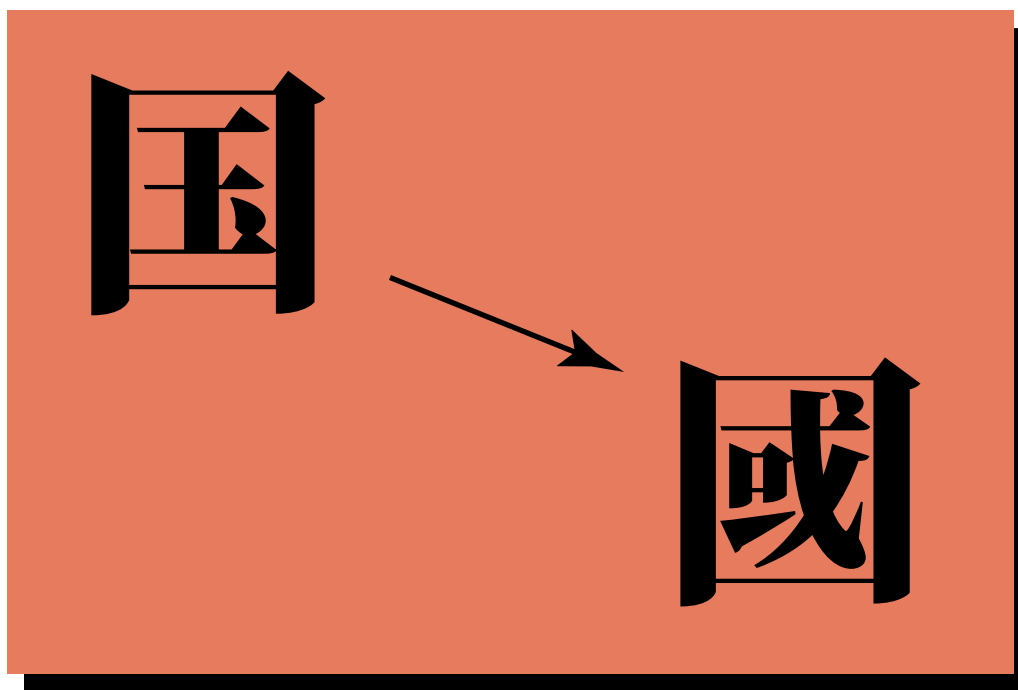
# Italic Substitution ('ital')

