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## **Elsevier Science Grid in Unicode**

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## 1 Introduction

With the adoption of Unicode, the Elsevier Science Grid has (almost) lost its function. In SGML our Grid was the only solid way to document non-ascii symbols. In the SGML documents non-ascii symbols were entered as so-called SDATA entities. Here SDATA stands for System Data, meaning that the system should know what they mean because their meaning cannot be expressed otherwise. The grid with glyphs and descriptions gave a solid foundation to this "knowledge".

Nowadays the same role is fulfilled by the Unicode standard, whose main deliverables are a book and a web site with code point assignments, example glyphs, descriptions and properties of characters. Therefore the role of our Grid, which has served us well in our pioneering years, has been taken over by standard bodies, and we may shelve it together with our previous DTDs.

The difference with the SGML era is that each character is no longer identified by an entity name but by a Unicode position. If there still is an entity name for a symbol, then it is merely an alias for that Unicode position.

Yet, there are at least as many entity names for symbols as there were in the SGML era. All ISO entities are declared by the MathML DTD. In addition MathML defines a number of extra entities. Nevertheless, our grid contained a number of symbols which do occur in Unicode, but for which there is no MathML entity. This is mainly due to the variety of symbols with identical meaning, e.g. symbols with a single or a double equal sign. We have defined extra entities for a number of such symbols. Especially all symbols of grid B have an entity name. Our entity definitions can be found in the file ESextra.ent, which is read by the Common Element Pool as the last entity file. All these entity names have a prefix "z." to indicate their private definition. Note, however, that only the entity names are private; their expansion to a Unicode point is in agreement with the official Unicode standard.

Unfortunately, not all Grid symbols have been adopted by Unicode. The MathML and STIX effort has had great success for mathematical symbols, which form the majority of our grid symbols. No such effort has yet been done for chemistry and linguistics, two other scientific areas that contribute symbols to the grid. For these symbols, we must maintain a small version of the grid.

It is not possible to define entities for such symbols, because the SDATA mechanism has been abandoned. We have adopted an approach which is similar to MathML's mglyph element: We have created a ce:glyph element, which has a required name attribute. For each symbol which is not represented in Unicode we have devised a name by which it can be identified. The names are simply the DTD 4 entity names, without the prefix "z." if there was one.

On the following pages we show the three tables of the ES grid (grids B, C, P). To aid the transition from our grid to Unicode, in the two sections following the tables we list the translation of all our grid symbols to Unicode (section 3), and of all our DTD4 entities to DTD5 entities (section 4).

#### 2 Corrections

#### 2.1 6 June 2003

On 6 June 2003 a corrected version was published. The corrections are as follows:

The grid points Pag, Pf2 and Pkr, which have DTD4 entity names &z.pg;, &z.syllab; and &z.rtrfhr;, respectively, were erroneously listed as symbols which should be marked as a glyph element. They are now listed with their correct Unicode point.

The following pairs of grid points had the same DTD4 entity name, but they have been assigned a different Unicode point:

- Cff and Pfo (Œ),
- Cdi and Pci (ι),
- Bso and Pbo (⊙),

- Cf9 and Pj2 ('),
- Ce9 and Pl2 ('),
- Be4 and Pg2 (⌝),
- Bfm and BlO (★).

In order to remedy this situation, the entity name of the last named grid points of each of the first six pairs has been prefixed with 'ph.'. This stands for phonetic because they are phonetic symbols.

In the last pair the entity name of the last named grid point has been modified to ⋆, because this is a small star.

## 2.2 17 February 2004

On 17 February 2004 a corrected version was published. The following note was added:

In the CEP the glyph name phktp is erroneously included in the list of glyph names. It corresponds to grid point Pdp. This list correctly documents that the grid point Pdp corresponds to Unicode 001A5. This means that the glyph name phktp actually corresponds to Unicode 001A5. For reasons of backward compatibility we will not retract the glyph name phktp from the list of glyph names in de CEP.

## 2.3 15 July 2004

On 15 July 2004 a corrected version was published.

The assignment of the grid points Cd4 and Cdf (the two forms of the Greek phi) to Unicode points was in error. Cd4 corresponds to Unicode 003C6, the cursive phi, Cdf corresponds to Unicode 003D5, the straight phi. This is now corrected.

We have added section 5, a list of differences between the entity definitions in the CEP, MathML2 and MathML2, 2nd Ed. And we have added section 6, a short overview of the correct Unicode assignments and the corresponding entity names for the Greek epsilon and phi. These sections are for clarification only; they do not introduce changes.

The following glyph names defined in the CEP have now corresponding Unicode points. Sections 3 and 4 of this list correctly list the corresponding Unicode point for the grid points and for the DTD4 entity names, respectively.

glyph	Unicode point	grid	meaning
hriss	02E602E5	Pc7	high rising
lriss	02E902E8	Pd7	low rising
risfls	02E602E502E6	Pe7	rising-falling
phktp	01A5	Pdp	p hooktop

This means that in XML documents the Unicode points should be used instead of the glyph names. There are no entity names for these Unicode points. For reasons of backward compatibility we will not retract the glyph names from the list of glyph names in de CEP.

### 2.4 3 December 2004

The grid point Bk8 was assigned to the Unicode character 2217, whose Unicode name is 'ASTERISK OPERATOR' and whose Unicode category is 'Symbol, Math'. This is not a correct assignment for a symbol that is used as a footnote symbol. For a while it was advocated that the keyboard asterisk \*, Unicode 002A, be used as a footnote symbol, but that does not work well with the prescription than the label should be without and the cross-reference text should be with presentation tagging. The Unicode character 204E, 'LOW ASTERISK' is a suitable footnote symbol. By itself it is positioned at the height of a normal character, and it can be moved to a superior position by using the superscript tag. Therefore the grid point Bk8 is now assigned to this Unicode character. No entity has been defined for this character; it must be entered in an XML file as a character entity ⁎ or with its character code (in UTF-8).

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Grid B: Symbols.

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Grid C: Alphabets and accents.

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V	v	υ																			v
W	W	M																			W
х	Х	χ																			х
У	у	Λ	Y																		У
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Grid P: Phonetic alphabet and accents.

## 3 Character entities, ordered by coordinate

In the following table we list: 1. the grid position, 2. the Unicode point, 3. the valid entity names for this Unicode point, 4. the description of this symbol.

Column 3 lists the bare entity names; if they are used in an XML document, they should be encoded with the & and; delimiters. If the symbol has no Unicode point, column 3 lists the glyph name or the XML construct by which the symbol can be obtained (only for small cap symbols). If the DTD4 entity name is among the valid entity names, it is listed first.

The description of the symbol is that given in the documentation of DTD4.

Position	Unicode	Entities / glyph	Description
Ba0	0A000	,	no break (required) space
Ba1	02933	⤳	curly arrow
Ba2	02942	&z.Rlarr	long arrow right, short arrow left
Ba3	02944	&z.rLarr	short arrow right, long arrow left
Ba9	02008		Punctuation space; thousand separator
Baa	021CB	<pre>⇋, ⇋, ⇋</pre>	left over right harpoon; reversible reaction
Bab	021CC	⇌,⇌,	right over left harpoon; reversible reac-
		⇌	tion
Bac	021C6	<pre>⇆, ⇆,</pre>	left over right arrow; reversible reac-
		⇆	tion
Bad	021C4	<pre>⇄, ⇄,</pre>	right over left arrow; reversible reac-
		⇄	tion
Bae	021A9	↩, ↩	left arrow-hooked
Baf	021BC	<pre>↼, ↼, ↼</pre>	left harpoon-up
Bag	02190	<pre>←, ←, ←, ←, ←</pre>	left arrow; relata of a relation
Bah	021D0	⇐, ⇐, ⇐	left double arrow; is implied by
Bai	021AD	↭, ↭	left and right arrow-wavy
Baj	021DD	⇝	right arrow-wavy; functional relation- ship
Bak	021AA	<pre>↪, ↪</pre>	right arrow-hooked
Bal	021C0	⇀, ⇀, ⇀	right harpoon, up
Bam	02192	<pre>→, →, →, →, →</pre>	right arrow; approaches
Ban	021D2	⇒, ⇒, ⇒, ⇒	right double arrow; implies
Bao	021A6	↦, ↦, ↦	mapping; maps to
Bap	021DB	⇛, ⇛	right triple arrow
Baq	021DA	⇚, ⇚	left triple arrow
Bar	02194	<pre>↔, ↔, ↔</pre>	left-right arrow; mutually implies
Bas	021D4	<pre>⇔, ⇔, ⇔, ⇔</pre>	left-right dbl arrow; if and only if; mut. implies

Position	Unicode	Entities / glyph	Description
Bat	021C9	⇉,⇉	two right arrows
Bau	021C7	<pre>⇇, ⇇</pre>	two left arrows
Bav	0219E	<pre>↞, ↞</pre>	two-head left arrow
Baw	021A0	↠, ↠	two-head right arrow; on to map
Bax	02905	⤅	two-head right arrow, ended
Bay	021A2	<pre>↢, ↢</pre>	left arrow-tailed
Baz	021A3	<pre>↣, ⤚,</pre>	right arrow-tailed
		<pre>↣</pre>	
Bb1	02933-00338	⤳̸	slashed curly arrow
Bb2	02928	⤨, ⤨	N-E, S-E arrows
Bb3	02929	⤩, ⤩	S-E, S-W arrows
Bb4	0292A	⤪	S-W, N-W arrows
Bb5	02927	⤧	N-W, N-E arrows
Bba	02926	⤦, ⤦	S-W arrow, hooked
Bbb	02925	⤥, ⤥	S-E arrow, hooked
Bbc	02923	⤣	N-W arrow, hooked
Bbd	02924	⤤	N-E arrow, hooked
Bbe	021AB	<pre>↫, ↫</pre>	left arrow, looped
Bbf	021BD	<pre>↽, ↽,</pre>	left harpoon, down
		↽	•
Bbg	0219A	↚,↚	not left arrow
Bbh	021CD	<pre>⇍, ⤂, ⇍</pre>	not left double arrow; not implied by
Bbj	021C1	<pre>⇁, ⇁,</pre>	right harpoon, down
·		⇁	
Bbk	021AC	<pre>↬, ↬</pre>	right arrow, looped
Bbl	02947	&z.rarrx	right arrow, crossed
Bbm	0219B	<pre>↛, ↛</pre>	not right arrow; does not tend to
Bbn	021CF	<pre>⇏, ⤃,</pre>	not right double arrow; does not imply
		⇏	
Bbp	02940	&z.olarr	left arrow in circle
Bbq	02941	&z.orarr	right arrow in circle
Bbr	021F9	&z.nharr	not left-right arrow
Bbs	021CE	<pre>⇎, ⤄,</pre>	not left-right dbl arrow; negation of
		⇎	mut. implies
Bbw	021B0	↰, ↰	left hook arrow up
Bc1	0296F	⥯,	harpoon down, up
		⥯	
Bc2	0296E	<pre>⥮, ⥮</pre>	harpoon up, down
Bca	021C3	⇃, ⇃,	down harpoon left
		⇃	
Bcb	021C2	<pre>⇂, ⇂,</pre>	down harpoon right
		⇂	
Bcc	02193	↓, ↓,	downward arrow; decreases
		↓, ↓	
Bcd	021D3	⇓, ⇓,	down double arrow; implies
		⇓	-
Bce	02191	<pre>↑, ↑,</pre>	upward arrow; increase; exponent
		↑, ↑	
Bcf	021D1	⇑, ⇑,	up double arrow; implies
		⇑	-
Bcg	021BF	<pre>↿, ↿,</pre>	up harpoon left
J		<pre>↿</pre>	- •
		«upnarpooniert;	

Position	Unicode	Entities / glyph	Description
Bch	021BE	<pre>↾, ↾,</pre>	up harpoon right
		↾	
Bci	02196	↖, ↖,	arrow, north-west
		↖	
Bcj	02198	<pre>↘, ↘,</pre>	arrow, south-east; decays
		↘	
Bck	02197	<pre>↗, ↗,</pre>	arrow, north-east; grows
		↗	
Bcl	02199	↙, ↙,	arrow, south-west
		↙	
Bcm	021C5	<pre>⇅, ⇅</pre>	dbl arrow, left up, right down; anti-
			parallel to
Bcn	021F5	<pre>⇵, ⇵</pre>	dbl arrow, left down, right up
Bcp	021B6	<pre>↶,↶</pre>	left curved arrow; anti-clockwise arrow
Bcq	021B7	<pre>↷, ↷</pre>	right curved arrow; clockwise arrow
Bcr	02195	<pre>↕, ↕,</pre>	up-down arrow; vertical relationship
		<pre>↕</pre>	
Bcs	021D5	<pre>⇕, ⇕,</pre>	up and down double arrow; if and only
		⇕	if
Bct	021C8	<pre>⇈, ⇈</pre>	two upward arrows
Bcu	021CA	⇊, ⇊	two downward arrows
Bcw	021B1	↱, ↱	right hook arrow up
Bcx	021B3	↳	right hook, down
Bcy	02937	⤷	rounded arrow down, right
Bcz	02936	⤶	rounded arrow down, left
Bd1	0230A	<pre>⌊, ⌊</pre>	left floor; topless left bracket
Bd2	02308	<pre>⌈, ⌈</pre>	left ceiling; bottomless left bracket
Bd3	0231E	⌞, ⌞	down left corner
Bd4	0231C	⌜, ⌜	up left corner
Bd5		<pre><ce:glyph name="dlcorn"></ce:glyph></pre>	left bottom corner, long
Bd6		<pre><ce:glyph name="smid"></ce:glyph></pre>	shortmid (Height of small x)
Bd7		<pre><ce:glyph name="spar"></ce:glyph></pre>	short parallel (Height small x)
Bda	02329	<pre>%lang;, ⟨,</pre>	left angle bracket
D JL	02004	⟨	1-ft double on the burnlest
Bdb	0300A	⟪	left double angle bracket
Bdc Bdd	0301A 02985	<pre>⟦, ⟦</pre>	left open bracket left open angular bracket
Bdi	02905	<pre>⦅ ∣, ∣, ∣,</pre>	divides; mid (Height of capital I)
Dui	02223	&WerticalBar	divides, find (Height of Capital 1)
Bdj	02225	∥, ∥,	parallel to (height of capital I)
Duj	02220	∥	paramer to (neight of capital 1)
		∥, ∥	
Bdk	0007C	<pre> ,  ,</pre>	single-rule fence
Duk	00010		single rule lence
Bdl	02016	‖,‖	double-rule fence; norm of a matrix
Bdm	02980	&z.tfnc	triple vertical-rule fence
Bdp	022A5	⊥, ⊥, ⊥, ⊥	perpendicular; orthogonal to
Bdq	022A4	<pre>⊤, ⊤</pre>	intercal; true
Bdr	02AEB	⫫	double perpendicular
Bds	022A2	⊢, ⊢	vertical, dash; assertion; reduced to
Bdt	022A3	⊣,⊣	dash, vertical; turnstile
Bdu	022A9	⊩	double vertical, dash
Bdv	022AB	⊫	double vertical, double dash
		•	,

