# Shared MLs Reference Material

## Math

The following documentation specifies the XML representation of mathematical text for OOXML. This shared ML is known as that Office Math Markup Language (OMML). Mathematical text represented by OMML includes but is not limited to: equations, expressions, formulas, matrices and other mathematical elements. The outermost OMML element of an instance of mathematical text in display mode is oMathPara, a math paragraph of one or more instances of mathematical text. Each instance of mathematical text inside the math paragraph is represented as a single oMath. Inside each oMath is a combination of mathematical runs (r) and objects or functions such as accents (acc) or fractions(f).

### Elements

The following elements describe the contents of mathematical text.

#### acc (Accent)

This element specifies the accent function, consisting of a base and a combining diacritical mark. If accPr is omitted, the default accent is U+0302 (COMBINING CIRCUMFLEX ACCENT).

#### accPr (Accent Properties)

This element specifies the properties of the Accent function. If chr is omitted, the default accent character is U+0302 (COMBINING CIRCUMFLEX ACCENT

#### aln (Alignment)

This element specifies the alignment property on the box object. It is utilized only when the box is designated as an operator emulator. When 1 or true, this operator emulator serves as an alignment point; that is, designated alignment points in other equations can be aligned with it.

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| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### alnScr (Align Scripts)

This element specifies the alignment of scripts in the subscript/superscript function. When 1 or true, subscripts and superscripts are aligned to each other. When 0 or false, they are kerned to the shape of the base. If this element is omitted, scripts are not aligned. In other words, when the element is absent, the default is for the sub-superscript object to not align the superscript and subscript with each other.

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| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### argPr (Argument Properties)

This element specifies any properties of the math argument. : The XML below represents the argSz attribute on the base element of a box:

#### argSz (Argument Size)

This element specifies the size, or script level, of an argument. If the element is omitted, the default argument size is 0.

|  |  |
| --- | --- |
| Attributes | Description |
| val (Value) | Specifies a value between -2 and 2 for the property defined by the parent XML element. The positive or negative sign specifies in which direction to change argument size; the absolute value specifies by how much. |

#### bar (Bar)

This element specifies the bar function, consisting of a base argument and an overbar or underbar, as in and .

#### barPr (Bar Properties)

This element specifies properties of the bar function. If this element is omitted, the bar assumes its default location of top (the mathematical overbar).

#### baseJc (Matrix Base Justification)

This element specifies the justification of the matrix. Text outside of the matrix can be aligned with the bottom, top, or center of a matrix object. If this element is omitted, the matrix assumes center justification. In other words, whether the element is absent or present without the val attribute, the default of the val attribute is center.

|  |  |
| --- | --- |
| Attributes | Description |
| val (Value) | Specifies the vertical justification parent element respect to surrounding text. Possible values are top, bottom and center.. |

#### begChr (Delimiter Beginning Character)

This element specifies the beginning, or opening, delimiter character. Mathematical delimiters are enclosing characters such as parentheses, brackets and braces. If this element is omitted, the default begChr is '('. In other words, when the element is absent, the default is for the delimiter object beginning character to be Unicode character U+0028 (LEFT PARENTHESIS).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the character used by the parent element. When it is omitted, the parent uses its assigned default. |

#### borderBox (Border-Box Object)

This element specifies the Border Box object, consisting of a border drawn around an instance of mathematical text (such as a formula or equation), as in . If borderBoxPr is omitted, then the default behavior of borderBox is a rectangular border (as shown in the “abc” example below).

#### borderBoxPr (Border-Box Properties)

This element specifies the properties of the Border Box object, which dictate the types of lines that can be drawn as part of the border.

#### box (Box Object)

This element specifies the box object, which is used to group components of an equation or other instance of mathematical text. A boxed object can (for example) serve as an operator emulator with or without an alignment point, serve as a line break point, have associated argSz, or be grouped such as not to allow line breaks within. If boxPr is omitted, all properties will be “false” by default.

#### boxPr (Box Properties)

This element specifies properties of the Box object, for example, whether the Box serves as operator emulator with or without an alignment point, serves as a line break point, or receives the correct spacing for the mathematical differential.

#### brk (Break)

This element specifies whether there is a line break at the start of a run, or at the start of the Box object, such that the line wraps at the start of the run or box object. These user-defined line breaks occur when the XML tag <m:brk/> is encountered and does not follow a mathematical "order of precedence". If this element is omitted, a manual break is not inserted. In other words, when the element is absent, the default is for the parent structure to not manually break onto the next line. When the element is present and the val attribute is absent, the default of the val attribute is 0 meaning that this property’s parent structure manually breaks onto the next line and is aligned with the beginning of the previous line.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| alnAt (Index of Operator to Align | Specifies the index of the operator on the previous line of mathematical text which shall be used as the alignment point for the current line of mathematical text . A line can be aligned to any operator on the previous line; this attribute specifies exactly which operator shall be the target of that alignment in cases where there are multiple operators. If alnAt is omitted, then all runs (r tag) that follow a brk tag will align with the left margin of the first run of mathematical text. |

#### brkBin (Break on Binary Operators)

This element specifies how binary operators are treated when they coincide with a line break. If this element is omitted, the line break occurs before the binary operator. That is, the binary operator is the first element on the wrapped line.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies where to break on binary operators. Possible values are before, after and repeat. |

#### brkBinSub (Break on Binary Subtraction)

This element specifies how the subtraction operator is treated when it coincides with a line break, when brkBin is set to repeat. If this element is omitted, the subtraction operator is repeated before and after the break.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies how the subtraction operator is treated when it coincides with a line break, when brkBin is set to repeat. Possible values are--,-+ and+-. |

#### cGp (Matrix Column Gap)

This element represents the (custom) column gap spacing information; the default value is 0 (which corresponds to 1 em). This value is interpreted differently depending on the value of cGpRule (§22.1.2.19). cGpis not used unless the value ofcGpRule is 3 or 4. When cGpRule is omitted, the default spacing between matrix columns is 1 em (a val attribute value of 0).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the amount of space between columns of the parent element (for cGp/cSp) or rows (for rSp). The manner in which this value is determined depends on the setting of the rule of the parent element. |

#### cGpRule (Matrix Column Gap Rule)

This element specifies the type of gap (horizontal spacing) between columns of a matrix; the default is 0.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the type of spacing between rows and/or columns. Possible values are 0, 1, 2, 3, or 4, whose definitions are contained in the following table: |

#### chr (Character)

This element specifies the character to be attached to the base of an accent object, a group character object, or an n-ary operator object. When the parent element is accPr, the chr value should be within the range of (U+0300–U+036F) or (U+20D0–U+20EF). When the parent element is group ChrPr, the chr value should be a horizontal stretch character, such as U+2190 (LEFTWARD ARROW). When the parent element is naryPr, the chr value should be an n-ary operator such as U+222B (INTEGRAL).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the character used by the parent element. When it is omitted, the parent uses its assigned default. |

#### count (Matrix Column Count)

This element specifies the number of columns to which a property applies.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the number of columns to which a column property applies. |

#### cSp (Minimum Matrix Column Width)

This element specifies the minimum column width of a matrix. The actual column width of a matrix will be the greater of either the width of the column’s widest argument or cSp. This additional spacing can be added to enhance appearance. If this element is omitted, the default minimum column width is 0. Whether the element is absent or present without the val attribute, the default of the val attribute is 0. The cGp gap spacing (also referred to as “Column Gap” or “Gap Width”) is added to the cSp(Minimum Matrix Column Width) to determine the total Matrix Column Spacing (distance between the same edges of different columns). The value of cSp is interpreted as twips (a twip is 1/20th of a point). Therefore, a spacing of1point will be set by a cSp value of 20. This is the only use for cSp. There is no corresponding cSp Rule. The following image depicts how cGp and cSp work together to define matrix column spacing in a 2x2 matrix:

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the amount of space between columns of the parent element (for cGp/cSp) or rows (for rSp). The manner in which this value is determined depends on the setting of the rule of the parent element. |

#### ctrlPr (Control Properties)

This element specifies properties on control characters; that is, object characters that cannot be selected. Examples of control characters are n-ary operators (excluding their limits and bases), fraction bars (excluding the numerator and denominator) and grouping characters (excluding the base). ctrlPr allows formatting properties to be stored on these control characters. The control character inherits its formatting from the paragraph formatting; ctrlPr contains the formatting differences between the control character and the paragraph formatting.

#### d (Delimiter Object)

This element specifies the delimiter object, consisting of opening and closing delimiters (such as parentheses, braces, brackets and vertical bars) and an element contained inside. The delimiter may have more than one element, with a designated separator character between each element.

#### defJc (Default Justification)

This element specifies the default justification of display math, at the document level. Individual instances of mathematical text can overrule the default setting. If this element is omitted, the default justification is centerGroup. Whether the element is absent or present without the val attribute, the default of the val attribute is centerGroup.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the default justification of mathematical text in the document. Possible values are center, centerGroup, left and right. |

#### deg (Degree)

This element specifies the degree in the mathematical radical. This element is optional. When omitted, the square root function, as in, is assumed.

#### degHide (Hide Degree)

This element specifies the per-object option to hide the degree of a radical. Every rad has a deg, but the deg can appear or not appear. When degHide is set to 1 or true, the degree is not shown, as in (XML shown below). When degHide is omitted, the default is 0 or false; that is, the degree is not hidden. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### den (Denominator)

This element specifies the denominator of a fraction.

