Requirements for Japanese Document Layout

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Introduction
Japanese document layout

- Japanese character size is square.
- Japanese document layout is based on the grid type manuscript paper layout.
Requirements for text layout in East Asia

- Based on Han-Character (East Asian Ideograph)
  - Difference of font design framework
  - Square type face vs. ascendant / descendent line based design
- Strong market needs for vertical text layout exist
  - Publishing industries and newspaper industries stick on vertical layout
  - Some educational area requires vertical text layout
J AGAT Taskforce

- Currently voluntary research project conducted by JAGAT
  - Antenna House and Justsystems are involved
- Planned to input to W3C’s incubator group
- Requirement: Based on JIS X 4051
  - JIS X 4051:1993 – Horizontal layout
  - JIS X 4051:1995 – Vertical layout
  - JIS X 4051:2004 – Updated
  - Project editors are the core contributor for this taskforce
- Plan: align with CSS3 draft in general and add some new functionality from Japanese market needs
- Plan: harmonization with XSL 2.0
## Taskforce Members

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Requirements
Japanese Manuscript Paper Layout

- Japanese document layout is based on the grid type manuscript paper layout.
- Image area (Hanzura) is specified by character number and line number.
  (XSL does not support.)

Vertical

Horizontal
Unit

- Q is necessary for Japanese document layout. (1 Q = 1/4mm = 0.25mm)

  - XSL 1pt = 1/72in ≈ 0.3528mm (PostScript Point)
  
  - JIS 1pt = 1/72.27in ≈ 0.3514mm (American Point)
  
  - TeX 1pt = 1/72.27in ≈ 0.3514mm

  - 1bp = 1/72in ≈ 0.3528mm
Kerning

- Punctuation marks are also square. Kerning is required.
- Though "punctuation-trim" is described in CSS, that is not sufficient.
Hang

- Under the hang rule, period and comma may be located outside the image area (hanzura), which XSL does not support.

- In CSS3, "hanging-punctuation" is specified.
Space between Japanese words and words in Latin script

- Though CSS3 can support this by “text-autospace”, XSL does not support.
- In CSS3, "text-autospace" can be applied as follows.
  - none
  - ideograph-alpha
  - ideograph-numeric
  - ideograph-parenthesis
  - ideograph-space
Ruby

- Though ruby can partly be expressed by `<fo:inline-container>` of XSL, this function doesn't satisfy such conditions as line breaking and justification.

- Ruby is also specified in CSS which almost satisfies JIS X 4051.

Example of single side ruby

Ruby at line end

Ruby at line head
Warichu

- The element `<fo:inline-container>` can partly express line notes, which occurs problem by line breaking.

- The "text-combine" of CSS can also partly express line notes.

Example of line note

Example of divided line note
Tate-chu-yoko

- Tate-chu-yoko can be realized by applying "writing-mode" of CSS.
Furi-wake

- Both XSL and CSS don't support furi-wake

Example of furi-wake

Example of furi-wake with multiple line component

Vertical example
Emphasizing Mark (Ken-ten)

- There is no emphasizing mark in XSL.

Example of emphasizing mark
Underline

- XSL does not support the variety of text qualified underline in CSS.

  solid
double
dotted
thick
dashed
dot dash
dot dot dash
wave
Superscript/Subscript (Soe-ji)

- In XSL, both superscript and subscript can be defined by shifting base line as baseline-shift="super" or baseline-shift="sub".

\[ nC_r \]

\( n \) 個の中から重複なく \( r \) 個を取り出した組合せの数

\[ PO_4^{3-} \]

リン酸基

\[ ^{12}_6C \quad ^{13}_6C \]

炭素の同位体
Tab

- Both XSL and CSS do not support tab stop function.
Column

- Though XSL supports only single span, multiple span is required.
Footnote, Head-note, Side-note

- In XSL, footnote with every single span is supported. In addition, auto numbering is required.
- There is no head-note, side-note, or endnote in XSL.
- Head-note and side-note may be modified by `<fo:float>`.
Footnote
Side-note
Line-space adjustment (kin-to-wari)

- Line-space adjustment is employed to list several words consisting of the different number of characters.
- In XSL, display-align property designates before, center, or after.
- Line-space adjustment is realized to extend the property as display-align="justify".

Line-space adjustment with other cases
Figures and Pictures Positioning

- In XSL, text flow control around absolute position of figures and pictures.
Figures and Pictures Positioning
Guide Mark (tonbo)

- There is no guide mark specification in XSL.
Guide Mark Example

図1 種別を示す図版

図1 種別を示す図版

図2 連続する図版

図2 連続する図版

インライングラフは、特に文字と図表との間に注目された

図2 連続する図版

インライングラフは、特に文字と図表との間に注目された
Ideographic annotations

- There is no specification of annotations for classical Chinese writing in XSL.
Conclusion
Conclusion

- There is a need for:
  - grid-based layout of Asian Han-Character
  - vertical text layout
- Existing and new work (e.g. charters) on XSL-FO 2.0 and CSS 3 should respond to that need
- Benefit for W3C: growing markets in Asia for W3C technology including Japan, China and Taiwan
Thank you

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