Building Source Han Sans & Noto Sans CJK

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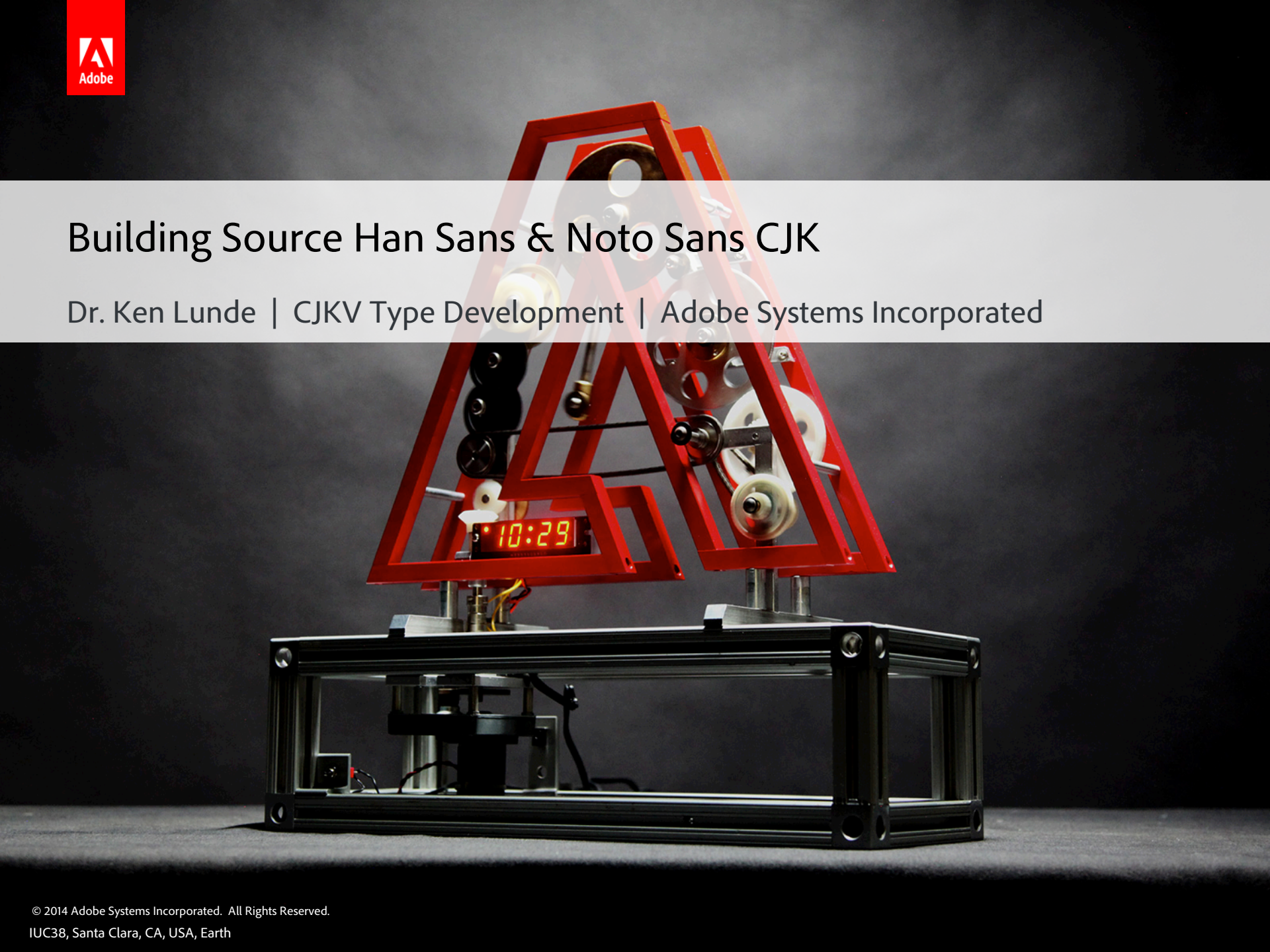

IUC38, Santa Clara, CA, USA, Earth

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  - HINT: Using unique Unicode-based working glyph names helps a lot!
- **8 easy steps!** ☺

Step 1: Process Each Type Foundry's Glyph Data

- Adobe-Japan1-6 glyphs are completely processed by Adobe's team in Japan
  - Glyphs outside of Adobe-Japan1-6 are partially processed by Adobe's team in Japan
  - Receive data in three formats: *CIDFont resources, name-keyed fonts* & *UFOs*
  - Build two CIDFont resources per weight: *Adobe-Japan1-6* & *non–Adobe-Japan1-6*

