

Universal Multiple-Octet Coded Character Set
 International Organization for Standardization
 Internationale Standardisierungs-Organisation
 Organisation Internationale de Normalisation
 Διεθνής Οργανισμός Τυποποίησης
 Международная организация по стандартизации

Doc Type: Working Group Document

Title: Proposal to encode miscellaneous mathematical symbols

Source: Uwe Mayer, Siegmund Probst, David Rabouin, Elisabeth Rinner, Andreas Stötzner,
 Achim Trunk, Charlotte Wahl

Version: 4th revision

Status: final

Action: for SEWG and UTC review

Date: May 26, 2026

Requester's reference: LUCP L-2621

1. Background – Miscellaneous symbols in historic sources

This proposal is part of the research program upon historical mathematical sources, conducted by the CNRS Philiumm project (headed by Prof. David Rabouin, University of Paris) and supported by researchers from the Landesbibliothek Hanover (Germany). The aim of this project work is to achieve a standardized encoding for special mathematical characters in historic texts, which is required for accurate facsimile editions of those sources.

For more background information about the Philiumm project and the related research work, please visit the [Philiumm website](#) or see doc. no. N5277.

In this proposal we introduce a number of various symbols mainly from the field of historical mathematics.

2. Revisions

2nd version (1st revision): After discussion with SEWG and UTC experts and following the subsequent recommendations, we have dropped a few candidates (for various reasons) and proposed a selection of 13 new characters, of which 3 are combining characters.

In the 2nd revision (L-2604) the three combining characters ☺, ☹ and ☹ have been omitted. They will be revised separately and will be subject to a new proposal, possibly alongside other new characters of a similar kind. The remaining 10 characters have been evaluated eligible for encoding at the January 15 and February 24 meetings (2026).

With this **3rd revision** we follow the recommendations from Febr. 24, to clarify the glyph's relations to the math axis, to define the two wavy characters as baseline characters; and to add some subheading and other information.

We propose the new characters for the range **1DB22** to **1DB2B**.

In this **4th revision** one char. name has been changed into CASTING OUT NINES.

3. Characters

proposed subheading:

Miscellaneous mathematical symbols

or:

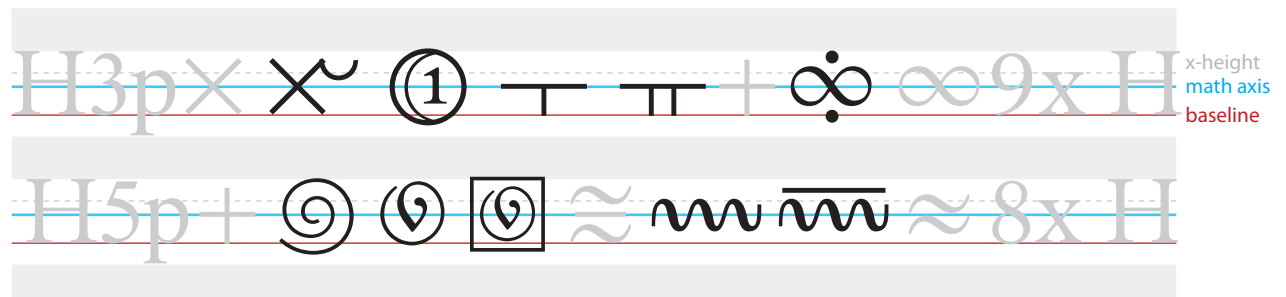
Historic mathematical symbols

proposed characters:

1DB22	✕	CASTING OUT NINES
1DB23	①	LUNATE ENCIRCLED DIGIT ONE
1DB24	┐	PROPORTION WITH ONE STROKE
1DB25	┘	PROPORTION WITH TWO STROKES
1DB26	∞	INFINITY WITH TWO DOTS
1DB27	⊙	INVOLVED
1DB28	Ⓟ	LEIBNIZIAN ENCIRCLED V
1DB29	Ⓜ	LEIBNIZIAN ENCIRCLED V IN BOX
1DB2A	≈	HORIZONTAL WAVY LINE
1DB2B	⌞	HORIZONTAL WAVY LINE WITH BAR ABOVE

For the last two characters the term WIGGLY LINE has also been considered, a term that is already used for a few encoded characters. However, we see no advantage in linking the two new characters to those by naming, and the word WAVY (already used with U+2307) seems straightforward descriptive and much more appropriate to us.

The characters appear mainly in math formulae and therefore the representative glyphs ought to be adjusted to the math axis:



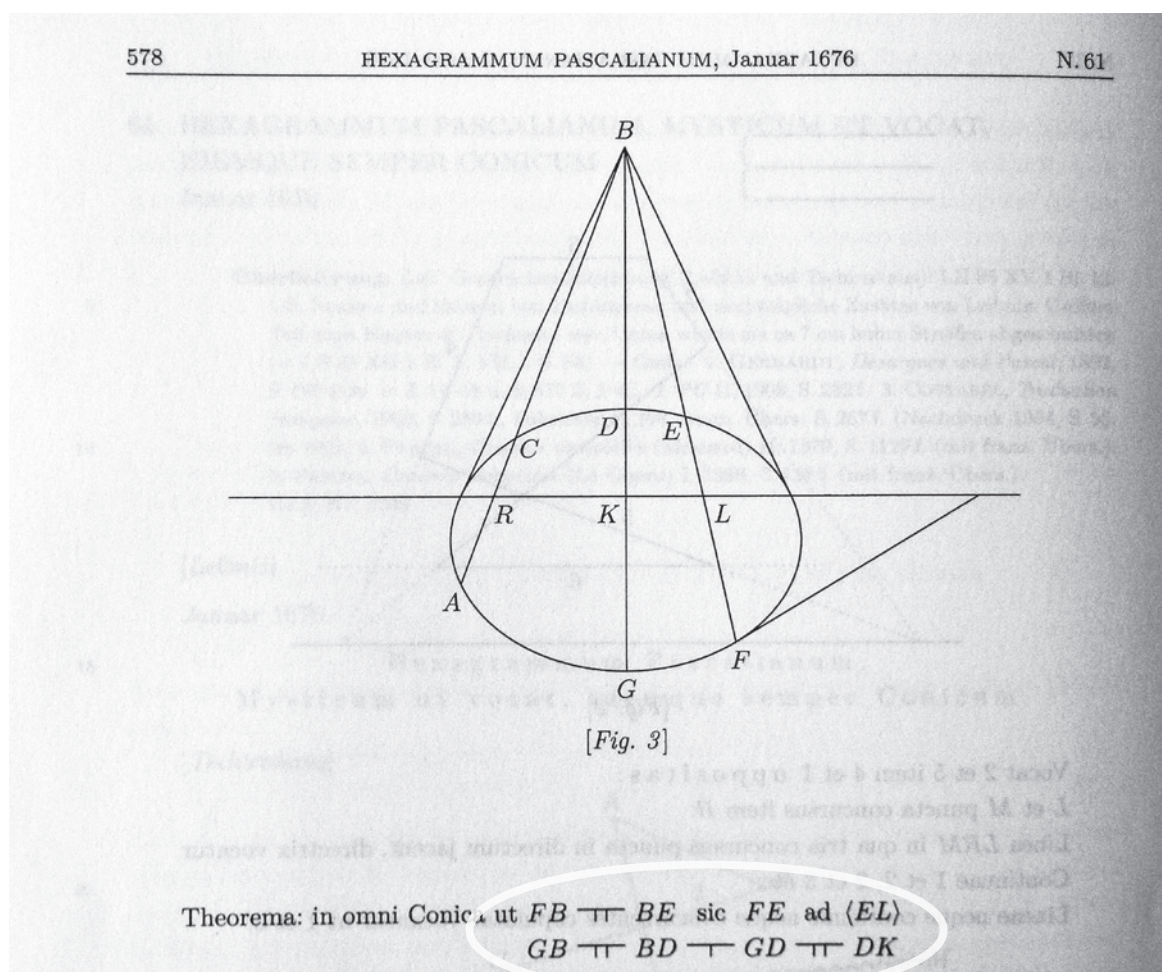
We propose the following encoding scheme:

1DB00 Miscellaneous Symbols and Arrows Extended 1DBFF

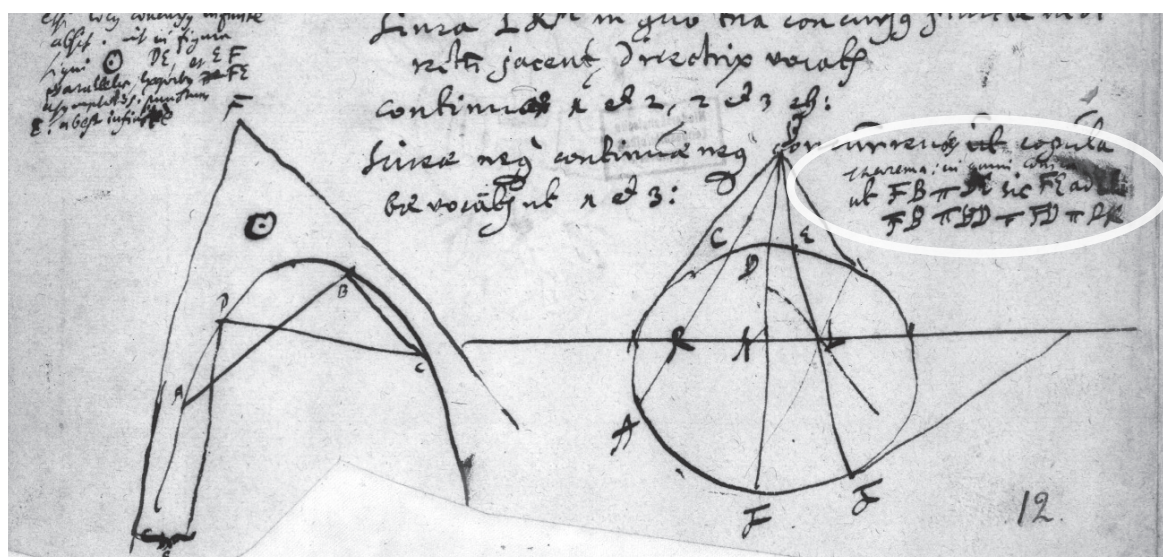
	1DB0	1DB1	1DB2	1DB3
0	 1DB00	 1DB10	 1DB20	1DB30
1	 1DB01	 1DB11	 1DB21	1DB31
2	 1DB02	 1DB12	 1DB22	1DB32
3	 1DB03	 1DB13	 1DB23	1DB33
4	 1DB04	 1DB14	 1DB24	1DB34
5	 1DB05	 1DB15	 1DB25	1DB35
6	 1DB06	 1DB16	 1DB26	1DB36
7	 1DB07	 1DB17	 1DB27	1DB37
8	 1DB08	 1DB18	 1DB28	1DB38
9	 1DB09	 1DB19	 1DB29	1DB39
A	 1DB0A	 1DB1A	 1DB2A	1DB3A
B	 1DB0B	 1DB1B	 1DB2B	1DB3B
C	 1DB0C	 1DB1C	1DB2C	1DB3C
D	 1DB0D	 1DB1D	1DB2D	1DB3D
E	 1DB0E	 1DB1E	1DB2E	1DB3E
F	 1DB0F	 1DB1F	1DB2F	1DB3F

	Leibnizian operators provisionally assigned for UCS 18
	Letterlike symbols see proposal N5335R (L-2535)
	Miscellaneous mathematical symbols

