

**Universal Multiple-Octet Coded Character Set
International Organization for Standardization
Organisation internationale de normalisation
Международная организация по стандартизации**

Doc Type: Working Group Document

Title: On ordering and the proposed Duployan script for shorthands and Chinook

Source: Irish National Body

Status: National Body Contribution

Action: For consideration by JTC1/SC2/WG2 and UTC

Date: 2010-09-21

1. Introduction. Van Anderson’s work toward encoding Duployan is quite excellent. Ireland has no reservations about the character set proposed for encoding. We have, however, technical concerns about the structure of the code table proposed in document N3895.

Our technical concerns have to do with the proposed sorting order. Mr Anderson notes that, for the most part, users of Duployan shorthands and Chinook have had very little experience with actually sorted text. In the context of UCS implementation, of course, this will not be the case. Files named in Duployan will be sorted by the OS. The question is how.

2. Sorting by shape. Mr Anderson rightly constructs an ordering based on shape. Although it is probable that few users of Duployan have expectations about ordering, basing an ordering on shape is a sensible and useful way of proceeding. It is not without precedent. Users of Blissymbols have a dictionary which has three separate orderings:

- Finding Symbols by Word (an English-to-Bliss glossary)
- Finding Symbols by Meaning (a thesaurus arranged by semantic field)
- Finding Symbols by Shape (a Bliss-to-English dictionary ordered by character)

Mr Anderson’s ordering based on shape will very likely prove to be useful to users of Duployan. Certainly the same principles as applied in Blissymbols have been implemented very successfully, and users of the *Blissymbol Reference Guide* have learnt the sequence quickly and have no trouble finding things by shape.

3. Organization of the code chart. Although we recognize and agree that the ISO/IEC 14651 and the Unicode Collation Algorithm ordering as specified in N3895 is useful, we believe that the ordering of the characters as presented in the code chart will prove to work against the end user in environments where 14651 and the UCA are not properly implemented. The code chart sequence arranges the characters according to quite *different criteria* than those which are used for ordering, and we do not believe that the proposer’s chart ordering could be or should be considered useful to the end user. We do recognize that it has a structure. Unfortunately the structure is based on the wrong axis, in our view.





A look at the code table in N3895 shows that it is organized on a horizontal axis, This makes for an “attractive” code table with some paedagogical features—but this does not make a useful code table in terms of technical functionality. Having acknowledged the usefulness of Mr Anderson’s proposed ordering scheme, we suggest that the code chart order *also* be based on the principles of Mr Anderson’s

sorting order, rather than on a secondary classification as it currently is. The benefit of this will be immediate—even a binary sort of data based on such a system will be more similar to the specification of 14651 and the UCA than a binary sort based on the code chart of N3895 would be.

4. “Optimization”. Mr Anderson’s proposal suggests that some sort of “optimization” might be had if columns 0 and 1 contain high-frequency characters. We do not believe that any genuine benefit accrues here. The Basic Latin and Latin-1 binary sort does not interfile *AaÁáBbCcÇçDdĐđ*, but rather *ABCDabcd* and *ÁÇĐáçđ* respectively, and the letters in Latin 1 (which constitute the bulk of Latin-script languages used) is distant enough from the four columns in Basic Latin. “Optimization” is evidently no great concern there.

Our view is that the better optimization of the Duployan code chart would be to have its binary order follow the order proposed for sorting the script in general. We give a chart below which orders Duployan according to those principles. We have not altered any of the glyphs or character names in Mr Anderson’s proposal, apart from the five “dotted-box” glyphs which we have normalized to the same conventions of size of similar glyphs in the UCS. We also made some corrections to spelling errors in the informative annotations in the names list.

5. Issue: Expansion. In Mr Anderson’s proposal some blanks are left here and there within the code chart, evidently for potential additions. For instance, between U+1BC63 and U+1BC66 two spaces are left. One might surmise that the following two characters are envisaged:

- 1BC63 
- 1BC64 *
- 1BC65 *
- 1BC66 

We would have no issue with re-inserting such gaps in the re-ordered chart and would welcome Mr Anderson’s advice on this point.

6. Issue: Ordering within shape-classes. In some instances we are uncertain why the specific ordering has been chosen. For example, Mr Anderson’s ordering gives the following:



We are not certain why the long arcs have been inserted where they are. Why is the sequence not the following, which does not break up the original triple of arc, arc-with-stroke, and arc-with-dot?



Another example which seems to be inconsistent is based on the arc-with-dot patterns. If dot-above precedes dot-below in the consonants, why does it not do so in the vowels? In the example below, the first four characters are ordered as in Mr Anderson’s proposal, and the second four show an ordering which we might recommend.



