FORMULATOR
v3.8

MathML Weaver

MathML 2.0 Test Suite

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TABLES LEGEND

Formulator conforms to the Mathematical Markup Language (MathML) version 2.0 (W3C recommendation, second edition, 21 October 2003). The following tables show how the current MathML implementation passes the W3C MathML 2.0 test suite that is to help insure uniformity and interoperability between MathML implementations.

- [+] implementation passes the test;
- [±] implementation passes part of the test;
- [–] implementation does not pass the test.

GENERAL

Math

Test Name	Result	Comments
emptymath2	+	
math1	+	
math3	+	
mathAdisplay1	+	
mathAdisplay2	+	
mathAmacros1	+	
mathAmode1	+	

GenAttribs

Test Name	Result	Comments
attribQuote1	+	
class1	+	
class2	+	
id1	+	
id2	+	
style1	±	CSS-compatible attributes 'color' and 'background' currently are not used for rendering
style2	±	CSS-compatible attributes 'color' and 'background' currently are not used for rendering
xref1	+	

PRESENTATION

TokenElements

Test Name	Result	Comments
mi/mi1	+	
mi/mi2	+	
mi/mi3	+	
mi/mi4	+	
mi/miAtoken5	+	
mi/miScolorname15	+	
mi/miScolorname6	+	
mi/miScolorscope7	+	
mi/miSfonts8	+	Γ is italic according to the 'fontstyle' attribute of the 'mstyle' element.
mi/miSfontsize9	+	
mi/miSmathsize16	+	
mi/miSmathsize17	+	
mi/miStoken10	+	
mi/miequivalents11	±	Some glyphs (double-struck, fraktur) are displayed by font substitution.
mi/mifontstyle12	+	
mi/mimathvariant13	±	Some glyphs (double-struck, fraktur) are displayed by font substitution.
mi/mimathvariant14	±	Some glyphs (double-struck, fraktur) are displayed by font substitution.

Test Name	Result	Comments
mn/mn1	+	
mn/mn2	+	
mn/mn3	+	
mn/mn4	+	
mn/mnAcolorname5	+	
mn/mnAtoken6	+	
mn/mnAtoken7	+	
mn/mnScolor8	+	
mn/mnSdisplaystyle9	+	
mn/mnSfont10	+	
mn/mnSscriptlevel11	+	The 'scriptlevel' attribute is not used for rendering.

Test Name	Result	Comments
mo/mo1	+	
mo/mo2	+	
mo/mo3	+	
mo/mo4	+	
mo/mo5	±	The 'maxsize' attribute is not used for rendering.
mo/mo6	+	
mo/mo7	+	
mo/mo8	+	
mo/moAaccent10	+	
mo/moAaccent9	+	
mo/moAform11	+	
mo/moAlargeop12	±	Usage of the 'displaystyle' attribute don't result in changes of the operator size.
mo/moAlrspace13	+	
mo/moAminmax14	±	'maxsize' and 'minsize' attributes are not used for rendering.
mo/moAmovable15	±	'movablelimits' and 'displaystyle' attributes are not used for rendering.
mo/moAprime16	+	
mo/moAsep17	+	
mo/moAstretchy18	+	
mo/moAsymmetric19	±	The 'symmetric' attribute is not used for rendering.
mo/moSminmax20	±	'maxsize' and 'minsize' attributes are not used for rendering.

Test Name	Result	Comments
mtext/mtext1	+	
mtext/mtext2	+	
mtext/mtextAtoken3	+	
mtext/mtextSbg4	+	
mtext/mtextScolor5	+	
mtext/mtextStoken6	+	
mtext/mtextspaces7	+	

Test Name	Result	Comments
mspace/mspace1	+	
mspace/mspace2	+	Choice of the value ('-10px') for the 'width' attribute is not advantageous, but using Zoom option we can see that behaviour of Formulator is absolutely correct. By applying another value (e.g., '-9px') for the 'width' attribute the essential effect of this test is evident on other scales also, including 100%.
mspace/mspaceAbreak3	+	
mspace/mspacestruts2	+	

Test Name	Result	Comments
ms/ms1	+	
ms/msAdisplaystyle2	+	
ms/msAquotes3	+	
ms/msAtoken4	+	
ms/msAtoken5	+	
ms/msScolorscope6	+	
ms/msSinheritance7	+	
ms/msSinheritance8	+	Γ is italic according to the 'fontstyle' attribute of the 'mstyle' element.