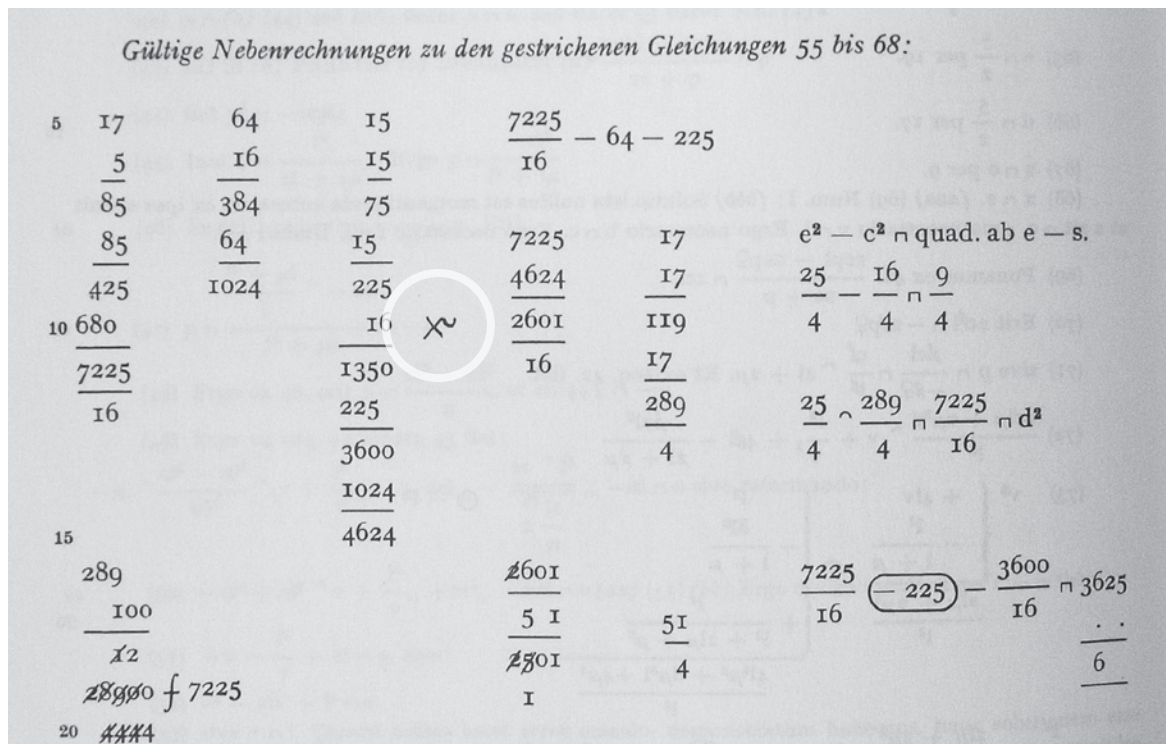
4. Figures and explanations



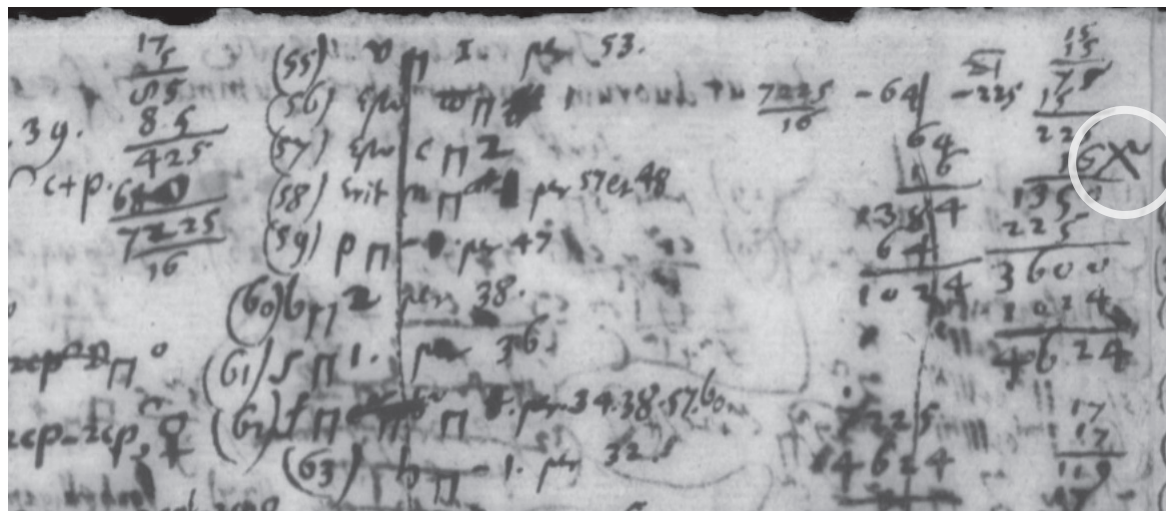
⊥ PROPORTION WITH ONE STROKE, ⊞ PROPORTION WITH TWO STROKES
LAA VII-7 p. 578



⊥ PROPORTION WITH ONE STROKE, ⊥ PROPORTION WITH TWO STROKES
LH 35 XV 1, fol. 12r



✕ CASTING OUT NINES – LAA VII-1 p.408; corresponding manuscript LH 35 III A 16 fol. 24v



In his *History of Mathematical Notations* (vol. 1, p. 261) Florian Cajori explains the origin of this symbol in the notation method of casting out nines, by German author Christoph Rudolff: *Rudolph checks the multiplication 5678 times 65 = 369070 by casting out the 9's (i.e., dividing the sum of the digits by 9 and noting the residue); he finds the residue for the product to be 7, for the factors to be 2 and 8. He writes down*

$$\begin{array}{c} 7 \\ 8 \times 2 \\ 7 \end{array}$$

Leibniz often uses a slightly modified version (LAA VII-5 p. XXXVI and p. 53), where he notes the product of the residues of the factors in the top right arc added to the cross, before reducing the number modulo 9:

$$\begin{array}{c} 118 \\ 8 \\ 944 \end{array} \quad \begin{array}{c} 8 \\ 8 \times 8 \\ 8 \end{array} \quad \begin{array}{c} 14 \\ 8 \\ 112 \end{array} \quad \begin{array}{c} 40 \\ 5 \times 8 \\ 4 \end{array}$$

Sometimes he writes down *just* the symbol as a memory mark (without adding the residues), in order to note that he has checked the calculation by casting out nines. *This* use case we regard relevant for encoding the symbol.

