An Introductive Presentation of XSL-FO

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LIFC — University of Franche-Comté
GUIT meeting, 15th October 2011
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XSL-FO

Aims to describe high-quality output prints.
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In fact:

\[
\text{DSSSL} \rightarrow \text{XSL} \rightarrow \text{XSLT} \rightarrow \text{XSL(-FO)}
\]
XSL-FO

Aims to describe high-quality output prints.

In fact:

\[
\begin{align*}
\text{DSSSL} & \rightarrow \text{XSL} \rightarrow \overline{\text{XSLT}} \\
& \rightarrow \text{XSL}(-\text{FO})
\end{align*}
\]

Very verbose language.
Using XSL-FO

XML text
Using XSL-FO

XML text $\xRightarrow{\text{XSLT}}$ XSL-FO
Using XSL-FO

XML text $\xrightarrow{\text{XSLT}}$ XSL-FO $\xrightarrow{\text{FO processor}}$ PDF, PS, etc.
Using XSL-FO

XML text $\xrightarrow{\text{XSLT}}$ XSL-FO $\xrightarrow{\text{FO processor}}$ PDF, PS, etc.

Automatically chained by ‘complete’ FO processors.
Using XSL-FO

XML text $\xrightarrow{\text{XSLT}}$ XSL-FO $\xrightarrow{\text{FO processor}}$ PDF, PS, etc.

Automatically chained by ‘complete’ FO processors.

Not WISIWYG.
FO processors

Free of charge:

the best—the most complete—Apache fop.
FO processors

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the best—the most complete—Apache fop.

Related to TEX's world: PassiveTEX
FO processors

Free of charge:

the best—the most complete—Apache fop.

Related to \(\text{T}_{\text{E}}\text{X}\)'s world: Passive\(\text{T}_{\text{E}}\text{X} \leftrightarrow \) stalled.
\LaTeX \Rightarrow \text{XSL-FO}

EuroBacho\TeX, April 2007.
\LaTeX \iff \text{XSL-FO}

EuroBachoTEX, April 2007.

GUTenberg, October 2008.
\LaTeX \implies \sf{XSL-FO}

EuroBacho\TeX, April 2007.

GUTenberg, October 2008.

Multidirectional typesetting in \sf{XSL-FO}. Bacho\TeX, April 2009.
$\text{\LaTeX} \iff \text{XSL-FO}$

EuroBacho\TeX, April 2007.

GUTenberg, October 2008.

Multidirectional typesetting in XSL-FO. Bacho\TeX, April 2009.

Italian translation updated, by Massimiliano Dominici.
General principles

Same ideas than (L)\TeX{}, but the markup is more homogeneous.
General principles

Same ideas than \LaTeX, but the markup is more homogeneous.

\LaTeX:

- \{ \texttt{em} ... \}
- \texttt{emph}{...}
- \texttt{\begin{emph}...\end{emph}}
General principles

Same ideas than \LaTeX, but the markup is more homogeneous.

\LaTeX:

- \{\em \ldots\}\)
- \texttt{\emph{\ldots}}
- \begin{emph}{\ldots}\end{emph}

\texttt{XSL-FO} $\iff$ \begin{emph}{\ldots}\end{emph}.
Basic elements

\par
Basic elements

...
par
<fo:block>...</fo:block>
Basic elements

...\par

<fo:block>...</fo:block>

\begin{minipage}{...}\end{minipage}
Containers

fo:block  fo:inline  ...
Containers

fo:block  fo:inline ...

If an attribute is not redefined, it is inherited:

<fo:block font-family="sans-serif" font-size="medium">
  You’re afraid,
  <fo:inline font-size="large">ain’t</fo:inline> you?
</fo:block>
Rubber lengths $\leftarrow$ interactions

space-before    space-after
Rubber lengths $\leftrightarrow$ interactions

space-before  space-after

Components:

space-before="..."
space-before.minimum="..."
space-before.optimum="..."
space-before.maximum="..."
Solving conflicts

Beginning or ending a reference $\leftarrow$ conditionality (discard | retain).

Between two reference areas $\leftarrow$ precedence (integer | force).
More about interactions

keep-with-next="always" or an integer,
keep-with-next.within-line
keep-with-next.within-page
keep-with-previous.....
keep-together.....
Other elements

Close to \LaTeX’s commands:

\texttt{fo:footnote} \hspace{1cm} \texttt{fo:float}
Other elements

Close to \LaTeX's commands:

\begin{itemize}
  \item fo:footnote
  \item fo:float
\end{itemize}

Closer to (X)HTML:

\begin{itemize}
  \item fo:list-block
  \item fo:table
\end{itemize}
Other elements

Close to \LaTeX’s commands:

\begin{itemize}
  \item fo:footnote  \item fo:float
\end{itemize}

Closer to (X)HTML:

\begin{itemize}
  \item fo:list-block  \item fo:table
\end{itemize}

Interactions about such elements.
Multilingual capabilities

Word hyphenation w.r.t. a language. Partly implemented, but specified in the W3C recommendation.

(See examples.)
Page model

≃ document classes in \LaTeX.
Page model

\approx document classes in \LaTeX.

fo:region-body,
fo:region-before, fo:region-after,
fo:region-start, fo:region-end.
Page model

\[ \sim \text{document classes in \LaTeX}. \]

\texttt{fo:region-body, fo:region-before, fo:region-after, fo:region-start, fo:region-end.}

Headers and footers \( \leftarrow \) static content.
Page model

\( \sim \) document classes in \texttt{\LaTeX}.

\texttt{fo:region-body},
\texttt{fo:region-before}, \texttt{fo:region-after},
\texttt{fo:region-start}, \texttt{fo:region-end}.

Headers and footers \( \Longleftrightarrow \) static content.

Text for successive pages \( \Longleftrightarrow \) flow.
Page model’s regions
One or more pages

fo:simple-page-master,

fo:page-sequence-master.
More advanced

<fo:page-sequence-master ...>
<fo:repeatable-page-master-alternatives>
<fo:conditional-page-master-reference
  page-position="..."
  master-name="..."/>
<fo:conditional-page-master-reference ...

... ...
</fo:repeatable-page-master-alternatives>
</fo:page-sequence-master>
Directions

- `inline-progression-direction`,

- `block-progression-direction`. 
Directions

• *inline-progression-direction*,

• *block-progression-direction*.

In Italian: *lr-tb (lr)*.
Directions

- *inline-progression-direction*,
- *block-progression-direction*.

In Italian: *lr-tb (lr).*

Semitic languages (Hebrew, Arabic):
Directions

• *inline-progression-direction*,

• *block-progression-direction*.

In Italian: *lr-tb (lr)*.

Semitic languages (Hebrew, Arabic): *rl-tb*. 
Directions

- *inline-progression-direction*,
- *block-progression-direction*.

In Italian: *lr-tb* (lr).

Semitic languages (Hebrew, Arabic): *rl-tb*.

Traditional Japanese:
Directions

- *inline-progression-direction*,
- *block-progression-direction*.

In Italian: *lr-tb* (lr).

Semitic languages (Hebrew, Arabic): *rl-tb*.

Traditional Japanese: *tb-rl*. 
Latin languages
Semitic languages
Traditional Japanese
Other systems

lr-alternating-rl-bt
lr-inverting-tb
tb-lr-in-lr-pairs
tb-lr bt-lr bt-rl lr-bt rl-bt
Cumulation

(See examples.)
Conclusion

$\text{FO processors} \leftrightarrow \text{not } \LaTeX$. 
Conclusion

FO processors $\Leftarrow$ not \LaTeX.

My personal point of view: (\La)\TeX and XSL-FO should converge.