

1 Introduction: logix 2022-06-22 v1.13

The logix package provides the logix Unicode font and must be used either with Lua \LaTeX or Xe \LaTeX . 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 Latin-1 code space, are in Unicode's Private Use Area. This package does not replace either the text font or the math font but may be used to replace the monospace font.

The logix package includes, in turn, the iftex, mathtools, unicode-math and arydsln packages. The unicode-math package is passed the “bold-style=ISO” parameter and includes the fontspec package. The arydsln package conflicts with several packages. Known conflicts are the array, longtable, colortab and colortbl packages, all of which must be loaded before the logix package when they are used. 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. This package does not require the use of other Unicode fonts. Typical use of the logix package in a \LaTeX source file is:

```
\usepackage{array} % Optional, only if otherwise required.

\usepackage{logix}
\setmainfont{STIX Two Text}
\setmathfont{STIX Two Math}
```

The metrics for the Logix font are identical to the STIX2 mathematical font and the symbols in the Logix font are designed to be compatible with the STIX2 mathematical font, but may be used with any other mathematical font. More than 3,000 symbols are exported from the font (of which around 1,000 are for “stretchy” delimiters), but the font contains over 4,000 symbols. Those not exported are usually variants or are experimental symbols. For example, when the triple turnstiles were added, 32 new symbols were added to the font, but only 4 were exported. The Logix font may also be used for monospace listings limited to the Latin-1 codepage (with a smattering of additional symbols).

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 \LaTeX macro for the symbol with the exception of the Basic Latin code page since those names potentially conflict with existing \LaTeX 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 that are also in Unicode are typically glyph variants 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 36 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 36 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 map arrow, total function arrow, partial function arrow and the logic arrows have five 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 as long as "Opn" delimiters are on the left, "ClS" delimiters are on the right and the binding bar is in the middle.

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 a few 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. For the basic geometric shapes: circle, square, diamond and triangles and for both black and white variants, explicitly sized symbols are provided ranging from 0.2 em to 1.0em in 0.1 em increments. Operators are provided to work with "bunches" which are like sets but without the packaging. Ordering operators (and their negations) are provided — however there are additional ordering operators 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, 21 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. Since these are largely used as single letters, for numbers or for very short words, kerning is not implemented at this time (with a very minor exception for a few delimiters and lower case 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, 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:

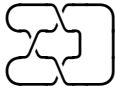
Sans serif font	sau	<code>\symsau</code>	<code>\mathsau</code>	<code>\prop</code>
Sans serif, oblique font	sai	<code>\symsai</code>	<code>\mathsai</code>	<code>\prop</code>
Sans serif, bold font	Sau	<code>\symSau</code>	<code>\mathSau</code>	<code>\meta</code>
Sans serif, bold, oblique font	Sai	<code>\symSai</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>\symfli</code>	<code>\mathfli</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>
Calligraphic bold font	Cli	<code>\symCli</code>	<code>\mathCli</code>	<code>\vrblC</code>
Fraktur font	fru	<code>\symfru</code>	<code>\mathfru</code>	<code>\vrblf</code>
Fraktur bold font	Fru	<code>\symFru</code>	<code>\mathFru</code>	<code>\vrblF</code>
Monospace font	mnu	<code>\symmnu</code>	<code>\mathmnu</code>	<code>\mono</code>
Monospace italic, serif font	mni	<code>\symmni</code>	<code>\mathmni</code>	
Blackboard font	blu	<code>\symblu</code>	<code>\mathblu</code>	<code>\vrblld</code>
Greek font	gru	<code>\symgru</code>	<code>\mathgru</code>	
Greek, italic font	gri	<code>\symgri</code>	<code>\mathgri</code>	

3 Knot Symbols

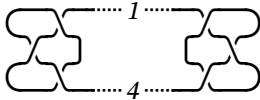
An extensive set of drawing symbols is provided for drawing knots (as found in Knot Theory). The `\KnotGrid` environment is provided for this purpose. `KnotGrid` provides a grid (based on tabular, but the use of ampersand (&) separators is not required between grid cells). Each knot symbol has an exact width and height — most are $1em \times 1em$, 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.



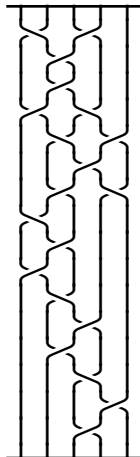
This example is a braid (typeset vertically) for a double of the left-handed Trefoil. The left and right columns are half width and the top and bottom rows are half height to achieve a slightly better appearance.

```

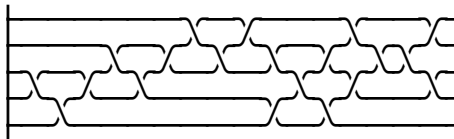
\begin{KnotGrid}
\KntBSFNF \KntBSNF \KntBSNF \KntBSNF \KntBSNF \KntBSFNF \\
\KntRSFNF \KntRSFN \KntRSFN \KntRSFN \KntRSFN \KntFF \\
\KntNF \KntVXSUSO \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSOSU \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSOSU \KntRSN \KntRSN \KntNF \\
\KntNF \KntVXSOSU \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSOSU \KntNN \KntVXSOSU \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSOSU \KntNN \KntVXSOSU \KntNF \\
\KntNF \KntVXSOSU \KntRSN \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSOSU \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntNN \KntVXSOSU \KntRSN \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntRSN \KntNN \KntVXSOSU \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSOSU \KntRSN \KntNF \\
\KntRSNF \KntRSN \KntRSN \KntNN \KntVXSOSU \KntNF \\
\KntRSNF \KntRSN \KntNN \KntVXSOSU \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.



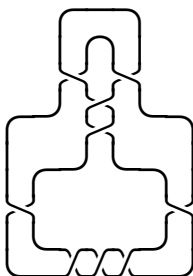
This example is the $9_6(L)$ knot.

```

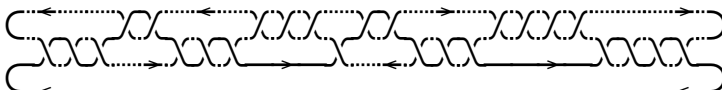
\begin{KnotGrid}
\KntNN \KntNN \KntLTSC \KntTSN \KntTRSC \KntNN \KntNN \\
\KntNN \KntRSN \KntNN \KntTCS \KntNN \KntLSN \KntNN \\
\KntNN \KntNN \KntVXSUSO \KntNN \KntVXSUSO \KntNN \KntNN \\
\KntNN \KntRBSC \KntNN \KntVXSOSU \KntNN \KntBLSC \KntNN \\
\KntLTSC \KntNN \KntNN \KntVXSOSU \KntNN \KntNN \KntTRSC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

```

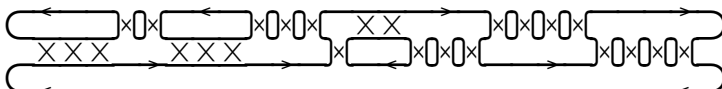
Which is typeset as below.



The 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 0.5 em wide, but in the second row an 0.25 em width symbol is used, which must then be padded with an 0.25 em 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 Definitions, Axioms and Proofs

\LaTeX has more than adequate support for traditional mathematical proofs. Conversely, in logic, object proofs are written either as a linear sequence (usually Hilbert style proofs) 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, Hilbert style proofs do not. This package supplies several environments to support Hilbert style definitions, axioms and proofs to alleviate this deficiency.

Logic definitions typically have a name with an optional number (e.g. “Ax. 3” or “Conjunction”), a left expression, a right expression and, optionally, a brief comment. A definition may stand alone or multiple definitions may be grouped. The `LogixDefn` environment provides structured formatting for logic definitions, either singly or as a group. The `LogixDefn` environment does not have required parameters, but does have 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, and to avoid the expressions overlapping the comments.

The `LogixDefn` environment defines the nested `Line` macro, which has four parameters if the optional `LogixDefn` parameter is not present, and otherwise five. The fifth 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), the left side of the definition and the right side of the definition, the latter two of which are typeset in math mode. The left expression is right aligned and the right expression is left aligned. The left and right sides of a definition are separated by the definition symbol ($:=$), which is aligned when grouping expressions. 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}}{\symsau{q}}
  \Line{Conj}{ } {\symsau{p}}{\symsau{q}}
\end{LogixDefn}

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

These two examples are typeset as shown below.

```
Neg  1.  $p:=q$ 
Conj.  $p:=q$ 

Df  1.  $p:=q$           Some comment
Df  2.  $p:=q$           Yet another comment
```

Environments defined in this package do not affect the indentation level. In this document, the `addmargin` environment provided by the `scrextend` package is used to provide indentation.

The LogixAxiom environment is very similar to the LogixDefn environment, except that there is only one expression, which is left aligned. Two examples of its use are shown below. The first example is two replacement rules with required meta-conditions. One for sequents and one for an equivalence operator. The second example is similar, but without the required meta-conditions.