2	$\frac{450}{64}$	$\frac{64}{18}$	$2 \sim 10$	Π					
	450	64	64	8100	4				
	18	64	18	4096	38				
	<u>360</u>	$\times$	<u>256</u>	<u>512</u>	<u>12196</u>	<u>11320</u>	$\neq 17$		
	45	384	64	11520	6766				
	8100	4096	11520	676	67				
		18	64	450	130				
		5	5	320	16				
		<u>90</u>	<u>320</u>	<u>130</u>	<u>114</u>				

660	DIFFERENZEN, FOLGEN, REIHEN 1672–1676							N. 44 ₂
	[Nebenrechnungen und Zusätze zu S. 654 Z. 1–8]							
	144	$\times$	144	48	48	2304	20736	2 2
	<u>144</u>		<u>8</u>	<u>16</u>	<u>48</u>	<u>16</u>	<u>16</u>	10931
	576		1152	288	384	13824	124416	331776 $\neq 144$
5	576			<u>48</u>	<u>192</u>	<u>2304</u>	<u>20736</u>	230444
	<u>144</u>			768	2304	36864	331776	2300
	20736					<u>+ 64</u>		23
						<u>36928</u>		
						<u>– 768</u>		
						<u>4</u>		
10						2	[bricht ab]	

$\times$ CASTING OUT NINES

LAA VII-3 p. 455 (top), p. 660; manuscript part of the latter sample (LH 35 VIII 4 fol. 6r, below)

ordinando ad extractionem $r^2 \begin{cases} + 144\beta^2 \\ - 4a^2 \end{cases} \begin{cases} + 20736\beta^3 \\ - 1152\beta^2 \end{cases} \begin{cases} + 16a^4 \\ + 64a^2 - 768a\beta + 2304\beta^2, c^4 \end{cases}$ $\Pi \begin{cases} + 20736\beta^4 \\ - 1152\beta^3 \end{cases} \begin{cases} + 16a^4 \\ + 120\beta^3 \\ + 10\beta^2 \end{cases} \begin{cases} a^3 \\ a^2 \end{cases}$ $\frac{1}{2} \begin{cases} 64a^2 - 768a\beta + 2304\beta^2 \\ + 48\beta - 8a \end{cases}$ nam occurrere impossibilitatem. 20736								144 144 48 48 2304 144 8 16 48 192 576 1152 288 384 13824 576 1152 288 384 13824 144 768 2304 36864 331776 144 768 2304 36864 331776 20736 4 2 2 20736 192 2304
---	--	--	--	--	--	--	--	---

Als men de $\angle ACB$ wil 2 mahl in 2 gelijcke deel, deelen; om AF te vinden, soo kan men het dus oock doen[:]

Regel.

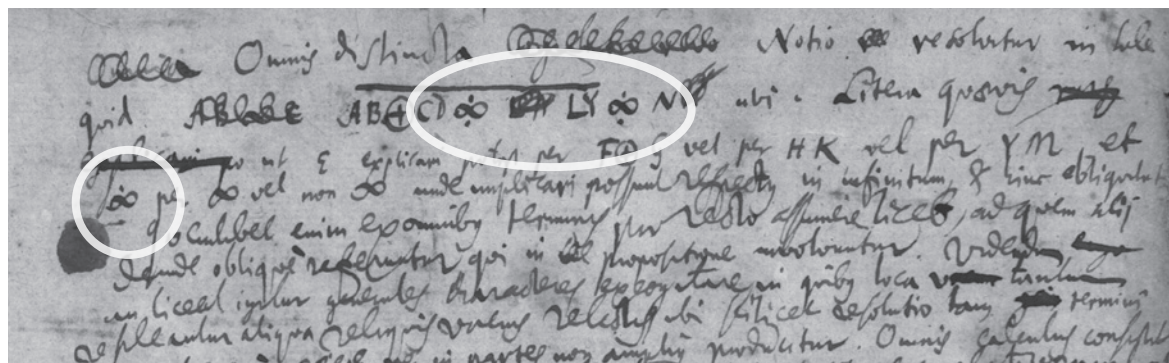
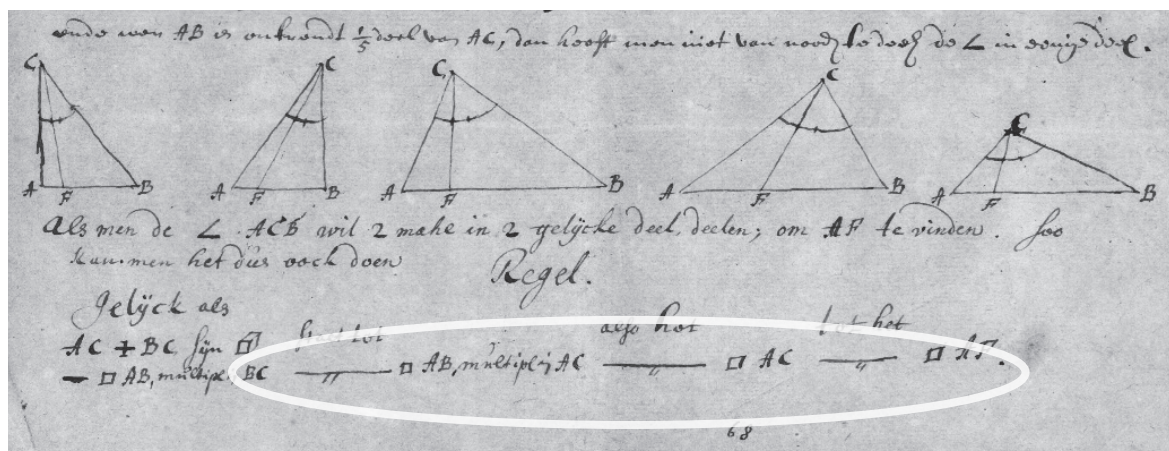
Gelijck als

5 $AC + BC$, sijn $\square$ staet tot also het tot het
 $-\square AB$, multipl. in BC $\square AB$, multipl. in AC $\square AC$ $\square AF$.

π PROPORTION WITH TWO STROKES

This figure also shows the use of $\square$ WHITE CUBE (provisional assignment: u1F7F7).

LAA VII-6 P. 302; LH 35 VIII 30, fol. 68r (below)



∞ INFINITY WITH DOTS

LH 4 VII B 2, fol. 73v (top), LAA VI-4 p. 873 (below)

Magnitudo. Sensus. Appetitus. Cogitatio. Qualitates Sensibiles.

$\langle - \rangle$ in characteristica omnia distincte cogitabilia revocari possunt ad

$\overline{AB + CD} \stackrel{\infty}{\text{non } \infty} LM \infty N$, hoc uno not(ato) $\langle - - - \rangle$ et contra explicari $\langle - - - \rangle$ quod quaedam literae in $\langle - \rangle$ ut Y pro S pon($\langle - \rangle$)

20

Omnis distincta Notio resolvitur in tale quid $\overline{AB + CD} \infty LY \infty N$ ubi Litera quaevis ut E explicari potest per $F \oplus G$ vel per HK vel per YM et ∞ per ∞ vel non ∞ unde implicari possunt respectus in infinitum, et hinc obliquitat[es].

