L2/25-126

ISO/IEC JTC1/SC2/WG2 Nxxxx
LUCP L-2510

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 17 geometric shapes

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Status: forward to Script Encoding Working Group / WG2
Action: for expert review and encoding pipeline
Date: March 24, 2025
Requester's reference: LUCP L-2510

1. Background

With this document we present a new version of our **Geometric shapes** proposal (L-2444).
We received comments and recommendations about it on Febr. 19, 2025.
Also in this document links to online resources (mainly Leibniz Edition and Leibniz's manuscripts) are provided. Please note that some of the LAA volumes are not (yet) available in digitized form.

For more background information about the Philiumm project (headed by Prof. David Rabouin, Paris) and the related research work, please visit the Philiumm website or see the doc. no. N5277.

2. Geometric shapes in historic sources

Geometric shapes (as encoded in the 25A0 and 1F780 blocks) are considered to potentially suit for various kinds if usage in texts. Therefore they are defined rather by their shape characteristics than by a certain ascribed semantic content. The characters proposed in this document are testified in mathematical sources in the first place, but for many of them it seems neither neccessary nor desirable to confine their scope of possible usage to this kind of sources exclusively.
We demonstrate the occurence of the characters by manuscript examples as well as in historic and modern print usage. The requester's target is the use of these characters in editions of Leibniz's extensive writings and for the encoding and composing of other historic mathematical sources. For this task it is a requirement to accurately encode the geometrical characters proposed.
We suggest to consider unoccupied slots of the **1F780 block** for accomodating the new characters.

3. Characters

If this proposal gets accepted, the following 17 characters will exist:

 BULLET IN DOUBLE CIRCLE

 CIRCLED PARALLEL – as variation sequence to U+29B7

 CIRCLE WITH DOUBLE VERTICAL AND HORIZONTAL LINE

 DOUBLE CIRCLE WITH DOUBLE HORIZONTAL LINE

 CIRCLED BOTTOM RIGHT OBLIQUE HALF BLACK CIRCLE
the fill doesn't touch the circle

 LEFT HALF WHITE CIRCLE

 RIGHT HALF WHITE CIRCLE

 TRANSPARENT CUBE

 WHITE CUBE

 HORIZONTAL DOUBLE SQUARE

 VERTICAL DOUBLE SQUARE

 THREE-PART BIG SQUARE-1

 THREE-PART BIG SQUARE-2

 FOUR-PART BIG SQUARE

 LOWER LEFT FLATTENED RIGHT TRIANGLE

 LOWER RIGHT FLATTENED RIGHT TRIANGLE

 RHOMBUS

These characters may be considered for addition in the **1F780** block.

The circular shapes ◎ ◍ ⊕ ⊜ ◕ and ◖ ◗ ought to correspond in proportion and dimension to 25EF ○ LARGE CIRCLE. The BULLET IN DOUBLE CIRCLE ◎ should not get unified with 1F78B ROUND TARGET, because it is rather a double-line basic circle with a bold inner dot and not a structure with equal measurements in all parts; moreover it is not a "target symbol" but a geometric reference mark (in our sources).
The square shapes ⊞ ⊟ ⊞ and ▯ ▭ should fit to 25F0–25F3 in proportion and dimensions.

4. The *Rhombus* character

The name KITE SIGN for ▱ has been misleading and therefore has been changed.
The proposed name RHOMBUS is much more appropriate because it clearly describes a shape with four equal sides. Therefore it should not get unified with 25B1 WHITE PARALLELOGRAM.

The naming issue has been discussed by SEWG comment as follows:

> The geometrical term is RHOMBUS. And it's the one that is defined as having 4 equal sides.
> However, that's not how we name characters (and not how non-mathematicians name shapes). They and we, often use other names such as DIAMOND and LOZENGE.
>
> U+25CA LOZENGE
> U+25C7 WHITE DIAMOND
>
> Now, "diamond" is clearly used (at least by us) for the rhombus shape with all equal angles, while "lozenge"implies that the shape is narrower than that, unclear how narrow.
> So, in principle there's an option for a new term, if the shape is wider. However, all these shapes we have, including U+2662 WHITE DIAMOND SUIT are upright with a diagonal being vertical.
> Now U+25B1 PARALLELOGRAM happens to be oriented the same way as the new symbol (one edge on the baseline and no diagonal that's vertical) and the new symbol (as shown in the proposed glyph) looks a bit wider than a lozenge.
> That makes RHOMBUS actually a better choice as it matches the alignment and makes a series with PARALLELOGRAM.

We follow these considerations by the choice of RHOMBUS. However, in this form the name does not state anything about the Rhombus's *orientation*. Different orientations can result in various characters. Although more than this one orientation is not under consideration here, a short exploration of the (theoretical) possibilities shows:

our proposed RHOMBUS

that would be 25CA LOZENGE

If a possible future conflict with other *Rhombus* characters should be avoided precautionary, we propose to discuss other naming options for ▱:

RHOMBUS WITH BOTTOM RIGHT SIDE HORIZONTAL
or
RHOMBUS WITH TWO SIDES HORIZONTAL POINTING RIGHT UPWARDS

5. Unicode Character Properties

```
xd01;BULLET IN DOUBLE CIRCLE;So;0;ON;;;;;N;;;;;
29B7 FE00; with parallel lines touching the circle; # CIRCLED PARALLEL
xd03;CIRCLE WITH DOUBLE VERTICAL AND HORIZONTAL LINE;So;0;ON;;;;;N;;;;;
xd04;DOUBLE CIRCLE WITH DOUBLE HORIZONTAL LINE;So;0;ON;;;;;N;;;;;
xd05;CIRCLED BOTTOM RIGHT OBLIQUE HALF BLACK CIRCLE;So;0;ON;;;;;N;;;;;
xd06;LEFT HALF WHITE CIRCLE;So;0;ON;;;;;N;;;;;
xd07;RIGHT HALF WHITE CIRCLE;So;0;ON;;;;;N;;;;;
xd08;TRANSPARENT CUBE;So;0;ON;;;;;N;;;;;
xd09;WHITE CUBE;So;0;ON;;;;;N;;;;;
xd10;HORIZONTAL DOUBLE SQUARE;So;0;ON;;;;;N;;;;;
xd11;VERTICAL DOUBLE SQUARE;So;0;ON;;;;;N;;;;;
xd12;THREE-PART BIG SQUARE-1;So;0;ON;;;;;N;;;;;
xd13;THREE-PART BIG SQUARE-2;So;0;ON;;;;;N;;;;;
xd14;FOUR-PART BIG SQUARE;So;0;ON;;;;;N;;;;;
xd15;LOWER LEFT FLATTENED RIGHT TRIANGLE;So;0;ON;;;;;N;;;;;
xd16;LOWER RIGHT FLATTENED RIGHT TRIANGLE;So;0;ON;;;;;N;;;;;
xd17;RHOMBUS;So;0;ON;;;;;N;;;;;
```

