

# 1 Introduction: logix 2020-01-04 v1.02

The logix package provides the logix Unicode font and, at this time, must be used either with Lua $\TeX$  or Xe $\TeX$ . There are no available options. The logix font contains supplemental symbols for logic and mathematics, most of which are not found in Unicode. All of the symbols, with the exception of those in the ASCII code space, are in Unicode's Private Use Area. This package does not replace either the text font or the math font.

The logix package includes, in turn, the ifxetex, ifluatex, unicode-math and arydsln packages. The unicode-math package includes the fontspec package. The arydsln package conflicts with several packages. Documented conflicts are the array, longtable, colortab and colortbl packages, which must be loaded before the logix package. Typical use of the logix package in a  $\TeX$  source file is:

```
\usepackage{array}    % Optional, only if otherwise required.
\usepackage{logix}
\setmainfont{STIX Two Text}
\setmathfont{STIX Two Math}
```

although the  $\mathcal{A}\mathcal{M}\mathcal{S}$  STIX2 fonts may be included prior to the logix package, provided that the unicode-math package is loaded first.

The metrics for the logix font are identical to the STIX2 mathematical font and, overall, the symbols in the logix font are designed to be compatible with the STIX2 mathematical font. It may, of course, be used with any other mathematical font. There are more than 3,000 symbols exported from the font (of which around 1,000 are for “stretchy” delimiters). The font itself contains over 4,000 symbols, but those which are not exported are usually variants (e.g. thinner or thicker) or unused experimental symbols. Other symbols could be exported, but have neither suggested usage nor name at this time.

Should you wish to use a non-exported symbol, please contact the author with a quick explanation of your use (so a reasonable name can be assigned) and, as the author's time permits, the requested symbol can be exported (once a name has been assigned, the requestor can then make a quick patch to their logix.sty file for immediate usage). Symbol names in the font file are the same as the  $\TeX$  macro for the symbol with the exception of the ASCII code page since those names potentially conflict with existing  $\TeX$  names. Otherwise, if a symbol does not have a name, then it is not exported.

Should you want an entirely new symbol, that is also possible — but may take more time depending on difficulty and available time. Of course, petitioning the gatekeepers of Unicode to add any of the symbols here which are not in Unicode and have been used in publication is possible, but time-consuming. No assurances are made about the Unicode codepoint (or even font file) for any symbol in the font. Those may change with updates to this package. Use the provided macro names and not the Unicode codepoints.

The international organizations that maintain Unicode and ISO 10646 live in time frames more appropriate to watching trees grow than users' time frames. This font allows a more rapid response, permitting new symbols to be added simply because someone wants to try one out. That is entirely how this font came into existence, the author found that Unicode simply did not have enough arrows for use in logic and what was there was poorly designed for the purpose and inconsistent to boot. Many non-exported symbols are variants on arrows or ordering operators.

Formal logic expressions differ from mathematical expressions in several ways. First, layout is typically linear rather than the more complex two-dimensional layout more often found in mathematical expressions. Next, most logical operators tend to occur between lower case alphabetic symbols, so many operators for mathematics are too large or their center is too high. Finally, delimiters used for mathematical expressions are typically neither tall enough or deep enough for good readability. Thus, many operators which have a good appearance in mathematical expressions are not as appropriate for logical expressions.

Symbols in the logix font which are also in Unicode are typically glyph variants that are designed to better accommodate formal logic expressions. These may occur in the same document as the mathematical variants, and so are not assigned the Unicode codepoints of the mathematical variants.

This package provides 34 stretchy delimiters, each of which has a left and right variant. There is also a stretchy binding bar, commonly used with set notation. Of those 34 delimiters, 4 are only stretchy up to a point (5 times original height). All of the remaining delimiters may be of arbitrary size. At this time, there are no horizontal stretchy operators. However, the function arrow and the logic implication arrows have four available lengths. If `\Delim` is a stretchy symbol, then `\DelimX` (where  $X$  is A–L or A–P) are explicit larger sizes of `\Delim`. Additionally, `\DelimS` is automatically stretchy, so the use of `\left`, `\middle` or `\right` is not necessary. In the case of `\middle`, a `\left` and `\right` are still required in the expression.

A large set of arrows is provided for potential function variants. Arrows are provided to distinguish between 8 types of logic. The distinctions are largely for naming purposes, since there is no real consensus for their use — although some are most frequently associated with classical logic. Various flavors of turnstiles (and their negations) are also provided. There is more of a consensus for their usage although the author has only seen two publications with the very useful sequent (`\Seq`) symbol. Additional arrows are provided as an alternative to the slash typically used for replacement in quantification and arrows are provided for shift operators.

Many basic logic symbols are provided (including some experimental) along with a small collection of punctuation symbols. Operators for choice, least and greatest fixed points are provided. A number of modal operators are provided, but are by no means comprehensive. As with arrows, modal operators are frequently reused so names are merely suggestive and convenient. There are many other geometric symbols which are suitable for, and (often have been used for), other modal operators. Explicit names for some of those could be provided. Operators are provided to work with “bunches” which are like lists or sets but without the packaging. Ordering operators (and their negations) are provided — however there are additional ordering operators which are not exported.

## 2 Scripts

Often in logic, it is desirable to distinguish different types using script variants. Unicode is lacking in this area — it does not always provide either all symbols for a script (e.g. missing digits) or all variants for a script (e.g. normal, oblique, bold and bold oblique). Slab serif scripts are not provided by Unicode at all. To alleviate this, 20 supplemental scripts are provided. None of these scripts are intended to replace the scripts used in normal mathematical practice. These scripts contain only digits and letters.

Each script is identified by three letters. The first two letters provide the major classification of the font and the case of the first letter combined with the last letter provides the script variation. If the first letter is lower case, then the script has a normal weight and if the first letter is upper case then the script has a heavier weight (bold). If the last letter is ‘u’ then the script is upright and if it is ‘i’ then the script is oblique.

sa	Sans serif	sau, sai, Sau, Sai	bl	Blackboard	blu
sl	Slab serif	slu, sli, Slu, Sli	fr	Fraktur	fru, Fru
sr	Normal serif	sru, sri, Sru, Sri	mn	Monospace	mnu, mni
cl	Calligraphic	cli	gr	Greek	gru, gri

There is a macro defined for each script and each digit or letter, where the name of the macro is the 3-character identifier of the script, as defined above, followed by the name of the digit (zero, one, two, three, four, five, six, seven, eight or nine) or by the name of the letter (a–z or A–Z). Greek scripts do not have digits, and the name of the letter is used instead (e.g. alpha, beta, ...). For example, `\SluX` is a slab serif, bold upper case ‘X’.

There is a special script variant “Knt” which is the same as the “mni” script, except that it is raised above the normal baseline. It is intended for use with the Knt symbols.

Each of the scripts has a symXxx and a mathXxx macro with the exception of the special Knt script. Some scripts have a synonym for the symXxx macro (and for the individual macros whose prefixes have title case to avoid conflicts) to accommodate expected use in logic. For example, `\symsau{p}` could also be written as `\saup`, as `\prop{p}` or as `\Propp`. The scripts provided, and their macros, are:

Sans serif font	sau	<code>\symsau</code>	<code>\mathsau</code>	<code>\prop</code>
Sans serif, oblique font	sai	<code>\symsai</code>	<code>\mathsai</code>	<code>\propi</code>
Sans serif, bold font	Sau	<code>\symSau</code>	<code>\mathSau</code>	<code>\meta</code>
Sans serif, bold, oblique font	Sai	<code>\symSai</code>	<code>\mathSai</code>	<code>\metai</code>
Slab serif font	slu	<code>\symslu</code>	<code>\mathslu</code>	<code>\bnch</code>
Slab serif, oblique font	sli	<code>\symsli</code>	<code>\mathsli</code>	<code>\bnchi</code>
Slab serif, bold font	Slu	<code>\symSlu</code>	<code>\mathSlu</code>	<code>\bnchb</code>
Slab serif, bold, oblique font	Sli	<code>\symSli</code>	<code>\mathSli</code>	<code>\bnchbi</code>
Normal serif font	sru	<code>\symsru</code>	<code>\mathsru</code>	<code>\vrbl</code>
Normal serif, italic font	sri	<code>\symsri</code>	<code>\mathsri</code>	<code>\vrbli</code>
Normal serif, bold font	Sru	<code>\symSru</code>	<code>\mathSru</code>	<code>\vrblb</code>
Normal serif, bold, italic font	Sri	<code>\symSri</code>	<code>\mathSri</code>	<code>\vrblbi</code>
Calligraphic font	cli	<code>\symcli</code>	<code>\mathcli</code>	<code>\vrblc</code>
Blackboard font	blu	<code>\symblu</code>	<code>\mathblu</code>	<code>\vrbl d</code>
Fraktur font	fru	<code>\symfru</code>	<code>\mathfru</code>	<code>\vrbl f</code>
Fraktur bold font	Fru	<code>\symFru</code>	<code>\mathFru</code>	<code>\vrbl F</code>
Monospace font	mnu	<code>\symmnu</code>	<code>\mathmnu</code>	<code>\mono</code>
Monospace italic, serif font	mni	<code>\symmni</code>	<code>\mathmni</code>	
Greek font	gru	<code>\symgru</code>	<code>\mathgru</code>	
Greek, italic font	gri	<code>\symgri</code>	<code>\mathgri</code>	

### 3 Knot Symbols

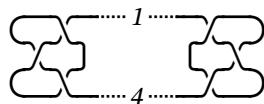
An extensive set of drawing symbols is provided for drawing knots (as found in Knot Theory). The `\KnotGrid` environment is provided for this purpose. `KnotGrid` provides a grid (based on tabular, but the use of ampersand (&) separators is not required between grid cells). Each knot symbol has an exact width and height — most are  $1\text{em} \times 1\text{em}$ , but a few are half or quarter height or width. Every symbol (or symbols) in a grid cell must have the same height as all other knot symbols in the same row and same width as all other knot symbols in the same column. The `KnotGrid` environment has no options and is used as follows (this example has three rows and five columns):

```
\begin{KnotGrid}
  \KntLFC  \KntTSN    \KntHXSOSU  \KntTSFN      \KntTRSC  \
  \KntNF   \KntHXSUSO \KntNN      \KntRQC \KntNQ   \KntRSN  \
  \KntLFC  \KntBSN    \KntHXSOSU  \KntBSFN      \KntRBSC  \
\end{KnotGrid}
```

which produces the following knot diagram for the Trefoil knot. Note that the second row, fourth column contains two symbols whose combined width satisfies the width constraints.



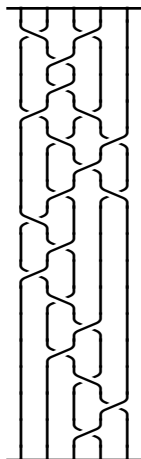
This example is the Square Knot using the Knt script for line labeling.



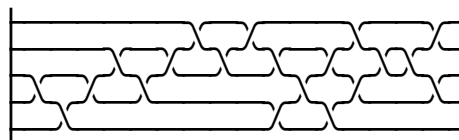
This example is a braid (typeset vertically) for a double of the left-handed Trefoil. The left and right columns are half width and the top and bottom rows are half height to achieve a slightly better appearance.

```
\begin{KnotGrid}
\KntBSFNF \KntBSNF \KntBSNF \KntBSNF \KntBSNF \KntBSFNF \\
\KntRSFNF \KntRSFN \KntRSFN \KntRSFN \KntRSFN \KntFF \\
\KntNF \KntVXSUSU \KntNN \KntVXSUSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntRSN \KntRSN \KntNF \\
\KntNF \KntVXSUSU \KntNN \KntVXSUSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntNN \KntVXSUSU \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSUSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntNN \KntVXSUSU \KntNF \\
\KntNF \KntVXSUSU \KntRSN \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntRSN \KntRSN \KntNF \\
\KntNF \KntVXSUSU \KntRSN \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSUSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSUSU \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSUSU \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntRSN \KntNN \KntVXSUSU \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSUSU \KntRSN \KntNF \\
\KntRSFNF \KntRSFN \KntRSFN \KntRSFN \KntRSFN \KntFF \\
\KntTSFNF \KntTSNF \KntTSNF \KntTSNF \KntTSNF \KntTSFNF \\
\end{KnotGrid}
```

Which is typeset below.



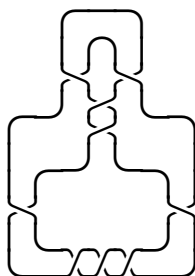
A horizontal version is shown below.



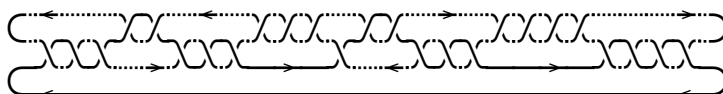
This example is the  $9_6(L)$  knot.

```
\begin{KnotGrid}
\KntNN      \KntNN      \KntLTSC   \KntTSN      \KntTRSC   \KntNN      \KntNN      \\
\KntNN      \KntRSN      \KntNN      \KntTCS       \KntNN      \KntLSN      \KntNN      \\
\KntNN      \KntNN      \KntVXSUSO \KntNN      \KntVXSUSO \KntNN      \KntNN      \\
\KntNN      \KntRBSC     \KntNN      \KntVXSOSU    \KntNN      \KntBLSC     \KntNN      \\
\KntLTSC     \KntNN      \KntNN      \KntVXSOSU    \KntNN      \KntNN      \KntTRSC     \\
\KntLSN      \KntNN      \KntRBSC     \KntNN      \KntBLSC     \KntNN      \KntRSN      \\
\KntLSN      \KntLTSC     \KntNN      \KntNN      \KntNN      \KntTRSC     \KntRSN      \\
\KntVXSUSO    \KntNN      \KntNN      \KntNN      \KntNN      \KntNN      \KntVXSUSO \\
\KntLSN      \KntBLSC     \KntNN      \KntNN      \KntNN      \KntRBSC     \KntRSN      \\
\KntBLSC     \KntBSN      \KntHXSUSO \KntHXSUSO    \KntHXSUSO \KntBSN      \KntRBSC     \\
\end{KnotGrid}
```

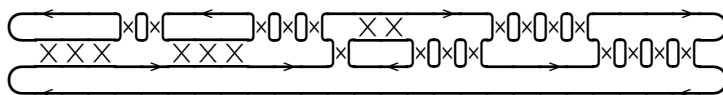
Which is typeset as below.



This final example, is the rational link corresponding to the rational number  $4117 / 17426$ .



With its Seifert circle decomposition.



Where a grid cell would otherwise be empty or where padding is required to satisfy the size requirements for a cell, 25 KntXY (X is height, Y width, both are one of: N, E, F, Q, Z) space or strut symbols are provided which are exactly sized both horizontally and vertically to assist. The knot symbols are typeset in math mode so that spaces are ignored. This allows the grid structure to be explicit, making readability and maintenance easier. In the first example above (the Trefoil knot), the fourth grid column is 0.5em wide, but in the second row an 0.25em width symbol is used, which must then be padded with an 0.25em space.

In order to keep names shortish, the following abbreviations are used for Knt symbols

A – Arrow	N – liNe / Normal
B – Bottom	O – Over
C – Cap / Corner	Q – Fourth / Quarter
D – Dashed / Down	R – Right
E – Three quarter	S – Solid
F – half	T – Top
H – Horizontal	U – Under / Up
J – Join	V – Vertical
L – Left	X – Cross
M – sMoothed	Z – Zero

## 4 Logic Proofs

$\text{\LaTeX}$  has more than adequate support for traditional mathematical proofs. Conversely, in logic, object proofs are written either as a linear sequence (usually Hilbert systems) or as a tree (usually Natural Deduction or Gentzen systems), but linear proofs can be used with most systems of logic. Tree style proofs have support in several other packages. However, linear proofs do not. This package supplies three environments to support linear proofs to alleviate this deficiency.

Logic definitions typically have a name with an optional number (e.g. “Ax. 3” or “Conjunction”), an expression and, optionally, a brief comment. Sometimes a definition stands alone and other times several definitions are associated in a group. The `LogixDefn` environment provides structured formatting for logic definitions, either singly or as a group. The `LogixDefn` environment does not have any required parameters and has an optional parameter. That parameter must be a horizontal length. If present, all of the definition expressions must fit within that length and its presence indicates that a comment may optionally follow each expression. The length should be sufficient to allow adequate space between the longest expression and the start of the comments to avoid the expressions overlapping the comments.

The `LogixDefn` environment defines the nested `Line` macro, which has three parameters if the optional `LogixDefn` parameter is not present, and otherwise four. The fourth parameter may not be omitted if the length parameter is present and contains a possibly empty comment to be placed at the end of the line following the expression. The basic three parameters for the `Line` macro are the definition’s name, optional number (the empty argument must be present if there is no number) and the definition expression, which is typeset in math mode. Two examples of its use follow. Expressions in most examples are meaningless and only serve to show the presence of an expression.

```
\begin{LogixDefn}
  \Line{Neg} {1}{\symsau{p} \Equiv \symsau{q}}
  \Line{Conj}{} {\symsau{p} \Equiv \symsau{q}}
\end{LogixDefn}

\begin{LogixDefn}[5em]
  \Line{Df}{1}{\symsau{p} \Equiv \symsau{q}}{Some comment}
  \Line{Df}{2}{\symsau{p} \Equiv \symsau{q}}{Yet another comment}
\end{LogixDefn}
```

which is typeset as shown below.

```
Neg  1.  $p \leftrightarrow q$ 
Conj.  $p \leftrightarrow q$ 

Df  1.  $p \leftrightarrow q$       Some comment
Df  2.  $p \leftrightarrow q$       Yet another comment
```

Environments defined in this package do not affect the indentation level. The `LogixDefn` environment would also be used to state axioms or theorems without associated proofs. In this document, the `addmargin` environment provided by the `scrextend` package is used to provide indentation.

A linear logical theorem typically has a name (including any number), a possibly empty set of postulates and the theorem’s expression. The `LogixProof` environment provides structured formatting for linear logic theorems. The `LogixProof` environment has four arguments with the first one optional. The optional argument is a horizontal length, and provides a width for the expression in each proof line which is followed by a comment when the length argument is present. The other three arguments are the name (and any associated number) of the theorem, a possibly empty set of postulates which are assumed only for the purpose of the proof (e.g. assuming the Axiom of Choice (AC) for a specific theorem when working in ZF instead of ZFC).

Thus, postulates are distinguished from axioms which are assumed to hold for all theorems in a system whereas a postulate holds only for a specific proof. The third parameter is the statement (the theorem's expression) of the proof.

The LogixProof environment defines the Dash and Line nested macros. These are identical except that the Dash macro is followed by a dashed line separator and the Line macro is followed by a solid line separator. Each line of the proof is represented by an occurrence of one of these macros. The last line of the proof is normally represented by a Line macro. Each of these macros has four parameters (five when the optional length argument of the LogixProof environment is present). There are two typical styles for each line of a linear logical proof. The first is commonly used in short examples and in introductory texts. It starts with a line number, the expression for the proof line and an optional comment which justifies the proof step in some manner. The second style starts with a line number, then the justifying theorem or axiom name, then a list of previous line numbers of the proof that justify the proof step, followed by the expression for the proof line and, finally, an optional comment.

The Dash and Line macros accommodate both proof styles. The first parameter for each of these macros is the line number. It is typeset in math mode so that subscripts may be used (sometimes useful in meta proofs). The second parameter is the name of the justifying axiom or previous theorem (including any number). The third parameter is the list of previous lines of the proof used to justify the proof, and the fourth parameter is the expression for the proof line. If the optional length is present for the LogixProof environment, then a parameter for the comment is present as the fifth parameter. A list is used for the previous justifying lines since the same line can be referenced more than once and the order is potentially significant. Both the second and third parameters may be empty, allowing the use of the optional comment for justification. The following examples illustrate the use of the LogixProof environment.

```
\begin{LogixProof} {Th 46} {AC} {\prop{p} \Nd \prop{q}}
  \Dash {1} {Th 41} {} {\prop{p} \Impl \prop{q}}
  \Line {2} {Cn 2} {} {\prop{p} \Impl \prop{q}}
\end{LogixProof}
```

```
\begin{LogixProof}[5em] {Th 46} {} {\prop{p} \Nd \prop{q}}
  \Line {1} {Th 41} {} {\prop{p} \Impl \prop{q}} {First comment}
  \Line {2} {Cn 2} {} {\prop{p} \Impl \prop{q}} {}
  \Line {3} {Th 38} {2,1} {\prop{p} \Impl \prop{q}} {Last comment}
\end{LogixProof}
```

```
\begin{LogixProof}[5em] {Th 46} {} {\prop{p} \Nd \prop{q}}
  \Dash {1} {} {} {\prop{p} \Impl \prop{q}} {Disjunction}
  \Line {2} {} {} {\prop{p} \Impl \prop{q}} {Modus Ponens, 1}
\end{LogixProof}
```

which is typeset as shown below.

Th 46. [AC] $p \wedge q$	
1. Th 41.	$p \rightarrow q$
2. Cn 2.	$p \rightarrow q$

Th 46. $p \wedge q$		
1. Th 41.	$p \rightarrow q$	First comment
2. Cn 2.	$p \rightarrow q$	
3. Th 38. [2,1]	$p \rightarrow q$	Last comment

Th 46. $p \wedge q$		
1.	$p \rightarrow q$	Disjunction
2.	$p \rightarrow q$	Modus Ponens, 1

A more realistic example of using the LogixProof environment is shown below (note the use of implication arrow lengths to indicate depth of expression nesting — this is not automatic).

Th 43. $(p \rightarrow q) \rightarrow (p \rightarrow (r \rightarrow q))$	
1. Th 14.	$(p \rightarrow q) \rightarrow (p \rightarrow q)$
2. Im 3.	$q \rightarrow (r \rightarrow q)$
3. Im 3. [2]	$(p \rightarrow q) \rightarrow (q \rightarrow (r \rightarrow q))$
4. Cn 2. [1,3]	$(p \rightarrow q) \rightarrow (p \rightarrow q) \wedge (q \rightarrow (r \rightarrow q))$
5. Im 2.	$(p \rightarrow q) \wedge (q \rightarrow (r \rightarrow q)) \rightarrow (p \rightarrow (r \rightarrow q))$
6. Im 2. [4,5]	$(p \rightarrow q) \rightarrow (p \rightarrow (r \rightarrow q))$

Additionally, the LogixSeqnt environment is provided. It is identical to the LogixProof environment except that there are two expressions associated with each proof line. The first may be empty and contains the premises for a sequent and the second contains its conclusion. The proof expressions are aligned on the sequent operator, which is present in every line. The following examples illustrate the use of the LogixSeqnt environment.

```
\begin{LogixSeqnt} {Th 46} {\AC} {\prop{p} \Seq \prop{q}}
  \Dash {1} {Th 41} {} {\prop{p}} {\prop{q}}
  \Line {2} {Cn 2} {} {\prop{p}} {\prop{q}}
\end{LogixSeqnt}

\begin{LogixSeqnt}[3em] {Th 46} {} {\prop{p} \Seq \prop{r}}
  \Line {1} {Th 41} {} {\prop{p}} {\prop{r}} {First comment}
  \Line {2} {Cn 2} {} {\prop{p}} {\prop{r}} {}
  \Line {3} {Th 38} {2,1} { } {\prop{r}} {Last comment}
\end{LogixSeqnt}

\begin{LogixSeqnt}[3em] {Th 46} {} {\prop{p} \Seq \prop{r}}
  \Dash {1} {} {} {\prop{p}\Comma\prop{q}} {\prop{r}} {Disjunction}
  \Line {2} {} {} {\prop{p}\Comma\prop{q}} {\prop{r}} {Weakening, 1}
\end{LogixSeqnt}
```

which is typeset as shown below.

Th 46. [AC] $p \succ q$		
1. Th 41.	$p \succ q$	
2. Cn 2.	$p \succ q$	

Th 46. $p \succ r$		
1. Th 41.	$p \succ r$	First comment
2. Cn 2.	$p \succ r$	
3. Th 38. [2,1]	$\succ r$	Last comment

Th 46. $p \succ r$		
1.	$p, q \succ r$	Disjunction
2.	$p, q \succ r$	Weakening, 1

A more realistic example of using the LogixSeqnt environment is shown below.

Th 11. $p \succ q, r \succ s \vdash p \vee r \succ q \vee s$	
1. Th 2. [Ds 3]	$q \succ q \vee s$
2. Ln 1. [As 1]	$p \succ q \vee s$
3. Th 2. [Ds 4]	$s \succ q \vee s$
4. Ln 3. [As 2]	$r \succ q \vee s$
5. Ds 1. [2,4]	$p \vee r \succ q \vee s$



## 5 Symbols

The remainder of this document is the list of symbols. Each symbol has a name (not necessarily definitive, but it corresponds to the name of the macro for the symbol), the name of the macro for the symbol and a scaled (by a factor of 1.5) example of the symbol. All symbols can be used in both text and in math mode.

Following the individual symbols, the names for stretchy delimiters (and the stretchy binding bar) are shown with two examples. The first example is small enough that a predefined size variant will be used, and the second example is large enough that no predefined size variant will be used. Delimiters which are too short for the second example are limited in size variations to  $5\times$  the normal delimiter size.

That is followed by script examples. First Greek and Greek italic, then the sans-serif scripts, the slab-serif scripts, the normal serif scripts and lastly the miscellaneous scripts (calligraphic, Fraktur, etc.).

The `logix.sty` package file is heavily commented, and is useful as a quick reference.

Please feel free to contact the author if you have questions or issues. The author will answer or attempt to resolve any issue as quickly as possible — constrained of course, by the author's available time and other constraints. The author can be contacted by email at

`ctan@metachaos.net`

Please allow a few days before emailing a second time. There is no spam filter on this email account. Under normal circumstances, this email account is checked at least daily.

This distribution also contains `logix.vfc`, which is the master font file used to derive the actual font files. It is not needed for  $\text{\LaTeX}$  usage, but is provided should I become unable to maintain the package, and it is picked up by another maintainer. This is a FontLab source file.

In addition, and also not required for  $\text{\LaTeX}$  usage, the various web font files (`.eot`, `.ttf`, `.woff` and `.woff2`) are included in the distribution so that users who wish to use the font in a web page do not need to convert font files.

Open Vertical Bar	\OpnBar	
Open Group Brace	\OpnGrp	[
Open Parenthesis	\OpnParn	(
Open Curly Brace	\OpnBrac	{
Open Curly Broken Brace	\OpnBrknBrac	}
Open Curly Circle Brace	\OpnCircBrac	⎵
Open Arrow Brace	\OpnArrwBrac	⌞
Open Square Bracket	\OpnBrkt	[
Open Square Broken Bracket	\OpnBrknBrkt	]
Open Square Circle Bracket	\OpnCircBrkt	⌈
Open Square Curly Bracket	\OpnCrlyBrkt	{
Open Tortoise Shell	\OpnTortoise	(
Open Angle Bracket	\OpnAngl	<
Open Curved Angle Bracket	\OpnCurvAngl	<
Open Ceiling	\OpnCeil	⌈
Open Floor	\OpnFloor	⌋
Open Turnstile	\OpnTurn	⌋
Open Double Vertical Bar	\OpnDblBar	
Open Double Group Brace	\OpnDblGrp	[[
Open Double Parenthesis	\OpnDblParn	((
Open Double Curly Brace	\OpnDblBrac	{{
Open Double Angle Bracket	\OpnDblAngl	⟨⟨
Open Square Parenthesis	\OpnSqrParn	⌈⌈
Open Parenthesis with Bar	\OpnParnBar	(
Open Brace with Bar	\OpnBracBar	{
Open Broken Brace with Bar	\OpnBrknBracBar	}
Open Circle Brace with Bar	\OpnCircBracBar	⎵
Open Bracket with Bar	\OpnBrktBar	[
Open Broken Bracket with Bar	\OpnBrknBrktBar	]
Open Circle Bracket with Bar	\OpnCircBrktBar	⌈
Open Curly Bracket with Bar	\OpnCrlyBrktBar	{
Open Tortoise Shell with Bar	\OpnTortoiseBar	(
Open Angle Bracket with Bar	\OpnAnglBar	<
Open Context Quote	\OpnCnTx	⌞

Close Vertical Bar	\ClsBar	
Close Group Brace	\ClsGrp	]
Close Parenthesis	\ClsParn	)
Close Curly Brace	\ClsBrac	}
Close Curly Broken Brace	\ClsBrknBrac	}
Close Curly Circle Brace	\ClsCircBrac	})
Close Arrow Brace	\ClsArrwBrac	}>
Close Square Bracket	\ClsBrkt	]
Close Square Broken Bracket	\ClsBrknBrkt	}
Close Square Circle Bracket	\ClsCircBrkt	})
Close Square Curly Bracket	\ClsCrlyBrkt	}
Close Tortoise Shell	\ClsTortoise	)
Close Angle Bracket	\ClsAngl	>
Close Curved Angle Bracket	\ClsCurvAngl	>
Close Ceiling	\ClsCeil	]
Close Floor	\ClsFloor	]
Close Turnstile	\ClsTurn	⊣
Close Double Vertical Bar	\ClsDblBar	
Close Double Group Brace	\ClsDblGrp	])
Close Double Parenthesis	\ClsDblParn	)
Close Double Curly Brace	\ClsDblBrac	}}
Close Double Angle Bracket	\ClsDblAngl	>>
Close Square Parenthesis	\ClsSqrParn	)
Close Parenthesis with Bar	\ClsParnBar	)
Close Brace with Bar	\ClsBracBar	}
Close Broken Brace with Bar	\ClsBrknBracBar	}
Close Circle Brace with Bar	\ClsCircBracBar	})
Close Bracket with Bar	\ClsBrktBar	]
Close Broken Bracket with Bar	\ClsBrknBrktBar	}
Close Circle Bracket with Bar	\ClsCircBrktBar	})
Close Curly Bracket with Bar	\ClsCrlyBrktBar	}
Close Tortoise Shell with Bar	\ClsTortoiseBar	)
Close Angle Bracket with Bar	\ClsAnglBar	>
Close Context Quote	\ClsCntx	'

Continuous, Partial, Into Multi-Map	$\backslash\text{MapParInMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Partial, Into, Singleton Map	$\backslash\text{MapParInSng}$	$\rangle\rightarrow$
Continuous, Partial, Into, One-To-One Map	$\backslash\text{MapParInOne}$	$\rangle\dot{\rightarrow}$
Continuous, Partial, Onto Multi-Map	$\backslash\text{MapParOnMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Partial, Onto, Singleton Map	$\backslash\text{MapParOnSng}$	$\rangle\rightarrow$
Continuous, Partial, Onto, One-To-One Map	$\backslash\text{MapParOnOne}$	$\rangle\dot{\rightarrow}$
Continuous, Partial, Into, Grounded Multi-Map	$\backslash\text{MapParInGndMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Partial, Into, Grounded, Singleton Map	$\backslash\text{MapParInGndSng}$	$\rangle\rightarrow$
Continuous, Partial, Into, Grounded, One-To-One Map	$\backslash\text{MapParInGndOne}$	$\rangle\dot{\rightarrow}$
Continuous, Partial, Onto, Grounded Multi-Map	$\backslash\text{MapParOnGndMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Partial, Onto, Grounded, Singleton Map	$\backslash\text{MapParOnGndSng}$	$\rangle\rightarrow$
Continuous, Partial, Onto, Grounded, One-To-One Map	$\backslash\text{MapParOnGndOne}$	$\rangle\dot{\rightarrow}$

Continuous, Total, Into Multi-Map	$\backslash\text{MapTotInMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Total, Into, Singleton Map	$\backslash\text{MapTotInSng}$	$\rangle\rightarrow$
Continuous, Total, Into, One-To-One Map	$\backslash\text{MapTotInOne}$	$\rangle\dot{\rightarrow}$
Continuous, Total, Onto Multi-Map	$\backslash\text{MapTotOnMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Total, Onto, Singleton Map	$\backslash\text{MapTotOnSng}$	$\rangle\rightarrow$
Continuous, Total, Onto, One-To-One Map	$\backslash\text{MapTotOnOne}$	$\rangle\dot{\rightarrow}$
Continuous, Total, Into, Grounded Multi-Map	$\backslash\text{MapTotInGndMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Total, Into, Grounded, Singleton Map	$\backslash\text{MapTotInGndSng}$	$\rangle\rightarrow$
Continuous, Total, Into, Grounded, One-To-One Map	$\backslash\text{MapTotInGndOne}$	$\rangle\dot{\rightarrow}$
Continuous, Total, Onto, Grounded Multi-Map	$\backslash\text{MapTotOnGndMul}$	$\rangle\overset{+}{\rightarrow}$
Continuous, Total, Onto, Grounded, Singleton Map	$\backslash\text{MapTotOnGndSng}$	$\rangle\rightarrow$
Continuous, Total, Onto, Grounded, One-To-One Map	$\backslash\text{MapTotOnGndOne}$	$\rangle\dot{\rightarrow}$

Continuous, Partial, Into Multi-Function	\FunParInMul	$\vdash^+ \rightarrow$
Continuous, Partial, Into, Singleton Function	\FunParInSng	$\vdash \rightarrow$
Continuous, Partial, Into, One-To-One Function	\FunParInOne	$\vdash \dot{\rightarrow}$
Continuous, Partial, Onto Multi-Function	\FunParOnMul	$\vdash^+ \twoheadrightarrow$
Continuous, Partial, Onto, Singleton Function	\FunParOnSng	$\vdash \twoheadrightarrow$
Continuous, Partial, Onto, One-To-One Function	\FunParOnOne	$\vdash \dot{\twoheadrightarrow}$
Continuous, Partial, Into, Grounded Multi-Function	\FunParInGndMul	$\vdash^+ \rightarrow_{\downarrow}$
Continuous, Partial, Into, Grounded, Singleton Function	\FunParInGndSng	$\vdash \rightarrow_{\downarrow}$
Continuous, Partial, Into, Grounded, One-To-One Function	\FunParInGndOne	$\vdash \dot{\rightarrow}_{\downarrow}$
Continuous, Partial, Onto, Grounded Multi-Function	\FunParOnGndMul	$\vdash^+ \twoheadrightarrow_{\downarrow}$
Continuous, Partial, Onto, Grounded, Singleton Function	\FunParOnGndSng	$\vdash \twoheadrightarrow_{\downarrow}$
Continuous, Partial, Onto, Grounded, One-To-One Function	\FunParOnGndOne	$\vdash \dot{\twoheadrightarrow}_{\downarrow}$

Continuous, Total, Into Multi-Function	\FunTotInMul	$\vdash^+ \rightarrow$
Continuous, Total, Into, Singleton Function	\FunTotInSng	$\vdash \rightarrow$
Continuous, Total, Into, One-To-One Function	\FunTotInOne	$\vdash \dot{\rightarrow}$
Continuous, Total, Onto Multi-Function	\FunTotOnMul	$\vdash^+ \twoheadrightarrow$
Continuous, Total, Onto, Singleton Function	\FunTotOnSng	$\vdash \twoheadrightarrow$
Continuous, Total, Onto, One-To-One Function	\FunTotOnOne	$\vdash \dot{\twoheadrightarrow}$
Continuous, Total, Into, Grounded Multi-Function	\FunTotInGndMul	$\vdash^+ \rightarrow_{\downarrow}$
Continuous, Total, Into, Grounded, Singleton Function	\FunTotInGndSng	$\vdash \rightarrow_{\downarrow}$
Continuous, Total, Into, Grounded, One-To-One Function	\FunTotInGndOne	$\vdash \dot{\rightarrow}_{\downarrow}$
Continuous, Total, Onto, Grounded Multi-Function	\FunTotOnGndMul	$\vdash^+ \twoheadrightarrow_{\downarrow}$
Continuous, Total, Onto, Grounded, Singleton Function	\FunTotOnGndSng	$\vdash \twoheadrightarrow_{\downarrow}$
Continuous, Total, Onto, Grounded, One-To-One Function	\FunTotOnGndOne	$\vdash \dot{\twoheadrightarrow}_{\downarrow}$

Short Function	\SFunc	$\rightarrow$
Function	\Func	$\rightarrow$
Long Function	\LFunc	$\longrightarrow$
Extra LongFunction	\XFunc	$\longrightarrow$

Map Composition	\MapComp	$\square$
Function Composition	\FncComp	$\circ$
Function Converse	\FncCnvs	$\otimes$

Classical Implication	$\backslash\text{ClsImpl}$	$\supset$
Not Classical Implication	$\backslash\text{NotClsImpl}$	$\not\supset$
Classical Equivalence	$\backslash\text{ClsEquiv}$	$\equiv$
Not Classical Equivalence	$\backslash\text{NotClsEquiv}$	$\not\equiv$

Weak Material Implication	$\backslash\text{SWkMtImpl}$	$\Rightarrow$
Weak Material Implication	$\backslash\text{WkMtImpl}$	$\Rightarrow$
Weak Material Implication	$\backslash\text{LWkMtImpl}$	$\Rightarrow$
Weak Material Implication	$\backslash\text{XWkMtImpl}$	$\Rightarrow$

Material Implication	$\backslash\text{SMtImpl}$	$\Rightarrow$
Material Implication	$\backslash\text{MtImpl}$	$\Rightarrow$
Material Implication	$\backslash\text{LMtImpl}$	$\Rightarrow$
Material Implication	$\backslash\text{XMtImpl}$	$\Rightarrow$

Intuitionistic Implication	$\backslash\text{SInImpl}$	$\rightarrow$
Intuitionistic Implication	$\backslash\text{InImpl}$	$\rightarrow$
Intuitionistic Implication	$\backslash\text{LInImpl}$	$\rightarrow$
Intuitionistic Implication	$\backslash\text{XInImpl}$	$\rightarrow$

Weak Implication	$\backslash\text{SWkImpl}$	$\rightarrow$
Weak Implication	$\backslash\text{WkImpl}$	$\rightarrow$
Weak Implication	$\backslash\text{LWkImpl}$	$\rightarrow$
Weak Implication	$\backslash\text{XWkImpl}$	$\rightarrow$

Implication	$\backslash\text{SImpl}$	$\rightarrow$
Implication	$\backslash\text{Impl}$	$\rightarrow$
Implication	$\backslash\text{LImpl}$	$\rightarrow$
Implication	$\backslash\text{XImpl}$	$\rightarrow$

Weak Entailment	$\backslash\text{SWkEntail}$	$\rightarrow$
Weak Entailment	$\backslash\text{WkEntail}$	$\rightarrow$
Weak Entailment	$\backslash\text{LWkEntail}$	$\rightarrow$
Weak Entailment	$\backslash\text{XWkEntail}$	$\rightarrow$

Entailment	$\backslash\text{SEntail}$	$\rightarrow$
Entailment	$\backslash\text{Entail}$	$\rightarrow$
Entailment	$\backslash\text{LEntail}$	$\rightarrow$
Entailment	$\backslash\text{XEntail}$	$\rightarrow$

Not Weak Material Implication	$\backslash\text{NotSWkMtImpl}$	$\nRightarrow$
Not Weak Material Implication	$\backslash\text{NotWkMtImpl}$	$\nRightarrow$
Not Weak Material Implication	$\backslash\text{NotLWkMtImpl}$	$\nRightarrow$
Not Weak Material Implication	$\backslash\text{NotXWkMtImpl}$	$\nRightarrow$

Not Material Implication	$\backslash\text{NotSMtImpl}$	$\nRightarrow$
Not Material Implication	$\backslash\text{NotMtImpl}$	$\nRightarrow$
Not Material Implication	$\backslash\text{NotLMtImpl}$	$\nRightarrow$
Not Material Implication	$\backslash\text{NotXMtImpl}$	$\nRightarrow$

Not Intuitionistic Implication	$\backslash\text{NotSInImpl}$	$\nrightarrow$
Not Intuitionistic Implication	$\backslash\text{NotInImpl}$	$\nrightarrow$
Not Intuitionistic Implication	$\backslash\text{NotLInImpl}$	$\nrightarrow$
Not Intuitionistic Implication	$\backslash\text{NotXInImpl}$	$\nrightarrow$

Not Weak Implication	$\backslash\text{NotSWkImpl}$	$\nrightarrow$
Not Weak Implication	$\backslash\text{NotWkImpl}$	$\nrightarrow$
Not Weak Implication	$\backslash\text{NotLWkImpl}$	$\nrightarrow$
Not Weak Implication	$\backslash\text{NotXWkImpl}$	$\nrightarrow$

Not Implication	$\backslash\text{NotSImpl}$	$\nrightarrow$
Not Implication	$\backslash\text{NotImpl}$	$\nrightarrow$
Not Implication	$\backslash\text{NotLImpl}$	$\nrightarrow$
Not Implication	$\backslash\text{NotXImpl}$	$\nrightarrow$

Not Weak Entailment	$\backslash\text{NotSWkEntail}$	$\nrightarrow$
Not Weak Entailment	$\backslash\text{NotWkEntail}$	$\nrightarrow$
Not Weak Entailment	$\backslash\text{NotLWkEntail}$	$\nrightarrow$
Not Weak Entailment	$\backslash\text{NotXWkEntail}$	$\nrightarrow$

Not Entailment	$\backslash\text{NotSEntail}$	$\nrightarrow$
Not Entailment	$\backslash\text{NotEntail}$	$\nrightarrow$
Not Entailment	$\backslash\text{NotLEntail}$	$\nrightarrow$
Not Entailment	$\backslash\text{NotXEntail}$	$\nrightarrow$

Weak Material Equivalence	$\backslash\text{SWkMtEquiv}$	$\Leftrightarrow$
Weak Material Equivalence	$\backslash\text{WkMtEquiv}$	$\Leftrightarrow$
Weak Material Equivalence	$\backslash\text{LWkMtEquiv}$	$\Leftrightarrow$
Weak Material Equivalence	$\backslash\text{XWkMtEquiv}$	$\Leftrightarrow$

Material Equivalence	$\backslash\text{SMtEquiv}$	$\Leftrightarrow$
Material Equivalence	$\backslash\text{MtEquiv}$	$\Leftrightarrow$
Material Equivalence	$\backslash\text{LMtEquiv}$	$\Leftrightarrow$
Material Equivalence	$\backslash\text{XMtEquiv}$	$\Leftrightarrow$

Intuitionistic Equivalence	$\backslash\text{SInEquiv}$	$\Leftarrow \rightarrow$
Intuitionistic Equivalence	$\backslash\text{InEquiv}$	$\Leftarrow \rightarrow$
Intuitionistic Equivalence	$\backslash\text{LInEquiv}$	$\Leftarrow \rightarrow$
Intuitionistic Equivalence	$\backslash\text{XInEquiv}$	$\Leftarrow \rightarrow$

Weak Implication Equivalence	$\backslash\text{SWkEquiv}$	$\Leftarrow \rightarrow$
Weak Implication Equivalence	$\backslash\text{WkEquiv}$	$\Leftarrow \rightarrow$
Weak Implication Equivalence	$\backslash\text{LWkEquiv}$	$\Leftarrow \rightarrow$
Weak Implication Equivalence	$\backslash\text{XWkEquiv}$	$\Leftarrow \rightarrow$

Implication Equivalence	$\backslash\text{SEquiv}$	$\Leftrightarrow$
Implication Equivalence	$\backslash\text{Equiv}$	$\Leftrightarrow$
Implication Equivalence	$\backslash\text{LEquiv}$	$\Leftrightarrow$
Implication Equivalence	$\backslash\text{XEquiv}$	$\Leftrightarrow$

Weak Entailment Equivalence	$\backslash\text{SWkEntailEquiv}$	$\Leftarrow \rightarrow$
Weak Entailment Equivalence	$\backslash\text{WkEntailEquiv}$	$\Leftarrow \rightarrow$
Weak Entailment Equivalence	$\backslash\text{LWkEntailEquiv}$	$\Leftarrow \rightarrow$
Weak Entailment Equivalence	$\backslash\text{XWkEntailEquiv}$	$\Leftarrow \rightarrow$

Entailment Equivalence	$\backslash\text{SEntailEquiv}$	$\Leftrightarrow$
Entailment Equivalence	$\backslash\text{EntailEquiv}$	$\Leftrightarrow$
Entailment Equivalence	$\backslash\text{LEntailEquiv}$	$\Leftrightarrow$
Entailment Equivalence	$\backslash\text{XEntailEquiv}$	$\Leftrightarrow$



Not Weak Material Equivalence	$\backslash\text{NotSWkMtEquiv}$	$\nRightarrow$
Not Weak Material Equivalence	$\backslash\text{NotWkMtEquiv}$	$\nRightarrow$
Not Weak Material Equivalence	$\backslash\text{NotLWkMtEquiv}$	$\nRightarrow$
Not Weak Material Equivalence	$\backslash\text{NotXWkMtEquiv}$	$\nRightarrow$

Not Material Equivalence	$\backslash\text{NotSMtEquiv}$	$\nRightarrow$
Not Material Equivalence	$\backslash\text{NotMtEquiv}$	$\nRightarrow$
Not Material Equivalence	$\backslash\text{NotLMtEquiv}$	$\nRightarrow$
Not Material Equivalence	$\backslash\text{NotXMtEquiv}$	$\nRightarrow$

Not Intuitionistic Equivalence	$\backslash\text{NotSInEquiv}$	$\nRightarrow$
Not Intuitionistic Equivalence	$\backslash\text{NotInEquiv}$	$\nRightarrow$
Not Intuitionistic Equivalence	$\backslash\text{NotLInEquiv}$	$\nRightarrow$
Not Intuitionistic Equivalence	$\backslash\text{NotXInEquiv}$	$\nRightarrow$

Not Weak Implication Equivalence	$\backslash\text{NotSWkEquiv}$	$\nRightarrow$
Not Weak Implication Equivalence	$\backslash\text{NotWkEquiv}$	$\nRightarrow$
Not Weak Implication Equivalence	$\backslash\text{NotLWkEquiv}$	$\nRightarrow$
Not Weak Implication Equivalence	$\backslash\text{NotXWkEquiv}$	$\nRightarrow$

Not Implication Equivalence	$\backslash\text{NotSEquiv}$	$\nRightarrow$
Not Implication Equivalence	$\backslash\text{NotEquiv}$	$\nRightarrow$
Not Implication Equivalence	$\backslash\text{NotLEquiv}$	$\nRightarrow$
Not Implication Equivalence	$\backslash\text{NotXEquiv}$	$\nRightarrow$

Not Weak Entailment Equivalence	$\backslash\text{NotSWkEntailEquiv}$	$\nRightarrow$
Not Weak Entailment Equivalence	$\backslash\text{NotWkEntailEquiv}$	$\nRightarrow$
Not Weak Entailment Equivalence	$\backslash\text{NotLWkEntailEquiv}$	$\nRightarrow$
Not Weak Entailment Equivalence	$\backslash\text{NotXWkEntailEquiv}$	$\nRightarrow$

Not Entailment Equivalence	$\backslash\text{NotSEntailEquiv}$	$\nRightarrow$
Not Entailment Equivalence	$\backslash\text{NotEntailEquiv}$	$\nRightarrow$
Not Entailment Equivalence	$\backslash\text{NotLEntailEquiv}$	$\nRightarrow$
Not Entailment Equivalence	$\backslash\text{NotXEntailEquiv}$	$\nRightarrow$

Sequent	<code>\Seq</code>	$\succ$
Assertion (Rule)	<code>\Rule</code>	$\vdash$
Model	<code>\Model</code>	$\models$
Turnstile	<code>\Turn</code>	$\Vdash$
Consequence Relation	<code>\Conseq</code>	$\Vdash$

Sequent Denied	<code>\NotSeq</code>	$\nprec$
Assertion (Rule) Denied	<code>\NotRule</code>	$\nvdash$
Model Denied	<code>\NotModel</code>	$\nmodels$
Turnstile Denied	<code>\NotTurn</code>	$\nVdash$
Consequence Relation Denied	<code>\NotConseq</code>	$\nVdash$

Bitwise AND operator / Logical Conjunction	<code>\Nd</code>	$\wedge$
Bitwise OR operator / Logical Disjunction	<code>\Or</code>	$\vee$
Bitwise NOT operator / Logical Negation	<code>\Nt</code>	$\neg$
Classical Logical Negation	<code>\Ng</code>	$\sim$
Bitwise NAND operator	<code>\Nand</code>	$\overline{\wedge}$
Bitwise NOR operator	<code>\Nor</code>	$\overline{\vee}$
Bitwise XOR operator	<code>\Xor</code>	$\underline{\vee}$

Defines	<code>\Defn</code>	$:=$
Q.E.D.	<code>\Qed</code>	■

Logical Coherence	<code>\LcgCohrnc</code>	$\mathfrak{I}$
Bunch Coherence	<code>\BncCohrnc</code>	$\mathfrak{I}$

True	<code>\True</code>	$\top$
False	<code>\False</code>	$\bot$

Quantified Conjunction	<code>\QuantCon</code>	$\bigwedge$
Quantified Disjunction	<code>\QuantDis</code>	$\bigvee$
Universal Individual Quantifier	<code>\ForAll</code>	$\forall$
Existential Individual Quantifier	<code>\Exists</code>	$\exists$
Unique Existential Individual Quantifier	<code>\Unique</code>	$\exists!$
Universal Bunch Quantifier	<code>\BnchForAll</code>	$\forall$
Existential Bunch Quantifier	<code>\BnchExists</code>	$\exists$
Unique Existential Bunch Quantifier	<code>\BnchUnique</code>	$\exists!$
Map Abstraction	<code>\BndMap</code>	$\lambda$

Dot	\Dt	.
Comma	\Comma	,
Semicolon	\Semicln	;
Colon	\Cln	:
Thus	\Thus	∴
Since	\Since	∵
Dots (ellipsis)	\Dts	...
Binding Dot	\BndDot	⋅
Binding Bar	\BndBar	
Long Vertical Bar	\LngVrtBar	
Question mark	\Queston	?
Exclamation point	\Exclaim	!
Percent sign	\Percent	%
Ampersand	\Ampersand	&
Dollar sign	\Dollar	\$
At sign	\At	@
ASCII Circumflex	\Circumflex	^
Number sign	\Number	#
Underscore	\Underscore	_
Tilde	\Tild	~
Left (back) slash	\LeftSlash	\
Right (forward) slash	\RightSlash	/

Single dagger	\Dagger	†
Double horizontal dagger	\Ddagger	††
Double vertical dagger	\Daggerr	‡
Double horizontal and vertical dagger	\Ddaggerr	‡†

Single quote	\SingleQuote	'
Double quote	\DoubleQuote	"
Back quote (grave)	\BackQuote	`

Shift for superscripts	\ShftSuper	↑
Shift for subscripts	\ShftSubscr	↓
Shift for accents	\ShftAccent	↕

Replace All Bound Variables (right)	<code>\RplcAllBndRight</code>	$\rightarrow$
Replace All Bound Variables (left)	<code>\RplcAllBndLeft</code>	$\leftarrow$
Replace All (right)	<code>\RplcAllRight</code>	$\rightarrow$
Replace All (left)	<code>\RplcAllLeft</code>	$\leftarrow$
Replace Any Free Variables (right)	<code>\RplcFreeRight</code>	$\rightarrow$
Replace Any Free Variables (left)	<code>\RplcFreeLeft</code>	$\leftarrow$
Replace Equivalent Expressions (right)	<code>\RplcEquvRight</code>	$\rightarrow$
Replace Equivalent Expressions (left)	<code>\RplcEquvLeft</code>	$\leftarrow$

Least Fixed Point	<code>\LstFix</code>	$\mu$
Greatest Fixed Point	<code>\GrtFix</code>	$\nu$
Choice	<code>\Choice</code>	$\tau$
Extended Least Fixed Point	<code>\ExLstFix</code>	$\vec{\mu}$
Extended Greatest Fixed Point	<code>\ExGrtFix</code>	$\vec{\nu}$
First Ordinal (omega)	<code>\FrstOrd</code>	$\omega$

Bunch Inclusion	<code>\Of</code>	$:$
Set Membership	<code>\In</code>	$\in$
Set Membership Negated	<code>\NotIn</code>	$\notin$

Empty Bunch	<code>\EmptyBunch</code>	$\emptyset$
Null Set	<code>\NullSet</code>	$\emptyset$

Logical Necessity	<code>\LogNec</code>	$\Box$
Logical Possibility	<code>\LogPos</code>	$\Diamond$
Logical Next	<code>\LogNext</code>	$\bigcirc$
Logical Future	<code>\LogFutr</code>	$\triangleright$
Logical Past	<code>\LogPast</code>	$\triangleleft$
Logical Contingency	<code>\LogCont</code>	$\nabla$
Logical Non-contingency	<code>\LogNonCont</code>	$\Delta$

Necessity	<code>\Nec</code>	$\Box$
Possibility	<code>\Pos</code>	$\Diamond$
Next	<code>\Next</code>	$\ominus$
Future	<code>\Futr</code>	$\triangleright$
Past	<code>\Past</code>	$\triangleleft$
Contingency	<code>\Cont</code>	$\nabla$
Non-contingency	<code>\NonCont</code>	$\Delta$

Factual Necessity	\FacNec	■
Factual Possibility	\FacPos	◆
Factual Next	\FacNext	●
Factual Future	\FacFutr	►
Factual Past	\FacPast	◄
Factual Contingency	\FacCont	▼
Factual Non-contingency	\FacNonCont	▲

Bunch Meet	\BnchMeet	⊓
Bunch Join	\BnchJoin	⊔

Strict Subbunch	\StrctSbnch	⊂
Strict Subbunch Negated	\NotStrctSbnch	⊄
Subbunch	\Sbnch	⊆
Subbunch Negated	\NotSbnch	⊈

Strict Weak Subbunch	\StrctWkSbnch	⊂
Strict Weak Subbunch Negated	\NotStrctWkSbnch	⊄
Weak Subbunch	\WkSbnch	⊆
Weak Subbunch Negated	\NotWkSbnch	⊈

Map Meet	\MapMeet	⊓
Map Join	\MapJoin	⊔

Strict Submap	\StrctSbmap	⊂
Strict Submap Negated	\NotStrctSbmap	⊄
Submap	\Sbmap	⊆
Submap Negated	\NotSbmap	⊈

Set Intersection	\SetMeet	∩
Set Union	\SetJoin	∪
Normal Subgroup	\Normal	◁
Set Symmetric Difference	\SetSymDiff	△

Strict Subset	\StrctSbset	⊂
Strict Subset Negated	\NotStrctSbset	⊄
Subset	\Sbset	⊆
Subset Negated	\NotSbset	⊈

Bunch Meet Quantifier	<code>\QuantBnchMeet</code>	$\sqcap$
Bunch Join Quantifier	<code>\QuantBnchJoin</code>	$\sqcup$
Set Intersection Quantifier	<code>\QuantSetMeet</code>	$\cap$
Set Union Quantifier	<code>\QuantSetJoin</code>	$\cup$

Less Than	<code>\Ls</code>	$<$
Less Than or Equal	<code>\Lse</code>	$\leq$
Equal	<code>\Eq</code>	$=$
Similar	<code>\Sm</code>	$\approx$
Greater Than	<code>\Gr</code>	$>$
Greater Than or Equal	<code>\Gre</code>	$\geq$

Not Less Than	<code>\NotLs</code>	$\nless$
Not Less Than or Equal	<code>\NotLse</code>	$\nlessoreq$
Not Equal	<code>\NotEq</code>	$\neq$
Not Similar	<code>\NotSm</code>	$\nsim$
Not Greater Than	<code>\NotGr</code>	$\ngtr$
Not Greater Than or Equal	<code>\NotGre</code>	$\ngtoreq$

Precedes	<code>\Pre</code>	$\prec$
Precedes or Equal	<code>\Preq</code>	$\preceq$
Succeeds	<code>\Suc</code>	$\succ$
Succeeds or Equal	<code>\Sucq</code>	$\succeq$

Not Precedes	<code>\NotPre</code>	$\nprec$
Not Precedes or Equal	<code>\NotPreq</code>	$\npreceq$
Not Succeeds	<code>\NotSuc</code>	$\nsucc$
Not Succeeds or Equal	<code>\NotSucq</code>	$\nsucceq$

Minus	<code>\Minus</code>	$-$
Plus	<code>\Plus</code>	$+$
Plus / Minus	<code>\PlusMinus</code>	$\pm$
Minus / Plus	<code>\MinusPlus</code>	$\mp$
Asterick	<code>\Asterick</code>	$*$
Divide	<code>\Divide</code>	$\backslash$
Times	<code>\Times</code>	$\times$

Append	\Append	$\nrightarrow$
Concatenation	\Concat	$\parallel$

Large Circled Plus	\CircPlus	$\oplus$
Large Circled Times	\CircTimes	$\otimes$
Circled Star	\CircStar	$\circledast$

















Full height, full width space	\KntNN	$\square$
Full height, three quarter width space	\KntNE	$\square$
Full height, half width space	\KntNF	$\square$
Full height, quarter width space	\KntNQ	$\square$
Full height, zero width space	\KntNZ	$\square$

Three quarter height, full width space	\KntEN	$\square$
Three quarter height, three quarter width space	\KntEE	$\square$
Three quarter height, half width space	\KntEF	$\square$
Three quarter height, quarter width space	\KntEQ	$\square$
Three quarter height, zero width space	\KntEZ	$\square$

Half height, full width space	\KntFN	$\square$
Half height, three quarter width space	\KntFE	$\square$
Half height, half width space	\KntFF	$\square$
Half height, quarter width space	\KntFQ	$\square$
Half height, zero width space	\KntFZ	$\square$

















Quarter height, full width space	\KntQN	$\square$
Quarter height, three quarter width space	\KntQE	$\square$
Quarter height, half width space	\KntQF	$\square$
Quarter height, quarter width space	\KntQQ	$\square$
Quarter height, zero width space	\KntQZ	$\square$

Zero height, full width space	\KntZN	$\square$
Zero height, three quarter width space	\KntZE	$\square$
Zero height, half width space	\KntZF	$\square$
Zero height, quarter width space	\KntZQ	$\square$
Zero height, zero width space	\KntZZ	$\square$

















Horz flow, Cross, solid over, solid under	\KntHXSOSU	
Horz flow, Cross, solid under, solid over	\KntHXSUSO	
Vert flow, Cross, solid over, solid under	\KntVXSOSU	
Vert flow, Cross, solid under, solid over	\KntVXSUSO	
Horz flow, Cross, dashed over, solid under	\KntHXDOSU	
Horz flow, Cross, solid under, dashed over	\KntHXSUDO	
Vert flow, Cross, dashed over, solid under	\KntVXDOSU	
Vert flow, Cross, solid under, dashed over	\KntVXSUDO	
Horz flow, Cross, solid over, dashed under	\KntHXSODU	
Horz flow, Cross, dashed under, solid over	\KntHXDUSO	
Vert flow, Cross, solid over, dashed under	\KntVXSODU	
Vert flow, Cross, dashed under, solid over	\KntVXDUSO	
Horz flow, Cross, dashed over, dashed under	\KntHXDODU	
Horz flow, Cross, dashed under, dashed over	\KntHXDUDO	
Vert flow, Cross, dashed over, dashed under	\KntVXDODU	
Vert flow, Cross, dashed under, dashed over	\KntVXDUDO	

















Horz flow, Horizontal smoothing; solid top, solid bottom	\KntHHMSTSB	
Vert flow, Vertical smoothing; solid left, solid right	\KntVVM SLR	
Horz flow, Horizontal smoothing; dashed top, solid bottom	\KntHHMDTSB	
Vert flow, Vertical smoothing; solid left, dashed right	\KntVVM SLDR	
Horz flow, Horizontal smoothing; solid top, dashed bottom	\KntHHMSTDB	
Vert flow, Vertical smoothing; dashed left, solid right	\KntVVM DL SR	
Horz flow, Horizontal smoothing; dashed top, dashed bottom	\KntHHMDTDB	
Vert flow, Vertical smoothing; dashed left, dashed right	\KntVVM DLDR	
Horz flow, Vertical smoothing, solid left, solid right	\KntHVMSLSR	
Vert flow, Horizontal smoothing, solid top, solid bottom	\KntVHMSTSB	
Horz flow, Vertical smoothing, solid left, dashed right	\KntHVMSLDR	
Vert flow, Horizontal smoothing, solid top, dashed bottom	\KntVHMSTDB	
Horz flow, Vertical smoothing, dashed left, solid right	\KntHVMDLSR	
Vert flow, Horizontal smoothing, dashed top, solid bottom	\KntVHMDTSB	
Horz flow, Vertical smoothing, dashed left, dashed right	\KntHVMDLDR	
Vert flow, Horizontal smoothing, dashed top, dashed bottom	\KntVHMDTDB	



Left cap, solid	\KntLCS	
Top cap, solid	\KntTCS	
Right cap, solid	\KntRCS	
Bottom cap, solid	\KntBCS	
Left cap, dashed	\KntLCD	
Top cap, dashed	\KntTCD	
Right cap, dashed	\KntRCD	
Bottom cap, dashed	\KntBCD	
Left half width cap	\KntLFC	
Top half width cap	\KntTFC	
Right half width cap	\KntRFC	
Bottom half width cap	\KntBFC	
Left quarter width cap	\KntLQC	
Top quarter width cap	\KntTQC	
Right quarter width cap	\KntRQC	
Bottom quarter width cap	\KntBQC	

















Solid join, top left to bottom right	\KntSJTLBR	
Solid join, bottom left to top right	\KntSJBLTR	
Solid join, top right to bottom left	\KntSJTRBL	
Solid join, bottom right to top left	\KntSJBRTL	
Dashed join, top left to bottom right	\KntDJTLBR	
Dashed join, bottom left to top right	\KntDJBLTR	
Dashed join, top right to bottom left	\KntDJTRBL	
Dashed join, bottom right to top left	\KntDJBRTL	
Solid half width join, top left to bottom right	\KntSFJTLBR	
Solid half width join, bottom left to top right	\KntSFJBLTR	
Solid half width join, top right to bottom left	\KntSFJTRBL	
Solid half width join, bottom right to top left	\KntSFJBRTL	
Dashed half width join, top left to bottom right	\KntDFJTLBR	
Dashed half width join, bottom left to top right	\KntDFJBLTR	
Dashed half width join, top right to bottom left	\KntDFJTRBL	
Dashed half width join, bottom right to top left	\KntDFJBRTL	

















Left, top solid corner	\KntLTSC	
Top, right solid corner	\KntTRSC	
Right, bottom solid corner	\KntRBSC	
Bottom, left solid corner	\KntBLSC	
Left, top dashed corner	\KntLTDC	
Top, right dashed corner	\KntTRDC	
Right, bottom dashed corner	\KntRBDC	
Bottom, left dashed corner	\KntBLDC	
Left, top solid half width corner	\KntLTSFC	
Top, right solid half width corner	\KntTRSFC	
Right, bottom solid half width corner	\KntRBSFC	
Bottom, left solid half width corner	\KntBLSFC	
Left, top dashed half width corner	\KntLTDFC	
Top, right dashed half width corner	\KntTRDFC	
Right, bottom dashed half width corner	\KntRBDFC	
Bottom, left dashed half width corner	\KntBLDFC	

Top solid line	\KntTSN	
Right solid line	\KntRSN	
Bottom solid line	\KntBSN	
Left solid line	\KntLSN	
Top dashed line	\KntTDN	
Right dashed line	\KntRDN	
Bottom dashed line	\KntBDN	
Left dashed line	\KntLDN	
Top solid line, bottom solid line	\KntTSNBSN	
Left solid line, right solid line	\KntLSNRSN	
Top solid line, bottom dashed line	\KntTSNBDN	
Left dashed line, right solid line	\KntLDNRSN	
Top dashed line, bottom solid line	\KntTDNBSN	
Left solid line, right dashed line	\KntLSNRDN	
Top dashed line, bottom dashed line	\KntTDNBDN	
Left dashed line, right dashed line	\KntLDNRDN	

Top solid half line	\KntTSFN	—
Right solid half line	\KntRSFN	
Bottom solid half line	\KntBSFN	—
Left solid half line	\KntLSFN	
Top dashed half line	\KntTSDN	....
Right dashed half line	\KntRSDN	⋮
Bottom dashed half line	\KntBSDN	....
Left dashed half line	\KntLSDN	⋮
Top solid half line, bottom solid half line	\KntTSFNBSFN	—
Left solid half line, right solid half line	\KntLSFNRSFN	
Top solid half line, bottom dashed half line	\KntTSFNBDNFN	....
Left dashed half line, right solid half line	\KntLDFNRSFN	⋮
Top dashed half line, bottom solid half line	\KntTDFNBSFN	—
Left solid half line, right dashed half line	\KntLSFNRDFN	⋮
Top dashed half line, bottom dashed half line	\KntTDFNBDFN	....
Left dashed half line, right dashed half line	\KntLDFNRDFN	⋮ ⋮

















Top solid forth line	\KntTSQN	—
Right solid forth line	\KntRSQN	
Bottom solid forth line	\KntBSQN	—
Left solid forth line	\KntLSQN	
Top dashed forth line	\KntTDQN	..
Right dashed forth line	\KntRDQN	⋮
Bottom dashed forth line	\KntBDQN	..
Left dashed forth line	\KntLDQN	⋮
Top solid forth line, bottom solid forth line	\KntTSQNBSQN	—
Left solid forth line, right solid forth line	\KntLSQNRSQN	
Top solid forth line, bottom dashed forth line	\KntTSQNBDQN	..
Left dashed forth line, right solid forth line	\KntLDQNRSQN	⋮
Top dashed forth line, bottom solid forth line	\KntBDQNBSQN	—
Left solid forth line, right dashed forth line	\KntLSQNRDQN	⋮
Top dashed forth line, bottom dashed forth line	\KntTDQNBBDQN	..
Left dashed forth line, right dashed forth line	\KntLDQNRDQN	⋮ ⋮













Top solid left arrow	\KntTSLA	
Right solid up arrow	\KntRSUA	
Bottom solid right arrow	\KntBSRA	
Left solid down arrow	\KntLSDA	
Top solid right arrow	\KntTSRA	
Right solid down arrow	\KntRSDA	
Bottom solid left arrow	\KntBSLA	
Left solid up arrow	\KntLSUA	
Top dashed left arrow	\KntTDLA	
Right dashed up arrow	\KntRDU A	
Bottom dashed right arrow	\KntBDRA	
Left dashed down arrow	\KntLDDA	
Top dashed right arrow	\KntTDRA	
Right dashed down arrow	\KntRDDA	
Bottom dashed left arrow	\KntBDLA	
Left dashed up arrow	\KntLDUA	

Top solid left arrow, bottom solid left arrow	\KntTSLABSLA	
Left solid up arrow, right solid up arrow	\KntLSUARSUA	
Top solid right arrow, bottom solid right arrow	\KntTSRABSRA	
Left solid down arrow, right solid down arrow	\KntLSDARSDA	
Top solid left arrow, bottom solid right arrow	\KntTSLABSR A	
Left solid down arrow, right solid up arrow	\KntLSDARSUA	
Top solid right arrow, bottom solid left arrow	\KntTSRABSLA	
Left solid up arrow, right solid down arrow	\KntLSUARSDA	
Top solid left arrow, bottom dashed left arrow	\KntTSLABDLA	
Left dashed up arrow, right solid up arrow	\KntLDUARSUA	
Top dashed right arrow, bottom solid right arrow	\KntTDRABSRA	
Left solid down arrow, right dashed down arrow	\KntLSDARDDA	
Top dashed left arrow, bottom solid left arrow	\KntTDLABSLA	
Left solid up arrow, right dashed up arrow	\KntLSUARDUA	
Top solid right arrow, bottom dashed right arrow	\KntTSRABDRA	
Left dashed down arrow, right solid down arrow	\KntLDDARSDA	

Top solid left arrow, bottom dashed right arrow	\KntTSLABDRA	
Left dashed down arrow, right solid up arrow	\KntLDDARSUA	
Top dashed left arrow, bottom solid right arrow	\KntTDLABSRA	
Left solid down arrow, right dashed up arrow	\KntLSDARDUA	
Top dashed right arrow, bottom solid left arrow	\KntTDRABSLA	
Left solid up arrow, right dashed down arrow	\KntLSUARDDA	
Top solid right arrow, bottom dashed left arrow	\KntTSRABDLA	
Left dashed up arrow, right solid down arrow	\KntLDUARSDA	
Top dashed left arrow, bottom dashed left arrow	\KntTDLABDLA	
Left dashed up arrow, right dashed up arrow	\KntLDUARDUA	
Top dashed right arrow, bottom dashed right arrow	\KntTDRABDRA	
Left dashed down arrow, right dashed down arrow	\KntLDDARDDA	
Top dashed left arrow, bottom dashed right arrow	\KntTDLABDRA	
Left dashed down arrow, right dashed up arrow	\KntLDDARDUA	
Top dashed right arrow, bottom dashed left arrow	\KntTDRABDLA	
Left dashed up arrow, right dashed down arrow	\KntLDUARDDA	

Top solid line, bottom solid left arrow	\KntTSNBSLA	
Left solid up arrow, right solid line	\KntLSUARSN	
Top solid right arrow, bottom solid line	\KntTSRABSN	
Left solid line, right solid down arrow	\KntLSNRSDA	
Top solid line, bottom solid right arrow	\KntTSNBSRA	
Left solid down arrow, right solid line	\KntLSDARSN	
Top solid left arrow, bottom solid line	\KntTSLABSN	
Left solid line, right solid up arrow	\KntLSNRSUA	
Top dashed line, bottom solid left arrow	\KntTDNBSLA	
Left solid up arrow, right dashed line	\KntLSUARDN	
Top solid right arrow, bottom dashed line	\KntTSRABDN	
Left dashed line, right solid down arrow	\KntLDNRSDA	
Top solid left arrow, bottom dashed line	\KntTSLABDN	
Left dashed line, right solid up arrow	\KntLDNRSUA	
Top dashed line, bottom solid right arrow	\KntTDNBSRA	
Left solid down arrow, right dashed line	\KntLSDARDN	

















Top solid line, bottom dashed left arrow	\KntTSNBDLA	
Left dashed up arrow, right solid line	\KntLDUARSN	
Top dashed right arrow, bottom solid line	\KntTDRABSN	
Left solid line, right dashed down arrow	\KntLSNRDDA	
Top dashed left arrow, bottom solid line	\KntTDLABSN	
Left solid line, right dashed up arrow	\KntLSNRDUA	
Top solid line, bottom dashed right arrow	\KntTSNBDRA	
Left dashed down arrow, right solid line	\KntLDDARSN	
Top dashed line, bottom dashed left arrow	\KntTDNBDLA	
Left dashed up arrow, right dashed line	\KntLDUARDN	
Top dashed right arrow, bottom dashed line	\KntTDRABDN	
Left dashed line, right dashed down arrow	\KntLDNRDDA	
Top dashed left arrow, bottom dashed line	\KntTDLABDN	
Left dashed line, right dashed up arrow	\KntLDNRDUA	
Top dashed line, bottom dashed right arrow	\KntTDNBDRA	
Left dashed down arrow, right dashed line	\KntLDDARDN	

Top solid line, half height	\KntTSNF	
Right solid line, half width	\KntRSNF	
Bottom solid line, half height	\KntBSNF	
Left solid line, half width	\KntLSNF	
Top solid half line, half height	\KntTSFNF	
Right solid half line, half width	\KntRSFNF	
Bottom solid half line, half height	\KntBSFNF	
Left solid half line, half width	\KntLSFNF	
Top solid forth line, half height	\KntTSQNF	
Right solid forth line, half width	\KntRSQNF	
Bottom solid forth line, half height	\KntBSQNF	
Left solid forth line, half width	\KntLSQNF	

















Black square	\BlackSquare	■
Black square round corners	\BlackSquareRoundCorners	■
Black diamond	\BlackDiamond	◆
Black circle	\BlackCircle	●
Black right triangle	\BlackRightTriangle	▶
Black left triangle	\BlackLeftTriangle	◀
Black down triangle	\BlackDownTriangle	▼
Black up triangle	\BlackUpTriangle	▲
Black small circle	\BlackSmallCircle	●
Black very small circle	\BlackVerySmallCircle	•
Black lozenge	\BlackLozenge	◈
Black curved diamond	\BlackCurvedDiamond	◈
Black very small square	\BlackVerySmallSquare	■
Black left arrow head	\BlackLeftArrowHead	◀
Black right arrow head	\BlackRightArrowHead	▶
Black right curved arrow head	\BlackRightCurvedArrowHead	➤

White square	\WhiteSquare	□
White square round corners	\WhiteSquareRoundCorners	□
White diamond	\WhiteDiamond	◇
White circle	\WhiteCircle	○
White right triangle	\WhiteRightTriangle	▷
White left triangle	\WhiteLeftTriangle	◁
White down triangle	\WhiteDownTriangle	▽
White up triangle	\WhiteUpTriangle	△
White small circle	\WhiteSmallCircle	○
White very small circle	\WhiteVerySmallCircle	◦
White lozenge	\WhiteLozenge	◈
White curved diamond	\WhiteCurvedDiamond	◈
White very small square	\WhiteVerySmallSquare	□
White left arrow head	\WhiteLeftArrowHead	◁
White right arrow head	\WhiteRightArrowHead	▷
White right curved arrow head	\WhiteRightCurvedArrowHead	➤

Outline square	\OutlineSquare	
Outline square round corners	\OutlineSquareRoundCorners	
Outline diamond	\OutlineDiamond	
Outline circle	\OutlineCircle	
Outline right triangle	\OutlineRightTriangle	
Outline left triangle	\OutlineLeftTriangle	
Outline down triangle	\OutlineDownTriangle	
Outline up triangle	\OutlineUpTriangle	
Outline small circle	\OutlineSmallCircle	
Outline very small circle	\OutlineVerySmallCircle	
Outline lozenge	\OutlineLozenge	
Outline curved diamond	\OutlineCurvedDiamond	
Outline very small square	\OutlineVerySmallSquare	
Outline left arrow head	\OutlineLeftArrowHead	
Outline right arrow head	\OutlineRightArrowHead	
Outline right curved arrow head	\OutlineRightCurvedArrowHead	

Dotted square	\DottedSquare	
Dotted square round corners	\DottedSquareRoundCorners	
Dotted diamond	\DottedDiamond	
Dotted circle	\DottedCircle	
Dotted right triangle	\DottedRightTriangle	
Dotted left triangle	\DottedLeftTriangle	
Dotted down triangle	\DottedDownTriangle	
Dotted up triangle	\DottedUpTriangle	
Dotted small circle	\DottedSmallCircle	
Dotted very small circle	\DottedVerySmallCircle	
Dotted lozenge	\DottedLozenge	
Dotted curved diamond	\DottedCurvedDiamond	
Dotted very small square	\DottedVerySmallSquare	
Dotted left arrow head	\DottedLeftArrowHead	
Dotted right arrow head	\DottedRightArrowHead	
Dotted right curved arrow head	\DottedRightCurvedArrowHead	



White square containing black square	<code>\WhiteSquareContainingBlackSquare</code>	
White square round corners containing black square	<code>\WhiteSquareRoundCornersContainingBlackSquare</code>	
White diamond containing black diamond	<code>\WhiteDiamondContainingBlackDiamond</code>	
White circle containing black circle	<code>\WhiteCircleContainingBlackCircle</code>	
White right triangle containing black right triangle	<code>\WhiteRightTriangleContainingBlackRightTriangle</code>	
White left triangle containing black left triangle	<code>\WhiteLeftTriangleContainingBlackLeftTriangle</code>	
White down triangle containing black down triangle	<code>\WhiteDownTriangleContainingBlackDownTriangle</code>	
White up triangle containing black up triangle	<code>\WhiteUpTriangleContainingBlackUpTriangle</code>	
White small circle containing black circle	<code>\WhiteSmallCircleContainingBlackCircle</code>	
White very small circle containing black circle	<code>\WhiteVerySmallCircleContainingBlackCircle</code>	
White lozenge containing black lozenge	<code>\WhiteLozengeContainingBlackLozenge</code>	
White curved diamond containing black diamond	<code>\WhiteCurvedDiamondContainingBlackDiamond</code>	
White very small square containing black square	<code>\WhiteVerySmallSquareContainingBlackSquare</code>	
White really small circle	<code>\WhiteReallySmallCircle</code>	
White really small square	<code>\WhiteReallySmallSquare</code>	
White really small diamond	<code>\WhiteReallySmallDiamond</code>	

Horizontally divided square	<code>\HorizontallyDividedSquare</code>	
Horizontally divided square round corners	<code>\HorizontallyDividedSquareRoundCorners</code>	
Horizontally divided diamond	<code>\HorizontallyDividedDiamond</code>	
Horizontally divided circle	<code>\HorizontallyDividedCircle</code>	
Horizontally divided right triangle	<code>\HorizontallyDividedRightTriangle</code>	
Horizontally divided left triangle	<code>\HorizontallyDividedLeftTriangle</code>	
Horizontally divided down triangle	<code>\HorizontallyDividedDownTriangle</code>	
Horizontally divided up triangle	<code>\HorizontallyDividedUpTriangle</code>	
Horizontally divided small circle	<code>\HorizontallyDividedSmallCircle</code>	
Horizontally divided very small circle	<code>\HorizontallyDividedVerySmallCircle</code>	
Horizontally divided lozenge	<code>\HorizontallyDividedLozenge</code>	
Horizontally divided curved diamond	<code>\HorizontallyDividedCurvedDiamond</code>	
Horizontally divided very small square	<code>\HorizontallyDividedVerySmallSquare</code>	
Black really small circle	<code>\BlackReallySmallCircle</code>	
Black really small square	<code>\BlackReallySmallSquare</code>	
Black really small diamond	<code>\BlackReallySmallDiamond</code>	

Vertically divided square	<code>\VerticallyDividedSquare</code>	
Vertically divided square round corners	<code>\VerticallyDividedSquareRoundCorners</code>	
Vertically divided diamond	<code>\VerticallyDividedDiamond</code>	
Vertically divided circle	<code>\VerticallyDividedCircle</code>	
Vertically divided right triangle	<code>\VerticallyDividedRightTriangle</code>	
Vertically divided left triangle	<code>\VerticallyDividedLeftTriangle</code>	
Vertically divided down triangle	<code>\VerticallyDividedDownTriangle</code>	
Vertically divided up triangle	<code>\VerticallyDividedUpTriangle</code>	
Vertically divided small circle	<code>\VerticallyDividedSmallCircle</code>	
Vertically divided very small circle	<code>\VerticallyDividedVerySmallCircle</code>	
Vertically divided lozenge	<code>\VerticallyDividedLozenge</code>	
Vertically divided curved diamond	<code>\VerticallyDividedCurvedDiamond</code>	
Vertically divided very small square	<code>\VerticallyDividedVerySmallSquare</code>	

Quartered square	<code>\QuarteredSquare</code>	
Quartered square round corners	<code>\QuarteredSquareRoundCorners</code>	
Quartered diamond	<code>\QuarteredDiamond</code>	
Quartered circle	<code>\QuarteredCircle</code>	
Quartered right triangle	<code>\QuarteredRightTriangle</code>	
Quartered left triangle	<code>\QuarteredLeftTriangle</code>	
Quartered down triangle	<code>\QuarteredDownTriangle</code>	
Quartered up triangle	<code>\QuarteredUpTriangle</code>	
Quartered small circle	<code>\QuarteredSmallCircle</code>	
Quartered very small circle	<code>\QuarteredVerySmallCircle</code>	
Quartered lozenge	<code>\QuarteredLozenge</code>	
Quartered curved diamond	<code>\QuarteredCurvedDiamond</code>	
Quartered very small square	<code>\QuarteredVerySmallSquare</code>	

Down slashed square	<code>\DownSlashedSquare</code>	
Down slashed square round corners	<code>\DownSlashedSquareRoundCorners</code>	
Down slashed diamond	<code>\DownSlashedDiamond</code>	
Down slashed circle	<code>\DownSlashedCircle</code>	
Down slashed right triangle	<code>\DownSlashedRightTriangle</code>	
Down slashed left triangle	<code>\DownSlashedLeftTriangle</code>	
Down slashed down triangle	<code>\DownSlashedDownTriangle</code>	
Down slashed up triangle	<code>\DownSlashedUpTriangle</code>	
Down slashed small circle	<code>\DownSlashedSmallCircle</code>	
Down slashed very small circle	<code>\DownSlashedVerySmallCircle</code>	
Down slashed lozenge	<code>\DownSlashedLozenge</code>	
Down slashed curved diamond	<code>\DownSlashedCurvedDiamond</code>	
Down slashed very small square	<code>\DownSlashedVerySmallSquare</code>	

Up slashed square	<code>\UpSlashedSquare</code>	
Up slashed square round corners	<code>\UpSlashedSquareRoundCorners</code>	
Up slashed diamond	<code>\UpSlashedDiamond</code>	
Up slashed circle	<code>\UpSlashedCircle</code>	
Up slashed right triangle	<code>\UpSlashedRightTriangle</code>	
Up slashed left triangle	<code>\UpSlashedLeftTriangle</code>	
Up slashed down triangle	<code>\UpSlashedDownTriangle</code>	
Up slashed up triangle	<code>\UpSlashedUpTriangle</code>	
Up slashed small circle	<code>\UpSlashedSmallCircle</code>	
Up slashed very small circle	<code>\UpSlashedVerySmallCircle</code>	
Up slashed lozenge	<code>\UpSlashedLozenge</code>	
Up slashed curved diamond	<code>\UpSlashedCurvedDiamond</code>	
Up slashed very small square	<code>\UpSlashedVerySmallSquare</code>	

Crossed square	\CrossedSquare	☒
Crossed square round corners	\CrossedSquareRoundCorners	⊠
Crossed diamond	\CrossedDiamond	⬠
Crossed circle	\CrossedCircle	⊗
Crossed right triangle	\CrossedRightTriangle	▶️
Crossed left triangle	\CrossedLeftTriangle	◀️
Crossed down triangle	\CrossedDownTriangle	▼
Crossed up triangle	\CrossedUpTriangle	▲
Crossed small circle	\CrossedSmallCircle	⊗
Crossed very small circle	\CrossedVerySmallCircle	⊗
Crossed lozenge	\CrossedLozenge	⬠
Crossed curved diamond	\CrossedCurvedDiamond	⬠
Crossed very small square	\CrossedVerySmallSquare	⊠

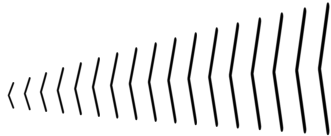
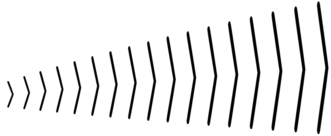
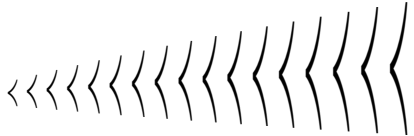
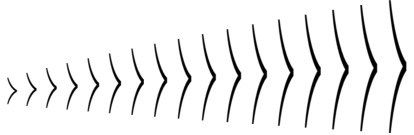
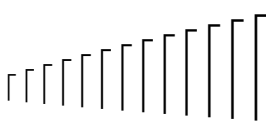
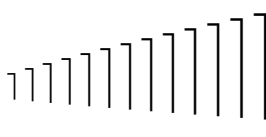
$\backslash\text{OpnBarS}, \backslash\text{OpnBar}[A-L]$	$\left  \frac{1}{2+\frac{3}{4}} \right $	$\left  \frac{1}{2+\frac{3}{4}} \right $	
$\backslash\text{ClsBarS}, \backslash\text{ClsBar}[A-L]$	$\left  \frac{1}{2+\frac{3}{4}} \right $	$\left  \frac{1}{2+\frac{3}{4}} \right $	
$\backslash\text{BndBarS}, \backslash\text{BndBar}[A-L]$	$\left\{ x \left  \frac{1}{2+\frac{3}{4}} \right  \right\}$	$\left\{ x \left  \frac{1}{2+\frac{3}{4}} \right  \right\}$	
$\backslash\text{OpnGrpS}, \backslash\text{OpnGrp}[A-L]$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	
$\backslash\text{ClsGrpS}, \backslash\text{ClsGrp}[A-L]$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	
$\backslash\text{OpnParnS}, \backslash\text{OpnParn}[A-L]$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	
$\backslash\text{ClsParnS}, \backslash\text{ClsParn}[A-L]$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	


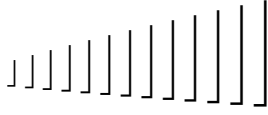
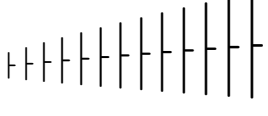
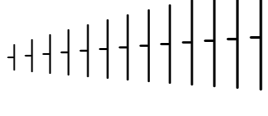






$\backslash\text{OpnCircBrktS}, \backslash\text{OpnCircBrkt}[A-L]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right]$	$\left[ \begin{array}{c} \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \end{array} \right]$
$\backslash\text{ClsCircBrktS}, \backslash\text{ClsCircBrkt}[A-L]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right]$	$\left[ \begin{array}{c} \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \\ \circ \end{array} \right]$
$\backslash\text{OpnCrlyBrktS}, \backslash\text{OpnCrlyBrkt}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right\}$	$\left\{ \begin{array}{c} \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \\ \{ \end{array} \right\}$
$\backslash\text{ClsCrlyBrktS}, \backslash\text{ClsCrlyBrkt}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right\}$	$\left\{ \begin{array}{c} \} \\ \} \\ \} \\ \} \\ \} \\ \} \\ \} \\ \} \\ \} \\ \} \\ \} \\ \} \end{array} \right\}$
$\backslash\text{OpnTortoiseS}, \backslash\text{OpnTortoise}[A-L]$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	$\left( \begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	$\left( \begin{array}{c} ( \\ ( \\ ( \\ ( \\ ( \\ ( \\ ( \\ ( \\ ( \\ ( \\ ( \\ ( \end{array} \right)$
$\backslash\text{ClsTortoiseS}, \backslash\text{ClsTortoise}[A-L]$	$\left( \frac{1}{2+\frac{3}{4}} \right)$	$\left( \begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	$\left( \begin{array}{c} ) \\ ) \\ ) \\ ) \\ ) \\ ) \\ ) \\ ) \\ ) \\ ) \\ ) \\ ) \end{array} \right)$



$\backslash\text{OpnAnglS}, \backslash\text{OpnAngl}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	
$\backslash\text{ClsAnglS}, \backslash\text{ClsAngl}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	
$\backslash\text{OpnCurvAnglS}, \backslash\text{OpnCurvAngl}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	
$\backslash\text{ClsCurvAnglS}, \backslash\text{ClsCurvAngl}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	
$\backslash\text{OpnCeilS}, \backslash\text{OpnCeil}[A-L]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	
$\backslash\text{ClsCeilS}, \backslash\text{ClsCeil}[A-L]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	

$\backslash\text{OpnFloorS}, \backslash\text{OpnFloor}[A-L]$	$\left\lfloor \frac{1}{2+\frac{3}{4}} \right\rfloor$	$\left\lfloor \frac{1}{2+\frac{3}{4}} \right\rfloor$	
$\backslash\text{ClsFloorS}, \backslash\text{ClsFloor}[A-L]$	$\left\lceil \frac{1}{2+\frac{3}{4}} \right\rceil$	$\left\lceil \frac{1}{2+\frac{3}{4}} \right\rceil$	
$\backslash\text{OpnTurnS}, \backslash\text{OpnTurn}[A-L]$	$\left  \frac{1}{2+\frac{3}{4}} \right $	$\left  \frac{1}{2+\frac{3}{4}} \right $	
$\backslash\text{ClsTurnS}, \backslash\text{ClsTurn}[A-L]$	$\left  \frac{1}{2+\frac{3}{4}} \right $	$\left  \frac{1}{2+\frac{3}{4}} \right $	
$\backslash\text{OpnDblBarS}, \backslash\text{OpnDblBar}[A-L]$	$\left\  \frac{1}{2+\frac{3}{4}} \right\ $	$\left\  \frac{1}{2+\frac{3}{4}} \right\ $	
$\backslash\text{ClsDblBarS}, \backslash\text{ClsDblBar}[A-L]$	$\left\  \frac{1}{2+\frac{3}{4}} \right\ $	$\left\  \frac{1}{2+\frac{3}{4}} \right\ $	







$\backslash\text{OpnBrktBarS}, \backslash\text{OpnBrktBar}[A-L]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$
$\backslash\text{ClsBrktBarS}, \backslash\text{ClsBrktBar}[A-L]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$	$\left[ \frac{1}{2+\frac{3}{4}} \right]$
$\backslash\text{OpnBrknBrktBarS}, \backslash\text{OpnBrknBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$
$\backslash\text{ClsBrknBrktBarS}, \backslash\text{ClsBrknBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$
$\backslash\text{OpnCircBrktBarS}, \backslash\text{OpnCircBrktBar}[A-L]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$
$\backslash\text{ClsCircBrktBarS}, \backslash\text{ClsCircBrktBar}[A-L]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$

$\backslash\text{OpnCrllyBrktBarS}, \backslash\text{OpnCrllyBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$
$\backslash\text{ClsCrllyBrktBarS}, \backslash\text{ClsCrllyBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$
$\backslash\text{OpnTortoiseBarS}, \backslash\text{OpnTortoiseBar}[A-L]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$
$\backslash\text{ClsTortoiseBarS}, \backslash\text{ClsTortoiseBar}[A-L]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$
$\backslash\text{OpnAnglBarS}, \backslash\text{OpnAnglBar}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$
$\backslash\text{ClsAnglBarS}, \backslash\text{ClsAnglBar}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$

Greek lower case alpha	$\alpha$	<code>\grualpha</code>	Greek upper case alpha	A	<code>\gruAlpha</code>
Greek lower case beta	$\beta$	<code>\grubeta</code>	Greek upper case beta	B	<code>\gruBeta</code>
Greek lower case gamma	$\gamma$	<code>\grugamma</code>	Greek upper case gamma	$\Gamma$	<code>\gruGamma</code>
Greek lower case delta	$\delta$	<code>\grudelta</code>	Greek upper case delta	$\Delta$	<code>\gruDelta</code>
Greek lower case epsilon	$\epsilon$	<code>\gruepsilon</code>	Greek upper case epsilon	E	<code>\gruEpsilon</code>
Greek lower case epsilon	$\varepsilon$	<code>\gruvarepsilon</code>			
Greek lower case zeta	$\zeta$	<code>\gruzeta</code>	Greek upper case zeta	Z	<code>\gruZeta</code>
Greek lower case eta	$\eta$	<code>\grueta</code>	Greek upper case eta	H	<code>\gruEta</code>
Greek lower case theta	$\theta$	<code>\grutheta</code>	Greek upper case theta	$\Theta$	<code>\gruTheta</code>
Greek lower case theta	$\vartheta$	<code>\gruvartheta</code>			
Greek lower case iota	$\iota$	<code>\gruiota</code>	Greek upper case iota	I	<code>\gruIota</code>
Greek lower case kappa	$\kappa$	<code>\grukappa</code>	Greek upper case kappa	K	<code>\gruKappa</code>
Greek lower case lambda	$\lambda$	<code>\grulambda</code>	Greek upper case lambda	$\Lambda$	<code>\gruLambda</code>
Greek lower case mu	$\mu$	<code>\grumu</code>	Greek upper case mu	M	<code>\gruMu</code>
Greek lower case nu	$\nu$	<code>\grunu</code>	Greek upper case nu	N	<code>\gruNu</code>
Greek lower case xi	$\xi$	<code>\gruxi</code>	Greek upper case xi	$\Xi$	<code>\gruXi</code>
Greek lower case omicron	$\omicron$	<code>\gruomicron</code>	Greek upper case omicron	O	<code>\gruOmicron</code>
Greek lower case pi	$\pi$	<code>\grupi</code>	Greek upper case pi	$\Pi$	<code>\gruPi</code>
Greek lower case pi	$\varpi$	<code>\gruvarpi</code>			
Greek lower case rho	$\rho$	<code>\grurho</code>	Greek upper case rho	P	<code>\gruRho</code>
Greek lower case rho	$\varrho$	<code>\gruvarrho</code>			
Greek lower case sigma	$\sigma$	<code>\grusigma</code>	Greek upper case sigma	$\Sigma$	<code>\gruSigma</code>
Greek lower case sigma	$\varsigma$	<code>\gruvarsigma</code>			
Greek lower case tau	$\tau$	<code>\grutau</code>	Greek upper case tau	T	<code>\gruTau</code>
Greek lower case upsilon	$\upsilon$	<code>\gruupsilon</code>	Greek upper case upsilon	Y	<code>\gruUpsilon</code>
Greek lower case phi	$\phi$	<code>\gruphi</code>	Greek upper case phi	$\Phi$	<code>\gruPhi</code>
Greek lower case phi	$\varphi$	<code>\gruvarphi</code>			
Greek lower case chi	$\chi$	<code>\gruchi</code>	Greek upper case chi	X	<code>\gruChi</code>
Greek lower case psi	$\psi$	<code>\grupsi</code>	Greek upper case psi	$\Psi$	<code>\gruPsi</code>
Greek lower case omega	$\omega$	<code>\gruomega</code>	Greek upper case omega	$\Omega$	<code>\gruOmega</code>



Greek italic lower case alpha	$\alpha$	<code>\grialpha</code>	Greek italic upper case alpha	$A$	<code>\griAlpha</code>
Greek italic lower case beta	$\beta$	<code>\gribeta</code>	Greek italic upper case beta	$B$	<code>\griBeta</code>
Greek italic lower case gamma	$\gamma$	<code>\grigamma</code>	Greek italic upper case gamma	$\Gamma$	<code>\griGamma</code>
Greek italic lower case delta	$\delta$	<code>\gridelta</code>	Greek italic upper case delta	$\Delta$	<code>\griDelta</code>
Greek italic lower case epsilon	$\epsilon$	<code>\griepsilon</code>	Greek italic upper case epsilon	$E$	<code>\griEpsilon</code>
Greek italic lower case epsilon	$\varepsilon$	<code>\grivarepsilon</code>			
Greek italic lower case zeta	$\zeta$	<code>\grizeta</code>	Greek italic upper case zeta	$Z$	<code>\griZeta</code>
Greek italic lower case eta	$\eta$	<code>\grieta</code>	Greek italic upper case eta	$H$	<code>\griEta</code>
Greek italic lower case theta	$\theta$	<code>\gritheta</code>	Greek italic upper case theta	$\Theta$	<code>\griTheta</code>
Greek italic lower case theta	$\vartheta$	<code>\grivartheta</code>			
Greek italic lower case iota	$\iota$	<code>\griiota</code>	Greek italic upper case iota	$I$	<code>\griIota</code>
Greek italic lower case kappa	$\kappa$	<code>\grikappa</code>	Greek italic upper case kappa	$K$	<code>\griKappa</code>
Greek italic lower case lambda	$\lambda$	<code>\grilambda</code>	Greek italic upper case lambda	$\Lambda$	<code>\griLambda</code>
Greek italic lower case mu	$\mu$	<code>\grimu</code>	Greek italic upper case mu	$M$	<code>\griMu</code>
Greek italic lower case nu	$\nu$	<code>\grinu</code>	Greek italic upper case nu	$N$	<code>\griNu</code>
Greek italic lower case xi	$\xi$	<code>\grixi</code>	Greek italic upper case xi	$\Xi$	<code>\griXi</code>
Greek italic lower case omicron	$o$	<code>\griomicron</code>	Greek italic upper case omicron	$O$	<code>\griOmicron</code>
Greek italic lower case pi	$\pi$	<code>\gripi</code>	Greek italic upper case pi	$\Pi$	<code>\griPi</code>
Greek italic lower case pi	$\varpi$	<code>\grivarpi</code>			
Greek italic lower case rho	$\rho$	<code>\grirho</code>	Greek italic upper case rho	$P$	<code>\griRho</code>
Greek italic lower case rho	$\varrho$	<code>\grivarrho</code>			
Greek italic lower case sigma	$\sigma$	<code>\grisigma</code>	Greek italic upper case sigma	$\Sigma$	<code>\griSigma</code>
Greek italic lower case sigma	$\varsigma$	<code>\grivarsigma</code>			
Greek italic lower case tau	$\tau$	<code>\gritau</code>	Greek italic upper case tau	$T$	<code>\griTau</code>
Greek italic lower case upsilon	$\upsilon$	<code>\griupsilon</code>	Greek italic upper case upsilon	$Y$	<code>\griUpsilon</code>
Greek italic lower case phi	$\phi$	<code>\griphi</code>	Greek italic upper case phi	$\Phi$	<code>\griPhi</code>
Greek italic lower case phi	$\varphi$	<code>\grivarphi</code>			
Greek italic lower case chi	$\chi$	<code>\grichi</code>	Greek italic upper case chi	$X$	<code>\griChi</code>
Greek italic lower case psi	$\psi$	<code>\gripsi</code>	Greek italic upper case psi	$\Psi$	<code>\griPsi</code>
Greek italic lower case omega	$\omega$	<code>\griomega</code>	Greek italic upper case omega	$\Omega$	<code>\griOmega</code>

Logical Variable: \symsau{<alphanum>} – sans-serif script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Logical Variable: \symsai{<alphanum>} – sans-serif, oblique script

*0 1 2 3 4 5 6 7 8 9*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

*0 1 2 3 4 5 6 7 8 9*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

*0123456789*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

Logical Variable: \symSau{<alphanum>} – sans-serif, bold script

**0 1 2 3 4 5 6 7 8 9**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

**0 1 2 3 4 5 6 7 8 9**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

**0123456789**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

Logical Variable: \symSai{<alphanum>} – sans-serif, bold, oblique script

***0 1 2 3 4 5 6 7 8 9***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

***0 1 2 3 4 5 6 7 8 9***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

***0123456789***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

Logical Variable: \symslu{<alphanum>} – slab-serif script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
  
0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
  
0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Logical Variable: \symsli{<alphanum>} – slab-serif, oblique script

*0 1 2 3 4 5 6 7 8 9*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*  
  
*0 1 2 3 4 5 6 7 8 9*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*  
  
*0123456789*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

Logical Variable: \symSlu{<alphanum>} – slab-serif, bold script

**0 1 2 3 4 5 6 7 8 9**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**  
  
**0 1 2 3 4 5 6 7 8 9**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**  
  
**0123456789**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

Logical Variable: \symSli{<alphanum>} – slab-serif, bold, oblique script

***0 1 2 3 4 5 6 7 8 9***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***  
  
***0 1 2 3 4 5 6 7 8 9***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***  
  
***0123456789***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

Logical Variable: \symsru{<alphanum>} – serif script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Logical Variable: \symsri{<alphanum>} – serif, italic script

*0 1 2 3 4 5 6 7 8 9*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

*0 1 2 3 4 5 6 7 8 9*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

*0123456789*  
*a b c d e f g h i j k l m n o p q r s t u v w x y z*  
*A B C D E F G H I J K L M N O P Q R S T U V W X Y Z*

Logical Variable: \symSru{<alphanum>} – serif, bold script

**0 1 2 3 4 5 6 7 8 9**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

**0 1 2 3 4 5 6 7 8 9**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

**0123456789**  
**a b c d e f g h i j k l m n o p q r s t u v w x y z**  
**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

Logical Variable: \symSri{<alphanum>} – serif, bold, italic script

***0 1 2 3 4 5 6 7 8 9***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

***0 1 2 3 4 5 6 7 8 9***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

***0123456789***  
***a b c d e f g h i j k l m n o p q r s t u v w x y z***  
***A B C D E F G H I J K L M N O P Q R S T U V W X Y Z***

Map Variable: \symcli{<alphanum>} – calligraphic script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Map Variable: \symblu{<alphanum>} – blackboard / double struck script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Map Variable: \symfru{<alphanum>} – Fraktur script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Map Variable: \symFru{<alphanum>} – Fraktur, bold script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Map Variable: \symmnu{<alphanum>} – Monospace, slab-serif, upright script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0123456789  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ

Map Variable: \symmri{<alphanum>} – Monospace serif, italic script

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Logical Variable: \symgru{<alphanum>} – Greek upright script

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω  
α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω  
ε θ ϖ ϑ ς φ

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω  
α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω  
ε θ ϖ ϑ ς φ

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεζηθικλμνξοπρστυφχψω  
εθϖϑςφ

Logical Variable: \symgri{<alphanum>} – Greek italic script

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω  
α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω  
ε θ ϖ ϑ ς φ

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω  
α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω  
ε θ ϖ ϑ ς φ

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεζηθικλμνξοπρστυφχψω  
εθϖϑςφ