#### diff (Differential)

The element specifies the differential property on box. When 1 or true, the box acts as a differential (e.g., 𝑑𝑥 in an integrand) and receives the appropriate horizontal spacing for the mathematical differential. When this property is omitted, the box is not treated as a differential.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### dispDef (Use Display Math Defaults)

This element specifies the document-level property to overwrite paragraph settings for mathematical text. When omitted, this element is set to1ortrueand special math settings are applied. Whether the element is absent or present without the val attribute, the default of the val attribute is 1 meaning that this option is applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### dPr (Delimiter Properties)

This element specifies the properties of d, including the enclosing and separating characters and the properties that affect the shape of the delimiters.

#### e (Element (Argument))

This tag, which is an abbreviation for “element”, serves several functions (18 total) including that of the base argument of a mathematical object or function, the elements in an array and the elements in boxes. If all subelements are omitted, this element specifies the presence of an empty argument.

|  |  |
| --- | --- |
| **Parent Element** | **Use** |
| acc | Accent base argument |
| bar | Argument to which the bar is applied |
| borderBox | Argument around which the border box is drawn |
| box | Argument inside the abstract box |
| d | Argument inside the delimiters |
| eqArr | Each instance of mathematical text in the single-column array |
| func | Math argument list of the function |
| groupChr | Group character base |
| limLow | Base of the lower limit |
| limUpp | Base of the upper limit |
| mr | Each element in the matrix row |
| nary | n-ary and, e.g., integrand for an integral, summand for a summation |
| phant | Argument for the phantom |
| rad | Radicand |
| sPre | Base of the prescript object |
| sSub | Base of the subscript object |
| sSubSup | Base of the subsup object |
| sSup | Base of the superscript object |

#### endChr (Delimiter Ending Character)

This element specifies the ending, or closing, delimiter character. Mathematical delimiters are enclosing characters such as parentheses, brackets and braces. If this element is omitted, the default endChr is ')'. In other words, when the element is absent, the default is for the delimiter object beginning character to be Unicode character U+0029 (RIGHT PARENTHESIS).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the character used by the parent element. When it is omitted, the parent uses its assigned default. |

#### eqArr (Array Object)

This element specifies the Array object (sometimes referred to as "Equation Array", despite its ability to hold mathematical text other than equations), an object consisting of one or more equations, expressions, or other mathematical text runs that can be vertically justified as a unit with respect to surrounding text on the line. Alignment of multiple points within each run of mathematical text can occur within the array through the use of align values and spacer values. An *align value* is an ampersand within the array which acts as an alignment point (as described in §22.1.2.3). A *spacer value* is an ampersand (represented by "&amp;" in the example below) within the array which designates where space can be added in order to align the align values on different rows of the array. Within each argument in the array, every odd ampersand is an align value and every even ampersand is a spacer value (as well, the beginning of each argument provides an implied spacer value). If eqArrPr is omitted, then the default values for its properties will be used. These defaults are:

|  |  |
| --- | --- |
| **Property** | **Default Value** |
| baseJc | “center” |
| ctrlPr | <The character property of the first control character will be the character property of the first character in the eqArr object > |
| maxDist | “0” |
| objDist | “0” |
| rSp | “0” |
| rSpRule | “0” <single> |

#### eqArrPr (Array Properties)

This element specifies the properties of the array object, including the vertical justification of the object and layout inside the object.

#### f (Fraction Object)

This element specifies the fraction object, consisting of a numerator and denominator separated by a fraction bar. The fraction bar can be horizontal or diagonal, depending on the fraction properties. The fraction object is also used to represent the stack function, which places one element above another, with no fraction bar.

#### fName (Function Name)

This element specifies the name of the function in the Function-Apply object func. For example, function names are sin and cos.

#### fPr (Fraction Properties)

This element specifies the properties of the fraction object f. Properties of the Fraction object include the type or style of the fraction. The fraction bar can be horizontal or diagonal, depending on the fraction properties. The fraction object is also used to represent the stack function, which places one element above another, with no fraction bar.

#### func (Function Apply Object)

This element specifies the Function-Apply object, which consists of a function name and an argument element (e) acted upon. It is often applied using a form of linear format. For example, in the linear format described in Unicode Technical Article #28, this object is applied by using the Function Application character (U+2061).

#### funcPr (Function Properties)

This element specifies properties such as ctrlPr that can be stored on the function apply object func.

#### groupChr (Group-Character Object)

This element specifies the Group-Character object, consisting of a character drawn above or below text, often with the purpose of visually grouping items.

#### groupChrPr (Group-Character Properties)

This element specifies the properties of the Group-Character object groupChr. These properties can be used to specify the character placed above or below the argument and the position of the character. When omitted, character⏟(U+23DF, BOTTOM CURLY BRACKET) is used as the chr and its pos is set to bot.

#### grow (n-ary Grow)

This element specifies the growth property of n-ary operators. When 0 or false, n-ary operators such as integrals and summations do not grow to match the size of their operand height. When 1 or true, the n-ary operator grows vertically to match its operand height. If this property is omitted, grow is set to 0.

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| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### hideBot (Hide Bottom Edge)

This element specifies the hidden or shown state of the bottom edge of borderBox. When this element is omitted, the bottom edge is shown. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### hideLeft (Hide Left Edge)

This element specifies the hidden or shown state of the left edge of borderBox. When this element is omitted, the edge is shown. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

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| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### hideRight (Hide Right Edge)

This element specifies the hidden or shown state of the right edge of borderBox. When this element is omitted, the edge is shown. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### hideTop (Hide Top Edge)

This element specifies the hidden or shown state of the top edge of borderBox. When this element is omitted, the edge is shown. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### interSp (Inter-Equation Spacing)

This element specifies spacing between equations, expressions, or other instances of mathematical text within a display math paragraph, in twips.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### intLim (Integral Limit Locations)

This element specifies the document setting for the default placement of integral limits, when converted from a linear form to a two-dimensional output (professional form). Limits can be either centered above and below the integral, or positioned just to the right of the operator, as in:

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the default location of limits on the parent object. Possible values are subSup and undOvr. |

#### intraSp (Intra-Equation Spacing)

This element specifies the spacing between adjacent display math paragraphs, in twips. If this element is omitted, no spacing is applied between adjacent math paragraphs.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### jc (Justification)

This element specifies justification of the math paragraph (a series of adjacent instances of mathematical text within the same paragraph). A math paragraph can be Left Justified, Right Justified, Centered, or Centered as Group. If this element is omitted, the math paragraph is Centered as Group. Whether the element is absent or present without the val attribute, the default of the val attribute is centerGroup. This means that the instances of mathematical text can be aligned with respect to each other, but the entire group of mathematical text is centered as a whole.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the default justification of mathematical text in the document. Possible values are center, centerGroup, left and right. |

#### lim (Limit)

This element specifies the lower limit of the limLow object and the upper limit of the limUpp function.

#### limLoc (n-ary Limit Location)

This element specifies the location of limits in n-ary operators. Limits can be either centered above and below the n-ary operator (shown in the first summation below) or positioned just to the right of the operator (shown in the second summation below).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the default location of limits on the parent object. Possible values are subSup and undOvr. |

#### limLow (Lower-Limit Object)

This element specifies the Lower-Limit object, consisting of text on the baseline and reduced-size text immediately below it.

#### limLowPr (Lower-Limit Properties)

This element specifies control properties (ctrlPr) that can be stored on the Lower Limit (limLow).

#### limUpp (Upper-Limit Object)

This element specifies the Upper-Limit object, consisting of text on the baseline and reduced-size text immediately above it.

#### limUppPr (Upper-Limit Properties)

This element specifies control properties (ctrlPr) that can be stored on the Upper Limit (limUpp).

#### lit (Literal)

This element specifies that the characters in the run are literal; that is, they are to be interpreted literally and not be built up based on any implied mathematical meaning. This is especially useful for operators or other special characters that signal a need for build up to an OMML reader. These characters are often encountered during a given instance of mathematical text when presented in a1-dimensional linear format, such as the linear format defined by Unicode Technical Note #28 (Sargent 2006).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### lMargin (Left Margin)

This element specifies the left margin for math, in twips. If this element is omitted, no left margin is used. In other words, when the element is absent, the default value of the option is 0.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### m (Matrix Object)

This element specifies the Matrix object, consisting of one or more elements laid out in one or more rows and one or more columns. It is important to note that matrices do not have built in delimiters. Like other math elements, matrices are contained in a delimiter object (§22.1.2.24) when delimiters are desired. Empty arguments (see §22.1.2.32) can be used to create gaps in matrices. The plcHide tag (§22.1.2.83) can be used to indicate whether the empty arguments should be visible in the matrix (see the plcHide documentation for more information). If mPr is omitted, the values of baseJc, cGp, cGpRule, cSp, ctrlPr, mcs, plcHide, rSp and rSpRule are shown in the following table:

|  |  |
| --- | --- |
| **Property** | **Default Value** |
| baseJc | “center” |
| cGp | “0” |
| cGpRule | “0” <single> |
| cSp | “0” |
| ctrlPr | <The character property of the first control character shall be the character property of the first character in the m object > |
| mcs | <All columns will be vertically center aligned> |
| plcHide | “0” |
| rSp | “0” |
| rSpRule | “0” <single> |

#### mathFont (Math Font)

This element specifies the default math font to be used in the document. If this element is omitted, font substitution (§17.8.2) should be used to determine the most appropriate font for use throughout the document.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the default math font to be used in the document. |

#### mathPr (Math Properties)

This element specifies the document-level properties for all math in the document.