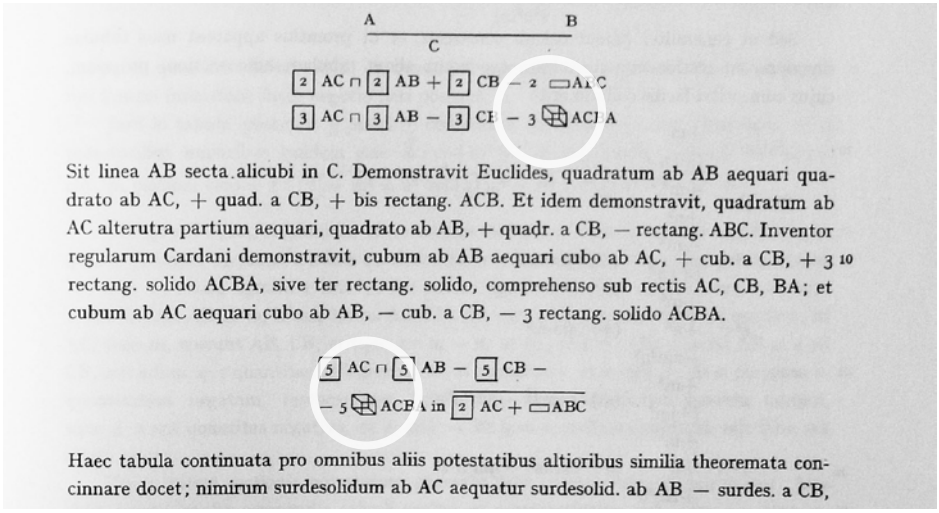
"x" stands for *unspecified codespace*. "d" refers to our internal characters classification, see N5277.

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

Cajori, Florian: A history of mathematical notations. Chicago 1928
Foucher de Careil, Louis-Alexandre: Œuvres inédites de Descartes, précédées d'une introduction sur la méthode, Paris, 1859-1860
Ghaligai, Francesco: Pratica d'Arithmetica, Florence 1552
Rinner, Elisabeth: List of glyphs in Leib.mf. PDF, Hanover 2022

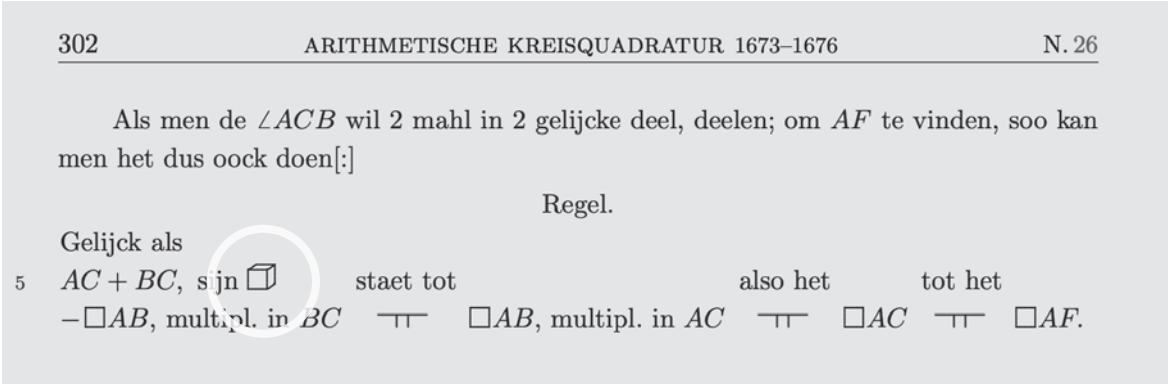
7. Figures and explanations



Sit linea AB secta alicubi in C. Demonstravit Euclides, quadratum ab AB aequari quadrato ab AC, + quad. a CB, + bis rectang. ACB. Et idem demonstravit, quadratum ab AC alterutra partium aequari, quadrato ab AB, + quadr. a CB, — rectang. ABC. Inventor regularum Cardani demonstravit, cubum ab AB aequari cubo ab AC, + cub. a CB, + 3 rectang. solido ACBA, sive ter rectang. solido, comprehenso sub rectis AC, CB, BA; et cubum ab AC aequari cubo ab AB, — cub. a CB, — 3 rectang. solido ACBA.

Haec tabula continuata pro omnibus aliis potestatibus altioribus similia theoremata concinnare docet; nimirum surdesolidum ab AC aequatur surdesolid. ab AB — surdes. a CB,