A third example has to do with the half-arcs. Shouldn't the relative ordering of the vowel arcs be consistent with the consonant arcs? In the example below, the first eight characters are ordered as in Mr Anderson's proposal, and the second eight show an ordering which we might recommend.



A fourth example has to do with the quarter-arcs. Here there are downward sloping and upward sloping. Shouldn't the relative ordering of the vowel arcs be consistent with the consonant arcs? In the example below, the first set of characters are ordered as in Mr Anderson's proposal, and the second set shows an ordering which we might recommend.



We would also like clarification of the relative order of the quarter-circle vowels including DUPLOYAN LETTER U N and DUPLOYAN LETTER ROMANIAN U.



We would welcome discussion with Mr Anderson on these particulars, and perhaps the current ordering scheme could be made somewhat more regular, if it has not otherwise been optimized according to principles with which we are not familiar.

The Irish National Body favours the encoding of Mr Anderson's Duployan character set, but would prefer a reorganization of the code chart. Such a reorganization might take place during ballot comments if there is not sufficient time to agree on the outstanding points before a new ballot is sent out after the Busan meeting of WG2.

7. Bibliography.

Wood, Claudia, Jinny Storr, and Peter A. Reich. 1992. *Blissymbol Reference Guide*. Toronto: Blissymbolics Communication International. ISBN 0-9690516-9-7



Figure 1a. Sample from Anderson's proposal showing lines in various orientations and sizes.

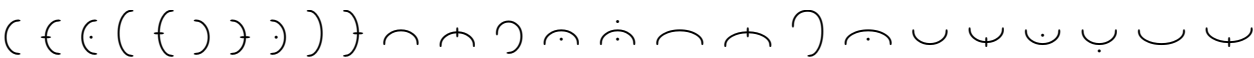


Figure 1b. Sample from Anderson's proposal showing half-circles in various orientations and sizes.

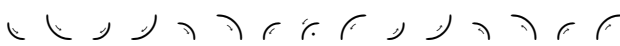


Figure 1c. Sample from Anderson's proposal showing quarter-circles in various orientations and sizes.

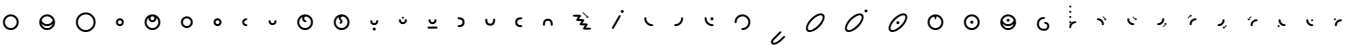


Figure 1d. Sample from Anderson's proposal showing vowels arranged in various shapes.

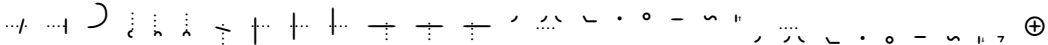


































































































































































Figure 1e. Sample from Anderson's proposal showing secants and other connectors organized according to evidently sensible criteria.

Section III FINDING Symbols by SHAPE

| | | | |
|-----------------------------|--------|--|--------|
| ∫ Wavy Lines | III-1 | □ Open Rectangles | III-29 |
| ♡ Heart | III-2 | △ Right Triangles | III-29 |
| # Cross Hatches | III-5 | · Dot | III-30 |
| △ Building | III-5 | ∧ Right Angles | III-31 |
| ∩ Ear | III-6 | ⊥ Lines on a Base | III-35 |
| ↑ Arrows | III-6 | + Crosses | III-37 |
| • Wheels | III-9 | △ Isosceles Triangles | III-39 |
| ○ Large Circle | III-9 | ∧ Symmetric Acute Angles | III-40 |
| ◦ Small Circle | III-12 | ∨ Asymmetric Acute Angles | III-42 |
| ∩ Half Circles | III-18 | — Horizontal Lines | III-43 |
| ∩ Quarter Circles | III-21 | Vertical Lines | III-48 |
|) Parentheses | III-22 | / Slanted Lines | III-52 |
| □ Squares | III-24 | ∕ Diagonal Lines | III-52 |
| ▭ Rectangles | III-26 | ∑ International Alpha- numeric Characters | III-54 |
| □ Open Squares | III-27 | | |

Figure 2. Sample from Woods et al. 1992 showing the index to the “Finding Symbols by Shape” section of the *Blissymbols Reference Guide*.