Position	Unicode	Entities / glyph	Description
Bdw	022AA	⊪	triple vertical, dash
Bdx	022A8	<pre>⊨, ⊨</pre>	vert., 2-dsh; models; statement is true;
			result in
Bdy	0297D	⥽	right fish tail; element precedes under
			relation;
Be1	0230B	<pre>⌋, ⌋</pre>	right floor; topless right bracket
Be2	02309	<pre>⌉, ⌉</pre>	right ceiling; bottomless right bracket
Be3	0231F	⌟, ⌟	down right corner
Be4	0231D	<pre>⌝, ⌝</pre>	up right corner
Be5		<ce:glyph name="drcorn"></ce:glyph>	right bottom corner, long
Be6		<pre><ce:glyph name="nsmid"></ce:glyph></pre>	nshortmid
Be7		<ce:glyph name="nspar"></ce:glyph>	not short parallel
Bea	0232A	⟩,⟩,	right angle bracket
		⟩	
Beb	0300B	⟫	right double angle bracket
Bec	0301B	<pre>⟧, ⟧</pre>	right open bracket
Bed	02986	⦆	right open angular bracket
Bei	02224	∤, ∤,	not mid
		<pre>∤, ∤</pre>	
Bej	02226	∦, ∦,	not parallel
		<pre>∦,</pre>	
		<pre>∦, ∦</pre>	
Bek	02AF6	&z.tdcol	triple dot colon
Bel	022EE	⋮	triple dot fence
Bem	02999	&z.ddfnc	dotted fence
Ben	000A6	¦	broken vertical bar
Beo	02506	&z.dshfnc	dashed fence
Bes	022AC	⊬	not vertical, dash
Beu	022AE	⊮	not double vertical, dash
Bev	022AF	⊯	not double vertical, double-dash
Bex	022AD	⊭	not vertical, double-dash
Bey	0297C	⥼	left fish tail
Bf1	025B5	<pre>▵, ▵</pre>	up triangle, open
Bf2	025BF	<pre>▿, ▿</pre>	down triangle, open
Bf3	025B7	&z.rtri	right triangle, open
Bf4	025C1	&z.ltri	left triangle, open
Bf5	025B4	<pre>▴, ▴</pre>	up triangle, filled
Bf6	025BE	<pre>▾, ▾</pre>	down triangle, filled
Bf7	025B6	<pre>&amp;z.rtrif</pre>	right triangle, filled
Bf8	025C0	<pre>&amp;z.ltrif</pre>	left triangle, filled
Bfa	02020	†, †	dagger
Bfc	000A7	§	section sign
Bfd	000B6	¶	paragraph sign; pilcrow
Bfe	02720	<pre>✠, ✠</pre>	Maltese cross
Bff	02713	<pre>✓, ✓</pre>	check mark; tick
Bfg	02662	<pre>&amp;z.diam</pre>	diamond
Bfh	02666	<pre>♦, ♦</pre>	diamondsuit; diamond, filled
Bfi	02665	<pre>&amp;z.hearts</pre>	heartsuit; heart, filled
Bfj	02660	<pre>♠, ♠</pre>	spadesuit; spade, filled
Bfk	02663	<pre>♣, ♣</pre>	clubsuit; club, filled
Bfl	02606	&z.star	star, open
Bfm	02605	<pre>★, ★</pre>	big (5-point) star, filled
Bfn	025A1	□, □, □	square; D'Alembertian operator

Position	Unicode	Entities / glyph	Description
Bfo	025A0	&z.squf	square filled, end of proof; Halmos
Bfp		<ce:glyph name="sqfne"></ce:glyph>	square with filled N-E-corner
Bfq	025E9	&z.sqfnw	square with filled N-W-corner
Bfr		<pre><ce:glyph name="sqfsw"></ce:glyph></pre>	square with filled S-W-corner
Bfs	025EA	&z.sqfse	square with filled S-E-corner
Bft	025E7	&z.sqfl	square, left filled
Bfu	025E8	&z.sqfr	square, right filled
Bfv		<pre><ce:glyph name="sqft"></ce:glyph></pre>	square, top filled
Bfw		<pre><ce:glyph name="sqfb"></ce:glyph></pre>	square, bottom filled
Bg1	025B3	<pre>△, △</pre>	big up triangle open
Bg2	025BD	▽,▽	big down triangle open
Bg6	025A9	&z.sqshd	legend symbol; shaded box
Bg7	025D8	&z.rvbull	reversed video bullet
Bg8	02702	&z.scis	scissor-symbol
Bg9	0260E	☎	telephone-symbol
Bga	02021	‡,‡,‡	double dagger; diesis
Bgf	025CA	<pre>%loz;, ◊</pre>	lozenge open; total mark
Bgg		<pre><ce:glyph name="lozfl"></ce:glyph></pre>	lozenge, left filled
Bgh		<pre><ce:glyph name="lozfr"></ce:glyph></pre>	lozenge, right filled
Bgi		<pre><ce:glyph name="lozf"></ce:glyph></pre>	lozenge, filled
Bgn	025CB	○	circle, open
Bgo	025CF	&z.cirf	filled circle;
	025GF 025A4	&z.ciii, &z.sqh	legend symbol; horizontally striped
Bgp		• *	box
Bgq	025A5	&z.sqv	legend symbol; vertically striped box
Bgr	025A7	&z.sqhsw	legend symbol; south-west striped box
Bgs	025A8	&z.sqhne	legend symbol; north-east striped box
Bgt	025D0	<pre>&amp;z.cirfl</pre>	circle, left filled
Bgu	025D1	<pre>&amp;z.cirfr</pre>	circle, right filled
Bgv	025D3	<pre>&amp;z.cirft</pre>	circle, top filled
Bgw	025D2	<pre>&amp;z.cirfb</pre>	circle, bottom filled
Bgx	025AD	▭	rectangle open, horizontal
Bgy	025AF	&z.vrecto	rectangle open, vertical
Bgz	025B1	<pre>&amp;z.parl</pre>	parallelogram
Bh3	0263F	&z.merc	Mercury
Bh4	02640	♀	Venus; female
Bh5	02643	&z.jup	Jupiter
Bh6	02644	&z.sat	Saturn
Bh7	02642	♂	Mars; male
Bh8		<pre><ce:glyph name="herma"></ce:glyph></pre>	hermaphrodite
Bh9	02646	&z.nept	Neptune
Bha	00026	&	ampersand
Bhb	000A2	¢	cent sign
Bhc	00012	\$	dollar sign
Bhd	00024 000A3	£	pound sign
Bhe	00192	&z.hfl,ƒ	guilders sign
Bhf	00192 000A5	&z.mii,, &imoi, ¥	yen sign
Bhg	000A5 020A7		Pesetas sign
Bhh		&z.pes	=
	020AC	&z.euro	euro sign
Bhj	000F0	ð	eth
Bhm	02030	‰	per thousand; per mille
Bhn	02031	‱	per 10 000
Bhr	000A9	©	copyright sign (circled C)

Position	Unicode	Entities / glyph	Description
Bhs	000AE	®,®	registered sign (circled R)
Bht	02122	™	trade mark sign
Bhw	0266D	♭	flat (music)
Bhx	0266F	♯	sharp (music)
Bhy	0266E	<pre>♮, ♮</pre>	natural (music)
Bi0	02994	⦔	right parenthesis, greater
Bi1	022B2	⊲,⊲,	left elongated triangle; implied by
		<pre>⊲</pre>	
Bi2	022EB	<pre>⋫, ⋫,</pre>	not right triangle
		<pre>⋫</pre>	
Bi4	022EA	<pre>⋪, ⋪,</pre>	not left triangle
		<pre>⋪</pre>	
Bi7	02993	⦓	left parenthesis, less than
Bi8	02222	∢	right parenthesis, less than
Bi9	029A0	&z.lpargt	left parenthesis, gt
Bia	02200	∀, ∀	inverted capital A; for all
Bib	02203	<pre>∃, ∃</pre>	reversed cap. E; there exists; at least
			one exists
Bic	02204	<pre>∄, ∄,</pre>	not rev. cap. E; not exists; there does
		∄	not exist
Bid	02201	<pre>∁, ∁</pre>	complement
Bif	0222A	∪	sum or union of classes or sets; logical
		-	sum
Big	02229	∩	prod. of intrsctn of cl./sets; vee; small
C		• '	intrsctn
Bih	022D3	⋓	double union; (Cup)
Bii	022D2	⋒	double intersection; (Cap)
Bij	02294	<pre>%sqcup;, ⨆, ⨆, ⊔</pre>	square union
Bik	02293	⊓, ⊓	square intersection
Bil	0228E	<pre>⊎, ⨄, ⨄, ⊎</pre>	plus sign in union
Bim	02228	∨, ∨	logical or; small supremum
Bin	02227	<pre>∧, ∧</pre>	logical and; small infimum; wedge
Bio	02A54	⩔	double logical or
Bip	02A53	⩓	double logical and
Biq	02A56	⩖	double supremum (conjunction); double logical or
Bir	02A55	⩕	double infimum (conjunction); double logical and
Bis	02A08	&z.Sup	double supremum (cumulator)
Bit	02A00 02A07	&z.Sup &z.Inf	double infimum (cumulator)
Biu	02A07 022CF	<pre>&amp;z.ini ⋏,⋏</pre>	curly logical and
Biv	022CF 022CE	<pre>⋏, ⋏ ⋎, ⋎</pre>	curly logical and curly logical or
Biw	022CE 022BB	⋎, ⋎ ⊻	logical or, bar below; injective
Bix	022BC	⊻ ⌅,⌅	logical and, bar above; projective
Biy	022BC 02A63	&z.veeBar	logical or, dbl bar below
Biz	02A65 02A5E	&z.veebai, &z.Barwed	double bar wedge; log and, dbl bar
Biz Bj1	02233	&z.Barwed, ∳,&CounterClock-	contour integral, anti-clockwise
սյո	02233	wiseContourIntegral;	contour integral, altif-clockwise
Bj2	02232	<pre>%cwconint;,</pre>	contour integral, clockwise
⊅յ∠	02202	<pre>&amp;CWCONINT, ∲</pre>	contour integral, clockwise
Bj3	02231	&cvint	clockwise integral
روط_	02201	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	CIOCKWISC IIICGIAI

Position	Unicode	Entities / glyph	Description
Bj4	02A16	⨖	lattice-integral
Bj5	029CA	&z.Lap	up triangle open with dot; Laplace op-
			erator
Bja	02211	∑, ∑	summation operator
Bjb	0220F	<pre>∏, ∏</pre>	product operator
Bjc	02210	<pre>∐, ∐</pre>	inverted product (cumulator)
Bjd	02A3F	⨿	inverted prod. (conjunction); amalga-
			mation, coprod
Bje	0221A	<pre>√, √</pre>	root; radical sign
Bjf	022C3	⋃,⋃,⋃	union of classes/sets; sum or sets be-
			tween limits
Bjg	022C2	<pre>⋂, ⋂,</pre>	intersection of classes; prod.of cl/sets
		⋂	betw. lmt
Bjh	0211E	℞	cross ratio
Bji		<ce:glyph name="S"></ce:glyph>	S-sign
Bjj	02A06	&z.xsqcup	big square union
Bjk	02A05	&z.Thr	big square intersection
Bjl	02A04	&z.xuplus	plus sign in big union
Bjm	022C1	⋁, ⋁, ⋁	large supremum
Bjn	022C0	⋀,⋀,⋀	large infimum
Bjo	02118	<pre>℘, ℘</pre>	Weierstrass elliptic function
Bjp	0222B	<pre>∫, ∫</pre>	integral operator
Bju	02AOD	<pre>⨍</pre>	principal-value integral: cauchy inte-
			gral
Bjv	0222E	<pre>∮, ∮,</pre>	contour integral; circuital integral
		<pre>∮</pre>	
Bjw	0222F	∯,	surface integral
		∯	
Bjx	02230	∰	volume integral
Bjz	02A10	⨐	edge-integral
Bk1	02220	<pre>∠, ∠</pre>	angle
Bk2	02221	<pre>∡, ∡</pre>	angle-measured
Bk3	02222	∢	spherical angle
Bk4	02993	<pre>⦓</pre>	angle and left parentheses
Bk5	0299C	&z.ang90	right (90 degree) angle; factorial sign
Bk6	02A3C	<pre>⨼, ⨼</pre>	intprod
Bk7	000B0	°	degree sign
Bk8	0204E		mid asterisk
Bk9	02218	<pre>∘, ∘</pre>	centered circle; composite function;
			convolution
Bka	0003C	<pre>&lt;</pre>	less than sign
Bkb	02A7D	<pre>⩽, ⩽,</pre>	less than or equal to, slanted
		⩽	
Bkc	02A95	&z.els	equal-or-less, slanted
Bkd	02264	≤, ≤	less than or equal
Bke	02266	≦, ≦, ≦	less than or (double) equal
Bkf	02272	<pre>≲, ⪅, ⪅,</pre>	less than or similar to; less, approxi-
		≲, ≲	mate
Bkg	02A85	&z.lap	less than and double approximate
Bkh	02A9D	⪝	less than and approximately
Bki	02276	≶, ≶, ≶	less than or greater than

Position	Unicode	Entities / glyph	Description
Bkj	022DA	<pre>⋚, ⪋, ⋚,</pre>	less, equal, or greater
		<pre>⪋,</pre>	
		⋚	
Bkk	02A8B	&z.lEg	less, (double) equal, or greater
Bkl	02AA1	⪡	much less than (double)
Bkm	0226A	≪, ≪, ≪	much less than (double)
Bkn	022D8	&L1	much less than (triple)
Bko	022D6	<pre>⋖, ⋖</pre>	less than, with dot
Bkp	02242	<pre>≂, ≂, ≂</pre>	equal, similar
Bkq	0227A	≺, ≺, ≺	precedes; has lower rank than; is dom-
			inated by
Bkr	0227E	<pre>≾, ⪷, ⪴,</pre>	precedes, similar; dominance; con-
		⪷, ≾,	tained in, equiv.
		≾	-
Bks	02AB7	&z.prap	precedes, approximate
Bkt	02AAF	⪯, ⪳, ⪯,	precedes, equals
		⪯	•
Bku	0227C	≼, ≼,	curly prec. equal; has rank lower than
		≼	or equal to
Bkv	022DE	<pre>⋞,⋞</pre>	curly equals (above), precedes
Bkz	029DC	⧜	infinity, incomplete
B10	022C6	⋆, ☆, ⋆	small (5-point) star, filled
B15	02035	‵, ‵	backprime; reverse prime
B18	0002A	*, *	pseudo-superscript asterisk (ASCII *)
B19	022C5	⋅	centered small circle, filled
Bla	0226E	≮,<⃒,≮,	not less than
		≮	
Blb	02270	≰,≰,≰	neither less than nor equal to, slanted
Bld	02A87	&z.lne	less than but not equals
Ble	02268	≨, ⪇, ⪇, ≨	less than but not (double) equal to
Blf	022E6	⋦	less than, not similar
Blg	02A89	<pre>⪉, ⪉</pre>	less than but not approximate
Blh	02274	≴,≴	neither less than nor equivalent to
Bli	02278	<pre>≸, ≸</pre>	neither less than nor greater than
Blj	02270	≰,≰,≰	not less-than-or-equal
Blk	02266-00338	&z.nlE	not less, double equals
Bln	0226C	<pre>≬, ≬</pre>	between
Blq	02280	<pre>⊀, ⊀, ⊀</pre>	does not precede
Blr	022E8	⋨, ⪹,	precedes, not similar
		⪹, ⋨	•
Bls	02AB9	&z.prnap	precedes, not approximately
Blt	02AB5	⪵, ⪵	precedes, not double equal
Blu	02AAF-00338	⪯̸, ⪯̸,	not precedes, equals
		⪯̸	•
Blz	0221E	∞	infinity sign
Bm1	02323	⌣	up curve, smile
Bm2	02322	⌢	down curve, frown
Bm3	022D4	⋔,⋔	pitchfork
Bm5	02032	′	prime; minutes; feet
Bm6	02033	″	double prime; seconds; inches
Bm7	02034	‴	triple prime
Bm8	02057	⁗	fourfold prime
Bm9	02026	…,…	triple dot
		1 ''	