```

\begin{LogixAxiom}
  \Line{Rp} {12} {\symsai{NegationFree}\OpnParn \symsau{p} \WkEqv \symsau{q}
    \ClsParn, \symsau{p} \WkEqv \symsau{q}, \symsau{e} \Seq
    \symsau{e}\OpnBrkt \symsau{q} \RightSlash \symsau{p}
    \ClsBrkt }
  \Line{Rp} {2} {\symsai{NegationFree}\OpnParn \symsau{p} \WkEqv \symsau{q}
    \ClsParn, \symsau{p} \WkEqv \symsau{q} \Seq \symsau{e}
    \WkEqv \symsau{e}\OpnBrkt \symsau{q} \RightSlash \symsau{p}
    \ClsBrkt }
\end{LogixAxiom}

\begin{LogixAxiom}[10em]
  \Line{Ax} {1} {\symsau{p} \Eqv \symsau{q}, \symsau{e} \Seq \symsau{e}
    \OpnBrkt \symsau{q} \RightSlash \symsau{p} \ClsBrkt }
    { Sequent replacement rule. }
  \Line{Ax} {2} {\symsau{p} \Eqv \symsau{q} \Seq \symsau{e} \Eqv \symsau{e}
    \OpnBrkt \symsau{q} \RightSlash \symsau{p} \ClsBrkt }
    { Equivalence replacement rule. }
\end{LogixAxiom}

```

These examples are typeset as shown below.

Rp 12. *NegationFree*($p \leftrightarrow q$), $p \leftrightarrow q$, $e \succ e[q/p]$
Rp 2. *NegationFree*($p \leftrightarrow q$), $p \leftrightarrow q \succ e \leftrightarrow e[q/p]$

Ax 1. $p \leftrightarrow q$, $e \succ e[q/p]$ Sequent replacement rule.
Ax 2. $p \leftrightarrow q \succ e \leftrightarrow e[q/p]$ Equivalence replacement rule.

A Hilbert style 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 Hilbert style 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).

Postulates are distinguished from axioms (however, formulas, rules and meta-rules are not distinguished for axioms, postulates or theorems). An axiom is assumed to hold for all theorems in a system whereas a postulate is only assumed to hold in the context of a specific proof. The third parameter is the statement (the theorem's expression) of the proof.

The LogixProof environment defines the Blnk, 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 Dash or 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 Blnk, 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}}
  \Blnk {1} {Th 41} {} {\prop{p} \Impl \prop{q}}
  \Dash {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}

```

These examples are typeset as shown below. The first example assumes that the Axiom of Choice holds within the context of the proof.

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 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}	$(p \rightarrow q) \rightarrow (p \rightarrow (r \rightarrow q))$

In addition to the LogixProof environment, the LogixSeqnt environment is also provided. It is identical to the LogixProof environment with the exception that there are two expressions associated with each proof line instead of one. 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}}
  \Blnk {1} {Th 41} {} {\prop{p}} {\prop{r}} {First comment}
  \Blnk {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}\Coma\prop{q}} {\prop{r}} {Disjunction}
  \Line {2} {} {} {\prop{p}\Coma\prop{q}} {\prop{r}} {Weakening, 1}
\end{LogixSeqnt}

```

These are 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}	$p \vee r \succ q \vee s$

The LogixTable environment provides a consistent environment for semantic maps and tableaux. It replaces the use of the tabular environment, but other than setting local parameters, is identical. The following example illustrates its use for a semantic map.

```

\begin{LogixTable}{c | c c c c }
  \Nd      & \meta{f} & \meta{u} & \meta{o} & \meta{t} \\ \hline
  \meta{f} & \meta{f} & \meta{f} & \meta{f} & \meta{f} \\
  \meta{u} & \meta{f} & \meta{u} & \meta{f} & \meta{u} \\
  \meta{o} & \meta{f} & \meta{f} & \meta{o} & \meta{o} \\
  \meta{t} & \meta{f} & \meta{u} & \meta{o} & \meta{t} \\
\end{LogixTable}

```

This is typeset as shown below.

^	f	u	o	t
f	f	f	f	f
u	f	u	f	u
o	f	f	o	o
t	f	u	o	t

5 Displaying Monospaced Source Text

In “Fonts for Displaying Program Code in \LaTeX ” Adrian P. Robson examined the available options for displaying source code. For fonts which contain a marked zero, Adrian recommended the Bera Mono based on vertical placement of common operators and the ability to easily distinguish similar symbols. The Bera Mono font is derived from the excellent Bitstream Vera font. It is a type 1 font and is not a Unicode font (but can still be used if loaded before fontspec).

In addition to the Logix font, this package provides the Logix Mono font, (also derived from the Bitstream Mono font). Many applications can use the Logix and Logix Mono fonts interchangeably. Unfortunately, the additional symbols in the Logix font are not well handled by some applications so that monospaced symbols are not displayed correctly. The Logix Mono font is designed (as is the Logix font) to be compatible with the STIX2 mathematical fonts. It is also slightly heavier and more compact than the Bera Mono font to improve readability. Like the Bera Mono font, it is larger than many other typewriter fonts. The recommendation for the Bera Mono font is thus to load it with a scaling factor of 90%. Here, the preferred approach is to explicitly set the point size and leading with the fontsize command.

```
{fontsize{9}{11} \selectfont
\begin{verbatim}
Monospaced text.
\end{verbatim}}
```

Including the Logix monospace symbols can be done as follows ...

```
\usepackage{array} % Optional, only if otherwise required.
```

```
\usepackage{logix}
\setmainfont{STIX Two Text}
\setmathfont{STIX Two Math}
\setmonofont{Logix Mono}
```

or by ...