| | 1BC0 | 1BC1 | 1BC2 | 1BC3 | 1BC4 | 1BC5 | 1BC6 | 1BC7 | 1BC8 | 1BC9 |
|---|--|--|--|--|--|--|--|--|--|---|
| 0 |  1BC00 |  1BC10 |  1BC20 |  1BC30 |  1BC40 |  1BC50 |  1BC60 |  1BC70 |  1BC80 |  |
| 1 |  1BC01 |  1BC11 |  1BC21 |  1BC31 |  1BC41 |  1BC51 |  1BC61 |  1BC71 |  1BC81 |  |
| 2 |  1BC02 |  1BC12 |  1BC22 |  1BC32 |  1BC42 |  1BC52 |  1BC62 |  1BC72 |  1BC82 |  |
| 3 |  1BC03 |  1BC13 |  1BC23 |  1BC33 |  1BC43 |  1BC53 |  1BC63 |  1BC73 |  1BC83 |  |
| 4 |  1BC04 |  1BC14 |  1BC24 |  1BC34 |  1BC44 |  1BC54 |  1BC64 |  1BC74 |  1BC84 |  |
| 5 |  1BC05 |  1BC15 |  1BC25 |  1BC35 |  1BC45 |  1BC55 |  1BC65 |  1BC75 |  1BC85 |  |
| 6 |  1BC06 |  1BC16 |  1BC26 |  1BC36 |  1BC46 |  1BC56 |  1BC66 |  1BC76 |  1BC86 |  |
| 7 |  1BC07 |  1BC17 |  1BC27 |  1BC37 |  1BC47 |  1BC57 |  1BC67 |  1BC77 |  1BC87 |  |
| 8 |  1BC08 |  1BC18 |  1BC28 |  1BC38 |  1BC48 |  1BC58 |  1BC68 |  1BC78 |  1BC88 |  |
| 9 |  1BC09 |  1BC19 |  1BC29 |  1BC39 |  1BC49 |  1BC59 |  1BC69 |  1BC79 |  1BC89 |  |
| A |  1BC0A |  1BC1A |  1BC2A |  1BC3A |  1BC4A |  1BC5A |  1BC6A |  1BC7A |  1BC8A |  |
| B |  1BC0B |  1BC1B |  1BC2B |  1BC3B |  1BC4B |  1BC5B |  1BC6B |  1BC7B |  1BC8B |  |
| C |  1BC0C |  1BC1C |  1BC2C |  1BC3C |  1BC4C |  1BC5C |  1BC6C |  1BC7C |  1BC8C |  |
| D |  1BC0D |  1BC1D |  1BC2D |  1BC3D |  1BC4D |  1BC5D |  1BC6D |  1BC7D |  1BC8D |  |
| E |  1BC0E |  1BC1E |  1BC2E |  1BC3E |  1BC4E |  1BC5E |  1BC6E |  1BC7E |  1BC8E |  |
| F |  1BC0F |  1BC1F |  1BC2F |  1BC3F |  1BC4F |  1BC5F |  1BC6F |  1BC7F |  |  |

Dot consonants

- 1BC00 · DUPLOYAN LETTER H
 • Chinook, Pernin, Sloan, Perrault
 • non-joining character
- 1BC01 · DUPLOYAN LETTER X
 • Salishan
 • non-joining character

Vertical-line consonants

- 1BC02 | DUPLOYAN LETTER P
 • Chinook number 1
- 1BC03 | DUPLOYAN LETTER B
 → 1BC72 † duployan affix low vertical secant
 → 1BC73 † duployan affix mid vertical secant
 → 1BC74 † duployan affix high vertical secant
- 1BC04 | DUPLOYAN LETTER P N
 = Sloan B B
 → 1BC1E) duployan letter n

Horizontal-line consonants

- 1BC05 - DUPLOYAN LETTER T
 • Chinook number 2
- 1BC06 - DUPLOYAN LETTER TH
 • Chinook, Sloan, Pernin, Perrault
- 1BC07 - DUPLOYAN LETTER SLOAN DH
- 1BC08 — DUPLOYAN LETTER D
 → 1BC75 † duployan affix left horizontal secant
 → 1BC76 † duployan affix mid horizontal secant
 → 1BC77 † duployan affix right horizontal secant
- 1BC09 — DUPLOYAN LETTER DH
 • Chinook
 → 1BC08 — duployan letter d
- 1BC0A — DUPLOYAN LETTER D S
 = Sloan D D
 → 1BC2C ∪ duployan letter s

Northwest-to-southeast diagonal-line consonants

- 1BC0B \ DUPLOYAN LETTER F
 • Chinook number 3
- 1BC0C \ DUPLOYAN LETTER V
- 1BC0D \ DUPLOYAN LETTER F N
 = Sloan V V
 → 1BC1E) duployan letter n

Northeast-to-southwest diagonal-line consonants

- 1BC0E / DUPLOYAN LETTER K
 • Chinook number 4
 • written down and to the left
- 1BC0F / DUPLOYAN LETTER KK
 • Chinook
 • written down and to the left
- 1BC10 / DUPLOYAN LETTER G
 • written down and to the left
- 1BC11 / DUPLOYAN LETTER SLOAN J
 • written down and to the left