#### maxDist (Maximum Distribution)

This element specifies Array Maximum Distribution. When 1 or true, the array is spaced to the maximum width of the containing element (page, column, cell, etc.). The example image below illustrates an array expanded to fit the page, which is the containing element in this example. The maxDist option is commonly used with the objDist option. The objDist option is used to expand the distribution of mathematical text within the bounds of an array while not impacting the Array Distribution itself.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### mc (Matrix Column)

This element specifies a single column in a matrix m.

#### mcJc (Matrix Column Justification)

This element specifies the justification of a matrix column (or group of matrix columns)mc. When this element is omitted, the column is centered. Whether the element is absent or present without the val attribute, the default of the val attribute is center. The matrix below has three columns. The leftmost column is left-justified, the rightmost column is right-justified, and the center column is centered:

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the horizontal alignment of the parent element. Possible values are left, right and center. |

#### mcPr (Matrix Column Properties)

This element specifies the properties of the matrix column mn, including the number of columns and the type of justification.

#### mcs (Matrix Columns)

This element specifies the collection of columns of the matrix m.

#### mPr (Matrix Properties)

This element specifies properties of the matrix m, including the justification of the matrix and the layout of elements within the matrix.

#### mr (Matrix Row)

This element specifies a single row of the matrix m.

#### nary (n-ary Operator Object)

This element specifies an n-ary object, consisting of an n-ary object, a base (or operand) and optional upper and lower limits.

#### naryLim (n-ary Limit Location)

This element specifies the document setting for the default placement of n-ary limits other than integrals (since integrals are most often written as subSup and other n-ary operators are most often written as undOvr), when converted from a built down form to a two-dimensional output (professional form). Limits can be either centered above and below the n-ary operator, or positioned just to the right of the operator, as in:

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the default location of limits on the parent object. Possible values are subSup and undOvr. |

#### naryPr (n-ary Properties)

This element specifies the properties of the n-ary object.

#### noBreak (No Break)

This property specifies the "unbreakable" property on the Box object box. When 1 or true, no line breaks can occur within the box. This can be important for operator emulators that consist of more than one binary operator. When this element is not specified, breaks can occur inside box. Whether the element is absent or present without the val attribute, the default of the val attribute is 1 meaning that this property is applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### nor (Normal Text)

This element specifies that the run is normal text, i.e., math italics and math spacing are not applied. In a normal text run, no characters will trigger reformatting of a linear expression into a two-dimensional expression.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### num (Numerator)

This element specifies the numerator of the Fraction object f.

#### objDist (Object Distribution)

This element specifies Array Object Distribution. When 1 or true, the contents of the array are spaced to the maximum width of the array object. When this element is omitted, the array does not receive object distribution. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### oMath (Office Math)

This element specifies an instance of mathematical text. When used independently (not inside an oMathPara) with non-mathematical text preceding and/or following it, an independent oMath is interpreted as an inline math zone. All such math zones, including equations, expressions, arrays of equations or expressions and formulas are represented by oMath blocks. When used in a display math zone (a math paragraph, oMathPara), oMath is a container for an instance of mathematical text that starts on its own line and is not an inline math zone. When an oMath block is part of a display math zone, it is not itself an inline math zone. When an oMath block is not part of a display math zone, it is interpreted as its own inline math zone. The contents of an oMath block do not differ between display zone containers and independent inline math zones.

#### oMathPara (Office Math Paragraph)

This element specifies a math paragraph, or display math zone, that contains one or more oMath elements that are in display mode. The oMath containers of a display math zone are not themselves considered inline math zones.

#### oMathParaPr (Office Math Paragraph Properties)

This property specifies properties of the math paragraph oMathPara, including justification jc.

#### opEmu (Operator Emulator)

This element specifies the Operator Emulator property on box. When 1 or true, the box and its contents behave as a single operator and inherit the properties of an operator. This means, for example, that the character can serve as a point for a line break and can be aligned to other operators. (For more details on the properties of an operator, see Unicode Technical Report #25, §3.2.2 and §3.2.3 and Unicode Technical Note #28.) Operator Emulators are often used when one or more glyphs combine to form an operator, such as==.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### phant (Phantom Object)

This element specifies the phantom object. This object has two primary uses: adding the spacing of the phantom base element e without displaying that base; and suppressing part of the glyph for spacing considerations.

|  |  |
| --- | --- |
| Without <m:phant> | With <m:phant> |
| <m:rad> | <m:rad> |

#### phantPr (Phantom Properties)

This element specifies properties of the Phantom object, including whether the phantom is hidden or visible and the amount of space that is considered when laying out text and objects around phantoms.

#### plcHide (Hide Placeholders (Matrix))

This element specifies the Hide Placeholders property on a matrix m. When this property is on, placeholders do not appear in the matrix. If this element is omitted, placeholders do appear such that the locations where text can be inserted are made visible. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### pos (Position)

This element specifies the position of the bar or group character in the parent object; the default is bot.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the position of the parent element. Possible values are top and bot. |

#### postSp (Post-Paragraph Spacing)

This element specifies the spacing after a math paragraph, in twips. If this element is omitted, no spacing is applied after the paragraph.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### preSp (Pre-Paragraph Spacing)

This element specifies the spacing before a math paragraph, in twips. If this element is omitted, no spacing is applied before the paragraph.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### r (Run)

This element specifies a run of mathematical text.

#### rad (Radical Object)

This element specifies the radical object, consisting of a radical, a base e and an optional degree deg. :

#### radPr (Radical Properties)

This element specifies properties of the Radical object rad, including the hidden or shown state of the degree deg.

#### rMargin (Right Margin)

This element specifies the right margin for math, in twips. If this element is omitted, no right margin is used. In other words, when the element is absent, the default value of the option is 0. When the element is present and the val attribute is absent, the default of the val attribute is 1440 (or 1 inch).Math margins are added to the paragraph settings for margins. If the sum of lMargin and rMargin exceed the width available, lMargin should be ignored. If rMargin exceeds the width available, a default indent of 1440 twips should be used. :

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### rPr (Run Properties)

This element specifies the properties of the math run r.

#### rSp (Row Spacing (Array))

This element specifies spacing between rows of an array eqArr; it is used only when rSpRule is set to 3 (exactly; in which case the unit of measure is points) or 4 (Multiple; in which case the unit of measure is half-lines). If this element is omitted, single line spacing is used in the array and no additional spacing is used in the layout of rows. Whether the element is absent or present without the val attribute, the default of the val attribute is 0.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the amount of space between columns of the parent element (for cGp/cSp) or rows (for rSp). The manner in which this value is determined depends on the setting of the rule of the parent element. |

#### rSpRule (Row Spacing Rule)

This element specifies the type of vertical spacing between columns in a matrix. The following table demonstrates possible values of rSpRule along with their definitions and examples.

|  |  |
| --- | --- |
| **Value** | **Line spacing between rows** |
| 0 | Single line gap |
| 1 | 1.5-line gap |
| 2 | 2-line gap |
| 3 | Exactly (rely on value of rGp, measured in points) |
| 4 | Multiple (rely on value of rGp, measured in lines) |

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the type of spacing between rows and/or columns. Possible values are 0, 1, 2, 3, or 4, whose definitions are contained in the following table: |

#### scr (Script)

This element describes the script applied to the characters in the run. The XML includes the Unicode value of the character (between U+0000 and U+007F), along with the script of the character. The application maps the value and script type to the appropriate Unicode range.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the script type of the parent element. Possible values are double-struck, fraktur, monospace, roman, sans-serif and script. |

#### sepChr (Delimiter Separator Character)

This element specifies the character that separates base arguments e in the delimiter object d. If this element is omitted, the default sepChr is '|'. In other words, when the element is absent, the default is for the delimiter object separator character to be U+2502 (BOX DRAWINGS LIGHT VERTICAL).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the character used by the parent element. When it is omitted, the parent uses its assigned default. |

#### show (Phantom Show)

This element specifies the show property of the phantom phant. When 0 or false, the phant base e is hidden. If this element is omitted, the base e is shown. Whether the element is absent or present without the val attribute, the default of the val attribute is 1 meaning that this property is applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### shp (Shape (Delimiters))

This element specifies the shape of delimiters in the delimiter object d. Delimiters can be centered around the math axis of the mathematical text and still be made to fit the entire height of their contents (see right-hand example below), or their height and shape can be altered to exactly match their contents (see left-hand example below). These settings significantly impact the shape of the mathematical text. When this element is omitted, delimiters are 'centered'. Whether the element is absent or present without the val attribute, the default of the val attribute is centered.: In the examples below, delimiters will be matched to the exact shape of their contents on the left and will be centered on the right:

|  |  |
| --- | --- |
| Match | Centered |
| <m:dPr> | <m:dPr> |

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the shape of the parent element. Possible values are match and centered. |

#### smallFrac (Small Fraction)

This element specifies a reduced fraction size display math, such that the numerator and denominator are written in script size instead of at the size of regular text.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### sPre (Pre-Sub-Superscript Object)

This element specifies the Pre-Sub-Superscript object, which consists of a base e and a subscript and superscript placed to the left of the base, as in .