Test Name	Result	Comments
mglyph/rec-mglyph1	±	The 'alt' attribute is used for substitution of the element body in the case when needed font can't be applied, but there are no checks whether a position given by the 'index' attributes is valid for the specified font, so it may be that user see blank rectangle instead of the expected symbol or instead of a value of the 'alt' attribute.
mglyph/rec-mglyph2	–	The embedded version of the 'mglyph' tag is not supported.

Test Name	Result	Comments
CommonAttributes/hexcolors2	+	
CommonAttributes/sizeunits3	+	
CommonAttributes/sizeunits4	±	The 'superscript' attribute is not used for rendering.

GeneralLayout

Test Name	Result	Comments
mrow/mrow1	+	
mrow/mrowAbg4	+	
mrow/mrowBinferred2	+	
mrow/mrowBnested3	+	

Test Name	Result	Comments
mfrac/mfrac1	+	
mfrac/mfrac2	+	
mfrac/mfrac3	+	
mfrac/mfrac4	+	
mfrac/mfrac5	+	
mfrac/mfrac6	+	
mfrac/mfrac7	+	
mfrac/mfracAbevelled16	+	
mfrac/mfracAcss8	+	
mfrac/mfracAkeyword9	±	'medium' and 'thin' values of the 'linethickness' attributes have similar effect on rendering.
mfrac/mfracAmultiplier10	+	
mfrac/mfracBalign16	+	
mfrac/mfracBheight17	+	
mfrac/mfracBhoriz11	+	
mfrac/mfracBvert12	+	
mfrac/mfracSfonts13	+	
mfrac/mfracSinheritance14	+	
mfrac/mfracSscriptlevel15	±	The 'displaystyle' attribute is not used for rendering.
mfrac/mfracZComp1	+	

Test Name	Result	Comments
msqrt-mroot/mrootB1	+	
msqrt-mroot/mrootSfonts3	+	
msqrt-mroot/mrootSscriptlevel4	±	'scriptlevel' and 'displaystyle' attributes are not used for rendering.
msqrt-mroot/msqrt5	+	
msqrt-mroot/msqrt6	+	
msqrt-mroot/msqrtB7	+	
msqrt-mroot/msqrtBimplied8	+	
msqrt-mroot/msqrtSinheritance9	+	

Test Name	Result	Comments
mstyle/mstyle1	±	The 'maxsize' attribute is not used for rendering.
mstyle/mstyleA2	+	
mstyle/mstyleAdep1	+	
mstyle/mstyleAlinethick1	+	
mstyle/mstyleAminscript1	±	The 'scriptminsize' attribute is not used for rendering.
mstyle/mstyleAscriptlevel1	±	The 'scriptlevel' attribute is not used for rendering.

Test Name	Result	Comments
merror/merror1	+	
merror/merrorB3	+	

Test Name	Result	Comments
mpadded/mpadded1	+	
mpadded/mpadded10	+	
mpadded/mpadded11	+	
mpadded/mpadded12	+	
mpadded/mpadded13	+	
mpadded/mpadded14	±	If 'height' and 'depth' attributes lead to lessening of the vertical formula size, they are ignored.
mpadded/mpadded15	±	If 'height' and 'depth' attributes lead to lessening of the vertical formula size, they are ignored.
mpadded/mpadded16	±	If 'height' and 'depth' attributes lead to lessening of the vertical formula size, they are ignored.
mpadded/mpadded17	+	
mpadded/mpadded18	±	If 'height' and 'depth' attributes lead to lessening of the vertical formula size, they are ignored.
mpadded/mpadded2	+	
mpadded/mpadded3	+	
mpadded/mpadded4	+	
mpadded/mpadded5	+	
mpadded/mpadded6	+	
mpadded/mpadded7	+	
mpadded/mpadded8	+	
mpadded/mpadded9	+	
mpadded/mpaddedAdepth2	+	
mpadded/mpaddedAheight3	+	
mpadded/mpaddedAleft4	+	
mpadded/mpaddedAmixed5	+	
mpadded/mpaddedAwidth6	+	
mpadded/mpaddedScolor7	+	

Test Name	Result	Comments
mphantom/mphantomB1	+	
mphantom/mphantomBinferred2	+	
mphantom/mphantomBoperators3	+	
mphantom/mphantomScolor4	+	
mphantom/mphantomSinheritance5	±	The 'scriptlevel' attribute is not used for rendering.