Position	Unicode	Entities / glyph	Description
Bma	0003E	>	greater than sign
Bmb	02A7E	<pre>⩾, ⩾, ⩾</pre>	greater than or equal to, slanted
Bmc	02A96	&z.egs	equal-or-greater, slanted
Bmd	02265	≥, ≥, ≥	greater than or equal to
Bme	02267	<pre>≧, ≧, ≧</pre>	greater than or double equal to
Bmf	02273	<pre>≳, ⪆, ≳, ⪆, ≳</pre>	greater than or similar to; greater than approx.
Bmg	02A86	&z.gap	greater than, approximately
Bmh	02A9E	⪞	greater than, approximately
Bmi	02277	≷,≷,≷	greater than or less than
Bmj	022DB	<pre>⋛, ⪌, ⋛, ⋛, ⪌</pre>	greater, equal, or less
Bmk	02A8C	&z.gEl	greater, (double) equal, or less
Bml	02AA2	⪢	much greater than (double)
Bmm	0226B	≫, ≫, ≫	much greater than (double)
Bmn	022D9	⋙, ⋙	much greater than (triple)
Bmo	022D7	⋗, ⋗	greater than, with dot
Bmp	02242-020D2	&z.nesim	not equal, similar
Bmq	0227B	≻, ≻, ≻	succeeds; has higher rank than; dominates
Bmr	0227F	<pre>≿, ⪸, ⪸, ≿, ≿</pre>	succeeds, similar
Bms	02AB8	&z.scap	succeeds, approximate
Bmt	02AB0	&z.sce	succeeds, equals
Bmu	0227D	<pre>≽, ⪰, ≽, ⪰, ≽, ⪰</pre>	succ., curly eq; has rank higher than or equal to
Bmv	022DF	⋟, ⋟	curly equals (above), succeeds
Bmz	0221D	∝, ∝, ∝, ∝, ∝	is proportional to; varies as
Bn3		<pre><ce:glyph name="lbd2td"></ce:glyph></pre>	2 bonds on the lefthand side, top double
Bn4		<pre><ce:glyph name="lbd2bd"></ce:glyph></pre>	2 bonds on the lefthand side, bottom double
Bn5		<pre><ce:glyph name="rbd2td"></ce:glyph></pre>	2 bonds on the righthand side, top double
Bn6		<pre><ce:glyph name="rbd2bd"></ce:glyph></pre>	2 bonds on the righthand side, bottom double
Bn9	022EF	⋯	triple dot, centered
Bna	0226F	<pre>≯, &gt;⃒, ≯, ≯</pre>	not greater than
Bnb	02271	<pre>≱, ≱, ≱</pre>	neither greater than nor equal to, slanted
Bnd	02A88	&z.gne	greater than, not equals to
Bne	02269	≩, ⪈, ⪈, ≩	greater than but not (double) equal to
Bnf	022E7	⋧	greater than but not similar to
Bng	02A8A	⪊, ⪊	greater than but not approximate
Bnh	02275	≵, ≵	neither greater than nor equivalent to
Bni	02279	≹, ≹	neither greater than nor less than

Position	Unicode	Entities / glyph	Description
Bnj	02271	≱, ≱,	not greater-than-or-equal
		<pre>≱</pre>	
Bnk	02267-00338	&z.ngE	not greater, double equals
Bnq	02281	<pre>⊁, ⊁, ⊁</pre>	does not succeed
Bnr	022E9	⋩, ⪺,	succeeds, not similar
		<pre>⪺, ⋩</pre>	
Bns	02ABA	&z.scnap	succeeds, not approximate
Bnt	02AB6	⪶, ⪶	succeeds but, not (double) equal to
Bnu	02AB0-00338	<pre>⪰̸, ⪰̸,</pre>	not succeeds, equals
		⪰̸	
Bo0		<pre><ce:glyph name="rad"></ce:glyph></pre>	radical dot
Bo1		<pre><ce:glyph name="pent"></ce:glyph></pre>	pentagon
Bo2	02394	&z.hex	hexagon
Bo3		<ce:glyph name="pdbdtd"></ce:glyph>	partial double bond, top dashed
Bo4	02393	&z.pdbdbd	partial double bond, bottom dashed
Bo5		<pre><ce:glyph name="ptbdtd"></ce:glyph></pre>	partial triple bond, top dashed
Bo6		<pre><ce:glyph name="ptbdbd"></ce:glyph></pre>	partial triple bond, bottom dashed
Bo7		<pre><ce:glyph name="sbnd"></ce:glyph></pre>	single bond
Bo8		<pre><ce:glyph name="pdbond"></ce:glyph></pre>	Partial double bond
Bo9	022F0	<pre>⋰</pre>	triple dot, diagonal SW-NE
Boa	02208	<pre>∈, ∈, ∈, ∈</pre>	set membership; member
Boc	02282	⊂, ⊂	subset; proper inclusion in set; is im-
			plied by
Bod	02286	⊆, ⫅, ⊆,	subset, equals; identity or inclusion in
		⫅, ⊆	set
Bog	02AC5	&z.subE	subset, double equals
Boj	022D0	⋐, ⋐	double subset
Bok	0228F	<pre>⊏, ⊏, ⊏</pre>	square subset; image of
Bol	02291	⊑, ⊑,	square subset, equals
		⊑	
Boo	022B8	<pre>⊸, ⊸</pre>	multimap
Bop	022B7	⊷	image of
Boq		<pre><ce:glyph name="dbnd"></ce:glyph></pre>	double bond; length as m-dash
Bor		<pre><ce:glyph name="tbnd"></ce:glyph></pre>	triple bond; length as m-dash
Bos		<pre><ce:glyph name="qbnd"></ce:glyph></pre>	quadruple bond; length as m-dash
Bow	029F9	&z.drule	-45 degree rule
Box	029F8	&z.urule	+45 degree rule
Bp9	022F1	⋱	triple dot, diagonal NW-SE
Bpa	02209	<pre>∉, ∉, ∉</pre>	not an element of; is not a member of
Bpc	02284	⊄, ⊂⃒, ⊂⃒,	not subset; non-proper inclusion in set
Брс	02204	⊂⃒	not subset, non-proper metasion in set
Bpd	0228A	⊊, ⫋, ⊊,	subset, not equals
Бра	OZZOR	⫋	subset, not equals
Bpe	0228A-0FE00	⫋︀, ⊊︀,	not subset, not equals
Брс	022011 01 100	⊊︀,	not subset, not equals
		⊊︀	
Bpf	02288	⊈, ⫅̸,	not subset, equals; not contained in or
D <sub>P</sub> 1	12200	⊈, ⊈,	not eql to
		⫅̸	1
Bpg	02ACB	&z.subnE	subset, not double equal
-10			

Position	Unicode	Entities / glyph	Description
Bph	0228A-0FE00	⫋︀, ⊊︀,	not subset, double equals
		⊊︀,	
		⫋︀	
Bpi	02AC5-00338	&z.nsubE	not subset, double equals
Bpk	0228F-00338	⊏̸	square not subset
Bpl	022E2	⋢,	square not reflex subset
_		⋢	_
Bpm	022E4	&z.sqsbne	Square subset, not equal
Bpp	022B6	<pre>⊶</pre>	original of
Bpq		<pre><ce:glyph name="dbnd6"></ce:glyph></pre>	6-point double bond; length half of m-dash
Bpr		<pre><ce:glyph name="tbnd6"></ce:glyph></pre>	6-point triple bond; length half of m-dash
Bps		<pre><ce:glyph name="qbnd6"></ce:glyph></pre>	six-point quadruple bond; length half of m-dash
Bpt		<pre><ce:glyph name="rbond3"></ce:glyph></pre>	3 bonds on the righthand side
Bpu		<pre><ce:glyph name="lbond3"></ce:glyph></pre>	3 bonds on the lefthand side
Bpv		<pre><ce:glyph name="rbond2"></ce:glyph></pre>	2 bonds on the righthand side
Bpw		<pre><ce:glyph name="lbond2"></ce:glyph></pre>	2 bonds on the lefthand side
Bpz	0223E	∾	most positive
Bq0	0223B	∻	homothetic
Bq1	0223C	∼, ∼, ∼	similar; equivalent to; varies linearly with
Bq2	02243	≃,≃,≃	similar, equals; asymptotically equal to
Bq3	02245	≅,≅	congruent with; similar to
Bq4	02248	<pre>≈, ≈, ≈, ≈,</pre>	approximate; asymptotic
		<pre>≈, ≈</pre>	
Bq5	0224A	<pre>≊, ⩰, ≊</pre>	approximate, equals; asymptotic or equal to
Bq6	0224B	<pre>≋</pre>	triple tilde; approximately identical to
Bq7	0223D	∽, ∽	reverse mainline tilde; reverse similar
Bq8	022CD	<pre>⋍, ⋍</pre>	reverse similar, equals
Bq9	0224C	≌, ≌	reverse congruent
Bqa	0220B	<pre>∋, ∋, ∋, ∋</pre>	contains; owns; includes
Bqc	02283	⊃, ⊃, ⊃	superset; properly includes in set; implies
Bqd	02287	⊇,⫆,⊇,	superset, equals; ident. with or con-
•		⊇, ⫆	tains as subset
Bqg	02AC6	&z.supE	superset, double equals
Bqj	022D1	⋑, ⋑	double superset
Bqk	02290	<pre>⊐, ⊐, ⊐</pre>	square superset; original of
Bql	02292	⊒, ⊒, ⊒	square superset, equals
Bqm	0225F	<pre>≟, ≟</pre>	equal, question mark
Bqn	02257	≗,≗	circle, equals
Bqo	02250	<pre>≐, ≐, ≐</pre>	equals, dot above; approaches the limit
Bqp	02251	≑, ≑	equals, even dots; approximately equal
Bqq	02259	<pre>≙</pre>	estimates; corresponds to
Bqr	0225C	≜,≜	triangle, equal; equal by definition
Bqs	02256	≖, ≖	circle in equals sign
Bqt	02254	≔, ≔, ≔	colon, equals; is defined as
~ ~·		,,,,,,,,	,,

Position	Unicode	Entities / glyph	Description
Bqu	02255	<pre>≕, ≕</pre>	equals, colon; defines
Bqv	02A77	<pre>⩷, ⩷</pre>	equal, double dot above and under
Bqw	029CB	&z.defas	defined as
Bqx	02261	<pre>≡, ≡</pre>	equivalent; identical with; triple equals
Bqy	02253	<pre>≓, ≓</pre>	equal, rising dots
Bqz	02252	<pre>≒, ≒</pre>	equals, falling dots; appr. equal to; image of
Br1	02241	<pre>≁, ≁</pre>	not similar; not equivalent to
Br2	02244	<pre>≄, ≄, ≄</pre>	not similar, equals; not asymptotically equal to
Br3	02247	<pre>≇, ≇</pre>	not congruent with; neither appr. nor act. equal
Br4	02249	<pre>≉, ≉, ≉</pre>	not approximate; not asymptotic to
Br6	0224B-00338	≋̸	not approximately, double; dashed triple tilde
Bra	0220C	<pre>∌, ∌, ∌</pre>	does not contain as a member
Brc	02285	<pre>⊅, ⊃⃒, ⊃⃒, ⊃⃒</pre>	not superset; does not properly include in set
Brd	0228B	⊋, ⫌, ⊋, ⊋	superset, not equals
Bre	0228B-0FE00	⫌︀, ⊋︀, ⊋︀,	not superset, not equals
Brf	02289	<pre>⫌︀ ⊉, ⫆̸, ⊉, ⊉, ⫆̸</pre>	not superset, equals; does not contain as subset
Brg	02ACC	&z.supnE	superset, not double equals
Brh	0228B-0FE00	<pre>⫌︀, ⊋︀, ⊋︀, ⫌︀</pre>	not superset, double equals
Bri	02AC6-00338	&z.nsupE	not superset, double equals
Brk	02290-00338	⊐̸	square not superset
Brl	022E3	<pre>⋣, ⋣</pre>	square not reflex superset
Brm	022E5	&z.sqspne	square superset, not equal
Brn	0224E-00338	≎̸, ≎̸	not isomorphic
Bro	OOOAC	¬	logical not sign
Brp	0224F	≏, ≏, ≏	bumpy equals, equals; approximately equal to
Brq	0225A	≚	equiangular; equals with hacek
Brr	0224E	≎, ≎, ≎	bumpy equals; geometrically equiv. to; appr. equal
Brs	0224D	≍, ≍	cupcap; asymptotically equal to
Brt	02235	∵, ∵, ∵	because
Bru	02234	<pre>%there4;, ∴, ∴</pre>	therefore
Brv	02260	≠, ≠	not equal to
Brw	0226D	≭	not asymptotically equivalent
Brx	02262	<pre>%nequiv;, ≢</pre>	not equivalent, not identical with
Brz	02246	≆	approximately but not actually equal to

Position	Unicode	Entities / glyph	Description
Bs1	02205	<pre>∅, ∅, ∅,</pre>	solidus in circle; empty set; null set; di-
		<pre>∅</pre>	ameter
Bs2	0229B	<pre>⊛, ⊛</pre>	circled asterisk
Bs3	029B5	<pre>⦵</pre>	circle and long bar; Plimsoll sign
Bs4	02316	<pre>⌖</pre>	crosshairs; circle and (big) plus sign
Bs6	0229F	⊟, ⊟	minus sign in box
Bs7	0229E	⊞,⊞	plus sign in box
Bs8	022A0	<pre>⊠, ⊠</pre>	multiplication sign in box
Bsa	000D7	×	multiplication sign
Bsb	02A2F	⨯	vector multiplication
Bsc	000B7	<pre>·, ·,</pre>	center dot
		<pre>·</pre>	
Bsd	022C9	⋉	times sign, left closed
Bse	022CA	⋊	times sign, right closed
Bsf	022C8	⋈	bowtie
Bsg	022CC	⋌, ⋌	right three times
Bsh	022CB	<pre>⋋, ⋋</pre>	left three times
Bsi	02240	<pre>≀, ≀, ≀</pre>	wreath product
Bsk	02A38	⨸	circle divide
Bsl	0229D	<pre>⊝, ⊝</pre>	circled dash; hyphen in circle
Bsm	02298	⊘	solidus in circle
Bsn	0229A	<pre>⊚, ⊚</pre>	open dot in circle
Bso	02299	<pre>⊙, ⨀, ⨀,</pre>	middle dot in circle; sun-symbol; Ten-
		⊙	sor product
Bsp	02296	<pre>⊖, ⊖</pre>	minus sign in circle; symmetric differ-
·······································		,, ,	ence
Bsq	029B6	⦶	circle, and vertical bar
Bsr	02295	<pre>⊕, ⨁, ⨁,</pre>	plus sign in circle; direct sum; earth
		⊕	sign
Bss	02297	<pre>⊗, ⨂, ⨂,</pre>	multiplication sign in circle; direct
		⊗	product
Bst	02A2D	⨭	semi-direct sum
Bsu	02A34	⨴	semi-direct product
Bsv	02A2E	⨮	semi-direct sum
Bsw	02A35	⨵	semi-direct product
Bta	02A25	⨥	plus sign, dot below; tight dotted plus
Btb	02214	∔, ∔	plus sign, dot above; direct sum
Btc	000B1	±, ±, ±	plus or minus sign
Btd	02213	∓, ∓, ∓	minus or plus sign
Bte	022B9	⊹	hermitian conjugative matrix
Btf	022C7	⋇, ⋇	division on times
Btl	02212	−	minus sign
Btm	02A2A	⨪	minus with dot beneath; tight dotted
Dun	0211211	waring du,	minus
Btn	02238	<pre>∸, ∸</pre>	minus with dot above; symmetric dif-
Dui	02200	wmiliaba,, wao omiliab,	ference
Bto	000F7	÷,÷	division sign
Btp	0223A	∺	geometric properties
Btq	02013	&mDDOU –	en dash (long hyphen), copymarked
ьщ	02010	wiredon,	1/N
Btr	02014	—	em dash, copymarked 1/M
Bts	02014 02A5F	&mdasn ⩟	minus with hat
Btt	02A3F 02237	∷, ∷	four dots in square; as
	02201	ασστοπ,, αετοροι στοπ,	Tour dots in square, as