#### sPrePr (Pre-Sub-Superscript Properties)

This element specifies properties such as ctrlPr that can be stored on the Pre-Sub-Superscript objects Pre.

#### sSub (Subscript Object)

This element specifies the subscript object sSub, which consists of a base e and a reduced-size scr placed below and to the right, as in .

#### sSubPr (Subscript Properties)

This element specifies properties such as ctrlPr that can be stored on the Subscript object sSub.

#### sSubSup (Sub-Superscript Object)

This element specifies the sub-superscript object, which consists of a base e, a reduced-size scr placed below and to the right and a reduced-size scr placed above and to the right, as in .

#### sSubSupPr (Sub-Superscript Properties)

This element specifies properties of the Sub-Superscript object, including the alignment of scripts.

#### sSup (Superscript Object)

This element specifies the superscript object sSup, which consists of a base e and a reduced-size scr placed above and to the right, as in .

#### sSupPr (Superscript Properties)

This element specifies properties such as ctrlPr that can be stored on the Superscript object sSup.

#### strikeBLTR (Border Box Strikethrough Bottom-Left to Top-Right)

This element specifies the hidden or shown state of a strikethrough diagonal line from the bottom-left corner to the top-right corner of borderBox. When this element is omitted, the strikethrough is not drawn. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied. When the element is present and the val attribute is absent, the default of the val attribute is 1 meaning that this property is applied. When applied, a strikethrough is drawn, as in .

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### strikeH (Border Box Strikethrough Horizontal)

This element specifies the hidden or shown state of a strikethrough horizontal line in borderBox. When this element is omitted, the strikethrough is not drawn. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied. When the element is present and the val attribute is absent, the default of the val attribute is 1 meaning that this property is applied. When on, a horizontal strikethrough is drawn, as in .

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### strikeTLBR (Border Box Strikethrough Top-Left to Bottom-Right)

This element specifies the hidden or shown state of a strikethrough diagonal line from the top-left corner to the bottom-right corner of borderBox. When this element is omitted, the strikethrough is not drawn. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied. When the element is present and the val attribute is absent, the default of the val attribute is 1 meaning that this property is applied. When applied, a strikethrough is drawn, as in .

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### strikeV (Border Box Strikethrough Vertical)

This element specifies the hidden or shown state of a strikethrough vertical line in borderBox. When this element is omitted, the strikethrough is not drawn. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied. When the element is present and the val attribute is absent, the default of the val attribute is 1 meaning that this property is applied. When applied, a strikethrough is drawn, as in .

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### sty (style)

This element describes the script applied to the characters in the run. The XML includes the Unicode value of the character along with the style of the character. The application maps the value and style to the appropriate Unicode range. Whether the element is absent or present without the val attribute, the default of the val attribute is i.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the style of the parent element. Possible values are b(bold), i(italic), bi(bolditalic) and p(plain). |

#### sub (Subscript (Pre-Sub-Superscript))

This element specifies the subscript of the Pre-Sub-Superscript object sPre. : For example, the sub in the object is 1. An example of this element in use is:

#### subHide (Hide Subscript (n-ary))

This element specifies the n-ary Hide Subscript property. When 1 or true, the lower limit does not appear, as in . If this element is omitted, the lower limit appears.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### sup (Superscript (Superscript object))

This element specifies the superscript of the superscript object sSup. For example, the sup in the superscript object is 𝑛.

#### supHide (Hide Superscript (n-ary))

This element specifies the n-ary Hide Superscript property. When 1 or true, the upper limit does not appear, as in . If this element is omitted, the upper limit appears.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### t (Text)

This element specifies the text in a math run r.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| xml:space(Content | Specifies how white space should be handled for the contents of this element using the W3C space preservation rules. : Consider the following run contained within a WordprocessingML document: |

#### transp (Transparent (Phantom))

This element specifies that the phantom is transparent for spacing. This means that if the contents of the phantom are belonging to a special spacing class (such as binary operators, relational operators, differentials, etc.), the contents of that phantom are taken into consideration when laying out text. If transparency is turned off, then the contents of the phantom are ignored during layout. When this element is omitted, transparency is 0 or false. In other words, when the element is absent, the default value of the property is 0 meaning that this property is not applied.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### type (Fraction type)

This element specifies the type of fraction f; the default is 'bar'. Whether the element is absent or present without the val attribute, the default of the val attribute is bar. Fraction types are:

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the type of fraction. Possible values are bar(Bar Fraction), lin(Linear Fraction), noBar(No-Bar Fraction (Stack)) and skw(Skewed). |

#### vertJc (Vertical Justification)

This element, combined with pos of groupChrPr, specifies the vertical layout of the groupChr object. Where pos specifies the position of the grouping character, vertJc specifies the alignment of the object with respect to the baseline. For example, when the group character is above the object, vertJc of top signifies that the top of the object falls on the baseline; when vertJc is set to bot, the bottom of the object is on the baseline. The table below demonstrates the four possible combinations of groupChr layout:

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the position of the parent element. Possible values are top and bot. |

#### wrapIndent (Wrap Indent)

This element specifies the indent of the wrapped line of an instance of mathematical text. The line or lines of a wrapped instance of mathematical text after the line break can either be indented by a specified amount from the left margin, or right aligned. The default indent is 1". In other words, whether the element is absent or present without the val attribute, the default of the val attribute is 1440 twips (or 1 inch).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies the value, in twips, of the parent element. |

#### wrapRight (Wrap Right)

This element specifies the right justification of the wrapped line of an instance of mathematical text. The line or lines of a wrapped instance of mathematical text after the line break can either be indented by a specified amount from the left margin, or right aligned. If this element is present, the continuation is right aligned.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### zeroAsc (Phantom Zero Ascent)

This element specifies that the phantom has zero ascent. The ascent of the contents of the phantom is not considered during layout. When this property is omitted, the phantom does have ascent (zero ascent is not applied).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### zeroDesc (Phantom Zero Descent)

This element specifies that the phantom has zero descent. The descent of the contents of the phantom is not considered during layout. When this property is omitted, the phantom does have descent (zero descent is not applied).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

#### zeroWid (Phantom Zero Width)

This element specifies that the phantom has zero width. The width of the contents of the phantom is not considered during layout. When this property is omitted, the phantom does have width (zero width is not applied).

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| val (Value) | Specifies a binary value for the property defined by the parent XML element. |

### Simple Types

This is the complete list of simple types dedicated to Math.

#### ST\_BreakBin (Break Binary Operators)

This defines how to represent binary operators with respect to a line-wrapping break. The line can wrap before the operator or after the operator; alternately, the operator can appear both at the end of the first line and the beginning of the second.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| after(After) | When line-wrapping breaks occur on binary operators, the binary operator appears after the break (at the start of the next line). |
| before(Before) | When line-wrapping breaks occur on binary operators, the binary operator appears before the break (at the end of the first line). |
| repeat(Repeat) | When line-wrapping breaks occur on binary operators, the binary operator appears on both sides of the break (at the end of the first line and the start of the next line). |

#### ST\_BreakBinSub (Break on Binary Subtraction)

This simple type specifies how to represent subtraction on both sides of a line-wrapping break, when the Break Binary Operators option is set to repeat. The first character represents the sign at the end of the line with the break; the second represents the sign at the start of the wrapped line. Options are --, -+ and +-.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| +-(Plus Minus) | Repetition of subtraction sign after a line-wrapping break is plus on the first line and minus on the second line. |
| -+(Minus Plus) | Repetition of subtraction sign after a line-wrapping break is minus on the first line and plus on the second line. |
| --(Minus Minus) | Repetition of subtraction sign after a line-wrapping break is minus on the first and second lines. |

#### ST\_Char (Character)

This Simple Type specifies the single character used by the parent element.

#### ST\_FType (Fraction Type)

Fractions can be of type bar (horizontal fraction bar), skewed ("skw" - diagonal fraction bar with kerned and vertically adjusted numerator and denominator), linear ("lin" - diagonal fraction bar, takes up exactly one line of space) and the "stack" object ("noBar").

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| bar(Bar Fraction) | Fraction with a horizontal fraction bar. |
| lin(Linear Fraction) | Fraction with slanted fraction bar, that takes up no additional vertical space. |
| noBar(No-Bar Fraction (Stack)) | Stack object, which looks like a fraction with no fraction bar. |
| skw(Skewed) | Fraction with diagonal fraction bar. |

#### ST\_Integer2 (Integer value (-2 to 2))

This simple type contains a value from (-2,+2) which specifies the size of the argument. The effects of each value are described by the referencing element.

#### ST\_Integer255 (Integer value (1 to 255))

This simple type specifies an integer value. The semantics of each value are discussed by the referencing element.

#### ST\_Jc (Justification)

This Simple Type specifies the justification of Math Paragraphs. Justification of the Math Paragraph can be Left, Right, Centered, or Centered as Group.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| center(Center (Text)) | Centers each instance of mathematical text individually with respect to margins. |
| centerGroup(Centered as Group (Text)) | Justifies instances of mathematical text with respect to each other and centers the group of mathematical text (the Math Paragraph) with respect to the page. |
| left(Left Justification) | Left justification of Math Paragraph |
| right(Right) | Right Justification of Math Paragraph |

#### ST\_LimLoc (Limit Location)

Limits can be in one of two positions: Under-Over (undOvr- above and below the base) and SubscriptSuperscript (subSup- positioned to the side of the base, in the position of subscripts and superscripts).