Test Name	Result	Comments
mfenced/mfenced1	+	
mfenced/mfenced2	+	
mfenced/mfenced3	+	
mfenced/mfenced4	+	
mfenced/mfenced5	+	
mfenced/mfencedAdelims6	+	
mfenced/mfencedAempty	+	
mfenced/mfencedBfences7	+	
mfenced/mfencedBseparators8	+	
mfenced/mfencedSfonts9	+	

Test Name	Result	Comments
menclose/rec-enclose1	±	Attributes which relates to cell size and spacing are not processed.
menclose/rec-enclose2	+	
menclose/rec-enclose3	+	

ScriptsAndLimits

Test Name	Result	Comments
msub/msub1	+	
msup/msup1	+	
msup/msup2	+	
msup/msupBnest1	+	
msup/msupBsize1	+	
msup/msupBsize2	+	
msup/msupBsize3	+	
msup/msupSadvance1	+	
msubsup/msubsup1	+	
msubsup/msubsupBsize1	+	
msubsup/msubsupBsize2	+	

Test Name	Result	Comments
munder/munder1	+	
munder/munder2	+	
mover/mover1	+	
mover/mover2	+	
mover/mover3	+	

Test Name	Result	Comments
mmultiscript/mmultiscripts1	+	
mmultiscript/mmultiscripts2	+	

TablesAndMatrices

Test Name	Result	Comments
Note: for all tests with 'mtable' element it is common that attributes which relates to cell size, spacing and the 'groupalign' attribute are not processed. In those tests where it leads to noticeable visual effects, the implementation is considered as partially conforming the test.		
mtable/deprecated-mtd1	+	
mtable/deprecated-mtd2	+	
mtable/deprecated-test3	+	
mtable/malignngroup1	±	The 'malignngroup' element and the 'groupalign' attribute are not processed.
mtable/mtable1	+	
mtable/mtable2	+	
mtable/mtableAalign1	+	
mtable/mtableAalign2	+	
mtable/mtableAalign3	+	
mtable/mtableAframe1	+	
mtable/mtableAframe2	+	
mtable/mtableAgroupalign	+	
mtable/mtableAlines1	+	
mtable/mtableAlines2	+	
mtable/mtableAspacing1	+	
mtable/mtableAspacing2	+	
mtable/mtableAspacing3	±	
mtable/mtableAspacing4	±	
mtable/mtableAwidth1	±	
mtable/mtableAwidth2	+	
mtable/mtableAwidth3	±	
mtable/mtableAwidth4	±	
mtable/mtableBgap1	–	The 'mlabeledtr' element is treated as 'mtr'.
mtable/mtableBsize1	±	Arrow is not extended in its bounding box.
mtable/mtableBsize2	±	Arrow is not extended in its bounding box.
mtable/mtableBspan3	–	The 'rowspan' attribute and the 'colspan'

		attribute are not processed.
mtable/rec-mtable1	+	
mlabeledtr/mlabeledtr1	–	The 'mlabeledtr' element is treated as 'mtr'.
mlabeledtr/mlabeledtrAside1	–	The 'mlabeledtr' element is treated as 'mtr'.
mlabeledtr/mlabeledtrAside2	–	The 'mlabeledtr' element is treated as 'mtr'.
mlabeledtr/rec-mlabeledtr	–	The 'mlabeledtr' element is treated as 'mtr'.
nested/mtableAwidth1	±	
nested/nestedAwidth1	±	

DynamicExpressions

Test Name	Result	Comments
maction/mactionBhigh1	–	
maction/mactionBstatus1	–	
maction/mactionBtoggle1	–	
maction/mactionBtooltip1	–	