Quemlibet enim ex omnibus terminis pro recto assumere licet, ad quem alii deinde

		Rechenkunst.		73
		$D - E = 2B$		
		$D = E + 2B$		
		$\therefore D > E$		
		Auß D und F das übrig finden.		
$a = ?$	1	$a + b = D$		
$b = ?$	2	$ab = F$		
$i \odot 2$	3	$aa + 2ab + bb = DD$		
$i * 4$	4	$4ab = 4F$		
$3 - 4$	5	$aa - 2ab + bb = DD - 4F$		
$5 \sqrt{2}$	6	$a - b = \sqrt{DD - 4F}$		
		Weil $a + b$ Item $a - b$ bekant sind / so werr es ein überfluß weiter zuprocedieren / als da in den nächst hiervorstehenden auflösungen / die manier weiter zuschreiten / vor augen ligt.		
		Auß D und G.		
$a = ?$	1	$a + b = D$		
$b = ?$	2	$\frac{a}{b} = G$		

© INVOLVED – J. H. Rahn, Teutsche Algebra, 1659 (after Cajori).

In expressions of the form $a \odot b$, the sign $\odot$ is used to denote the exponentiation of a by the power of b . In his “Teutsche Algebra” from 1659, the Swiss mathematician Johann Heinrich Rahn refers to the operation as “involvierē” (= to involve).

		Involvierē in einfachen ungebrochenen quantiteten.				
		Das Hauptzeichen des Involvierens ist $\odot$ heisset eingewickelt oder involviert.				
		Regel.				
		So vil mal eine quantitet erslich in sich selbs/darnach in ihr product / und drittens wider in das letztere product/2c. eingewickelt oder involviert wird ; so groß ist das vermögen besagter quantitet / so groß muß auch die zahl seyn die solchem zeichen in dem breiten reyen des nebenrands nachzusetzen ist.				
$i \odot 2$	1	$-a$	$++ab$	bcd	yx	$2yy$
$i \odot 3$	2	$++aa$	$++aabb$	$bbccdd$	$yyxx$	$4y^4$
$i \odot 4$	3	$-a^3$	$++a^3b^3$	$b^3c^3d^3$	y^3x^3	$8y^6$
	4	$++a^4$	$++a^4b^4$	$b^4c^4d^4$	y^4x^4	$16y^8$

© INVOLVED – J. H. Rahn, Teutsche Algebra, 1659.

In the time of Leibniz, the usual way of referring to curves or magnitudes is by giving equations that describe their specific relations. The concept of mapping as it is used in modern mathematics is not yet developed. Leibniz writes the signs $\odot$ and $\boxed{\odot}$ to the right of an expression (such as $x \odot$ and $y+1, \boxed{\odot}$) in order to denote two different arbitrary rules by which the expressions given in the left position are treated. The result is an expression. By this, the meaning is similar to writing $f(x)$ or $g(y+1)$ in modern mathematical notation with f and g denoting arbitrary functions.

In a similar way, Johann Bernoulli uses the sign ϕ (see L-2535/N5335R) to denote a quantity depending on variables x and a (in modern terminology a function in x and a).

stantem numerum multiplicatam esse vel 1, vel multipulum facti ex denominatoribus duobus proximis, per numerum respondentem, ut 3. 35 etc. nempe:

Sunto duo termini: $\frac{b}{z \odot} \frac{b}{z+1, \odot}$ erit $b \frac{z+1, \odot, -z \odot}{z \odot, \wedge z+1, \odot} \sqcap \frac{1}{16z^2 - 16z + 3}$. Quod si nominator etiam sit inconstans, erunt termini $\frac{z \boxed{\odot}}{z \odot} \cdot \frac{z+\beta, \boxed{\odot}}{z+\beta, \odot}$ et fiet:

$$\frac{z+1, \odot, \wedge z \boxed{\odot}, -z \odot, \wedge z+\beta, \boxed{\odot}}{z \odot, \wedge z+\beta, \odot} \sqcap \frac{1}{16z^2 - 16z + 3}.$$

Certum est semper destrui omnia quae non ducuntur in β . Sed hanc aequationem

$\odot$ LEIBNIZIAN ENCIRCLED V, $\boxed{\odot}$ LEIBNIZIAN ENCIRCLED V IN BOX

LAA VII-1 p. 527 (above), LH 35 V 4, fol. 6 (below), LH 35 VIII 30, fol. 115r (bottom)

Investigamus paulo accuratius, post modum fieri possit, ut quicquid in differentibus dicitur aliter fiat.

Sic: $\frac{y \odot}{\boxed{\odot} y} - \frac{y+1, \odot}{y+1, \boxed{\odot}}$ unde $\frac{y \odot, y+1, \boxed{\odot} - y \boxed{\odot}, y+1, \odot}{\boxed{\odot} y, y+1, \boxed{\odot}}$