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| subSup(Subscript-Superscript location) | Limits placed to the side of the base, as opposed to directly over and under. |
| undOvr(Under-Over location) | Limits placed to the directly above and below the base, as opposed to on the side. |

#### ST\_Script (Script)

Script can be of type Roman, Script, Fraktur, Double-Struck, Sans-Serif, or Monospace.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| double-struck(double-struck) | Double-Struck Script Type |
| fraktur(Fraktur) | Fraktur Script Type |
| monospace(Monospace) | Monospace Script Type |
| roman(Roman) | Roman Script Type |
| sans-serif(Sans-Serif) | Sans-Serif Script Type |
| script(Script) | Script Type |

#### ST\_Shp (Shape (Delimiters))

Delimiters shape can be centered around the argument or matched to the shape of the argument.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| centered(Centered (Delimiters)) | Delimiters are centered around their argument. |
| match(Match) | Match shape of contents of delimiters. |

#### ST\_SpacingRule (Spacing Rule)

Integer value (0 to 4), representing the type of spacing between rows.

#### ST\_Style (Style)

Style of math can be plain, bold, italic, or bold-italic (p, bi, i, or bi).

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| b(Bold) | Bold |
| bi(Bold-Italic) | Bold-Italic |
| i(Italic) | Italic |
| p(Plain) | Plain |

#### ST\_TopBot (Top-Bottom)

Possible values are top and bot.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| bot(Bottom Alignment) | Aligns the bottom of the object to the baseline of the surrounding text. |
| top(Top) | Aligns the top row of the object to the baseline of the surrounding text. |

#### ST\_UnSignedInteger (Unsigned integer)

This simple type's contents are a restriction of the W3C XML Schema unsignedInt datatype.

## Extended Properties

Extended properties are a predefined set of metadata properties that are applicable to Office Open XML documents. These properties extend the set of core properties defined in Part 2: "Open Packaging Conventions" which are common to all packages.

### Elements

The following elements specify the contents of this namespace:

#### Application (Application Name)

This element specifies the name of the application that created this document.

#### AppVersion (Application Version)

This element specifies the version of the application which produced this document.

#### Characters (Total Number of Characters)

This element specifies the total number of characters in a document.

#### CharactersWithSpaces (Number of Characters (With Spaces))

This element specifies the last count of the number of characters (including spaces) in this document.

#### Company (Name of Company)

This element specifies the name of a company associated with the document.

#### DigSig (Digital Signature)

This element contains the signature of a digitally signed document.

#### DocSecurity (Document Security)

This metadata element specifies the security level of a document as a numeric value. Document security is defined as:

|  |  |
| --- | --- |
| DocSecurity | **Security Level** |
| 1 | Document is password protected. |
| 2 | Document is recommended to be opened as read-only. |
| 4 | Document is enforced to be opened as read-only. |
| 8 | Document is locked for annotation. |

#### HeadingPairs (Heading Pairs)

Heading pairs indicates the grouping of document parts and the number of parts in each group. These parts are not document parts but conceptual representations of document sections.

#### HiddenSlides (Number of Hidden Slides)

This element specifies the number of hidden slides in a presentation document.

#### HLinks (Hyperlink List)

This element specifies the set of hyperlinks that were in this document when last saved.

#### HyperlinkBase (Relative Hyperlink Base)

This element specifies the base string used for evaluating relative hyperlinks in this document.

#### HyperlinksChanged (Hyperlinks Changed)

This element specifies that one or more hyperlinks in this part were updated exclusively in this part by a producer. The next producer to open this document shall update the hyperlink relationships with the new hyperlinks specified in this part.

#### Lines (Number of Lines)

This element specifies the total number of lines in a document when last saved by a conforming producer if applicable.

#### LinksUpToDate (Links Up-to-Date)

This element indicates whether hyperlinks in a document are up-to-date. Set this element to TRUE to indicate that hyperlinks are updated. Set this element to FALSE to indicate that hyperlinks are outdated.

#### Manager (Name of Manager)

This element specifies the name of a supervisor associated with the document.

#### MMClips (Total Number of Multimedia Clips)

This element specifies the total number of sound or video clips that are present in the document.

#### Notes (Number of Slides Containing Notes)

This element specifies the number of slides in a presentation containing notes.

#### Pages (Total Number of Pages)

This element specifies the total number of pages of a document if applicable.

#### Paragraphs (Total Number of Paragraphs)

This element specifies the total number of paragraphs found in a document if applicable.

#### PresentationFormat (Intended Format of Presentation)

This element specifies the intended format for a presentation document. For example, a presentation intended to be shown on video has PresentationFormat "Video".

#### Properties (Application Specific File Properties)

This element specifies the application properties of a document. For properties of type string, NCR escape format (\_xHHHH\_) is used for any invalid XML characters.

#### ScaleCrop (Thumbnail Display Mode)

This element indicates the display mode of the document thumbnail. Set this element to TRUE to enable scaling of the document thumbnail to the display. Set this element to FALSE to enable cropping of the document thumbnail to show only sections that fits the display.

#### SharedDoc (Shared Document)

This element indicates if this document is currently shared between multiple producers. If this element is set to TRUE, producers should take care when updating the document.

#### Slides (Slides Metadata Element)

This element specifies the total number of slides in a presentation document.

#### Template (Name of Document Template)

This element specifies the name of an external document template containing format and style information used to create the current document.

#### TitlesOfParts (Part Titles)

This element specifies the title of each document. These parts are not document parts but conceptual representations of document sections.

#### TotalTime (Total Edit Time Metadata Element)

Total time that a document has been edited. The default time unit is minutes.

#### Words (Word Count)

This element specifies the total number of words contained in a document when last saved.

## Custom Properties

Custom properties enable users to define custom metadata properties through a set of well-defined data types.

### Elements

This subclause specifies the set of elements that define this namespace:

#### Properties (Custom File Properties)

Parent element for the custom file properties part.

#### property (Custom File Property)

This element specifies a single custom file property. Custom file property type is defined through child elements in the File Properties Variant Type namespace. Custom file property value can be set by setting the appropriate Variant Type child element value.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| fmtid(Format ID) | Uniquely relates a custom property with an OLE property. |
| linkTarget(Bookmark Link Target) | Specifies the name of a bookmark in the current document (for WordprocessingML), or a table or named cell (for SpreadsheetML) from which the value of this custom document property should be extracted. |
| name(Custom File Property Name) | Specifies the name of this custom file property. |
| pid(Property ID) | Uniquely relates a custom property with an OLE property. |

## Variant Types

This subclause specifies the set of data types which can be included within file properties that accept variant type structures.

### Elements

The following elements define the contents of this namespace:

#### array (Array)

The array element defines the array variant type. Array contents shall be of uniform type as specified by the baseType attribute. The contents of an array are defined using repeated child elements of the appropriate variant type.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| baseType(Array Base Type) | The baseType attribute specifies the base variant type of an array. |
| lBounds(Array | The lBounds attribute specifies the lower bound of an array in the format: #, #, # … # where each # represents an integer. |
| uBounds(Array | The uBounds attribute specifies the upper bound of an array in the format: #, #, # … # where each # represents an integer. |

#### blob (Binary Blob)

This element specifies a base64 binary blob variant type.

#### bool (Boolean)

This element specifies a Boolean variant type.

#### bstr (Basic String)

This element defines a binary basic string variant type, which can store any valid Unicode character. Unicode characters that cannot be directly represented in XML as defined by the XML 1.0 specification, shall be escaped using the Unicode numerical character representation escape character format \_xHHHH\_, where H represents a hexadecimal character in the character's value.

#### clsid (Class ID)

This element specifies a class ID variant type. The value shall be a Globally Unique Identifier with format:

#### cy (Currency)

This element specifies a currency variant type with exactly four digits after the decimal point.

#### date (Date and Time)

This element specifies a date variant type of type date-time as defined in RFC 3339.

#### decimal (Decimal)

This element specifies a decimal variant type.

#### empty (Empty)

This element specifies an empty variant type. No values or child elements are allowed.

#### error (Error Status Code)

The error element specifies a 32-bit error status code variant type of the form 0xHHHHHHHH. Each H represents a hexadecimal digit.

#### filetime (File Time)

This element specifies a file-time variant type of type date-time as defined in RFC 3339.

#### i1 (1-Byte Signed Integer)

This element specifies a 1-byte signed integer variant type.

#### i2 (2-Byte Signed Integer)

This element specifies a 2-byte signed integer variant type.

#### i4 (4-Byte Signed Integer)

This element specifies a 4-byte signed integer variant type.

#### i8 (8-Byte Signed Integer)

This element specifies an 8-byte signed integer variant type.

#### int (Integer)

This element specifies an integer variant type.

#### lpstr (LPSTR)

This element specifies a string variant type. For all characters that cannot be represented in XML as defined by the XML 1.0 specification, the characters are escaped using the Unicode numerical character representation escape character format \_xHHHH\_, where H represents a hexadecimal character in the character's value.

