Mellel XML

revision A
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For corrections and suggestions, please contact us at support@redlers.com

1. Package Document Structure

Mellel documents are document packages. A document package is folder that is presented to the user as a single file by the Finder. You can examine the contents of a Mellel document package by right-clicking it in the finder and choosing "Show Package Contents".

1.1. Main XML file

The main contents of the document are located in the xml file "main.xml". Depending on the user preference, Mellel can compress "main.xml" in which case the file will be named "main.xml.gz".

If both "main.xml" and "main.xml.gz" are present, Mellel will prefer "main.xml"

1.2. Images folder

The optional "Images" folder contains all the images used in the document. Images are refereed to inside the xml document ("image-ref" element inside the Image Data element) using the name without the filename extension. This allows for processing the images and converting them to other image formats by some other process while still allowing the document to open in Mellel.

The order of images and names do not represent the order of appearance within the actual rendering of the document but rather the order in which the images are encountered while generating the document xml. Do not rely on the names to remain constant between saves of the document, even if no images were deleted or inserted into the document.

1.3. Bibliographic References Folder

The bibliographic references folder contains the xml representations of the bibliographic references used in the document. (referred to in the "reference-record" element inside the Citation element.

2. Mellel Archive Structure

The root element of a Mellel document (that is, the "main.xml" file) is the archive element. The archive element is the root of almost all Mellel produced xml files (style sets, find sets etc).

The archive element is composed of two sub-elements. The "pooled-objects" and "root" elements. The root element is where the structure of the archive is actually laid out, the pooled-objects element is an array of objects referred to from the archive element. Each element in the pooled-objects array has a "ref" attribute which contains a document unique identification. The ref attribute allows other sections of the document to refer to that element.

This structure allows a great amount of space saving since it allows for similar elements to be encoded once. For example, if the text has many places where a 12pt font size override applied, the override itself is encoded once and the referring places simply point to the override using its ref.

The pooled-objects elements contains elements referred to from the root element sub-elements and from other pooled-objects elements. For example a paragraph style inside pooled-objects may refer to a character style which is also inside the pooled objects.

The pooled objects must be ordered in such a way that no reference is positioned before the referred to object. This also means that the pooled-objects element must precede the root element in the archive.

3. Elements

3.1. Basic Types

3.1.1. Boolean

3.1.1.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	yes, no	

3.1.1.2. Contents

None.

3.1.2. Float

3.1.2.1. Attributes

Name	Type	Possible Values	Description
value	number	-	A float number

3.1.2.2. Contents

None.

3.1.3. Integer

3.1.3.1. Attributes

Name	Type	Possible Values	Description
value	number	-	A positive or negative integer

3.1.3.2. Contents

None.

3.1.4. String

3.1.4.1. Attributes

None.

3.1.4.2. Contents

None.

3.1.5. Pooled Object Reference

The pooled object reference is a string uniquely identifying an object within the pooled object section of the Mellel XML archive.

3.1.6. Color

Determines the colour of an element. There are three types: calibrated-white includes the elements white and Alpha, calibrated black includes black and Alpha, and calibrated-rgb, which includes red, green, blue and Alpha.

3.1.6.1. Attributes

Name	Type	Possible Values	Description
type	enumeration	calibrated-white, calibrated-black, calibrated-rgb	Determines the colour type. Every colour type has different attributes: calibrated-white: white, alpha; calibrated-black: black, alpha; calibrated-rgb: red, green, blue
white	Float	0-1.0	White component of calibrated-white type.
black	Float	0-1.0	Black component of calibrated-black type
red	Float	0-1.0	Red component of calibrated-rgb type
green	Float	0-1.0	Green component of calibrated-rgb type
blue	Float	0-1.0	Blue component of calibrated-rgb type
Alpha	Float	0-1.0	Alpha component is used, but has no effect at the moment

3.1.6.2. Contents

None.

3.1.7. Background Color

3.1.7.1. Attributes

Name	Type	Possible Values	Description
value	Color	—	The colour values of the background colour
opaque	Boolean	—	Opaque background colour or transparent background colour

3.1.7.2. Contents

None.

3.1.9. Fill Type

3.1.8.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	none, solid	If solid, there is some fill applied.

3.1.8.2. Contents

None.

3.1.9. Stroke Type

3.1.9.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	none, solid, dash-1, dash-2, dash-3, dash-4, dash-5, dash-6, dash-7, dash-8	none=No line; solid=solid line; dash-1 through 8=various pattered lines.

3.1.9.2. Contents

None.

3.1.10. Stroke Weight

3.1.10.1. Attributes

Name	Type	Possible Values	Description
type	enumeration	absolute, relative	Relative when the value is relative to the character; Absolute when in numerical value (e.g. 2 pt.).
value	Integer	—	The weight of the line stroke.

3.1.10.2. Contents

None.

3.2. Character Attributes

3.2.1. Script

3.2.1.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	none, hebrew, roman, greek, cyrillic, arabic, cjk, syriac, thaana, ethiopic, georgian	cjk=Chinese, Japanese, Korean

3.2.1.2. Contents

None.

3.2.2. Line Type

3.2.2.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	None, Underline, Strikethrough, Above, Double Underline, Double Strikethrough, Underline and Overline	

3.2.2.2. Contents

None.

3.2.3. Case Type

3.2.3.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	None, All Caps, Small Caps	

3.2.3.2. Contents

None.

3.2.4. Direction Override

3.2.4.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	default, rtl, ltr	default=no change; rtl=right to left; ltr=left to right

3.2.4.2. Contents

None.

3.2.5. Language

3.2.5.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	A list of languages	

3.2.5.2. Contents

None.

3.2.6. Font

3.2.6.1. Attributes

None.

3.2.6.2. Contents

Name	Type	Description
font-family	String	Font family name (e.g. “Times”)
font-face	String	Font face (e.g. “Bold”)

3.2.7. Character Position

3.2.7.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	normal, superscript, subscript	normal=no change; superscript=superscripted text; subscript=subscripted text

3.2.7.2. Contents

None.