Position	Unicode	Entities / glyph	Description
Btu	022B4	⊴,⊴,	left triangle, equal
		⊴	
Btv	022B5	<pre>⊵, ⊵,</pre>	right triangle, equal
		⊵	
Btw	022EC	⋬,	not left triangle, equals
		⋬,	
		<pre>⋬</pre>	
Btx	022ED	⋭,	not right triangle, equals
		<pre>⋭,</pre>	
		<pre>⋭</pre>	
Bu0	02205	<pre>∅, ∅, ∅,</pre>	slashed zero; empty set
		<pre>∅</pre>	
Buc		<ce:glyph name="camb"></ce:glyph>	Cambrian (era)
Bug	0210F	<pre>ℏ, ℏ, ℏ,</pre>	Planck's constant (italic)
		ℏ	
Buh	0210F	<pre>ℏ, ℏ, ℏ,</pre>	Planck constant; h-bar (Dirac)
		ℏ	
Buk	02113	<pre>ℓ, 𝓁</pre>	roman script-l
Buq	02022	<pre>•, •</pre>	bullet
Buw	0212B	<pre>Å</pre>	angstrom
Caa	00301		acute (accent)
Cab	00300		grave (accent)
Cac	0030B		double acute (accent)
Cad	00302		circumflex, Caret (accent)
Cae	00308		double dot, umlaut, diaeresis (accent)
Cag	0030A		circle (accent)
Cah	00326		Turkish hook (accent)
Cai	00303		tilde (accent)
Caj	00306		breve (accent)
Cak	0030C		Hacek (Czech.), caron, wedge (accent)
Cal	00327		cedilla (accent)
Cam	00304		overbar, macron (accent)
Can		<pre><ce:glyph name="bigdot"></ce:glyph></pre>	big dot above (accent)
Cao	00307		dot above (accent)
Cap	020DB	<pre>⃛, ⃛</pre>	triple dot (accent)
Caq	020DC	⃜	quadruple dot (accent)
Cax	00328		polish hook, Ogonek (accent)
Cay Caz	00337 00338		short slash (overlay) cancellation slash (overlay)
Cb1	00338 0044D	Pro Carr	eh – Cyrillic –
Cb1	0044D 00456	э і	Ukrainian i – Cyrillic –
Cb2	00430	і, й	ee kratkoyeh – Cyrillic –
Cb4	00433 0044C	ь	myakhkyy znak – Cyrillic –
Cb5	0044E	ю	u – Cyrillic –
Cb6	0044A	ъ	tvyordyy znak – Cyrillic –
Cb7	0044A 00436	ж	zheh – Cyrillic –
Cba	00430	а	ah – Cyrillic –
Cbb	00431	б	beh – Cyrillic –
Cbc	00446	ц	tseh – Cyrillic –
Cbd	00434	д	deh – Cyrillic –
Cbe	00435	е	yeh – Cyrillic –
Cbf	00444	ф	ef – Cyrillic –
Cbg	00433	г	geh – Cyrillic –
	<del>-</del>	U · J ·	<u> </u>

Position	Unicode	Entities / glyph	Description
Cbh	00445	х	khah – Cyrillic –
Cbi	00438	и	ee – Cyrillic –
Cbj	0044F	я	yah – Cyrillic –
Cbk	0043A	к	kah – Cyrillic –
Cbl	0043B	<pre>л</pre>	el – Cyrillic –
Cbm	0043C	м	em – Cyrillic –
Cbn	0043D	н	en – Cyrillic –
Cbo	0043E	о	aw – Cyrillic –
Cbp	0043F	п	peh – Cyrillic –
Cbq	00447	ч	tcheh – Cyrillic –
Cbr	00440	р	ehr – Cyrillic –
Cbs	00441	с	es – Cyrillic –
Cbt	00442	<pre>т</pre>	teh – Cyrillic –
Cbu	00443	у	oo – Cyrillic –
Cbv	00432	в	veh – Cyrillic –
Cbw	00449	щ	shchah – Cyrillic –
Cbx	00448	ш	shah – Cyrillic –
Cby	0044B	ы	yery – Cyrillic –
Cbz	00437	з	zeh – Cyrillic –
Cc1	0042D	Э	Eh – Cyrillic –
Cc2	00406	І	Ukrainian I – Cyrillic –
Cc3	00419	Й	Ee kratkoyeh – Cyrillic –
Cc4	0042C	Ь	Myakhkyy znak – Cyrillic –
Cc5	0042E	Ю	U – Cyrillic –
Cc6	0042A	Ъ	Tvyordyy znak – Cyrillic –
Cc7	00416	Ж	Zheh – Cyrillic –
Cca	00410	А	Ah – Cyrillic –
Ccb	00411	Б	Beh – Cyrillic –
Ccc	00426	Ц	Tseh – Cyrillic –
Ccd	00414	Д	Deh – Cyrillic –
Cce	00415	Е	Yeh – Cyrillic –
Ccf	00424	Ф	Ef – Cyrillic –
Ccg	00413	Г	Geh – Cyrillic –
Cch	00425	Х	Khah – Cyrillic –
Cci	00418	И	Ee – Cyrillic –
Ccj	0042F	Я	Yah – Cyrillic –
Cck	0041A	К	Kah – Cyrillic –
Ccl	0041B	Л	El – Cyrillic –
Ccm	0041C	М	Em – Cyrillic –
Ccn	0041D	Н	En – Cyrillic –
Cco	0041E	О	Aw – Cyrillic –
Ccp	0041F	П	Peh – Cyrillic –
Ccq	00427	Ч	Tcheh – Cyrillic –
Ccr	00420	Р	Ehr – Cyrillic –
Ccs	00421	С	Es – Cyrillic –
Cct	00422	Т	Teh – Cyrillic –
Ccu	00423	У	Oo – Cyrillic –
Ccv	00412	В	Veh – Cyrillic –
Ccw	00429	Щ	Shchah – Cyrillic –
Ccx	00428	Ш	Shah – Cyrillic –
Ccy	0042B	Ы	Yery – Cyrillic –
Ccz	00417	З	Zeh – Cyrillic –
Cd0	02129	℩	inverted iota – Greek –

Position	Unicode	Entities / glyph	Description
Cd2	003D6	<pre>ϖ, ϖ</pre>	physicians' pi – Greek –
Cd3	003B5	&z.epsiv, ε,	epsilon (cursive) – Greek –
		ϵ	
Cd4	003C6	<pre>ϕ, ϕ</pre>	phi (cursive, open) – Greek –
Cd5	003DD	&z.gammad	digamma
Cd6	02202	<pre>∂, ∂</pre>	curly d; differential - Greek -
Cd7	003D0	&z.betav	curly beta – Greek –
Cd8	003F0	ϰ,ϰ	kappa (cursive, rounded) – Greek –
Cd9	003F1	ϱ,ϱ	rho (cursive, round) – Greek –
Cda	003B1	α	alpha – Greek –
Cdb	003B2	<pre>β</pre>	beta – Greek –
Cdc	003C7	χ	chi – Greek –
Cdd	003B4	δ	delta – Greek –
Cde	003F5	&z.epsi	epsilon (Porson) – Greek –
Cdf	003D5	φ,ϕ	phi – Greek –
Cdg	003B3	γ	gamma – Greek –
Cdh	003B7	η	eta – Greek –
Cdi	003B9	ι	iota – Greek –
Cdj	003D1	<pre>ϑ, ϑ</pre>	theta (cursive, rounded) – Greek –
Cdk	003BA	κ	kappa – Greek –
Cdl	003BB	λ	lambda – Greek –
Cdm	003BC	μ	mu – Greek –
Cdn	003BD	ν	nu – Greek –
Cdo	003BF	&z.omicr	omicron – Greek –
Cdp	003C0	π	pi – Greek –
Cdq	003B8	θ	theta – Greek –
Cdr	003C1	ρ	rho – Greek –
Cds	003C3	σ	sigma – Greek –
Cdt	003C4	τ	tau – Greek –
Cdu	003C5	υ, υ	upsilon – Greek –
Cdv	003C2	ς,ς	sigma (final) – Greek –
Cdw	003C9	ω	omega – Greek –
Cdx	003BE	ξ	xi – Greek –
Cdy	003C8	ψ	psi – Greek –
Cdz	003B6	ζ	zeta – Greek –
Cu2 Ce0	0201C	•	double quotation mark, left
Ceo	02010	<pre>“, “</pre>	double quotation mark, left
Ce1	02207	∇, ∇	differential vector; nabla;
Ce2	02207	&mabia,, &bei, ℧	mho
Ce2 Ce7	02127		open single guillemet
		&z.lsquo	1 6 6
Ce8	000AB	«	open double guillemet; angle open
C-0	00010	0-1 0-0 C1 O +	quote
Ce9	02018	<pre>‘, ‘</pre>	single quotation mark, left
Cea	00391		capital alpha – Greek –
Ceb	00392		capital beta – Greek –
Cec	003A7		capital chi – Greek –
Ced	00394	Δ	delta (capital); increment – Greek –
Cee	00395		capital epsilon – Greek –
Cef	003A6	Φ	phi (capital) – Greek –
Ceg	00393	Γ	gamma (capital) – Greek –
Ceh	00397		capital eta – Greek –
Cei	00399		capital iota – Greek –
Cej	003F4	&z.Theta	Theta (capital, round)

Position	Unicode	Entities / glyph	Description
Cek	0039A		capital kappa – Greek –
Cel	0039B	Λ	lambda (capital) – Greek –
Cem	0039C	<u></u>	capital mu – Greek –
Cen	0039D		capital nu – Greek –
Ceo	0039F		capital omicron – Greek –
Сер	003A0	Π	pi (capital) – Greek –
Ceq	00398	Θ	theta (capital) – Greek –
Cer	003A1		capital rho – Greek –
Ces	003A3	Σ	sigma (capital) – Greek –
Cet	003A4		capital tau – Greek –
Ceu	003D2	ϒ	upsilon (capital) – Greek –
Cew	003A9	Ω	omega (capital) – Greek –
Cex	0039E	Ξ	xi (capital) – Greek –
Cey	0033E	Ψ	psi (capital) – Greek –
Cez	003A6 00396	&r 51, 	capital zeta – Greek –
Cf0	0201D	",",	double quotation mark, right
CIU	0201D		double quotation mark, right
Cf7	00034	"	close single guillemet
	0203A	&z.rsquo	C C
Cf8	000BB	»	close double guillemet; angle close
CfO	00010	0	quote
Cf9	02019	', ',	single quotation mark, right
C) C	00000	'	1.
Cfa	000E6	æ	ligature ae
Cfb	000C6	Æ	ligature AE
Cfc	00111	đ	crossed l.c. d
Cfd	00110	Đ	crossed cap. D
Cfe	00153	<pre>œ</pre>	ligature oe
Cff	00152	Œ	ligature OE
Cfh	00131	<pre>ı, ı</pre>	undotted l.c. i
Cfi		<ce:glyph name="jnodot"></ce:glyph>	undotted l.c. j
Cfl	00142	ł	crossed l.c. 1
Cfm	00141	Ł	crossed cap. L
Cfo	000F8	ø	small o, slashed
Cfp	000D8	Ø	capital O, slashed
Cfs	000DF	ß	es-zet (German)
Cfu	AAOOO	<pre>ª</pre>	a-underscore
Cfv	OOOBA	<pre>º</pre>	o-underscore
Cge	000A1	¡	inverted exclamation mark (Spanish)
Cgq	000BF	<pre>¿</pre>	inverted question mark (Spanish)
Cha	02135	<pre>ℵ</pre>	Aleph (Hebrew)
Chb	02136	<pre>ℶ</pre>	Beth (Hebrew)
Chc	02138	ℸ	Daleth (Hebrew)
Chd	02137	ℷ	Gimel (Hebrew)
Cjb	0212C	ℬ, ℬ, ℬ	B Bernoulli function
Cjh	0210B	<pre>ℋ,ℋ,</pre>	H Hamiltonian
-		ℋ	
Cjl	02112	<pre>ℒ, ℒ, ℒ</pre>	L Lagrangian
Cjm	02133	ℳ, ℳ, ℳ	M physics M-matrix
Cjo	1D4AA	𝒪	O order of
Pa0	002A1		glottal stop, barred (phonetic symbol)
Pa1	00294		glottal stop (phonetic symbol)
	0032A		subscript bridge (phonetic symbol)
Pa2	UU3ZA		

Position	Unicode	Entities / glyph	Description
Pa5	0033A		subscript bridge, turned (phonetic sym-
			bol)
Pa6	002BA		extra high, accent (phonetic symbol)
Pa7	002E5		extra high, symbol (phonetic symbol)
Pa8		<pre><ce:glyph name="ht"></ce:glyph></pre>	hooktop (phonetic symbol)
Paa	00061		lower-case a (phonetic symbol)
Pab	00062		lower-case b (phonetic symbol)
Pac	00063		lower-case c (phonetic symbol)
Pad	00064		lower-case d (phonetic symbol)
Pae	00065		lower-case e (phonetic symbol)
Paf	00066		lower-case f (phonetic symbol)
Pag	00261		lower-case 'script' g (phonetic symbol)
Pah	00068		lower-case h (phonetic symbol)
Pai	00069		lower-case i (phonetic symbol)
Paj	0006A	ȷ	lower-case j (phonetic symbol)
Pak	0006B		lower-case k (phonetic symbol)
Pal	0006C		lower-case l (phonetic symbol)
Pam	0006D		lower-case m (phonetic symbol)
Pan	0006E		lower-case n (phonetic symbol)
Pao	0006F		lower-case o (phonetic symbol)
Pap	00070		lower-case p (phonetic symbol)
Paq	00071		lower-case q (phonetic symbol)
Par	00072		lower-case r (phonetic symbol)
Pas	00073		lower-case s (phonetic symbol)
Pat	00074		lower-case t (phonetic symbol)
Pau	00075		lower-case u (phonetic symbol)
Pav	00076		lower-case v (phonetic symbol)
Paw	00077		lower-case w (phonetic symbol)
Pax	00078		lower-case x (phonetic symbol)
Pay	00079		lower-case y (phonetic symbol)
Paz	0007A		lower-case z (phonetic symbol)
Pb0	001BE		inverted glottal stop, crossed (phonetic symbol)
Pb1	00296		inverted glottal stop (phonetic symbol)
Pb2	002D4		raising sign (phonetic symbol)
Pb3	0032B		seagull, turned (phonetic symbol)
Pb4	001BB		crossed 2 (phonetic symbol)
Pb5	00336		bar (phonetic symbol)
Pb6		<pre><ce:glyph name="ggrave"></ce:glyph></pre>	extra low, accent (phonetic symbol)
Pb7	002E9		extra low, synbol (phonetic symbol)
Pb8		<ce:glyph name="ctl"></ce:glyph>	curly tail (phonetic symbol)
Pba	00250		turned a (phonetic symbol)
Pbb	00253		b hooktop (phonetic symbol)
Pbc	0010D	č	c wedge (phonetic symbol)
Pbd	00257		d hooktop (phonetic symbol)
Pbe	00259		schwa (phonetic symbol)
Pbg	00260		g hooktop (phonetic symbol)
Pbh	00127	ħ	crossed h (phonetic symbol)
Pbi	00268		barred i (phonetic symbol)
Pbj	001F0		j wedge (phonetic symbol)
Pbk	00199		k hooktop (phonetic symbol)
Pbl	0019A		barred l (phonetic symbol)