#### lpwstr (LPWSTR)

This element specifies a string variant type. For all characters that cannot be represented in XML as defined by the XML 1.0 specification, the characters are escaped using the Unicode numerical character representation escape character format \_xHHHH\_, where H represents a hexadecimal character in the character's value.

#### null (Null)

This element specifies a null variant type.

#### oblob (Binary Blob Object)

This element specifies a base64 binary blob object variant type.

#### ostorage (Binary Storage Object)

This element specifies a base64 binary storage object variant type.

#### ostream (Binary Stream Object)

This element specifies a binary stream object variant type.

#### r4 (4-Byte Real Number)

This element specifies a 4-byte real number variant type.

#### r8 (8-Byte Real Number)

This element specifies an 8-byte real number variant type.

#### storage (Binary Storage)

This element specifies a binary storage variant type.

#### stream (Binary Stream)

This element specifies a binary stream variant type.

#### ui1 (1-Byte Unsigned Integer)

This element specifies a 1-byte unsigned integer variant type.

#### ui2 (2-Byte Unsigned Integer)

This element specifies a 2-byte unsigned integer variant type.

#### ui4 (4-Byte Unsigned Integer)

This element specifies a 4-byte unsigned integer variant type.

#### ui8 (8-Byte Unsigned Integer)

This element specifies an 8-byte unsigned integer variant type.

#### uint (Unsigned Integer)

This element specifies an unsigned integer variant type.

#### variant (Variant)

This element can contain exactly 1 child element of any variant type. This element is only valid as a child element of a vector or array variant type. : A vector of variant types:

#### vector (Vector)

This element defines the vector variant type. Vector contents shall be of uniform type as specified by the baseType attribute. The contents of a vector are defined using repeated child elements of the appropriate variant type.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| baseType(Vector Base Type) | The baseType attribute specifies the base variant type of a vector. |
| size(Vector Size) | Specifies the number of elements in the vector. |

#### vstream (Binary Versioned Stream)

This element specifies a binary versioned stream variant type.

### Simple Types

This is the complete list of simple types dedicated to Variant Types.

#### ST\_ArrayBaseType (Array Base Type Simple Type)

The ST\_ArrayBaseType simple type defines the allowed values for an array's baseType attribute as: variant, i1, i2, i4, int, ui1,ui2, ui4, uint, r4, r8, decimal, bstr, date, bool, cy and error.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| bool (Boolean Base Type) | Specifies that the variant type for the contents of an array shall be bool. |
| bstr (Basic String Base Type) | Specifies that the variant type for the contents of an array shall be bstr. |
| cy (Currency Base Type) | Specifies that the variant type for the contents of an array shall be cy. |
| date (Date and Time Base Type) | Specifies that the variant type for the contents of an array shall be date. |
| decimal (Decimal Base Type) | Specifies that the variant type for the contents of an array shall be decimal. |
| error (Error Status Code Base Type) | Specifies that the variant type for the contents of an array shall be error. |
| i1 (1-Byte Signed Integer Base Type) | Specifies that the variant type for the contents of an array shall be i1. |
| i2 (2-Byte Signed Integer Base Type) | Specifies that the variant type for the contents of an array shall be i2. |
| i4 (4-Byte Signed Integer Base Type) | Specifies that the variant type for the contents of an array shall be i4. |
| int (Integer Base Type) | Specifies that the variant type for the contents of an array shall be int. |
| r4 (4-Byte Real Number Base Type) | Specifies that the variant type for the contents of an array shall be r4. |
| r8 (8-Byte Real Number Base Type) | Specifies that the variant type for the contents of an array shall be r8. |
| ui1 (1-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of an array shall be ui1. |
| ui2 (2-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of an array shall be ui2. |
| ui4 (4-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of an array shall be ui4. |
| uint (Unsigned Integer Base Type) | Specifies that the variant type for the contents of an array shall be uint. |
| variant (Variant Base Type) | Specifies that the variant type for the contents of an array shall be variant. |

#### ST\_Cy (Currency Simple Type)

The ST\_Cy simple type defines the cy element as a currency variant type with exactly four digits after the decimal point.

#### ST\_Error (Error Status Code Simple Type)

The ST\_Error simple type defines a 32-bit error status code variant type of the form 0xHHHHHHHH. Each H represents a hexadecimal.

#### ST\_VectorBaseType (Vector Base Type Simple Type)

The ST\_VectorBaseType simple type defines the allowed values for a vector's baseType attribute as: variant, i1, i2, i4, i8, ui1, ui2, ui4, ui8, r4, r8, lpstr, lpwstr, bstr, date, filetime, bool, cy, error and clsid.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| bool (Boolean Base Type) | Specifies that the variant type for the contents of a vector shall be bool. |
| bstr (Basic String Base Type) | Specifies that the variant type for the contents of a vector shall be bstr. |
| clsid (Class ID Base Type) | Specifies that the variant type for the contents of a vector shall be clsid. |
| cy (Currency Base Type) | Specifies that the variant type for the contents of a vector shall be cy. |
| date (Date and Time Base Type) | Specifies that the variant type for the contents of a vector shall be date. |
| error (Error Status Code Base Type) | Specifies that the variant type for the contents of a vector shall be error. |
| filetime (File Time Base Type) | Specifies that the variant type for the contents of a vector shall be filetime. |
| i1 (Vector Base Type Enumeration Value) | Specifies that the variant type for the contents of a vector shall be i1. |
| i2 (2-Byte Signed Integer Base Type) | Specifies that the variant type for the contents of a vector shall be i2. |
| i4 (4-Byte Signed Integer Base Type) | Specifies that the variant type for the contents of a vector shall be i4. |
| i8 (8-Byte Signed Integer Base Type) | Specifies that the variant type for the contents of a vector shall be i8. |
| lpstr (LPSTR Base Type) | Specifies that the variant type for the contents of a vector shall be lpstr. |
| lpwstr (LPWSTR Base Type) | Specifies that the variant type for the contents of a vector shall be lpwstr. |
| r4 (4-Byte Real Number Base Type) | Specifies that the variant type for the contents of a vector shall be r4. |
| r8 (8-Byte Real Number Base Type) | Specifies that the variant type for the contents of a vector shall be r8. |
| ui1 (1-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of a vector shall be ui1. |
| ui2 (2-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of a vector shall be ui2. |
| ui4 (4-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of a vector shall be ui4. |
| ui8 (8-Byte Unsigned Integer Base Type) | Specifies that the variant type for the contents of a vector shall be ui8. |
| variant (Variant Base Type) | Specifies that the variant type for the contents of a vector shall be variant. |

## Custom XML Data Properties

This namespace defines the set of properties that can be associated with one or more custom XML parts within an Office Open XML document. A *custom XML part*is a part within an Office Open XML document, that contains arbitrary custom XML markup not necessarily defined by ECMA-376 and which is kept independent from the presentation-specific markup within the package.

### Elements

The following information describes the elements in this namespace:

#### datastoreItem (Custom XML Data Properties)

This element specifies the properties for a single custom XML part inside of an Office Open XML document. The set of properties specified within this element are attached to the custom XML part that specifies a relationship to this part.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| itemID (Custom XML Data ID) | Specifies a globally unique identifier (GUID) that uniquely identifies a single custom XML part within an Office Open XML document. |

#### schemaRef (Associated XML Schema)

This element specifies a single XML schema that is associated with the custom XML data part. This XML schema is identified using its target namespace and can be located via any means available to an application processing the contents of this file.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| uri (Target | Specifies the target namespace for the XML Schema associated with this schema reference. |

#### schemaRefs (Set of Associated XML Schemas)

This element specifies the set of XML schemas that are associated with the parent custom XML part. Any number of XML schemas can be referenced, and this collection of schemas shall then be used to validate the contents of the corresponding custom XML part. If this element is present, then the set of XML schemas provided within should be used to validate the contents of the corresponding custom XML part (including the explicit presence of no child elements to specify that no custom XML schemas should be used even if one is present).

## Bibliography

Within an Office Open XML document, it is possible to store an arbitrary amount of bibliographic data, the use of which can be determined by the application reading the content. This subclause defines the format and structure of that bibliographic data.

### Elements

The following elements define the contents of the Bibliography schema:

#### AbbreviatedCaseNumber (Abbreviated Case Number)

This element describes the abbreviated form of a case number. Typically, this field is used in the Case source type.