- 1BC12 / DUPLOYAN LETTER K M
 • written down and to the left
 = Sloan G G
 → 1BC19 (duployan letter m

Southwest-to-northeast diagonal-line consonants

- 1BC13 / DUPLOYAN LETTER L
 • written up and to the right
 = Pernin letter R
- 1BC14 / DUPLOYAN LETTER HL
 • Chinook
 • written up and to the right
- 1BC15 / DUPLOYAN LETTER LH
 • Chinook
 • written up and to the right
- 1BC16 / DUPLOYAN LETTER R
 • Chinook number 5
 • French number milliards
 • written up and to the right
 = Pernin letter L
 = Pernin Reporters word repeat sign
- 1BC17 / DUPLOYAN LETTER RH
 • Chinook
 • written up and to the right
- 1BC18 / DUPLOYAN LETTER R S
 • written up and to the right
 = Sloan R R
 → 1BC2C ∪ duployan letter s

Left half-circle consonants

- 1BC19 (DUPLOYAN LETTER M
 • Chinook Number 6
- 1BC1A (DUPLOYAN LETTER M N
 • Romanian Mai mult, not Romanian Mult mai shorthand sign
 → 1BC1E) duployan letter n
- 1BC1B (DUPLOYAN SIGN M WITH DOT
 = Romanian sign Mijloc)
- 1BC1C (DUPLOYAN LETTER M S
 = Sloan shorthand letter M M
 → 1BC2C ∪ duployan letter s
- 1BC1D { DUPLOYAN LETTER M N S
 → 1BC1E) duployan letter n
 → 1BC2C ∪ duployan letter s

Right half-circle consonants

- 1BC1E) DUPLOYAN LETTER N
 • Chinook number 7
- 1BC1F) DUPLOYAN LETTER N M
 • not Romanian nu nu shorthand sign
 → 1BC19 (duployan letter m
- 1BC20) DUPLOYAN LETTER N WITH DOT
 = Chinook NG
 = Romanian sign Nici
- 1BC21) DUPLOYAN LETTER N S
 = Pernin, Sloan, Perrault letter NG
 → 1BC2C ∪ duployan letter s
- 1BC22 } DUPLOYAN LETTER N M S
 → 1BC19 (duployan letter m
 → 1BC2C ∪ duployan letter s

Top half-circle consonants

- 1BC23 ◡ DUPLOYAN LETTER J
• Chinook number 8
= Chinook letter SH
= Pernin letter SH
- 1BC24 ◡ DUPLOYAN LETTER J M
• not Romanian ceeă ce shorthand sign
→ 1BC19 ◡ duployan letter m
- 1BC25 ◡ DUPLOYAN LETTER J N
→ 1BC1E ◡ duployan letter n
- 1BC26 ◡ DUPLOYAN LETTER J WITH DOT
= Chinook, Romanian CH
= Sloan ZH
= Chinook, Perrault J
- 1BC27 ◡ DUPLOYAN SIGN J WITH DOTS INSIDE AND ABOVE
= Romanian sign Ici
- 1BC28 ◡ DUPLOYAN LETTER J S
= Romanian stenographic letter Ge
= Pernin, Perrault letter ZH
= Sloan letter CH
→ 1BC2C ◡ duployan letter s
- 1BC29 ◡ DUPLOYAN LETTER J M S
→ 1BC19 ◡ duployan letter m
→ 1BC2C ◡ duployan letter s
- 1BC2A ◡ DUPLOYAN LETTER J N S
→ 1BC1E ◡ duployan letter n
→ 1BC2C ◡ duployan letter s
- 1BC2B ◡ DUPLOYAN LETTER J S WITH DOT
= Sloan letter hard CH
= Pernin, Perrault letter Ch

Bottom half-circle consonants

- 1BC2C ◡ DUPLOYAN LETTER S
• Chinook number 9
• French Hundreds
- 1BC2D ◡ DUPLOYAN LETTER S J
• not Romanian sa se shorthand sign
→ 1BC23 ◡ duployan letter j
- 1BC2E ◡ DUPLOYAN LETTER S WITH DOT
= Chinook TS
= Chinook, Romanian, Sloan Z
- 1BC2F ◡ DUPLOYAN LETTER S WITH DOT BELOW
= Romanian Sh
- 1BC30 ◡ DUPLOYAN LETTER S S
• French, Sloan
= Romanian stenographic letter Ts
= Pernin, Perrault letter Z
→ 1BC2C ◡ duployan letter s
- 1BC31 ◡ DUPLOYAN LETTER S J S
→ 1BC23 ◡ duployan letter j

Downward-sloping quarter-arc consonants

- 1BC32 ◡ DUPLOYAN LETTER S T
• Pernin, Perrault
• written down
= Sloan SM
- 1BC33 ◡ DUPLOYAN LETTER S T R
• Pernin, Perrault
• written down
= Sloan SN

- 1BC34 ◡ DUPLOYAN LETTER S P
• Pernin, Perrault
• written down
= Sloan KW
- 1BC35 ◡ DUPLOYAN LETTER S P R
• Pernin, Perrault
• written down
= Sloan SKW
- 1BC36 ◡ DUPLOYAN LETTER T S
• written down
• Perrault
= Sloan STD
- 1BC37 ◡ DUPLOYAN LETTER T R S
• written down
• Perrault
= Sloan SST
- 1BC38 ◡ DUPLOYAN LETTER W
• Sloan, Perrault, Pernin
• written down
• takes form of a hook or wave after K and G
- 1BC39 ◡ DUPLOYAN LETTER WH
• written down
- 1BC3A ◡ DUPLOYAN LETTER W R
• written down
• Perrault
= Sloan SW

Upward-sloping quarter-arc consonants

- 1BC3B ◡ DUPLOYAN LETTER S N
• written up
• Perrault
= Pernin KRS
= Sloan SP
- 1BC3C ◡ DUPLOYAN LETTER S M
• written up
• Perrault
= Pernin GRS
= Sloan SL
- 1BC3D ◡ DUPLOYAN LETTER K R S
• written up
• Perrault
- 1BC3E ◡ DUPLOYAN LETTER G R S
• written up
• Perrault
- 1BC3F ◡ DUPLOYAN LETTER S K
• written up
• Perrault, Pernin
= Sloan TS
- 1BC40 ◡ DUPLOYAN LETTER S K R
• written up
• Perrault, Pernin
= Sloan DS

Large circle vowels

- 1BC41 ◯ DUPLOYAN LETTER O
• Chinook number 0
- 1BC42 ◯ DUPLOYAN LETTER WO
• Chinook
- 1BC43 ◯ DUPLOYAN LETTER AOU

Small circle vowels

- 1BC44 ◦ DUPLOYAN LETTER A
• Chinook number 10s
- 1BC45 ◦ DUPLOYAN LETTER WA
• Chinook
• Not Romanian O+A
= Perrault letter OY
• Chinook number 100s
- 1BC46 ◦ DUPLOYAN LETTER OA
= Pernin letter AW
= Perrault letter AW
- 1BC47 ◦ DUPLOYAN LETTER SLOAN OW
• reverse circle vowel

Small half-circle vowels

- 1BC48 ◂ DUPLOYAN LETTER I
• character rotates to match entry angle of preceding consonant
• character has primary orientation (right and up)
= Perrault letter long A, short E (with accents)
→ 1BC6F ⚡ duployan affix attached e hook
→ 1BC6E ⚡ duployan affix attached i hook
→ 1BC4F ▷ duployan letter short i
→ 1BC50 ◂ duployan letter ee
→ 1BC51 ◂ duployan letter ie
→ 1BC52 ◂ duployan letter ui
- 1BC49 ◂ DUPLOYAN LETTER E
• character rotates to match entry angle of preceding consonant
• character has secondary orientation (left and down)
= Sloan letter long A
= Perrault letter short I, long E (with dot accent)
→ 1BC6F ⚡ duployan affix attached e hook
- 1BC4A ◦ DUPLOYAN LETTER WI
• Chinook
- 1BC4B ◦ DUPLOYAN LETTER WEI
• Salishan
- 1BC4C ◂ DUPLOYAN LETTER ROMANIAN I
• character rotates to match entry angle of preceding consonant, with dot maintaining relative position
• secondary orienting (left and down)
- 1BC4D ◂ DUPLOYAN LETTER SLOAN EH
- 1BC4E ◂ DUPLOYAN LETTER SLOAN EE

Medium half-circle vowels

- 1BC4F ▷ DUPLOYAN LETTER SHORT I
• Pernin, Duployan shorthand
• used as an invariant vowel and for orienting word abbreviations consisting of only vowels
→ 1BC48 ◂ duployan letter i
= Consolidated Duployan letter R T R
- 1BC50 ◂ DUPLOYAN LETTER EE
• Pernin, Duployan shorthand
• used as an invariant vowel and for orienting word abbreviations consisting of only vowels
→ 1BC48 ◂ duployan letter i

- 1BC51 ◂ DUPLOYAN LETTER IE
• Duployan shorthand
• used as an invariant vowel and for orienting word abbreviations consisting of only vowels
→ 1BC48 ◂ duployan letter i
= Pernin letter A
- 1BC52 ◂ DUPLOYAN LETTER UI
• Duployan shorthand
• used as an invariant vowel and for orienting word abbreviations consisting of only vowels
→ 1BC48 ◂ duployan letter i
= Pernin letter E

Diagonal-line vowels

- 1BC53 ⚡ DUPLOYAN LETTER YE
- 1BC54 / DUPLOYAN LETTER LONG I
• Pernin
• angles like an “F” when adjacent a K-type consonant

Quarter-circle vowels

- 1BC55 ◂ DUPLOYAN LETTER U
• character rotates to match entry angle of preceding consonant
• character has primary orientation (right and up)
= Romanian stenographic letter EN
→ 1BC60 ◂ duployan letter romanian u
→ 1BC38 ⤵ duployan letter w
→ 1BC59 ⤵ duployan letter long u
- 1BC56 ◂ DUPLOYAN LETTER EU
• character rotates to match entry angle of preceding consonant
• character has secondary orientation (left and down)
• in French usage, may be rendered with a dot contextually
= Romanian stenographic letter AN
- 1BC57 ◂ DUPLOYAN LETTER XW
= Perrault Uh
• not French Eu
- 1BC58 ◂ DUPLOYAN LETTER U N
→ 1BC1E) duployan letter n

Oblong circle vowels

- 1BC59 ⤵ DUPLOYAN LETTER LONG U
• Pernin, Perrault
• this vowel does not rotate to match entry angle of preceding consonant
→ 1BC5D ◦ duployan letter ou
- 1BC5A ◦ DUPLOYAN LETTER UH
• Sloan
→ 1BC5D ◦ duployan letter ou
- 1BC5B ◦ DUPLOYAN LETTER OOH
• Sloan
→ 1BC5D ◦ duployan letter ou
- 1BC5C ◦ DUPLOYAN LETTER SLOAN U
→ 1BC5D ◦ duployan letter ou

Dot vowels

- 1BC5D ◦ DUPLOYAN LETTER OU
- should not be used for Perrault Ow
 - ≈ <initial, final> 1BC5E ◦
 - = Chinook letter oo
 - 1BC60 ◦ duployan letter romanian u
 - 1BC5A ◊ duployan letter uh
 - 1BC5B ◊ duployan letter ooh
 - 1BC5C ◊ duployan letter sloan u
- 1BC5E ◦ DUPLOYAN LETTER OW
- should not be used for Romanian U
 - ≈ <medial> 1BC60 ◦
- 1BC5F ◦ DUPLOYAN LETTER WOW
- Salishan

Small quarter-circle vowels

- 1BC60 ◦ DUPLOYAN LETTER ROMANIAN U
- 1BC5E ◦ duployan letter ow
- 1BC61 ↯ DUPLOYAN LETTER VOCALIC M
- primary orienting vowel
 - = Perrault letters Am, Em, Im, Um (with accents)
- 1BC62 ↘ DUPLOYAN LETTER NASAL I
- character positions diacritically, as an orienting vowel, or as an invariant vowel
 - primary orientation
 - invariant direction down
 - Romanian multiplicative number prefix
 - = Pernin letter IM
 - = Consolidated Duployan affix INT-R-
- 1BC63 ↙ DUPLOYAN LETTER NASAL U
- character positions diacritically, as an orienting vowel, or as an invariant vowel
 - secondary orientation
 - invariant direction down
 - French number 1
 - = Pernin letter IN
 - = Consolidated Duployan affix INT-R-
- 1BC64 ↗ DUPLOYAN LETTER NASAL O
- character positions diacritically, as an orienting vowel, or as an invariant vowel
 - neutral nasal vowel for transcription of an ambiguous secondary orienting nasal vowel
 - secondary orientation
 - invariant direction up
 - = Pernin letter OM
 - = Perrault letters An, En, In, Un (with accents)
 - = Pernin letter IM
 - = Consolidated Duployan affix INT-R-
- 1BC65 ↖ DUPLOYAN LETTER NASAL A
- Perrault vocalic N - An, En, In, Un (with accents)
 - character positions diacritically, as an orienting vowel, or as an invariant vowel
 - neutral nasal vowel for transcription of an ambiguous primary orienting nasal vowel
 - primary orientation
 - invariant direction up
 - = Pernin letter ON
 - = Romanian stenographic letter YN
- 1BC66 ↗ DUPLOYAN LETTER PERNIN AN
- written down