CONTENT

TokenElements

Test Name	Result	Comments
cn/cn2	+	
cn/rec-cn1	+	
ci/ci4	+	
ci/rec-ci1	+	
ci/rec-ci2	+	Formulator's behaviour is correct, because 'ci' elements of type 'vector' should be rendered as bold.
ci/rec-ci3	+	
csymbol/rec-csymbol1	+	
csymbol/rec-csymbol2	+	
csymbol/rec-csymbol3	+	Formulator's behaviour is correct, because there is no presentation markup so that the 'csymbol' element should be rendered as if it were wrapped in an 'mo' presentation element

BasicContentElements

Test Name	Result	Comments
apply/rec-apply1	+	
apply/rec-apply2	+	
apply/rec-apply3	+	
apply/rec-apply4	+	
reln/rec-reln1	+	
reln/rec-reln2	+	
reln/rec-reln3	+	
fn/fn1	+	
fn/fn4	+	
fn/rec-fn2	+	
fn/rec-fn3	+	
interval/rec-interval1	+	
interval/rec-interval2	+	
inverse/rec-inverse1	+	
inverse/rec-inverse2	+	
inverse/rec-inverse3	+	Formulator's behaviour is correct, because a 'ci' element of type 'matrix' should be rendered as bold.
inverse/rec-inverse4	+	
condition/rec-condition1	+	
declare/rec-declare1	+	
declare/rec-declare2	+	
declare/rec-declare3	+	
declare/rec-declare4	+	
declare/rec-declare5	+	
lambda/rec-lambda1	+	
lambda/rec-lambda2	+	
lambda/rec-lambda3	+	
compose/rec-compose1	+	
compose/rec-compose2	+	
compose/rec-compose3	+	
compose/rec-compose4	+	
ident/ident1	+	
ident/rec-ident2	+	
domain/rec-domain1	+	
codomain/rec-codomain1	+	
image/rec-image1	+	
domainofapplication/rec-domainofapplication1	+	
piecewise/rec-piecewise1	+	
piecewise/rec-piecewise2	+	

ArithmeticAlgebraLogic

Test Name	Result	Comments
arithmetic_1	+	Rendering of the 'times' element is regulated with Formulator's option to use one of the following values: '⋅', '⁢', '×'. The last value is default that differs rendering from the test suite example.
arithmetic_2	+	
arithmetic_3	+	
arithmetic_4	+	
logic5	+	There is an empty slot after condition expression of the 'exists' element, since it is correct to expect user to fill it further.
logic6	+	
logic7	+	
quotient/rec-quotient1	+	
factorial/factorial1	+	Formulator's rendering is correct, because the nested 'apply' element changes precedences.
factorial/factorial3	+	
factorial/factorial4	+	
factorial/rec-factorial2	+	
divide/divide1	+	
divide/divide2	+	
divide/divide3	+	
divide/divide5	+	
divide/rec-divide4	+	
max/max3	+	
max/rec-max1	+	
max/rec-max2	+	
min/min1	+	
min/rec-min2	+	
minus/minus1	+	
minus/minus2	+	
minus/minus3	+	
minus/minus4	+	
minus/minus5	+	
minus/minus6	+	
minus/minus7	+	
minus/minus9	+	
minus/rec-minus8	+	
plus/plus1	+	Formulator's rendering is correct, because the nested 'apply' element changes precedences.
plus/plus2	+	
plus/plus3	+	

plus/plus4	+	
plus/plus6	+	
plus/plus7	+	
plus/rec-plus5	+	
power/power1	+	
power/power2	+	
power/power3	+	
power/power5	+	
power/power6	+	
power/power7	+	
power/power8	+	
power/rec-power4	+	
rem/rec-rem1	+	
times/rec-times1	+	
times/times2	+	
times/times3	+	
times/times4	+	
times/times5	+	
times/times6	+	
times/times7	+	
root/rec-root1	+	
root/root2	+	
gcd/rec-gcd1	+	
and/and1	+	
and/and2	+	
and/rec-and2	+	
or/rec-or1	+	
xor/rec-xor1	+	
not/not1	+	
not/rec-not2	+	
not/rec-not3	+	There is an empty slot after condition expression of the 'forall' element, since it is correct to expect user to fill it further.
implies/implies2	+	
implies/rec-implies1	+	
forall/forall1	+	
forall/forall2	+	There is an empty slot after condition expression of the 'forall' element, since it is correct to expect user to fill it further.
forall/rec-forall2	+	
forall/rec-forall3	+	There are different ways to render this and the next test and Formulator uses one that conforms to the example in the W3C MathML 2.0 specification (see section 4.4.3.17 of the specification).
forall/rec-forall4	+	