```
\usepackage{array} % Optional, only if otherwise required.
```

```
\usepackage{logix}
\setmainfont{STIX Two Text}
\setmathfont{STIX Two Math}
\setmonofont{Logix}
```

Additionally, the Logix Mono font is designed to print well at smaller point sizes, which is often desirable when printing listings because of long line lengths and the sheer number of lines to be printed. For 8.5×11 paper and 0.25 inch margins the following line sizes (in characters) can be obtained. The previous examples were displayed using the Logic Mono font with a point size of 9 with leading of 11.

size/leading	Char/Inch	Portrait	Landscape
9/11	15.375	123	162
8/10	17.375	139	182
7/9	19.875	159	208

6 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. 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 create the actual font files. It is not needed for \LaTeX usage, but is provided should the author 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 \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	<code>\OpnBar</code>	
Open Group Brace	<code>\OpnGrp</code>	[
Open Parenthesis	<code>\OpnParn</code>	(
Open Curly Brace	<code>\OpnBrac</code>	{
Open Curly Broken Brace	<code>\OpnBrknBrac</code>	}
Open Curly Circle Brace	<code>\OpnCircBrac</code>	⎵
Open Arrow Brace	<code>\OpnArrwBrac</code>	⎵
Open Square Bracket	<code>\OpnBrkt</code>	[
Open Square Curly Bracket	<code>\OpnCrlyBrkt</code>	{
Open Square Broken Bracket	<code>\OpnBrknBrkt</code>	}
Open Square Circle Bracket	<code>\OpnCircBrkt</code>	⎵
Open Tortoise Shell	<code>\OpnTortoise</code>	(
Open Angle Bracket	<code>\OpnAngl</code>	<
Open Double Curly Brace	<code>\OpnDblBrac</code>	{ }
Open Double Angle Bracket	<code>\OpnDblAngl</code>	<>
Open Square Parenthesis	<code>\OpnSqrParn</code>	[]
Open Parenthesis with Bar	<code>\OpnParnBar</code>	()
Open Brace with Bar	<code>\OpnBracBar</code>	{ }
Open Broken Brace with Bar	<code>\OpnBrknBracBar</code>	} {
Open Circle Brace with Bar	<code>\OpnCircBracBar</code>	⎵ ⎵
Open Bracket with Bar	<code>\OpnBrktBar</code>	[]
Open Curly Bracket with Bar	<code>\OpnCrlyBrktBar</code>	{ }
Open Broken Bracket with Bar	<code>\OpnBrknBrktBar</code>	} {
Open Circle Bracket with Bar	<code>\OpnCircBrktBar</code>	⎵ ⎵
Open Tortoise Shell with Bar	<code>\OpnTortoiseBar</code>	()
Open Angle Bracket with Bar	<code>\OpnAnglBar</code>	< >
Open Curved Angle Bracket	<code>\OpnCurvAngl</code>	< >
Open Double Parenthesis	<code>\OpnDblParn</code>	(())
Open Ceiling	<code>\OpnCeil</code>	⌈
Open Floor	<code>\OpnFloor</code>	⌋
Open Turn	<code>\OpnTurn</code>	⊥
Open Context Quote	<code>\OpnCntr</code>	⌞
Open Double Group Brace	<code>\OpnDblGrp</code>	[[]]
Open Double Vertical Bar	<code>\OpnDblBar</code>	
Open Triple Vertical Bar	<code>\OpnTrpBar</code>	
Open Double Ceiling	<code>\OpnDblCeil</code>	⌈⌈
Open Double Floor	<code>\OpnDblFloor</code>	⌋⌋

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 Curly Bracket	\ClsCrlyBrkt	}
Close Square Broken Bracket	\ClsBrknBrkt	}
Close Square Circle Bracket	\ClsCircBrkt	})
Close Tortoise Shell	\ClsTortoise)
Close Angle Bracket	\ClsAngl	>
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 Curly Bracket with Bar	\ClsCrlyBrktBar	}
Close Broken Bracket with Bar	\ClsBrknBrktBar	}
Close Circle Bracket with Bar	\ClsCircBrktBar	})
Close Tortoise Shell with Bar	\ClsTortoiseBar)
Close Angle Bracket with Bar	\ClsAnglBar	>
Close Curved Angle Bracket	\ClsCurvAngl	>
Close Double Parenthesis	\ClsDblParn)
Close Ceiling	\ClsCeil	⌈
Close Floor	\ClsFloor	⌋
Close Turn	\ClsTurn	⌋
Close Context Quote	\ClsCntx	⌋
Close Double Group Brace	\ClsDblGrp	})
Close Double Vertical Bar	\ClsDblBar	
Close Triple Vertical Bar	\ClsTrpBar	
Close Double Ceiling	\ClsDblCeil	⌈
Close Double Floor	\ClsDblFloor	⌋

Continuous, Partial, Into Multi-Map	<code>\MapParInMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Into, Singleton Map	<code>\MapParInSng</code>	\rightrightarrows
Continuous, Partial, Into, One-To-One Map	<code>\MapParInOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Partial, Onto Multi-Map	<code>\MapParOnMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Onto, Singleton Map	<code>\MapParOnSng</code>	\rightrightarrows
Continuous, Partial, Onto, One-To-One Map	<code>\MapParOnOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Partial, Into, Grounded Multi-Map	<code>\MapParInGndMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Into, Grounded, Singleton Map	<code>\MapParInGndSng</code>	\rightrightarrows
Continuous, Partial, Into, Grounded, One-To-One Map	<code>\MapParInGndOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Partial, Onto, Grounded Multi-Map	<code>\MapParOnGndMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Onto, Grounded, Singleton Map	<code>\MapParOnGndSng</code>	\rightrightarrows
Continuous, Partial, Onto, Grounded, One-To-One Map	<code>\MapParOnGndOne</code>	$\overset{\cdot}{\rightrightarrows}$

Continuous, Total, Into Multi-Map	<code>\MapTotInMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Total, Into, Singleton Map	<code>\MapTotInSng</code>	\rightrightarrows
Continuous, Total, Into, One-To-One Map	<code>\MapTotInOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Total, Onto Multi-Map	<code>\MapTotOnMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Total, Onto, Singleton Map	<code>\MapTotOnSng</code>	\rightrightarrows
Continuous, Total, Onto, One-To-One Map	<code>\MapTotOnOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Total, Into, Grounded Multi-Map	<code>\MapTotInGndMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Total, Into, Grounded, Singleton Map	<code>\MapTotInGndSng</code>	\rightrightarrows
Continuous, Total, Into, Grounded, One-To-One Map	<code>\MapTotInGndOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Total, Onto, Grounded Multi-Map	<code>\MapTotOnGndMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Total, Onto, Grounded, Singleton Map	<code>\MapTotOnGndSng</code>	\rightrightarrows
Continuous, Total, Onto, Grounded, One-To-One Map	<code>\MapTotOnGndOne</code>	$\overset{\cdot}{\rightrightarrows}$

Continuous, Partial, Into Multi-Function	<code>\FunParInMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Into, Singleton Function	<code>\FunParInSng</code>	\rightrightarrows
Continuous, Partial, Into, One-To-One Function	<code>\FunParInOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Partial, Onto Multi-Function	<code>\FunParOnMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Onto, Singleton Function	<code>\FunParOnSng</code>	\rightrightarrows
Continuous, Partial, Onto, One-To-One Function	<code>\FunParOnOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Partial, Into, Grounded Multi-Function	<code>\FunParInGndMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Into, Grounded, Singleton Function	<code>\FunParInGndSng</code>	\rightrightarrows
Continuous, Partial, Into, Grounded, One-To-One Function	<code>\FunParInGndOne</code>	$\overset{\cdot}{\rightrightarrows}$
Continuous, Partial, Onto, Grounded Multi-Function	<code>\FunParOnGndMul</code>	$\overset{+}{\rightrightarrows}$
Continuous, Partial, Onto, Grounded, Singleton Function	<code>\FunParOnGndSng</code>	\rightrightarrows
Continuous, Partial, Onto, Grounded, One-To-One Function	<code>\FunParOnGndOne</code>	$\overset{\cdot}{\rightrightarrows}$

Continuous, Total, Into Multi-Function	<code>\FunTotInMul</code>	$\overset{+}{\mapsto}$
Continuous, Total, Into, Singleton Function	<code>\FunTotInSng</code>	\mapsto
Continuous, Total, Into, One-To-One Function	<code>\FunTotInOne</code>	$\overset{\cdot}{\mapsto}$