3.2.8. OpenType

Contains an array of elements. When an element is present, the corresponding feature is turned on. Otherwise, the feature is off.

3.2.8.1. Attributes

None.

3.2.8.2. Contents

Name	Type	Description
discretionary-ligatures	N/A	
fractions	N/A	
ordinal	N/A	
swash	N/A	
titling-alternates	N/A	
contextual-alternates	N/A	
all-small-saps	N/A	
superscript-superior	N/A	superscript-superior, subscript-inferior, numerator and denominator are mutually exclusive
subscript-inferior	N/A	superscript-superior, subscript-inferior, numerator and denominator are mutually exclusive
numerator	N/A	superscript-superior, subscript-inferior, numerator and denominator are mutually exclusive
denominator	N/A	superscript-superior, subscript-inferior, numerator and denominator are mutually exclusive
tabular-lining	N/A	tabular-lining, proportional-lining, proportional-oldstyle and tabular-oldstyle are mutually exclusive
proportional-lining	N/A	tabular-lining, proportional-lining, proportional-oldstyle and tabular-oldstyle are mutually exclusive
proportional-oldstyle	N/A	tabular-lining, proportional-lining, proportional-oldstyle and tabular-oldstyle are mutually exclusive
tabular-oldstyle	N/A	tabular-lining, proportional-lining, proportional-oldstyle and tabular-oldstyle are mutually exclusive
stylistic-alternate	N/A	
justification-alternate	N/A	

historical-forms	N/A
historical-ligatures	N/A

3.2.9. Character Attributes Dictionary keys

Several elements contain dictionaries of character attributes. Here are the possible keys and element types associated with them.

3.2.9.1. Character Style and variation

These are the keys used to encode character style and character style variation.

Name	Type	Description
character-style	Pooled Object Reference	
character-style-variation	Character Style Variation	

3.2.9.2. Character Attribute keys

Following are the keys used to encode character attributes (variations, overrides etc.)

Name	Type	Description
main-font	Font	The main font attributes
main-font-size	Integer	The main font size
secondary-font-script	Script	The secondary font script. None indicates that the secondary font is not used
secondary-font	Font	The secondary font attributes. Must indicate a valid font, even if “none” is selected with “secondary-font-script”
secondary-font-scale	Integer	The secondary font size relative (in percent) to the main font size
position	Character Position	Superscript/subscript
baseline-shift	Integer	Baseline shift in points
fill-type	Fill Type	Character fill type. "Normal" text is usually only filled, without a stroke.
char-color	Color	Fill color of characters (attribute name is not fill-color for maintaining compatibility with older documents where there was only fill color)
stroke-type	Line Type	The stroke type.
stroke-weight	Stroke Weight	the character stroke (outline).
stroke-colour	Colour	Character stroke (outline) colour.
background-type	Fill Type	Character background color type.
background-color	Color	The background colour for the character
line-type	Line Type	The line type.

line-stroke-type	Stroke Type	The underline/overline/etc. stroke type.
line-stroke-weight	Stroke Weight	The underline/overline/etc. stroke weight.
line-stroke-colour	Colour	The underline/overline/etc. stroke colour.
case-type	Case Type	All caps, small caps etc.
ligatures	Boolean	When off, blocks formation of common, non-opentype, ligatures like ff, fi etc..
kashida	Boolean	When off, blocks expanding intercharacter spacing in arabic text with kashida (tatwil)

language	Language	The language (only relevant for OpenType features at this point)
opentype	Open Type	The open type attributes used
direction-override	Direction Override	Allows overriding the paragraph direction for a small part of the text.

3.2.10. Character Style

3.2.10.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the character style within the document

3.2.10.2. Contents

Name	Type	Description
name	String	The style name
shortcut	String	The shortcut for the style. A command key is prefixed
unique-id	String	Unique string identifying the style globally. The unique id allows distinguishing between styles having the same name.
variations	Array of Character Attribute Dictionarys	The character style variations

3.2.11. Character Overrides

The Character Overrides element is a Character Attributes Dictionary containing overrides to a character style applied on a span of text.

3.2.11.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A string referencing the character style this change overrides

3.2.11.2. Contents

None.

3.2.12. Character Style Variation

3.2.12.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	base, b, c, d, e, f, g, h	

3.2.12.2. Contents

None.

3.3. Paragraph Attributes

3.3.1. Tab Stop

3.3.1.1. Attributes

Name	Type	Possible Values	Description
type	Enumeration	reverse, center, regular, decimal, indent, combo-margin, combo-indent	The tab type. Reverse=reverse tab; center=centre tab, decimal=decimal tab; indent=indent tab; combo-margin and combo-indent are values of the combo tab
pos	Float		The end margin
indent	Float		The indent magin

3.3.1.2. Contents

None.

3.3.2. Paragraph Direction

3.3.2.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	rtl, ltr	The text direction

3.3.2.2. Contents

None.

3.3.3. Alignment

3.3.3.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	start, center, end, justify	Paragraph alignment

3.3.3.2. Contents

None.

3.3.4. Line Spacing

3.3.4.1. Attributes

Name	Type	Possible Values	Description
type	Enumeration	auto, fixed	auto=line spacing in line units; fixed=line spacing in points
value	Float		The line spacing value

3.3.4.2. Contents

None.

3.3.5. Margins

3.3.5.1. Attributes

Name	Type	Possible Values	Description
start	Integer		The start margin
end	Integer		The end margin
indent	Integer		The indent magin

3.3.5.2. Contents

None.

3.3.6. Lines Together

3.3.6.1. Attributes

Name	Type	Possible Values	Description
type	Enumeration	all, separate-first-last	all=all lines in a paragraph are kept together on the same page; separate-first-last=refers to keep-first-lines-count and keep-last-lines-count for values

3.3.6.2. Contents

None.