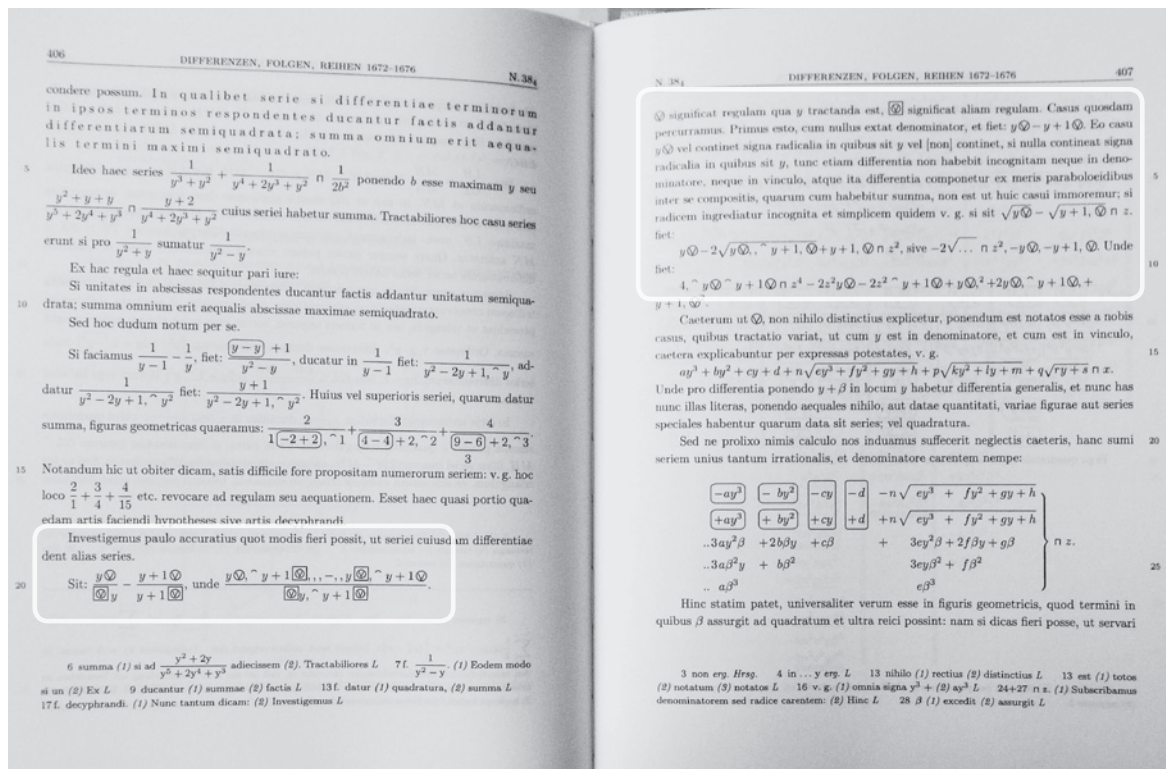
Observeat regulas quae y tractantur. $\boxed{\odot}$ significat aliam regulam. Cuius quidem periculum. primum quod nullus est denominator et fieri: $y \odot - y+1, \odot$. Et casu $y \odot$ vel continet signum radicalia in quibus y vel continet si nulla sit talis signa radicalia tunc etiam differentia nulla est. ubi habebit innumerum vel in denominatorem, vel differentia componetur ex mensurabilibus.

vel multipulum facti ex denominatoribus duobus proximis ipse numerus respondentem, ut 3. 35 etc. nempe:

Sunto duo termini: $\frac{b}{2 \odot} \frac{b}{2+1, \odot}$ erit $b \frac{2+1, \odot, -2 \odot}{2 \odot, \wedge 2+1, \odot} \sqcap \frac{1}{16z^2 - 16z + 3}$

Composui, quod erunt termini $\frac{z \boxed{\odot}}{z \odot} \cdot \frac{z+\beta, \boxed{\odot}}{z+\beta, \odot}$ et fiet: $\frac{z \odot, \wedge z+\beta, \boxed{\odot} - z \boxed{\odot}, \wedge z+\beta, \odot}{z \odot, \wedge z+\beta, \odot} \sqcap \frac{1}{16z^2 - 16z + 3}$

Equationem resolvere per hanc methodum. Etenim an sit in potestate humana, facilius quidem, nisi una methodus regeretur, per diversa successat. Cumque huius sit per methodum universalem ipse determinari non potest, quare ea est methodus in qua equationes omnes et omnia huiusmodi equationes incognitas per hanc



© LEIBNIZIAN ENCIRCLED V, ☉ LEIBNIZIAN ENCIRCLED V IN BOX

The typographical solution for these characters in the edition is unfortunate. In fact the round shape has to be connected with the v, similar as in @ (0040). – LAA VII-3 p. 406-407

Investigemus paulo accuratius quot modis fieri possit, ut seriei cuiusdam aliam series.

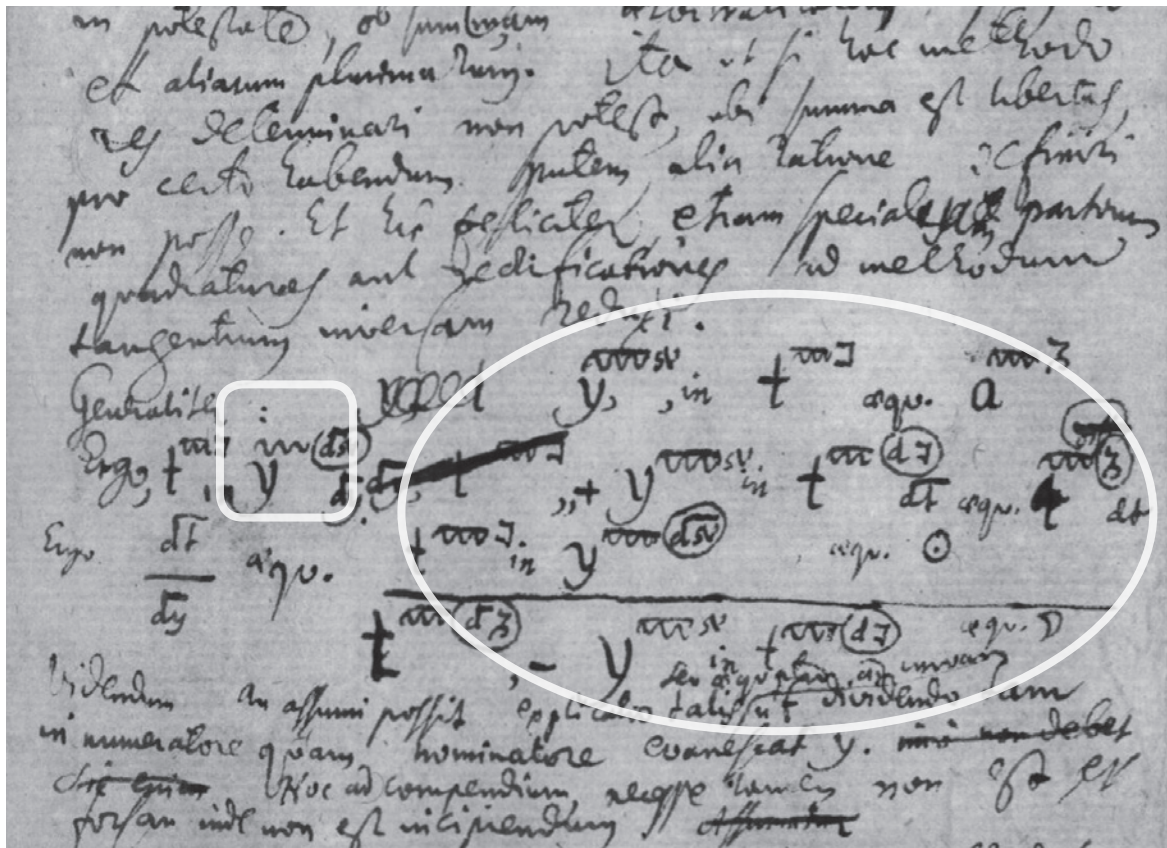
Sit: $\frac{y \textcircled{v}}{\textcircled{v}y} - \frac{y+1 \textcircled{v}}{y+1 \textcircled{v}}$, unde $\frac{y \textcircled{v}, \wedge y+1 \textcircled{v},, -, , y \textcircled{v}, \wedge y+1 \textcircled{v}}{\textcircled{v}y, \wedge y+1 \textcircled{v}}$.