TRANSPARENT CUBE – LAA III-1 p. 643



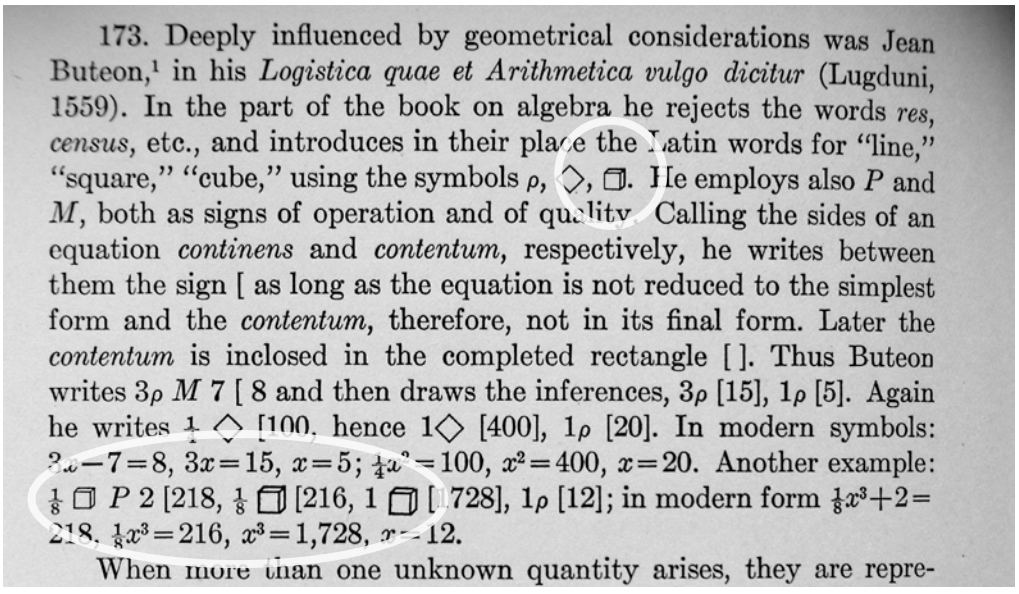
302 ARITHMETISCHE KREISQUADRATUR 1673–1676 N. 26

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

WHITE CUBE – LAA VII-6 p. 302



173. Deeply influenced by geometrical considerations was Jean Buteon,[1] in his *Logistica quae et Arithmetica vulgo dicitur* (Lugduni, 1559). In the part of the book on algebra he rejects the words *res*, *census*, etc., and introduces in their place the Latin words for "line," "square," "cube," using the symbols ρ, ◇, ▱. He employs also P and M, both as signs of operation and of quality. Calling the sides of an equation *continens* and *contentum*, respectively, he writes between them the sign [as long as the equation is not reduced to the simplest form and the *contentum*, therefore, not in its final form. Later the *contentum* is inclosed in the completed rectangle [ ]. Thus Buteon writes $3\rho\ M\ 7$ [8 and then draws the inferences, 3ρ [15], 1ρ [5]. Again he writes $\frac{1}{1}$ ◇ [100, hence 1◇ [400], 1ρ [20]. In modern symbols: $3x-7=8$, $3x=15$, $x=5$; $\frac{1}{4}x^2=100$, $x^2=400$, $x=20$. Another example: $\frac{1}{8}$ ▱ $P\ 2$ [218, $\frac{1}{8}$ ▱ [216, 1 ▱ [1728], 1ρ [12]; in modern form $\frac{1}{8}x^3+2=218$, $\frac{1}{8}x^3=216$, $x^3=1{,}728$, $x=12$.

When more than one unknown quantity arises, they are repre-

WHITE CUBE – Cajori vol. 1, p. 176

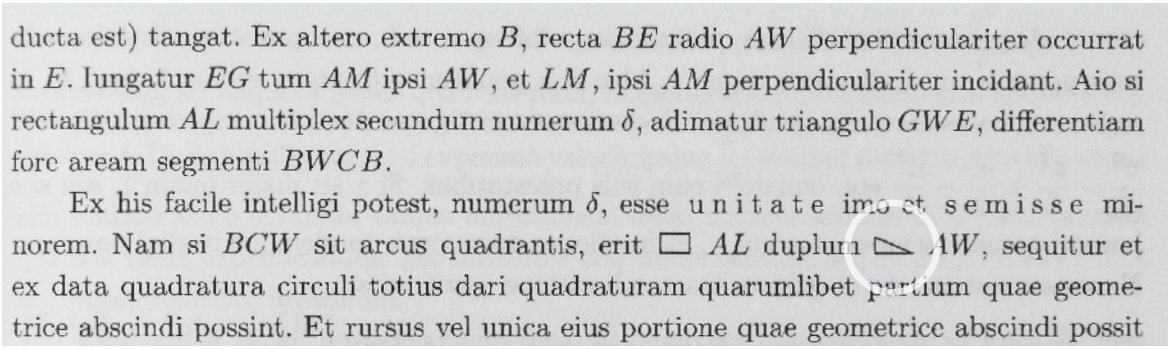
In either case of RIGHT TRIANGLE and HALF WHITE CIRCLE we can show *one* directional form only from the sources at hand, but we propose *pairs* of characters with both directional forms, this would be consistent with comparable character pairings already encoded, such as 25FA/25FF or 25D6/25D7. Therefore we propose to encode:

◿ LOWER LEFT FLATTENED RIGHT TRIANGLE

◺ LOWER RIGHT FLATTENED RIGHT TRIANGLE

◗ RIGHT HALF WHITE CIRCLE

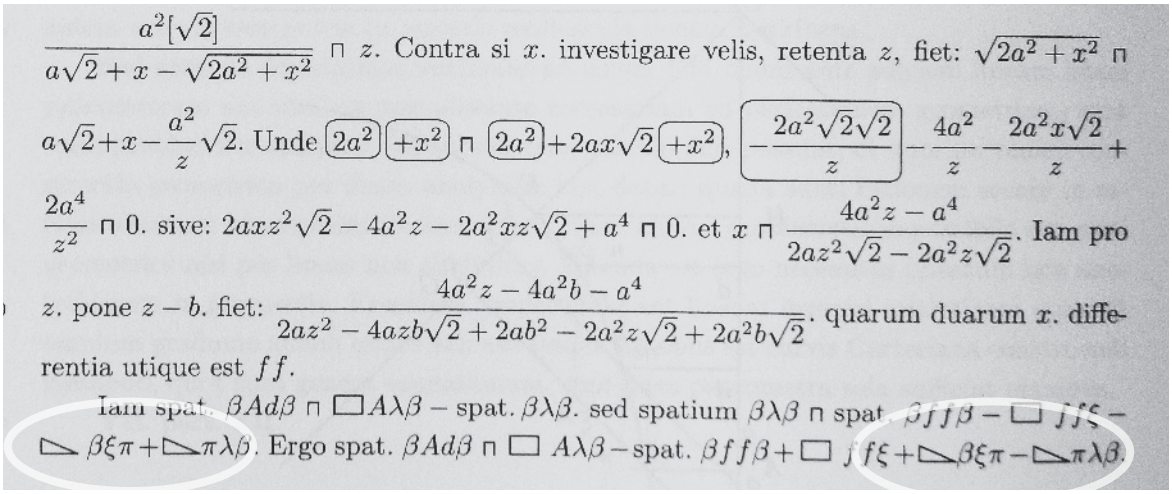
◖ LEFT HALF WHITE CIRCLE



ducta est) tangat. Ex altero extremo B, recta BE radio AW perpendiculariter occurrat in E. Iungatur EG tum AM ipsi AW, et LM, ipsi AM perpendiculariter incidant. Aio si rectangulum AL multiplex secundum numerum δ, adimatur triangulo GWE, differentiam fore aream segmenti $BWCB$.