3.3.7. Paragraph Attributes Dictionary keys

3.3.7.1. Paragraph Attribute keys

Several elements contain dictionaries of paragraph attributes. Here are the possible keys and element types associated with them.

Name	Type	Description
alignment	Alignment	Paragraph alignment
margins	Margins	The start, end and indent margin
tab-stops	An array of Tab Stop	The tab stops
line-spacing	Line Spacing	Paragraph line spacing
space-above	Float	Space above the paragraph
space-below	Float	Space below the paragraph
space-above-top	Boolean	Also at top of page or column. "No" will ignore the space above when the paragraph is at the top of a page or a column
associated-character-style	Pooled Object Reference	A reference to a character style that is associated with the paragraph style
keep-lines-together	Boolean	If the option to keep lines together is checked.
keep-line-together-type	Lines Together	Whether lines in a paragraph should be kept together on the same page
keep-first-lines-count	Integer	The number of lines to be kept together at the beginning of a paragraph. The value in "separate-first-last" must be "separate-first-last" for this to have any affect
keep-last-lines-count	Integer	The number of lines to be kept together at the end of a paragraph. The value in "separate-first-last" must be "separate-first-last" for this to have any affect
keep-next-lines-count	Integer	Keep with X lines of the next paragraph
hyphenate	Boolean	Hyphenation attribute turned on or off
hyphenation-dictionary-name	String	The name of the hyphenation dictionary
use-custom-min-values	Boolean	If checked, one can customise some hyphenation attributes
custom-min-word-length	Integer	Minimum word length for hyphenation (customised)
custom-min-before-hyphen	Integer	Minimum word length before hyphen (customised)
custom-min-after-hyphen	Integer	Minimum word length after hyphen (customised)
hyphenation-zone	Integer	Hyphenation zone (customised)
hyphenation-limit	Integer	Hyphenation in consecutive lines limit (customised)

3.3.8. Paragraph Style.

3.3.8.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the paragraph style within the Mexml document

3.3.8.2. Contents

Actual paragraph attributes are encoded under the normal keys for paragraph attributes. See "Paragraph attribute dictionary keys"

Name	Type	Description
name	String	The style name
unique-id	String	Unique string identifying the style globally
shortcut	String	The shortcut for the style. A command and Option keys are prefixed

3.3.9. Paragraph Overrides

The Paragraph Overrides element is a Paragraph Attributes Dictionary containing overrides to a paragraph style applied on a paragraph of text.

3.3.9.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A string referencing the paragraph style this change overrides

3.3.9.2. Contents

None. See above.

3.4. List Attributes

3.4.1. List Symbol Type

3.4.1.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	arabic, roman-caps, roman-small, hebrew, latin-caps, lain-small, arabic-indic, persian, greek, bullet, white-bullet, white-square, white-diamond, black-square, lower-right-shadowed-white-square, black-diamond, black-diamond-white-x, rightwards-three-d-arrow, checkmark, heavy-checkmark, black-star, dash, blank, asterisk, greek-academy	

3.4.1.2. Contents

None.

3.4.2. List Symbol Format

3.4.2.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	none, add-dot, add-round-brace, add-angle-brace, wrap-round-braces, wrap-square-braces, add-dash, add-space-and-dash	

3.4.2.2. Contents

None.

3.4.3. List Attributes Dictionary keys

Several elements contain dictionaries of list attributes. Here are the possible keys and element types associated with them.

Name	Type	Description
margin-pos	Integer	The position of the start margin in points relative to the previous list level margin
indent-pos	Integer	The position of the indention in points relative to the previous list level margin
symbol-pos	Integer	The position of the symbol in points relative to the previous list level margin
symbol-type	List Symbol Type	The symbol or numbering used with the level
symbol-format-type	List Symbol Format	The format of the symbol (e.g. with a dot after the number)
symbol-character-attributes	Character Attributes Dictionary	List item symbol character attributes. Only character style and variation are respected at the moment.

3.4.4. List Style

3.4.4.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the list style within the Mexml document

3.4.4.2. Contents

Name	Type	Description
name	String	The style name
unique-id	String	Unique string identifying the style globally
levels	Array of List Attributes Dictionaries	An array of 10 List Attribute Dictionarys

3.4.5. List Overrides

The List Overrides element is a dictionary containing List Attribute Dictionaries . For each level that has been override there exists an element named "level-n-override" when 'n' stands for the level index (1-10).

3.4.5.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A string referencing the list overrides

3.5. Section Attributes

3.5.1. Section Attributes Dictionary keys

Several elements contain dictionaries of list section. Here are the possible keys and element types associated with them.

Name	Type	Description
column-count	Integer	The number of columns
balance-columns	Boolean	Determines Mellel's behaviour before a section break of a multi-column section. When the option is turned on, Mellel will shorten column heights so that the text is divided between columns as evenly as possible and a new section can be started on the same page. When the option is turned off, Mellel will lay out the columns to the bottom of the page, possibly leaving whole columns or parts of columns empty. The next section begins on the next page. For a single column section, this has not effect.
gutter-width	Integer	The gutter width
gutter-line-type	Stroke Type	The stroke type
gutter-line-color	Color	The gutter line colour
gutter-line-width	Float	The gutter line width
gutter-line-top	Float	The space between gutter line top and column top
gutter-line-bottom	Float	The space between gutter line bottom and column bottom
background-color	Background Color	The background colour of the section style
space-above-column	Float	The space above the columns at the top of the section

3.5.2. section-style

Contains the attributes for section styles that can be referenced in the document. The section attributes control the way paragraphs are ordered in columns and the column and gutter attributes. Note that the section style does not include the columns directionality attribute (that is, it is not part of the style).