forall/rec-forall5	+	
forall/rec-forall6	+	There is an empty slot after condition expression of the 'forall' element, since it is correct to expect user to fill it further.
forall/rec-forall7	+	
exists/rec-exists1	+	
abs/abs1	+	
abs/abs2	+	
abs/rec-abs3	+	
conjugate/rec-conjugate1	+	
arg/rec-arg1	+	
real/rec-real1	+	
imaginary/rec-imaginary1	+	
lcm/rec-lcm1	+	
floor/rec-floor1	+	
floor/rec-floor2	+	
ceiling/rec-ceiling1	+	
ceiling/rec-ceiling2	+	

Relations

Test Name	Result	Comments
eq/eq2	+	
eq/rec-eq1	+	
neq/neq2	+	
neq/rec-neq1	+	
gt/gt2	+	
gt/rec-gt1	+	
lt/lt2	+	
lt/rec-lt1	+	
geq/geq2	+	
geq/rec-geq1	+	
leq/rec-leq1	+	
equivalent/rec-equivalent1	+	
approx/rec-approx1	+	
factorof/rec-factorof1	+	

Calculus

Test Name	Result	Comments
int/int1	+	
int/int2	+	
int/rec-int3	+	
int/rec-int4	+	
int/rec-int5	+	
int/rec-int6	+	
diff/rec-diff1	+	
diff/rec-diff2	+	
partialdiff/partialdiff1	+	
partialdiff/partialdiff2	+	There are different ways to render this and the next test and Formulator uses one that conforms to the example in the W3C MathML 2.0 specification (see sections 4.4.5.3 and 4.4.5.7 of the specification).
partialdiff/rec-partialdiff3	+	
partialdiff/rec-partialdiff4	+	
partialdiff/rec-partialdiff5	+	
lowlimit/rec-lowlimit1	+	
uplimit/rec-uplimit1	+	
bver/rec-bvar1	+	
bver/rec-bvar2	+	
degree/degree2	+	
degree/rec-degree1	+	
divergence/rec-divergence1	+	
divergence/rec-divergence2	+	
grad/rec-grad1	+	
curl/rec-curl1	+	
laplacian/rec-laplacian1	+	

TheoryOfSets

Test Name	Result	Comments
equation1	+	
set/rec-set1	+	
set/rec-set2	+	
set/set-empty	+	
set/set3	+	
set/set4	+	
set/set5	+	
set/set6	+	
list/list-empty	+	
list/list3	+	
list/rec-list1	+	

list/rec-list2	+	
union/rec-union1	+	
union/union2	+	
union/union3	+	
intersect/intersect1	+	
intersect/rec-intersect2	+	
in/in2	+	
in/in3	+	
in/rec-in1	+	
notin/notin2	+	
notin/rec-notin1	+	
subset/rec-subset1	+	
subset/subset2	+	
prsubset/prsubset2	+	
prsubset/rec-prsubset1	+	
notsubset/notsubset2	+	
notsubset/rec-notsubset1	+	
notprsubset/notprsubset2	+	
notprsubset/rec-notprsubset1	+	
setdiff/rec-setdiff1	+	
card/rec-card1	+	
cartesianproduct/rec-cartesianproduct1	+	
cartesianproduct/rec-cartesianproduct2	+	

SequencesAndSeries

Test Name	Result	Comments
sum/rec-sum1	+	
sum/sum2	+	
sum/sum3	+	
product/product1	+	
product/product2	+	
product/rec-product3	+	
limit/limit1	+	Formulator's rendering is correct in this test and in next similar tests, because the 'tendsto' element has an attribute 'type' with a value of 'above' (or 'below' in later examples).
limit/limit2	+	
limit/limit3	+	
limit/limit4	+	
limit/limit5	+	
limit/limit6	+	
limit/limit7	+	
limit/rec-limit8	+	
limit/rec-limit9	+	

tendsto/rec-tendsto1	+	
tendsto/rec-tendsto2	+	
tendsto/tendsto3	+	
tendsto/tendsto4	+	
tendsto/tendsto5	+	
tendsto/tendsto6	+	
tendsto/tendsto7	+	
tendsto/tendsto8	+	
tendsto/tendsto9	+	