Ex his facile intelligi potest, numerum δ, esse unitate imo et semisse minorem. Nam si BCW sit arcus quadrantis, erit □ AL duplum ◺ AW, sequitur et ex data quadratura circuli totius dari quadraturam quarumlibet partium quae geometrice abscindi possint. Et rursus vel unica eius portione quae geometrice abscindi possit

◺ LOWER RIGHT FLATTENED RIGHT TRIANGLE – LAA VII-3 p. 275

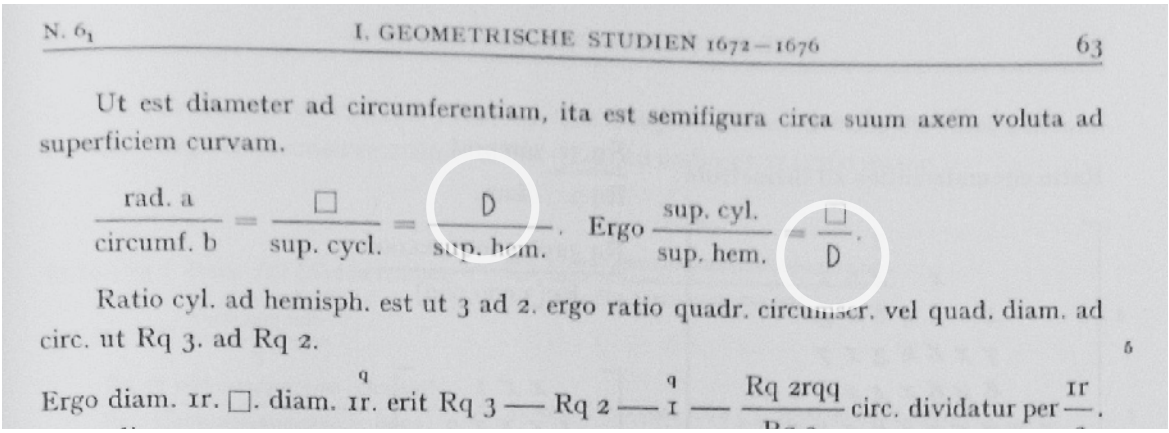


$\frac{a^2[\sqrt{2}]}{a\sqrt{2}+x-\sqrt{2a^2+x^2}} \sqcap z$. Contra si x. investigare velis, retenta z, fiet: $\sqrt{2a^2+x^2} \sqcap a\sqrt{2}+x-\frac{a^2}{z}\sqrt{2}$. Unde $\boxed{2a^2}\boxed{+x^2} \sqcap \boxed{2a^2}+2ax\sqrt{2}\boxed{+x^2}$, $\boxed{-\frac{2a^2\sqrt{2}\sqrt{2}}{z}}-\frac{4a^2}{z}-\frac{2a^2x\sqrt{2}}{z}+\frac{2a^4}{z^2} \sqcap 0$. sive: $2axz^2\sqrt{2}-4a^2z-2a^2xz\sqrt{2}+a^4 \sqcap 0$. et $x \sqcap \frac{4a^2z-a^4}{2az^2\sqrt{2}-2a^2z\sqrt{2}}$. Iam pro z. pone $z-b$. fiet: $\frac{4a^2z-4a^2b-a^4}{2az^2-4azb\sqrt{2}+2ab^2-2a^2z\sqrt{2}+2a^2b\sqrt{2}}$. quarum duarum x. differentia utique est ff.

Iam spat. $\beta Ad\beta \sqcap$ □$A\lambda\beta$ – spat. $\beta\lambda\beta$. sed spatium $\beta\lambda\beta \sqcap$ spat. $\beta ff\beta$ – □ $ff\xi$ – ◺ $\beta\xi\pi$ + ◺ $\pi\lambda\beta$. Ergo spat. $\beta Ad\beta \sqcap$ □ $A\lambda\beta$ – spat. $\beta ff\beta$ + □ $ff\xi$ + ◺ $\beta\xi\pi$ – ◺ $\pi\lambda\beta$.

◺ LOWER RIGHT FLATTENED RIGHT TRIANGLE – LAA VII-3 p. 506

The rectangle in these samples would be represented by 25AD. *Ms. of this sample: see next page*



