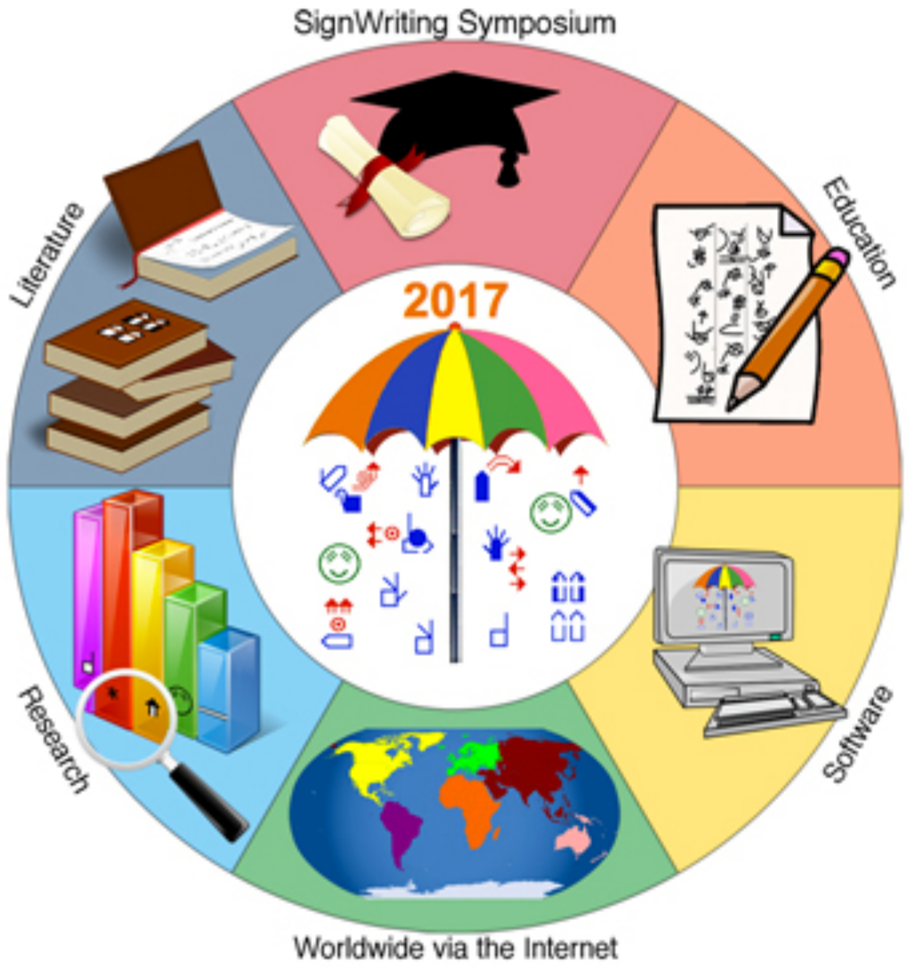
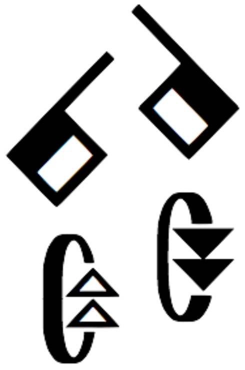
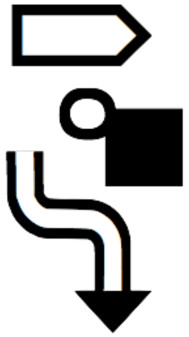
Sutton SignWriting Standard of 2017





by Stephen E Slevinski Jr

the Center for Sutton Movement Writing



http://www.signwriting.org/symposium/presentation0066.html

The Big Umbrella of the Center for Sutton Movement Writing

a 501c3 educational non-profit

All sign languages supported right now.

Various hand writing styles.

7+ years of stable and free standards.

International cooperation.

1974 Founded | 1976 California Tax-Exempt | 1978 US Federal Tax-Exempt

SignWriting, a brief history

1966	Valerie Sutton invents DanceWriting
1974	Valerie Sutton invents SignWriting
1974 - 1986	SignWriting is written exclusively by hand
1981 - 1984	Publishing efforts with stencils and wax transfers
1986 - 1995	Computer encoding with keyboarding
2004	Drag-and-drop user interface
2006	ISO 15924 Script Code Sgnw
2010	International SignWriting Alphabet 2010 (ISWA 2010)
2012	Formal SignWriting in ASCII (FSW)
2015	Sutton SignWriting Block added to Unicode Standard
2017	SignWriting in Unicode (SWU)

https://tools.ietf.org/html/draft-slevinski-signwriting-text-01#section-1.2

Characters and Fonts

Characters are used to name signs

Fonts are used to view signs

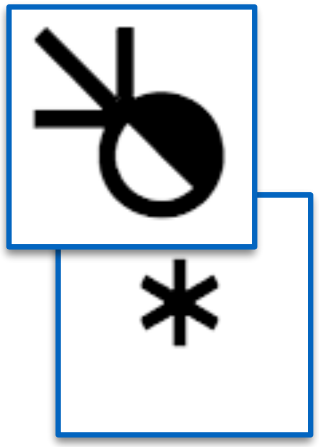
Design Principles of Sutton SignWriting

Complete Support the structures inherent to the script.

Universal Support all sign languages without additional characters or updated fonts.

Empowering Enable the writers to decide on the spelling of their own sign languages.

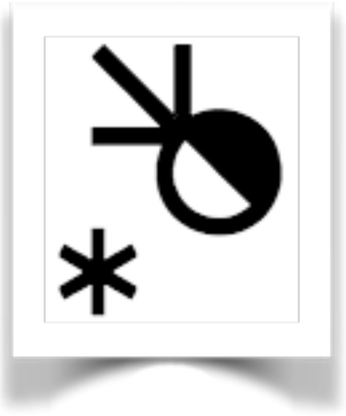
Possible Work with existing font technologies.



2012 Standard

Formal SignWriting in ASCII

FSW



AS18711S20500M514x517S18711490x483S20500486x506

Mathematical names

ASCII characters only
ABLMRS0123456789xabcdef

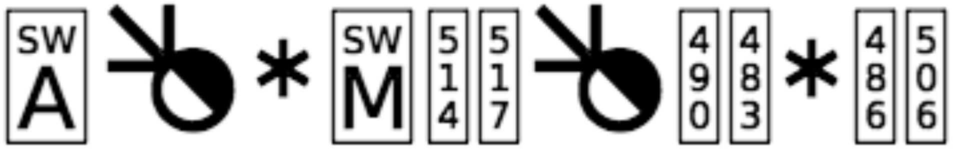
Signs are written as unified words

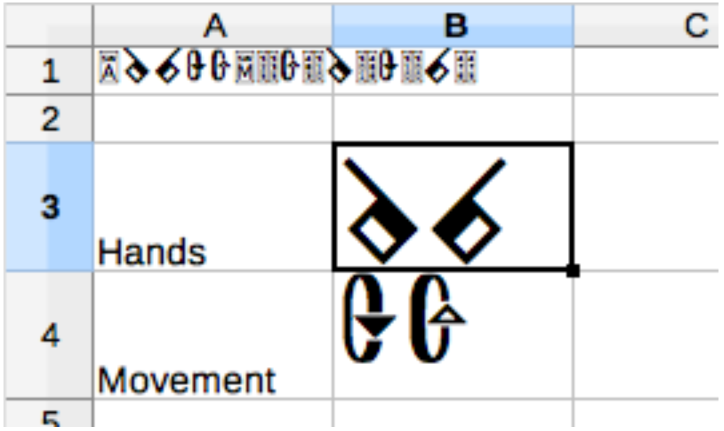
https://datatracker.ietf.org/doc/draft-slevinski-formal-signwriting/

2017 Standard

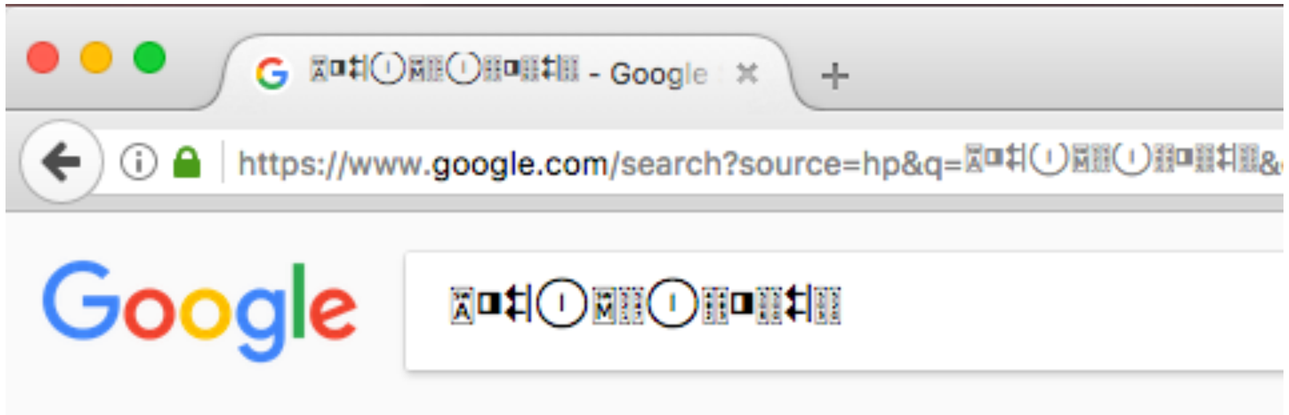
SignWriting in Unicode

SWU





	A	B	C
1			
2			
3	Hands		
4	Movement		
5			



- Google

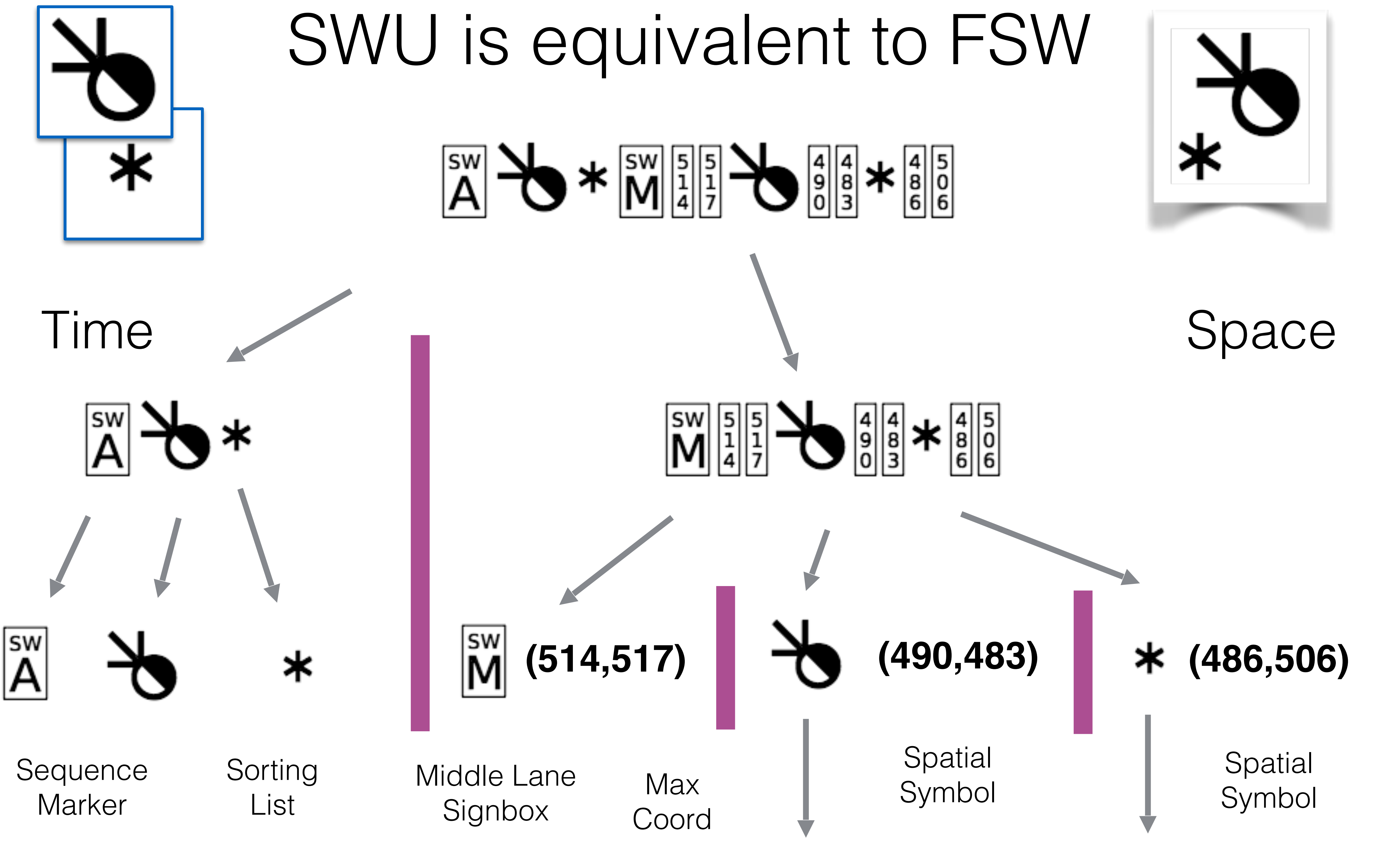
https://www.google.com/search?source=hp&q=

Endorsed by the Center for Sutton Movement Writing

Submitted to the Unicode Technical Committee July 2017

http://www.unicode.org/L2/L2017/17220-signwriting-design-opt.pdf

SWU is equivalent to FSW



Time

Space

(514,517)

(490,483)

(486,506)

Sequence Marker

Sorting List

Middle Lane Signbox

Max Coord

Spatial Symbol

Spatial Symbol

A S18711 S20500 M 514x517 S18711 490x483 S20500 486x506

AS18711S20500M514x517S18711490x483S20500486x506

The Unicode Standard

“a worldwide character standard”

“addresses only the encoding and semantics of text.”