3.5.2.1. Attributes

Actual section attributes are encoded under the normal keys for section attributes. See "Section Attribute Dictionary keys"

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the section style within the Mexml document

3.5.2.2. Contents

Name	Type	Description
name	String	The style name
unique-id	String	Unique string identifying the style globally

3.5.3. Section Overrides

The Section Overrides element is a Section Attributes Dictionary containing overrides to a section style applied on a section of text.

3.5.3.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A string referencing the section style this change overrides

3.5.3.2. Contents

None. See above.

3.6. Page Attributes

3.6.1. Page Style Type

3.6.1.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	any-page, even-odd	any-page designates that all pages (odd or even) share the same attributes, the odd attributes are used. even-odd designates that odd pages are formatted according to the odd attributes while the even pages are formatted according to the even attributes.

3.6.1.2. Contents

None.

3.6.2. Page Number Type

3.6.2.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	arabic, roman-caps, roman-small, latin-caps, latin-small, hebrew, arabic-indic, persian, greek, greek-academy	

3.6.2.2. Contents

None.

3.6.3. Spread Part Attributes

Attributes of a spread part - a single page, odd or even.

3.6.3.1. Attributes

None.

3.6.3.2. Contents

Name	Type	Description
page-color	Color	The page background colour
header-visible	Boolean	All/Odd header option is on or off

footer-visible	Boolean	All/Odd footer option is on or off
header-text	Section	Text of the header
footer-text	Section	Text of the footer
header-height	Float	The header height
footer-height	Float	The footer height

3.6.4. Page Attributes Dictionary keys

Several elements contain dictionaries of page attributes. Here are the possible keys and element types associated with them. Note that not all elements can contain all keys, for example, page styles can contain the odd-attributes and even-attributes elements (of type Spread Part Attributes) but cannot contain the odd-header-text elements and page overrides can contain odd-header-text elements but cannot contain odd-attributes.

Name	Type	Description
page-style-type	Page Style Type	The page type: “any-pages” is the same as even/odd pages
page-number-type	Page Number Type	The numbering scheme to be used in the page style header or footer
first-header-visible	Boolean	Show first page header or not
first-footer-visible	Boolean	Show first page footer or not
odd-attributes	Spread Part Attributes	Attributes for odd pages or odd/even pages if “page-style-type” option is set to “any-page” (page style only)
even-attributes	Spread Part Attributes	Even pages attributes (page style only)
odd-header-text	Section	Text of odd (or all, if page style type is "any-page") header (overrides only)
odd-header-type	Float	Height of odd headers (overrides only)
odd-header-visible	Boolean	Visibility of odd headers, this value is ignored on the first page of a page range using the "first-header-visible" value instead
odd-footer-text	Section	Text of odd (or all, if page style type is "any-page") footers (overrides only)
odd-footer-type	Float	Height of odd footers (overrides only)
odd-footer-visible	Boolean	Visibility of odd headers, this value is ignored on the first page of a page range using the "first-footer-visible" value instead
even-header-text	Section	Text of even headers (overrides only)
even-header-type	Float	Height of even headers (overrides only)
even-header-visible	Boolean	Visibility of even headers, this value is ignored on the first page of a page range using the "first-header-visible" value instead

even-footer-text	Section	Text of even footers (overrides only)
even-footer-type	Float	Height of even footers (overrides only)
even-footer-visible	Boolean	Visibility of even headers, this value is ignored on the first page of a page range using the "first-footer-visible" value instead

3.6.5. Page Style

Contains the attributes for page styles that can be referenced in the document. The page attributes control the way headers and footers appear and behave, numbering in headers and footers and background colour.

Actual page attributes are encoded under the normal keys for page attributes. See "page attribute dictionary keys"

3.6.5.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the section style within the Mexml document

3.6.5.2. Contents

Name	Type	Description
name	String	The style name
unique-id	String	Unique string identifying the style globally

3.6.6. Page Overrides

The Page Overrides element is a Page Attributes Dictionary containing overrides to a page style applied on a page range of text.

3.7. Note Attributes

3.7.1. Note Separator Type

3.7.1.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	None (no line), left, right, center	

3.7.1.2. Contents

None.

3.7.2. Note Symbol Type

Name	Type	Possible Values	Description
value	Enumeration	arabic, asterisk, roman-small, roman-caps, latin-small, latin-caps, alternate, hebrew, arabic-indic, persian, greek, greek-academy	

3.7.3. Note Symbol Format

3.7.3.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	none, wrap-round-braces, wrap-square-braces, add-dot, add-dash	E.g., reference symbol formats for notes.

3.7.3.2. Contents

None.

3.7.4. Note Indexing Type

3.7.4.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	serial, restart-every-page, restart-every-page-range, restart-every-section	When to restart indexing the notes

3.7.4.2. Contents

None.

3.7.5. Note Position

3.7.5.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	bottom-of-column, below-text, end-of-document	Position of note relative to text.

3.7.5.2. Contents

None.

3.7.6. Note Splitting Permission Type

3.7.6.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	nowhere, between-paragraphs, anywhere	

3.7.6.2. Contents

None.

3.7.7. Symbol Attributes

3.7.7.1. Attributes

Name	Type	Possible Values	Description
note-symbol-type	Note Symbol Type	—	Type of symbol to use for marking notes of this stream

note-symbol-fromat	Note Symbol Format —	The Symbol Format value.
note-symbol-char-attributes	Character Attributes Dictionary	Character attributes of note symbol. Only character style, variation and position (superscript/subscript) are respected at the moment.

3.7.7.2. Contents

None.

3.7.8. Note Attributes Dictionary keys

Several elements contain dictionaries of note attributes. Here are the possible keys and element types associated with them.