Position	Unicode	Entities / glyph	Description
Pbm	00271		m with leftward tail at right (phonetic
			symbol)
Pbn	000F1	ñ	tilde n (phonetic symbol)
Pbo	00298		bull's eye (phonetic symbol)
Pbp	000FE	þ	thorn (phonetic symbol)
Pbr	0027E		fish-hook r (phonetic symbol)
Pbs	00161	š	s wedge (phonetic symbol)
Pbt	001AB		left-hook t (phonetic symbol)
Pbu	00289		barred u (phonetic symbol)
Pbv	0028B		script v (phonetic symbol)
Pbw	0028D		inverted w (phonetic symbol)
Pbx	003C7	χ	chi (phonetic symbol)
Pby	0028E	`	turned y (phonetic symbol)
Pbz	0017E	ž	z wedge (phonetic symbol)
Pc0	002A2		glottal stop reversed, barred (phonetic
			symbol)
Pc1	00295		reversed glottal stop (phonetic symbol)
Pc2	002D5		lowering sign (phonetic symbol)
Pc3		<pre><ce:glyph name="sbw"></ce:glyph></pre>	subscript w (phonetic symbol)
Pc5	00335		cross, short horizontal line (phonetic
			symbol)
Pc6		<pre><ce:glyph name="hris"></ce:glyph></pre>	high rising, accent (phonetic symbol)
Pc7	002E6-002E5		high rising, symbol (phonetic symbol)
Pca	00251		script a (phonetic symbol)
Pcb	00299		small capital B (phonetic symbol)
Pcc	000E7	ç	c cedilla (phonetic symbol)
Pcd	00256		right-tail d (phonetic symbol)
Pce	0025A		right-hook schwa (phonetic symbol)
Pcg	00262		small capital G (phonetic symbol)
Pch	00266		h hooktop (phonetic symbol)
Pci	00269		iota (phonetic symbol)
Pcj	0025F		barred dotless j (phonetic symbol)
Pck	0029E		turned k (phonetic symbol)
Pcl	0026C		belted l (phonetic symbol)
Pcm	0026F		turned m (phonetic symbol)
Pen	00272		n with left tail at left (phonetic symbol)
Pco	00275		barred o (phonetic symbol)
Pcp	000DE	Þ	THORN (phonetic symbol)
Pcr	0027C		r with long leg (phonetic symbol)
Pcs	00282		s with right tail (phonetic symbol)
Pct	00288		t with right tail (phonetic symbol)
Pcu	0028A		upsilon (phonetic symbol)
Pcy	0028F		small capital Y (phonetic symbol)
Pcz	00291		curly-tail z (phonetic symbol)
Pd1	001C3		exclamation point (phonetic symbol)
Pd2	001C3		vertical stroke (superior) (phonetic
1 42	30200		symbol)
Pd3		<pre><ce:glyph name="hbar"></ce:glyph></pre>	horizontal bar (phonetic symbol)
Pd6		<pre><ce:glyph name="lris"></ce:glyph></pre>	low rising, accent (phonetic symbol)
Pd7	002E9-002E8		low rising, symbol (phonetic symbol)
Pda	00252		turned script a (phonetic symbol)
Pdb	003B2	β	beta (phonetic symbol)
Pdc	00255		curly-tail c (phonetic symbol)

Position	Unicode	Entities / glyph	Description
Pdd	002A4		d-Yogh ligature (phonetic symbol)
Pde	00258		reversed e (phonetic symbol)
Pdg	00263		gamma (phonetic symbol)
Pdh	00267		heng hooktop (phonetic symbol)
Pdi	0026A		small capital I (phonetic symbol)
Pdj	00284		dotless j, bar hooktop (phonetic sym-
j			bol)
Pdk		<pre><ce:glyph name="resmck"></ce:glyph></pre>	small capital K, reversed (phonetic
DAI	0006D		symbol)
Pdl Pdm	0026D		l with right tail (phonetic symbol)
	00270		turned m with long right leg (phonetic symbol)
Pdn	0014B	ŋ	eng (phonetic symbol)
Pdo	000F8	ø	slashed o (phonetic symbol)
Pdp	001A5		p hooktop (phonetic symbol)
Pdr	0027D		r with right tail (phonetic symbol)
Pds	00283		esh (phonetic symbol)
Pdt	002A7		t-esh ligature (phonetic symbol)
Pdu		<ce:small-caps>u</ce:small-caps>	small capital U (phonetic symbol)
Pdz	00290		z with right tail (phonetic symbol)
Pe1	001C0		pipe (phonetic symbol)
Pe2	002CC		vertical stroke (inferior) (phonetic
			symbol)
Pe3	0033C		seagull (phonetic symbol)
Pe6		<pre><ce:glyph name="risfla"></ce:glyph></pre>	rising-falling, accent (phonetic symbol)
Pe7	002E6-002E5- 002E6		rising-falling, symbol (phonetic symbol)
Pea	000E6	æ	ash (phonetic symbol)
Peb	00180		crossed b (phonetic symbol)
Pec	00297		stretched c (phonetic symbol)
Ped	000F0	<pre>ð</pre>	eth (phonetic symbol)
Pee		<ce:small-caps>e<td>small capital E (phonetic symbol)</td></ce:small-caps>	small capital E (phonetic symbol)
		caps>	
Peg	00264		baby gamma (phonetic symbol)
Peh	00265		turned h (phonetic symbol)
Pei	00131	<pre>ı, ı</pre>	i, undotted (phonetic symbol)
Pej	0029D		curly-tail j (phonetic symbol)
Pel	0026E		l-Yogh ligature (phonetic symbol)
Pem	0004D		capital M (phonetic symbol)
Pen	00273		n with right tail (phonetic symbol)
Peo	00153	œ	o-e ligature (phonetic symbol)
Pep	00278		phi (phonetic symbol)
Per	00279		turned r (phonetic symbol)
Pes	00286		curly-tail esh (phonetic symbol)
Pet	00287		turned t (phonetic symbol)
Pez	00292		yogh (phonetic symbol)
Pf1	0002F	/	slash (phonetic symbol)
Pf2	00329		syllabicity mark (phonetic symbol)
Pf3	00318		advanced tongue root (phonetic symbol)
Pf7	002E6		high, symbol (phonetic symbol)

Position	Unicode	Entities / glyph	Description
Pfa		<ce:small-caps>a<td>small capital A (phonetic symbol)</td></ce:small-caps>	small capital A (phonetic symbol)
		caps>	
Pfc	00188		c hooktop (phonetic symbol)
Pfd	000D0	Ð	ETH (phonetic symbol)
Pfe	0025B	<pre>ϵ, ϵ</pre>	epsilon (phonetic symbol)
Pfg	0029B		G small cap hooktop (phonetic symbol)
Pfh	0029C		capital H (phonetic symbol)
Pfj		<pre><ce:glyph name="jnodot"></ce:glyph></pre>	j, undotted (phonetic symbol)
Pfl	0004C		capital L (phonetic symbol)
Pfn	00274		small capital N (phonetic symbol)
Pfo	00276		small capital O-E ligature (phonetic symbol)
Pfr	0027B		turned r with right tail (phonetic symbol)
Pfs	001AA		esh reversed, top loop (phonetic symbol)
Pft	003B8	θ	theta (phonetic symbol)
Pfz	00293		curly-tail yogh (phonetic symbol)
Pg1	001C2		double-barred pipe (phonetic symbol)
Pg2	0031A		corner (phonetic symbol)
Pg3	00319		retracted tongue root (phonetic sym-
			bol)
Pg7	002E7		mid, symbol (phonetic symbol)
Pga	0028C		inverted v (phonetic symbol)
Pgd	00111	đ	crossed d (phonetic symbol)
Pge	0025C		reversed epsilon (phonetic symbol)
Pgh		<ce:glyph name="hrttrh"></ce:glyph>	turned h, hook right tail (phonetic symbol)
Pgl	003BB	λ	lambda (phonetic symbol)
Pgn	0019E		n, long right leg (phonetic symbol)
Pgo	00254		open o (phonetic symbol)
Pgr	0027A		turned longlegged r (phonetic symbol)
Pgt	001AD		t hooktop (phonetic symbol)
Pgz	001BA		yogh, bent tail (phonetic symbol)
Ph1	02260	<pre>≠, ≠</pre>	double-barred slash (phonetic symbol)
		-	(variant of Pg1)
Ph2	002D1		half-length mark (phonetic symbol)
Ph7	002E8		low, symbol (phonetic symbol)
Pha	00251-002DE		script a, right hook (phonetic symbol)
Phd	00110	Đ	crossed D (phonetic symbol)
Phe	0025D		right hook reversed epsilon (phonetic symbol)
Phh	00195		h-v ligature (phonetic symbol)
Phl	0019B		lambda, crossed (phonetic symbol)
Phn		<pre><ce:glyph name="ncurt"></ce:glyph></pre>	curly-tail n (phonetic symbol)
Pho	003C9	ω	lower-case omega (phonetic symbol)
Phr	00280		small capital R (phonetic symbol)
Pht		<pre><ce:glyph name="tcurt"></ce:glyph></pre>	curly-tail t (phonetic symbol)
Pi1	001C1		double Pipe (phonetic symbol)
Pi2	002D0		length mark (phonetic symbol)
Pi7	002E9-002E5		rising, symbol (phonetic symbol)
Pid		<ce:glyph name="dcurt"></ce:glyph>	curly-tail d (phonetic symbol)

Position	Unicode	Entities / glyph	Description
Pie	0025E		closed reversed epsilon (phonetic sym-
			bol)
Pih		<ce:glyph name="heng"></ce:glyph>	heng (phonetic symbol)
Pio	00277		closed omega (phonetic symbol)
Pir	00281		inverted small capital R (phonetic sym-
			bol)
Pj1		<pre><ce:glyph name="pSlash"></ce:glyph></pre>	double Slash (phonetic symbol) (vari-
D:0			ant of Pi1)
Pj2	002BC		apostrophe (phonetic symbol)
Pj7	002E5-002E9		falling, symbol (phonetic symbol)
Pje	0025B-002DE		epsilon, upper right hook (phonetic symbol)
Pjo	00254-002DE		open o, upper right hook (phonetic
-			symbol)
Pjr	0027F		fish-hook r, reversed (phonetic symbol)
Pk1		<pre><ce:glyph name="trisla"></ce:glyph></pre>	triple Slash (phonetic symbol)
Pk2	002BD		reversed apostrophe (phonetic symbol)
Pko		<pre><ce:glyph name="trnomeg"></ce:glyph></pre>	inverted omega (phonetic symbol)
Pkr	00285		reversed fish-hook r, right tail (phonetic
			symbol)
P11	0005C	<pre>\</pre>	small backslash (phonetic symbol)
P12	002BB		turned comma (phonetic symbol)
Plr		<pre><ce:glyph name="refhrl"></ce:glyph></pre>	reversed fish-hook r, long leg (phonetic
			symbol) (variant of Pjr)
Pm2	002D3		left half-ring (phonetic symbol)
Pn2	002D2		right half-ring (phonetic symbol)
Po2	00321		palatization hook (phonetic symbol)
Pp2	00322		right hook (phonetic symbol)
Pq2	00311	̑	round cap (phonetic symbol)
Pq3	0033D		mid centralized (phonetic symbol)
Pr2	0032F		subscript arch (phonetic symbol)
Ps2	00361		top ligature (phonetic symbol)
Pt2		<pre><ce:glyph name="btmlig"></ce:glyph></pre>	bottom ligature (phonetic symbol)

# 4 Character entities, ordered by entity

In the following table we list: 1. the DTD4 entity name, 2. the Unicode point, 3. the valid entity names for this Unicode point. See section 3 for remarks about column 3.

DTD4 entity	Unicode	Entities / glyph
Æ	000C6	Æ
⩓	02A55	<pre>⩕</pre>
⌆	02A5E	&z.Barwed
Б	00411	Б
⋒	022D2	⋒
∷	02237	∷, ∷
⋓	022D3	⋓
‡	02021	‡,‡,‡
Д	00414	Д
Δ	00394	Δ
⃜	020DC	⃜
Ð	000D0	Ð
Э	0042D	Э
Ф	00424	Ф
Γ	00393	Γ
Г	00413	Г
⋙	022D9	⋙, ⋙
≫	02AA2	⪢
Ъ	0042A	Ъ
И	00418	И
Й	00419	Й
Х	00427	Ч
К	0041A	К
Λ	0039B	Λ
↞	0219E	↞, ↞
Л	0041B	Л
&L1	022D8	&L1
≪	02AA1	⪡
wHo; &Мар;	02905	⤅
Œ	00152	Œ
Ω	003A9	Ω
⩔	02A56	⩖
Ø	000D8	Ø
П	0041F	П
Φ	003A6	Φ
Π	003A0	Π
″	02033	″
&Frime, Ψ	02033 003A8	Ψ
&FSI, ↠	021A0	↠,↠
	00429	
Щ Ш	00429	&SHCHсу; &SHсу;
•		
Ь	0042C	Ь
Σ	003A3	Σ
⋐	022D0	⋐, ⋐
⋑	022D1	⋑, ⋑
Þ	000DE	Þ
Ц	00426	Ц

DTD4 entity	Unicode	Entities / glyph
Θ	00398	Θ
У	00423	У
ϒ	003D2	ϒ
⊫	022AB	⊫
⫫	02AEB	⫫
⊩	022A9	⊩
⊪	022AA	⊪
Ξ	0039E	Ξ
Я	0042F	Я
Ю	0042E	Ю
Ы	0042B	Ы
Ж	00416	Ж
З	00417	З
&acoint	02233	<pre>∳, ∳</pre>
´	00301	<del></del>
æ	000E6	æ
ℵ	02135	ℵ
α	003B1	α
⨿	02A3F	⨿
<pre>&amp;</pre>	00026	&
∧	02227	<pre>%and;, ∧</pre>
&ang90	0299C	&z.ang90
∠	02220	<pre>%ang;, ∠</pre>
∡	02221	<pre>%angmsd;, ∡</pre>
∢	02222	∢
%ap;	02248	<pre>%ap;, ≈, ≈, ≈, ≈,</pre>
<sub>F</sub> ,		≈
<pre>≊</pre>	0224A	<pre>%ape;, ≊</pre>
<pre>≋</pre>	0224B	%apid;
<pre>*</pre>	0204E	
<pre>≈</pre>	0224D	<pre>≍, ≍</pre>
⌅	022BC	<pre>⌅, ⌅</pre>
≌	0224C	≌, ≌
б	00431	б
∵	02235	∵, ∵, ∵
β	003B2	β
ℶ	02136	ℶ
⋈	02100 022C8	⋈
&bowtle, ‵	02035	‵, ‵
˘	00306	
˘, ¦	000A6	¦
¦, ∽	0223D	∽, ∽
⋍	022SD 022CD	⋍, ⋍
⋍, •	02022	•, •
&burn	02022 0224E	≎, ≎, ≎
≎	0224E 0224F	≏, ≏, ≏
∩	0224F	
∩, ˇ	0030C	∩ 
ˇ, &ccoint	02232	<pre>∲, ∲</pre>
&ccoint ¸	00327	" worderwisecomount integral,
		- rcont:
¢	000A2	¢
✓	02713	<pre>✓, ✓</pre>
χ	003C7	χ

DTD4 entity	Unicode	Entities / glyph
<pre>○</pre>	025CB	○
ˆ	00302	
≗	02257	≗,≗
♣	02663	♣, ♣
≔	02254	<pre>≔, ≔, ≔</pre>
∁	00297	
<pre>∘</pre>	02218	<pre>∘, ∘</pre>
≅	02245	<pre>≅, ≅</pre>
<pre>∮</pre>	0222E	<pre>∮, ∮, ∮</pre>
∐	02210	<pre>∐, ∐</pre>
©	000A9	©
<pre>⋯</pre>	022EF	<pre>⋯</pre>
⋞	022DE	<pre>⋞, ⋞</pre>
⋟	022DF	<pre>⋟, ⋟</pre>
<pre>↶</pre>	021B6	<pre>↶,↶</pre>
∪	0222A	∪
↷	021B7	↷,↷
⋎	022CE	⋎, ⋎
⋏	022CF	⋏, ⋏
∱	02231	∱
⇓	021D3	⇓, ⇓, ⇓
†	02020	†, †
ℸ	02138	ℸ
&darr2	021CA	⇊,⇊
↓	02193	↓, ↓, ↓, ↓
⊣	022A3	⊣, ⊣
˝	0030B	
д	00434	д
°	000B0	°
δ	003B4	δ
⇃	021C3	⇃, ⇃, ⇃
⇂	021C2	⇂, ⇂, ⇂
⋄	02662	&z.diam
♦	02666	♦, ♦
÷	000F7	÷, ÷
⋇	022C7	⋇, ⋇
⌞	0231E	⌞, ⌞
&dminus	02A2A	⨪
&doplus	02A25	⨥
˙	00307	~p, 
⌟	0231F	⌟, ⌟
⌟, ⋱	02311 022F1	⋱
⋱, ▿	025BF	▿,▿
▾	025BE	▾, ▿
&dtlll ⩷	025BE 02A77	⩷, ⩷
⩷	02251	⩷, ⩷, ≑, ≑
жерог; ≖	02251	≑, &dotequot ≖, ≖
≖ ≕	02256	<del>-</del>
		≕ ≕
э	0044D	э
<pre>ė</pre>	02250	<pre>≐, ≐, ≐ %afDat; %fallingdatagg;</pre>
<pre>≒</pre>	02252	<pre>%efDot;, ≒</pre>
⪖	02A96	&z.egs
ℓ	02113	ℓ, 𝓁