ElementaryFunctions

Test Name	Result	Comments
rec-trig1	+	
rec-trig2	+	
trigonometry_3	+	
trigonometry_4	+	
trigonometry_5	+	
trigonometry_6	+	
trigonometry_7	+	
trigonometry_8	+	
exp/exp1	+	
exp/exp2	+	
exp/rec-exp3	+	
ln/rec-ln1	+	
log/log1	+	
log/rec-log2	+	
sin/factorial3	+	
sin/sin1	+	
sin/sin2	+	
sin/sin3	+	
cos/cos1	+	
cos/cos2	+	
cos/cos3	+	
cos/cos4	+	
tan/tan1	+	
tan/tan2	+	
tan/tan3	+	
sec/sec1	+	
sec/sec2	+	
sec/sec3	+	
csc/csc1	+	
csc/csc2	+	
csc/csc3	+	

cot/cot1	+	
cot/cot2	+	
cot/cot3	+	
sinh/sinh1	+	
sinh/sinh2	+	
sinh/sinh3	+	
cosh/cosh1	+	
cosh/cosh2	+	
cosh/cosh3	+	
cosh/cosh4	+	
tanh/tanh1	+	
tanh/tanh2	+	
tanh/tanh3	+	
sech/sech1	+	
sech/sech2	+	
sech/sech3	+	
csch/csch1	+	
csch/csch2	+	
csch/csch3	+	
coth/coth1	+	
coth/coth2	+	
coth/coth3	+	
arcsin/arcsin1	+	
arcsin/arcsin2	+	
arcsin/arcsin3	+	
arcsin/factorial3	+	
arccos/arccos1	+	
arccos/arccos2	+	
arccos/arccos3	+	
arccos/arccos4	+	
arctan/arctan1	+	
arctan/arctan2	+	
arctan/arctan3	+	
arcsec/arcsec1	+	
arcsec/arcsec2	+	
arcsec/arcsec3	+	
arccsc/arccsc1	+	
arccsc/arccsc2	+	
arccsc/arccsc3	+	
arccot/arccot1	+	
arccot/arccot2	+	
arccot/arccot3	+	
arcsinh/arcsinh1	+	
arcsinh/arcsinh2	+	
arcsinh/arcsinh3	+	

arccosh/arccosh1	+	
arccosh/arccosh2	+	
arccosh/arccosh3	+	
arccosh/arccosh4	+	
arctanh/arctanh1	+	
arctanh/arctanh2	+	
arctanh/arctanh3	+	
arcsech/arcsech1	+	
arcsech/arcsech2	+	
arcsech/arcsech3	+	
arccsch/arccsch1	+	
arccsch/arccsch2	+	
arccsch/arccsch3	+	
arccoth/arccoth1	+	
arccoth/arccoth2	+	
arccoth/arccoth3	+	

Statistics

Test Name	Result	Comments
mean/rec-mean1	+	
sdev/rec-sdev1	+	
variance/rec-variance1	+	
median/rec-median1	+	
mode/rec-mode1	+	
moment/rec-moment1	+	There are different ways to render this and the next two tests and Formulator uses one that conforms to the example in the W3C MathML 2.0 specification (see section 4.4.9.7 of the specification).
moment/rec-moment2	+	
momentabout/rec-momentabout1	+	

LinearAlgebra

Test Name	Result	Comments
vector/rec-vector1	+	
vector/rec-vector2	+	
vector/vector3	+	
matrix/inverse1	+	
matrix/matrix3	+	
matrix/rec-matrix1	+	
matrix/rec-matrix2	+	
matrix/rec-matrix3	+	
determinant/rec-determinant1	+	

transpose/rec-transpose1	+	Formulator's behaviour is correct, because a 'ci' element of type 'matrix' should be rendered as bold.
selector/rec-selector1	+	
selector/rec-selector2	+	
vectorproduct/rec-vectorproduct1	+	
scalarproduct/rec-scalarproduct1	+	
outerproduct/rec-outerproduct1	+	