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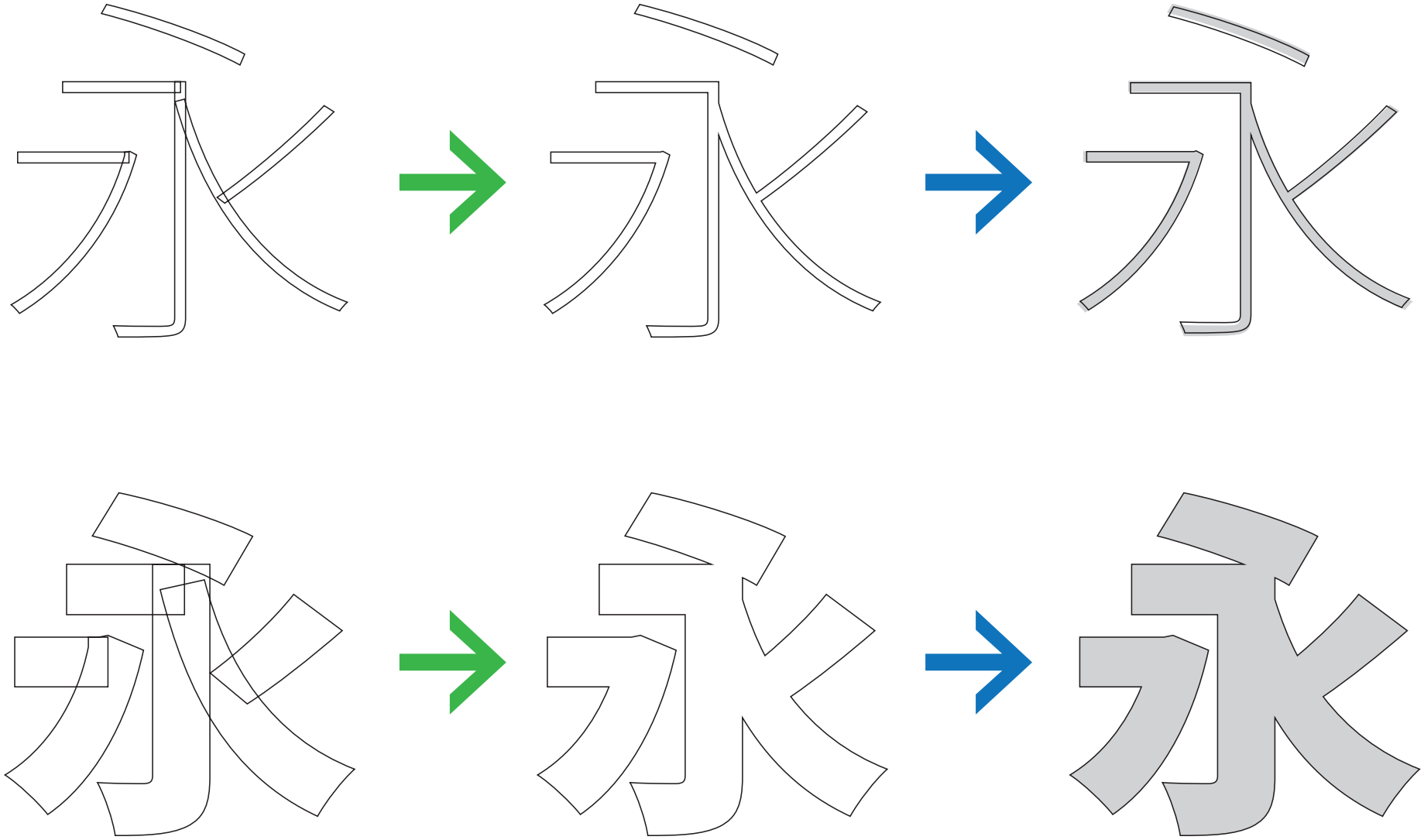
  - Build two CIDFont resources per weight: *Adobe-Japan1-6* & *non–Adobe-Japan1-6*
- TWB2 glyph data from Changzhou SinoType, Iwata & Sandoll
  - Generate row fonts for all seven weights—*using TWB2 (Type Work Bench 2)*
  - Build unhinted CIDFont resources
  - Remove overlapping subpaths using the AFDKO *checkOutlines* tool
  - Apply script-based non-linear scaling and script-based baseline shifting
    - Using the AFDKO *IS* (Intelligent Scaling) and *rotateFont* tools
  - Build four CIDFont resources per weight: *Changzhou SinoType (2), Iwata* & *Sandoll*