DTD4 entity	Unicode	Entities / glyph
<pre>⪕</pre>	02A95	&z.els
<pre>∅</pre>	02205	<pre>∅, ∅, ∅, ∅</pre>
<pre>∅</pre>	02205	<pre>∅, ∅, ∅, ∅</pre>
ε	003F5	&z.epsi
ϵ	003B5	<pre>&amp;z.epsiv, ε, ϵ</pre>
≟	0225F	<pre>≟, ≟</pre>
<pre>≡</pre>	02261	<pre>≡, ≡</pre>
<pre>≓</pre>	02253	<pre>≓, ≓</pre>
<pre>≂</pre>	02242	<pre>≂, ≂, ≂</pre>
<pre>η</pre>	003B7	η
<pre>ð</pre>	000F0	<pre>ð</pre>
€	020AC	&z.euro
<pre>∃</pre>	02203	<pre>∃, ∃</pre>
ф	00444	ф
♀	02640	♀
<pre>♭</pre>	0266D	♭
∀	02200	∀, ∀
⋔	022D4	<pre>⋔, ⋔</pre>
⌢	02322	⌢
≧	02267	<pre>≧, ≧, ≧</pre>
⪌	02A8C	&z.gEl
γ	003B3	γ
ϝ	003DD	&z.gammad
⪆	02A86	&z.gap
г	00433	г
ġ	022D7	⋗, ⋗
≥	02265	≥, ≥, ≥
⋛	022DB	⋛, ⪌, ⋛, ⋛, &gtre-
		qqless;
⩾	02A7E	<pre>⩾, ⩾, ⩾</pre>
ℷ	02137	ℷ
%gl;	02277	≷, ≷, ≷
≩	02269	≩, ⪈, ⪈, ≩
⪊	02A8A	<pre>⪊, ⪊</pre>
⪈	02A88	&z.gne
⋧	022E7	⋧
`	00300	
≳	02273	<pre>≳, ⪆, ≳, ⪆, ≳</pre>
<pre>ъ</pre>	0044A	ъ
<pre>↔</pre>	02194	<pre>↔, ↔, ↔</pre>
<pre>↭</pre>	021AD	<pre>↭, ↭</pre>
<pre>♥</pre>	02665	&z.hearts
…	02026	…, …
⊹	022B9	⊹
&homthr	0223B	∻
<pre>и</pre>	00438	и
<pre>¡</pre>	000A1	¡
<pre>⇔</pre>	021D4	⇔, ⇔, ⇔, &Leftrightar-
0-1-1	02000	row;
⧜	029DC	⧜
℩	02129	℩
⊷	022B7	⊷
∞	0221E	∞

DTD4 entity	Unicode	Entities / glyph
ı	00131	<pre>ı,ı</pre>
<pre>∫</pre>	0222B	<pre>∫, ∫</pre>
<pre>⊺</pre>	022A4	<pre>⊤, ⊤</pre>
ι	003B9	ι
<pre>⨼</pre>	02A3C	<pre>⨼, ⨼</pre>
<pre>¿</pre>	000BF	<pre>¿</pre>
<pre>∈</pre>	02208	<pre>∈, ∈, ∈, ∈</pre>
й	00439	й
&jnodot	0E2D4	<pre><ce:glyph name="jnodot"></ce:glyph></pre>
κ	003BA	κ
ϰ	003F0	ϰ,ϰ
к	0043A	к
х	00447	ч
<pre>⇚</pre>	021DA	<pre>⇚, ⇚</pre>
<pre>⇐</pre>	021D0	<pre>⇐, ⇐, ⇐</pre>
<pre>&amp;1E;</pre>	02266	<pre>≦, ≦, ≦</pre>
<pre>⪋</pre>	02A8B	&z.lEg
<pre>λ</pre>	003BB	λ
<pre>⟨</pre>	02329	<pre>⟨, ⟨, ⟨</pre>
<pre>⪅</pre>	02A85	&z.lap
«	000AB	«
&larr2	021C7	⇇, ⇇
<pre>←</pre>	02190	<pre>←, ←, ←, ←, &amp;ShortLeft-</pre>
		Arrow;
<pre>↩</pre>	021A9	<pre>↩,↩</pre>
<pre>↫</pre>	021AB	<pre>↫, ↫</pre>
↢	021A2	<pre>↢,↢</pre>
<pre>⌈</pre>	02308	<pre>⌈, ⌈</pre>
<pre>л</pre>	0043B	л
<pre>&amp;ldot</pre>	022D6	<pre>⋖, ⋖</pre>
"	0201C	<pre>“, “</pre>
≤	02264	<pre>≤, ≤</pre>
⋚	022DA	<pre>⋚, ⪋, ⋚, ⪋, &amp;LessEqual-</pre>
		Greater;
⩽	02A7D	<pre>⩽, ⩽, ⩽</pre>
⥼	0297C	⥼
⌊	0230A	<pre>⌊, ⌊</pre>
≶	02276	<pre>≶, ≶, ≶</pre>
<pre>↽</pre>	021BD	<pre>↽, ↽, ↽</pre>
↼	021BC	<pre>↼, ↼, ↼</pre>
<pre>≨</pre>	02268	<pre>≨, ⪇, ⪇, ≨</pre>
<pre>⪉</pre>	02A89	<pre>⪉, ⪉</pre>
⪇	02A87	&z.lne
⋦	022E6	⋦
<pre>⟬</pre>	02985	⦅
⟦	0301A	<pre>⟦, ⟦</pre>
<pre>◊</pre>	025CA	<pre>◊, ◊</pre>
<pre>⧫</pre>		<pre><ce:glyph name="lozf"></ce:glyph></pre>
<pre>⦓</pre>	02993	⦓
&lrarr2	021C6	⇆, ⇆, ⇆
<pre>&amp;lrhar2</pre>	021CB	⇋, ⇋, ⇋
↰	021B0	↰,↰
≲	02272	<pre>≲, ⪅, ⪅, ≲, ≲</pre>

DTD4 entity	Unicode	Entities / glyph
'	02018	', '
<pre>&lt;</pre>	0003C	<
<pre>⋋</pre>	022CB	<pre>⋋, ⋋</pre>
<pre>⋉</pre>	022C9	⋉
◃	025C1	&z.ltri
⊴	022B4	<pre>⊴, ⊴, ⊴</pre>
<pre>◂</pre>	025C0	&z.ltrif
∺	0223A	∺
¯	00304	·
♂	02642	♂
✠	02720	✠, ✠
↦	021A6	<pre>↦, ↦, ↦</pre>
м	0043C	м
—	02014	—
∣	02223	<pre>∣, ∣, ∣, ∣</pre>
·	000B7	<pre>%middot;, ·, ·</pre>
−	02212	−
⊟	0229F	⊟, ⊟
∸	02238	∸, ∸
∓	02213	∓,∓,∓
μ	003BC	μ
⊸	022B8	⊸,⊸
⊯	022AF	⊯
⊮	022AE	⊮
∇	02207	∇, ∇
≉	02249	<pre>∇,, wbol, ≉, ≉, ≉</pre>
≋̸	0224B-00338	<pre>%napid;</pre>
♮	0266E	<pre>♮, ♮</pre>
	000A0	,
≇	02247	≇, ≇
н	0043D	н
–	02013	–
≠	02260	≠, ≠
⤤	02924	⤤
↗	02197	↗,↗,↗
	02262	≢, ≢
≢	02928	
⤨ ∄	02926	<pre>⤨, ⤨ ∄, ∄, ∄</pre>
•	02267-00338	&z.ngE
≧̸	02271	&z.nge, ≱,≱,≱
≱		<pre>≱, ≱, ≱ ≱, ≱, ≱</pre>
⩾̸	02271	
≯	0226F	<pre>≯, &gt;⃒, ≯, ≯</pre>
⇎	021CE	⇎,⤄,⇎
↮	021F9	&z.nharr
∋	0220B	∋, ∋, ∋, ∋
⇍	021CD	⇍, ⤂, ⇍
≦̸	02266-00338	&z.nlE
↚	0219A	↚, ↚
≰	02270	≰, ≰, ≰
⩽̸	02270	≰, ≰, ≰
≮	0226E	≮, <⃒, ≮, ≮
⋪	022EA	<pre>⋪, ⋪, ⋪</pre>
⋬	022EC	<pre>⋬, ⋬, ⋬</pre>

DTD4 entity	Unicode	Entities / glyph	
∤	02224	<pre>∤, ∤, ∤, ∤</pre>	
¬	OOOAC	<pre>¬</pre>	
<pre>∉</pre>	02209	∉, ∉, ∉	
<pre>∌</pre>	0220C	<pre>∌, ∌, ∌</pre>	
∦	02226	<pre>∦, ∦, ∦, ∦, ∦</pre>	
⊀	02280	&nshortpararrer, ⊀, ⊀, ⊀	
⊀	02AAF-00338	⪯̸, ⪯̸, ⪯̸	
⇏	021CF	⇏, ⤃, ⇏	
↛	0210F 0219B	↛, ↛	
⋫	0215B 022EB	<pre>⋫, ⋫, ⋫</pre>	
⋭	022ED	⋭, ⋭, &ntriang-	
will offe,	022DD	lerighteq;	
⊁	02281	⊁, ⊁, ⊁	
⪰̸	02AB0-00338	⪰̸, ⪰̸, ⪰̸	
≁	02241	≁, ≁	
≄	02244	≄, ≄, ≄	
∤	OE2AA	<pre><ce:glyph name="nsmid"></ce:glyph></pre>	
∤ ∦	OE2AB	<pre><ce:glyph name="nsmru"></ce:glyph> <ce:glyph name="nspar"></ce:glyph></pre>	
∦, ⊄	02284	⊄, ⊂⃒, ⊂⃒, ⊂⃒	
⫅̸	02AC5-00338	&z.nsubE	
⊈	02288	<pre>&amp;z.nsubE ⊈, ⫅̸, ⊈, ⊈,</pre>	
ansube,	02200	⫅̸	
fra gun :	02285	⫅̸, ⊅, ⊃⃒, ⊃⃒, ⊃⃒	
⊅	02AC6-00338	⊅,, ⊃⃒,, &wotsuperset,, ⊃⃒, &z.nsupE	
⫆̸			
⊉	02289	<pre>⊉, ⫆̸, ⊉, ⊉, %nsupgeteqs;</pre>	
fran .	003BD	⫆̸	
ν ⊭	022AD	ν ⊭	
⊬	022AC	⊬	
⤣	02923	⤣	
&nwarn	02196	↖,↖,↖	
↖	02927	⤧	
⊛	02327 0229B	&nwhear, ⊛,⊛	
⊚	0229A	⊚,⊚	
&odii,	0229D	⊝, ⊝	
&odasii, ⊙	02299	<pre>&amp;oddsin,, &amp;clicleddasin, ⊙, ⨀, ⨀, ⊙</pre>	
⊙, œ	00153	⊙,, &kodot,, ⨀,, &circlebot, &colig	
˛	00328		
↺	02940	&z.olarr	
&onega	003C9	&Z.Ulaii, ω	
ω, &omicr	003BF	&z.omicr	
&omici, ⊖	02296	&Z.Omici, ⊖,⊖	
⊖, ⊕	02295	⊖,, &circleHinus, ⊕, ⨁, ⨁, ⊕	
=	02233		
<pre>∨ ↻</pre>	02228	∨,∨ &z.orarr	
•	02941 022B6		
<pre>⊶ ø</pre>	022B6 000F8	<pre>⊶ ø</pre>	
⊘	02298	⊘	
⊗	02297	⊗, ⨂, ⨂, ⊗	
⌽	029B6	⦶	
<pre>∥</pre>	02225	<pre>∥, ∥, ∥, ∥, ∥</pre>	

DTD4 entity	Unicode	Entities / glyph	
¶	000B6	¶	
<pre>∂</pre>	02202	<pre>∂, ∂</pre>	
п	0043F	п	
‰	02030	‰	
⊥	022A5	<pre>⊥, ⊥, ⊥, ⊥</pre>	
&ph.OElig	00276		
&ph.iota	00269		
&ph.lsquo	002BB		
&ph.odot	00298		
&ph.rsquo	002BC		
&ph.urcorn	0031A		
<pre>φ</pre>	003D5	<pre>φ, ϕ</pre>	
<pre>ϕ</pre>	003C6	<pre>ϕ, ϕ</pre>	
☎	0260E	☎	
π	003C0	π	
ϖ	003D6	ϖ,ϖ	
ℏ	0210F	ℏ, ℏ, ℏ, ℏ	
⊞	0229E	⊞, ⊞	
∔	02214	∔, ∔	
±	000B1	±, ±, ±	
£	000A3	£	
≺	0227A	≺, ≺, ≺	
⪷	02AB7	&z.prap	
≼	0227C	≼, ≼, ≼	
⪯	02AAF	⪯, ⪳, ⪯, ⪯	
′	02032	′	
⪵	02AB5	⪵, ⪵	
⪹	02AB9	&z.prnap	
⋨	022E8	⋨, ⪹, ⪹, ⋨	
∏	0220F	∏, ∏	
∝	0221D	<pre>∝, ∝, ∝, ∝, ∝</pre>	
<pre>≾</pre>	0227E	<pre>≾, ⪷, ⪴, ⪷, ≾,</pre>	
	00000	≾	
ψ	003C8	ψ	
	02008		
⇛	021DB	⇛, ⇛	
⇒	021D2	⇒, ⇒, ⇒, ⇒	
√	0221A	√, √	
⟩	0232A	<pre>⟩, ⟩, ⟩</pre>	
»	000BB	»	
&rarr2	021C9	⇉, ⇉	
→	02192	<pre>→, →, →, →, &amp;Short- RightArrow;</pre>	
↪	021AA	↪,↪	
↬	021AC	↬, ↬	
↣	021A3	↣, ⤚, ↣	
↝	021DD	⇝	
⌉	02309	&zigraff ⌉,⌉	
"	0201D	",","	
▭	025AD	», &raquor, &crosecurryDoubleQuote ▭	
®	000AE	®, ®	
⥽	0297D	⥽	
⌋	0230B	⌋, ⌋	

DTD4 entity	Unicode	Entities / glyph		
⇁	021C1	<pre>⇁, ⇁, ⇁</pre>		
⇀	021C0	<pre>⇀, ⇀, ⇀</pre>		
ρ	003C1	ρ		
ϱ	003F1	ϱ, ϱ		
˚	0030A			
&rlarr2	021C4	<pre>⇄, ⇄, ⇄</pre>		
&rlhar2	021CC	<pre>⇌, ⇌, ⇌</pre>		
⟭	02986	⦆		
⟧	0301B	<pre>⟧, ⟧</pre>		
<pre>⦔</pre>	02994	⦔		
↱	021B1	↱, ↱		
'	02019	',','		
⋌	022CC	<pre>⋌, ⋌</pre>		
⋊	022CA	⋊		
▹	025B7	&z.rtri		
⊵	022B5	<pre>⊵, ⊵, ⊵</pre>		
<pre>▸</pre>	025B6	&z.rtrif		
≻	0227B	≻, ≻, ≻		
⪸	02AB8	&z.scap		
≽	0227D	≽, ⪰, ≽, ⪰, &Suc-		
		<pre>ceedsSlantEqual;, ⪰</pre>		
⪰	02AB0	&z.sce		
⪶	02AB6	⪶, ⪶		
⪺	02ABA	&z.scnap		
⋩	022E9	⋩, ⪺, ⪺, ⋩		
≿	0227F	≿, ⪸, ⪸, ≿, &succ-		
		sim;		
⤥	02925	<pre>⤥, ⤥</pre>		
↘	02198	<pre>↘, ↘, ↘</pre>		
§	000A7	§		
⤩	02929	⤩, ⤩		
♯	0266F	♯		
щ	00449	щ		
ш	00448	ш		
σ	003C3	σ		
ς	003C2	ς, ς		
∼	0223C	∼, ∼, ∼		
≃	02243	<pre>≃, ≃, ≃</pre>		
⪞	02A9E	⪞		
<pre>⪝</pre>	02A9D	⪝		
∣	0E301	<pre><ce:glyph name="smid"></ce:glyph></pre>		
⌣	02323	⌣		
ь	0044C	ь		
♠	02660	♠, ♠		
∥	0E302	<pre><ce:glyph name="spar"></ce:glyph></pre>		
⊓	02293	⊓, ⊓		
⊔	02294	⊔, ⨆, ⨆, ⊔		
⊏	0228F	<pre>⊏, ⊏, ⊏</pre>		
⊑	02291	⊑, ⊑, ⊑		
⊐	02290	<pre>⊐, ⊐, ⊐</pre>		
⊒	02292	⊒, ⊒, ⊒		
□	025A1	□, □, □		
▪	025A0	&z.squf		