SemanticMappingElements

Test Name	Result	Comments
annotation/rec-annotation1	+	

ConstantsAndSymbols

Test Name	Result	Comments
integers/rec-integers1	+	
reals/rec-reals1	+	
rationals/rec-rationals1	+	
naturalnumbers/rec-naturalnumbers1	+	
complexes/rec-complexes1	+	
primes/rec-primes1	+	
exponentiale/rec-exponentiale1	+	
imaginaryi/rec-imaginaryi1	+	
notanumber/rec-notanumber1	+	
true/rec-true1	+	
false/rec-false1	+	
emptyset/rec-emptyset1	+	
pi/rec-pi1	+	
eulergamma/rec-eulergamma1	+	There are different ways to render this test and Formulator uses one that conforms to the example in the W3C MathML 2.0 specification (see section 4.4.12.14 of the specification).
infinity/rec-infinity1	+	

CHARACTERS

EntityNames

Test Name	Result	Comments
a	±	Formulator uses system's preinstalled fonts which are currently can have poor support of mathematics needs, so sometimes it may be that user see blank rectangle instead of the expected symbol.
b	±	
c	±	
d	±	
e	±	
f	±	
g	±	
h	±	
i	±	
j	±	
k	±	
l	±	
m	±	
n	±	
o	±	
p	±	
q	±	
r	±	
s	±	
t	±	
u	±	
v	±	
w	±	
x	±	
y	±	
z	±	

NumericRefs

Test Name	Result	Comments
a	±	Formulator uses system's preinstalled fonts which are currently can have poor support of mathematics needs, so sometimes it may be that user see blank rectangle instead of the expected symbol.
b	±	
c	±	
d	±	
e	±	
f	±	
g	±	
h	±	
i	±	
j	±	
k	±	

l	±	
m	±	
n	±	
o	±	
p	±	
q	±	
r	±	
s	±	
t	±	
u	±	
v	±	
w	±	
x	±	
y	±	
z	±	

UTF8

Test Name	Result	Comments
a	±	Formulator uses system's preinstalled fonts which are currently can have poor support of mathematics needs, so sometimes it may be that user see blank rectangle instead of the expected symbol.
b	±	
c	±	
d	±	
e	±	
f	±	
g	±	
h	±	
i	±	
j	±	
k	±	
l	±	
m	±	
n	±	
o	±	
p	±	
q	±	
r	±	
s	±	
t	±	
u	±	
v	±	
w	±	
x	±	
y	±	
z	±	

ERROR HANDLING

BadAttribs

Test Name	Result	Comments
badAttribs2	+	Author can accompany MathML tags with arbitrary attributes. In the case of unknown or currently unsupported attributes Formulator keeps them, but ignores their values during rendering.
badAttribsAction	+	
badAttribsGlyph4	+	Nestes 'mglyph' elements are not supported.
badAttribsVal3	+	

BadChildren

Test Name	Result	Comments
Formulator is not just renderer, but an editor of MathML 2.0, so in all “bad” examples Formulator tries to repair or to reconstruct an expression in the hope of further user help in this matter.		
badBvar1	+	
badCondContent1	+	
badMatrix1	+	
badMoment1	+	
badPiecewise1	+	
badReln1	+	
emptyContent1	+	

BadEntities

Test Name	Result	Comments
badEntity1	+	Insert contents of the 'mn' element “as is”.

BadTags

Test Name	Result	Comments
badTag1	+	The 'merror' element is used to inform a user about problems with the MathML fragment.
badTagPhantom2	+	The 'merror' element is used to inform a user about problems with the MathML fragment. Unfortunately, the diagnostic message is hidden by the parent 'mphantom' element.
nestedMath3	+	

NumChildren

Test Name	Result	Comments
emptyContent	+	
mrootE2	+	
noChildContent	+	
noChildPresentation	+	
singleBinary	+	
tooFewContentContainer	+	

TORTURE TESTS

Size

Test Name	Result	Comments
10	+	
100	+	
1000	+	

Complexity

Test Name	Result	Comments
complex1	+	
complex2	+	
complex3	+	
complex4	+	
simplePres	+	

TOPICS

EmbellishedOp

Test Name	Result	Comments
embStretch1	+	

LargeOp

Test Name	Result	Comments
In all the following tests usage of the 'displaystyle' attribute don't result in changes of the operator size.		
chain1	+	
chain2	+	
coprod1	+	
coprod2	+	
doubleint1	+	

doubleint2	+	
int1	+	
int10	+	
int2	+	
int3	+	
int4	+	
int5	+	
int6	+	
int7	+	
int8	+	
int9	+	
largeop1	±	
largeop2	±	
largeopPos3	+	
oint1	+	
oint2	+	
prod1	+	
prod2	±	
sum1	+	
sum2	±	
tripleint1	+	
tripleint2	±	

LineBreak

Test Name	Result	Comments
linebreak1	+	Formulator is an editor of MathML 2.0, so there is no need to break lines without user request.
linebreakFrac	+	
linebreakNum1	+	
linebreakRow1	+	
linebreakString1	+	
goodbreak/goodbreak1	+	
badbreak/badbreak1	+	
nobreak/nobreak1	+	
nobreak/nobreak2	+	
newline/indent1	+	
newline/indent2	+	
newline/mixed4	+	
newline/multinewline3	+	
newline/newline1	+	
newline/newline2	+	

Nesting

Test Name	Result	Comments
nestAction1	–	The 'maction' element is rendered as its contents in the bounding slot.
nestFrac1	+	
nestScript	+	
nestTable1	±	Attributes which relates to cell size and spacing are not processed.

Primes

Test Name	Result	Comments
primes1	+	

Accents

Test Name	Result	Comments
accents1	±	
accents2	±	
accents3	±	
accents4	±	

StretchyChars

Test Name	Result	Comments
vertical/abs1	+	
vertical/abs2	+	
vertical/mid1	+	
vertical/mid2	+	
vertical/stretchVert1	±	
vertical/stretchVert2	+	
vertical/stretchVertNest2	+	
vertical/verbar1	+	
vertical/verbar2	+	
horizontal/genBvert1	+	
horizontal/stretchAccents1	±	
horizontal/stretchAccents2	+	
horizontal/stretchBrack1	+	
horizontal/stretchHoriz1	±	There is a set of mathematical operators which should be rendered as horizontally stretchy, but currently are not always conform to this rule. E.g., arrows in some cases might not be able to be extended in their bounding box.
horizontal/stretchHoriz2	+	
horizontal/stretchHoriz3	+	

horizontal/stretchTilde1	+	Formulator's rendering is correct, because the '∼' operator is not stretchy by default (see W3C MathML 2.0 specification, Appendix F, Operator Dictionary).
integral/int1	+	
integral/int10	+	
integral/int2	+	
integral/int3	+	
integral/int4	+	
integral/int5	+	
integral/int6	+	
integral/int7	+	
integral/int8	+	
integral/int9	+	
integral/intDispStyle	±	Usage of the 'displaystyle' attribute don't result in changes of the operator size.
integral/intNested3	+	
integral/intSize1	+	
integral/intSize2	+	
tables/stretchTable1	±	Arrows are not extended in their bounding box.
tables/stretchTable2	±	Arrow is not extended in its bounding box.

WhiteSpace

Test Name	Result	Comments
invChars	+	
whBcomments1	+	
whBgeneral1	+	
white1	+	
white2	+	
white3	+	
white4	+	

NOTES

- Content Markup tests fairly often can be rendered in different manners, so that all of them will be correct. There are several cases when Formulator's ways to render Content Markup differs from the images supplied with the MathML 2.0 Test Suite only because of utilization of different rendering standard (e.g., max, min, sets, lambda, etc.). These cases are considered as a correct behaviour.

- Sometimes differing approaches to representation of Content Markup can be soften by using Formulator's option. E.g., for rendering of the 'times' element there is a way to use several values ('⋅', '⁢', '×').

- In the case of rendering of the 'partialdiff' element Formulator enhances the potential of the 'degree' element by applying simple calculations during parsing of MathML text. E.g., if a user indicates degrees not in identifiers, but in integer constants, then the overall degree will be calculated automatically.