Continuous, Total, Onto Multi-Function	<code>\FunTotOnMul</code>	$\overset{+}{\twoheadrightarrow}$
Continuous, Total, Onto, Singleton Function	<code>\FunTotOnSng</code>	\twoheadrightarrow
Continuous, Total, Onto, One-To-One Function	<code>\FunTotOnOne</code>	$\overset{\cdot}{\twoheadrightarrow}$
Continuous, Total, Into, Grounded Multi-Function	<code>\FunTotInGndMul</code>	$\overset{+}{\mapsto}$
Continuous, Total, Into, Grounded, Singleton Function	<code>\FunTotInGndSng</code>	\mapsto
Continuous, Total, Into, Grounded, One-To-One Function	<code>\FunTotInGndOne</code>	$\overset{\cdot}{\mapsto}$
Continuous, Total, Onto, Grounded Multi-Function	<code>\FunTotOnGndMul</code>	$\overset{+}{\twoheadrightarrow}$
Continuous, Total, Onto, Grounded, Singleton Function	<code>\FunTotOnGndSng</code>	\twoheadrightarrow
Continuous, Total, Onto, Grounded, One-To-One Function	<code>\FunTotOnGndOne</code>	$\overset{\cdot}{\twoheadrightarrow}$

Short Maps To	<code>\SMapTo</code>	\mapsto
Maps To	<code>\MapTo</code>	\mapsto
Long Maps To	<code>\LMapTo</code>	\twoheadrightarrow
Extra Long Maps To	<code>\XMapTo</code>	\twoheadrightarrow
Very Long Maps To	<code>\VMapTo</code>	\twoheadrightarrow

Short Total Function	<code>\SFunc</code>	\rightarrow
Total Function	<code>\Func</code>	\rightarrow
Long Total Function	<code>\LFunc</code>	\twoheadrightarrow
Extra Long Total Function	<code>\XFunc</code>	\twoheadrightarrow
Very Long Total Function	<code>\VFunc</code>	\twoheadrightarrow

Short Partial Function	<code>\SParFunc</code>	\dashrightarrow
Partial Function	<code>\ParFunc</code>	\dashrightarrow
Long Partial Function	<code>\LParFunc</code>	\twoheadrightarrow
Extra Long Partial Function	<code>\XParFunc</code>	\twoheadrightarrow
Very Long Partial Function	<code>\VParFunc</code>	\twoheadrightarrow

Map Composition	<code>\MapComp</code>	\square
Function / Backward Composition	<code>\FncComp</code>	\circ
Forward Composition	<code>\ForComp</code>	\bullet
Function Converse	<code>\FncCnvs</code>	\otimes

Classical Implication	<code>\ClsImpl</code>	\supset
Not Classical Implication	<code>\NotClsImpl</code>	$\not\supset$
Classical Equivalence	<code>\ClsEquiv</code>	\equiv
Not Classical Equivalence	<code>\NotClsEquiv</code>	$\not\equiv$

Short Weak Material Implication	<code>\SWkMtImpl</code>	\Rightarrow
Weak Material Implication	<code>\WkMtImpl</code>	\Rightarrow
Long Weak Material Implication	<code>\LWkMtImpl</code>	\Rightarrow
Extra Long Weak Material Implication	<code>\XWkMtImpl</code>	\Rightarrow
Very Long Weak Material Implication	<code>\VWkMtImpl</code>	\Rightarrow

Short Material Implication	<code>\SMtImpl</code>	\Rightarrow
Material Implication	<code>\MtImpl</code>	\Rightarrow
Long Material Implication	<code>\LMtImpl</code>	\Rightarrow
Extra Long Material Implication	<code>\XMtImpl</code>	\Rightarrow
Very Long Material Implication	<code>\VMtImpl</code>	\Rightarrow

Short Intuitionistic Implication	<code>\SInImpl</code>	\multimap
Intuitionistic Implication	<code>\InImpl</code>	\multimap
Long Intuitionistic Implication	<code>\LInImpl</code>	\multimap
Extra Long Intuitionistic Implication	<code>\XInImpl</code>	\multimap
Very Long Intuitionistic Implication	<code>\VInImpl</code>	\multimap

Short Weak Implication	<code>\SWkImpl</code>	\rightarrow
Weak Implication	<code>\WkImpl</code>	\rightarrow
Long Weak Implication	<code>\LWkImpl</code>	\rightarrow
Extra Long Weak Implication	<code>\XWkImpl</code>	\rightarrow
Very Long Weak Implication	<code>\VWkImpl</code>	\rightarrow

Short Implication	<code>\SImpl</code>	\rightarrow
Implication	<code>\Impl</code>	\rightarrow
Long Implication	<code>\LImpl</code>	\rightarrow
Extra Long Implication	<code>\XImpl</code>	\rightarrow
Very Long Implication	<code>\VImpl</code>	\rightarrow

Short Not Weak Material Implication	$\backslash\text{NotSWkMtImpl}$	\nrightarrow
Not Weak Material Implication	$\backslash\text{NotWkMtImpl}$	\nrightarrow
Long Not Weak Material Implication	$\backslash\text{NotLWkMtImpl}$	\nrightarrow
Extra Long Not Weak Material Implication	$\backslash\text{NotXWkMtImpl}$	\nrightarrow
Very Long Not Weak Material Implication	$\backslash\text{NotVWkMtImpl}$	\nrightarrow

Short Not Material Implication	$\backslash\text{NotSMtImpl}$	\nrightarrow
Not Material Implication	$\backslash\text{NotMtImpl}$	\nrightarrow
Long Not Material Implication	$\backslash\text{NotLMtImpl}$	\nrightarrow
Extra Long Not Material Implication	$\backslash\text{NotXMtImpl}$	\nrightarrow
Very Long Not Material Implication	$\backslash\text{NotVMtImpl}$	\nrightarrow

Short Not Intuitionistic Implication	$\backslash\text{NotSInImpl}$	\nrightarrow
Not Intuitionistic Implication	$\backslash\text{NotInImpl}$	\nrightarrow
Long Not Intuitionistic Implication	$\backslash\text{NotLInImpl}$	\nrightarrow
Extra Long Not Intuitionistic Implication	$\backslash\text{NotXInImpl}$	\nrightarrow
Very Long Not Intuitionistic Implication	$\backslash\text{NotVInImpl}$	\nrightarrow

Short Not Weak Implication	$\backslash\text{NotSWkImpl}$	\nrightarrow
Not Weak Implication	$\backslash\text{NotWkImpl}$	\nrightarrow
Long Not Weak Implication	$\backslash\text{NotLWkImpl}$	\nrightarrow
Extra Long Not Weak Implication	$\backslash\text{NotXWkImpl}$	\nrightarrow
Very Long Not Weak Implication	$\backslash\text{NotVWkImpl}$	\nrightarrow

Short Not Implication	$\backslash\text{NotSImpl}$	\nrightarrow
Not Implication	$\backslash\text{NotImpl}$	\nrightarrow
Long Not Implication	$\backslash\text{NotLImpl}$	\nrightarrow
Extra Long Not Implication	$\backslash\text{NotXImpl}$	\nrightarrow
Very Long Not Implication	$\backslash\text{NotVImpl}$	\nrightarrow

Short Weak Entailment	$\backslash\text{SWkEntail}$	\rightarrow
Weak Entailment	$\backslash\text{WkEntail}$	\rightarrow
Long Weak Entailment	$\backslash\text{LWkEntail}$	\rightarrow
Extra Long Weak Entailment	$\backslash\text{XWkEntail}$	\rightarrow
Very Long Weak Entailment	$\backslash\text{VWkEntail}$	\rightarrow

Short Entailment	$\backslash\text{SEntail}$	\rightarrow
Entailment	$\backslash\text{Entail}$	\rightarrow
Long Entailment	$\backslash\text{LEntail}$	\rightarrow
Extra Long Entailment	$\backslash\text{XEntail}$	\rightarrow
Very Long Entailment	$\backslash\text{VEntail}$	\rightarrow

Short Weak Material Equivalence	$\backslash\text{SWkMtEquiv}$	\Leftrightarrow
Weak Material Equivalence	$\backslash\text{WkMtEquiv}$	\Leftrightarrow
Long Weak Material Equivalence	$\backslash\text{LWkMtEquiv}$	\Leftrightarrow
Extra Long Weak Material Equivalence	$\backslash\text{XWkMtEquiv}$	\Leftrightarrow
Very Long Weak Material Equivalence	$\backslash\text{VWkMtEquiv}$	\Leftrightarrow

Short Material Equivalence	$\backslash\text{SMtEquiv}$	\Leftrightarrow
Material Equivalence	$\backslash\text{MtEquiv}$	\Leftrightarrow
Long Material Equivalence	$\backslash\text{LMtEquiv}$	\Leftrightarrow
Extra Long Material Equivalence	$\backslash\text{XMtEquiv}$	\Leftrightarrow
Very Long Material Equivalence	$\backslash\text{VMtEquiv}$	\Leftrightarrow

Short Intuitionistic Equivalence	$\backslash\text{SInEquiv}$	\Leftrightarrow
Intuitionistic Equivalence	$\backslash\text{InEquiv}$	\Leftrightarrow
Long Intuitionistic Equivalence	$\backslash\text{LInEquiv}$	\Leftrightarrow
Extra Long Intuitionistic Equivalence	$\backslash\text{XInEquiv}$	\Leftrightarrow
Very Long Intuitionistic Equivalence	$\backslash\text{VInEquiv}$	\Leftrightarrow

Short Weak Implication Equivalence	$\backslash\text{SWkEquiv}$	\Leftrightarrow
Weak Implication Equivalence	$\backslash\text{WkEquiv}$	\Leftrightarrow
Long Weak Implication Equivalence	$\backslash\text{LWkEquiv}$	\Leftrightarrow
Extra Long Weak Implication Equivalence	$\backslash\text{XWkEquiv}$	\Leftrightarrow