#### AlbumTitle (Album Title)

This element specifies the title of an album. Typically, this field is used in the Sound recording source type. :

#### Artist (Artist)

This element specifies the artist of the source. Typically, this field is used in the Art and Sound Recording source types. :

#### Author (Contributors List)

This element specifies the contributors to the source. :

#### Author (Author)

This element specifies the author of the source. :

|  |  |
| --- | --- |
| Attributes | Description |
| xml:space (Content |  |

#### BookAuthor (Book Author)

This element specifies the author of a book, when the primary author has authored the book section. For example, if person X writes a chapter in a book by person Y, person X is the Author and person Y is the BookAuthor. :

#### BookTitle (Book Title)

This element specifies the title of a book when the source is a book section. In this case, the title of the book section is the primary title. For example, if X is the title of a chapter in a book entitled , X is the Title and Y is the BookTitle. :

#### Broadcaster (Broadcaster)

This element specifies the broadcaster of a source. Typically, this field is used in the Interview source type. :

#### BroadcastTitle (Broadcast Title)

This element specifies the broadcast title of a source. Typically, this field is used in the Interview source type. :

#### CaseNumber (Case Number)

This element specifies the case number of a source. Typically, this field is used in the Case source type. :

#### ChapterNumber (Chapter Number)

This element specifies the number or index of the chapter being referenced. :

#### City (City)

This element specifies the city in which the source was published, printed, or manufactured. :

#### Comments (Comments)

This element specifies any additional comments about the source. The documentation style determines whether the comments appear in the bibliography. :

#### Compiler (Compiler)

This element specifies the person who compiled the information in a source. :

#### Composer (Composer)

This element specifies the composer of a sound recording. :

#### Conductor (Conductor)

This element specifies the conductor of a source. Typically, this field is used in the sound recording source type. :

#### ConferenceName (Conference or Proceedings Name)

This element specifies the title of the proceedings from a conference. :

#### Corporate (Corporate Author)

This element specifies the corporate author, performer, or any field that can be a name. The element is used when an organization, rather than a person, is used. :

#### Counsel (Counsel)

This element specifies the counsel, attorney, or attorneys in a case.

#### CountryRegion (Country or Region)

This element specifies the country or region of a source. :

#### Court (Court)

This element specifies the court in which the case was presented. :

#### Day (Day)

This element specifies the day on which a source was created or published. :

#### DayAccessed (Day Accessed)

This element specifies the day of the month a source was accessed. :

#### Department (Department)

This element specifies the department in which a source originated, or to which a source was submitted. Typically, this field is used in the Report source type, which includes theses and dissertations. :

#### Director (Director)

This element specifies the director of a source. Typically, this field is used in the Film source type. :

#### Distributor (Distributor)

This element specifies the distributor of a source. Typically, this field is used in the Performance and Film source types. :

#### Edition (Editor)

This element specifies the edition of a source. :

#### Editor (Editor)

This element specifies the editor of a source. :

#### First (Person's First, or Given, Name)

This element specifies a person's first name. :

#### Guid (GUID)

This element specifies the GUID of a source. :

#### Institution (Institution)

This element specifies the institution of the source. Typically, this field is used in the Report source type, where it signifies the university or institute and in the Art source type, where it signifies the museum or institution where the art is housed. :

#### InternetSiteTitle (Internet Site Title)

This element specifies the title of an internet site. Typically, this field is used in the Internet Site and Document from Internet Site source types. :

#### Interviewee (Interviewee)

This element specifies the person being interviewed. Typically, this field is used in the Interview source type. :

#### Interviewer (Interviewer)

This element specifies the person conducting an interview. Typically, this field is used in the Interview source type. :

#### Inventor (Inventor)

This element specifies the inventor of a source. Typically, this field is used in the Patent source type. :

#### Issue (Issue)

This element specifies the issue of a source. Typically, this field is used in the Journal Article and Article in Periodical source types. :

#### JournalName (Journal Name)

This element specifies the name of the journal. Typically, this field is used in the Journal Article source type. :

#### Last (Person's Last, or Family, Name)

This element specifies a person's last name. :

#### LCID (Locale ID)

This element specifies the locale ID of a source, representing the source's language. The set of locale IDs shall be as specified in §22.9.2.6. :

#### Medium (Medium)

This element specifies the medium on or in which a source was created. Typically, this field is used in the electronic source, sound recording and film source types. :

#### Middle (Person's Middle, or Other, Name)

This element specifies a person's middle name. :

#### Month (Month)

This element specifies the month in which a source was created or published. :

#### MonthAccessed (Month Accessed)

This element specifies the month during which the source was accessed. :

#### NameList (Name List)

This element specifies a list containing one or more names of a type of contributor to a source, such as a list of authors, editors, or translators. :

#### NumberVolumes (Number of Volumes)

This element specifies the number of volumes a source contains. :

#### Pages (Pages)

This element specifies the page range being cited in a source. :

#### PatentNumber (Patent Number)

This element specifies the patent number of a source. Typically, this field is used in the Patent source type. :

#### Performer (Performer)

This element specifies the performer. Typically, this field is used in the sound recording, performance, and film source types. :

#### PeriodicalTitle (Periodical Title)

This element specifies the title of a periodical. :

#### Person (Person)

This element specifies a person who contributed to a source. :

#### ProducerName (Producer Name)

This element specifies the person who produced a source. Typically, this field is used in the Internet site, Doc from internet site, electronic source, sound recording, performance and film source types. :

#### ProductionCompany (Production Company)

This element specifies the company that produced a source. Typically, this field is used in the Internet site,

#### PublicationTitle (Publication Title)

This element specifies the title of the publication that contains the source. Typically, this field is used in the electronic source type. :

#### Publisher (Publisher)

This element specifies the publisher of a source. :

#### RecordingNumber (Recording Number)

This element specifies the recording number of a source. Typically, this field is used in the sound recording source type.

#### RefOrder (Reference Order)

This element specifies the reference order of a source. :

#### Reporter (Reporter)

This element specifies the reporter of a source. Typically, this field is used in the Case source type. :

#### ShortTitle (Short Title)

This element specifies the short title of a source. :

#### Source (Source)

This element specifies the bibliography entry for a source or reference work. :

#### Sources (Sources)

This element specifies the sources in a collection.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| SelectedStyle (Selected Style) | Specifies the filename of a file which can be used to format the bibliographies and citations within this document. |
| StyleName  (Documentation  Style Name) | Specifies the name of the documentation style in which the bibliography and citations are formatted. |
| URI(Uniform  Resource Identifier) | Specifies a URI or unique identifier with which a documentation style is associated; can be used to uniquely identify versions of styles that share a StyleName. |

#### SourceType (Source Type)

This element specifies the type of source being cited.

#### StandardNumber (Standard Number)

This element specifies the standard number, such as ISBN or ISSN, of a source. :

#### StateProvince (State or Province)

This element specifies the state or province in which a source was created or published. :

#### Station (Station)

This element specifies the station on which an interview was broadcasted. Typically, this field is used in the Interview source type. :

#### Tag (Tag)

This element specifies the tag name of a source. :

#### Theater (Theater)

This element specifies the theater in which a source was performed or viewed. Typically, this field is used in the Performer source type. :

#### ThesisType (Thesis Type)

This element specifies the type of report being cited, such as Thesis, Dissertation, or Book Report. Typically, this field is used in the Report source type. :

#### Title (Title)

This element specifies the title of a source. :

#### Translator (Translator)

This element specifies the translator of a source. :

#### Type (Patent Type)

This element specifies the type of patent. Typically, this field is used in the Patent source type.

#### URL (URL)

This element specifies the URL of the source. Typically, this field is used in the Internet Site and Document from Internet Site source types. :

#### Version (Version)

This element specifies the version of the source. Typically, this field is used in the Internet Site and Document from Internet Site source types. :

#### Volume (Volume)

This element specifies the volume of the source. :

#### Writer (Writer)

This element specifies the writer of the source. Typically, this field is used in the Performance and Film source types. :

#### Year (Year)

This element specifies the year in which a source was created or published.

#### YearAccessed (Year Accessed)

This element specifies the month during which the source was accessed. :

### Simple Types

This is the complete list of simple types dedicated to Bibliography.

#### ST\_SourceType (Bibliographic Data Source Types)

This simple type specifies the possible types of sources that can be used within bibliographic data in an Office Open XML document.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| Art (Art) | Art |
| ArticleInAPeriodical (Article in a Periodical) | Article in a Periodical |
| Book (Book) | Book |
| BookSection (Book Section) | Book Section |
| Case (Case) | Case |
| ConferenceProceedings (Conference Proceedings) | Conference Proceedings |
| DocumentFromInternetSite (Document from Internet Site) | Document from Internet Site |
| ElectronicSource (Electronic Source) | Electronic Source |
| Film (Film) | Film |
| InternetSite (Internet Site) | Internet Site |
| Interview (Interview) | Interview |
| JournalArticle (Journal Article) | Journal Article |
| Misc (Miscellaneous) | Miscellaneous |
| Patent (Patent) | Patent |
| Performance (Performance) | Performance |
| Report (Reporter) | Report |
| SoundRecording (Sound Recording) | Sound Recording |

## Additional Characteristics

In order to allow producers of Office Open XML to describe specific contextual conditions under which the document was created, additional characteristics can be provided within the Additional Characteristics part using the syntax defined below.

### Elements

The following elements define the contents of the Additional Characteristics schema:

#### additionalCharacteristics (Set of Additional Characteristics)

This element is the root element of the Additional Characteristics part and contains the list of additional characteristics for an Office Open XML document.

#### characteristic (Single Characteristic)

This element specifies a single characteristic. The type of characteristic is defined by the name attribute.

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| name(Name of Characteristic) | Specifies the name of the characteristic. There are no constraints on the value of the name attribute, but each name shall be associated with a specific vocabulary via the vocabulary attribute. |
| relation | Specifies how the contents of the value attribute should be interpreted in the context of this characteristic. | |
| val (Characteristic Value) | Specifies the value of the characteristic. | |
| vocabulary (Characteristic | Specifies a URI defining the characteristic grammar with which the name attribute value shall be interpreted. | |

### Simple Types

This is the complete list of simple types dedicated to Additional Characteristics.

