## ISO/IEC JTC1/SC2/WG2 N4106

Report on the ad hoc re "Teuthonista" (SC2/WG2 N4081) held during the SC2/WG2 meeting at Helsinki, 2011 June 7/8
Michael Everson (tables), Karl Pentzlin (text)

The following issues regarding the characters proposed in SC2/WG2 N4081 were addressed and solved, resulting in the agreed character repertoire shown at the end of this document:

## 1. Character stacking and raised letters.

A feature of Teuthonista is the stacking of two characters to denote an intermediate sound, like p over b: $\quad \stackrel{p}{b}$ or: $\quad$ b
(i.e., there are examples for using full size characters as well as smaller size characters).

There is consensus that both cases can be represented by combining small letters (like the COMBINING LATIN SMALL LETTER $P$ in this example), which usually yields a glyph smaller than the base letter it is applied to.

Similar applies to raised letters. As an example, the "half geminate" which appears in some material as ${ }^{t}$ will be represented as ${ }^{t}$ t, using a pair of modifier letter + common letter.

## 2. Parenthesized diacritical marks and characters

There will be no combinations of diacritics or letters surrounded by small parentheses as atomic characters. Instead, there will be four diacritical marks:

COMBINING PARENTHESES ABOVE COMBINING DOUBLE PARENTHESES ABOVE COMBINING PARENTHESES OVERLAY COMBINING PARENTHESES BELOW

While all combining marks above get the Canonical Combining Class value 230, all other combining marks (with the exception of COMBINING PARENTHESES OVERLAY, which gets "TBD" now as the value will be determined by the UTC) get the same Canonical Combining Class value 220 marking them as "below". This includes the centralization marks. Thus, it is ensured that all combining marks will be processed in the input order.

The parentheses will affect the character which precedes them, be it a diacritic or a base character. The exact placement (which is usually not symmetrical to the vertical axis of the base character e.g. in the case of an eng or a centralization mark) is to be determined by the font.
There will be two explanation paragraphs included into the text of the Standard.
One explains that the centralization strokes may be placed sideways to other combining marks being placed below the place letters (comparable of the handling of Vietnamese diacritics), in spite of having the same canonical combination class which otherwise denotes vertical stacking. The other one deals with the combining parenthesis pairs.

As an example, the Teuthonista combined letter:
is represented by the following sequence:
LATIN SMALL LETTER A
COMBINING STRONG CENTRALIZATION MARK BELOW
COMBINING PARENTHESES BELOW
COMBINING OPEN MARK BELOW
COMBINING PARENTHESES BELOW

## 3. Lenis f

The LATIN SMALL LETTER LENIS F as proposed in N4081 is a character different from the usual small f. While this has a bottom hook in italic fonts, the "lenis f" has not. As for the Unicode tables a Roman form is to be provided, this has to be invented and to be distinguishable from the normal f, by cutting its bottom and making it float above the baseline).
It is not adequate to use U+0192 LATIN SMALL LETTER F WITH HOOK for the "normal f" while using U+0066 LATIN SMALL LETTER LENIS F for the "ordinary f ", as in cannot excluded that anybody inserts a citation from a corpus containing a "lenis f"into a text which already contains the letter f encoded as "usual f" from other sources, then being forced to re-encode all "f"s in their text.

## 4. Final Barline

There will be no new punctuation mark "Final Barline" encoded. Instead, U-1D102 MUSICAL SYMBOL FINAL BARLINE and similar symbols can be used in running text. Into fonts intended for linguistic use, such symbols can be included with a design compatible with the vertical lines encoded as punctuation marks.

## 5. Latin small letter $\mathbf{g}$ with low stroke

It is decided that the letter proposed in N4081 as LATIN LETTER SCRIPT G WITH LOW STROKE can be rpresented by U+01E5 LATIN SMALL LETTER G WITH STROKE, as the form of this letter in italic fonts usually resemble the required form.

## 6. The open mark

The "open mark below" is a character different from the ogonek, in spite of the superficial similarity especially in some inferior fonts used for some early Americanistic texts. As the geographical area of German dialectology largely overlaps with the area where Polish place names are used, which may contain an ogonek, both diacritical marks in fact occur in the same fields of databases. A unification would prevent the possibility to search selectively for open marks.