N. 61 I. GEOMETRISCHE STUDIEN 1672–1676 63

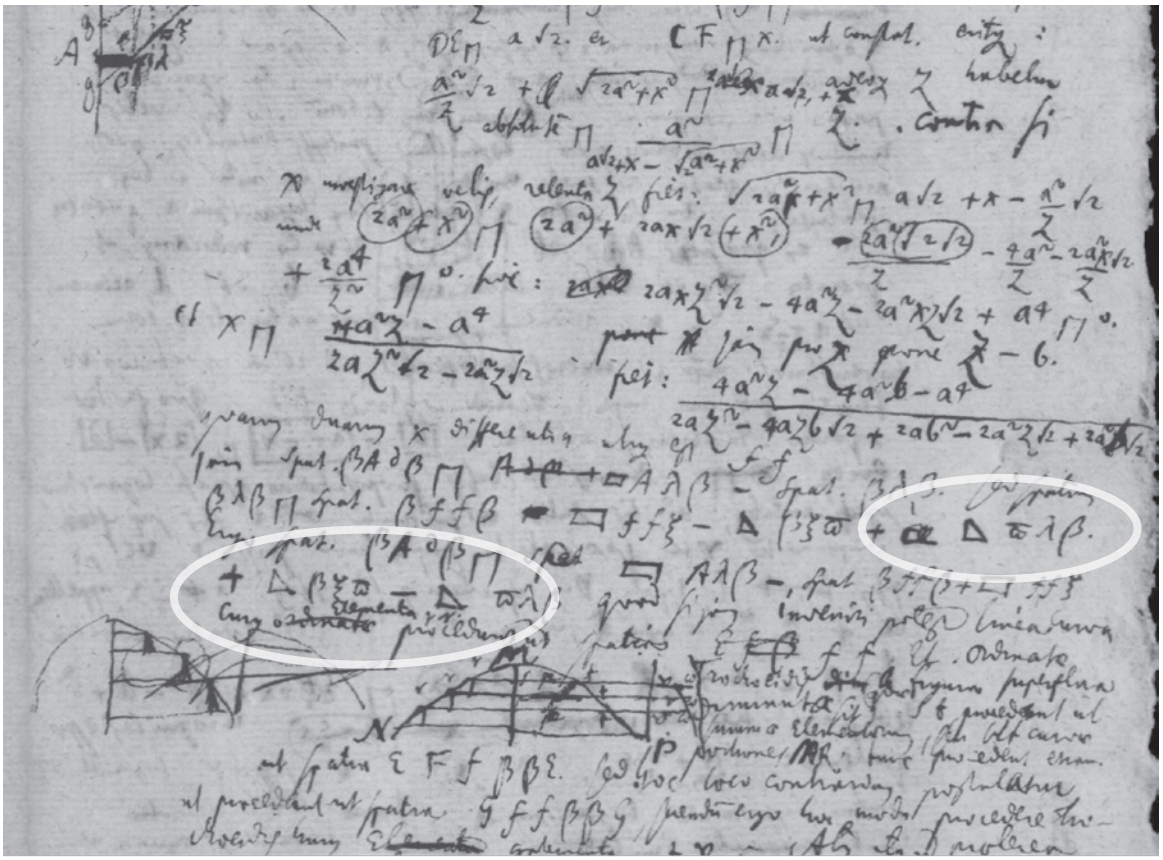
Ut est diameter ad circumferentiam, ita est semifigura circa suum axem voluta ad superficiem curvam.

rad. a / circumf. b = □ / sup. cycl. = D / sup. hem. Ergo sup. cyl. / sup. hem. = □ / D.

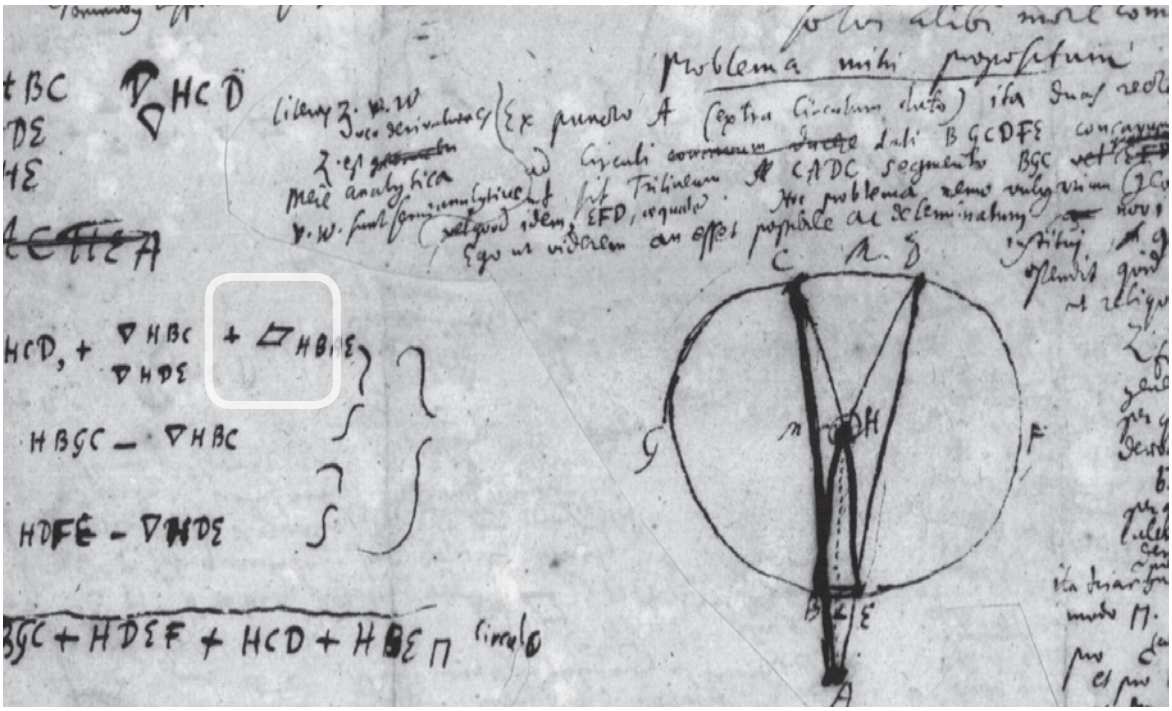
Ratio cyl. ad hemisph. est ut 3 ad 2. ergo ratio quadr. circumscr. vel quad. diam. ad circ. ut Rq 3. ad Rq 2.

Ergo diam. 1r. □. diam. 1r. erit Rq 3 — Rq 2 — q 1 — Rq 2rqq circ. dividatur per 1r.

◗ RIGHT HALF WHITE CIRCLE – LAA VII-1 p. 63



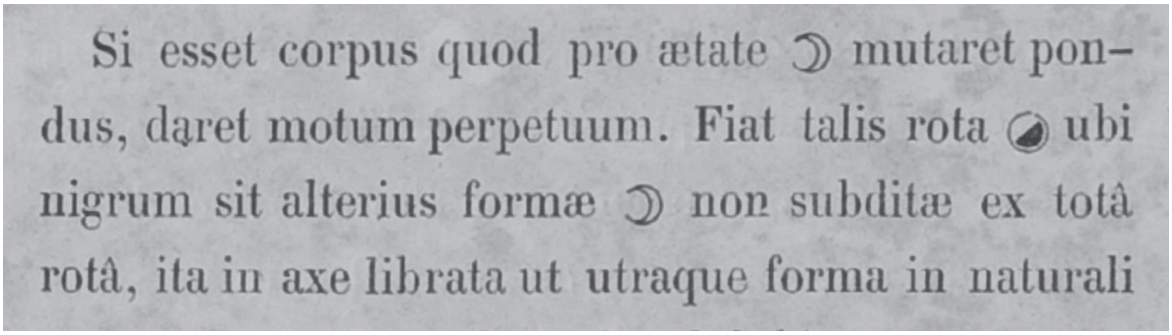
◺ LOWER RIGHT FLATTENED RIGHT TRIANGLE
Ms. LH 35 IV 5, fol. 26r



▱ RHOMBUS is different from 25B1 WHITE PARALLELOGRAM by its four *equal* sides.
LH 35 I 14 fol. 88v. *The edition of this manuscript is currently in progress*.