☉ significat regulam qua y tractanda est, ☉ significat aliam regulam. Casus quosdam percurramus. Primus esto, cum nullus extat denominator, et fiet: $y \textcircled{v} - y + 1 \textcircled{v}$. Eo casu $y \textcircled{v}$ vel continet signa radicalia in quibus sit y vel [non] continet, si nulla contineat signa radicalia in quibus sit y , tunc etiam differentia non habebit incognitam neque in denominatore, neque in vinculo, atque ita differentia componetur ex meris paraboloeidibus inter se compositis, quarum cum habebitur summa, non est ut huic casui immoremur; si radicem ingrediatur incognita et simplicem quidem v. g. si sit $\sqrt{y \textcircled{v}} - \sqrt{y+1, \textcircled{v}} \cap z$. fiet:

$y \textcircled{v} - 2\sqrt{y \textcircled{v}, \wedge y+1, \textcircled{v}} + y+1, \textcircled{v} \cap z^2$, sive $-2\sqrt{\dots} \cap z^2, -y \textcircled{v}, -y+1, \textcircled{v}$. Unde fiet:

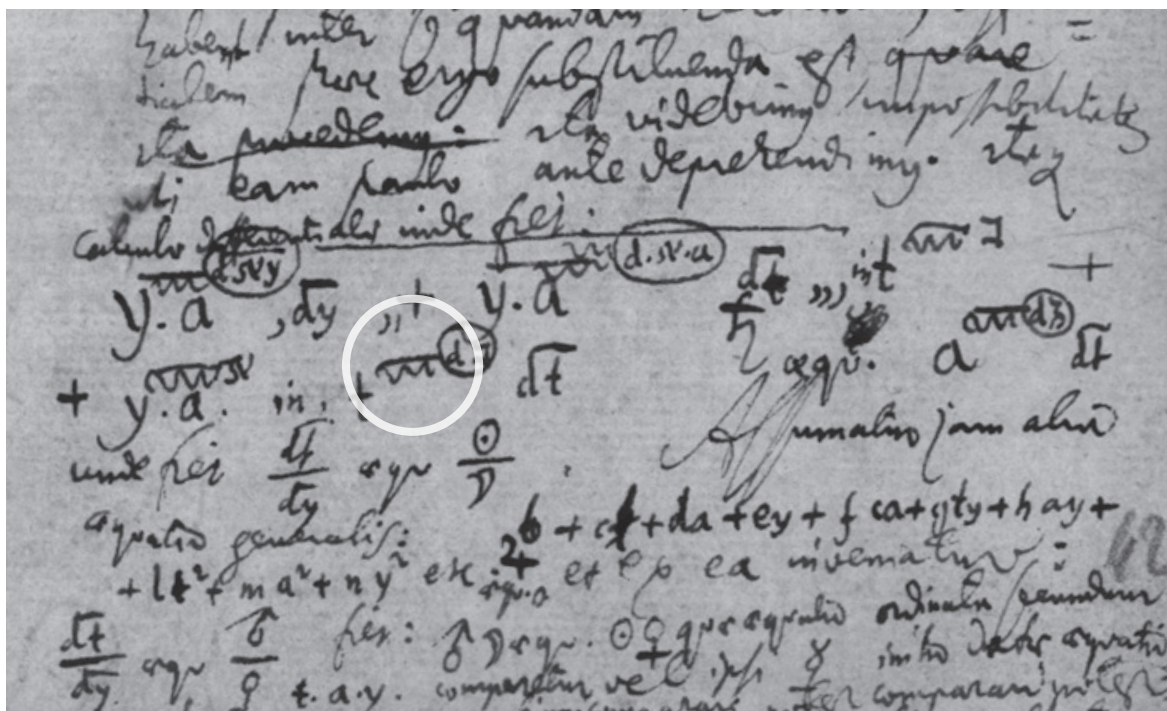
$4, \wedge y \textcircled{v} \wedge y+1 \textcircled{v} \cap z^4 - 2z^2 y \textcircled{v} - 2z^2 \wedge y+1 \textcircled{v} + y \textcircled{v},^2 + 2y \textcircled{v}, \wedge y+1 \textcircled{v}, + y+1, \textcircled{v}^2$.

Caeterum ut ☉, non nihilo distinctius explicetur, ponendum est notatos esse a nobis casus, quibus tractatio variat, ut cum y est in denominatore, et cum est in vinculo.



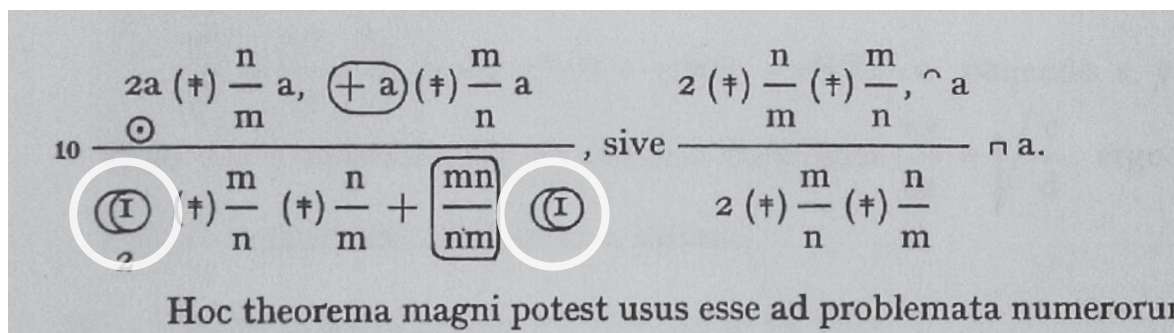
$\overline{\sim}$ HORIZONTAL WAVY LINE, $\overline{\sim}$ HORIZONTAL WAVY LINE WITH BAR ABOVE
 Leibniz uses these symbols mainly in a superscript mode, for which the appropriate math layout functionality shall be applied to the WAVY characters.