Very Long Weak Implication Equivalence	$\backslash\text{VWkEquiv}$	\Leftrightarrow

Short Not Weak Entailment	$\backslash\text{NotSWkEntail}$	\nrightarrow
Not Weak Entailment	$\backslash\text{NotWkEntail}$	\nrightarrow
Long Not Weak Entailment	$\backslash\text{NotLWkEntail}$	\nrightarrow
Extra Long Not Weak Entailment	$\backslash\text{NotXWkEntail}$	\nrightarrow
Very Long Not Weak Entailment	$\backslash\text{NotVWkEntail}$	\nrightarrow

Short Not Entailment	$\backslash\text{NotSEntail}$	\nrightarrow
Not Entailment	$\backslash\text{NotEntail}$	\nrightarrow
Long Not Entailment	$\backslash\text{NotLEntail}$	\nrightarrow
Extra Long Not Entailment	$\backslash\text{NotXEntail}$	\nrightarrow
Very Long Not Entailment	$\backslash\text{NotVEntail}$	\nrightarrow

Short Not Weak Material Equivalence	$\backslash\text{NotSWkMtEqv}$	\nleftrightarrow
Not Weak Material Equivalence	$\backslash\text{NotWkMtEqv}$	\nleftrightarrow
Long Not Weak Material Equivalence	$\backslash\text{NotLWkMtEqv}$	\nleftrightarrow
Extra Long Not Weak Material Equivalence	$\backslash\text{NotXWkMtEqv}$	\nleftrightarrow
Very Long Not Weak Material Equivalence	$\backslash\text{NotVWkMtEqv}$	\nleftrightarrow

Short Not Material Equivalence	$\backslash\text{NotSMtEqv}$	\nleftrightarrow
Not Material Equivalence	$\backslash\text{NotMtEqv}$	\nleftrightarrow
Long Not Material Equivalence	$\backslash\text{NotLMtEqv}$	\nleftrightarrow
Extra Long Not Material Equivalence	$\backslash\text{NotXMtEqv}$	\nleftrightarrow
Very Long Not Material Equivalence	$\backslash\text{NotVMtEqv}$	\nleftrightarrow

Short Not Intuitionistic Equivalence	$\backslash\text{NotSInEqv}$	ε/\exists
Not Intuitionistic Equivalence	$\backslash\text{NotInEqv}$	ε/\exists
Long Not Intuitionistic Equivalence	$\backslash\text{NotLInEqv}$	ε/\exists
Extra Long Not Intuitionistic Equivalence	$\backslash\text{NotXInEqv}$	ε/\exists
Very Long Not Intuitionistic Equivalence	$\backslash\text{NotVInEqv}$	ε/\exists

Short Not Weak Implication Equivalence	$\backslash\text{NotSWkEqv}$	\nrightarrow
Not Weak Implication Equivalence	$\backslash\text{NotWkEqv}$	\nrightarrow
Long Not Weak Implication Equivalence	$\backslash\text{NotLWkEqv}$	\nrightarrow
Extra Long Not Weak Implication Equivalence	$\backslash\text{NotXWkEqv}$	\nrightarrow
Very Long Not Weak Implication Equivalence	$\backslash\text{NotVWkEqv}$	\nrightarrow

Short Implication Equivalence	$\backslash\text{SEquiv}$	\leftrightarrow
Implication Equivalence	$\backslash\text{Equiv}$	\leftrightarrow
Long Implication Equivalence	$\backslash\text{LEquiv}$	\leftrightarrow
Extra Long Implication Equivalence	$\backslash\text{XEquiv}$	\leftrightarrow
Very Long Implication Equivalence	$\backslash\text{VEquiv}$	\leftrightarrow

Short Weak Entailment Equivalence	$\backslash\text{SWkEntailEquiv}$	\leftrightarrow
Weak Entailment Equivalence	$\backslash\text{WkEntailEquiv}$	\leftrightarrow
Long Weak Entailment Equivalence	$\backslash\text{LWkEntailEquiv}$	\leftrightarrow
Extra Long Weak Entailment Equivalence	$\backslash\text{XWkEntailEquiv}$	\leftrightarrow
Very Long Weak Entailment Equivalence	$\backslash\text{VWkEntailEquiv}$	\leftrightarrow

Short Entailment Equivalence	$\backslash\text{SEntailEquiv}$	\leftrightarrow
Entailment Equivalence	$\backslash\text{EntailEquiv}$	\leftrightarrow
Long Entailment Equivalence	$\backslash\text{LEntailEquiv}$	\leftrightarrow
Extra Long Entailment Equivalence	$\backslash\text{XEntailEquiv}$	\leftrightarrow
Very Long Entailment Equivalence	$\backslash\text{VEntailEquiv}$	\leftrightarrow

Short Not Implication Equivalence	$\backslash\text{NotSEquiv}$	\nleftrightarrow
Not Implication Equivalence	$\backslash\text{NotEquiv}$	\nleftrightarrow
Long Not Implication Equivalence	$\backslash\text{NotLEquiv}$	\nleftrightarrow
Extra Long Not Implication Equivalence	$\backslash\text{NotXEquiv}$	\nleftrightarrow
Very Long Not Implication Equivalence	$\backslash\text{NotVEquiv}$	\nleftrightarrow

Short Not Weak Entailment Equivalence	$\backslash\text{NotSWkEntailEquiv}$	\nleftrightarrow
Not Weak Entailment Equivalence	$\backslash\text{NotWkEntailEquiv}$	\nleftrightarrow
Long Not Weak Entailment Equivalence	$\backslash\text{NotLWkEntailEquiv}$	\nleftrightarrow
Extra Long Not Weak Entailment Equivalence	$\backslash\text{NotXWkEntailEquiv}$	\nleftrightarrow
Very Long Not Weak Entailment Equivalence	$\backslash\text{NotVWkEntailEquiv}$	\nleftrightarrow

Short Not Entailment Equivalence	$\backslash\text{NotSEntailEquiv}$	\nleftrightarrow
Not Entailment Equivalence	$\backslash\text{NotEntailEquiv}$	\nleftrightarrow
Long Not Entailment Equivalence	$\backslash\text{NotLEntailEquiv}$	\nleftrightarrow
Extra Long Not Entailment Equivalence	$\backslash\text{NotXEntailEquiv}$	\nleftrightarrow
Very Long Not Entailment Equivalence	$\backslash\text{NotVEntailEquiv}$	\nleftrightarrow

Sequent	<code>\Seq</code>	Υ
Assertion (Rule)	<code>\Rule</code>	\vdash
Triple Turnstile	<code>\TrpTurn</code>	\equiv
Model	<code>\Model</code>	\models
Turnstile	<code>\Turn</code>	\vDash
Consequence Relation	<code>\Conseq</code>	\vDash
Double Bar Triple Turnstile	<code>\DTrpTurn</code>	\equiv
Wavy Turnstile	<code>\TurnWavy</code>	\curvearrowright
Double Wavy Turnstile	<code>\TurnDWavy</code>	\curvearrowright
Wavy Double Bar Turnstile	<code>\DTurnWavy</code>	\curvearrowright
Double Wavy Double Bar Turnstile	<code>\DTurnDWavy</code>	\curvearrowright

Sequent Denied	<code>\NotSeq</code>	\nVdash
Assertion (Rule) Denied	<code>\NotRule</code>	\nvdash
Triple Turnstile Denied	<code>\NotTrpTurn</code>	\nequiv
Model Denied	<code>\NotModel</code>	\nmodels
Turnstile Denied	<code>\NotTurn</code>	$\n\vDash$
Consequence Relation Denied	<code>\NotConseq</code>	$\n\vDash$
Double Bar Triple Turnstile Denied	<code>\NotDTrpTurn</code>	\nequiv
Wavy Turnstile Denied	<code>\NotTurnWavy</code>	\ncurvearrowright
Double Wavy Turnstile Denied	<code>\NotTurnDWavy</code>	\ncurvearrowright
Wavy Double Bar Turnstile Denied	<code>\NotDTurnWavy</code>	\ncurvearrowright
Double Wavy Double Bar Turnstile Denied	<code>\NotDTurnDWavy</code>	\ncurvearrowright

Right Dash Arrow	<code>\DashArrowRight</code>	\dashrightarrow
Left Dash Arrow	<code>\DashArrowLeft</code>	\dashleftarrow

Right Hook Arrow	<code>\HookArrowRight</code>	\hookrightarrow
Left Hook Arrow	<code>\HookArrowLeft</code>	\hookleftarrow

Right Harpoon Up Arrow	<code>\HarpoonUpRight</code>	\harpoonright
Left Harpoon Up Arrow	<code>\HarpoonUpLeft</code>	\harpoonleft

Right Harpoon Down Arrow	<code>\HarpoonDnRight</code>	\harpoonright
Left Harpoon Down Arrow	<code>\HarpoonDnLeft</code>	\harpoonleft

Right Flat Arrow	<code>\FlatArrowRight</code>	\flatrightarrow
Left Flat Arrow	<code>\FlatArrowLeft</code>	\flatleftarrow

Right Fork Arrow	<code>\ForkArrowRight</code>	\Rightarrow
Left Fork Arrow	<code>\ForkArrowLeft</code>	\Leftarrow

Right Zig Zag Arrow	<code>\ZigArrowRight</code>	\rightsquigarrow
Left Zig Zag Arrow	<code>\ZigArrowLeft</code>	\leftleftarrows

Right Wavy Arrow	<code>\WavyArrowRight</code>	\rightsquigarrow
Left Wavy Arrow	<code>\WavyArrowLeft</code>	\leftleftarrows

Right Loop Arrow	<code>\LoopArrowRight</code>	\looparrowright
Left Loop Arrow	<code>\LoopArrowLeft</code>	\looparrowleft

Right Fish Arrow	<code>\FishArrowRight</code>	\fishrightarrow
Left Fish Arrow	<code>\FishArrowLeft</code>	\fishleftarrow

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
Bitwise NAND operator	<code>\Nand</code>	$\bar{\wedge}$
Bitwise NOR operator	<code>\Nor</code>	$\bar{\vee}$
Bitwise XOR operator	<code>\Xor</code>	$\underline{\vee}$
Inverted Negation	<code>\InvNt</code>	\lrcorner
