

WordML2 \LaTeX 1.0
Using Microsoft $\text{\textcircled{R}}$ Word 2003
as a front-end for \LaTeX 2 ϵ

Ruggero Dambra

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Abstract

WordML2 \LaTeX is a meeting point of two titans in word processing: Microsoft $\text{\textcircled{R}}$ Word 2003 and \LaTeX 2 ϵ .

WordML2 \LaTeX is a XSL stylesheet that transforms a Microsoft $\text{\textcircled{R}}$ Word 2003 document in a \LaTeX 2 ϵ source.

Contents

1	Introduction	3
2	Description of the program	3
2.1	Features	3
2.2	Limits	5
3	User Manual	5
3.1	Installation	5
3.2	Production of an electronic document	6
3.2.1	Preparation	6
3.2.2	Drafting	7
3.3	Final Document Production	7
3.3.1	Exporting	7
3.3.2	Compiling	8
A	Gnu Generic Public License GPL	10

List of Tables

1	Choice of structure levels in Microsoft® Word 2003 for L ^A T _E X 2 _ε document classes	7
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1 Introduction

Microsoft® Word[1] e L^AT_EX 2_ε[2] are the best known representatives of two substantially different approaches in the production of electronic documents.

The first is the champion of the WYSIWYG¹ philosophy, that aims to show immediately to the user, during the drafting, the final layout of the document.

The second is based upon a simple but powerful markup language, that describes the layout and leaves the user to concentrate on the contents rather than the final layout of the document. A L^AT_EX 2_ε source is a simple text document, whose drafting doesn't require any special program nor a GUI, but must be compiled to obtain an automatically formatted document.

The first approach is often easier for the drafting of short documents with free layout and formatting, on the contrary the second is more suitable for big, structured, uniform, beautiful documents. In spite of the superior typographic quality of the final document and a considerable number of possibilities offered by L^AT_EX 2_ε, Word is much more diffused and used because the common wordprocessor user is not keen on learning a yet simple programming language.

Microsoft® Word 2003 can save its documents as XML[3] and meanwhile apply them a XSLT[4] transformation. This fact virtually permits to export the documents in any format (on condition that the user has a right stylesheet) and opens the door to a usability of Microsoft® Word 2003 as a front-end for other document formats.

2 Description of the program

WordML2L^AT_EX is a XSL stylesheet that could be applied to a WORDPROCESSINGML[5] document, the XML format of Microsoft® Word 2003, to transform it in a L^AT_EX 2_ε source. Naturally it's possible to apply the transformation also outside of Microsoft® Word 2003, using the standard methods of the XML technology.

Features and limits of the transformation are described in sections 2.1 and 2.2.

2.1 Features

The main features of WordML2L^AT_EX are:

¹WYSIWYG is the acronym of *What You See Is What You Get*.

- Preparation for the creation of hypertextual PDF files (using `pdfLATEX`);
- UTF-8[6] characters coding with partial (but extensible) translation of special characters in the correspondent `LATEX 2ε` commands;
- Conservation of the properties of the original document;
- Perceiving of the language;
- Conservation of the page format and borders;
- Structure recognition;
- Text alignment recognition;
- Font family² (only for serif, sans-serif, typewriter), style and size recognition;
- Hidden text is transformed in comments.

The following objects can be recognized and translated:

- Superscript and subscript;
- Figures;
- Footnotes;
- Crosslinks;
- Tables;
- Table of contents and table of figures;
- Text color and highlighting;
- Item lists and numbered lists;
- Simple math formulas in EQ fields.

²Fonts are divided for family in serif, sans-serif, calligraphic, fantasy, symbol, typewriter.

2.2 Limits

It's necessary, during the drafting of the document in **Word**, to consider the following limits of **WordML2 \LaTeX** :

- The structure of the document can not be inferred, so it must be explicitly indicated using for example the “structure visualization” in **Word**. It's advisable besides to use the model of document `Normal.dot` and its default styles.
- To preserve the images, it's necessary to use linked images, in formats compatible with **pdf \LaTeX** :
 - JPG for true color images;
 - PNG for line art images;
 - PDF for vectorial graphics.

The image files must be in the same relative path of the **Word** and **$\LaTeX 2_{\epsilon}$** files, or these two files must be saved in the same path.

- Calligraphic, fantasy and symbolic font families are not recognized.
- **Word** headers and footers are not managed.
- Translation of inner objects is not possible, even **Microsoft® Equation Editor 3.0** equations.
- The settings of the output **$\LaTeX 2_{\epsilon}$** file are obtained from the only first section of the **Word** document, included the contingent layout in more columns, that's transformed in two columns' layout. **Word** sections are not managed.
- No color background for table cells.