#### ST\_Relation (Characteristic Relationship Types)

This simple type specifies the possible relationships between a characteristic's name and value attributes.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| eq (Equal To) | Equal to. |
| ge (Greater Than or Equal to) | Greater than or equal to. |
| gt (Greater Than) | Greater than. |
| le (Less Than or Equal To) | Less than or equal to. |
| lt (Less Than) | Less than. |

## Office Document Relationships

Within an Office Open XML document, it is necessary to be able to explicitly reference one part within the package from another : A PresentationML Slide needs to be able to explicitly reference each picture within it to know where each one is anchored. End example]

### Table of Contents

**This subclause is informative.**

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**End of informative text.**

### Simple Types

This is the complete list of simple types dedicated to Office Document Relationships.

#### ST\_RelationshipId (Explicit Relationship ID)

This simple type specifies the relationship ID in a part's relationship item which is the target of an explicit relationship from the parent XML element.

## Shared Simple Types

The following simple types represent common value formats used throughout Office Open XML and have been centralized in order to ensure their usage remains consistent.

### Simple Types

This is the complete list of simple types dedicated to Shared Simple Types.

#### ST\_CalendarType (Calendar Types)

This simple type specifies the possible types of calendars which can be used within the context of an Office Open XML document.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| gregorian (Gregorian) | Specifies that the Gregorian calendar, as defined in ISO 8601, shall be used. This calendar should be localized into the appropriate language. |
| gregorianArabic (Gregorian Arabic Calendar) | Specifies that the Gregorian calendar, as defined in ISO 8601, shall be used. |
| gregorianMeFrench (Gregorian Middle East French Calendar) | Specifies that the Gregorian calendar, as defined in ISO 8601, shall be used. |
| gregorianUs (Gregorian English Calendar) | Specifies that the Gregorian calendar, as defined in ISO 8601, shall be used. |
| gregorianXlitEnglish (Gregorian Transliterated English) | Specifies that the Gregorian calendar, as defined in ISO 8601, shall be used. |
| gregorianXlitFrench (Gregorian Transliterated French) | Specifies that the Gregorian calendar, as defined in ISO 8601, shall be used. |
| hebrew (Hebrew) | Specifies that the Hebrew lunar calendar, as described by the Gauss formula for Passover [Har'El, Zvi] and The Complete Restatement of Oral Law (Mishneh Torah), shall be used. |
| hijri (Hijri) | Specifies that the Hijri lunar calendar, as described by the Kingdom of Saudi Arabia, Ministry of Islamic Affairs, Endowments, Da‘wah and Guidance, shall be used. |
| japan (Japanese Emperor Era) | Specifies that the Japanese Emperor Era calendar, as described by Japanese Industrial Standard JIS X 0301, shall be used. |
| korea (Korean Tangun Era) | Specifies that the Korean Tangun Era calendar, as described by Korean Law Enactment No. 4, shall be used. |
| none (No Calendar Type) | Specifies that no calendar should be used. |
| saka (Saka Era) | Specifies that the Saka Era calendar, as described by the Calendar Reform Committee of India, as part of the Indian Ephemeris and Nautical Almanac, shall be used. |
| taiwan (Taiwan) | Specifies that the Taiwanese calendar, as defined by the Chinese National Standard CNS 7648, shall be used. |
| thai (Thai) | Specifies that the Thai calendar, as defined by the |

#### ST\_ConformanceClass (Document Conformance Class Value)

This simple type specifies the conformance class to which a particular Office Open XML document conforms.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| strict (Office Open XML Strict) | Specifies that the document conforms to Office Open XML Strict. |
| transitional (Office Open XML Transitional) | Specifies that the document conforms to Office Open XML Transitional. |

#### ST\_FixedPercentage (Fixed Percentage Value with Sign)

This simple type specifies that its contents will contain a percentage measurement from -100% up to and including 100%, including a trailing percent sign (U+0025).

#### ST\_Guid (128-Bit GUID)

This simple type specifies that its values shall be a 128-bit globally unique identifier (GUID) value.

#### ST\_HexColorRGB (Hexadecimal Color Value)

This simple type specifies that its contents shall contain a color value in RRGGBB hexadecimal format, specified using six hexadecimal digits. Each of the red, green and blue color values, from 0-255, is encoded as two hexadecimal digits.

#### ST\_Lang (Language Reference)

This simple type specifies that its contents has language, which identifier as defined by RFC 4646/BCP 47.

#### (On/Off Value)

This simple type specifies a set of values for any binary (true or false) property defined in a WordprocessingML document.

#### ST\_Panose (Panose-1 Number)

This simple type specifies a Panose-1 font classification. This value is used as one piece of information to guide selection of a similar alternate font if the desired font is unavailable.

#### ST\_Percentage (Percentage Value with Sign)

This simple type specifies that its contents will contain a percentage measurement, with a trailing percent sign (U+0025).

#### ST\_PositiveFixedPercentage (Positive Fixed Percentage Value with Sign)

This simple type specifies that its contents will contain a positive percentage measurement from 0% to 100% inclusive, including a trailing percent sign (U+0025).

#### ST\_PositivePercentage (Positive Percentage Value with Sign)

This simple type specifies that its contents will contain a positive percentage measurement, including a trailing percent sign (U+0025).

#### ST\_PositiveUniversalMeasure (Positive Universal Measurement)

This simple type specifies that its contents will contain a measurement expressed using one of common measure units. The content of this type is a positive decimal number immediately followed by a unit identifier. Unit identifiers are case sensitive and shall be in lowercase. Conforming applications are not required to preserve units of measure between loading and saving a particular document.

#### ST\_String (String)

This simple type specifies that its contents is a string.

#### ST\_TwipsMeasure (Measurement in Twentieths of a Point)

This simple type specifies that its contents contain wither:

#### ST\_UniversalMeasure (Universal Measurement)

This simple type specifies that its contents will contain measurement expressed using one of common measure units. The content of this type is a decimal number immediately followed by a unit identifier. Unit identifiers are case sensitive and shall be in lowercase. Conforming applications are not required to preserve units of measure between loading and saving a particular document.

|  |  |
| --- | --- |
| **Unit Identifier** | **Definition** |
| cm | As defined in ISO 31. |
| mm | As defined in ISO 31. |
| in | 1 in = 2.54 cm (informative) |
| pt | 1 pt = 1/72 in (informative) |
| pc | 1 pc = 12 pt (informative) |
| pi | 1 pi = 12 pt (informative) |

#### ST\_UnsignedDecimalNumber (Unsigned Decimal Number Value)

This simple type specifies that its contents contain a positive whole decimal number, whose contents are interpreted based on the context of the parent XML element.

#### ST\_VerticalAlignRun (Vertical Positioning Location)

This simple type specifies possible values for the alignment of the contents of this run in relation to the default appearance of the run's text. This allows the text to be repositioned as subscript or superscript without altering the font size of the run properties.

|  |  |
| --- | --- |
| **Enumeration Value** | **Description** |
| baseline(Regular Vertical Positioning) | Specifies that the text in the parent run shall be located at the baseline and presented in the same size as surrounding text. |
| subscript(Subscript) | Specifies that this text should be subscript. |
| superscript(Superscript) | Specifies that this text should be superscript. |

#### ST\_XAlign (Horizontal Alignment Location)

This simple type specifies the set of possible relative horizontal positions for the parent floating object. This relative position is specified relative to the horizontal anchor specified by the parent object.

|  |  |  |  |
| --- | --- | --- | --- |
| **Enumeration Value** | | **Description** | |
| center(Centered Horizontally) | | Specifies that the parent object shall be centered with respect to the anchor settings. | |
| inside(Inside) | | Specifies that the parent object shall be inside of the anchor object. | |
| left(Left Aligned Horizontally) | | Specifies that the parent object shall be left aligned with respect to the anchor settings. | |
| outside(Outside) | | Specifies that the parent object shall be outside of the anchor object. | |
| right(Right Aligned Horizontally) | | Specifies that the parent object shall be right aligned with respect to the anchor settings. | |

#### ST\_Xstring (Escaped String)

String of characters with support for escaped invalid-XML characters.

#### ST\_YAlign (Vertical Alignment Location)

This simple type specifies the set of possible relative vertical positions for the parent floating object. This relative position is specified relative to the vertical anchor specified by the parent object.

|  |  |  |  |
| --- | --- | --- | --- |
| **Enumeration Value** | | **Description** | |
| bottom(Bottom) | | Specifies that the parent object shall be vertically aligned to the bottom edge of the anchor object. | |
| center(Centered Vertically) | | Specifies that the parent object shall be vertically centered with respect to the anchor object. Shall not be used with the baseJc element. | |
| inline(In line With Text) | | Specifies that the parent object shall be vertically aligned in line with the surrounding text (i.e. shall not allow any text wrapping around it when positioned in the document. Shall not be used with the baseJc element. | |
| inside(Inside Anchor Extents) | | Specifies that the parent object shall be vertically aligned to the edge of the anchor object and positioned inside that object. Shall not be used with the baseJc element. | |
| outside(Outside Anchor Extents) | | Specifies that the parent object shall be vertically aligned to the edge of the anchor object and positioned outside that object. Shall not be used with the baseJc element. | |
| top(Top) | | Specifies that the parent object shall be vertically aligned to the top edge of the anchor object . | |

#### ST\_XmlName (XML Name)

This simple type shall contain an XML non-colonized name (NCName).