Classical Logical Negation	<code>\Ngt</code>	\sim
Logical NAND	<code>\Lnand</code>	\uparrow
Logical NOR	<code>\Lnor</code>	\downarrow
Logical XOR	<code>\Mnd</code>	\oplus
Sheffer's Stroke (Logical NAND)	<code>\Shfr</code>	$ $

Circled Bitwise AND operator / Logical Conjunction	<code>\CircNd</code>	$\textcircled{\wedge}$
Circled Bitwise OR operator / Logical Disjunction	<code>\CircOr</code>	$\textcircled{\vee}$
Circled Bitwise NOT operator / Logical Negation	<code>\CircNt</code>	$\textcircled{\neg}$
Circled Bitwise NAND operator	<code>\CircNand</code>	$\textcircled{\bar{\wedge}}$
Circled Bitwise NOR operator	<code>\CircNor</code>	$\textcircled{\bar{\vee}}$
Circled Bitwise XOR operator	<code>\CircXor</code>	$\textcircled{\underline{\vee}}$
Circled Inverted Negation	<code>\CircInvNt</code>	$\textcircled{\lrcorner}$
Circled Classical Logical Negation	<code>\CircNgt</code>	$\textcircled{\sim}$

Dotted Conjunction	<code>\Dnd</code>	$\dot{\wedge}$
Dotted Disjunction	<code>\Dor</code>	$\dot{\vee}$
Dotted Negation	<code>\Dnt</code>	$\dot{\neg}$
Dotted Asterisk	<code>\DAsterisk</code>	$\dot{*}$
Dotted Times	<code>\DTimes</code>	$\dot{\times}$
Dotted Plus	<code>\DPlus</code>	$\dot{+}$
Dotted Minus	<code>\DMinus</code>	$\dot{-}$

Slanted Bar And	<code>\SbNd</code>	\wedge
Slanted Bar Or	<code>\SbOr</code>	\vee
Slanted Bar Nand	<code>\SbNand</code>	$\overline{\wedge}$
Slanted Bar Nor	<code>\SbNor</code>	$\overline{\vee}$
Slanted Bar Xor	<code>\SbXor</code>	$\underline{\vee}$

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

Logical Bistability	<code>\LcgBistab</code>	\mathfrak{I}
Bunch Bistability	<code>\BncBistab</code>	\mathfrak{I}

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>	$\exists!$
Existential Individual Quantifier Negation	<code>\NtExists</code>	\nexists
Hidden Existential Individual Quantifier	<code>\HdnExists</code>	$\tilde{\exists}$
Hidden Universal Individual Quantifier	<code>\HdnForAll</code>	$\tilde{\forall}$
Universal Bunch Quantifier	<code>\BnchForAll</code>	\forall
Existential Bunch Quantifier	<code>\BnchExists</code>	\exists
Unique Existential Bunch Quantifier	<code>\BnchUnique</code>	$\exists!$
Existential Bunch Quantifier Negation	<code>\BnchNtExists</code>	\nexists
Hidden Existential Bunch Quantifier	<code>\BnchHdnExists</code>	$\tilde{\exists}$
Hidden Universal Bunch Quantifier	<code>\BnchHdnForAll</code>	$\tilde{\forall}$
Map Abstraction	<code>\BndMap</code>	λ

True	\True	T
False	\False	F
Not True	\NTrue	⊥
Not False	\NFalse	⊓
Lattice top	\Top	⊤
Neither true nor false	\TFNone	⊥
Both true and false	\TFBoth	⊥
Lattice bottom	\Bot	⊥

Zero width space	\NoSpace	
Dot	\Dt	.
Comma	\Coma	,
Semicolon	\Semicln	;
Colon	\Cln	:
Thus	\Thus	::
Since	\Since	::
Vertical Dots (vertical ellipsis)	\VDots	⋮
Centered Horizontal Dots (horizontal ellipsis)	\CDots	⋯
Baseline Horizontal Dots (horizontal ellipsis)	\LDots	⋯
Binding Dot	\BndDot	·
Binding Bar	\BndBar	
Long Vertical Bar	\LngVrtBar	
Question mark	\Queston	?
Exclamation point	\Exclaim	!
Percent sign	\Percnt	%
Ampersand	\Ampersand	&
Dollar sign	\Dollar	\$
At sign	\At	@
ASCII Circumflex	\Circumflex	^
Number sign	\Numbr	#
Underscore	\Underscore	_
Tilde	\Tild	~
Left (back) slash	\LeftSlash	\
Right (forward) slash	\RightSlash	/
Copyright	\Cpyrght	©

Single dagger	<code>\Dagger</code>	†
Double horizontal dagger	<code>\Ddagger</code>	††
Double vertical dagger	<code>\Daggerr</code>	‡
Double horizontal and vertical dagger	<code>\Ddaggerr</code>	‡†

Single quote	<code>\SingleQuote</code>	'
Double quote	<code>\DoubleQuote</code>	"
Triple quote	<code>\TripleQuote</code>	'''
Back quote (grave)	<code>\BackQuote</code>	`

Shift for superscripts	<code>\ShftSuper</code>	↑
Shift for subscripts	<code>\ShftSubscr</code>	↓
Shift for accents	<code>\ShftAccent</code>	↕

Replace All Bound Variables (left / right)	<code>\RplcAllBnd</code>	↔
Replace All Bound Variables (right)	<code>\RplcAllBndRight</code>	→
Replace All Bound Variables (left)	<code>\RplcAllBndLeft</code>	←

Replace All (left / right)	<code>\RplcAll</code>	↔
Replace All (right)	<code>\RplcAllRight</code>	→
Replace All (left)	<code>\RplcAllLeft</code>	←

Replace Any Free Variables (left / right)	<code>\RplcFree</code>	↔
Replace Any Free Variables (right)	<code>\RplcFreeRight</code>	→
Replace Any Free Variables (left)	<code>\RplcFreeLeft</code>	←

Replace Any (left / right)	<code>\RplcAny</code>	↔
Replace Any (right)	<code>\RplcAnyRight</code>	→
Replace Any (left)	<code>\RplcAnyLeft</code>	←

Replace Equivalent Expressions (left / right)	<code>\RplcEquv</code>	↔
Replace Equivalent Expressions (right)	<code>\RplcEquvRight</code>	→
Replace Equivalent Expressions (left)	<code>\RplcEquvLeft</code>	←

Least Fixed Point	<code>\LstFix</code>	μ
Greatest Fixed Point	<code>\GrtFix</code>	ν
Choice	<code>\Choice</code>	τ
Choices	<code>\Choices</code>	\mathcal{T}
Extended Least Fixed Point	<code>\ExLstFix</code>	$\vec{\mu}$
Extended Greatest Fixed Point	<code>\ExGrtFix</code>	$\vec{\nu}$
First Ordinal (omega)	<code>\FrstOrd</code>	ω
Infinity	<code>\Infin</code>	∞

Bunch Inclusion	<code>\Of</code>	:
Set Membership	<code>\In</code>	\in
Set Membership Negated	<code>\NotIn</code>	\notin
Set Owns Element	<code>\Owns</code>	\ni
Set Owns Element Negated	<code>\NotOwns</code>	$\not\ni$

Absent / Void Bunch	<code>\VoidBunch</code>	\emptyset
Empty / Null Set	<code>\NullSet</code>	\emptyset

Necessity	<code>\Nec</code>	■
Possibility	<code>\Pos</code>	◆
Next	<code>\Next</code>	●
Future	<code>\Futr</code>	▶
Past	<code>\Past</code>	◀
Contingency	<code>\Cont</code>	▼
Non-contingency	<code>\NonCont</code>	▲

Factual Necessity	<code>\FacNec</code>	□
Factual Possibility	<code>\FacPos</code>	◇
Factual Next	<code>\FacNext</code>	○
Factual Future	<code>\FacFutr</code>	▷
Factual Past	<code>\FacPast</code>	◁
Factual Contingency	<code>\FacCont</code>	▽
Factual Non-contingency	<code>\FacNonCont</code>	△

Deontic Necessity	\DeoNec	◻
Deontic Possibility	\DeoPos	◊
Deontic Next	\DeoNext	○
Deontic Future	\DeoFutr	▷
Deontic Past	\DeoPast	◁
Deontic Contingency	\DeoCont	▽
Deontic Non-contingency	\DeoNonCont	△

Logical Necessity	\LogNec	◻
Logical Possibility	\LogPos	◊
Logical Next	\LogNext	⊙
Logical Future	\LogFutr	▷
Logical Past	\LogPast	◁
Logical Contingency	\LogCont	▽
Logical Non-contingency	\LogNonCont	△

Doxastic Necessity	\DoxNec	◻
Doxastic Possibility	\DoxPos	◊
Doxastic Next	\DoxNext	⊙
Doxastic Future	\DoxFutr	▷
Doxastic Past	\DoxPast	◁
Doxastic Contingency	\DoxCont	▽
Doxastic Non-contingency	\DoxNonCont	△

Temporal Necessity	\TmpNec	◻
Temporal Possibility	\TmpPos	◊
Temporal Next	\TmpNext	⊖
Temporal Future	\TmpFutr	▷
Temporal Past	\TmpPast	◁
Temporal Contingency	\TmpCont	▽
Temporal Non-contingency	\TmpNonCont	△

Bunch Meet	\BnchMeet	⊔
Bunch Join	\BnchJoin	⊓

Strict Subbunch	<code>\StrctSbnch</code>	\sqsubset
Strict Subbunch Negated	<code>\NotStrctSbnch</code>	$\not\sqsubset$
Subbunch	<code>\Sbnch</code>	\sqsubseteq
Subbunch Negated	<code>\NotSbnch</code>	$\not\sqsubseteq$

Strict Weak Subbunch	<code>\StrctWkSbnch</code>	\sqsubset
Strict Weak Subbunch Negated	<code>\NotStrctWkSbnch</code>	$\not\sqsubset$
Weak Subbunch	<code>\WkSbnch</code>	\sqsubseteq
Weak Subbunch Negated	<code>\NotWkSbnch</code>	$\not\sqsubseteq$

Map Meet	<code>\MapMeet</code>	\sqcap
Map Join	<code>\MapJoin</code>	\sqcup

Vee Meet	<code>\VeeMeet</code>	\top
Vee Join	<code>\VeeJoin</code>	\perp

Strict Submap	<code>\StrctSbmap</code>	\sqsubset
Strict Submap Negated	<code>\NotStrctSbmap</code>	$\not\sqsubset$
Submap	<code>\Sbmap</code>	\sqsubseteq
Submap Negated	<code>\NotSbmap</code>	$\not\sqsubseteq$

Set Intersection	<code>\SetMeet</code>	\cap