Si esset corpus quod pro aetate ☽ mutaret pondus, daret motum perpetuum. Fiat talis rota ◕ ubi nigrum sit alterius formae ☽ non subditae et tota rota, ita in axe librata ut utraque forma in naturali statu aequalis sit ponderis, haud dubie perpetuo movebitur juxta motum ☽.

◕ CIRCLED BOTTOM RIGHT OBLIQUE HALF BLACK CIRCLE
LAA VII-8 (preliminary edition)


Si esset corpus quod pro ætate ☽ mutaret pon-
dus, daret motum perpetuum. Fiat talis rota ◕ ubi
nigrum sit alterius formæ ☽ non subditæ ex totâ
rotâ, ita in axe librata ut utraque forma in naturali

◕ CIRCLED BOTTOM RIGHT OBLIQUE HALF BLACK CIRCLE
The same part of text as above, from Foucher de Careil (ed.): Œuvres inédites de Descartes, vol. I p. 34; 1859. This sample counts as the actual original, since no Ms. of this text survived.

et ponendo $w^3 - v^3 \sqcap \pi^3$. et $-\mu^9 + \omega^9 \hat{} [w^3] \sqcap \upsilon^{12}$.
et $-3\omega^3 w^3 + 3\mu^3 v^3 \sqcap \beta^6$. et $3\omega^6 w^3 - 3\mu^6 v^3 \sqcap \gamma^9$. et fiet:

$$\text{⏀} \quad \pi^3 x^9 + \beta^6 x^6 + \gamma^9 x^3 \sqcap \upsilon^{12}.$$

Atque ita sublatae sunt irrationales duae, nempe v. et w. iam ipsarum r. et s. tollenda est alterutra. Iam conferendo aequationes ⏀ et ⊙ tolletur x, nec restabit incognita aut

$a^4h^4x + a^5h^3l$

Unde ex aeq. ⏀ fiet aeq.

$$\oplus \left\{ \begin{array}{llll} -3\pi^3a^4n^2lx^2 & + \pi^3a^4h^4x & - \pi^3a^6l^3 & \\ & - 3\pi^3a^5hl^2. & + \pi^3a^5h^3l & \\ + \beta^6a^2h^2.. & + 2\beta^6a^3hl. & + \beta^6a^4l^2 & \\ & - \gamma^9ah. & - \gamma^9a^2l & \\ & & - \upsilon^{12} & \end{array} \right\} \sqcap 0.$$

Ubi notandum $w^3 - v^3$ seu π^3, valere $-2a^2\sqrt{\frac{1}{4}l^2 + \frac{1}{27}\frac{h^3}{a}}$ et ω^3 seu $v^3 + w^3$ valere $-a^2l$.

et $\lambda^3 \sqcap 6a^2\sqrt{\frac{1}{4}l^2 + \frac{1}{27a}\frac{h^3}{a}}$. et $\mu^3 \sqcap a^2l - 6a^2\sqrt{\frac{1}{4}l^2 + \frac{1}{27a}h^3}$. et

$$\beta^6 \sqcap \boxed{+ 3a^2lw^3 + 3a^2lv^3} \boxed{- 6a^2\sqrt{\frac{1}{4}l^2 + \frac{1}{27a}h^3v^3}}$$
$$- 3a^4l^2 \qquad + 3a^4\sqrt{\frac{1}{4}l^2 + \frac{1}{27a}h^3} - \frac{6a^4}{4}l^2 - \frac{6a^3}{27}h^3.$$

Unde terminus x^2 aequationis ⊕ fiet

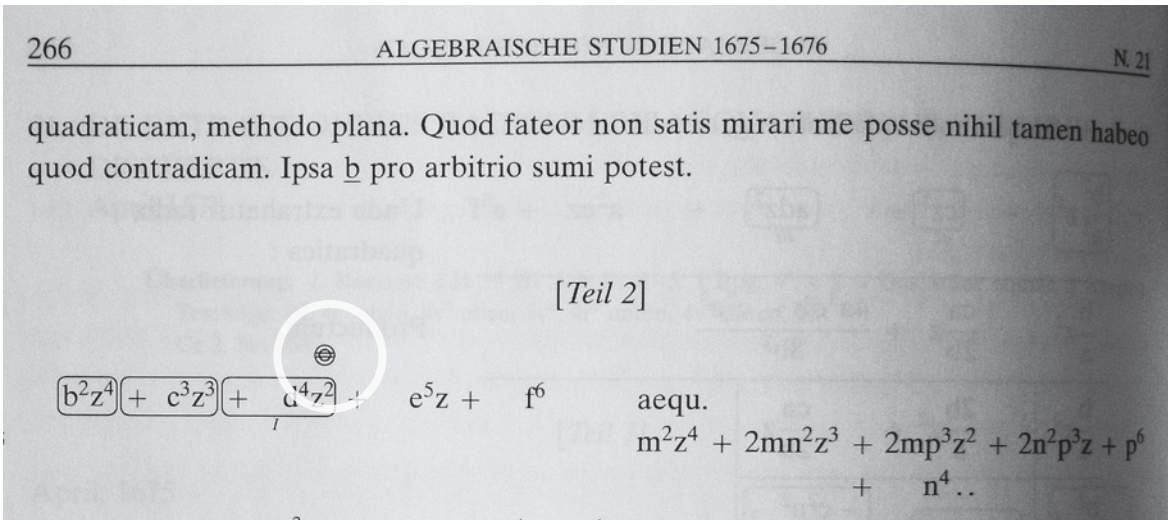
$$+ 6a^6h^2l\sqrt{\frac{1}{4}l^2 + \frac{1}{27a}h^3} - 3a^6h^2l^2 - \frac{6a^3}{27}h^3.$$

qui utique non est ut metuebam nihilo aequalis. Nisi sit in calculo error, nam metuo ne omnes termini aequationis ⊕ sint nihilo aequales, quod ultimum est effugium quo se tuetur natura rerum proteiformis.