Name	Type	Description
reference-symbol-attributes	Symbol Attributes	The note reference in the text attributes
note-symbol-attributes	Symbol Attributes	The note symbol attributes
note-symbol-tab	Boolean	Adding tab after the "note-symbol-fromat" in the Symbol Attributes element.
note-text-attributes	Dictionary	This is a character and paragraph attributes dictionary, at the moment only the paragraph style and character style keys are respected.
note-position	Note Position	The note positioning
indexing-type	Note Indexing Type	When the numbering will be restarted
may-separate	Boolean	If the note may be separated from the note reference
space-above-separator	Float	The space in points above the separator line
space-below-separator	Float	The space in points below the separator line
separator-placment	Note Separator Type	The separator line alignment
separator-line-type	Stroke Type	The stroke type of the separator line
separator-color	Color	The separator line colour
separator-weight	Float	The thickness of the separator line
separator-coverage	Integer	The width of the separator line (in percent, out of the total page width within the print margins
note-splitting-permission	Note Splitting Permission Type	

3.7.9. Note Stream

Contains the attributes for note streams. Apart from the name, id, shortcut and start-at number, all other attributes are overrides to the note style. That is, only attributes which override the note style referenced by "ref" appear here.

Note that the note stream doesn't contain notes, notes are associated with a note stream but they are considered to be part of the main document text and not part of the stream.

3.7.9.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the note stream within the Mexml document

3.7.9.2. Contents

Name	Type	Description
name	String	The stream's name
unique-id	String	Unique string identifying the note stream
shortcut	String	The shortcut for the stream. A command and Option keys are prefixed (e.g. "N" means Cmd+Option+N)
start-at	Integer	The start number for this note stream
attributes	Note Attributes Dictionary	

3.7.10. Note Style

Contains the attributes for note styles.

3.7.10.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the note style within the Mexml document

3.7.10.2. Contents

Actual note attributes are encoded under the normal keys for note attributes. See "Note Attributes Dictionary keys"

Name	Type	Description
name	String	The style name
unique-id	String	Unique string identifying the style globally

3.7.11. Note Stream Container

3.7.11.1. Attributes

None.

3.7.11.2. Contents

Name	Type	Description
streams	Array of references to Note Streams	
height-limit	Integer	Percent of the page that is allowed to be used for notes
mark-notes-on-screen	Boolean	Whether or not to hilight notes on the screen
mark-notes-on-print	Boolean	Whether or not to hilight notes on the printed page

3.8. Images

3.8.1. Image Data

3.8.1.1. Attributes

None.

3.8.1.2. Contents

Name	Type	Description
image-ref	String	The file name of the image inside the "Images" folder within the Mellel document package. The image ref doesn't contain the file name extension
extension-hint (Optional)	String	The file name extension of the image. This element is ignored when Mellel reads the file and is provided as a hint to other programs that may parse the file.

3.8.2. Fitting Type

3.8.2.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	scale, crop	Determines the relationship between the image size and the frame size. when the value is scale, the image is scaled to fit the frame when the value is crop, the image is scaled according to the scaling values and cropped by the image frame

3.8.2.2. Contents

None.

3.8.3. Frame Type

3.8.3.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	none, solid	

3.8.3.2. Contents

None

3.8.4. Image

3.8.4.1. Attributes

None.

3.8.4.2. Contents

Name	Type	Description
image-data	Image Data	
fitting-type	Fitting Type	Determines the relationship between the image size and the frame size
frame-width	Float	Width of image element in terms of the surrounding text
frame-height	Float	Height of the image element in terms of the surrounding text
scale-x	Float	Horizontal scale factor (1.0==100%), used only when in "crop" fitting mode
scale-y	Float	Vertical scale factor (1.0==100%), used only when in "crop" fitting mode
offset-x	Float	Distance in points of image origin (bottom left) and the frame origin. Used only when in "crop" fitting mode
offset-y	Float	Distance in points of image origin (bottom left) and the frame origin. Used only when in "crop" fitting mode
frame-type	Frame Type	
frame-line-width	Float	Width of frame line (for type "solid")
frame-line-color	Color	Color of frame (for type "solid")
background-color	Color	Fill color of the frame
constrain-proportions	Boolean	Setting of constrain proportions checkbox in the image attributes editor. This setting doesn't affect the image rendering.
adjust-line-spacing	Boolean	Whether or not to adjust the line height when in fixed line spacing. When on, this setting causes the line height to be set to the smallest multiple of the fixed line height that is bigger or equal to the image height.
vertical-position	Float	Position of the frame bottom relative to the line baseline. Unlike baseline shift, this setting will affect the line height.

3.9. Tables

3.9.1. Cell Border

3.9.1.1. Attributes

Name	Type	Possible Values	Description
value	Stroke Type	none, solid, dash-1, dash-2, dash-3, dash-4, dash-5, dash-6, dash-7	The stroke type
line-width	float	—	The line width or weight
line-color	Color	—	The line colour

3.9.1.2. Contents

None.

3.9.2. Vertical Alignment

3.9.2.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	top, middle, bottom, justify	Vertical alignment (as in table cells)

3.9.2.2. Contents

None.

3.9.3. Padding

3.9.3.1. Attributes

Name	Type	Possible Values	Description
value	enumeration	None, 1 pt, 2 pt, 3 pt, 4 pt, 5 pt	Cell padding (as in table cells)

3.9.3.2. Contents

None.

3.9.4. Grid Rect

3.9.4.1. Attributes

Name	Type	Possible Values	Description
h	Integer		Height of rect in terms of the grid
w	Integer		Width of rect in terms of the grid
x	Integer		Origin of the rect in the grid, top left for left to right tables, top right for right to left tables
y	Integer		Origin of the rect in the grid, top left for left to right tables, top right for right to left tables

3.9.4.2. Contents

None.

3.9.5. Cell Attributes

Contains the attributes a table cell.

