SignWriting in Unicode and Rich Text Considerations

Presented at the SignWriting Symposium
on July 20th, 2016

by Stephen E Slevinski Jr
in association with the Center for Sutton Movement Writing

http://www.signwriting.org/symposium/presentation0061.html

The Big Umbrella of the Center for Sutton Movement Writing

All sign languages supported right now.

Various hand writing styles.

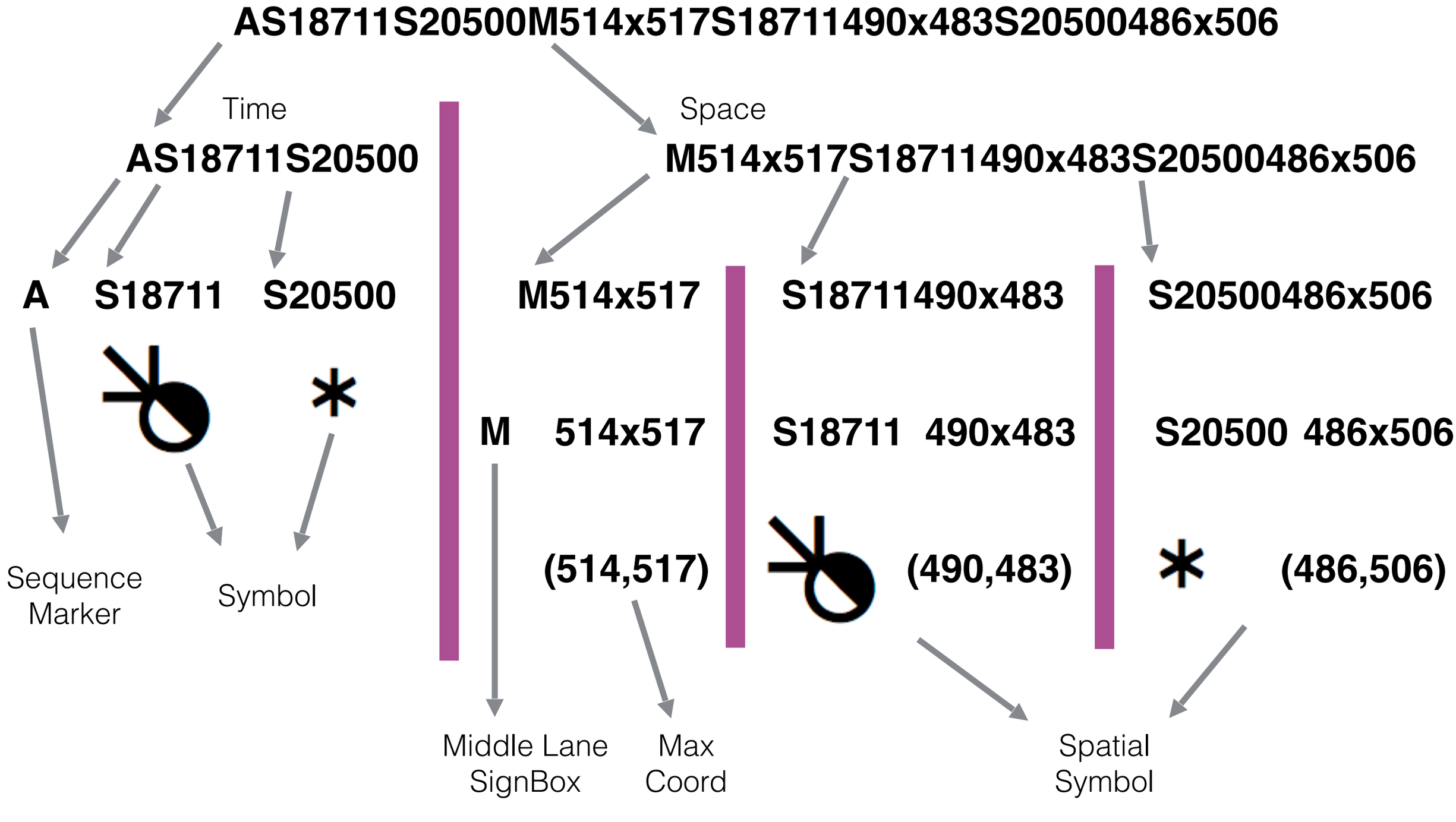
4+ years of stable and free standards.

Many implementations from separate groups.

Formal SignWriting (FSW) standard

Formal SignWriting

FSW is a formal language and a script encoding



Real World Impact

Moving forward with sign language projects under Wikimedia.

WikiConference USA October 2016 in San Diego

https://meta.wikimedia.org/wiki/WikiConference_USA

Formal SignWriting Adoption

Unicode Considerations

SignWriting Encyclopedia Projects: Wikipedias in American Sign Language and Tunisian Sign Language

http://www.signwriting.org/symposium/presentation0064.html

SignWriting in Unicode Next

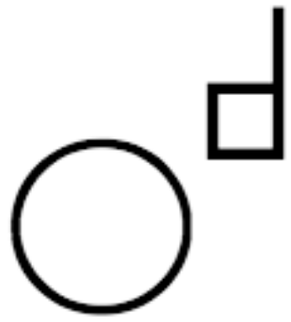
UTC # 148 (August 3-5, 2016)

Discuss accomplishments
Share insights
Create action items

SignWriting Design, With Three Examples and Their Representation

http://www.unicode.org/L2/L2015/15219-signwriting-design.pdf

SignWriting Design, With Three Examples and Their Representation



Formal SW			Plane 15 PUA				Plane 16 PUA
Sign	F/R	Numbers	Sign	Fill	Rotation	Numbers	Glyph ID
M		536x518	FD803			FDF24 FDF12	
S2ff	00	482x483	FDA24	FD810	FD820	FDEEE FDEEF	10BFA1
S100	00	521x457	FD830	FD810	FD820	FDF15 FDED5	100001

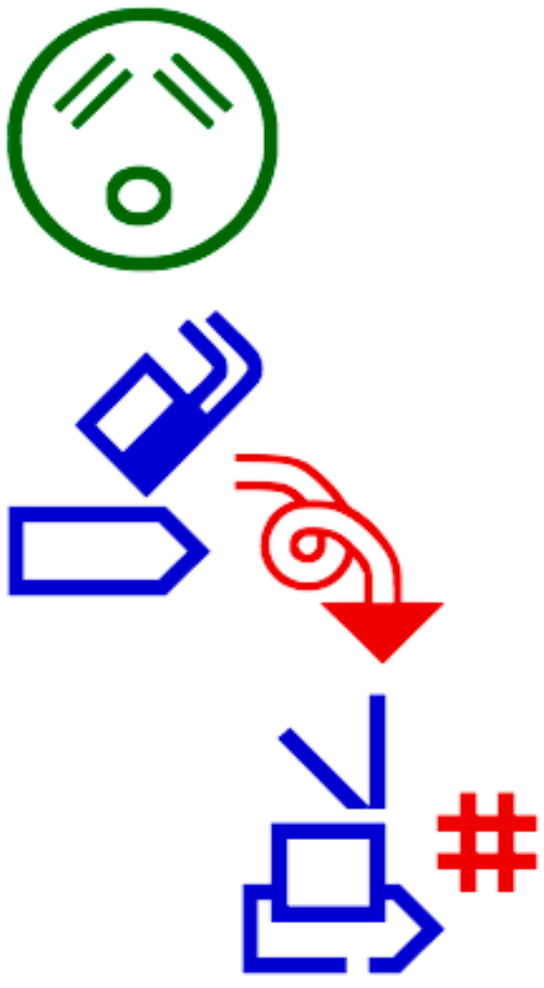
M536x518S2ff00482x483S10000521x457

SignWriting Design, With Three Examples and Their Representation

Formal SW			Plane 15 PUA				Plane 16 PUA
Sign	F/R	Numbers	Sign	Fill	Rotation	Numbers	Glyph ID
M		518x524	FD803			FDF12 FDF18	
S2ff	10	482x495	FDA24	FD811	FD820	FDEEE FDEFB	10BFB1
S342	10	490x510	FDA72	FD811	FD820	FDEF6 FDF0A	10D8D1
S31a	30	481x498	FDA4A	FD813	FD820	FDEF5 FDEFE	10C9F1
S324	10	491x485	FDA54	FD811	FD820	FDEF7 FDEF1	10CD91
S321	27	497x476	FDA51	FD812	FD827	FDEFD FDEE8	10CC88

M518x524S2ff10482x495S34210490x510S31a30489x498S32410491x485S32127497x476

SignWriting Design, With Three Examples and Their Representation



Formal SW			Plane 15 PUA				Plane 16 PUA
Sign	F/R	Numbers	Sign	Fill	Rotation	Numbers	Glyph ID
A			FD800				
S118	17		FD848	FD811	FD827		100918
S15a	06		FD88A	FD810	FD826		1021C7
S296	0b		FD9C6	FD810	FD82B		10984C
S20b	00		FD93B	FD810	FD820		106421
S10e	30		FD83E	FD813	FD820		100571
S15a	36		FD88A	FD813	FD826		1021F7
S30a	00		FDA3A	FD810	FD820		10C3C1
S344	10		FDA74	FD811	FD820		10D991
M		552x611	FD803			FDF34 FDF6F	
S30a	00	482x483	FDA3A	FD810	FD820	FDEEE FDEEF	10C3C1
S344	10	495x504	FDA74	FD811	FD820	FDEFB FDF04	10D991
S118	17	491x523	FD848	FD811	FD827	FDEF7 FDF17	100918
S15a	06	482x549	FD88A	FD810	FD826	FDEEE FDF31	1021C7
S296	0b	512x542	FD9C6	FD810	FD82B	FDF0C FDF2A	10984C
S15a	36	513x599	FD88A	FD813	FD826	FDF0D FDF63	1021F7
S10e	30	517x574	FD83E	FD813	FD820	FDF11 FDF4A	100571
S20b	00	539x587	FD93B	FD810	FD820	FDF27 FDF57	106421

AS11817S15a06S2960bS20b00S10e30S15a36S30a00S34410M552x611S30a00482x483S34410495x504S11817491x523S15a06482x549S2960b512x542S15a36513x599S10e30517x574S20b00539x587-CZx

Discussion Ideas

Script Encoding Model
PUA Plane 15 (1,179 characters)

2-Dimensional Layout with Graphite and Cartesian coordinates

SignWriting has a prototype font that uses Cartesian coordinates to control the 2-dimensional layout with Graphite and PUA Plane 15 characters. If you have any experience with 2-dimensional layout using Cartesian coordinates, let's discuss the possibilities.

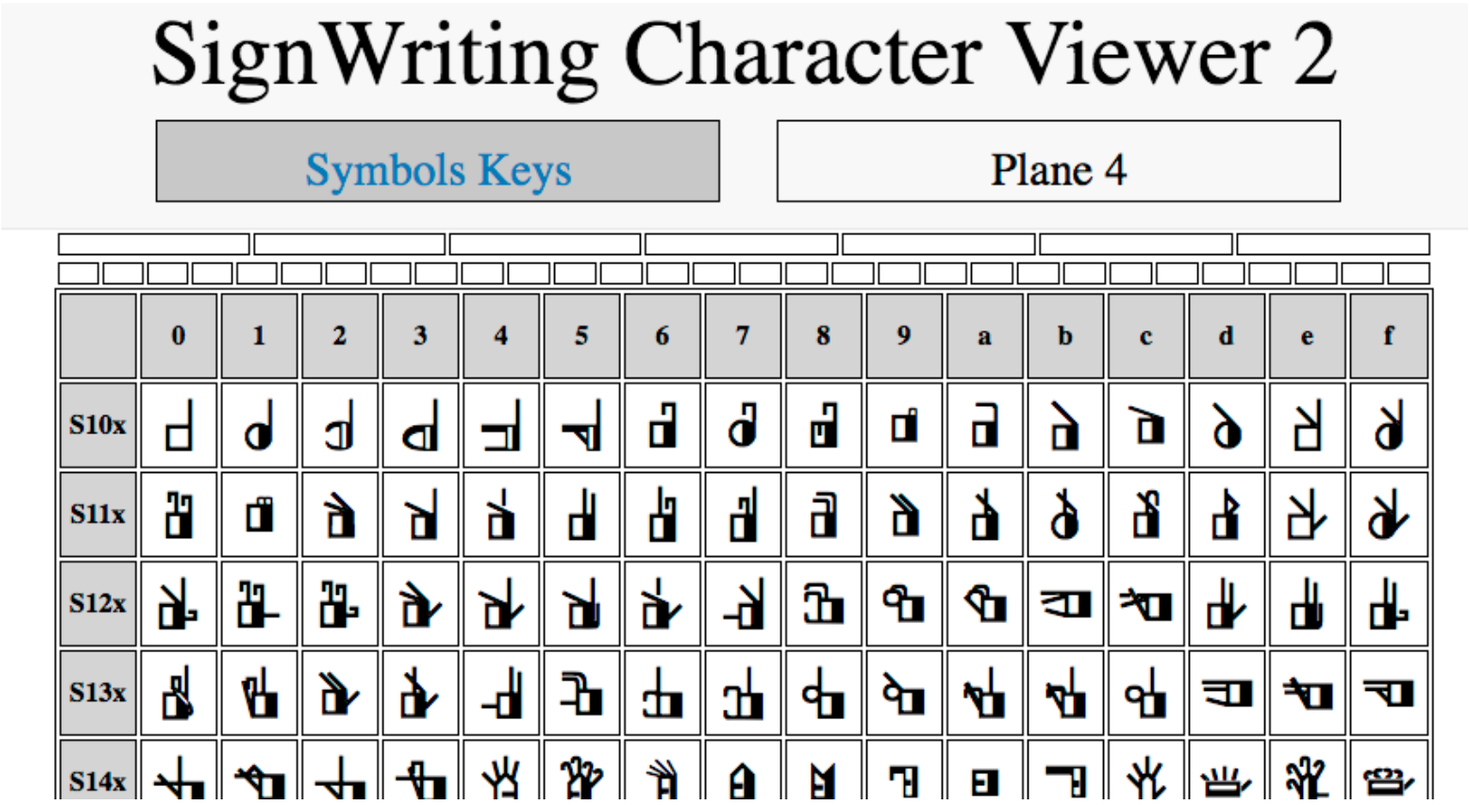
Symbol Encoding Model
PUA Plane 16 (37,811 characters)

Entire Plane for the International SignWriting Alphabet 2010

The ISWA 2010 uses 37,811 glyphs. Each glyph has a unique code point on Private Use Area Plane 16. These code points are used in the 16-bit font files. Rather than use plane 16, it would be nice to use Plane 4.

both designs are productive and plane 16 is used with fonts

CSMW Proposal for Unicode 10 and 2016 Font Development



16-bit glyphs set
created by Valerie Sutton

652 Palettes of 6 by 16 Grid

Dynamic Pages: single file 114 KB

Symbol Encoding Model
Plane 4 (37,811 characters)

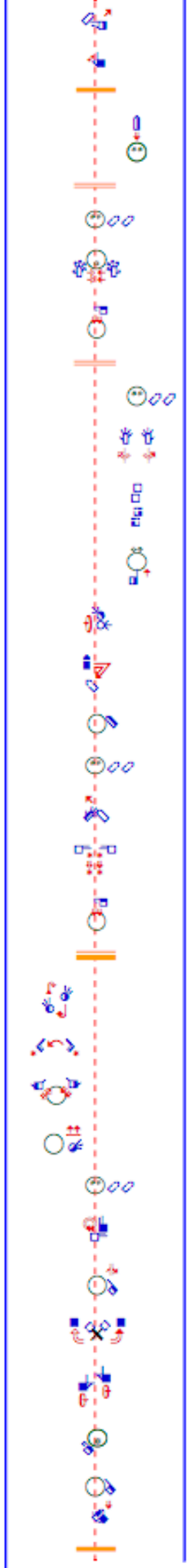
No Private Use Area

No Ligatures

Temporary Characters
used with 2 TrueType Fonts

SVG and CSS
for presentation

http://signbank.org/SignWriting_Character_Viewer_2.html



CSMW Proposal for Unicode 10 with Vertical Layout and Lanes

HTML and CSS Hardcoded

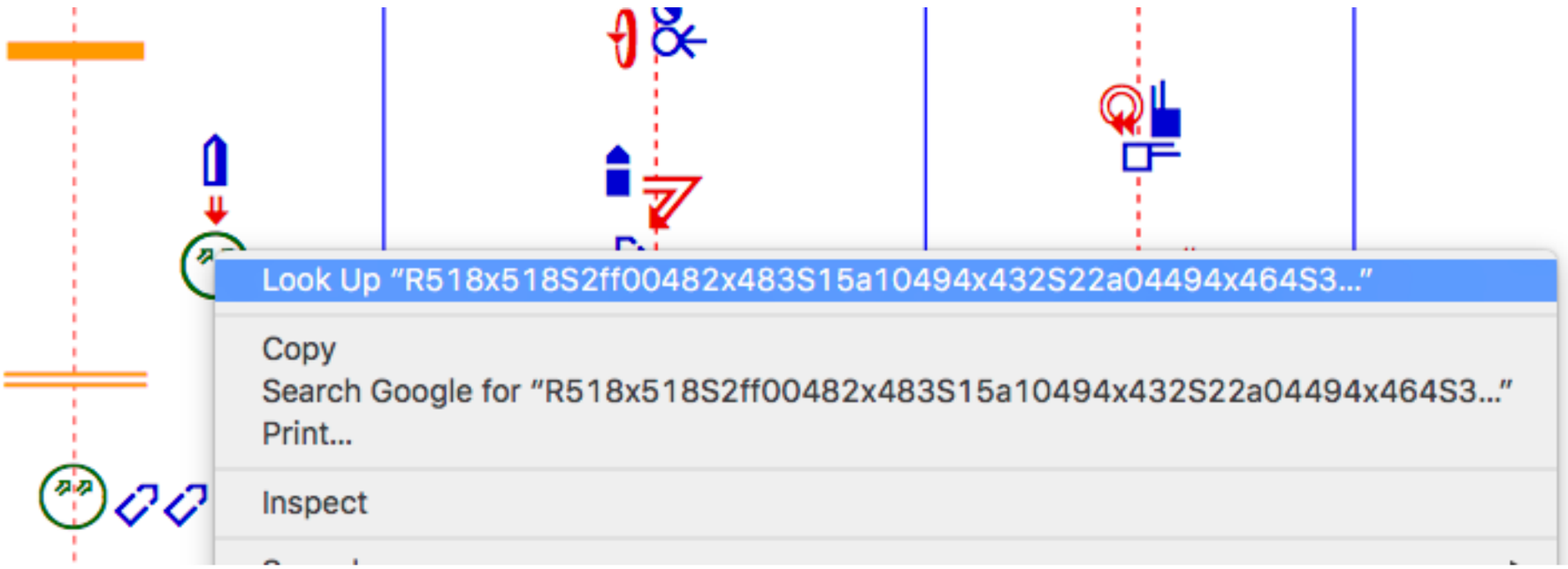
http://codepen.io/Slevinski/pen/zqGNqz

JavaScript and CSS Dynamic

http://codepen.io/Slevinski/pen/MywOej

Visit either link, then change page size or zoom.
The signs will *reflow* into different columns.

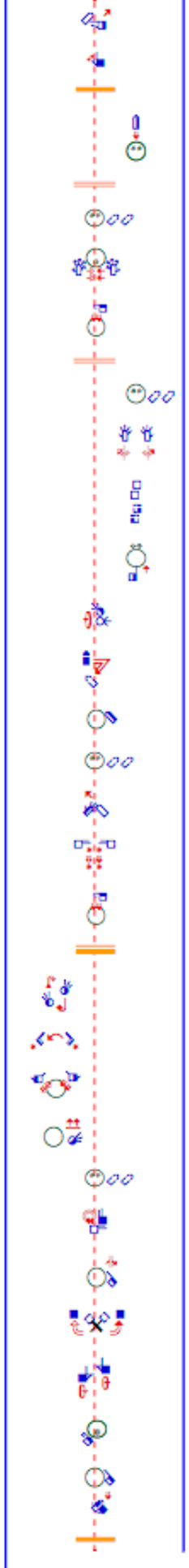
CSMW Proposal for Unicode 10
Individual Sign Copy and Paste



Double-Click or Triple-Click an individual signs to select.
Use the Alternate-Click on the same sign for a menu to copy.
An individual sign may or may not appear selected.

CSMW Proposal for Unicode 10
Multiple Sign Copy and Paste

Using the mouse, click and drag to select several signs.
The FSW will be selected, possibly with plane 4 or 16 characters.



CSMW Proposal for Unicode 10 with Vertical Layout and Lanes

HTML

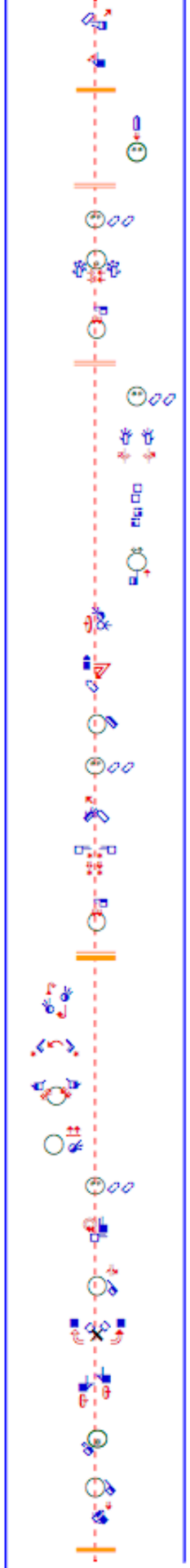
```
<span class="outside">
  <span class="middle">
    <span class="inside">
      <div class="sign" style="width: 56px;height: 35px;margin-right: 2px;"></div>
      <div class="sign" style="width: 31px;height: 30px;margin-right: 1px;"></div>
      <div class="sign" style="width: 72px;height: 8px;margin-right: 2px;"></div>
      <div class="sign" style="width: 36px;height: 86px;margin-right: 152px;">
        <svg xmlns="http://www.w3.org/2000/svg" width="36" height="86" viewBox="482 432 36 86">
          <text style="font-size:0%;">
            R518x518S2ff00482x483S15a10494x432S22a04494x464S32107482x483
          </text>
          <g transform="translate(482,483)">
            <text class="sym-fill" style="pointer-events:none;font-family:'SignWriting 2010
Filling';font-size:30px;fill:white;">
              □
            </text>
            <text class="sym-line" style="pointer-events:none;font-family:'SignWriting
2010';font-size:30px;fill:black;">
              □
            </text>
          </g>
```

FSW source

coordinates

Unicode Plane 4 or 16 for S2ff00

http://codepen.io/Slevinski/pen/zqGNqz



Formal SignWriting and Fonts

Render FSW with style, zoom, and reflow

https://slevinski.github.io/SignWriting_Character_Viewer/

Version 1: Private Use Area Plane 16
SignWriting 2010 Fonts

Version 2: Proposed Unicode 10 Plane 4
Sutton SignWriting Fonts

Sutton SignWriting rendered from Formal SignWriting
with 2 KB each of HTML, CSS and JS

http://codepen.io/Slevinski/full/XKRPzm/

Plain Text

Unicode Standard: Chapter 2

Plain text must contain enough information to permit the text to be rendered legibly, and nothing more.

Plain text is a pure sequence of character codes;

Formal SignWriting is Plain Text.

Rich Text

Unicode Standard: Chapter 2

Rich Text is any text representation consisting of plain text plus added information such as a language identifier, font size, color, hypertext links, and so on.

Rich text carries complex formatting information as well as text context.

Given that rich text equals plain text plus added information, the extra information in rich text can always be stripped away to reveal the “pure” text underneath.

After Formal SignWriting

Styled SignWriting Text

Size and color within a sign.

Settings for
all symbols

Styling String
-D_blue_

Settings for
specific symbols

Styling String
--D03_blue_

Defining Colors

CSS color names or hex values

CSS Color Names

- red
- green
- blue

Hex Values (3 or 6 long)

- FF0
- FF0000

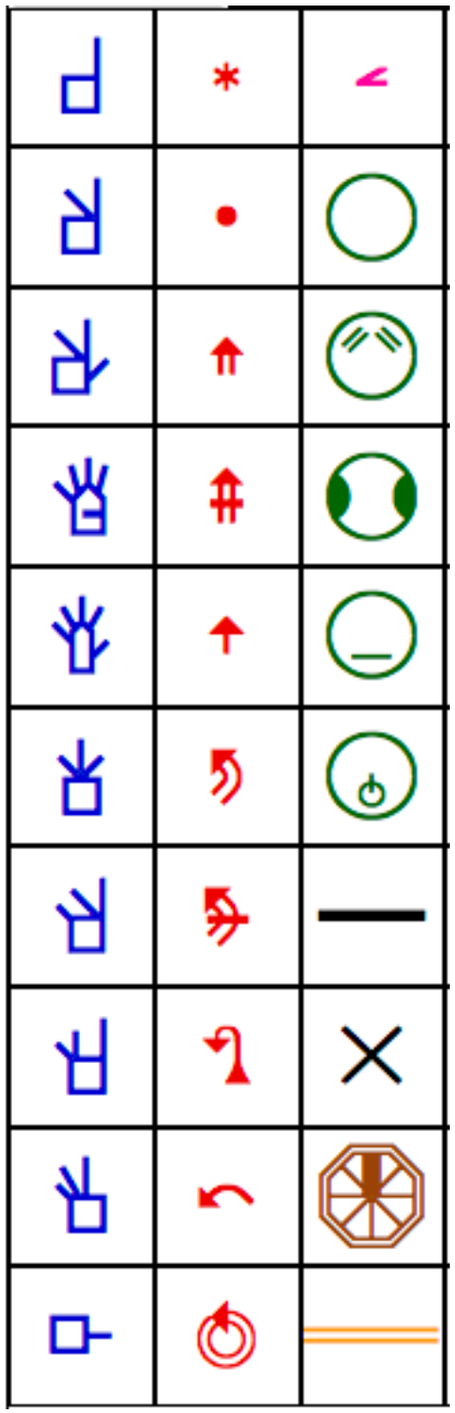
SignWriting Styling String

using color and size within a sign

- Adjusting all symbols
  - C - Colorize
  - P - Padding
  - G - Background
  - D - Detail colors
  - Z - Zoom level

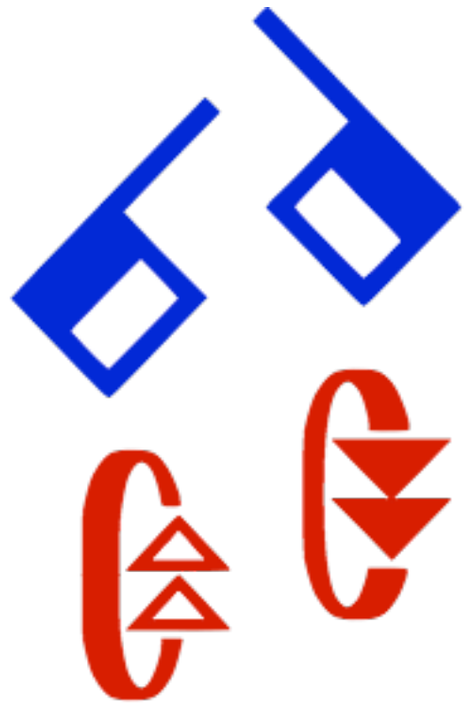
-- Adjusting specific symbols
  - D - Detail colors
  - Z - Zoom level

Colorize - All Symbols



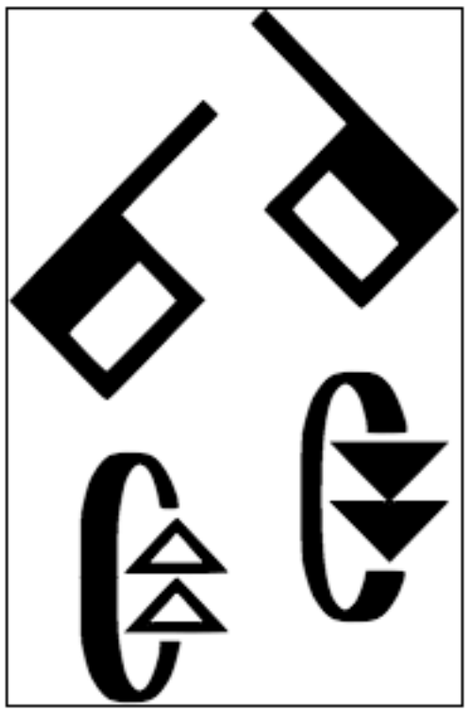
Styling String

-C

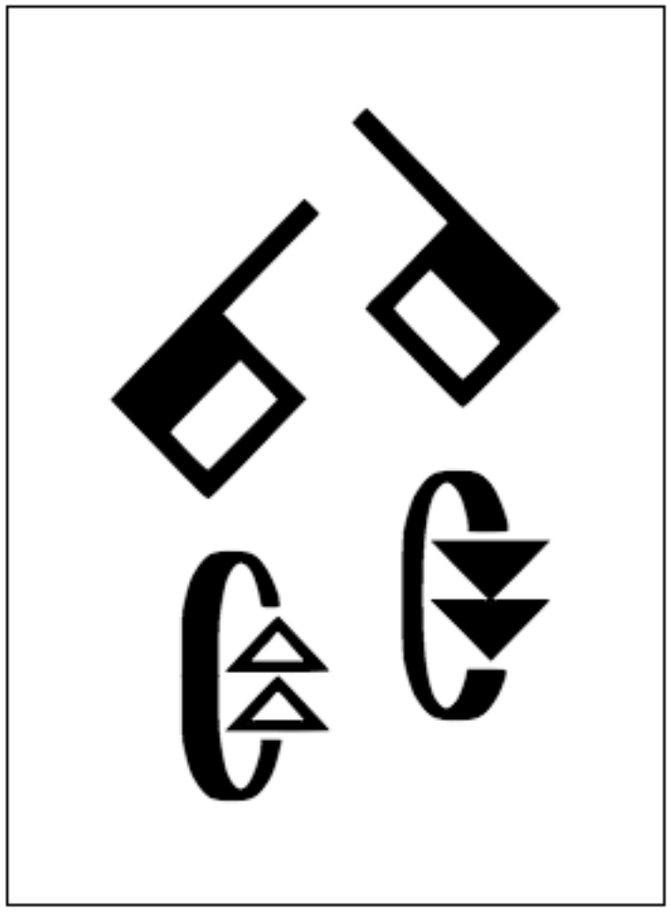


Padding - All Symbols

Signs default with a tight bounding-box.



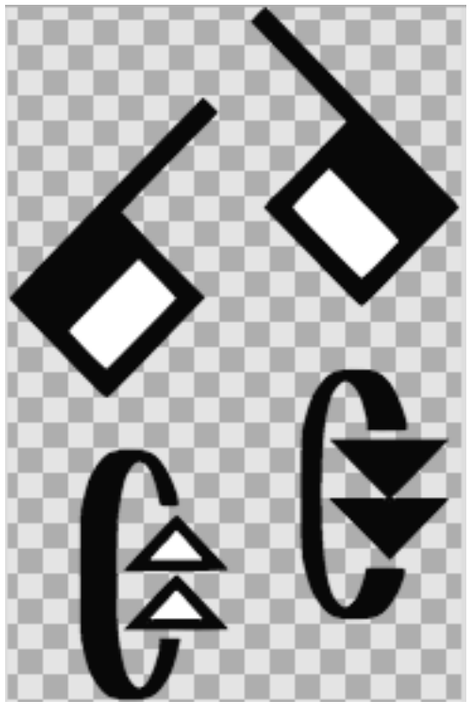
Styling String
-P10



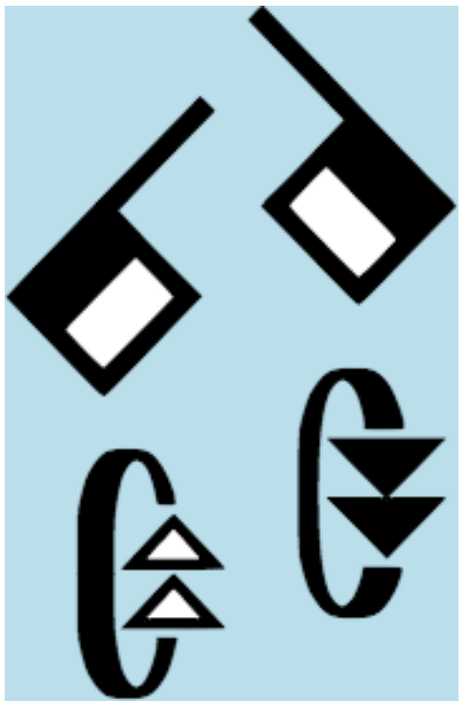
Padding value must be a 2 digit string, from 01 to 99.

Background - All Symbols

Signs default with a transparent background

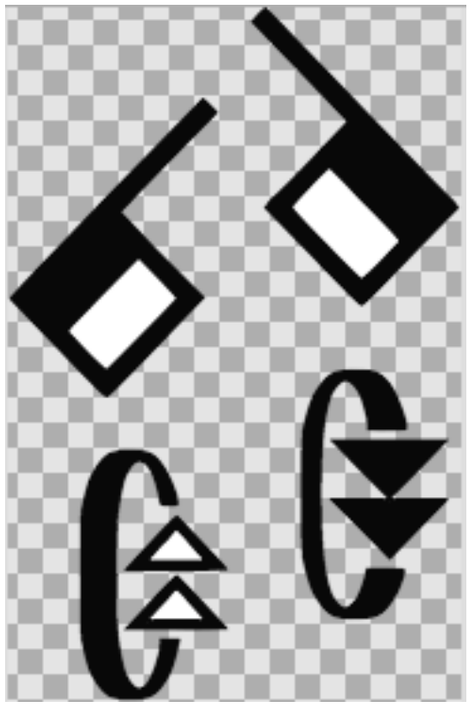


Styling String
-G_lightblue_



Detail Colors - All Symbols

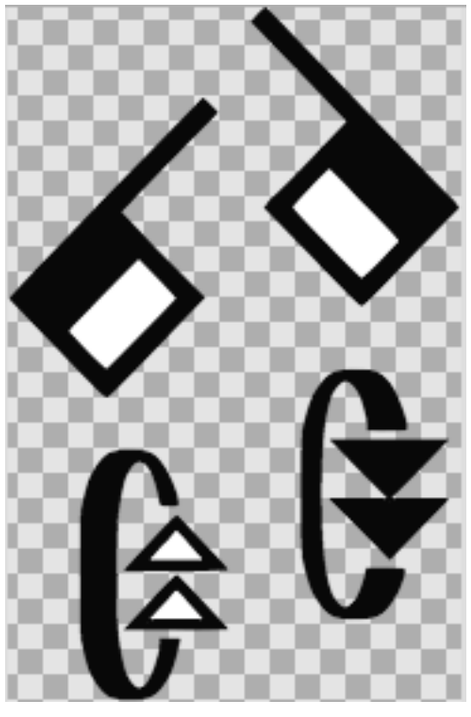
Signs default with a black line and white fill



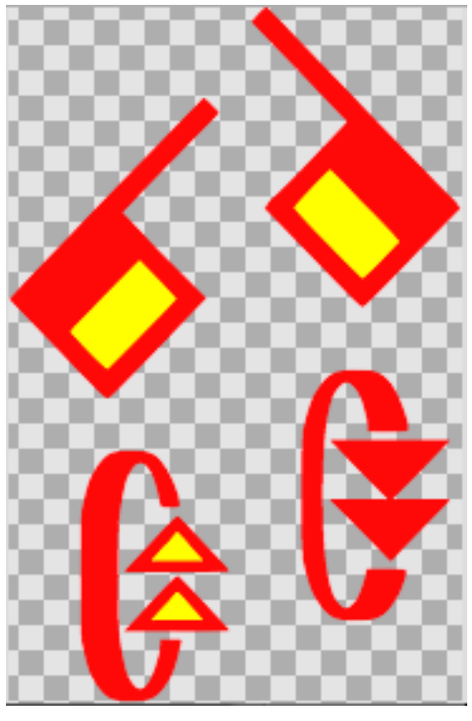
Styling String
-D_red_

Detail Colors - All Symbols

Signs default with a
black line and white fill



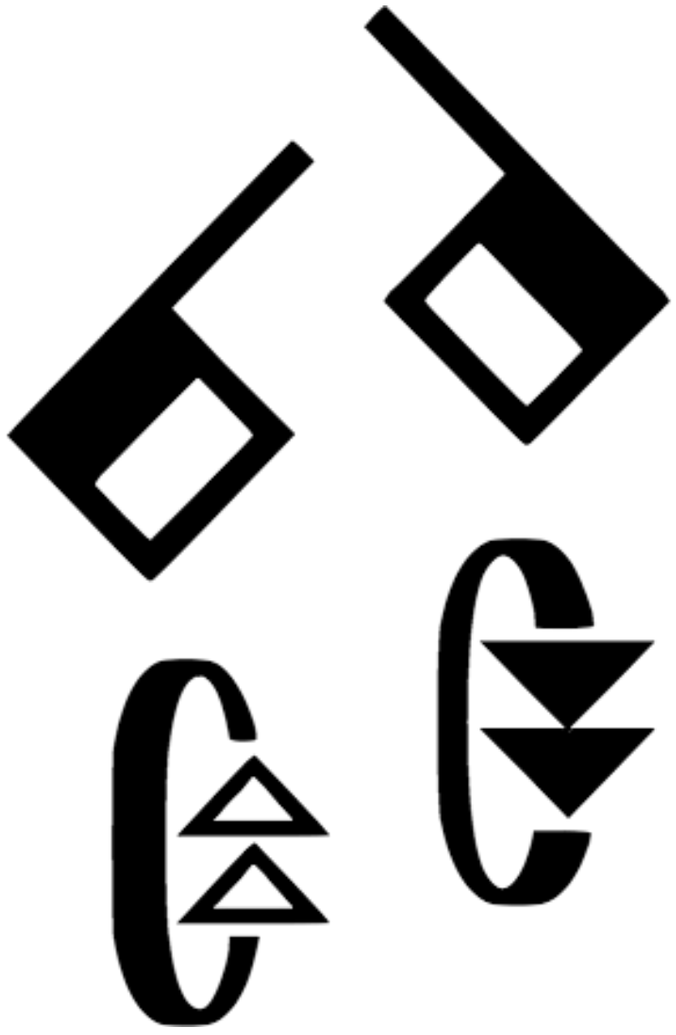
Styling String
-D_red,yellow_



Zoom Level - All Symbols

Signs default with a size of 1

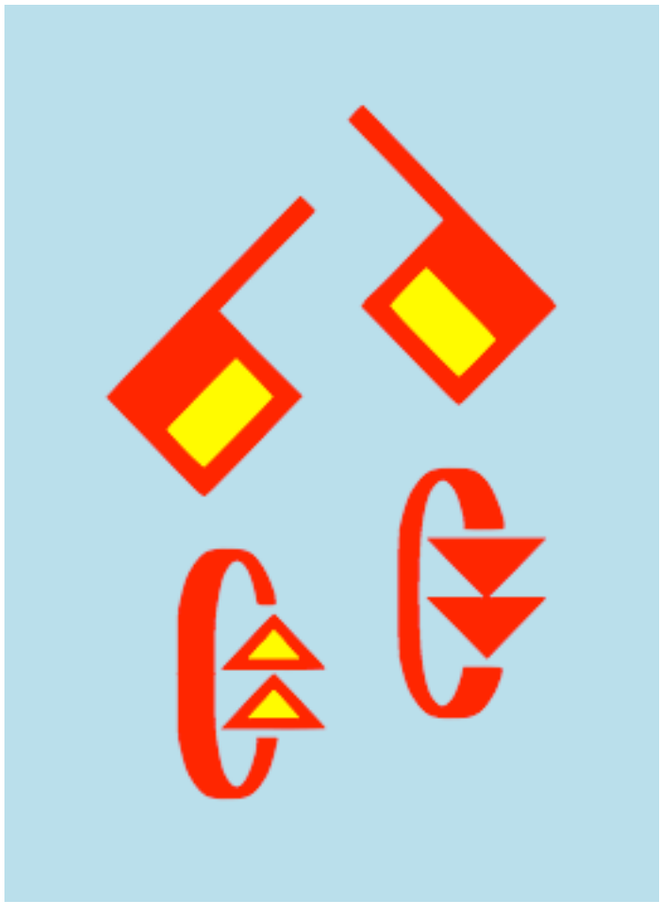
Styling String
-Z6.4



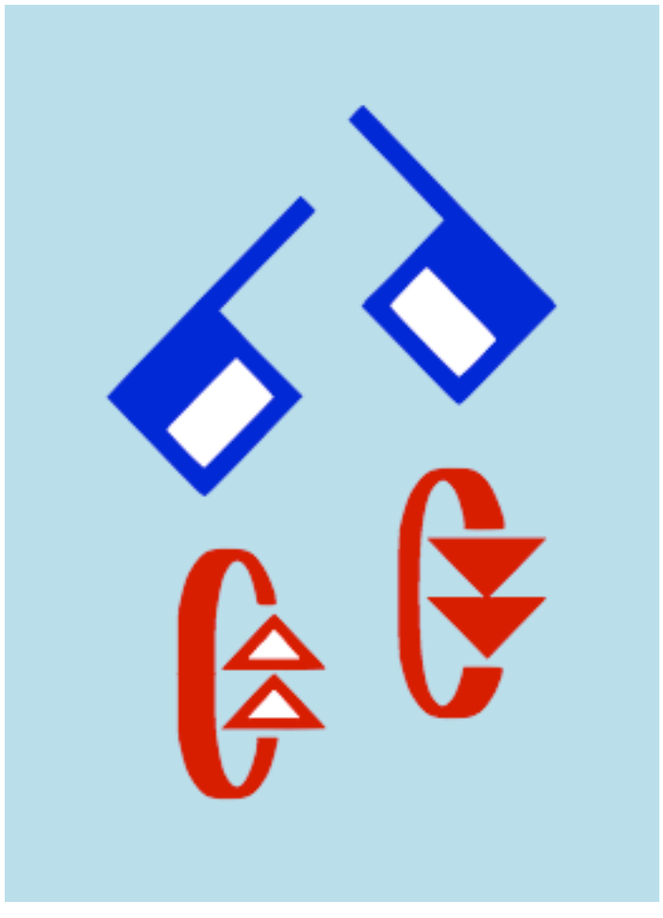
Zoom level can be any integer or decimal value.

Combinations - All Symbols

Styling String
-P10G_lightblue_D_red,yellow_Z4



Styling String
-CP10G_lightblue_Z4



The order of the styling options is important.

Detail Colors - Specific Symbols

Styling String
--D01_red,yellow_

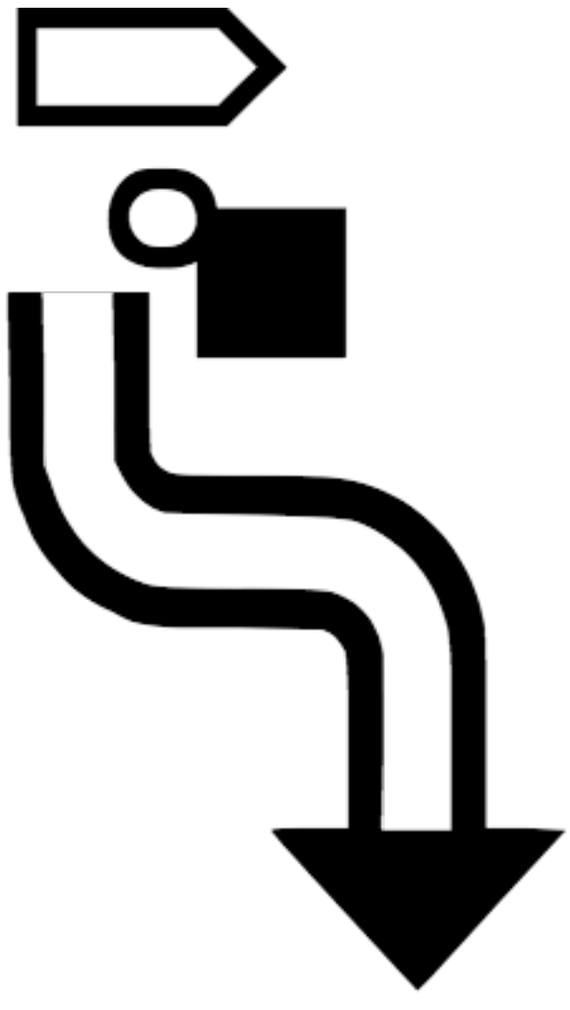
Styling String
--D02_red,transparent_

Styling String
--D03_red_

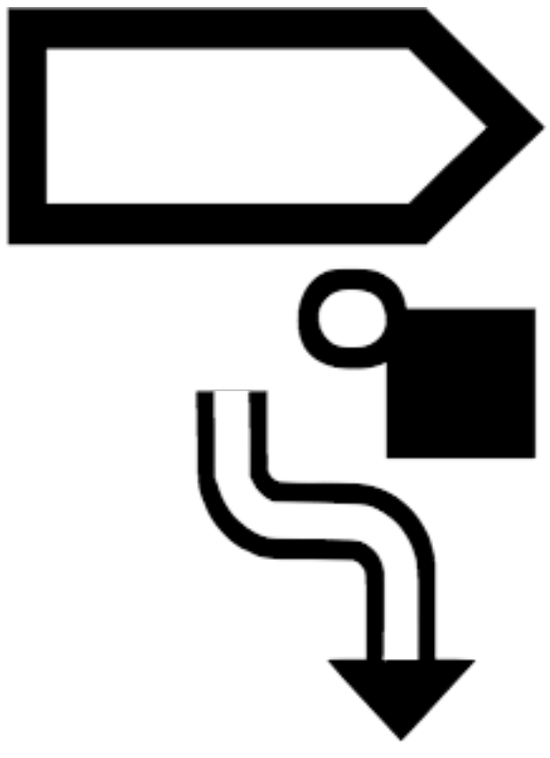
Specific symbols are identified using a 2 digit string, from 01 to 99.

Zoom Level - Specific Symbols

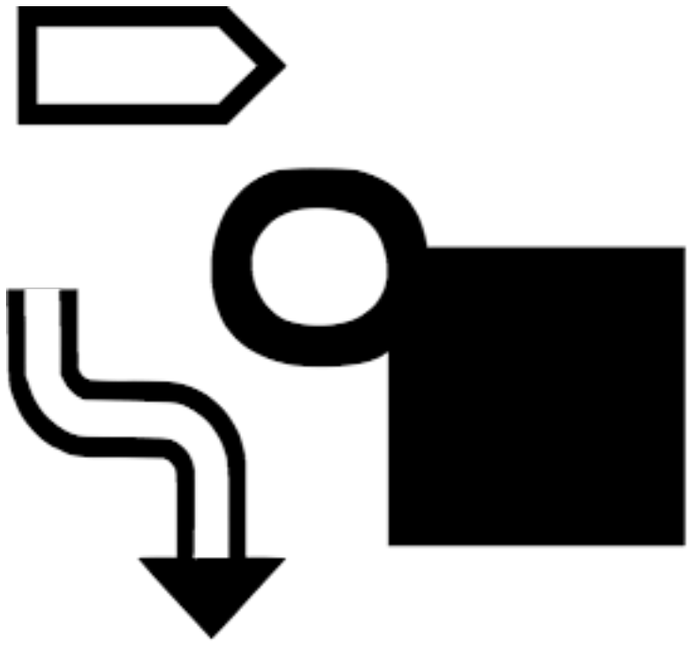
Styling String
--Z01,2



Styling String
--Z02,2,480x490



Styling String
--Z03,2,510x500

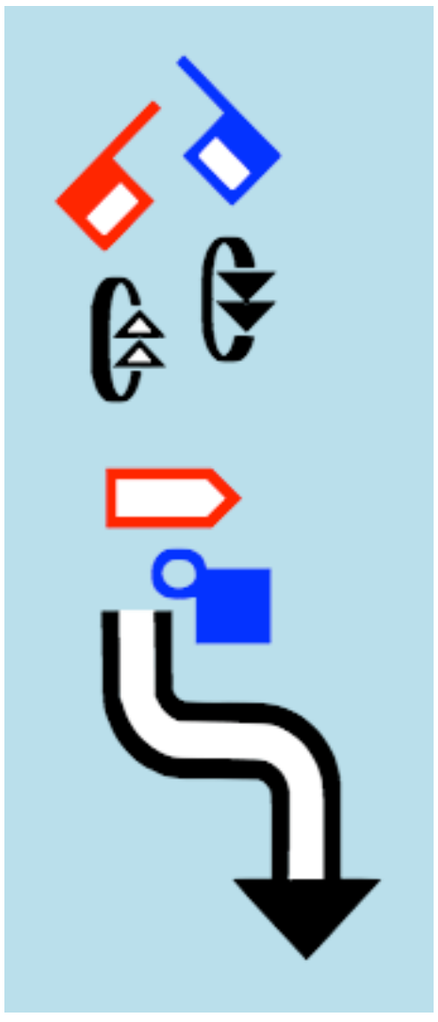


The zoom level for specific symbols allows for an optional adjustment coordinate, with 500x500 meaning no adjustment.

Complex Styling

Styling String

-P10G_lightblue_Z2-D01_red_D02_blue_D06_red_D07_blue_Z05,2

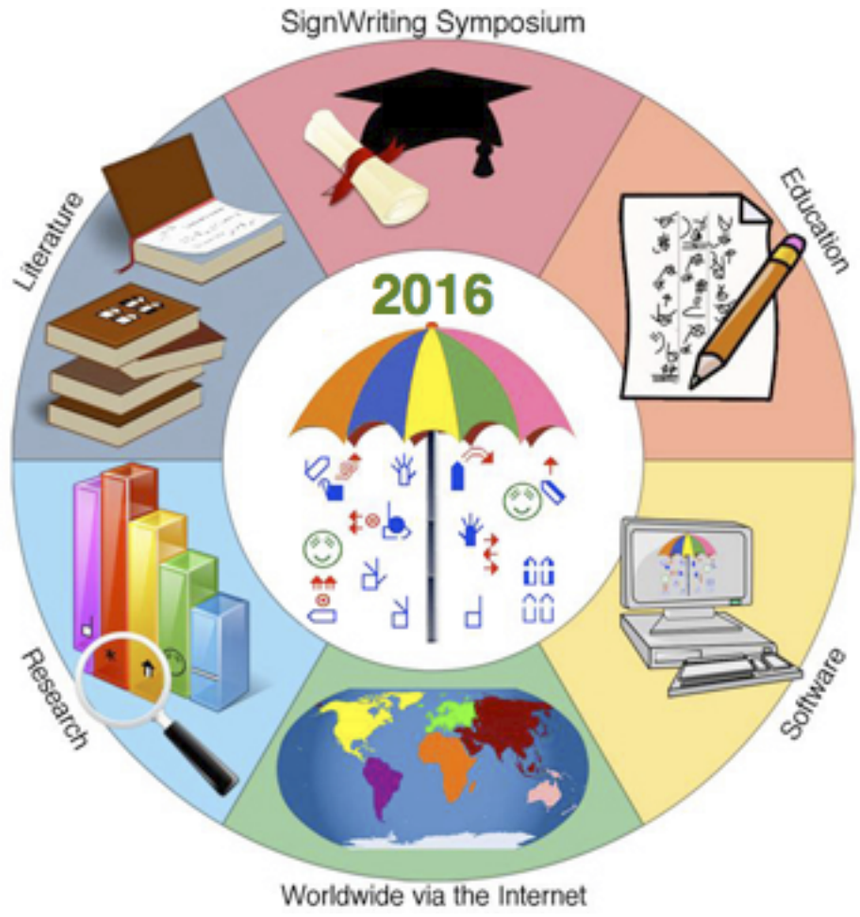


The order of the styling options is important.

SignWriting in Unicode and Rich Text Considerations

by Stephen E Slevinski Jr

slevinski@signwriting.org



Thanks for viewing.

Feedback, comments, and questions are welcomed.

http://signpuddle.com

http://www.signwriting.org/symposium/presentation0061.html