## 7. The "Latin small letter lunate epsilon"

The encoding of this letter, which is contrastively used to the open e in some Swiss material from the first decades of the 20th century, was deferred (and will possibly dealed by later ballot comments or supplemental proposals). As long as Greek letters are used within IPA, U+03F5 GREEK LUNATE EPSILON SYMBOL can be considered as a replacement, although its glyph is inferior for this purpose (the letter used in the Swiss material in fact is a common "e" where the lower right part of the bowl is removed on the metal types).

## 8. Letters with high caron overlay

The encoding of the letters $\mathrm{d} / \mathrm{k} / \mathrm{t}$ with high caron overlay were deferred. It was pointed out that while these letters can be regarded as combinations of base letters with caron, such combinations are usually displayed by glyphs showing the caron besides the letter stem by a comma-like form. As the geographical area of German dialectology largely overlaps with the area where Czech place names are used, such place names can occur side by side with text using dialectal orthography, thus even if the letters are considered as combinations of base letter + caron, the proposed forms are to be coded separately even if considered as presentation forms.
As these letters are not used by the conventions applied to ongoing larger scientific projects, it was agreed to defer these letters to the encoding of Landsmålsalfabetet, which contains more such letters.

## 9. X-like letters

N4081 contains seven letters (at AB58...AB5E) which show $x$-like forms. As Teuthonista texts, as common for phonetics, usually are printed with italic types, the issue was rised that the straight glyphs provided as Roman types in N4081 are not appropriate. It was agreed that the glyphs will be replaced by ones which resemble more the italic forms.

As such a glyph redesign takes time, it was agreed that the ballot documents may show the glyphs shown in N4081, to be replaced later.

## 10. Roadmap

It was agreed that there is no longer a need to differentiate between the two blocks now in the Roadmap to the BMP:

Latin Extended-E: AB30...AB8F
Phonetic Extensions Extended B: AB90...ABBF
Thus, it was agreed to fuse them to a single block:
Latin Extended-E: AB30...ABBF

## 11. Agreed Repertoire

After having discussed the other letters and their shapes individually, the repertoire (containing a total of 85 characters) shown in the tables below was agreed upon.
It consists of:
15 combining characters in the new block "Combining Diacritical Marks Extended";
14 combining characters in the block "Combining Diacritical Marks Supplement";
8 characters in the block "Latin Extended-D";
48 characters in the new block "Latin Extended-E".

## Used for German dialectology

1AB0 $\hat{\imath}$ COMBINING DOUBLED CIRCUMFLEX ACCENT
1AB1 $\because$ COMBINING DIAERESIS-RING
1AB2 $\circ$ COMBINING INFINITY
1AB3 $\dot{\circ}$ COMBINING DOWNWARDS ARROW
1AB4 $\dot{\circ}$ COMBINING TRIPLE DOT
1AB5 ¢ COMBINING X-X BELOW
1AB6 ¢ $\times$ COMBINING WIGGLY LINE BELOW
1AB7 - COMBINING OPEN MARK BELOW
$\rightarrow 0328$ e combining ogonek
$\rightarrow 0345$ g combining greek ypogegrammeni
1AB8 COMBINING DOUBLE OPEN MARK BELOW
1AB9 $\stackrel{\text { P COMBINING LIGHT CENTRALIZATION STROKE }}{ }$ BELOW
1ABA $P$ COMBINING STRONG CENTRALIZATION
1 ABB $\quad \therefore$ STROKE BELOW COMBINING PARENTHESES ABOVE
1ABC " COMBINING DOUBLE PARENTHESES ABOVE
1ABD \& COMBINING PARENTHESES BELOW
1ABE COMBINING PARENTHESES OVERLAY

|  | 1DC | 1DD | 1DE | 1DF |
| :---: | :---: | :---: | :---: | :---: |
| 0 |  | $\underset{10 D 0}{\omega}$ | $\begin{gathered} \mathrm{n} \\ \text { 1DE0 } \\ \hline \end{gathered}$ | 4 1DFO |
| 1 | $\%$ $\%$ $1 D C 1$ | $\bigcirc$ <br> 1DD1 | N $\qquad$ 1DE1 | w <br> 1DF1 |
| 2 | ${ }_{1 D^{3} \mathrm{C}}$ | $\begin{gathered} \text { Y } \\ \text { 1DD2 } \end{gathered}$ | R. <br> 1DE2 | ä <br> 1DF2 |
| 3 |  |  | $\begin{gathered} ? \\ 1 \text { 1DE } \end{gathered}$ | $\ddot{O}$ <br> 1DF3 |
| 4 | $\begin{gathered} \text { 亿 } \\ 10 C 4 \end{gathered}$ | æ <br> 1DD4 | $\begin{gathered} \mathrm{S} \\ \text { 1DE4 } \end{gathered}$ | $\ddot{\ddot{u}}$ <br> 1DF4 |
| 5 | $\begin{gathered} \bar{Y} \\ 1 \mathrm{DC5} \end{gathered}$ | 20 O 1DD5 | $\begin{gathered} f \\ 1 \text { 1DE } \end{gathered}$ |  |
| 6 | $\begin{gathered} 7 \\ 10 C 6 \end{gathered}$ | $\stackrel{Y}{ }$ <br> 3 <br> 1DD6 | Z <br>  <br> 1DE6 |  |
| 7 |  | $\stackrel{C}{C}$ <br> \% <br> 1DD7 | a <br> $\ldots$ <br> 1DE7 |  |
| 8 | $\begin{gathered} \text { 亿 } \\ 10 C 8 \end{gathered}$ | $\begin{gathered} \partial \\ 0 \\ 1 \text { 1DD8 } \end{gathered}$ | $\begin{gathered} b \\ \text { 1DE8 } \\ \hline \end{gathered}$ |  |
| 9 | 1DC9 | $\begin{gathered} \partial \\ \text { 1DD9 } \\ \hline \end{gathered}$ | $\begin{gathered} \beta \\ 1 \text { 1DE9 } \\ \hline \end{gathered}$ |  |
| A | $\underset{1 \mathrm{DCA}}{\mathbf{r}}$ | $\begin{gathered} \mathrm{g}_{\mathrm{y}} \\ \text { 1DDA } \end{gathered}$ | $\begin{gathered} \partial \\ \ddots \\ \text { 1DEA } \\ \hline \end{gathered}$ |  |
| B | $\begin{aligned} & \text { 1 } \\ & 1 D C B \end{aligned}$ | $\begin{gathered} \mathrm{G} \\ \hline \\ 1 \mathrm{DDB} \end{gathered}$ | $\begin{gathered} f \\ \text { 1DEB } \\ \hline \end{gathered}$ |  |
| C | 1DCC | $\begin{gathered} \mathrm{k} \\ 1 \mathrm{DDC} \\ \hline \end{gathered}$ | $\begin{gathered} \neq \\ \text { 1DEC } \\ \hline \end{gathered}$ | 1DFC |
| D | $\widehat{6}$ | $\begin{gathered} 1 \\ 1 \text { 1DD } \end{gathered}$ | $\begin{gathered} 0 \\ \vdots \\ 1 \text { 1DED } \end{gathered}$ | $\underset{1 \mathrm{DFD}}{\approx}$ |
| E | $\begin{gathered} 7 \\ 1 \mathrm{DCE} \end{gathered}$ | $\begin{gathered} \mathrm{L}_{\mathrm{K}} \\ \text { 1DDE } \end{gathered}$ | $\begin{gathered} p \\ \text { 1DEE } \end{gathered}$ | $\begin{gathered} S \\ 1 \text { 1DFE } \end{gathered}$ |
| F | 10CF | M <br> 1DDF | $\int$ <br> 1DEF | $\underset{\text { 1DFF }}{>6}$ |

## Used for Ancient Greek

These are used as editorial signs for Ancient Greek to indicate scribal deletion of erroneous accent marks. 1DC0 ¿ COMBINING DOTTED GRAVE ACCENT $\rightarrow$ 1FED ${ }^{\text {* }}$ greek dialytika and varia
1DC1 \% COMBINING DOTTED ACUTE ACCENT $\rightarrow 0344 \dot{6}$ combining greek dialytika tonos $\rightarrow$ 1FEE " greek dialytika and oxia
Miscellaneous marks
1DC2 C COMBINING SNAKE BELOW
1DC3 COMBINING SUSPENSION MARK - Glagolitic $\rightarrow 0306$ combining breve

## Contour tone marks

1DC4 б COMBINING MACRON-ACUTE
1DC5 〕 COMBINING GRAVE-MACRON
1DC6 ○े COMBINING MACRON-GRAVE
1DC7 - COMBINING ACUTE-MACRON
1DC8 C COMBINING GRAVE-ACUTE-GRAVE
1DC9 < COMBINING ACUTE-GRAVE-ACUTE

## Miscellaneous mark

1DCA i COMBINING LATIN SMALL LETTER R BELOW

## Contour tone marks

1DCB - COMBINING BREVE-MACRON - Lithuanian dialectology

1DCC $\quad$ COMBINING MACRON-BREVE

- Lithuanian dialectology


## Double diacritic

1DCD COMBINING DOUBLE CIRCUMFLEX ABOVE

## Medievalist additions

1DCE \& COMBINING OGONEK ABOVE
1DCF § COMBINING ZIGZAG BELOW
1DD0 COMBINING IS BELOW
1DD1 © COMBINING UR ABOVE
1DD2 8 COMBINING US ABOVE
Medieval superscript letter diacritics
1DD3 COMBINING LATIN SMALL LETTER FLATTENED OPEN A ABOVE
1DD4 COMBINING LATIN SMALL LETTER AE
1 DD5 COMBINING LATIN SMALL LETTER AO
1DD6 COMBINING LATIN SMALL LETTER AV
1DD7 \& COMBINING LATIN SMALL LETTER C CEDILLA
1 DD8 © COMBINING LATIN SMALL LETTER INSULAR D
1DD9 C COMBINING LATIN SMALL LETTER ETH
1DDA 8 COMBINING LATIN SMALL LETTER G
1DDB $\circ$ COMBINING LATIN LETTER SMALL CAPITAL G
1DDC k COMBINING LATIN SMALL LETTER K
1DDD COMBINING LATIN SMALL LETTER L
1DDE \& COMBINING LATIN LETTER SMALL CAPITAL L
1DDF COMBINING LATIN LETTER SMALL CAPITAL M
1DE0 COMBINING LATIN SMALL LETTER N
1DE1 \& COMBINING LATIN LETTER SMALL CAPITAL N
1DE2 © COMBINING LATIN LETTER SMALL CAPITAL R
1DE3 \& COMBINING LATIN SMALL LETTER R ROTUNDA
1DE4 COMBINING LATIN SMALL LETTER S
1DE5 \% COMBINING LATIN SMALL LETTER LONG S
1DE6 ~ COMBINING LATIN SMALL LETTER Z

## Superscript letter diacritics for German dialectology

1DE7

1DE8
1DE9
1DEA
1DEB
1DEC

1DEE
1DEF
1DF0
1DF1
1DF2 \% COMBINING LATIN SMALL LETTER A WITH DIAERESIS
1DF3 COMBINING LATIN SMALL LETTER O WITH DIAERESIS
1DF4 COMBINING LATIN SMALL LETTER U WITH DIAERESIS

## Additional mark

1DFC \& COMBINING DOTTED DOUBLE INVERTED BREVE BELOW
1DFD

## Additional marks for the Uralic Phonetic Alphabet

1DFE $\delta$ COMBINING LEFT ARROWHEAD ABOVE
1DFF $\rightarrow$ COMBINING RIGHT ARROWHEAD AND DOWN ) ARROWHEAD BELOW


## Additional letters

## Archaic letters for Ewe

A798 $\mp$ LATIN CAPITAL LETTER F WITH STROKE
A799 f LATIN SMALL LETTER F WITH STROKE

- old Ewe orthography
- also used in German dialectology


## Archaic letters for Volap $\tilde{\mathbf{A}}^{1 / 4 k}$

A79A J LATIN CAPITAL LETTER VOLAPUK AE
A79B u LATIN SMALL LETTER VOLAPUK AE
A79C U LATIN CAPITAL LETTER VOLAPUK OE
A79D v LATIN SMALL LETTER VOLAPUK OE
A79E U LATIN CAPITAL LETTER VOLAPUK UE
A79F u LATIN SMALL LETTER VOLAPUK UE
C

|  |  | Latin Ex |
| :---: | :---: | :---: |
| Letters for German dialectology |  |  |
| AB30 | a | LATIN SMALL LETTER BARRED ALPHA |
| AB31 | ${ }^{\circ}$ | LATIN SMALL LETTER A REVERSED－SCHW |
| AB32 | e | LATIN SMALL LETTER BLACKLETTER E |
| AB33 | e | LATIN SMALL LETTER BARRED |
| AB34 | c | LATIN SMALL LETTER E WI |
| AB35 | f | LATIN SMALL LE |
|  |  | $\rightarrow 0066 \mathrm{f}$ latin small letter f |
| AB36 | g | LATIN SMALL LETTER SCRIPT G WITH CROSSED－TAIL |
| AB37 | ¢ | LATIN SMALL LETTER L WITH INVERTED LAZY S |
| AB38 | $\ddagger$ | LATIN SMALL LETTER L WITH DOUBLE MIDDLE TILDE |
| AB39 | ¢ | LATIN SMALL LETTER L WITH MIDDLE RING |
| AB3A | m | LATIN SMALL LETTER M WITH CROSSED－TAIL |
| AB3B | 口 | LATIN SMALL LETTER N WITH CROSSED－TAIL |
| AB3C | $\eta$ | Latin small Letter eng with crossed－ TAIL |
| AB3D | 0 | LATIN SMALL LETTER BLACKLETTER O |
| AB3E | $\square$ | LATIN SMALL LETTER BLACKLETTER O WITH STROKE |
| AB3F | $\varnothing$ | LATIN SMALL LETTER OPEN O WITH STROKE |
| AB40 | 06 | LATIN SMALL LETTER INVERTED OE <br> ＝latin small letter o reversed－schwa |
| AB41 | ə | LATIN SMALL LETTER TURNED OE WITH STROKE |
| AB42 | ヵ | Latin small Letter turned oe with HORIZONTAL STROKE |
| A | $\omega$ | LATIN SMALL LETTER TURNED O OPEN－ |
| AB44 | $\omega$ | LATIN SMALL LETTER TURNED O OPEN－O WITH STROKE |
| AB45 | 人 | LATIN SMALL LETTER STIRRUP R |
| AB46 | R． | LATIN LETTER SMALL CAPITAL R WITH RIGH LEG |
| AB47 | 1 | LATIN SMALL LETTER R WITHOUT HANDLE |
| AB48 | r | LATIN SMALL LETTER DOUBLE R |
| AB49 | $r$ | LATIN SMALL LETTER R WITH CROSSED－TAIL |
| AB4A | r | LATIN SMALL LETTER DOUBLE R WITH CROSSED－TAIL |
| AB4B | 7 | LATIN SMALL LETTER SCRIPT R |
| AB4C | ＇ | LATIN SMALL LETTER SCRIPT R WITH RING |
| AB4D | 5 | LATIN SMALL LETTER BASELINE ESH |
| AB4E | $u$ | LATIN SMALL LETTER U WITH SHORT RIGHT LEG |
| AB4F | $t$ | LATIN SMALL LETTER U BAR WITH SHORT RIGHT LEG |
| AB50 | ul | LATIN SMALL LETTER UI |
| AB51 | m | LATIN SMALL LETTER TURNED UI |
| AB52 | u | LATIN SMALL LETTER U WITH LEFT HOOK |
| AB53 | X | LATIN SMALL LET |
|  |  | $\rightarrow 03 C 7 \chi$ greek small letter chi |
|  |  | $\rightarrow$ A7AF latin small letter chi |
| AB54 | X | LATIN SMALL LETTER STRETCHED X WITH LOW RIGHT RING |
| AB55 | X | LATIN SMALL LETTER STRETCHED X WITH LOW LEFT SERIF |
| AB56 | x | LATIN SMALL LETTER X WITH LOW RIGHT RING |
| AB57 | $\chi$ | LATIN SMALL LETTER X WITH LONG LEFT LE |
| AB58 | X | LATIN SMALL LETTER X WITH LONG LEFT LEG AND LOW RIGHT RING |
| AB59 | $X$ | LATIN SMALL LETTER X WITH LONG LEFT LEG WITH SERIF |
| AB5A | $y$ | LATIN SMALL LETTER Y WITH SHORT RIGHT LEG |

## Modifier letters for German dialectology

AB5B＝MODIFIER BREVE WITH INVERTED BREVE
AB5C ble MODIFIER LETTER SMALL HENG
AB5D $\ddagger$ MODIFIER LETTER SMALL L WITH DOUBLE
AB5E ${ }^{\mathrm{t}}$ MODIFIER LETTER SMALL L WITH INVERTED LAZY S
AB5F u MODIFIER LETTER SMALL U WITH LEFT HOOK