Efficiency



*Efficiency*

# Traditional Substitution ('trad')





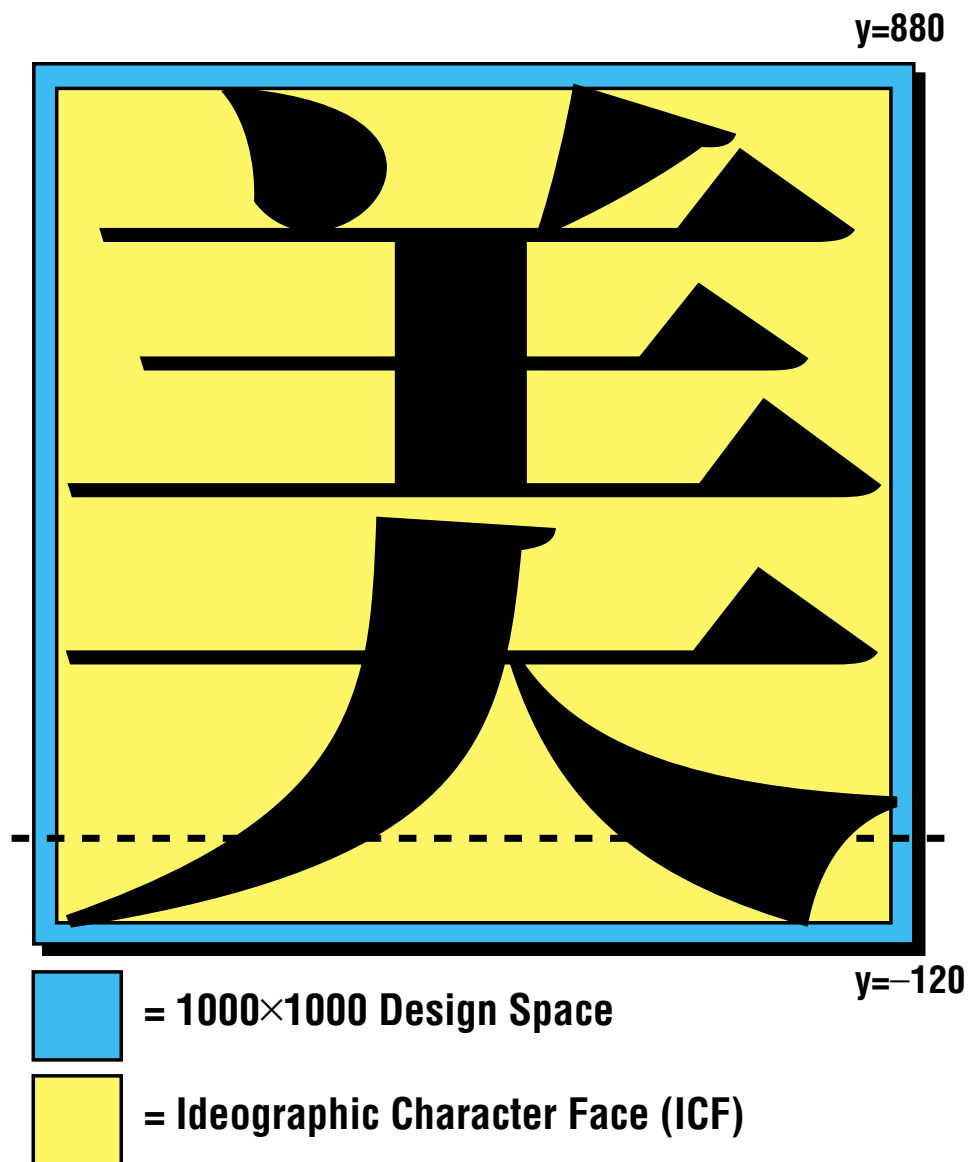
# OpenType Tables & Overrides

- 16 'sfnt' tables:
  - BASE, CFF, DSIG, GPOS, GSUB, OS/2, VORG
  - cmap, head, hhea, hmtx, maxp, name, post, vhea, vmtx
- Typographic features defined in 'GSUB' and 'GPOS' tables
  - GSUB: aalt, frac, numr, dnom, dlig, expt, fwid, hkna, hwid, jp78, jp83, nalt, pwid, ital, liga, qwid, ruby, sinf, sups, trad, twid, zero, vert, vkna, vrt2
  - GPOS: halt, kern, palt, vhal, vkern, vpal
- PostScript outlines in 'CFF' table ('glyf' table for TrueType outlines)
- Useful overrides in 'BASE', 'OS/2', and 'vmtx' tables
- Underlying encoding in 'cmap' table is Unicode

# **‘BASE’ & ‘OS/2’ Overrides**

- Ideographic Character Face (ICF) values stored in ‘BASE’ table
  - For setting text on margins
  - InDesign 1.0J uses this information for better typography
- Design space (aka, em-box) information stored in the ‘BASE’ and ‘OS/2’ tables
  - Necessary for consistent (and correct) vertical behavior
  - Handles non-square design space (newspaper fonts)
  - The use of the ‘BASE’ table is preferred over the ‘OS/2’ table (design space in ‘OS/2’ table for backward compatibility)
  - Stored as ‘BASE’ table’s ‘ideo’ tag, and optionally as ‘idtp’ tag