DTD4 entity	Unicode	Entities / glyph		
⋆	022C6	⋆, ☆, ⋆		
☆	02606	&z.star		
<pre>★</pre>	02605	★, ★		
⊂	02282	⊂, ⊂		
⫅	02AC5	&z.subE		
⊆	02286	⊆, ⫅, ⊆, ⫅, ⊆		
⫋	02ACB	&z.subnE		
⊊	0228A	⊊, ⫋, ⊊, ⫋		
∑	02211	∑, ∑		
⊃	02283	⊃, ⊃, ⊃		
⫆	02AC6	&z.supE		
⊇	02287	⊇, ⫆, ⊇, ⊇,		
_		⫆		
⫌	02ACC	&z.supnE		
⊋	0228B	⊋, ⫌, ⊋, ⫌		
⤦	02926	⤦, ⤦		
↙	02199	↙, ↙, ↙		
⤪	0292A	⤪		
ß	000DF	ß		
τ	003C4	τ		
т	00442	т		
∴	02234	∴, ∴, ∴		
θ	003B8	θ		
ϑ	003D1	&thetay, ϑ		
þ	000FE	þ		
˜	00303			
<pre>×</pre>	000D7	×		
⊠	022A0	⊠, ⊠		
‴	02034	‴		
™	02122	™		
≜	0225C	<pre>≜, ≜</pre>		
ц	00446	ц		
≬	0226C	ц, ≬,≬		
⇑	021D1	<pre>&amp;uWIRU,, wBetween, ⇑, ⇑, ⇑</pre>		
&uarr2	021C8	⇈, ⇈		
↑	02191	<pre>⇅, &amp;dpuparrows, ↑, ↑, ↑, ↑</pre>		
↿	021BF	↑,, &Shortoparrow,, &oparrow,, ↑, &uharrow, ↿, ↿		
↾	021BE	↾, ↾, ↾		
⌜	0231C	⌜, ⌜		
¨	00308			
⊎	0228E	⊎, ⨄, ⨄, ⊎		
υ	003C5	υ, υ		
⌝	0231D	⌝, ⌝		
▵	025B5	▵,▵		
<pre>▴</pre>	025B4	<pre>▴, ▵ ▴, ▴</pre>		
⇕	021D5	⇕, ⇕, ⇕		
⊨	022A8	⊨, ⊨		
↕	02195	↕, ↕, ↕		
в	00432	&vari,, &opbownariow,, &updownariow, в		
⊢	022A2	в, ⊢,⊢		
⊻	022BB	⊻		
≙	02259	≙		
<pre>℘</pre>	02118	<pre>≙ ℘,℘</pre>		

<pre>≀ 02240</pre>	
⋂ 022C2 ⋂, ⋂, ⋂	
⋃ 022C3 ⋃, ⋃, ⋃	
▽ 025BD ▽,▽	
ξ 003BE ξ	
⨆ 02A06 &z.xsqcup	
⨄ 02A04 &z.xuplus	
△ 025B3 △,△	
⋁ 022C1 ⋁, ⋁, ⋁	
⋀ 022C0 ⋀,⋀,⋀	
я 0044F я	
ы 0044B ы	
¥ 000A5 ¥	
ю 0044E ю	
&z.And 02A53 ⩓	
&z.Barpip 001C2	
&z.Cint 02AOD ⨍	
&z.Ehac 0225A ≚	
&z.Gt 0226B ≫, ≫, ≫	
&z.Inf 02A07 &z.Inf	
&z.Lap 029CA &z.Lap	
&z.Lt 0226A ≪, ≪, ≪	
&z.Or 02A54 ⩔	
&z.Rlarr 02942 &z.Rlarr	
&z.S 0E659 <ce:glyph name="S"></ce:glyph>	
&z.Sup 02A08 &z.Sup	
&z.Theta 003F4 &z.Theta	
&z.Thr 02A05 &z.Thr	
&z.Times 02A2F ⨯	
&z.Trkhk 00326	
&z.aacute 002BA	
&z.archs 0032F	
&z.arrdl 02936 ⤶	
&z.arrdr 02937 ⤷	
&z.atr 00318	
&z.ausco 000AA ª	
&z.bar 00336	
&z.betav 003D0 &z.betav	
<pre>&amp;z.bigdot 0E626</pre>	
&z.btdl 0026C	
<pre>&amp;z.btmlig 0E64C <ce:glyph name="btmlig"></ce:glyph></pre>	
&z.btyogh 001BA	
&z.camb 0E624 <ce:glyph name="camb"></ce:glyph>	
&z.cansls 00338	
&z.ccirf 022C5 ⋅	
&z.cirf 025CF &z.cirf	
&z.cirfb 025D2 &z.cirfb	
&z.cirfl 025D0 &z.cirfl	
&z.cirfr 025D1 &z.cirfr	
&z.cirft 025D3 &z.cirft	
&z.clomeg 00277	
&z.crepsv 0025E	
&z.ctl 0E630 <ce:glyph name="ctl"></ce:glyph>	

DTD4 entity	Unicode	Entities / glyph
&z.dbnd6	0E605	<ce:glyph name="dbnd6"></ce:glyph>
&z.dbnd	0E5FB	<ce:glyph name="dbnd"></ce:glyph>
&z.dcurt	0E641	<pre><ce:glyph name="dcurt"></ce:glyph></pre>
&z.ddfnc	02999	&z.ddfnc
&z.defas	029CB	&z.defas
&z.dfnc	02016	‖, ‖
&z.dlcorn	0EC02	<pre><ce:glyph name="dlcorn"></ce:glyph></pre>
&z.drcorn	OEC01	<pre><ce:glyph name="drcorn"></ce:glyph></pre>
&z.drule	029F9	&z.drule
&z.dshfnc	02506	&z.dshfnc
&z.duarr	021F5	<pre>⇵, ⇵</pre>
&z.duhar2	0296F	⥯, ⥯
&z.dyogh	002A4	<del></del>
&z.eint	02A10	⨐
&z.eng	0014B	%eng;
&z.esh	00283	
&z.fals	002E5-002E9	
&z.fhr	0027E	
&z.ggrave	0E680	<pre><ce:glyph name="ggrave"></ce:glyph></pre>
&z.glst	00294	
&z.gull	0033C	
&z.hbar	0E634	<pre><ce:glyph name="hbar"></ce:glyph></pre>
&z.heng	0E642	<pre><ce:glyph name="heng"></ce:glyph></pre>
&z.herma	0E5BC	<pre><ce:glyph name="herma"></ce:glyph></pre>
&z.hex	02394	&z.hex
&z.hfl	00192	&z.hfl, ƒ
&z.highs	002E6	
&z.hlmrk	002D1	
&z.hris	0E632	<pre><ce:glyph name="hris"></ce:glyph></pre>
&z.hriss	002E6-002E5	
&z.hrttrh	0E63C	<pre><ce:glyph name="hrttrh"></ce:glyph></pre>
&z.ht	0E62D	<pre><ce:glyph name="ht"></ce:glyph></pre>
&z.hvlig	00195	
&z.inglst	00296	
&z.ingist,	0028C	
•	0028D	
&z.invw	02643	kg iun:
&z.jup &z.lam	02043 0033B	&z.jup 
&z.lbd2bd	0E5E8	<pre><ce:glyph name="lbd2bd"></ce:glyph></pre>
&z.1bd2bd &z.1bd2td	0E5E7	<pre><ce:glyph name="lbd2td"></ce:glyph></pre>
&z.1bdzta &z.1bond2	0E60B	<pre><ce:glyph name="lbond2"></ce:glyph></pre>
&z.1bond2 &z.1bond3	0E609	<pre><ce:glyph name="lbond3"></ce:glyph></pre>
	0300A	
&z.ldang	002D0	⟪
&z.lmrk		
&z.low	002D5	
&z.lows	002E8	Coord with name-"logf]"/>
&z.lozfl	OE5B9	<pre><ce:glyph name="lozf1"></ce:glyph> <co:glyph name="lozfr"></co:glyph></pre>
&z.lozfr	0E5BA	<pre><ce:glyph name="lozfr"></ce:glyph> %z lporgt;</pre>
&z.lpargt	029A0	&z.lpargt
&z.lris	0E635	<pre><ce:glyph name="lris"></ce:glyph></pre>
&z.lriss	002E9-002E8	0 3
&z.lsquo	02039	&z.lsquo
&z.ltlmr	00271	<del></del>

DTD4 entity	Unicode	Entities / glyph	
&z.ltln	00272		
&z.ltril	022B2	<pre>⊲, ⊲, ⊲</pre>	
&z.lyogh	0026E		
&z.mdc	0033D		
&z.merc	0263F	&z.merc	
&z.mho	02127	℧	
&z.mids	002E7		
<pre>&amp;z.minhat</pre>	02A5F	⩟	
&z.mstpos	0223E	∾	
<pre>&amp;z.nasymp</pre>	0226D	≭	
&z.nbump	0224E-00338	≎̸, ≎̸	
&z.ncurt	0E63E	<ce:glyph name="ncurt"></ce:glyph>	
&z.nept	02646	&z.nept	
&z.nesim	02242-020D2	&z.nesim	
&z.nglpar	02993	⦓	
&z.ngtneq	02275	≵, ≵	
&z.ngtnlt	02279	≹,≹	
&z.nlr	0019E		
&z.nltneq	02274	≴, ≴	
&z.nltngt	02278	<pre>≸, ≸</pre>	
&z.nrarrc	02933-00338	⤳̸	
&z.nsubE	0228A-0FE00	⫋︀, ⊊︀, ⊊︀, ⫋︀	
&z.nsubne	0228A-0FE00	⫋︀, ⊊︀, ⊊︀	
&z.nsupE	0228B-0FE00	⫌︀, ⊋︀, ⊋︀, ⫌︀	
&z.nsupne	0228B-0FE00	⫌︀, ⊋︀, ⊋︀, ⫌︀	
&z.odiv	02A38	⨸	
&z.openo	00254		
&z.oplusl	02A2D	⨭	
&z.oplusr	02A2E	⨮	
&z.otimsl	02A34	⨴	
&z.otimsr	02A35	⨵	
&z.ousco	OOOBA	%ordm;	
&z.pSlash	0E643	<pre><ce:glyph name="pSlash"></ce:glyph></pre>	
&z.pa	00061		
&z.palh	00321		
&z.parl	025B1	&z.parl	
&z.pbgam	00264		
&z.pdbdbd	02393	&z.pdbdbd	
&z.pdbdtd	0E5F4	<pre><ce:glyph name="pdbdtd"></ce:glyph></pre>	
&z.pdbond	0E5F9	<pre><ce:glyph name="pdbond"></ce:glyph></pre>	
&z.pent	0E5F2	<pre><ce:glyph name="pent"></ce:glyph></pre>	
&z.pes	020A7	&z.pes	
&z.pg	00261		
&z.pgamma	00263		
&z.phktp	001A5		
&z.plims	029B5	⦵	
&z.ppcnt	02031	‱	
&z.pphi	00278	,	
&z.pscra	00251		
&z.pscrv	0028B		
&z.ptbdbd	0E5F7	<pre><ce:glyph name="ptbdbd"></ce:glyph></pre>	
&z.ptbdtd	0E5F6	<pre><ce:glyph name="ptbdtd"></ce:glyph></pre>	
WZ.DIDGIG:			

DTD4 entity	Unicode	Entities / glyph
&z.qbnd6	0E607	<pre><ce:glyph name="qbnd6"></ce:glyph></pre>
&z.qbnd	0E5FD	<pre><ce:glyph name="qbnd"></ce:glyph></pre>
<pre>&amp;z.qprime</pre>	02057	⁗
<pre>&amp;z.rLarr</pre>	02944	&z.rLarr
&z.rad		<pre><ce:glyph name="rad"></ce:glyph></pre>
<pre>&amp;z.rais</pre>	002D4	
<pre>&amp;z.rarrc</pre>	02933	⤳
<pre>&amp;z.rarrx</pre>	02947	&z.rarrx
<pre>&amp;z.rbd2bd</pre>	OE5EA	<pre><ce:glyph name="rbd2bd"></ce:glyph></pre>
<pre>&amp;z.rbd2td</pre>	0E5E9	<pre><ce:glyph name="rbd2td"></ce:glyph></pre>
&z.rbond2	OE60A	<ce:glyph name="rbond2"></ce:glyph>
&z.rbond3	0E608	<ce:glyph name="rbond3"></ce:glyph>
<pre>&amp;z.rdang</pre>	0300B	⟫
&z.reapos	002BD	
<pre>&amp;z.refhr</pre>	0027F	
<pre>&amp;z.refhrl</pre>	0E64B	<pre><ce:glyph name="refhrl"></ce:glyph></pre>
&z.reglst	00295	
&z.repsiv	0025C	
<pre>&amp;z.reshtl</pre>	OO1AA	
&z.resmck	0E637	<pre><ce:glyph name="resmck"></ce:glyph></pre>
&z.reve	00258	
&z.rh	00322	
<pre>&amp;z.rhkd</pre>	021B3	↳
<pre>&amp;z.risfla</pre>	0E638	<pre><ce:glyph name="risfla"></ce:glyph></pre>
<pre>&amp;z.risfls</pre>	002E6-002E5-002E6	<del></del>
&z.riss	002E9-002E5	
<pre>&amp;z.rl</pre>	0027C	
<pre>&amp;z.rndcap</pre>	00311	̑
<pre>&amp;z.rparlt</pre>	02222	∢
&z.rsquo	0203A	&z.rsquo
<pre>&amp;z.rtld</pre>	00256	
<pre>&amp;z.rtll</pre>	0026D	
<pre>&amp;z.rtln</pre>	00273	
<pre>&amp;z.rtlr</pre>	0027D	
<pre>&amp;z.rtls</pre>	00282	
&z.rtlt	00288	
&z.rtlz	00290	
&z.rtr	00319	
<pre>&amp;z.rtrfhr</pre>	00285	
&z.rttrnr	0027B	
&z.rvbull	025D8	&z.rvbull
&z.sat	02644	&z.sat
&z.sbbrg	0032A	<del></del>
&z.sbbrgt	0033A	
&z.sblhr	002D3	
&z.sbnd	0E5F8	<pre><ce:glyph name="sbnd"></ce:glyph></pre>
&z.sbrhr	002D2	
&z.sbs	0005C	\
&z.sbw	0E631	<pre><ce:glyph name="sbw"></ce:glyph></pre>
&z.schwa	00259	
<pre>&amp;z.schwa &amp;z.scis</pre>		 &z.scis
•	00259	<pre> &amp;z.scis  , , </pre>