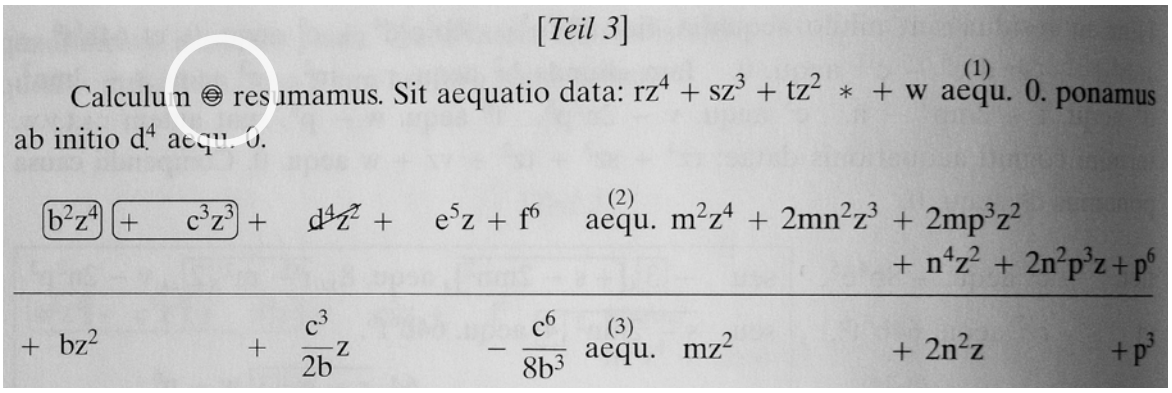
Imo iam iudico necessariam esse hanc destructionem, erroremque haud dubie in calculo admissum, quia calculus aequationis ⏀ et ⊕ oritur ex sola aequatione $x \sqcap v + w$. quae eadem est cum aequatione $x^3 * + ahx + a^2l \sqcap 0$. et omissa a nobis mentio ipsius m, dum ⊕ aequationem per $x + m$. divisimus. Itaque nihil hinc nisi identicum duci potuit. Ergo non aequatio ⧖. sed ⊕ adhibenda fuit. Et praeterea resumendus est calculus certo erroneus.

Compendii causa potuisset methodo qua initio huius paginae usi sumus aequatio $x \sqcap v + r$. resolvi donec ipsarum v. et r. tollatur asymmetria, inde orta aequatio ⏀ poterit multiplicari per $x + m$. sed nonne sufficit in aequatione ⏀ pro x substitui eius valorem ex aeq. ⊕, ita arbitror fieri compendiosissime. Optimum ergo credi resumi methodum paginae praecedentis, ut ope aequationis $x \sqcap v + r$. tollatur primum asymmetria ex v. et w, et corrigatur calculus paginae praecedentis, qui fuit erroneus; deinde ut in aequatione producta ab hac asymmetria libera, tollatur x. ope aequationis ⊕, restabit aequatio in qua nullae erunt incognitae, et duae tantum asymmetriae, r. et s.

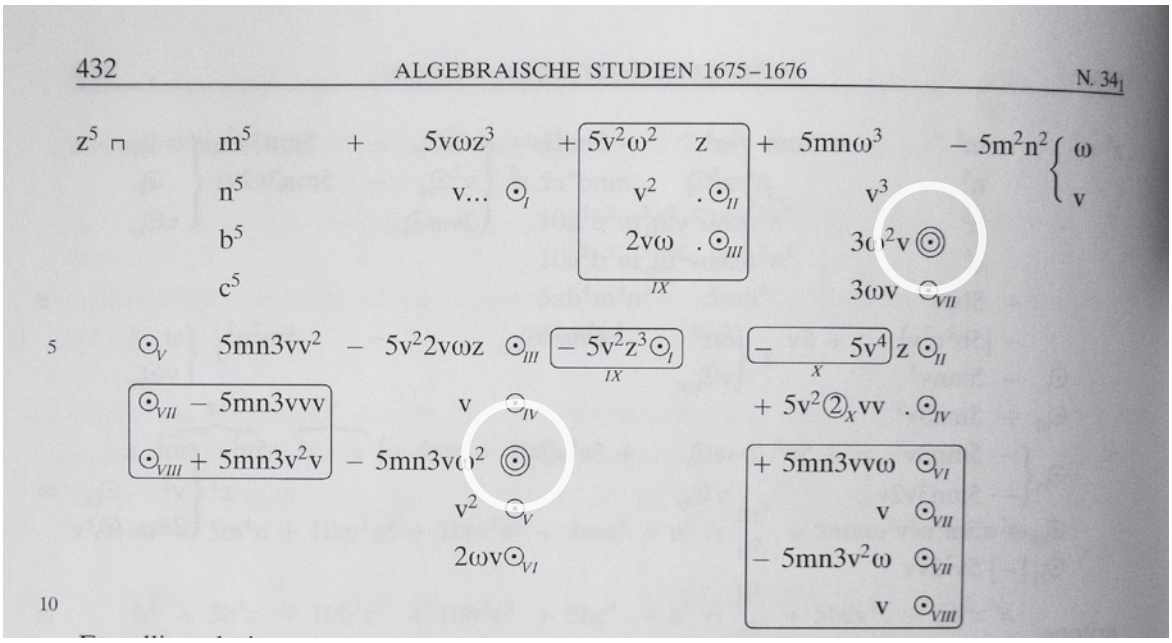
⏀ CIRCLED PARALLEL, ⊕ CIRCLE WITH DOUBLE VERTICAL AND HORIZONTAL LINE; used as reference marks. – LAA VII-2 p. 256–259



⊜ DOUBLE CIRCLE WITH DOUBLE HORIZONTAL LINE; used as a reference mark.
LAA VII-2 p. 266



⊜ DOUBLE CIRCLE WITH DOUBLE HORIZONTAL LINE
LAA VII-2 p. 268



◎ BULLET IN DOUBLE CIRCLE
LAA VII-2 p. 432.