Set Union	<code>\SetJoin</code>	\cup
Normal Subgroup	<code>\Normal</code>	\triangleleft
Set Symmetric Difference	<code>\SetSymDiff</code>	\triangle

Strict Subset	<code>\StrctSbset</code>	\sqsubset
Strict Subset Negated	<code>\NotStrctSbset</code>	$\not\sqsubset$
Subset	<code>\Sbset</code>	\sqsubseteq
Subset Negated	<code>\NotSbset</code>	$\not\sqsubseteq$
Cover	<code>\Cover</code>	\prec

Strict Finite Subset	<code>\StrctFntSbset</code>	\sqsubseteq
Strict Finte Subset Negated	<code>\NotStrctFntSbset</code>	$\not\sqsubseteq$
Finte Subset	<code>\FntSbset</code>	\sqsubseteq
Finte Subset Negated	<code>\NotFntSbset</code>	$\not\sqsubseteq$

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

Multimap	<code>\MulMap</code>	\multimap
Not Multimap	<code>\NotMulMap</code>	$\not\multimap$
Inverted Multimap	<code>\MulMapInv</code>	\multimap
Not Inverted Multimap	<code>\NotMulMapInv</code>	$\not\multimap$
Dual Multimap	<code>\MulMapDual</code>	\multimap
Not Dual Multimap	<code>\NotMulMapDual</code>	$\not\multimap$

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

Not Less Than	<code>\NotLs</code>	$\not<$
Not Less Than or Equal	<code>\NotLse</code>	$\not\leq$
Not Equal	<code>\NotEq</code>	\neq
Not Similar	<code>\NotSm</code>	$\not\approx$
Not Greater Than or Equal	<code>\NotGre</code>	$\not\geq$
Not Greater Than	<code>\NotGr</code>	$\not>$

Circled Less Than	<code>\CircLs</code>	\lessgtr
Circled Less Than or Equal	<code>\CircLse</code>	\lessgtr
Circled Equal	<code>\CircEq</code>	\equiv
Circled Similar	<code>\CircSm</code>	\approx
Circled Greater Than or Equal	<code>\CircGre</code>	\gtrless
Circled Greater Than	<code>\CircGr</code>	\gtrless

Small Circled Plus	<code>\SmCircPlus</code>	\oplus
Small Circled Times	<code>\SmCircTimes</code>	\otimes
Small Circled Star	<code>\SmCircStar</code>	\otimes

Large Circled Plus	<code>\LgCircPlus</code>	\oplus
Large Circled Times	<code>\LgCircTimes</code>	\otimes
Large Circled Star	<code>\LgCircStar</code>	\otimes

Frown	<code>\SCoh</code>	\frown
Smile	<code>\SInCoh</code>	\smile
Smile (bottom) and Frown (top)	<code>\Coh</code>	\oslash
Frown (bottom) and Smile (top)	<code>\InCoh</code>	\smile

Additive AND	<code>\AAnd</code>	$\&$
Multiplicative AND	<code>\Mnd</code>	\oplus
Additive OR	<code>\Aor</code>	\otimes
Multiplicative OR	<code>\Mor</code>	\otimes
Of Course	<code>\OfCrse</code>	$?$
Why Not	<code>\WhyNot</code>	$!$
Perp	<code>\Perp</code>	\perp
Sim Perp	<code>\SimPerp</code>	\perp

Quantified Additive And	<code>\QuantAAnd</code>	$\&$
Quantified Multiplicative Or	<code>\QuantMor</code>	\otimes

Slanted Bar Less Than	<code>\SbLs</code>	$<$
Slanted Bar Less Than or Equal	<code>\SbLse</code>	\leq
Slanted Bar Greater Than	<code>\SbGr</code>	$>$
Slanted Bar Greater Than or Equal	<code>\SbGre</code>	\geq

Slanted Bar Not Less Than	<code>\NotSbLs</code>	\nless
Slanted Bar Not Less Than or Equal	<code>\NotSbLse</code>	\nless
Slanted Bar Not Greater Than	<code>\NotSbGr</code>	\ngt
Slanted Bar Not Greater Than or Equal	<code>\NotSbGre</code>	\ngt






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>\Pls</code>	$+$
Plus / Minus	<code>\PlusMinus</code>	\pm
Minus / Plus	<code>\MinusPlus</code>	\mp
Asterick	<code>\Asterick</code>	$*$
Divide	<code>\Divide</code>	$/$
Divide	<code>\Divd</code>	\div
Times	<code>\Times</code>	\times






Circled Minus	<code>\CircMinus</code>	\ominus
Circled Plus	<code>\CircPls</code>	\oplus
Circled Plus / Minus	<code>\CircPlusMinus</code>	\otimes
Circled Minus / Plus	<code>\CircMinusPlus</code>	\oslash
Circled Asterick	<code>\CircAsterick</code>	\otimes
Circled Divide	<code>\CircDivide</code>	\oslash
Circled Divide	<code>\CircDivd</code>	\oslash
Circled Times	<code>\CircTimes</code>	\otimes






Append	<code>\Append</code>	\curlywedge
Concatenation	<code>\Concat</code>	\parallel
Concatenation	<code>\Catenate</code>	$\#$
Alternate	<code>\Alt</code>	\perp



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

















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

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

















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



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

















Horizontal bars with vertical dashes	\KntHDASH	
Vertical bars with horizontal dashes	\KntVDASH	

















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	\KntVVMSLSR	
Horz flow, Horizontal smoothing; dashed top, solid bottom	\KntHHMDTSB	
Vert flow, Vertical smoothing; solid left, dashed right	\KntVVMSLDR	
Horz flow, Horizontal smoothing; solid top, dashed bottom	\KntHHMSTDB	
Vert flow, Vertical smoothing; dashed left, solid right	\KntVVMDLSR	
Horz flow, Horizontal smoothing; dashed top, dashed bottom	\KntHHMDTDB	
Vert flow, Vertical smoothing; dashed left, dashed right	\KntVVMDLDR	
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	\KntTSQNBQDN	— ⋯
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	\KntTDQNBQDN	⋯ ⋯
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	\KntRDUU	
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	\KntTSLABRSRA	
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	\KntTSRABS N	
Left solid line, right solid down arrow	\KntLSNRSDA	
Top solid line, bottom solid right arrow	\KntTSNBSRA	
Left solid down arrow, right solid line	\KntLSDARS N	
Top solid left arrow, bottom solid line	\KntTSLABS N	
Left solid line, right solid up arrow	\KntLSNR SUA	
Top dashed line, bottom solid left arrow	\KntTDNBSLA	
Left solid up arrow, right dashed line	\KntLSUARD N	
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	\KntLDNR SUA	
Top dashed line, bottom solid right arrow	\KntTDNBSRA	
Left solid down arrow, right dashed line	\KntLSDARD N	

















Top solid line, bottom dashed left arrow	\KntTSNBDA	
Left dashed up arrow, right solid line	\KntLDUARSN	
Top dashed right arrow, bottom solid line	\KntTDRABS	
Left solid line, right dashed down arrow	\KntLSNRDDA	
Top dashed left arrow, bottom solid line	\KntTDLABS	
Left solid line, right dashed up arrow	\KntLSNRDUA	
Top solid line, bottom dashed right arrow	\KntTSNBDA	
Left dashed down arrow, right solid line	\KntLDDARS	
Top dashed line, bottom dashed left arrow	\KntTDNBDA	
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	\KntTDNBDA	
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	<code>\BlackSquare</code>	■
Black square round corners	<code>\BlackSquareRoundCorners</code>	◼
Black diamond	<code>\BlackDiamond</code>	◆
Black circle	<code>\BlackCircle</code>	●
Black right triangle	<code>\BlackRightTriangle</code>	▶
Black left triangle	<code>\BlackLeftTriangle</code>	◀
Black down triangle	<code>\BlackDownTriangle</code>	▼
Black up triangle	<code>\BlackUpTriangle</code>	▲
Black small circle	<code>\BlackSmallCircle</code>	●
Black very small circle	<code>\BlackVerySmallCircle</code>	•
Black lozenge	<code>\BlackLozenge</code>	◈
Black curved diamond	<code>\BlackCurvedDiamond</code>	◊
Black very small square	<code>\BlackVerySmallSquare</code>	▪
Black left arrow head	<code>\BlackLeftArrowHead</code>	◀
Black right arrow head	<code>\BlackRightArrowHead</code>	▶
Black right curved arrow head	<code>\BlackRightCurvedArrowHead</code>	➤

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

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

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

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	<code>\CrossedSquare</code>	☒
Crossed square round corners	<code>\CrossedSquareRoundCorners</code>	⊠
Crossed diamond	<code>\CrossedDiamond</code>	⊞
Crossed circle	<code>\CrossedCircle</code>	⊗