Overlapping Subpath Removal & Non-Linear Scaling: uni6C38-CN



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- Use the AFDKO *mergeFonts* tool to assemble 65,535-glyph interim fonts

Type Foundry	CID Range	Glyphs	Content
Adobe	0–14453	14,454	Adobe-Japan1-6 (subset)
	14454–15924	1,471	Outside Adobe-Japan1-6
Iwata	15925–17464	1,540	JP ideographs
	17465–17626	162	KR ideographs
Changzhou SinoType	17627–24198	6,572	CN non-URO
	24199–41980	17,782	CN URO
	41981–42200	220	CN non-URO
	42201–42344	144	TW non-URO
	42345–48676	6,332	TW URO
	48677–48692	16	TW non-URO
	48693–49004	312	HK non-URO
	49005–50053	1,049	HK URO
	50054–51760	1,707	HK non-URO
Sandoll	51761–65484	13,724	Hangul
N/A	65485–65534	50	Reserved

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- 3,458 additional Iwata-designed JP glyphs were removed
  - To make room for SinoType-designed TW & HK glyphs that had higher priority

Step 3: Decompile & Rebuild CIDFont Resources With Final Ordering

- Decompile 65,535-glyph CIDFont resources into 409 name-keyed fonts
  - Using the *decid* tool (not included in AFDKO) and the **interim** ordering file
  - A two-level directory hierarchy is created: *hint directory* & *rowfont directory*

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- Hint the glyphs using the AFDKO *autohint* tool

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  - Vertical glyphs
    - CIDs 65145 through 65484 (340 glyphs)

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  - Simplified Chinese, Traditional Chinese (Taiwan), Japanese & Korean
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- The Traditional Chinese CMap resource is based on **Simplified Chinese**
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- The Traditional Chinese CMap resource is based on Simplified Chinese
  - Glyphs with working names that include "-TW" or "-HK" are preferred
- Use the *cmap-tool.pl* tool to compile the raw mappings into CMap resources

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- *SourceHanSans_KR_sequences.txt*: Standardized Variants
- *SourceHanSans_TWHK_sequences.txt*: Standardized Variants
- These files are used to build Format 14 (UVS) 'cmap' subtables
  - UVS = *Unicode Variation Sequence* (registered IVSes & Standardized Variants)

Step 6: Generate AFDKO “features” Files

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- Raw “features” file data uses working glyph names
  - Working glyph names are converted to CIDs when compiling final “features” files
  - This insulates against CID changes between interim (and future) versions of the fonts

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```
[SourceHanSans-ExtraLight]
     f=3,1,0x411,\6E90\30CE\89D2\30B4\30B7\30C3\30AF
     s=3,1,0x411,ExtraLight
     l=3,1,0x411,\6E90\30CE\89D2\30B4\30B7\30C3\30AF ExtraLight
     f=Source Han Sans
     s=ExtraLight
     l=Source Han Sans ExtraLight

[NotoSansCJKjp-Thin]
     f=Noto Sans CJK JP
     s=Thin
     l=Noto Sans CJK JP Thin
```

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  - "cidfontinfo" file
  - CIDFont resource
  - UTF-32 CMap resource
  - UVS definition file—*optional*
  - "features" file
  - "FontMenuNameDB" file

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  - CIDFont resource
  - UTF-32 CMap resource
  - UVS definition file—*optional*
  - "features" file
  - "FontMenuNameDB" file
- Required files for the AFDKO *otf2otc* tool
  - Two or more OTFs

Source Han Sans & Noto Sans CJK: Seven Weights & Four Languages!

思源黑体 思源黑體 源ノ角ゴシック 본고딕

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Procurement Portals

- Source Han Sans
  - Installable fonts → *https://github.com/adobe-fonts/source-han-sans/releases/*
  - Typekit Desktop Sync → *http://www.typekit.com/*
  - Sources → *https://github.com/adobe-fonts/source-han-sans/*
    - AFDKO (OS X, Windows & Linux) → *http://www.adobe.com/devnet/opentype/afdko.html*
    - AFDKO "open source" sources → *https://github.com/adobe-type-tools/afdko/*
- Noto Sans CJK
  - Installable fonts → *http://www.google.com/get/noto/*

Feedback Is Welcomed & Encouraged!

- Source Han Sans

  https://github.com/adobe-fonts/source-han-sans/issues/
- Noto Sans CJK

  https://code.google.com/p/noto/issues/

More Information

- CJK Type Blog

  http://blogs.adobe.com/CCJKType/

- Official ReadMe

  https://github.com/adobe-fonts/source-han-sans/raw/release/SourceHanSansReadMe.pdf

A Font Solution For More Than 1.5 Billion People