- 1BC67 ↘ DUPLOYAN LETTER PERNIN AM
- written down
- 1BC68 ↘ DUPLOYAN LETTER SLOAN AN
- 1BC69 ↘ DUPLOYAN LETTER SLOAN EN
- 1BC6A ↘ DUPLOYAN LETTER SLOAN ON

Attached affixes

- 1BC6B ↗ DUPLOYAN AFFIX ATTACHED SECANT
- dots show position on and relative orientation to base glyph and are not rendered
 - as a prefix, takes opposite relative position to following glyph
 - generally crosses adjacent character at perpendicular, but has a bias towards SW/NE angle to contrast 1BC71 ↘
 - default neutral secant affix
 - = French suffix -anse
 - = Pernin prefix Pre-
 - = Sloan affix Ax-/-ext
- 1BC6C ↗ DUPLOYAN AFFIX ATTACHED TANGENT
- dots show position on and relative orientation to base glyph and are not rendered
 - as a prefix, takes opposite relative position to following glyph
 - = French suffix -tan
 - = Romanian shorthand letter Str-/-str
- 1BC6D ↘ DUPLOYAN AFFIX ATTACHED TAIL
- orienting character
 - = French suffix -sionaire
- 1BC6E ↘ DUPLOYAN AFFIX ATTACHED I HOOK
- glyph is retrograde and opens left or right, dependent on preceding letter
 - dots show position of preceding glyph and are not rendered
 - 1BC48 ◦ duployan letter i
 - = French suffix -tou
 - = Sloan affix Irre-/-ary
- 1BC6F ↘ DUPLOYAN AFFIX ATTACHED E HOOK
- glyph is retrograde and opens up or down, dependent on preceding letter
 - dots show position of preceding glyph and are not rendered
 - 1BC49 ◦ duployan letter e
 - = French suffix -te
- 1BC70 ↘ DUPLOYAN AFFIX ATTACHED TANGENT HOOK
- attached affix
 - dots show position on and relative orientation to base glyph and are not rendered
 - = Romanian affix Ist-/-ism
 - = Consolidated Duployan prefix T-R-
- 1BC71 ↘ DUPLOYAN AFFIX ATTACHED LEFT-TO-RIGHT SECANT
- dots show position on and relative orientation to base glyph and are not rendered
 - generally crosses adjacent character at perpendicular, but has a bias towards NW/SE angle to contrast 1BC6B ↗
 - as a suffix, takes opposite relative position to following glyph
 - = Pernin prefix Per-

Vertical affixes

- 1BC72 † DUPLOYAN AFFIX LOW VERTICAL SECANT
= Pernin Reporters Sub-
• dots show position on base glyph and are not rendered
→ 1BC03 | duployan letter b
- 1BC73 † DUPLOYAN AFFIX MID VERTICAL SECANT
= Pernin Reporters Trans-
• dots show position on base glyph and are not rendered
→ 1BC03 | duployan letter b
- 1BC74 † DUPLOYAN AFFIX HIGH VERTICAL SECANT
= Pernin Reporters Super-
• dots show position on base glyph and are not rendered
→ 1BC03 | duployan letter b

Horizontal affixes

- 1BC75 † DUPLOYAN AFFIX LEFT HORIZONTAL SECANT
= Pernin Reporters Extra-
• dots show position on base glyph and are not rendered
→ 1BC08 — duployan letter d
- 1BC76 † DUPLOYAN AFFIX MID HORIZONTAL SECANT
= Pernin Reporters Inter-
• dots show position on base glyph and are not rendered
→ 1BC08 — duployan letter d
- 1BC77 † DUPLOYAN AFFIX RIGHT HORIZONTAL SECANT
= Pernin Reporters Contra-
• dots show position on base glyph and are not rendered
→ 1BC08 — duployan letter d

High affixes

- 1BC78 ´ DUPLOYAN AFFIX HIGH ACUTE
= French suffix -ment
= Romanian suffix -mant
= Pernin Sub-
= Pernin Reporters' suffix Pro-
→ 02CA ´ modifier letter acute accent
- 1BC79 ∴ DUPLOYAN AFFIX HIGH TIGHT ACUTE
= Pernin Pro-
• as a suffix, placed above and to the right of the following letter
- 1BC7A ` DUPLOYAN AFFIX HIGH GRAVE
= French suffix -ien
= Pernin suffix Con-
→ 02CB ` modifier letter grave accent
- 1BC7B ~ DUPLOYAN AFFIX HIGH LONG GRAVE
= Pernin Contra-
- 1BC7C · DUPLOYAN AFFIX HIGH DOT
• not Romanian hundreds - use U+0307 ◌̇
combining dot above and U+0308 ◌̈
combining diaeresis
• French number thousands
= French suffix -eur
= Romanian shorthand affix trans-/-lui
→ 02D9 · dot above