3.9.5.1. Attributes

Name	Type	Possible Values	Description
ref	String	—	A unique string identifying the cell formatting within the Mexml document

3.9.5.2. Contents

Name	Type	Description
descending-diagonal	Cell Border	The descending diagonal line in a table cell
ascending-diagonal	Cell Border	The ascending diagonal line in a table cell
padding value	Padding	The cell's padding value
bottom-border	Cell Border	The bottom border of a table cell
top-border	Cell Border	The top border of a table cell
leading-border	Cell Border	The leading border in a cell. The leftmost or the rightmost border, depending on the tables direction
trailing-border	Cell Border	The trailing border in a cell. The rightmost or the leftmost border, depending on the tables direction
vertical-alignment	Vertical Alignment	
background-color	Background Color	The cell's background colour

3.9.6. Table Cell

3.9.6.1. Attributes

None.

3.9.6.2. Contents

Name	Type	Description
grid-rect	Grid Rect	Defines then position and size of the cell relative to the grid of the row group (which is defined by the row group "row-heights" and the containing table "column-widths".
contents	An Array of paragraphs and lists	Cell contents
attributes	Pooled Object Reference	reference to an element of type "Cell Attributes" in the pooled objects

3.9.7. Row Group

3.9.7.1. Attributes

None.

3.9.7.2. Contents

Name	Type	Description
row-heights	An array of Integers	The array should contain more then one row only if it contains cells that span more then one row.
cells	An array of Table Cell	Table cells that are contained in this group, the table cells must cover the entire grid that is defined by the row group "row-heights" and the containing table "column-widths". There should be no part of the grid that is not covered by a cell.

3.9.8. Table

3.9.8.1. Attributes

None.

3.9.8.2. Contents

Name	Type	Description
identification	String	a unique number identifying the table inside the document

direction	Paragraph Direction	Table direction
leading-space	Float	Distance of table from the edge of column
leading-bleed	Float	This value is calculated as half of the width of the thickest cell border on the table leading edge (left edge for left to right tables, right edge for right to left tables)
trailing-bleed	Float	Same as leading bleed but relates to the trailing edge of the table (right edge for left to right tables, left edge for right to left tables)
column-widths	An array of Float	—
rows	An array of Row Groups	An array of rows

3.10. Inline Elements

3.10.1. Tab Character

The tab character element represents a tab character (U+0009)

3.10.2. Soft Hyphen

This elements represent a soft hyphen (discretionary hyphen). An invisible character which is used to mark a preferred hyphenation point. (U+00AD)

3.10.3. Page Number

The page number element is rendered as string representing the page number of the element, using the current page number type. This element is guaranteed to be correct only in a header or a footer.

3.10.4. Page Total

The page total element is rendered as string representing the total number of pages in the document, using the current page number type. This element is guaranteed to be correct only in a header or a footer.

3.10.5. Line Break

This elements represents a line break within a span.

3.10.6. Direction Breaking Space

The direction breaking space is rendered as a normal space having the directionality level of the paragraph rather then having the directionality level according to the surrounding text as specified by the unicode bidi algorithm

3.10.7. Column Break

The presence of a column break element inside a span will turn the containing paragraph end into a column break. The element itself doesn't actually display in the document. It is recommended that the column break element is placed as the last element of the last span in the paragraph.

3.10.8. Page Break

Similar to column break, the presence of a page break element inside a span will turn the containing paragraph end into a page break. The element itself doesn't actually display in the document. It is recommended that the page break element is placed as the last element of the last span in the paragraph.

3.10.9. Document Variable

3.10.9.1. Attributes

Name	Type	Possible Values	Description
index	Integer	1-20	Index of document variable

3.10.9.2. Contents

None

3.10.10. Date

3.10.10.1. Attributes

Name	Type	Possible Values	Description
format-string	String		Format used to render the date string. This format is passed to descriptionWithCalendarFormat:locale: (NSCalendarDate)
type	Enumeration	none, document-creation-date, document-opening-date	

3.10.10.2. Contents

None.

3.10.11. Note

3.10.11.1. Attributes

Name	Type	Possible Values	Description
stream	Pooled Object Reference	—	A reference to a Note Stream.

3.10.11.2. Contents

The contents of the note element is a series of paragraphs ("p" elements) or lists ("list" elements)

3.10.12. Auto title

3.10.12.1. Attributes

Name	Type	Possible Values	Description
name	String	—	

3.10.12.2. Contents

Name	Type	Description
levels	An array of Auto-title Level	An array of Auto-title levels

3.10.13. Citation

3.10.13.1. Attributes

Name	Type	Possible Values	Description
dont-enclose-final	Boolean	yes, no	
exclude-from-final	Boolean	yes, no	
render-as-final	Boolean	yes, no	
suppress superscript	Boolean	yes, no	

3.10.13.2. Contents

Name	Type	Description
temp-citation	An array of Character	An array of Character
final-citation	An array of Character	An array of Character

3.11. Text Elements

3.11.1. Character Span

The text must appear within a character span ("c" element). Text outside character spans is ignored. The character span may contain characters and inline elements

3.11.1.1. Attributes

Name	Type	Possible Values	Description
style	Pooled Object Reference	—	A reference to the character style.
var (optional)	enumeration	base, b, c, d, e, f, g, h	Character style variation. Base variation is assumed when no value is supplied.
over (optional)	Pooled Object Reference	—	A reference to the character style overrides.
marker (optional)	enumeration	1-8	The marker serial number. If None, then this doesn't appear.

3.11.1.2. Contents

The character span may contain charactes and inline elements. The following elements are allowed

Name	Type	Description
table	Table	
autotitle	Auto title	
note	Note	
image	Image	
page-number	Page Number	
total-number-of-pages	Page Total	
line-break	Line Break	
dir-break-space	Direction Breaking Space	
tab	Tab Character	
page-break	Page Break	
column-break	Column Break	
date	Date	
document-variable	Document Variable	
soft-hyphen	Soft Hyphen	

3.11.2. Paragraph

The paragraph element is a container of character spans.

3.11.2.1. Attributes

Name	Type	Possible Values	Description
style	Pooled Object Reference	—	A reference to the paragraph style
dir	Direction	rtl, ltr	The paragraph direction
over (optional)	Pooled Object Reference	—	A reference to the paragraph style overrides
list-level (optional)	Integer	1-9	For paragraphs within lists. Indicates the list level.

3.11.2.2. Contents

Name	Type	Description
c	Character Span	A paragraph must contain at least one character span.

3.11.3. List

The list element is a container of paragraph elements.

3.11.3.1. Attributes

Name	Type	Possible Values	Description
style	Pooled Object Reference	—	A reference to the list style
over (optional)	Pooled Object Reference	—	A reference to the list style overrides

3.11.3.2. Contents

Name	Type	Description
p	Paragraph	A list must contain at least one paragraph element.

3.11.4. Section

The section element is a container of lists and paragraph elements.

3.11.4.1. Attributes

Name	Type	Possible Values	Description
style	Pooled Object Reference	—	A reference to the section style

column-order (optional)	Enumeration	ltr, rtl	Order in which columns are laid out. Can be either left to right (ltr) or right to left (rtl). Default is ltr.
over (optional)	Pooled Object Reference	—	A reference to the section style overrides.

3.11.4.2. Contents

Name	Type	Description
p (optional)	Paragraph	The section must contain at least one paragraph or one list
list (optional)	List	The section must contain at least one paragraph or one list

3.11.5. Page Range

The page range element is a container of section elements.

3.11.5.1. Attributes

Name	Type	Possible Values	Description
style	Pooled Object Reference	—	A reference to the page style
over (optional)	Pooled Object Reference	—	A reference to the page style overrides

3.11.5.2. Contents

Name	Type	Description
section	Section	A page range must contain at least one section.

3.11.6. Document Text

The document text is the main container of text in a Mellel document. It is composed of a list of page ranges..

3.11.6.1. Attributes

None.

3.11.6.2. Contents

Name	Type	Description
page-range	Page Range	Document Text must contain at least one page range.

3.12. Outline

3.12.1. Tag Dictionary

3.12.1.1. Attributes

None.

3.12.1.2. Contents

Name	Type	Possible Values	Description
tag-level	Integer	-1, 0-9	The level of the numbering flow represented by this tree (-1 means "structure")
tag-index	Integer	-1, 1-9	The index inside the level of the numbering flow represented by this tree (-1 means "structure")
tag-tree-open	Boolean	—	If the tag tree for this tag flow is open

3.12.2. Outline State

3.12.2.1. Attributes

None.

3.12.2.2. Contents

Name	Type	Description
display-tags-separately	Boolean	displaying the tags separately at the bottom of the auto-title list, or within the auto-title list
disclosure-states	An Array of Boolean	For every element, if it will be displayed in the outline expanded (yes) or collapsed (no).
tag-dictionaries	An Array of Tag Dictionaries	State of all subtrees of the outline view including the "Structure" tree

3.12.3. Outline Settings

3.12.3.1. Attributes

None

3.12.3.2. Contents

Name	Type	Possible Values	Description
outline-open	Boolean	—	If the outline is open or not

outline-view-width	Integer	—	Width of the outline view
outline-state	Outline State	—	Outline state

3.13. Auto Titles

3.13.1. Auto-title Format Element Type

3.13.1.1. Attributes

None.

3.13.1.2. Contents

The contents of this element must be one of the following:

free-text, curr-level, prev-level, title, tab, page-number, line-break, document-variable

3.13.2. Auto-title Format Element

3.13.2.1. Attributes

None.

3.13.2.2. Contents

Name	Type	Description
type	Auto-title Format Element Type	
specifier	Integer	for "prev-level" elements - the index of the level referred to. For "document-variable", the index of the variable
character-style (optional)	Pooled Object Reference	reference to the character style
character-style-variation	Character Style Variation	

3.13.3. Auto-Title Format

3.13.3.1. Attributes

None

3.13.3.2. Contents

Name	Type	Description
elements	Array of Auto-title Format Elements	

3.13.4. Auto-title Numbering Type

3.13.4.1. Attributes

Name	Type	Possible Values	Description

value	enumeration	arabic, roman-caps, roman-small, hebrew, latin-caps, lain-small, arabic-indic, persian, greek, greek-academy

3.13.4.2. Contents

None

3.13.5. Auto-title flow

3.13.5.1. Attributes

None

3.13.5.2. Contents

Name	Type	Description
name	String	The flow's name.
main-format	Auto-title Format	
mention-format	Auto-title Format	
toc-format	Auto-title Format	
prompt-for-title	Boolean	
number-type	Auto-title Numbering Type	
number-start-at	Integer	
number-increment	Integer	
include-in-toc	Boolean	

3.13.6. Auto-title Level

3.13.6.1. Attributes

None.

3.13.6.2. Contents

Name	Type	Description
flow	An array of Auto-title Flow	An array of Auto-title flow

3.13.7. Auto-title Setup

3.13.7.1. Attributes

None.

3.13.7.2. Contents

Name	Type	Description
name	String	The name of the auto-title setup

levels	Array of Auto-title Levels	

3.13.8. variables

3.13.8.1. Attributes

None

3.13.8.2. Contents

Name	Type	Description
variable	An array of String	An array of variable strings

3.14. Misc Elements

3.14.1. Document Setup

3.14.1.0.1. Attributes

None

3.14.1.0.2. Contents

Name	Type	Description
screen-background-color	colour	The screen background colour
inner-margin	Integer	The page inner margin
outer-margin	Integer	The page outer margin
facing-pages	Boolean	yes=facing pages; no=non-facing
binding-direction	Paragraph Direction	The binding direction
top-margin	Integer	The page top margin
use-screen-background-color	Boolean	yes=activated; no=not activated
bottom-margin	Integer	The page bottom margin

3.14.2. Document Info

3.14.2.1. Attributes

None

3.14.2.2. Contents

Name	Type	Description
variables	Array of 20 Strings	The values of the document variables
keywords	String	User defined keywords
category	String	User defined comment
comments	String	User defined comments

3.14.3. Print Info

3.14.3.1. Attributes

None

3.14.3.2. Contents

Name	Type	Description
data	String	This is the archived of the documents' NSPrintInfo object

3.14.4. Misc Settings

3.14.4.1. Attributes

Name	Type	Possible Values	Description
auto-title-sheet-rtl	Direction	rtl, ltr	Direction of the display in auto-title sheet

3.14.4.2. Contents

None.