“used for representation of text for computer processing.”

Principles of the Unicode Standard

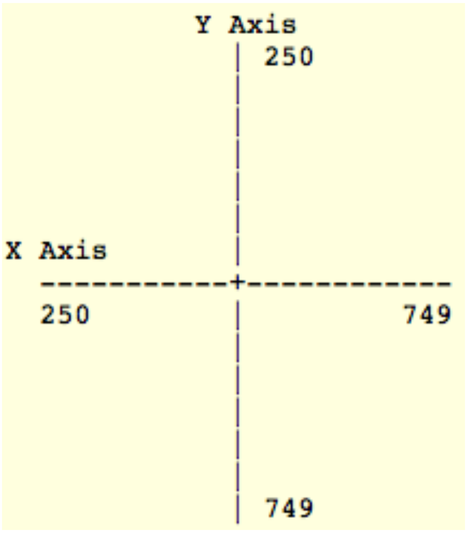
- Universal repertoire
- Logical order
- Efficiency
- Unification
- Characters, not glyphs
- Dynamic composition
- Semantics
- Stability
- Plain Text
- Convertibility

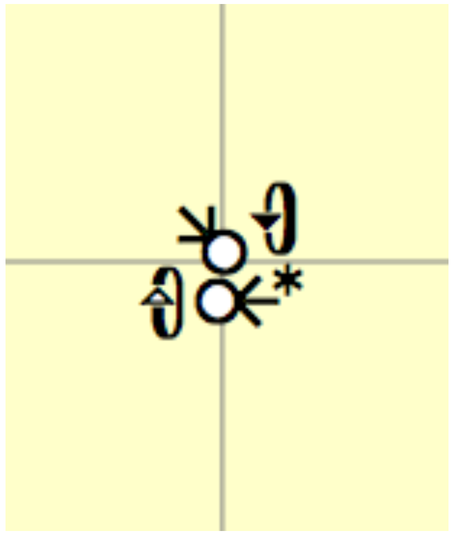
“The Unicode Standard groups characters together by scripts in blocks. A script is any system of related characters.”

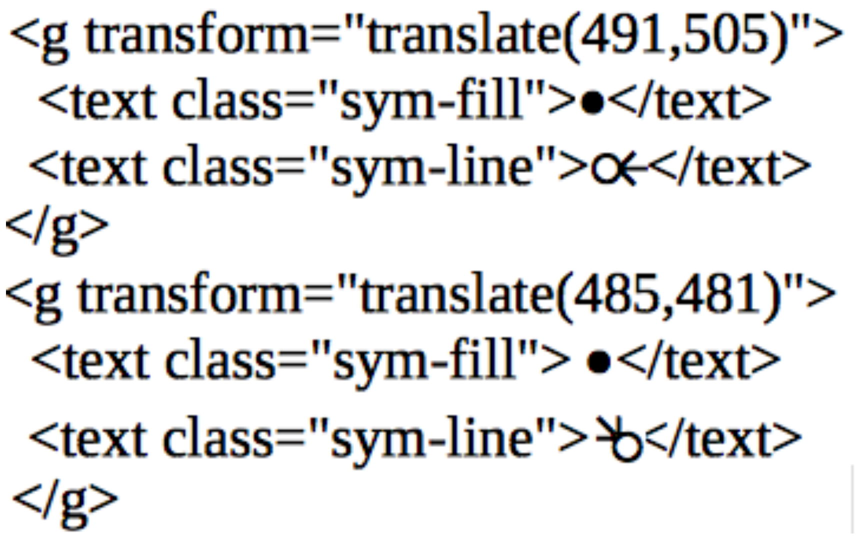
http://unicode.org/standard/principles.html

Scalar Vector Graphics (SVG)

SVG is a widely supported image standard that is available in most environments with a variety of options. 2-Dimensional placement is supported with cartesian coordinates.







```
<g transform="translate(491,505)">
 <text class="sym-fill">●</text>
 <text class="sym-line">○←</text>
</g>
<g transform="translate(485,481)">
 <text class="sym-fill"> ●</text>
 <text class="sym-line">↘○</text>
</g>
```

Sutton SignWriting Fonts
2017 Edition

The Sutton SignWriting fonts are available for download and installation.

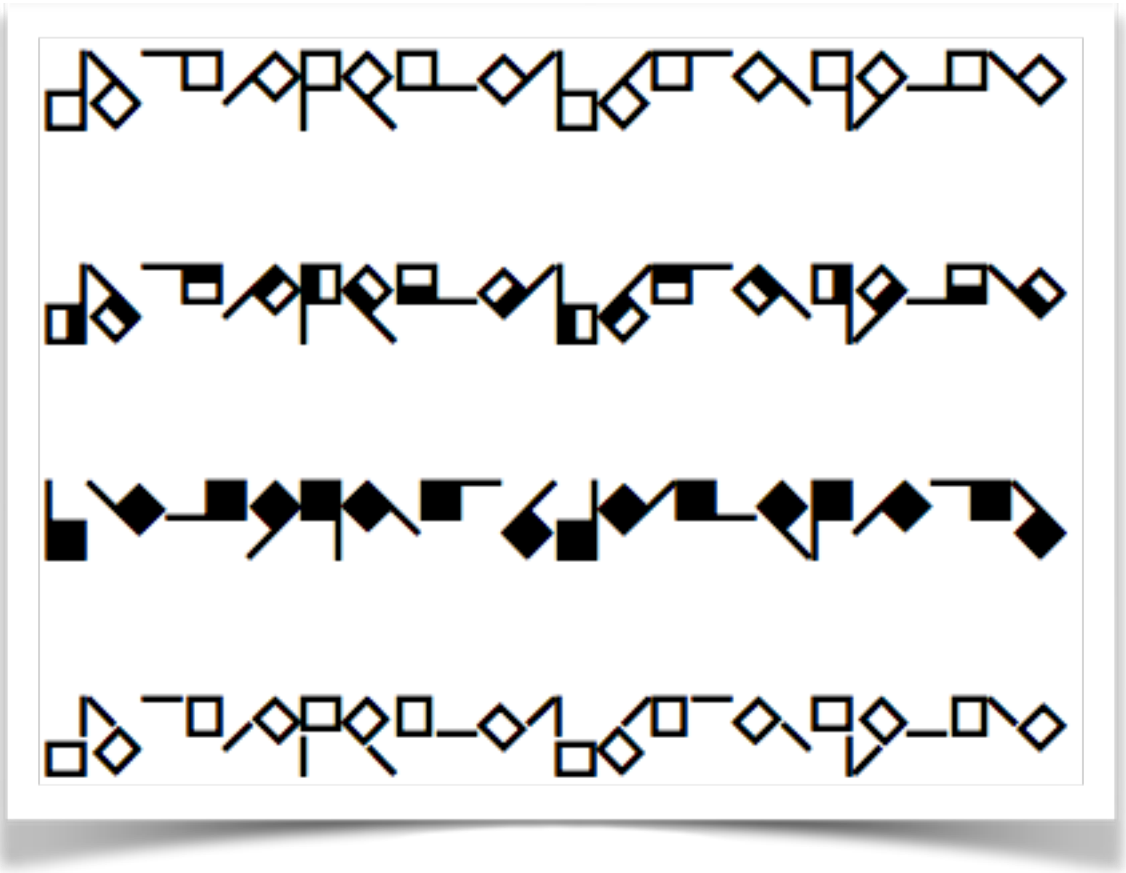
Installing the fonts is not required, but it will improve the user experience and allow the fonts to be used throughout the user's computer.

https://slevinski.github.io/SuttonSignWriting/components/fonts.html

Two Fonts for SVG

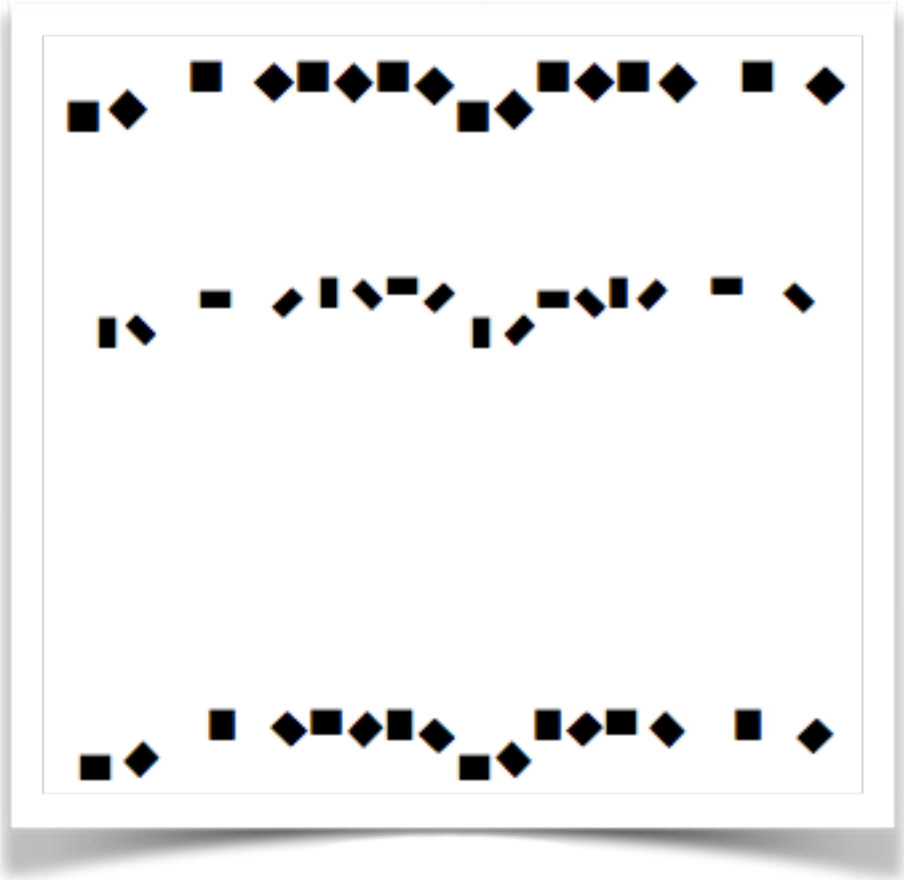
Scalar Vector Graphics used with FSW or SWU

Sutton SignWriting Line



positive space for
the symbol image

Sutton SignWriting Fill

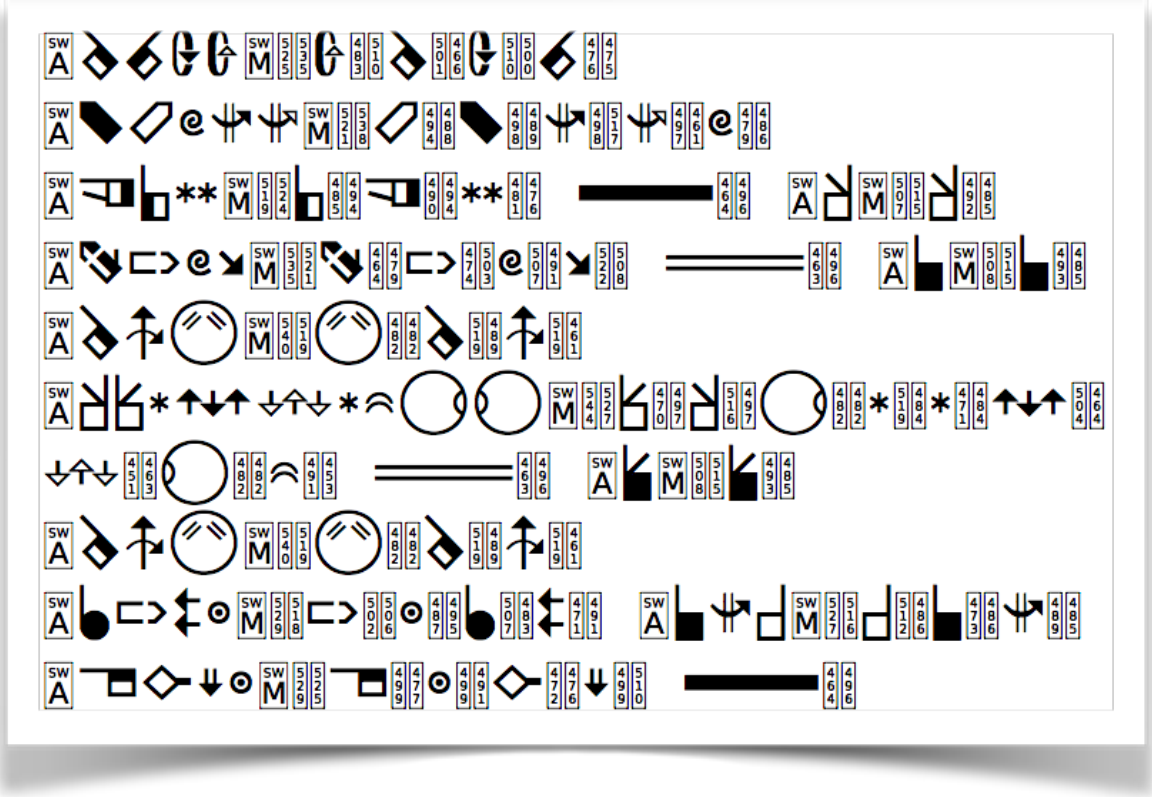


negative space for
overlapping symbols

Two Fonts for SWU

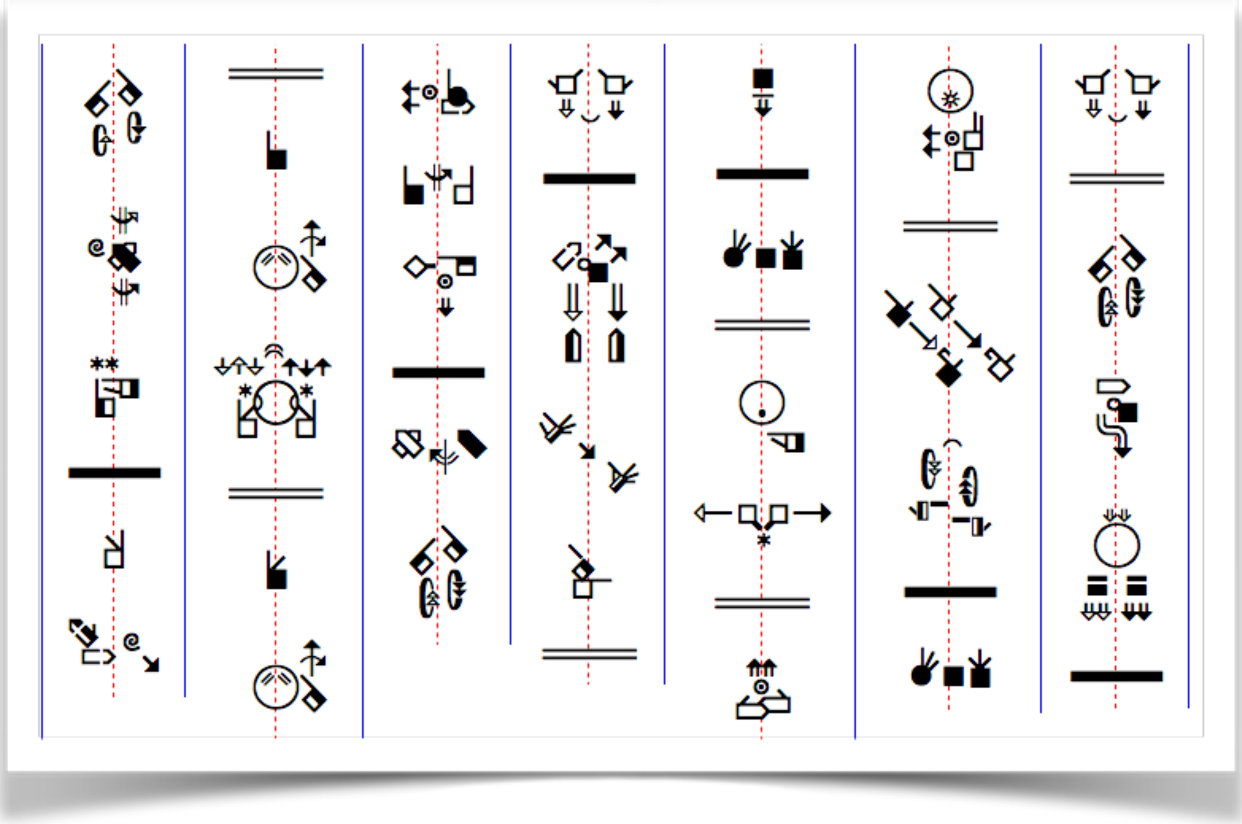
SignWriting in Unicode only, SVG not required

Sutton SignWriting One-D



Available now

Sutton SignWriting Two-D



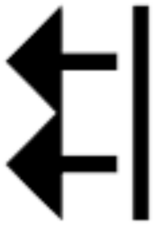
Development planned for 2018

Characters for naming

Characters are units of information

Characters are put together to form a string

Each character is associated with a number



Naming a symbol

With **FSW**, the name of a symbol is a string of 6 characters.

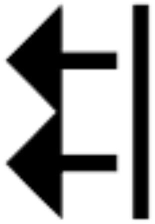
String	"S 2 6 b 0 2"

Unicode

UTF-8	"U+53 U+32 U+36 U+62 U+30 U+32"
UTF-16	"U+0053 U+0032 U+0036 U+0062 U+0030 U+0032"
UTF-32	"U+00000053 U+00000032 U+00000036 U+00000062 U+00000030 U+00000032"

Naming a symbol

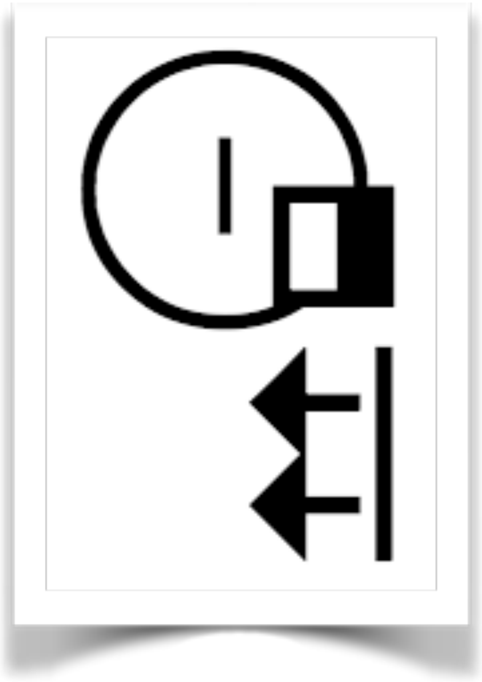
With **SWU**, the name of a symbol is a single character.

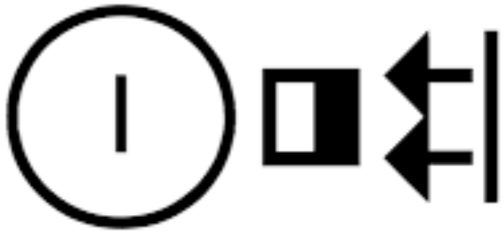
Character 

Unicode

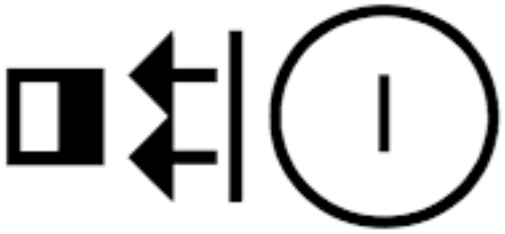
UTF-32	"U+00048823"
UTF-16	"U+D8E2 + U+DC23"
UTF-8	"U+F1 U+88 U+ A0 U+A3"

How do you spell a sign?



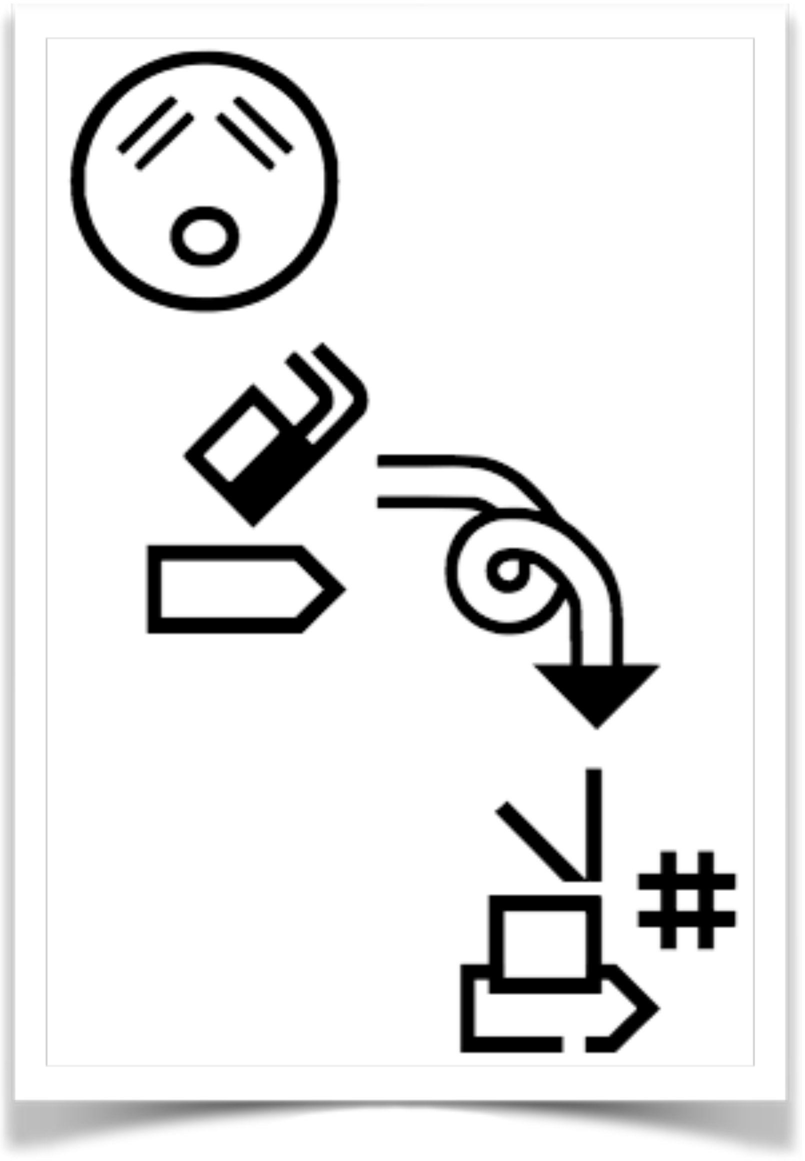


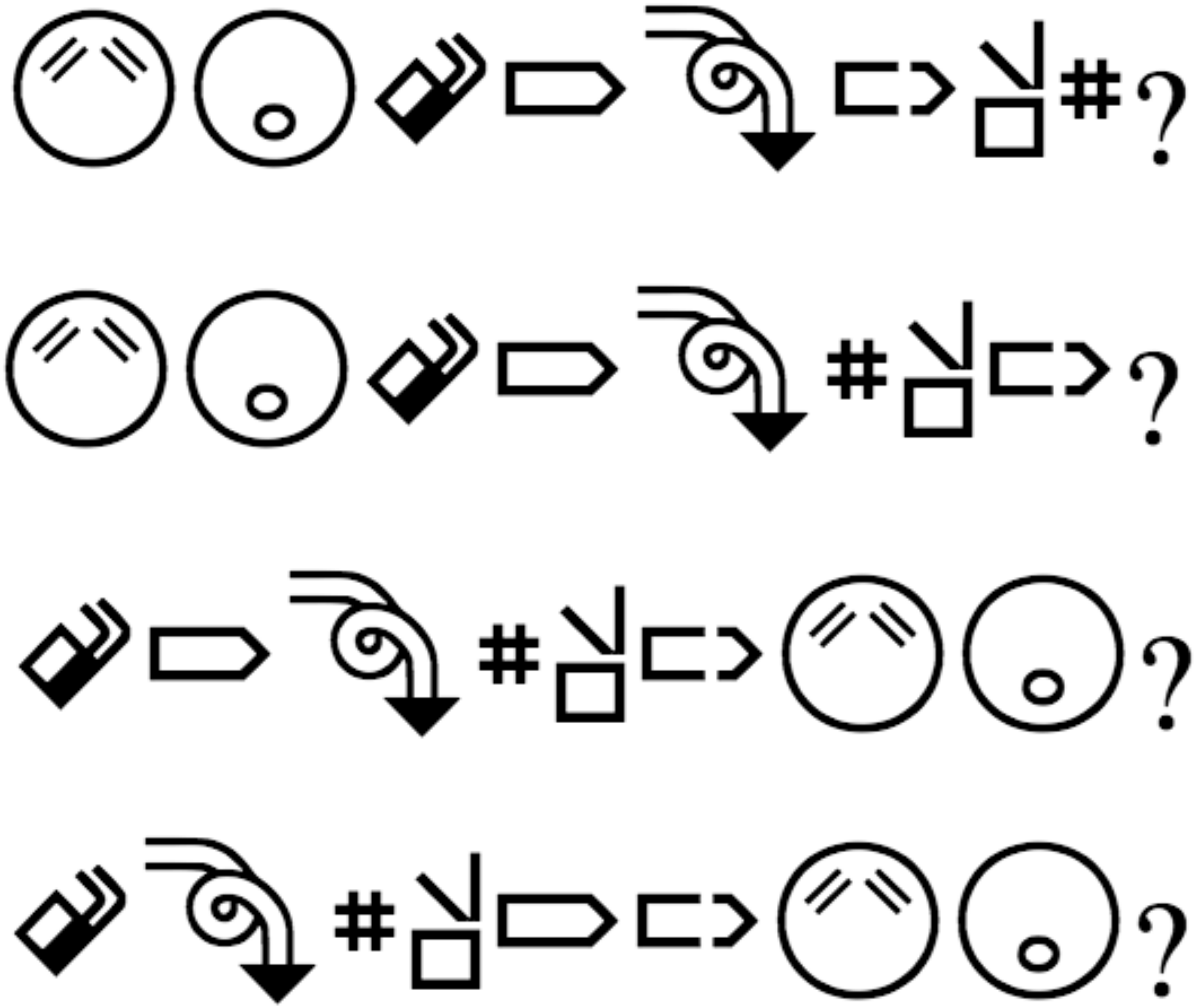
?



?

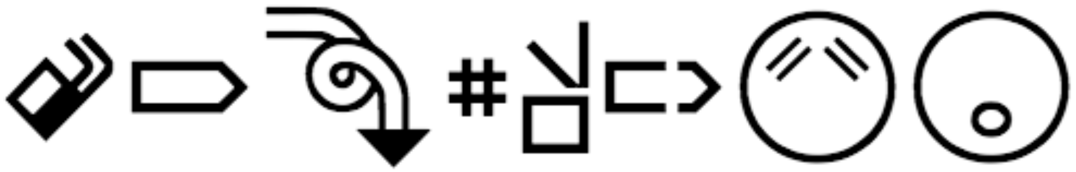
What about something more complex?





M571x617S30a00482x483S34400482x483S11817497x522S15a06492x549S2970b523x537S15a36534x605S10e30538x579S20b00558x590

The SignSpelling Sequence



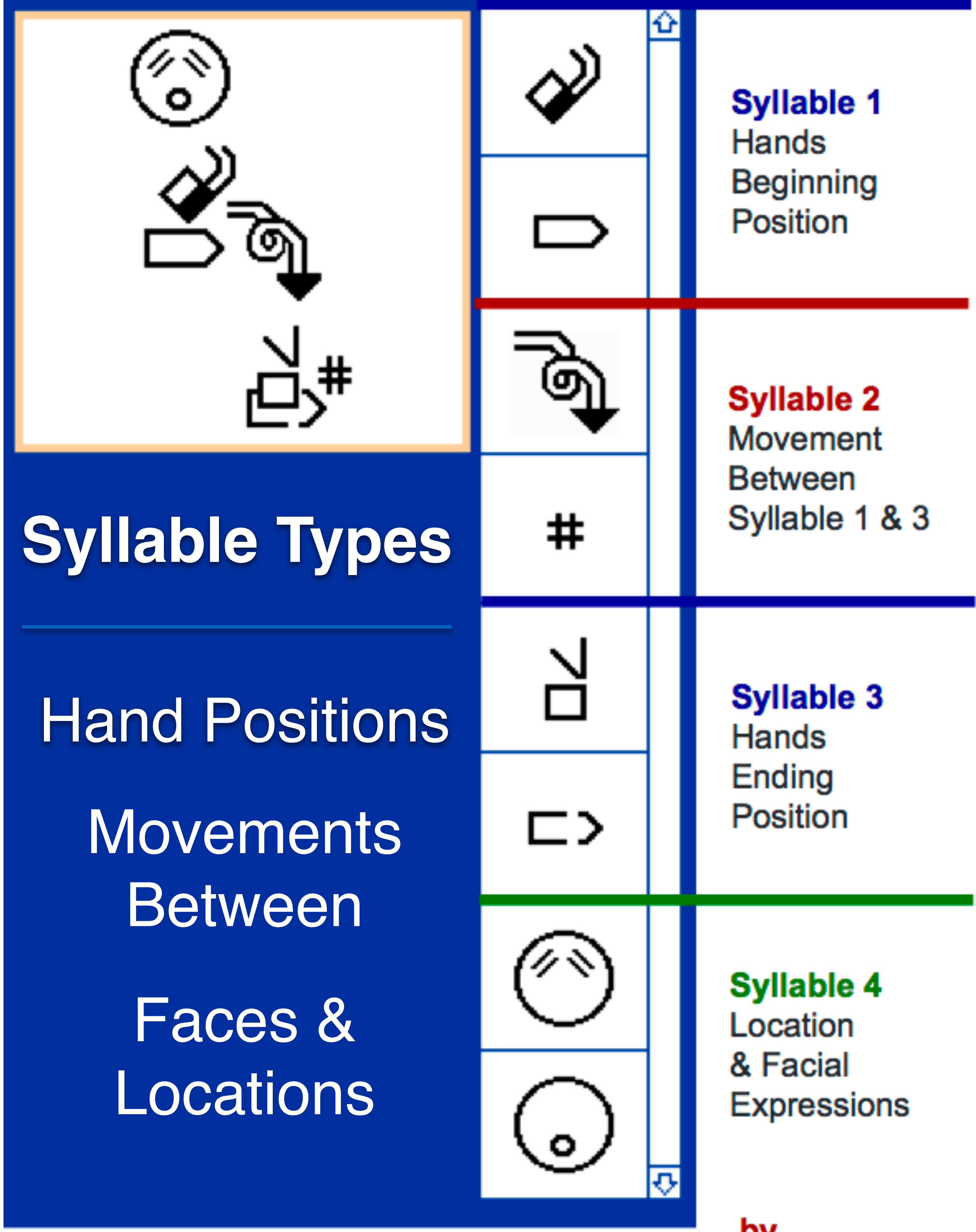
First syllable starts with beginning hand positions.

Second syllable contains the movements and dynamics.

Additional syllables alternate between hand positions and movements.

The Last syllable contains faces and locations.

Used for sorting and rendered in dictionary



Syllable Types

Hand Positions

Movements Between

Faces & Locations

Syllable 1
Hands
Beginning
Position

Syllable 2
Movement
Between
Syllable 1 & 3

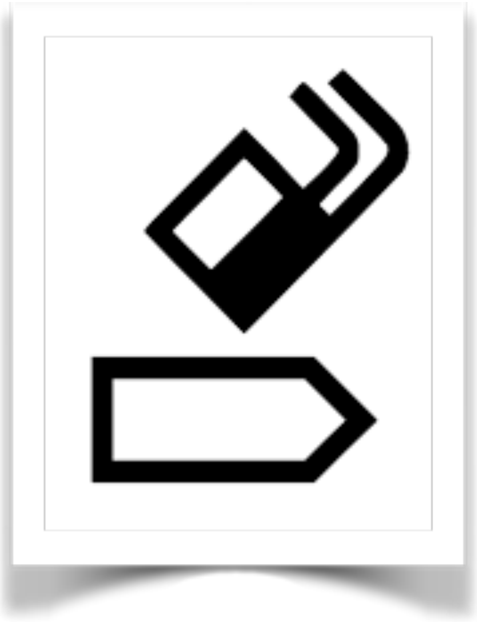
Syllable 3
Hands
Ending
Position

Syllable 4
Location
& Facial
Expressions

by
Valerie Sutton

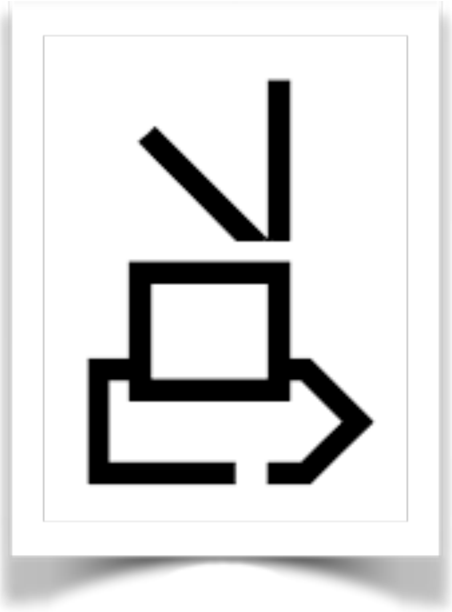
Two perspectives for Syllables

Front Perspective



a straight on view
of the signer

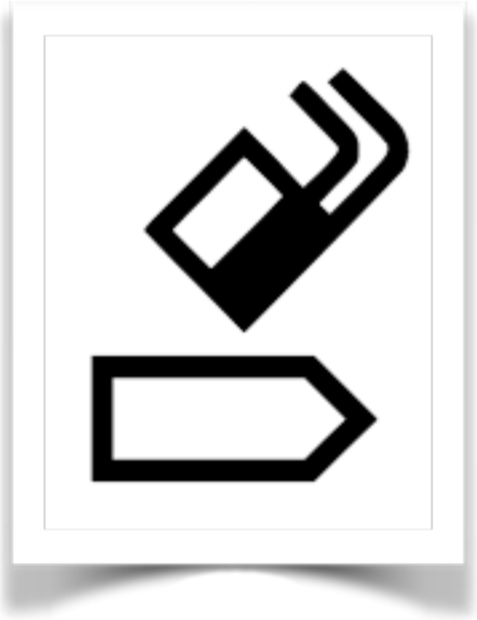
Top Perspective



a top-down view
of the signer

The Importance of palm facings

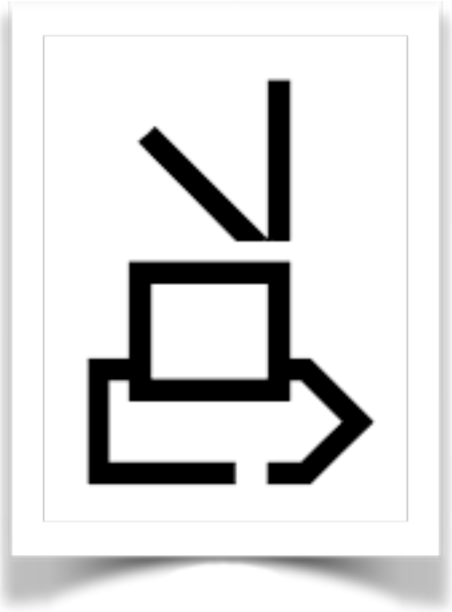
Front Perspective



White palm faces the signer.

Half palm faces to the side.

Top Perspective



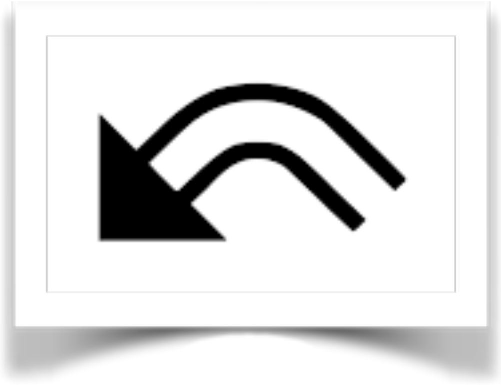
Line breaks for
top perspective.

White palm faces up.

Arrow heads and tails

Black arrow head for right hand

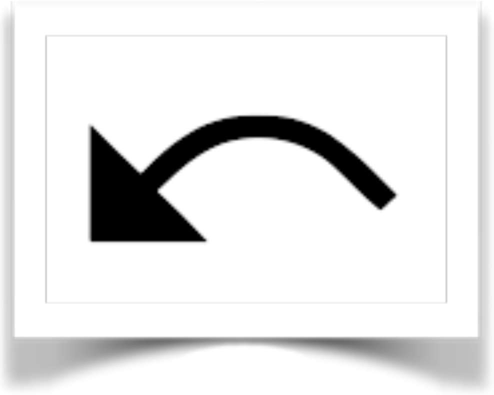
Front Perspective



Double line tail

Movement
up then down

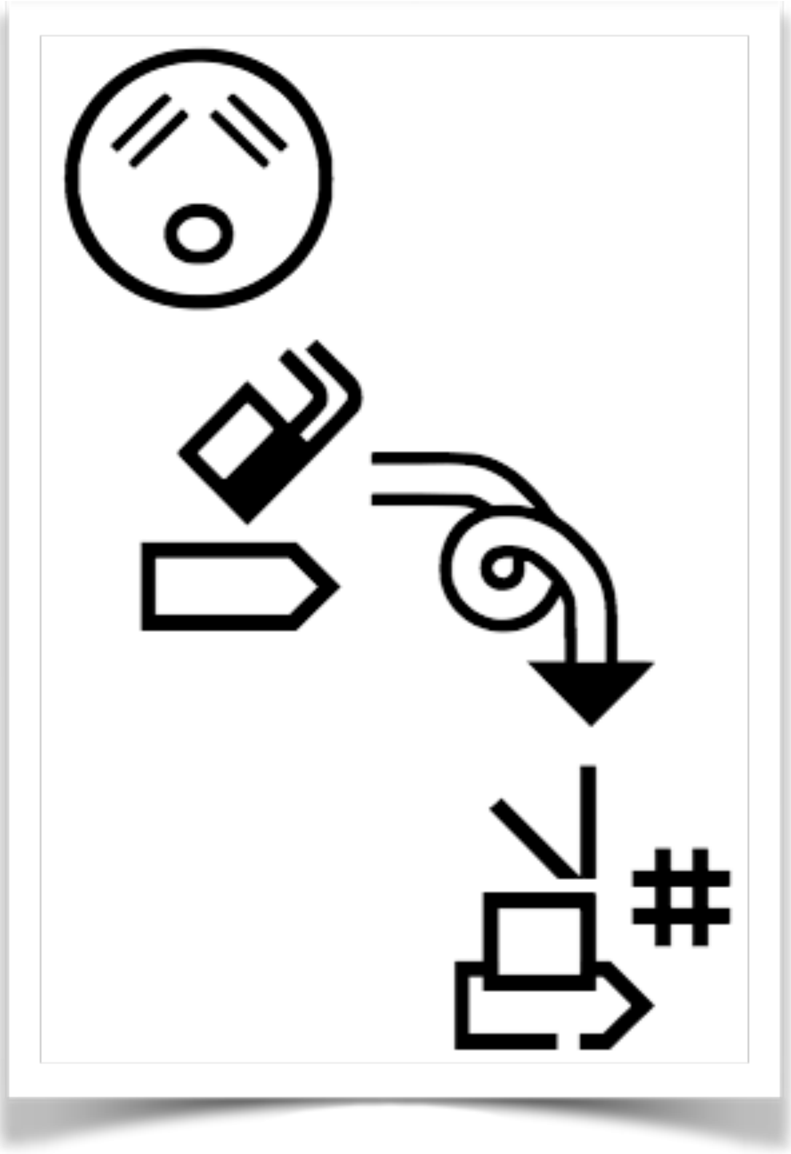
Top Perspective

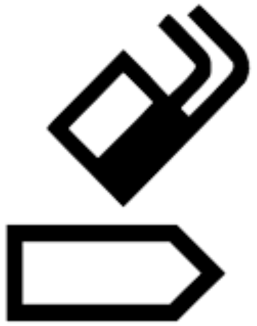


Single line tail

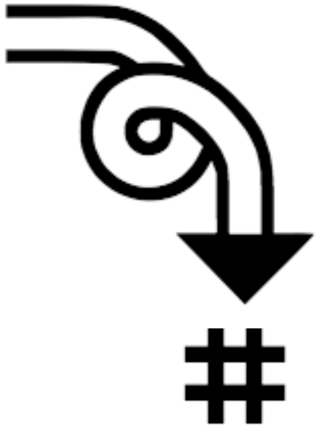
Movement
away then back

Reading the sign

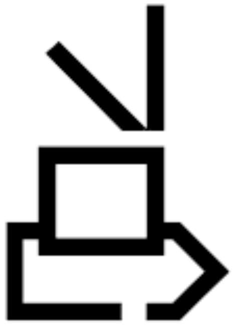




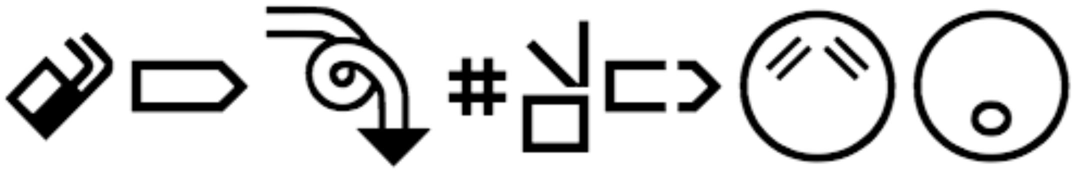
Starting position
Front perspective
Left palm facing signer
Right palm facing to side

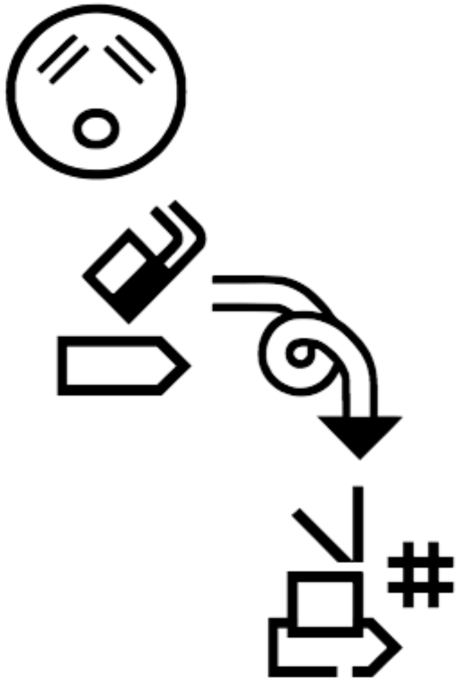


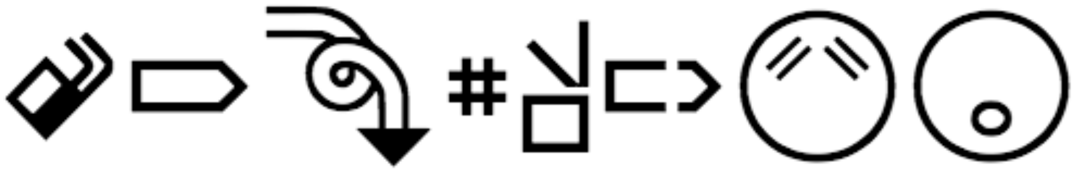
Movement between
Front perspective
Right hand moves to the right, loops and down.
Hash mark for strike!



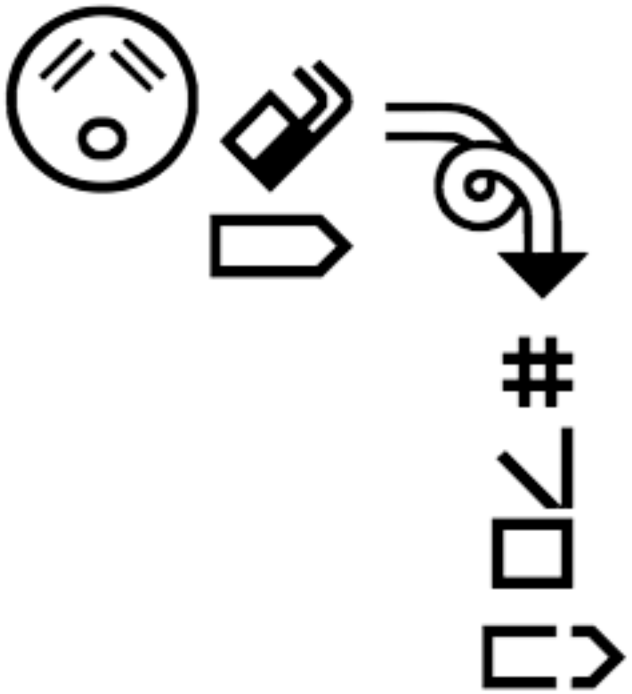
Ending position
Top perspective
Both palms facing up

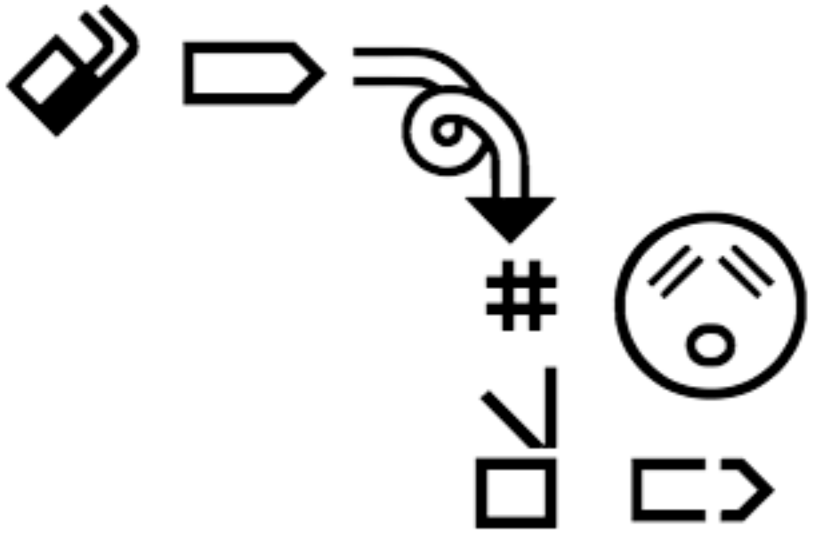
How does 

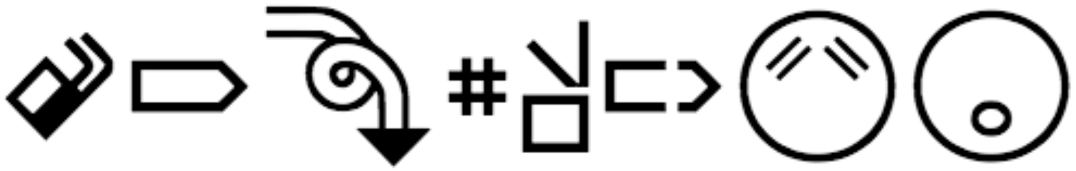
become  ?

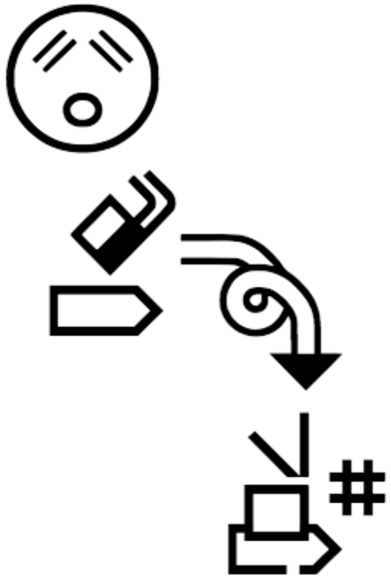
Why isn’t 

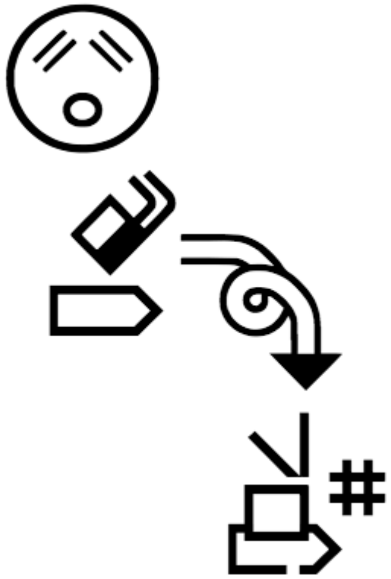
equal to something else?

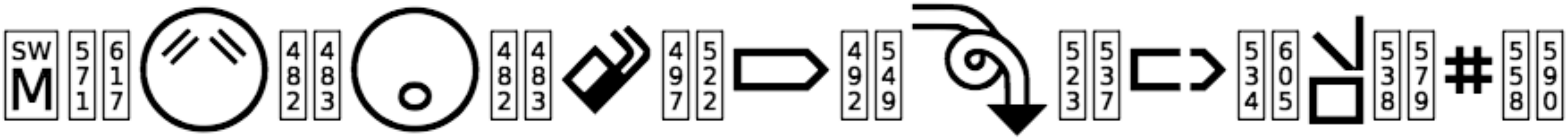


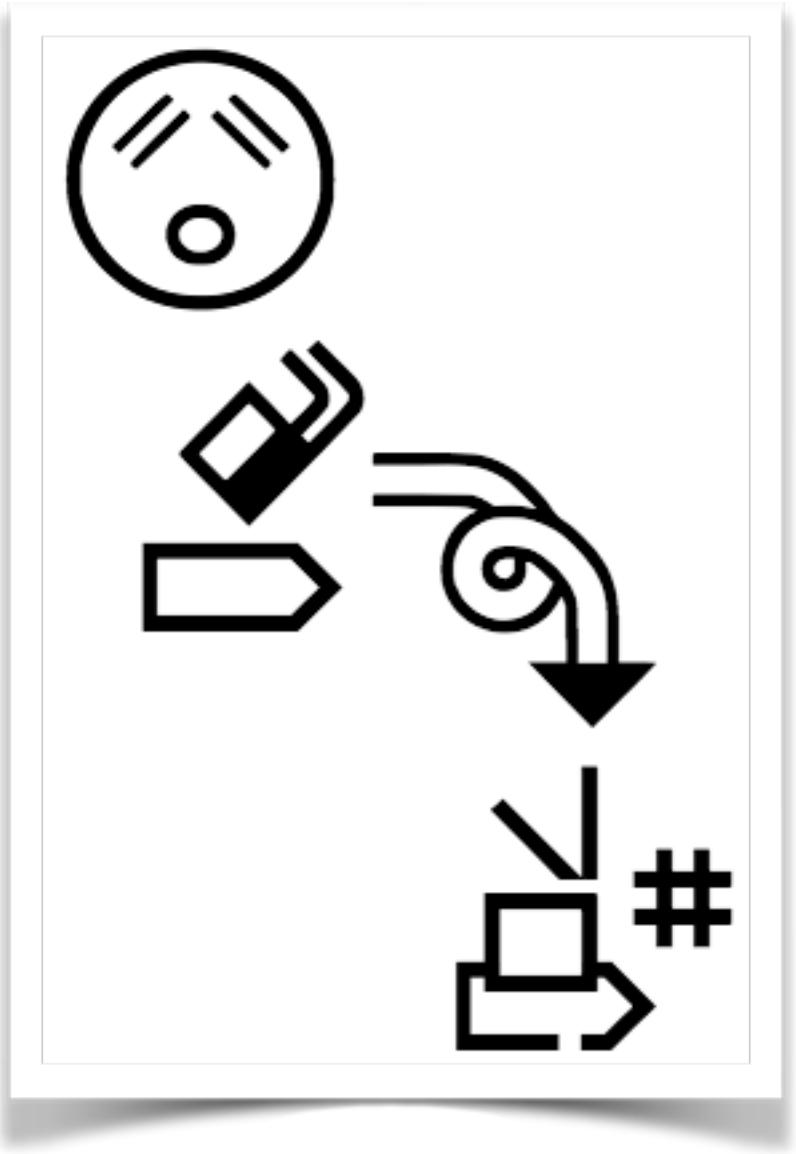


 is fundamentally

different than  !

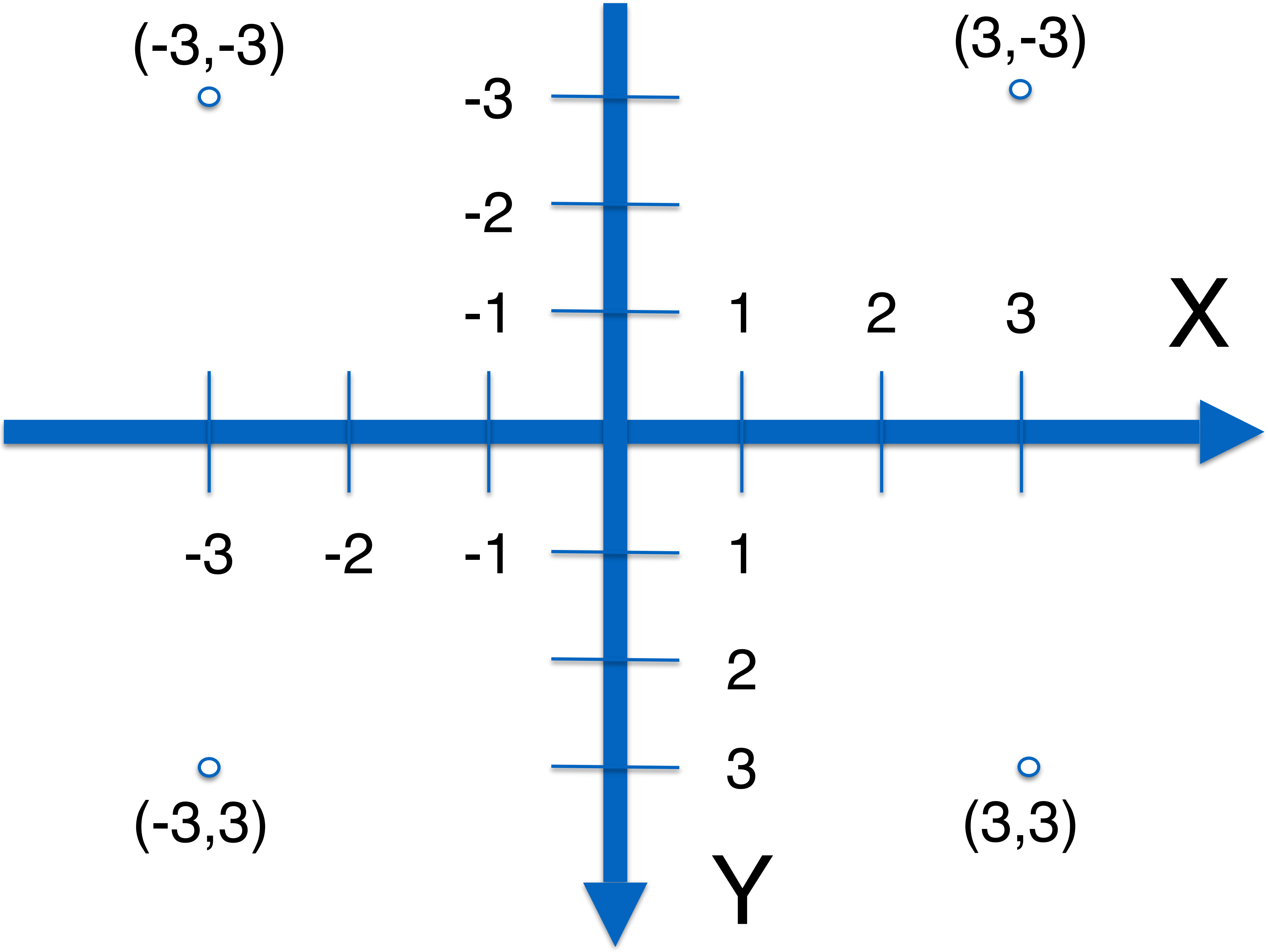
 is equal to something else.



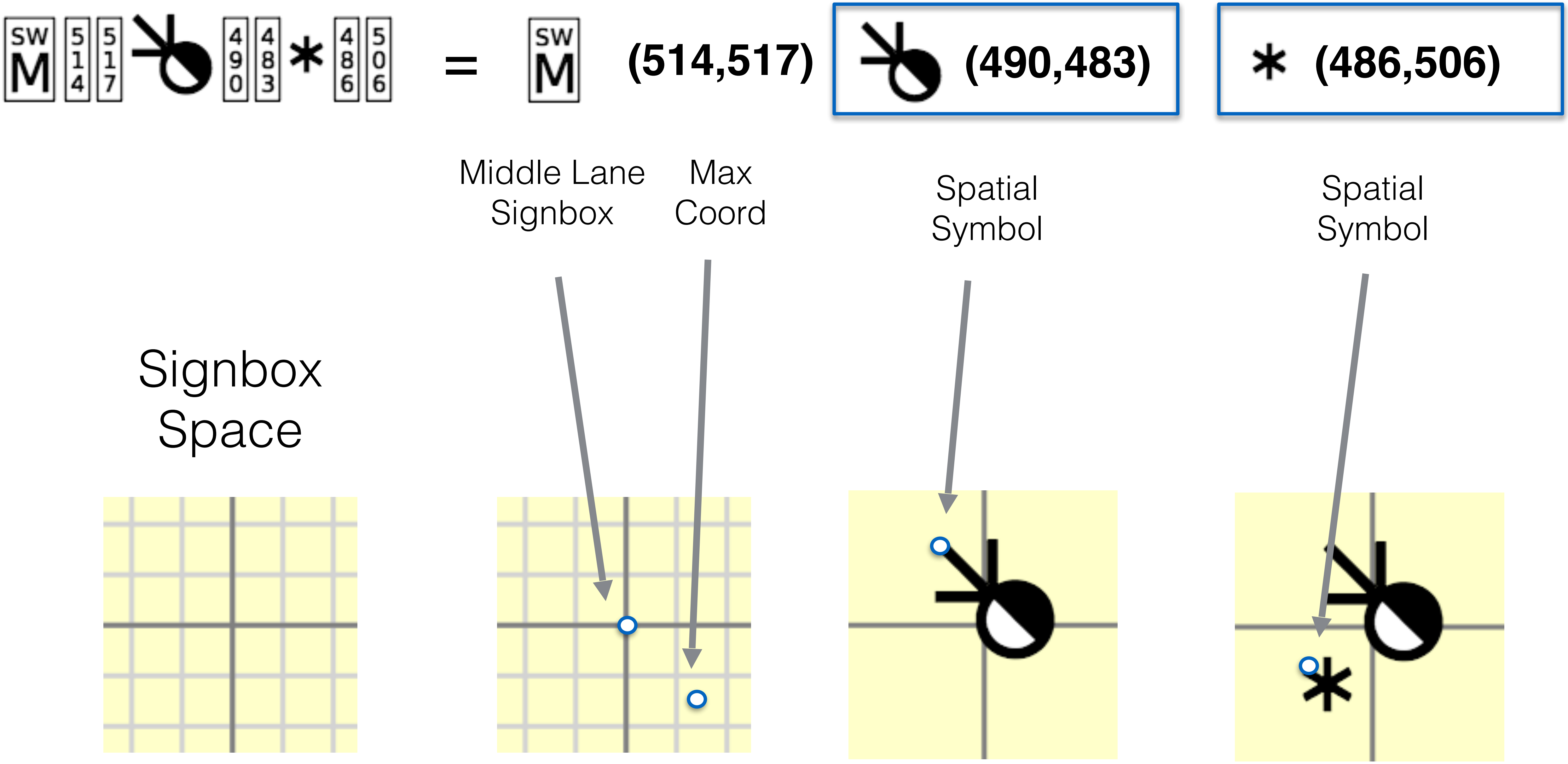


Layered writing in
2-Dimensions with
Cartesian Coordinates

Two-Dimensional Space with (X,Y) values



Writing in Two-Dimensional Space



(514,517) (490,483) (486,506)

Middle Lane Signbox

Max Coord

Spatial Symbol

Spatial Symbol

Signbox Space

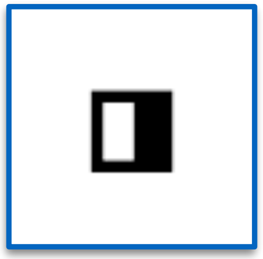
Both X and Y range from 250 to 749.

Center is (500,500)

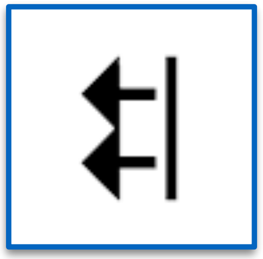
Formal SignWriting

A two part word of time and space.

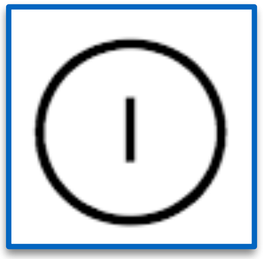
First syllable
Starting hand shapes

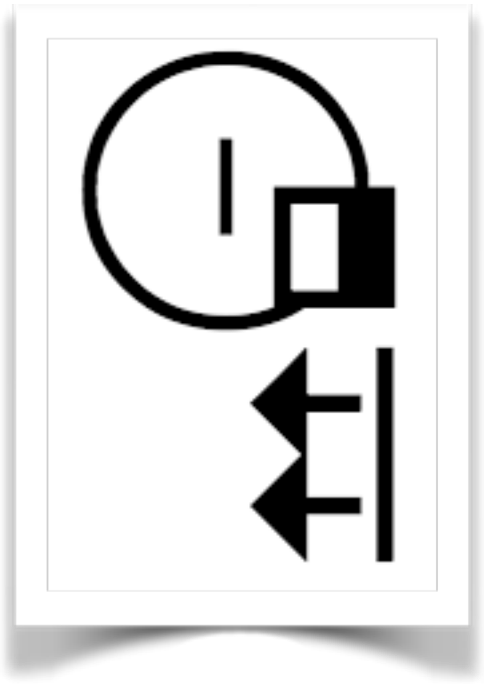


Second syllable
Movements and Dynamics

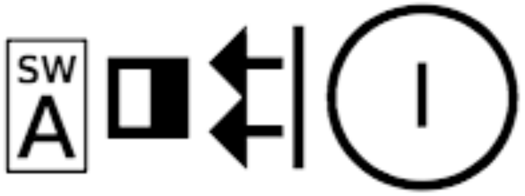


Third syllable
Faces and Locations

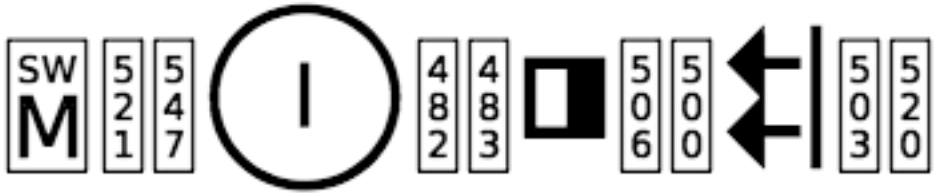




Layered writing in
2-Dimensions



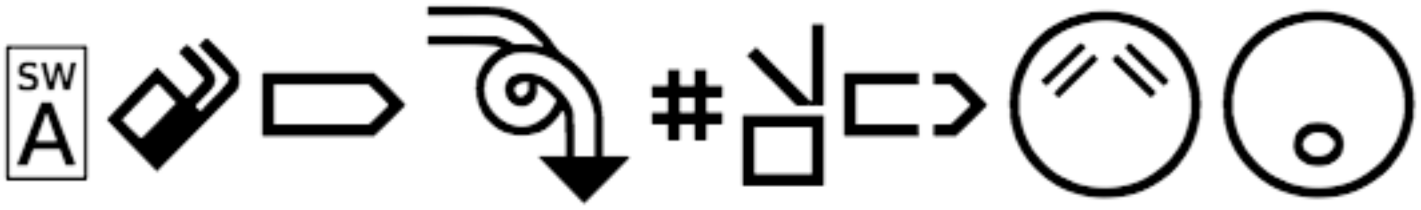
Temporal Prefix



Spatial Signbox

Formal SignWriting

Temporal Prefix



Sequential list of symbols

Written by an author

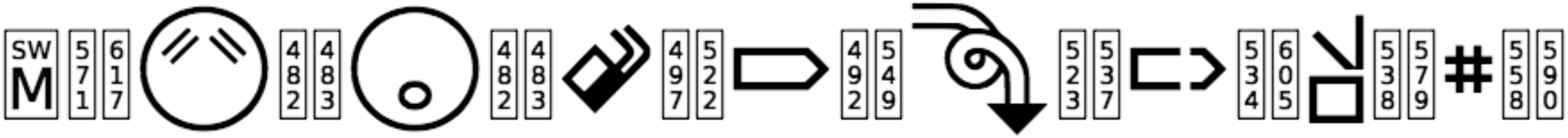
Ordered by a particular theory

Neither formatting nor style

Meaning not found in the Spatial Signbox

Formal SignWriting

Spatial Signbox



2-dimensional cluster of symbols

Written by an author

Symbols are positioned with Cartesian Coordinates

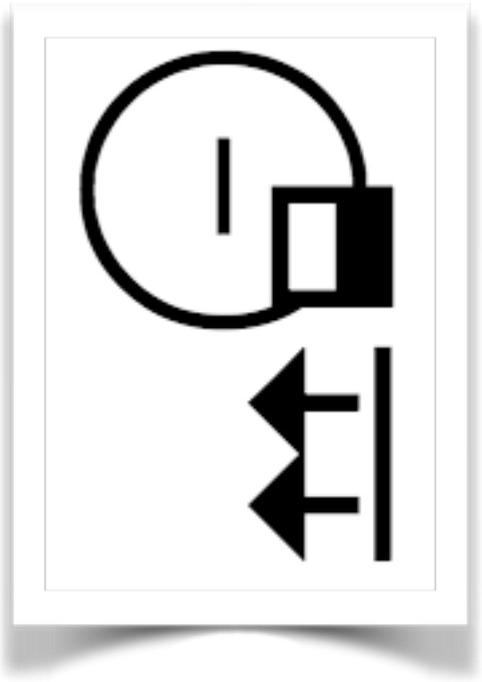
Neither formatting nor style

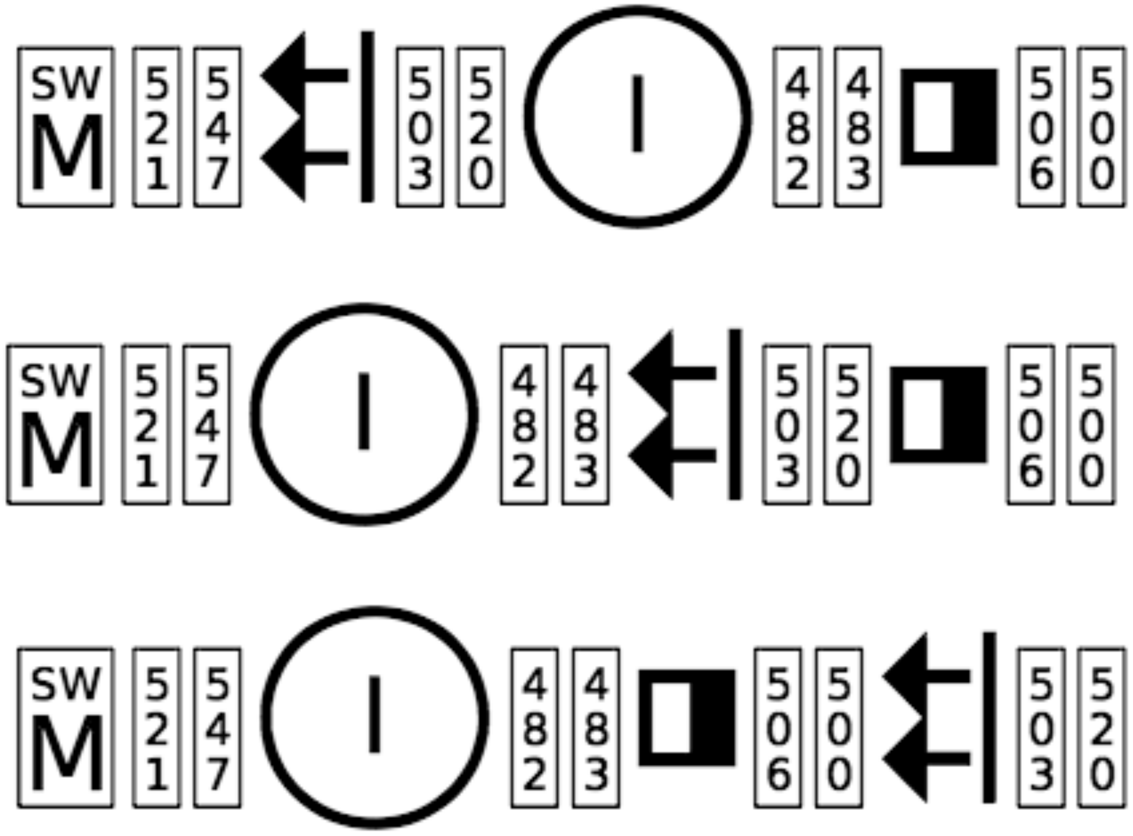
Meaning beyond the Temporal Prefix

Formal SignWriting

Spatial Signbox Equivalents

The order of spatial symbols only matters for overlap.



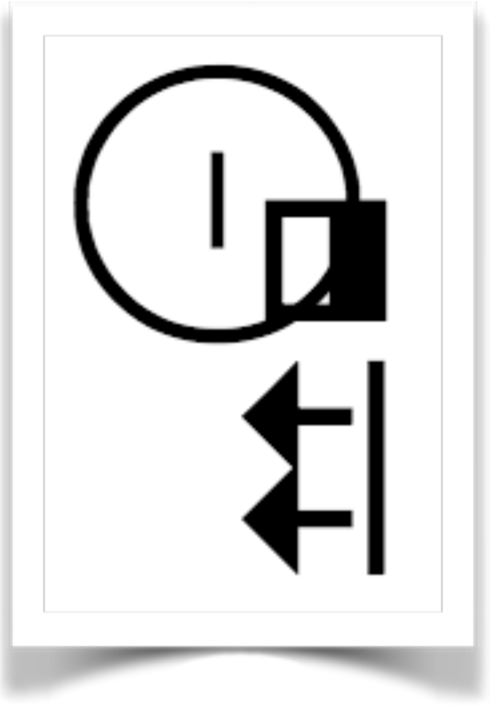

SW M 521 547 503 520 482 483 506 500
SW M 521 547 482 483 503 520 506 500
SW M 521 547 482 483 506 500 503 520

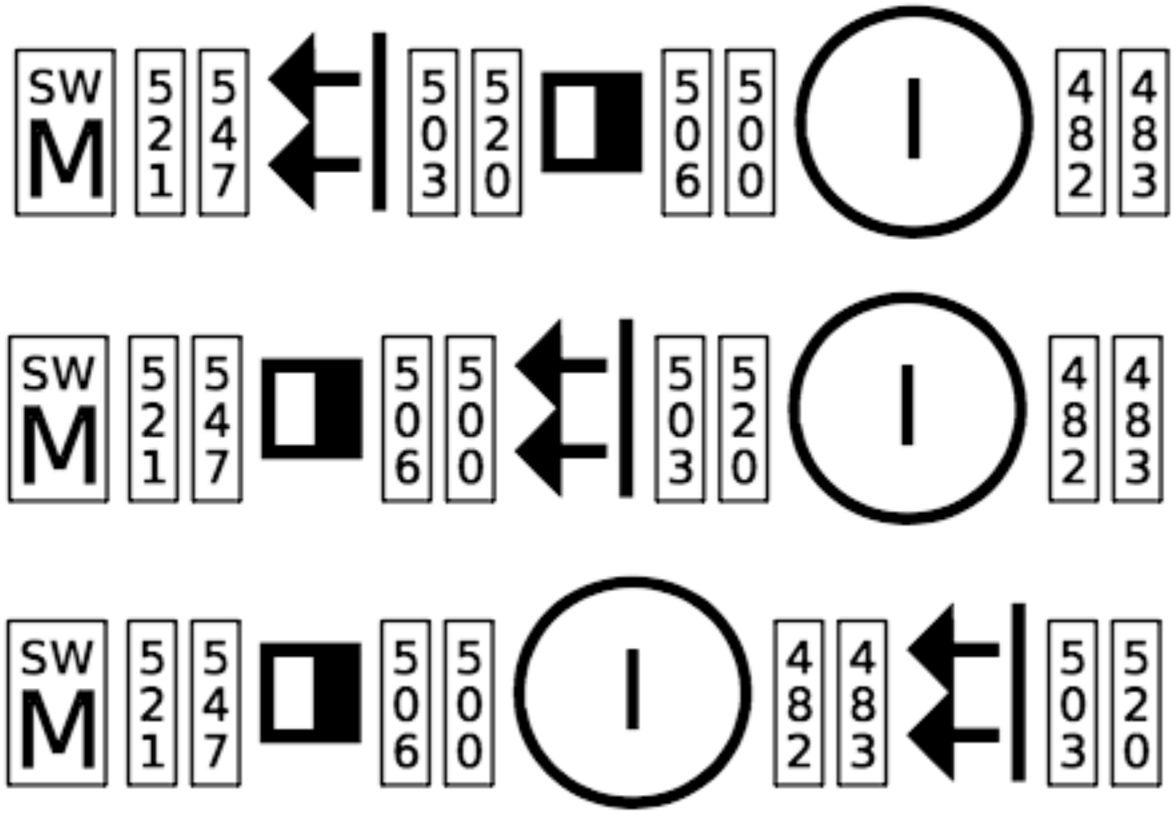
A correct order must write the hand after the head.

Formal SignWriting

Spatial Signbox Dissimilars

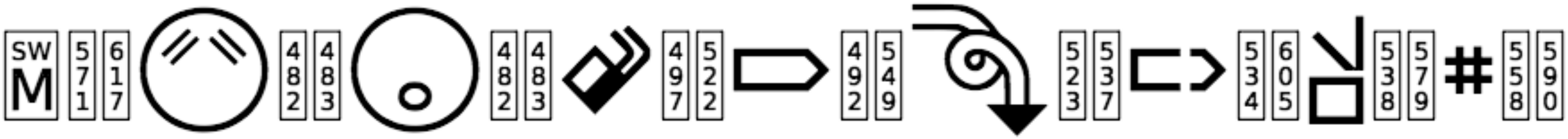
Some sequences of spatial symbols will overlap incorrectly.



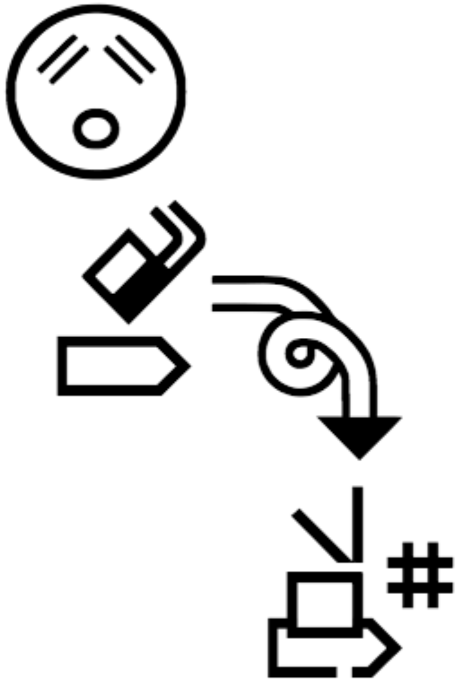


An incorrect order will write the hand before the head.

How does



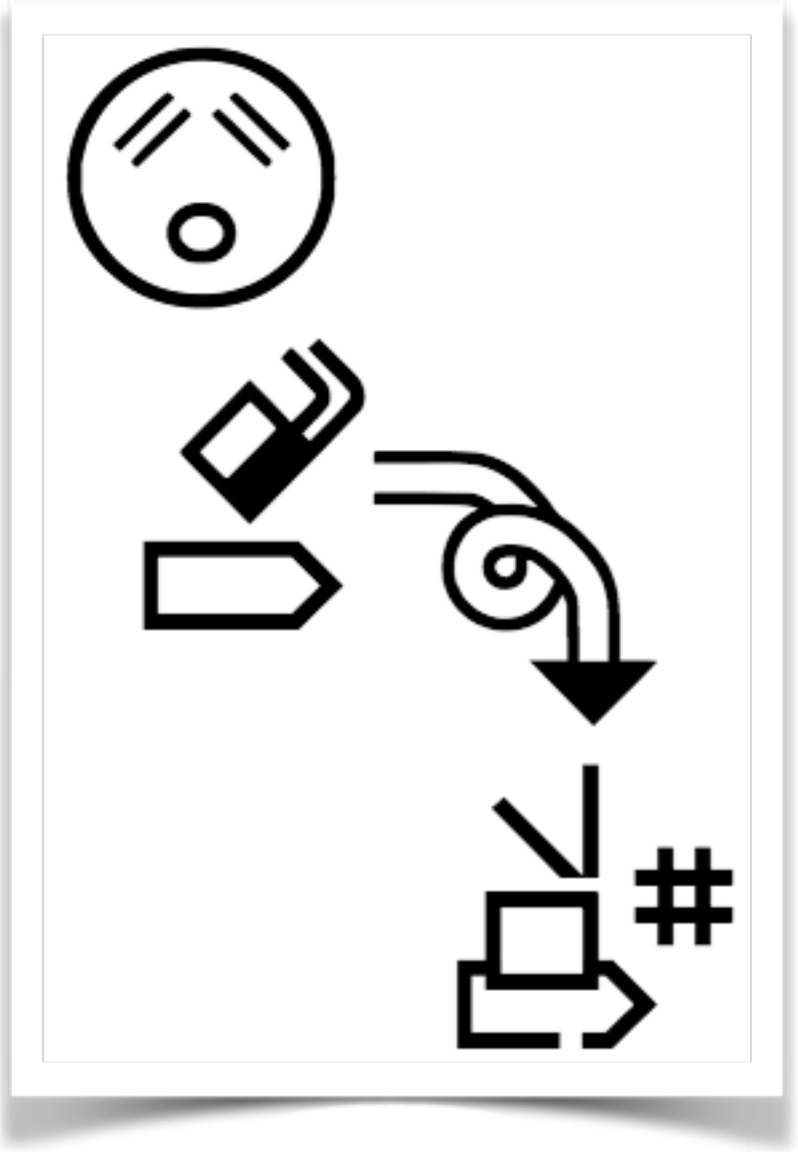
become



?

SignWriting Today

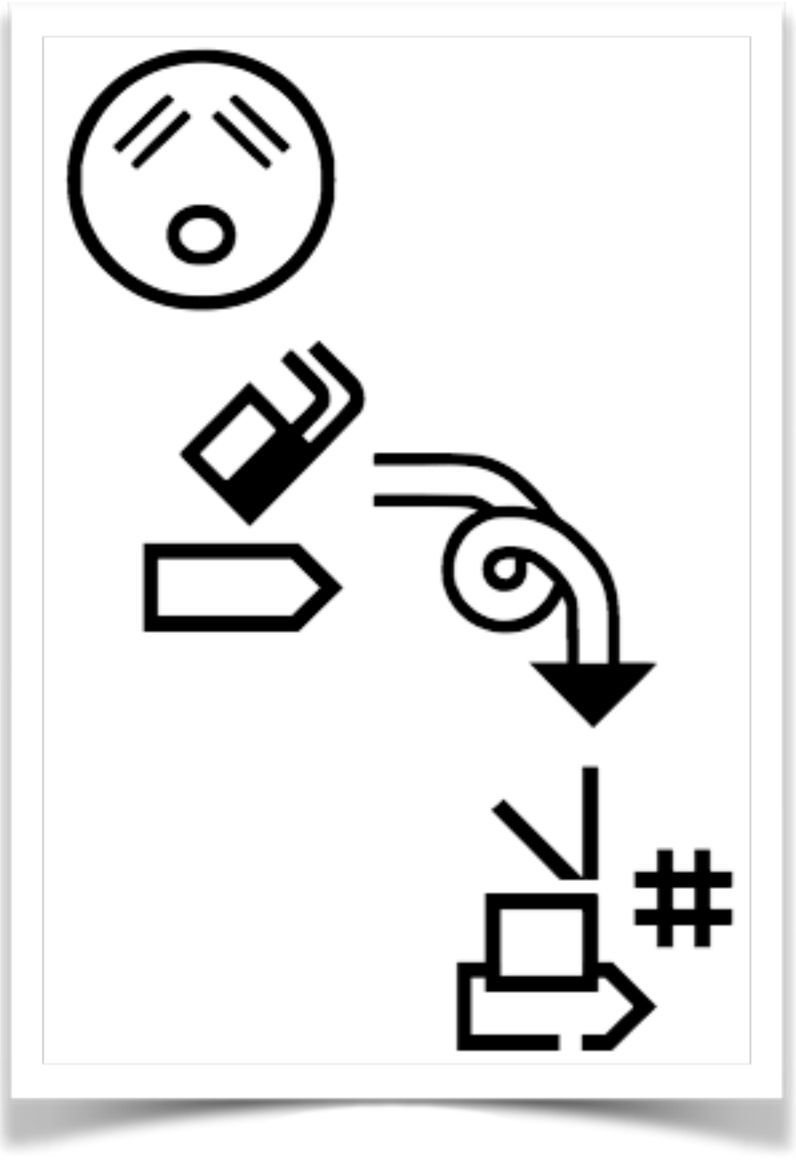
Scan and process



Regular Expressions are used to identify signs written in SignWriting.

Signs are rewritten with fonts inside of SVG, retaining the source string as text which can be copied.

SignWriting Tomorrow

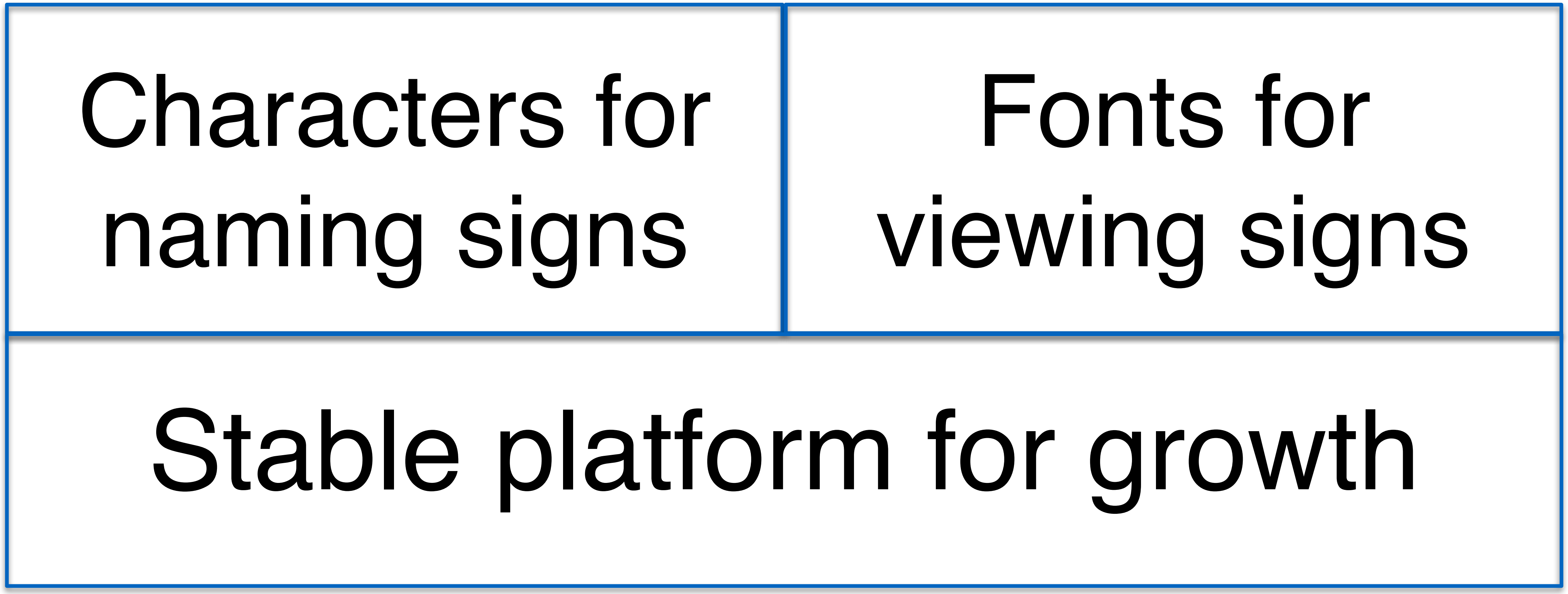


The Universal Shaping Engine (USE) is a widely supported rendering system for complex scripts.

With the Universal Shaping Engine, SignWriting text can be correctly rendered by the operating system.

A 2-Dimensional font is being developed for the Sutton SignWriting script which leverages the Universal Shaping Engine.

Sutton SignWriting Standard of 2017



Characters for naming signs

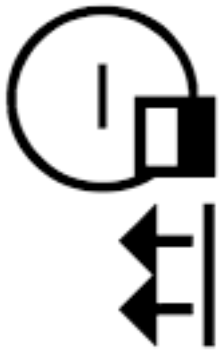
Fonts for viewing signs

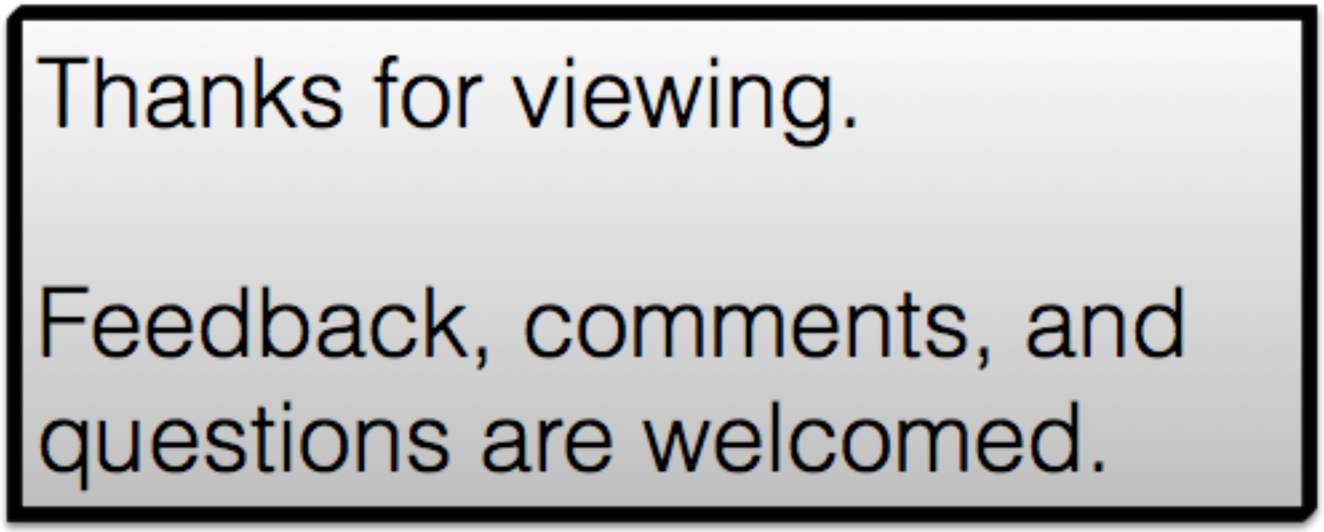
Stable platform for growth

Sutton SignWriting Standard of 2017

by Stephen E Slevinski Jr

slevinski@signwriting.org





Thanks for viewing.

Feedback, comments, and questions are welcomed.

https://slevinski.github.io/SuttonSignWriting/