Ideographic Variation Sequences

—Implementation Details & Demo—

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What Is An Ideographic Variation Sequence?

- **Base Character + Variation Selector = Glyph**
  - Base Character (BC)—Any "CJK Unified Ideograph"
  - Variation Selector (VS)—U+E0100 through U+E01EF (240 VSes in total)
    - Designated VS17 through VS256
  - *Note that U+FE00 through U+FE0F (VS1 through VS16) are not for IVS use!*
- **An IVS resolves to a glyph**
- **An IVS is registered and unique**
  - Ideographic Variation Database (IVD) collections use a registration process
- **The power, safety, and reliability of "plain text"**
  - The ability to survive or endure in more environments

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“Adobe-Japan1” IVS Registration Details

- **The Adobe-Japan1-6 Character Collection**
  - 23,058 glyphs—CIDs (*Character IDs*) 0 through 23057
  - 14,665 of these glyphs are classified as ideographs
- **Adobe-Japan1 IVD Collection registration summary**
  - First Draft became PRI 98 in 12/2006
  - Second Draft became PRI 108 in 08/2007
  - Final Form Declared on 12/14/2007
    - 14,647 registered IVSes in total, covering 14,645 of the 14,665 ideographs
    - See: *http://www.unicode.org/ivd/*
  - Twenty ideographs remain without IVSes
    - One is now in Extension C: U+2A9E6 maps to Adobe-Japan1 CID+14145

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IVS-Enabling Fonts

- **Via new 'cmap' subtable—Format 14**
  - Maps a sequence of two Unicode code points to a GID (*Glyph ID*)
    - Base Character + Variation Selector = GID
- **Expected to work with existing 'cmap' subtables**
  - Default UVSes reflected in Format 12 subtable
  - Adding a Format 14 'cmap' subtable does not break existing fonts
- **AFDKO Version 2.1 font tools—*available at no charge***
  - *MakeOTF*—new *-ci* option to specify UVS definition file
    - Very modest increase in 'cmap' table size—only 26K for all Adobe-Japan1-6 IVSes
  - *Spot*
  - See: *http://www.adobe.com/devnet/opentype/afdko/*

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IVS-Enabled Fonts

- **Kozuka Gothic/Mincho Pr6N—Version 6.004**
  - Six weights per family–ExtraLight, Light, Regular, Medium, Bold & Heavy
  - Adobe-Japan1-6—23,058 glyphs (JIS2004-*savvy*)
  - Their 'cmap' tables reflect the final registered IVSes in Format 14 subtable
    - All 14,647 IVSes are included—13,276 default plus 1,371 non-default
- **Ryo Text/Display/Gothic PlusN—Version 3.006**
  - Sixteen fonts in total
  - Adobe-Japan1-3 plus 144 extra—9,498 glyphs (JIS2004-*savvy*)
  - Their 'cmap' tables reflect the final registered IVSes in Format 14 subtable
    - 7,155 IVSes are included—6,765 default plus 390 non-default

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IVS-Enabled Applications

- **Adobe Acrobat Version 9.0—PDF Forms**
  - Via a floating palette for selecting alternate glyphs
- **Adobe Flash Player Version 10**
  - Via the *flash.text.engine* APIs to the list of IVS-enabled applications
- **JustSystems is IVS-enabling their IME called ATOK**
- **Microsoft and Apple are fully aware of IVSes**

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Demo Time…

一二三四五六七八九十

交冬割吸害平文次沪灰父祓

笈角込辻達達邉邊靜音龍龜

塚漢艹艹辶響

塚漢艹艹辶響

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IVD Collection Interaction

- **Interaction is inevitable with multiple IVD Collections**
  - The same glyph used by different IVD Collections
- **Proposal to declare as private, semi-public, or public**
  - IVD Collections are private by default
  - The Adobe-Japan1 IVD Collection is thus private at this time
- **Proposal to "clone" and "import" IVSes**
  - IVD Collections can "import" IVSes from public IVD Collections
  - IVD Collections can "clone" IVSes from semi-public IVD Collections
  - IVSes of private IVD Collections cannot be imported nor cloned
- **This topic is still in discussion!**

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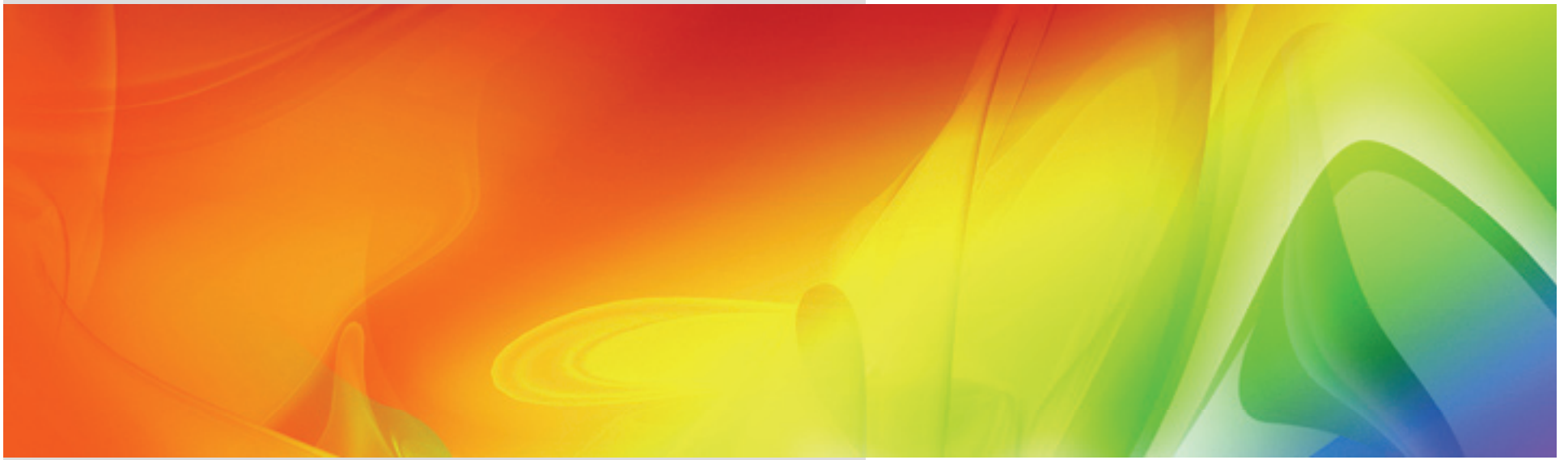
Other Uses For UVSes

- **The IVS support in OpenType is general-purpose**
  - Not specific to IVSes, but rather for UVSes (*Unicode Variation Sequences*)
- **UVSes are applicable to other scripts**
  - Already in use by Mongolian
  - Dr. Richard Cook proposes TVSes (Tangut Variation Sequences)



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