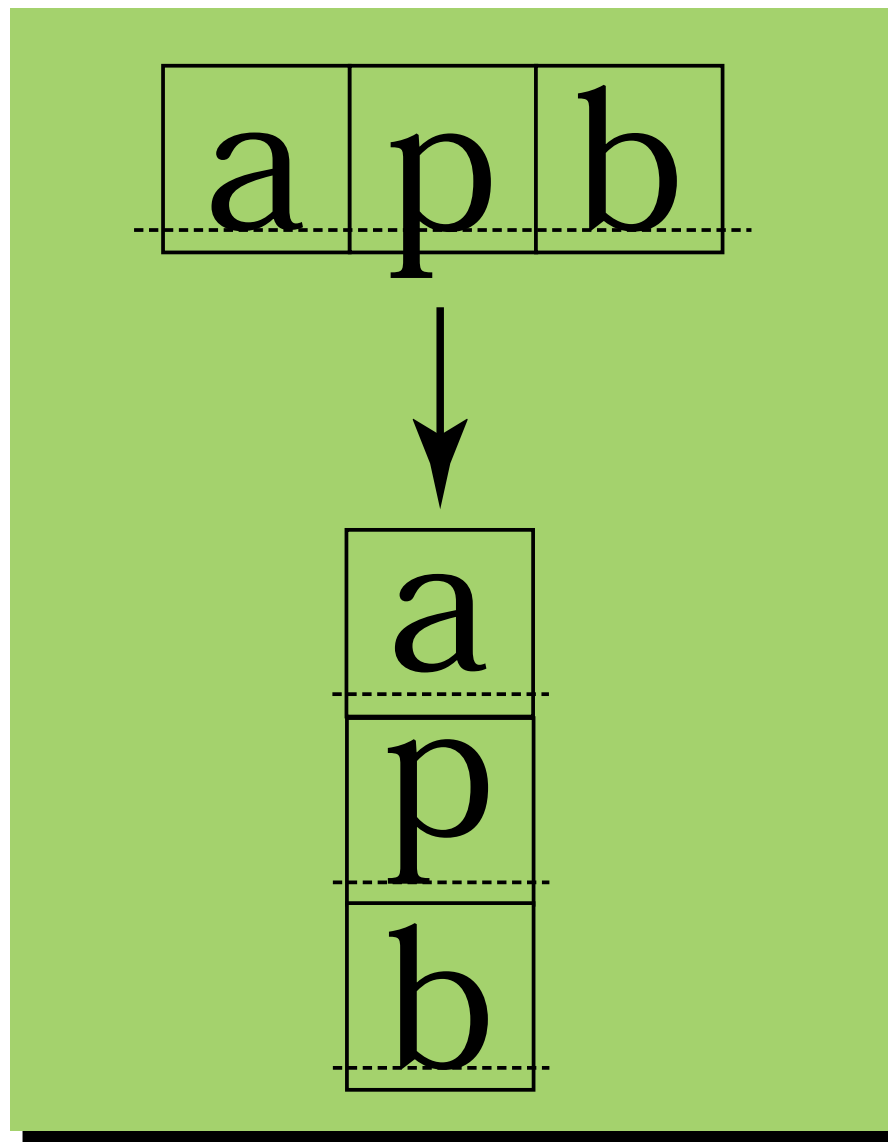
# 'BASE' & 'OS/2' Overrides (Cont'd)



# ‘vmtx’ Overrides

- For adjusting the vertical placement of glyphs that rest on the Latin baseline
  - Latin, Greek, and Cyrillic glyphs
  - Some symbols
- Implemented as ‘vmtx’ (vertical metrics) table overrides, and in the ‘VORG’ (vertical origins) table
- Affects default behavior

# ‘vmtx’ Overrides (Cont’d)



# ‘vmtx’ Overrides (Cont’d)

T y p o g r a p h y

T  
y  
p  
o  
g  
r  
a  
p  
h  
y

T  
y  
p  
o  
g  
r  
a  
p  
h  
y

# Application & OS Support

- **Mac OS X & Windows 2000**
  - ATM not required—built-in renderer
- **Mac OS 9 and earlier, Windows NT4 & Windows 98**
  - ATM required—no built-in renderer
- **Adobe InDesign 1.0J**
  - OpenType rendering built-in
  - Supports most OpenType features
  - Cross-platform
- **Adobe Acrobat 5.0**
  - OpenType font embedding

# OpenType Font Development

- Adobe is developing Kozuka Mincho and Kozuka Gothic designs based on Adobe-Japan1-4
  - Six weights of Kozuka Mincho Pro being tested
- OpenType FDK (Font Developer Kit) available from Adobe for font and font tools developers, at no charge
  - OpenType compiler
  - OpenType proofing tools
  - OpenType table editing tools
  - Sample OpenType fonts and their sources
  - Tools run on Mac OS & Windows
- Digital signature ('DSIG' table) tools available from Microsoft



# Future Prospects & More Info

- Adding support for JIS X 0213:2000 is being considered for Supplement 5 (Adobe-Japan1-5)
- More information about OpenType:  
*<http://partners.adobe.com/asn/developer/opentype/>*
- More information about OpenType features:  
*<http://partners.adobe.com/asn/developer/opentype/feattags.htm>*



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