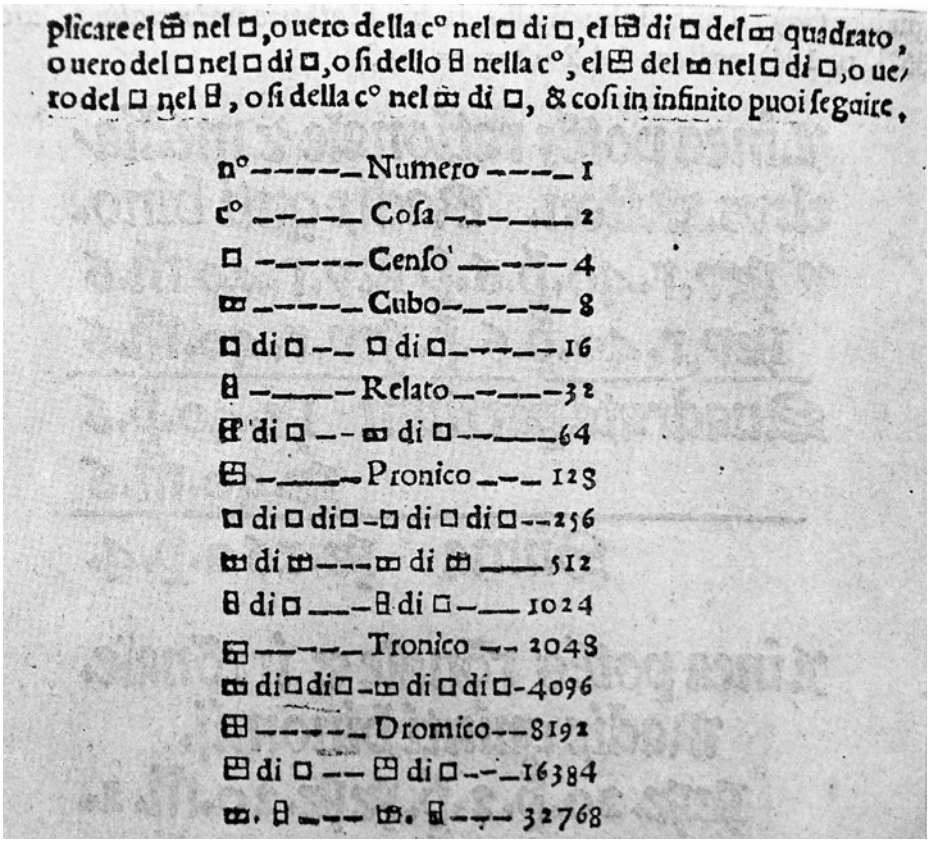
ITALIAN: F. GHALIGAI

(1521, 1548, 1552)

139. Ghaligai's *Pratica d'arithmetica*[1] appeared in earlier editions, which we have not seen, in 1521 and 1548. The three editions do not differ from one another according to Riccardi's *Biblioteca matematica italiana* (I, 500–502). Ghaligai writes (fol. 71*B*): $x = cosa = c^{o}$, $x^{2} = censo = \square$, $x^{3} = cubo = \square\square$, $x^{5} = relato = \boxminus$, $x^{7} = pronico = \boxplus$, $x^{11} = tronico = \boxplus\square$, $x^{13} = dromico = \boxplus\boxminus$. He uses the m^{o} for "minus" and the $\tilde{p}$ and *e* for "plus," but frequently writes in full *piu* and *meno*.

[1] *Pratica d'arithmetica di Francesco Ghaligai Fiorentino* (Nuouamente Riuista, & con somma Diligenza Ristampata. In Firenze. M.D.LII).

▭ HORIZONTAL DOUBLE SQUARE, ▯ VERTICAL DOUBLE SQUARE, ⊞ THREE-PART BIG SQUARE-1, ⊟ THREE-PART BIG SQUARE-2, ⊞ FOUR-PART BIG SQUARE.
Cajori I. p. 112. – For the simple square one would use the character 25FB or 25A1. The shapes of ▭ ▯ ⊞ ⊟ ⊞ can be seen in relation to the characters 25F0–25F3, 25AD and 25AF.


plicare el ⊟ nel □, o uero della c° nel □ di □, el ⊟ di □ del ▭ quadrato, o uero del □ nel □ di □, o ſi dello ▯ nella c°, el ⊟ del ▭ nel □ di □, o uero del □ nel ▯, o ſi della c° nel ▭ di □, & coſi in infinito puoi ſegaire,

n°——— Numero ——— 1
c° ——— Coſa ——— 2
□ ——— Cenſo ——— 4
▭ ——— Cubo ——— 8
□ di □ — □ di □ ——— 16
▯ ——— Relato ——— 32
⊞ di □ — ▭ di □ ——— 64
⊟ ——— Pronico ——— 128
□ di □ di □ — □ di □ di □ — 256
▭ di ▭ — ▭ di ▭ ——— 512
▯ di □ — ▯ di □ ——— 1024
⊞ ——— Tronico ——— 2048
▭ di □ di □ — ▭ di □ di □ — 4096
⊞ ——— Dromico — 8192
⊟ di □ — ⊟ di □ — 16384
▭ di ▯ — ▭ di ▯ — 32768

▭ HORIZONTAL DOUBLE SQUARE, ▯ VERTICAL DOUBLE SQUARE, ⊞ THREE-PART BIG SQUARE-1, ⊟ THREE-PART BIG SQUARE-2, ⊞ FOUR-PART BIG SQUARE
Francesco Ghaligai, Pratica d'Arithmetica, 1552 (after Cajori)

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]
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 17 geometric shapes**
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: 2025-03.24.
5. Requester's reference (if applicable): LUCP L-2510
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: *1F780, Geometric Shapes Extended*
2. Number of characters in proposal: 17
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? Yes
   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, Klauflügelweg 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 *see L-2444,* N5277 / L-24-02n

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)? Yes

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? Yes

   If YES, is a rationale for its inclusion provided? *Yes*

   If YES, reference: *one standard variation sequence char. (29B7)*

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? No

    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: