Title: Design Options for Sutton SignWriting with examples and fonts

Source: Stephen E Slevinski Jr ()

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Action: For consideration by the UTC

This information is provided to document two possible full encodings for Sutton SignWriting. The Center for Sutton Movement Writing and Wikimedia Incubator both currently use the ASCII design of Formal SignWriting.

SignWriting Design Options

The SignWriting design options below are supported by software and fonts created by the Center for Sutton Movement Writing. The design options cover two models.

Option 1 as the Optimal Solution

This model overwrites the Sutton SignWriting block in Unicode and uses plane 4 for the symbols of the International SignWriting alphabet 2010. This option works in all browsers and most software.

Description	Formal SignWriting	Unicode Characters
Sequence Marker	A	U+1D800
SignBox Markers	B, L, M, R	U+1D801..U+1D804
Numbers	250 to 749	U+1D80C..U+1D9FF
Sutton SignWriting Symbols	S10000 to S38b07	Plane 4

Option 2 as the Compliant Solution

This model builds on the official Sutton SignWriting block in Unicode with 17 additional characters to complete the encoding of Sutton SignWriting in Unicode. This option uses CCMP type ligatures for the symbol glyphs with an extension lookup. Support for CCMP ligatures with an extension lookup is extremely limited for browsers and software.

Description	Formal SignWriting	Unicode Characters
Official Symbol Bases	S100 to S38b	U+1D800..1DA8B
Official Fill Modifiers	1 to 5	U+1DA9B..U+1DA9F
Official Rotation Modifiers	1 to 9 and a to f	U+1DAA1..U+1DAAF
New Fill Modifier 1	0	U+1DA9A
New Rotation Modifier 1	0	U+1DAA0
New Numbers	0 to 9	U+1DAB0..U+1DAB9
New Sequence Marker	A	U+1DABA
New SignBox Markers	B, L, M, R	U+1DABB..U+1DABE

Example

Formal SignWriting in ASCII representation: M536x518S2ff00482x483S10000521x457

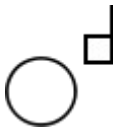
Option 1 codes: U+1D803 U+1D92A U+1D918 U+4BFA1 U+1D8F4 U+1D8F5 U+40001 U+1D91B U+1D8DB

Option 1 text:

Option 2 codes: U+1DABD U+1DAB5 U+1DAB3 U+1DAB6 U+1DAB5 U+1DAB1 U+1DAB8 U+1D9FF U+1DA9A U+1DAA0 U+1DAB4 U+1DAB8 U+1DAB2 U+1DAB4 U+1DAB8 U+1DAB3 U+1D800 U+1DA9A U+1DAA0 U+1DAB5 U+1DAB2 U+1DAB1 U+1DAB4 U+1DAB5 U+1DAB7

Option 2 text:

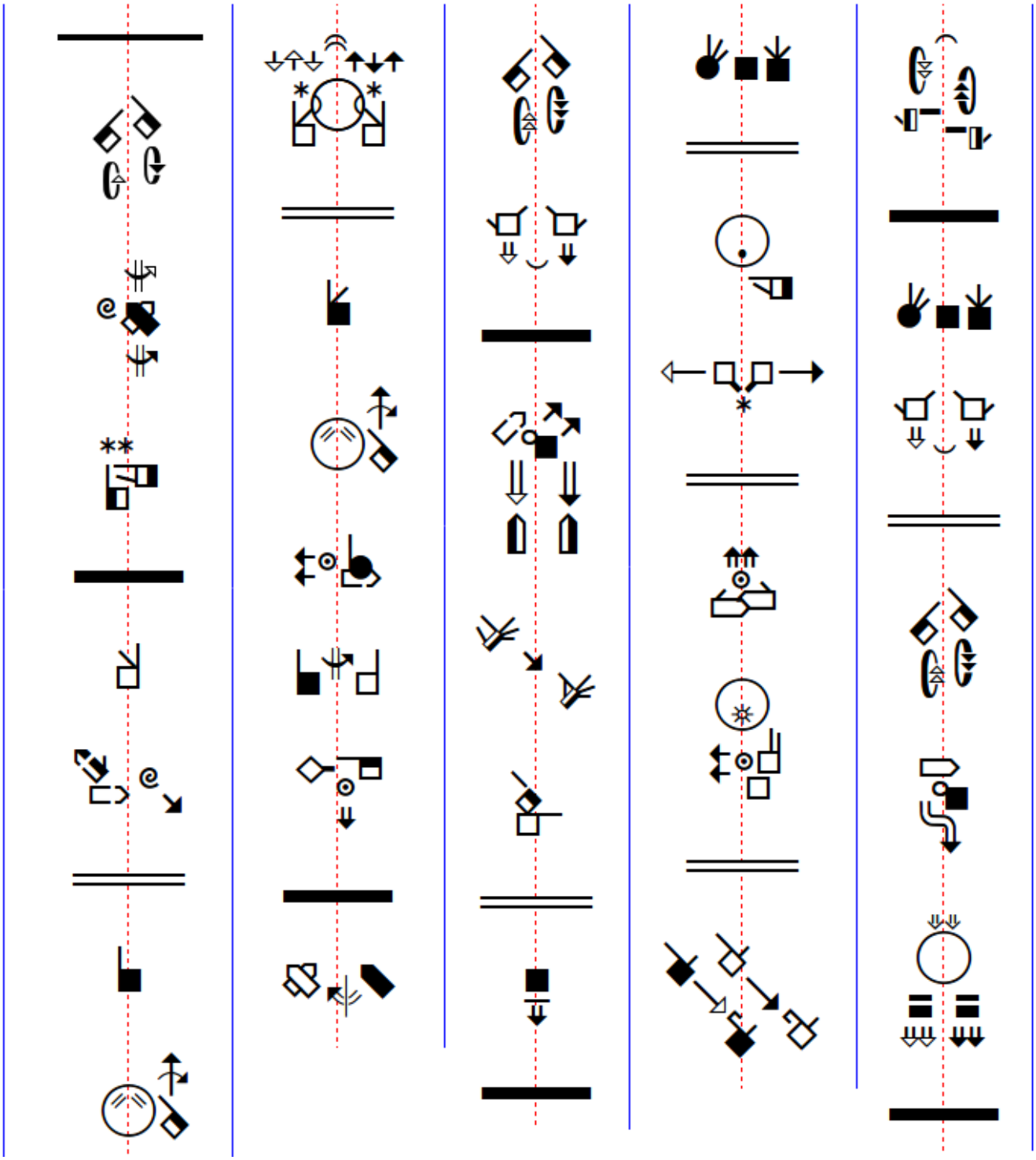
Example Image



Example Details

Formal SignWriting			Option 1		Option 2			
Sign	F/R	Numbers	Sign	Numbers	Sign	Fill	Rotation	Numbers
M		536x518	U+1D803	U+1D92A U+1D918	U+1DABD			U+1DAB5 U+1DAB3 U+1DAB6 U+1DAB5 U+1DAB1 U+1DAB8
S2ff	00	482x483	U+4BFA1	U+1D8F4 U+1D8F5	U+1D9FF	U+1DA9A	U+1DAA0	U+1DAB4 U+1DAB8 U+1DAB2 U+1DAB4 U+1DAB8 U+1DAB3
S100	00	521x457	U+40001	U+1D91B U+1D8DB	U+1D800	U+1DA9A	U+1DAA0	U+1DAB5 U+1DAB2 U+1DAB1 U+1DAB4 U+1DAB5 U+1DAB7

Example Text



Example Text in ASCII

AS10011S10019S2e704S2e748M525x535S2e748483x510S10011501x466S2e704510x500S10019476x475
AS15a21S15a07S21100S2df04S2df14M521x538S15a07494x488S15a21498x489S2df04498x517S2df14497x4
61S21100479x486 AS1f010S10018S20600M519x524S10018485x494S1f010490x494S20600481x476
S38800464x496 AS10e00M507x515S10e00492x485
AS15d41S15a36S21100S26505M535x521S15d41464x479S15a36474x503S21100507x491S26505522x508
S38700463x496 AS10020M508x515S10020493x485
AS10011S28108S30a00M540x519S30a00482x482S10011519x489S28108519x461
AS10e00S10e08S20500S27100S2711cS20500S2fc00S30006S30002M544x527S10e08470x497S10e00516x4
97S30006482x482S20500519x484S20500471x484S27100504x464S2711c451x463S30002482x482S2fc00491
x453 S38700463x496 AS10e20M508x515S10e20493x485
AS10011S28108S30a00M540x519S30a00482x482S10011519x489S28108519x461
AS10120S15a3aS26a02S20e00M529x518S15a3a502x506S20e00487x495S10120507x483S26a02471x491
AS10020S2df04S10000M527x516S10000512x486S10020473x486S2df04489x485
AS10012S19205S22a04S20e00M529x525S10012499x477S20e00499x491S19205472x476S22a04499x510
S38800464x496
AS15a21S2a20cS15a01S15a07M538x518S15a21515x483S15a07463x482S15a01466x483S2a20c493x490
AS10011S10019S2eb04S2eb48M523x536S2eb48485x504S10011502x463S2eb04507x497S10019477x472
AS19a00S19a08S22a04S22a14S2fb04M534x521S22a14475x503S19a00506x479S19a08467x479S22a04514x
504S2fb04493x515 S38800464x496
AS1eb20S15a37S26507S26507S15a10S15a18S22b04S22b14M530x550S15a37470x456S15a10515x523S15a
18481x523S1eb20490x468S22b14479x488S26507504x450S22b04514x489S26507516x460
AS1d117S26505S1d417M539x531S1d117460x468S1d417514x506S26505491x492
M517x522S1000a487x507S10041483x479 S38700463x496
AS20320S22e04M509x519S20320493x481S22e04492x501 S38800464x496
M532x516S1ce20469x485S20320495x500S18620514x486 S38700463x496
M533x538S1f110504x523S34d00482x482
M554x518S1920a481x484S19202501x484S26606524x483S26612446x483S20500496x507 S38700463x496
AS15d02S15d0aS20e00S22f00M522x524S22f00487x477S15d02495x500S15d0a479x505S20e00493x493
AS11500S20308S20e00S26a02S34600M525x562S20308503x547S11500510x515S20e00495x531S26a02478
x525S34600482x482 S38700463x496
M551x542S1dc2f448x465S1dc01482x459S26605502x488S26615467x490S1e101526x509S1e12f488x510
AS18040S18048S2eb08S2eb4cS2fb00M532x538S18040501x523S18048467x511S2eb4c477x470S2eb08506x
483S2fb00494x462 S38800464x496 M532x516S1ce20469x485S20320495x500S18620514x486
AS19a00S19a08S22a04S22a14S2fb04M534x521S22a14475x503S19a00506x479S19a08467x479S22a04514x
504S2fb04493x515 S38700463x496
AS10011S10019S2eb04S2eb48M523x536S2eb48485x504S10011502x463S2eb04507x497S10019477x472
AS1eb20S15a06S29b0bM516x531S15a06484x468S1eb20492x483S29b0b484x496
AS20350S20358S22f04S22f14S30114M528x565S20350508x530S20358477x530S22f04503x551S22f14471x5
51S30114482x477 S38800464x496

Example Text in Unicode Option 1

Example Text in Unicode Option 2

Fonts Available

The following fonts can be downloaded and installed on Windows, Linux, and Mac. For iOS devices, a configuration profile is available. For Android in the browser, the following CSS statements will load the fonts.

Symbol Fonts for SVG

There are two fonts for the Sutton SignWriting symbols that are used in SVG: the "*Sutton SignWriting Line font*" as the positive space of the symbol glyphs on Unicode plane 15 and the "*Sutton SignWriting Fill font*" as the negative space of the symbol glyphs on Unicode plane 16. These glyphs descend below the baseline.

```
@font-face {
  font-family: "SuttonSignWritingLine";
  src:
    local('SuttonSignWritingLine'),
    url('https://cdn.rawgit.com/Slevinski/SuttonSignWriting/master/assets/SuttonSignWritingLine.ttf')
format('truetype');
}
@font-face {
  font-family: "SuttonSignWritingFill";
  src:
    local('SuttonSignWritingFill'),
    url('https://cdn.rawgit.com/Slevinski/SuttonSignWriting/master/assets/SuttonSignWritingFill.ttf')
format('truetype');
}
```

1 Dimensional Font for Unicode Option 1

The "*Sutton SignWriting 1D Optimal font*" visualizes a Formal SignWriting word as a 1-dimensional string of glyphs for structural markers, symbols, and numbers. The font uses the Unicode Option 1 character set. These glyphs are centered above the baseline and are meant to be used in traditionally 1-dimensional situations.

```
@font-face {
  font-family: "SuttonSignWriting1dOpt";
  src:
    local('SuttonSignWriting1dOpt'),
    url('https://cdn.rawgit.com/Slevinski/SuttonSignWriting/master/assets/SuttonSignWriting1dOpt.ttf')
format('truetype');
}
```

1 Dimensional Font for Unicode Option 2

The "*Sutton SignWriting 1D font*" visualizes a Formal SignWriting word as a 1-dimensional string of glyphs for structural markers, symbols, and numbers. The font uses the Unicode Option 2 character set. These glyphs are centered above the baseline and are meant to be used in traditionally 1-dimensional situations.

Using this font requires the support of the ligature feature "ccmp" for Glyph Composition/Decomposition. Support in older software is limited. In the browser, "ccmp" ligatures support with extension lookup is sometimes possible, but it will require extra css to define the font famiily and may require extra css to enable the "ccmp" feature.

```
@font-face {
  font-family: "SuttonSignWriting1d";
  src:
    local('SuttonSignWriting1d'),
    url('https://cdn.rawgit.com/Slevinski/SuttonSignWriting/master/assets/SuttonSignWriting1d.ttf')
format('truetype');
}
```

2D Font Development

A prototype 2-dimensional font is available for Graphite.

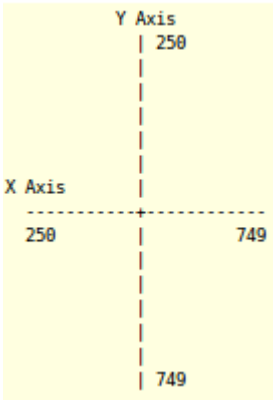
Future development is planned to target the Universal Shaping Engine for both Unicode Option 1 and Option 2.

More information is available online:
* https://meta.wikimedia.org/wiki/Grants:Project/slevinski/ASL_Wikipedia_2-D_Font_Development_for_SignWriting

2D Font Rendering Strategy

Step 1: collapse SignSpelling Sequence

Step 2: create SignBox with center



Step 3: reorder symbol and positioning

GPOS X 482, GPOS Y 483, write ,

GPOS X 506, GPOS Y 500, write ,

GPOS X 503, GPOS Y 520, write