LH 35 VII 1, fol. 39r. The edition of this manuscript is currently in progress.



$\overline{\sim}$ HORIZONTAL WAVY LINE WITH BAR ABOVE

LH 35 VII 1, fol. 41v. The edition of this manuscript is currently in progress.



① LUNATE ENCIRCLED DIGIT ONE

LAA VII-1 p. 472

5. Unicode Character Properties

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1DB22;CASTING OUT NINES;Sm;0;ON;;;;N;;;;;
1DB23;LUNATE ENCIRCLED DIGIT ONE;Sm;0;ON;;;;N;;;;;
1DB24;PROPORTION WITH ONE STROKE;Sm;0;ON;;;;N;;;;;
1DB25;PROPORTION WITH TWO STROKES;Sm;0;ON;;;;N;;;;;
1DB26;INFINITY WITH TWO DOTS;Sm;0;ON;;;;N;;;;;
1DB27;INVOLVED;Sm;0;ON;;;;N;;;;;
1DB28;LEIBNIZIAN ENCIRCLED V;Sm;0;ON;;;;N;;;;;
1DB29;LEIBNIZIAN ENCIRCLED V IN BOX;Sm;0;ON;;;;N;;;;;
1DB2A;HORIZONTAL WAVY LINE;Sm;0;ON;;;;N;;;;;
1DB2B;HORIZONTAL WAVY LINE WITH BAR ABOVE;Sm;0;ON;;;;N;;;;;
```

6. Bibliography

LAA – refers to: Leibniz, Gottfried Wilhelm: Sämtliche Schriften und Briefe. (‘Leibniz-Akademie-Ausgabe’, many volumes)

LH – refers to: Leibniz’s original manuscripts, GWLB Hanover

Bombelli, Rafael: L’Algebra. Bologna 1579

— : L’Algebra. Milan 1966

Cajori, Florian: A history of mathematical notations. Chicago 1928

Probst, Siegmund: Édition des symboles de Leibniz. PDF. Hanover 2023 (presentation Paris 2023)

Rahn, Johann Heinrich: Teutsche Algebra. Zurich 1659

Rinner, Elisabeth: List of glyphs in Leib.mf. PDF. Hanover 2022

Rudolph, Christoph [or Christoff]: Kunstliche Rechnung. Augsburg 1574 or 1588; A VIII.



Leibniz-Akademie-Ausgabe (LAA, general edition of Leibniz’s writings)

LAA series VII (mathematical manuscripts, volumes 3 to 7 available online)

**ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹**

Please fill all the sections A, B and C below.

Please read Principles and Procedures Document (P & P) from <http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html> for guidelines and details before filling this form.

Please ensure you are using the latest Form from <http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html>.

See also <http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html> for latest **Roadmaps**.

A. Administrative

1. Title:	Proposal to encode 21 miscellaneous scientific symbols		
2. Requester's name:	Uwe Mayer, Siegmund Probst, David Rabouin, Elisabeth Rinner, Andreas Stötzner, Achim Trunk, Charlotte Wahl		
3. Requester type (Member body/Liaison/Individual contribution):	Individual (work group)		
4. Submission date:	2026-05.26.		
5. Requester's reference (if applicable):	LUCP L-2621		
6. Choose one of the following:			
This is a complete proposal:			Yes
(or) More information will be provided later:			

B. Technical – General

1. Choose one of the following:			
a. This proposal is for a new script (set of characters):			No
Proposed name of script:			
b. The proposal is for addition of character(s) to an existing block:			(Yes)
Name of the existing block:	(new block:) 1DB00 Miscellaneous Symbols and Arrows Extend.		
2. Number of characters in proposal:			10
3. Proposed category (select one from below - see section 2.2 of P&P document):			
A-Contemporary	B.1-Specialized (small collection)	Yes	B.2-Specialized (large collection)
C-Major extinct	D-Attested extinct		E-Minor extinct
F-Archaic Hieroglyphic or Ideographic			G-Obscure or questionable usage symbols
4. Is a repertoire including character names provided?			
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?			Yes
b. Are the character shapes attached in a legible form suitable for review?			Yes
5. Fonts related:			
a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?	Andreas Stötzner		
b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):	Andreas Stötzner Gestaltung, Klaufügelweg 21, 88400 Biberach/R., Germany, as@signographie.de		
6. References:			
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?			Yes
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?			Yes
7. Special encoding issues:			
Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?			No

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see Unicode Character Database (<http://www.unicode.org/reports/tr44/>) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?	Yes
If YES explain <i>see N5336 (L-2607, L-2604, L-2536, L-2521); N5277 (L-2402n)</i>	
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?	Yes
If YES, with whom?	
Leibniz-Archiv, Forschungsstelle der Leibniz-Edition, Niedersächsische Landesbibliothek (GWLb), Hanover, Göttingen Academy of Science and Humanities in Lower Saxony (DE), Philiumm research group of CNRS (UMR 7219, laboratoire SPHERE) / Université de Paris VII; general: scholars, researchers, authors and editors working in the field of science history and upon editions of historic text corpora (e.g. of G. W. Leibniz, but also many others)	
If YES, available relevant documents: L-2409, L-2410	
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	Yes
Reference:	
4. The context of use for the proposed characters (type of use; common or rare)	Common
Reference: mainly specialist usage, scholarly, worldwide	
5. Are the proposed characters in current use by the user community?	Yes
If YES, where? Reference: mainly Europe, Americas; other countries	
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?	No
If YES, is a rationale provided?	
If YES, reference:	
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	No
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to, or could be confused with, an existing character?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
11. Does the proposal include use of combining characters and/or use of composite sequences?	No
If YES, is a rationale for such use provided?	
If YES, reference:	
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	
If YES, reference:	
12. Does the proposal contain characters with any special properties such as control function or similar semantics?	No
If YES, describe in detail (include attachment if necessary)	
13. Does the proposal contain any Ideographic compatibility characters?	No
If YES, are the equivalent corresponding unified ideographic characters identified?	
If YES, reference:	