3.14.5. Selection

3.14.5.1. Attributes

Name	Type	Possible Values	Description
anchor	Integer	—	The selection starting point
ending	Integer	—	The selection ending point
leading-edge	Boolean	—	Meaningful only when the selection is a caret. When "yes", the cursor is said to be on the leading edge of the letter at the anchor, when "no" the cursor is said to be on the training edge of the character preceding anchor.

3.14.5.2. Contents

None.

3.15. View Options

3.15.1. Show Options

3.15.1.1. Attributes

None.

3.15.1.2. Contents

Name	Type	Description
space	Boolean	The show status of spaces.
header-and-footer frames	Boolean	The show status of header and footer frames.
section-break	Boolean	The show status of section breaks.
paragraph-break	Boolean	The show status of paragraph breaks.
autotitle-frame	Boolean	The show status of auto-title background.
toolbar	Boolean	The show status of the toolbar.
tab	Boolean	The show status of the tabs.
line-break	Boolean	The show status of line breaks
page-break	Boolean	The show status of page breaks
soft-hyphen	Boolean	The show status of soft (hidden) hyphens.
column-break	Boolean	The show status of column breaks
pageStyle-break	Boolean	The show status of page style breaks
invisible-table-lines	Boolean	The show status of table lines when there is no line in the table (line type: none).
paragraph-ruler	Boolean	The show status of the ruler.
page-margins	Boolean	The show status of page margins.
citation-frames	Boolean	The show status of citation background.

3.15.2. Zoom Mode

3.15.2.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	explicit, fit-width, fit-page	

3.15.2.2. Contents

None.

3.15.3. View Options

The document view options.

3.15.3.1. Attributes

None.

3.15.3.2. Contents

Name	Type	Description
show-options	Show Options	
compact-view-mode	Boolean	
window-position	String	
zoom-mode	Zoom Mode	
zoom	Integer	The zoom value in percent

3.16. Style Set

3.16.1. Style Set Locking State

3.16.1.1. Attributes

Name	Type	Possible Values	Description
value	Enumeration	unlocked, locked-by-user, locked-by-hardware	

3.16.1.2. Contents

None

3.16.2. Style Set

3.16.2.1. Attributes

None.

3.16.2.2. Contents

Name	Type	Description
name	String	The name of the style set
unique-id	String	A global unique identifier
locking-state	Style Set Locking State	
character-styles	Array of Pooled Object References	an array of references to the character styles
paragraph-styles	Array of Pooled Object References	an array of references to the paragraph styles
list-styles	Array of Pooled Object References	an array of references to the list styles
section-styles	Array of Pooled Object References	an array of references to the section styles
page-styles	Array of Pooled Object References	an array of references to the page styles
note-styles	Array of Pooled Object References	an array of references to the note styles
default-character-style	String	if empty, the default is the first style, otherwise, contains the unique-id of the character style. Note that the unique-id is not the same is the "ref" of the style, the ref is used to identify the style inside the document, the "unique-id" is a global identifier of the style
default-paragraph-style	String	see comment for default-character-style
default-list-style	String	see comment for default-character-style
default-section-style	String	see comment for default-character-style
default-page-style	String	see comment for default-character-style

default-note-style	String	see comment for default-character-style

3.17. Text Model

3.17.1. Text Model

3.17.1.1. Attributes

Name	Type	Possible Values	Description
version	Integer	2	

3.17.1.2. Contents

Name	Type	Description
document-text	Document Text	The text of the document
note-streams	Note Stream Container	The documents' note streams
auto-title-setup	Auto-title Setup	
style-set	Style Set	

3.18. Archive elements

3.18.1. Pooled Objects

The pooled objects element is an array of mixed types of elements. Each element in the pooled objects has a "ref" attribute which uniquely identifies it. The element name designates its type.

3.18.1.1. Attributes

None.

3.18.1.2. Contents

This table maps the element tags with the types used in the element. The order of elements is important since any element referenced must precede its reference.

Name	Type	Description
section-style	Section Style	
section-overrides	Section Overrides	
character-overrides	Character Overrides	
paragraph-overrides	Paragraph Overrides	
cell-attributes	Cell Attributes	
character-style	Character Style	
list-style	List Style	
list-overrides	List Overrides	
paragraph-style	Paragraph Style	
page-overrides	Page Overrides	
page-style	Page Style	
note-style	Note Style	
note-stream	Note Stream	

3.18.2. Root

3.18.2.1. Attributes

None.

3.18.2.2. Contents

Name	Type	Description
new-selection	Selection	Position of insertion point or selection range
document-setup	Document Setup	Document wide settings
outline-settings	Outline Settings	
misc-settings	Misc Settings	
marker-names	Array of 8 strings	names of markers

print-info	Print Info	
document-info	Document Info	
bibliography-should-generate-bibliography	Boolean	This is where Mellel remembers if a bibliography scan should produce a bibliography or not
text-model	Text Model	
view-options	View Options	

3.18.3. Archive

The Archive is the top-level element in an MeXL document.

3.18.3.1. Attributes

Name	Type	Possible Values	Description
creator	String	—	A unique string identifying the writing application
writer-version	Integer	—	Format version of the writing application
compatibility-version	Integer	—	Minimum format version of the writing application

3.18.3.2. Contents

Name	Type	Description
pooled-objects	Pooled Objects	Contains instances of objected referable by the root content
root	root	Contains the document content