All these limits, and many other, can be bypassed altering the output **$\LaTeX 2_{\epsilon}$** source opportunely.

3 User Manual

3.1 Installation

As **WordML2 \LaTeX** is a XML file, it is intrinsically multiplatform and doesn't require anything for the installation: it's sufficient to copy the file `wordml2latex.xml` in any accessible position from the application that wants to use it.

Obviously, to use it profitably it's useful to install:

- Microsoft® Word 2003 (not completely multiplatform), that will be used as a front-end;
- a L^AT_EX 2_ε distribution for the used platform³, to be used to compile the result of the transformation and so obtain the formatted document in PDF.

3.2 Production of an electronic document

3.2.1 Preparation

Microsoft® Word 2003 is used for the drafting of the document. The use of this program is well known, but, to use it profitably as a front-end for WordML²L^AT_EX, it's necessary to follow the guide lines:

1. Use the document model `Normal.dot`, that's the default; it can be useful to change the text alignment in "justified" and, if necessary, the default font size in 10, 11 or 12 points.
2. Start the drafting from the document properties. Specifically, it's necessary to set the `Category`, with one and only one of the following:

article to use the article layout;

book to use the book layout, that prepares two-sided preformatted book;

letter to prepare a letter;

report to use the report layout; it's very similar to article but it has a different section numbering.

Other useful informations are the document title, author, object and keywords.

3. It's possible to define page margins of the entire document.
4. You don't have to worry about the layout and formatting, so you'd better avoid the "Layout view", that could be misleading. The best views are "Normal" or "Structure".
5. If You are writing a structured document, use the "Structure view" and use structure levels as explained in table 1.

³MikT_EX[7] is a Windows distribution of L^AT_EX 2_ε.

Word structure	L^AT_EX 2_ε book/report	L^AT_EX 2_ε article/letter
Level 1	Part	Part
Level 2	Chapter	Section
Level 3	Section	Sub-section
Level 4	Sub-section	Sub-sub-section
Level 5	Sub-sub-section	Paragraph
Level 6	Paragraph	Sub-paragraph
Level 7	Sub-paragraph	(not existing)
Normal	Normal text	Normal text

Table 1: Choice of structure levels in Microsoft® Word 2003 for L^AT_EX 2_ε document classes

3.2.2 Drafting

The rules for this phase are:

- It's possible to insert a table of contents and a table of figures, avoiding to insert their titles: Microsoft® Word 2003 doesn't insert them automatically, but L^AT_EX 2_ε does;
- Avoid numbering sections, lists and object; this will be done automatically by L^AT_EX 2_ε.

3.3 Final Document Production

3.3.1 Exporting

This is the procedure to export a XML with a transformation in Microsoft® Word 2003.

1. Choose, in File menu, **Save as...** or **Save as Web page...**;
2. In the window **Save as**, write the file name; if the document contains linked images, save the file in the same path of the original document;
3. Choose the file type: **XML Document(*.xml)**;
4. Check the box **Apply transformation**; the **Transform...** button will be enabled;
5. Push the **Transform...** button and, in the window that opens, select **wordml2latex.xsl** in the installation path;
6. Once returned to the window **Save as**, press **Save**.

3.3.2 Compiling

The $\text{\LaTeX}2_{\varepsilon}$ source so exported can be transferred, paying attention to transfer all the eventually linked images (in the same relative paths).

The compilation can be done in whichever system with a correctly installed and configured version of $\text{\LaTeX}2_{\varepsilon}$.

With most distributions it's sufficient to launch in a console the command `latex` or `pdflatex` followed by the name of the source file. In the first case the result will be a DVI (*DeVice Independent*) file that can be transformed in a POSTSCRIPT and then in a PDF file using the ad hoc filters installed with $\text{\LaTeX}2_{\varepsilon}$; in the second case a PDF file will be output.

References

- [1] Overview of Microsoft® Word 2003: <http://www.microsoft.com/italy/office/word/prodinfo/overview.msp>
- [2] L^AT_EX 2_ε homepage: <http://www.latex-project.org/>
- [3] XML specification: <http://www.w3.org/XML/>
- [4] XSLT specification: <http://www.w3.org/TR/xslt>
- [5] WORDPROCESSINGML specification: <http://rep.oio.dk/Microsoft.com/officeschemas/welcome.htm>
- [6] *Universal Transformation Format* specification: <http://www.utf-8.com/>
- [7] MikT_EX homepage: <http://www.miktex.org/>

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