DTD4 entity	Unicode	Entities / glyph		
&z.simne	02246	≆		
&z.sint	0222F	∯, ∯		
&z.sqfb	0E5B7	<ce:glyph name="sqfb"></ce:glyph>		
<pre>&amp;z.sqfl</pre>	025E7	&z.sqfl		
&z.sqfne	0E5B4	<ce:glyph name="sqfne"></ce:glyph>		
&z.sqfnw	025E9	&z.sqfnw		
&z.sqfr	025E8	&z.sqfr		
&z.sqfse	025EA	&z.sqfse		
<pre>&amp;z.sqfsw</pre>	0E5B5	<ce:glyph name="sqfsw"></ce:glyph>		
&z.sqft	0E5B6	<pre><ce:glyph name="sqft"></ce:glyph></pre>		
&z.sqh	025A4	&z.sqh		
&z.sqint	02A16	⨖		
&z.sqne	025A8	&z.sqhne		
&z.sqnrsb	022E2	⋢, ⋢		
&z.sqnrsp	022E3	⋣, ⋣		
&z.sqnsub	0228F-00338	⊏̸		
&z.sqnsup	02290-00338	⊐̸		
&z.sqsbne	022E4	&z.sqsbne		
&z.sqshd	025A9	&z.sqshd		
&z.sqspne	022E5	&z.sqspne		
&z.sqsw	025A7	&z.sqhsw		
&z.sqv	025A5	&z.sqv		
&z.syllab	00329			
<pre>&amp;z.tDot</pre>	020DB	<pre>⃛, ⃛</pre>		
&z.tbnd6	0E606	<pre><ce:glyph name="tbnd6"></ce:glyph></pre>		
&z.tbnd	0E5FC	<pre><ce:glyph name="tbnd"></ce:glyph></pre>		
&z.tcurt	0E63F	<pre><ce:glyph name="tcurt"></ce:glyph></pre>		
<pre>&amp;z.tdcol</pre>	02AF6	&z.tdcol		
&z.tdfnc	022EE	⋮		
&z.tesh	002A7			
&z.tfnc	02980	<pre>&amp;z.tfnc</pre>		
<pre>&amp;z.toplig</pre>	00361			
&z.trgull	0032B			
&z.trisla	0E647	<pre><ce:glyph name="trisla"></ce:glyph></pre>		
&z.trna	00250			
&z.trnh	00265			
&z.trnk	0029E			
&z.trnm	0026F			
&z.trnmlr	00270			
&z.trnomeg	0E648	<pre><ce:glyph name="trnomeg"></ce:glyph></pre>		
&z.trnr	00279			
&z.trnrl	00279 0027A			
&z.trnsa	0027A 00252			
	00232			
&z.trnt	0028E			
&z.trny &z.udarr	021C5	kudarr. kIInArrouDoumArrou.		
•	021C5 0296E	<pre>⇅, ⇅ ⥮, ⥮</pre>		
&z.udhar2	029F8			
&z.urule		&z.urule		
&z.utdot	022F0	⋰		
&z.veeBar	02A63	&z.veeBar		
&z.verti	002CC	<del>_</del>		
&z.verts	00208	 hCi		
&z.vint	02230	∰		

DTD4 entity	Unicode	Entities / glyph
&z.vrecto	025AF	&z.vrecto
<pre>&amp;z.xhair</pre>	02316	<pre>⌖</pre>
&z.xhighs	002E5	
&z.xl	00335	
&z.xlows	002E9	
<pre>&amp;z.xrat</pre>	0211E	℞
&z.yogh	00292	
з	00437	з
ζ	003B6	ζ
ж	00436	ж

## 5 Entity definitions in CEP, MathML2 and MathML2, 2nd Ed.

The definition of a number of MathML entities has been modified between the release of MathML2 on 19 February 2001 and the release of MathML2, 2nd Ed. on 21 October 2003. The MathML entity definitions that are part of Elsevier's Common Element Pool, are based on the update of MathML2 published on 28 August 2002. The different definitions of a certain entity select different variants of a mathematical symbol. They do not select a really different symbol.

We would like to recall that the meaning of entities used in an XML file is determined by the DTD of that file. When an XML file is read, the parser reads the DTD and expands the entities according to the entity definitions found therein.

In the following table we list: 1. the MathML entity name, 2. the Unicode point according to MathML2, 3. the Unicode point according to the CEP, 4. the Unicode point according to MathML2, 2nd Ed. The symbol  $\Box$  denotes a space.

Entity	MathML2	MathML2 Elsevier	MathML2 2nd Ed.
⃜	020DC	020DC	⊔020DC
⟸	0F579	027F8	027F8
⟺	0F57B	027FA	027FA
⟹	OF57A	027F9	027F9
̑	00311	00311	⊔00311
◻	025FD	025FB	025FB
▫	OF59C	025AB	025AB
◼	025FE	025FC	025FC
▪	0F59B	025AA	025AA
^	00302	0005E	0005E
⁣	0200B	02063	02063
⟵	0F576	027F5	027F5
⟷	0F578	027F7	027F7
<pre>⟶</pre>	0F577	027F6	027F6
⟸	0F579	027F8	027F8
⟺	0F57B	027FA	027FA
⟹	OF57A	027F9	027F9
	0205F-0FE00	0200B	0200B
	02005-0FE00	0200B	0200B
	02009-0FE00	0200B	0200B

Entity	MathML2	MathML2 Elsevier	MathML2 2nd Ed.
	0200A-0FE00	0200B	0200B
⁠	OFEFF	02060	02060
≱	02271-020E5	02271	02271
≧̸	02270	02A7D-00338	02266-00338
≫̸	0226B-00338-0FE00	0226B-00338	0226B-00338
⩾̸	02271	02A7E-00338	02A7E-00338
≰	02270-020E5	02270	02270
≪̸	0226A-00338-0FE00	0226A-00338	0226A-00338
⩽̸	02270	02A7D-00338	02A7D-00338
⪢̸	024A2-00338	02AA2-00338	02AA2-00338
⪡̸	024A1-00338	02AA1-00338	02AA1-00338
⊂⃒	02284	02284	02282-020D2
⊃⃒	02285	02285	02283-020D2
↓	02304-0FE00	02193	02193
←	02190-0FE00	02190	02190
→	02192-0FE00	02192	02192
↑	02303-0FE00	02191	02192
⪰	0227D	0227D	02AB0
⃛	020DB	020DB	⊔020DB
_	00332	00332	⊔00332
Υ	003D2	003A5	003A5
∾	0290F	0290F	0223E
∾̳	029DB	029DB	0223E-00333
⊾	029DD-0FE00	023BE	022BE
&angitvo, ⩰	0224A	0224A	022BE 02A70
<del>-</del>	0224A 0224D	0224R 02248	02248
≈	02240	02248 0224D	02248 0224D
≍	022BC	022BC	02305
⌅	022BC 022BC	022BC 022BC	02305
<pre>⌅ ⎶</pre>	022BC 	02260	02305 023B6
	02299	02299	02360
<pre>⨀</pre>	02299		02A00 02A01
⨁		02295	02A01 02A02
⨂	02297	02297	
⨆	02294	02294	02A06
⨄	0228E	0228E	02A04
ˆ	0005E	002C6	002C6
ϝ	003DC	003DC	003DD
⟿	0F5A2	027FF	027FF
⩮	0225B	0225B	02A6E
⪖	022DD	022DD	02A96
<pre>⏧</pre>			OFFFD
⪕	022DC	022DC	02A95
∅	02205-0FE00	02205	02205
∅	02205-0FE00	02205	02205
ε	003B5	003B5	003F5
ϵ	0025B	0025B	003B5
⪖	022DD	022DD	02A96
⪕	022DC	022DC	02A95
▱			025B1
⪌	022DB	022DB	02A8C
ϝ	003DC	003DC	003DD
%gap;	02273	02273	02A86
⪈	02269	02269	02A88

Entity	MathML2	MathML2 Elsevier	MathML2 2nd Ed.
⪈	02269	02269	02A88
<pre>⪆</pre>	02273	02273	02A86
⪌	022DB	022DB	02A8C
<pre>ℏ</pre>	0210F-0FE00	0210F	0210F
<pre>♥</pre>			02665
<pre>♥</pre>	02661	02661	02665
⁣	0200B	02063	02063
<pre>Ƶ</pre>	1D543	1D543	001B5
<pre>⧝</pre>			029DD
ȷ	0006A-0FE00	0006A	0006A
⪋	022DA	022DA	02A8B
<pre>⪅</pre>	02272	02272	02A85
⪅	02272	02272	02A85
⪋	022DA	022DA	02A8B
⪇	02268	02268	02A87
⪇	02268	02268	02A87
⟬	0F558	02989	03018
⟵	0F576	027F5	027F5
⟷	0F578	027F7	027F7
⟼	0F57D	027FC	027FC
⟶	0F577	027F6	027F6
⦅	03018	02985	02985
𝓁	02113	02113	1D4C1
≫⃒	0226B-00338	0226B-020D2	0226B-020D2
≫̸	0226B-00338-0FE00	0226B-00338	0226B-00338
≪⃒	0226A-00338	0226A-020D2	0226A-020D2
≪̸	0226A-00338-0FE00	0226A-00338	0226A-00338
∠⃒	02220-00338	02220-020D2	02220-020D2
≐̸	02260-0FE00	02260-00307	02250-00338
≧̸	02271	02A7E-00338	02267-00338
≱	02271-020E5	02271	02271
≱	02271 020E6 02271-020E5	02271	02271
≧̸	02271 02010	02A7E-00338	02267-00338
⩾̸	02271	02A7E-00338	02A7E-00338
⩾̸	02271	02A7E-00338	02A7E-00338
≰	02271	02A7D-00338	02266-00338
≰	02270 02270-020E5	02270	02270
≰	02270 020E5 02270-020E5	02270	02270
≦̸	02270 02013	02A7D-00338	02266-00338
⩽̸	02270	02A7D-00338	02A7D-00338
⩽̸	02270	02A7D-00338	02A7D-00338
⋹̸	02210		022F9-00338
⋵̸	022F6-0FE00	02209-00307	022F5-00338
∉	02209-00338	02209	02209
⫽⃥	02225-0FE00-020E5	02225-0FE00-020E5	02AFD-020E5
∤	02224-0FE00	02224	02224
∦	02226-0FE00	02226	02226
∤	02224-0FE00	02224	02224
∦	02226-0FE00	02226	02226
⫅̸	02288	02288	02AC5-00338
⊂⃒	02284	02284	02282-020D2
⫅̸	02288	02288	02AC5-00338
⫆̸	02289	02289	02AC6-00338

Entity	MathML2	MathML2 Elsevier	MathML2 2nd Ed.
⊃⃒	02285	02285	02283-020D2
⫆̸	02289	02289	02AC6-00338
⤄	021CE	021CE	02904
≍⃒	02249-00338	0224D-020D2	0224D-020D2
≥⃒	02271	02A7E-00338	02265-020D2
>⃒	0226F	0226F	0003E-020D2
⤂	021CD	021CD	02902
≤⃒	02270	02A7D-00338	02264-020D2
<pre>&lt;⃒</pre>	0226E	0226E	0003C-020D2
⊴⃒	022EC-00338	022B4-020D2	022B4-020D2
⤃	021CF	021CF	02903
⊵⃒	022ED-00338	022B5-020D2	022B5-020D2
∼⃒	02241-00338	0223C-020D2	0223C-020D2
<pre>⫽</pre>	02225-0FE00	02225-0FE00	02AFD
φ	003C6	003D5	003D5
ϕ	003D5	003C6	003C6
ℏ	0210F-0FE00	0210F	0210F
⪳	O2AAF	02AAF	02AB3
⪷	0227E	0227E	02AB7
⪷	0227E	0227E	02AB7
⪹	022E8	022E8	02AB9
⪹	022E8	022E8	02AB9
⤚	021A3	021A3	0291A
⟭	0F559	0298A	03019
⦆	03019	02986	02986
⪴	0227E	0227E	02AB4
⪸	0227E	0227E	02AB8
⪰	0227D	0227D	02AB0
⪺	022F9	022E9	O2ABA
⌢			02322
∣	02223-0FE00	02223	02223
∥	02225 OF E00	02225	02225
←	02190-0FE00	02190	02190
∖	02136 OFE00	02216	02216
∣	02210 OFE00 02223-0FE00	02223	02223
•	02225 OFE00 02225-0FE00	02225	02225
∥	02225 OFE00 02192-0FE00	02192	02192
→ ∖	02192-0FE00 02216-0FE00	02192	02192
⌣	02210-0FE00	02210	02323
·	022C6	022C6	02606
☆			
ϵ	003B5	003B5	003F5
ϕ	003C6	003D5	003D5
¯		00006	000AF
⫅	02286	02286	02AC5
⫋	0228A	0228A	02ACB
⫅	02286	02286	02AC5
⫋	0228A	0228A	02ACB
⪸	0227F	0227F	02AB8
⪰	0227D	0227D	02AB0
⪺	022E9	022E9	O2ABA
⫆	02287	02287	02AC6
⟉	02283-0002F	02283-00338	02283-0002F
⫌	0228B	0228B	02ACC

Entity	MathML2	MathML2 Elsevier	MathML2 2nd Ed.
⫆	02287	02287	02AC6
⫌	0228B	0228B	02ACC
<pre>⃛</pre>	020DB	020DB	⊔020DB
<pre>≈</pre>	02248-0FE00	02248	02248
<pre>∼</pre>	0223C-0FE00	0223C	0223C
<pre>≈</pre>	02248-0FE00	02248	02248
<pre>∼</pre>	0223C-0FE00		0223C
<pre>⏢</pre>			OFFFD
<pre>⦜</pre>	022BE	022BE	0299C
ϵ	0025B	0025B	003B5
<pre>ϕ</pre>	003D5	003C6	003C6
⫋︀	0228A-0FE00	0228A-0FE00	02ACB-0FE00
⫌︀	0228B-0FE00	0228B-0FE00	02ACC-0FE00
⊂⃒	02284	02284	02282-020D2
⊃⃒	02285	02285	02283-020D2
⫋︀	0228A-0FE00	0228A-0FE00	02ACB-0FE00
⫌︀	0228B-0FE00	0228B-0FE00	02ACC-0FE00
⟺	0F57B	027FA	027FA
⟷	0F578	027F7	027F7
⟸	0F579	027F8	027F8
⟵	0F576	027F5	027F5
<pre>⟼</pre>	OF57D	027FC	027FC
⨀	02299	02299	02A00
⨁	02295	02295	02A01
<pre>⨂</pre>	02297	02297	02A02
⟹	OF57A	027F9	027F9
<pre>⟶</pre>	0F577	027F6	027F6
⨆	02294	02294	02A06
⨄	0228E	0228E	02A04

## 6 The Greek epsilon and phi

The situation regarding the Greek epsilon and phi is somewhat confusing due to the fact that Unicode has changed its definitions at some time. The correct situation can be seen in the online Unicode charts.

U+03B5 is the cursive or curly epsilon, corresponding to ES grid Cd3.

U+03F5 is the straight epsilon, corresponding to ES grid Cde.

**U+025B** has been used for the curly epsilon, but it is a less fortunate choice; it is not quite right.

Despite possible errors, the entity names are always as defined in the entity files of the DTD:

It is seen that the MathML entity names map to the wrong characters; this is because they still correspond to the old Unicode definitions. This has been corrected in the last recommendation for MathML, MathML2 2nd Ed., but that does not change our DTD. Our private names z.epsiv and z.epsi map to the correct characters.

The TeX symbol \varepsilon ( $\varepsilon$ ) maps to U+03B5 = z.epsiv, \epsilon ( $\epsilon$ ) maps to U+03F5 = z.epsi.

U+03C6 is the cursive or curly phi, corresponding to ES grid Cd4.

U+03D5 is the straight phi, corresponding to ES grid Cdf.

The entity names are:

```
U+03C6 = phiv = varphi
U+03D5 = phi = straightphi
```

It is seen that the MathML entity names are correct. This is due to the fact the we use the entity definitions of the first update published after MathML2.

The TeX symbol \varphi ( $\varphi$ ) maps to U+03C6 = varphi, \phi ( $\phi$ ) maps to U+03D5 = phi,