- 1BC7D ° DUPLOYAN AFFIX HIGH CIRCLE
• Not Romanian number grade or percent suffix
• French ordinal number
= French suffix -euse
→ 00B0 ° degree sign
→ 02DA ° ring above
- 1BC7E - DUPLOYAN AFFIX HIGH LINE
= French suffix -iste
= Romanian shorthand affix -tor
= Pernin affix Dis-
→ 02C9 - modifier letter macron
- 1BC7F ~ DUPLOYAN AFFIX HIGH WAVE
= French suffix -ificatif
→ 02DC ~ small tilde
- 1BC80 * DUPLOYAN AFFIX HIGH VERTICAL
• also functions as attached affix vertical up with ZWJ
• this affix is about half as long as Duployan Letter P
• as a prefix, has falling stroke direction
= Pernin ZWJ + -ime
= Sloan Tele-
→ 1BC02 † duployan letter p

Low affixes

- 1BC81 , DUPLOYAN AFFIX LOW ACUTE
= French suffix -cion
= Pernin prefix ex-
→ 02CF , modifier letter low acute accent
- 1BC82 ∴ DUPLOYAN AFFIX LOW TIGHT ACUTE
= Pernin Suf-, Sug-
• as a suffix, placed under and to the right of the following letter
- 1BC83 \ DUPLOYAN AFFIX LOW GRAVE
= French suffix -ion
• French number millions
→ 02CE \ modifier letter low grave accent
- 1BC84 ˘ DUPLOYAN AFFIX LOW LONG GRAVE
= Pernin Extra-
- 1BC85 . DUPLOYAN AFFIX LOW DOT
= French suffix -ie
• French iterative number
= Romanian shorthand affix Inter-
• not Romanian millions - see U+0323 ◌̣
combining dot below and U+0324 ◌̤
combining diaeresis below
- 1BC86 ◌ DUPLOYAN AFFIX LOW CIRCLE
= French suffix -iere
• French percent
→ 02F3 ◌ modifier letter low ring
- 1BC87 _ DUPLOYAN AFFIX LOW LINE
= French suffix -isme
= Pernin affix Mis-
→ 02D7 - modifier letter minus sign
- 1BC88 ~ DUPLOYAN AFFIX LOW WAVE
= French suffix -ification
→ 02F7 ~ modifier letter low tilde

- 1BC89 „ DUPLOYAN AFFIX LOW VERTICAL
- functions as attached affix vertical down with ZWJ
 - this affix is about half as long as Duployan the letter P
 - as a prefix, has rising stroke direction
- = Pernin ZWJ + -ine
→ 1BC02 † duployan letter p
- 1BC8A ‚ DUPLOYAN AFFIX LOW ARROW
- = Romanian prefix Sub-
 - low affix

Chinook sign

- 1BC8B ⊕ DUPLOYAN SIGN O WITH CROSS
- Chinook Likalisti

Sloan R-form selector

- 1BC8C ☐ DUPLOYAN THICK LETTER SELECTOR
- commonly abbreviated DTLS
 - Sloan R-flavored letters
 - Shape shown is arbitrary and is not visibly rendered
 - Causes previous Duployan character to be rendered bold

Shorthand double mark





- 1BC8D ≠ DUPLOYAN DOUBLE MARK
- Dots show position on and relative orientation to base glyph and are not rendered
 - Romanian, Sloan shorthands
 - Should be used with M, N, J, and S for the Romanian word signs Mai mult, Nu nu, Ceea ce, and Sa se
 - Can be doubled and tripled

Chinook punctuation

- 1BC8E = DUPLOYAN PUNCTUATION CHINOOK FULL STOP

| 1BCA | |
|------|-------|
| 0 | 1BCA0 |
| 1 | 1BCA1 |
| 2 | 1BCA2 |
| 3 | 1BCA3 |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| A | |
| B | |
| C | |
| D | |
| E | |
| F | |

Shorthand Format Controls

- 1BCA0  SHORTHAND FORMAT LETTER OVERLAP
 - shape shown is arbitrary and is not visibly rendered
- 1BCA1  SHORTHAND FORMAT CONTINUING OVERLAP
 - shape shown is arbitrary and is not visibly rendered
- 1BCA2  SHORTHAND FORMAT DOWN STEP
 - = Romanian shorthand affix -tsion-
 - = Sloan contracted ending oo/o + ZWSP
 - shape shown is arbitrary and is not visibly rendered
- 1BCA3  SHORTHAND FORMAT UP STEP
 - = Sloan contracted ending uh/au/au + ZWSP
 - shape shown is arbitrary and is not visibly rendered