Crossed right triangle	<code>\CrossedRightTriangle</code>	▷
Crossed left triangle	<code>\CrossedLeftTriangle</code>	◁
Crossed down triangle	<code>\CrossedDownTriangle</code>	▼
Crossed up triangle	<code>\CrossedUpTriangle</code>	▲
Crossed small circle	<code>\CrossedSmallCircle</code>	⊗
Crossed very small circle	<code>\CrossedVerySmallCircle</code>	⊗
Crossed lozenge	<code>\CrossedLozenge</code>	⊞
Crossed curved diamond	<code>\CrossedCurvedDiamond</code>	⊞
Crossed very small square	<code>\CrossedVerySmallSquare</code>	⊞

LBlack Square	<code>\LBlackSquare</code>	■
LBlack Square Round Corners	<code>\LBlackSquareRoundCorners</code>	■
LBlack Diamond	<code>\LBlackDiamond</code>	◆
LBlack Circle	<code>\LBlackCircle</code>	●
LBlack Right Triangle	<code>\LBlackRightTriangle</code>	▶
LBlack Left Triangle	<code>\LBlackLeftTriangle</code>	◀
LBlack Down Triangle	<code>\LBlackDownTriangle</code>	▼
LBlack Up Triangle	<code>\LBlackUpTriangle</code>	▲
LBlack Small Circle	<code>\LBlackSmallCircle</code>	●
LBlack Very Small Circle	<code>\LBlackVerySmallCircle</code>	●
LBlack Lozenge	<code>\LBlackLozenge</code>	◆
LBlack Curved Diamond	<code>\LBlackCurvedDiamond</code>	◆
LBlack Very Small Square	<code>\LBlackVerySmallSquare</code>	■
LBlack Left Arrow Head	<code>\LBlackLeftArrowHead</code>	◀
LBlack Right Arrow Head	<code>\LBlackRightArrowHead</code>	▶
LBlack Right Curved Arrow Head	<code>\LBlackRightCurvedArrowHead</code>	➤

LWhite Square	\LWhiteSquare	□
LWhite Square Round Corners	\LWhiteSquareRoundCorners	◻
LWhite Diamond	\LWhiteDiamond	◊
LWhite Circle	\LWhiteCircle	○
LWhite Right Triangle	\LWhiteRightTriangle	▷
LWhite Left Triangle	\LWhiteLeftTriangle	◁
LWhite Down Triangle	\LWhiteDownTriangle	▽
LWhite Up Triangle	\LWhiteUpTriangle	△
LWhite Small Circle	\LWhiteSmallCircle	◦
LWhite Very Small Circle	\LWhiteVerySmallCircle	◉
LWhite Lozenge	\LWhiteLozenge	◊
LWhite Curved Diamond	\LWhiteCurvedDiamond	◊
LWhite Very Small Square	\LWhiteVerySmallSquare	◻
LWhite Left Arrow Head	\LWhiteLeftArrowHead	◁
LWhite Right Arrow Head	\LWhiteRightArrowHead	▷
LWhite Right Curved Arrow Head	\LWhiteRightCurvedArrowHead	▷

0.20 em White Circle	\WhiteCircleA	◉
0.30 em White Circle	\WhiteCircleB	◉
0.40 em White Circle	\WhiteCircleC	◉
0.50 em White Circle	\WhiteCircleD	○
0.60 em White Circle	\WhiteCircleE	○
0.70 em White Circle	\WhiteCircleF	○
0.80 em White Circle	\WhiteCircleG	○
0.90 em White Circle	\WhiteCircleH	○
1.00 em White Circle	\WhiteCircleI	○

0.20 em Black Circle	\BlackCircleA	•
0.30 em Black Circle	\BlackCircleB	•
0.40 em Black Circle	\BlackCircleC	•
0.50 em Black Circle	\BlackCircleD	•
0.60 em Black Circle	\BlackCircleE	•
0.70 em Black Circle	\BlackCircleF	•
0.80 em Black Circle	\BlackCircleG	•
0.90 em Black Circle	\BlackCircleH	•
1.00 em Black Circle	\BlackCircleI	•

0.20 em White Square	\WhiteSquareA	◻
0.30 em White Square	\WhiteSquareB	◻
0.40 em White Square	\WhiteSquareC	◻
0.50 em White Square	\WhiteSquareD	◻
0.60 em White Square	\WhiteSquareE	◻
0.70 em White Square	\WhiteSquareF	◻
0.80 em White Square	\WhiteSquareG	◻
0.90 em White Square	\WhiteSquareH	◻
1.00 em White Square	\WhiteSquareI	◻

0.20 em Black Square	\BlackSquareA	▪
0.30 em Black Square	\BlackSquareB	▪
0.40 em Black Square	\BlackSquareC	▪
0.50 em Black Square	\BlackSquareD	▪
0.60 em Black Square	\BlackSquareE	▪
0.70 em Black Square	\BlackSquareF	▪
0.80 em Black Square	\BlackSquareG	▪
0.90 em Black Square	\BlackSquareH	▪
1.00 em Black Square	\BlackSquareI	▪

0.20 em White Diamond	\WhiteDiamondA	◊
0.30 em White Diamond	\WhiteDiamondB	◊
0.40 em White Diamond	\WhiteDiamondC	◊
0.50 em White Diamond	\WhiteDiamondD	◊
0.60 em White Diamond	\WhiteDiamondE	◊
0.70 em White Diamond	\WhiteDiamondF	◊
0.80 em White Diamond	\WhiteDiamondG	◊
0.90 em White Diamond	\WhiteDiamondH	◊
1.00 em White Diamond	\WhiteDiamondI	◊

0.20 em Black Diamond	\BlackDiamondA	◆
0.30 em Black Diamond	\BlackDiamondB	◆
0.40 em Black Diamond	\BlackDiamondC	◆
0.50 em Black Diamond	\BlackDiamondD	◆
0.60 em Black Diamond	\BlackDiamondE	◆
0.70 em Black Diamond	\BlackDiamondF	◆
0.80 em Black Diamond	\BlackDiamondG	◆
0.90 em Black Diamond	\BlackDiamondH	◆
1.00 em Black Diamond	\BlackDiamondI	◆

0.20 em White Right Triangle	\WhiteRightTriangleA	▷
0.30 em White Right Triangle	\WhiteRightTriangleB	▷
0.40 em White Right Triangle	\WhiteRightTriangleC	▷
0.50 em White Right Triangle	\WhiteRightTriangleD	▷
0.60 em White Right Triangle	\WhiteRightTriangleE	▷
0.70 em White Right Triangle	\WhiteRightTriangleF	▷
0.80 em White Right Triangle	\WhiteRightTriangleG	▷
0.90 em White Right Triangle	\WhiteRightTriangleH	▷
1.00 em White Right Triangle	\WhiteRightTriangleI	▷

0.20 em Black Right Triangle	\BlackRightTriangleA	▶
0.30 em Black Right Triangle	\BlackRightTriangleB	▶
0.40 em Black Right Triangle	\BlackRightTriangleC	▶
0.50 em Black Right Triangle	\BlackRightTriangleD	▶
0.60 em Black Right Triangle	\BlackRightTriangleE	▶
0.70 em Black Right Triangle	\BlackRightTriangleF	▶
0.80 em Black Right Triangle	\BlackRightTriangleG	▶
0.90 em Black Right Triangle	\BlackRightTriangleH	▶
1.00 em Black Right Triangle	\BlackRightTriangleI	▶

0.20 em White Left Triangle	\WhiteLeftTriangleA	◁
0.30 em White Left Triangle	\WhiteLeftTriangleB	◁
0.40 em White Left Triangle	\WhiteLeftTriangleC	◁
0.50 em White Left Triangle	\WhiteLeftTriangleD	◁
0.60 em White Left Triangle	\WhiteLeftTriangleE	◁
0.70 em White Left Triangle	\WhiteLeftTriangleF	◁
0.80 em White Left Triangle	\WhiteLeftTriangleG	◁
0.90 em White Left Triangle	\WhiteLeftTriangleH	◁
1.00 em White Left Triangle	\WhiteLeftTriangleI	◁




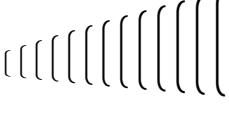
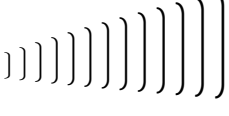
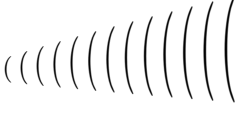

0.20 em Black Left Triangle	\BlackLeftTriangleA	◁
0.30 em Black Left Triangle	\BlackLeftTriangleB	◁
0.40 em Black Left Triangle	\BlackLeftTriangleC	◁
0.50 em Black Left Triangle	\BlackLeftTriangleD	◁
0.60 em Black Left Triangle	\BlackLeftTriangleE	◁
0.70 em Black Left Triangle	\BlackLeftTriangleF	◁
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0.90 em Black Left Triangle	\BlackLeftTriangleH	◁
1.00 em Black Left Triangle	\BlackLeftTriangleI	◁

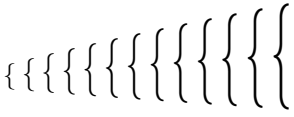
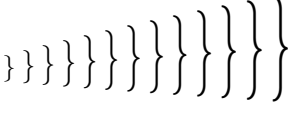
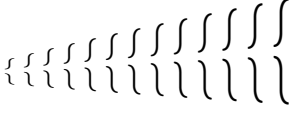
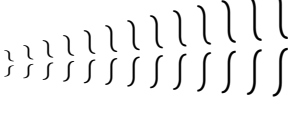
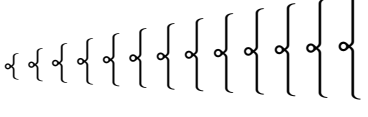
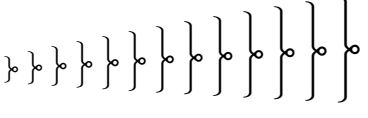
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0.40 em White Up Triangle	\WhiteUpTriangleC	△
0.50 em White Up Triangle	\WhiteUpTriangleD	△
0.60 em White Up Triangle	\WhiteUpTriangleE	△
0.70 em White Up Triangle	\WhiteUpTriangleF	△
0.80 em White Up Triangle	\WhiteUpTriangleG	△
0.90 em White Up Triangle	\WhiteUpTriangleH	△
1.00 em White Up Triangle	\WhiteUpTriangleI	△



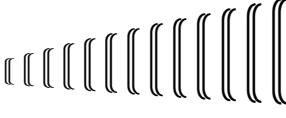
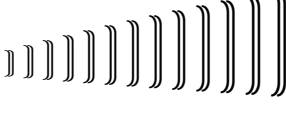
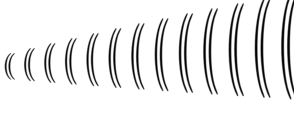
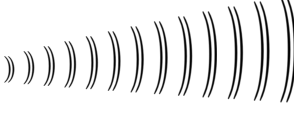
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0.40 em Black Up TriangleC	\BlackUpTriangleC	▲
0.50 em Black Up TriangleD	\BlackUpTriangleD	▲
0.60 em Black Up TriangleE	\BlackUpTriangleE	▲
0.70 em Black Up TriangleF	\BlackUpTriangleF	▲
0.80 em Black Up TriangleG	\BlackUpTriangleG	▲
0.90 em Black Up TriangleH	\BlackUpTriangleH	▲
1.00 em Black Up TriangleI	\BlackUpTriangleI	▲

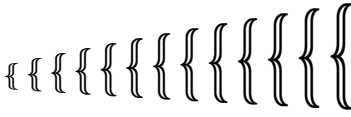
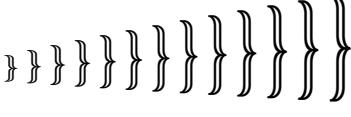
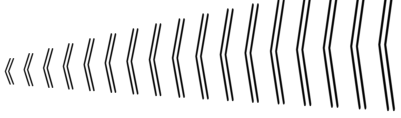
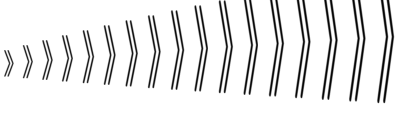
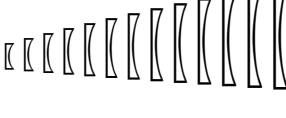
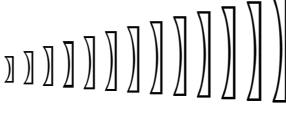
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0.40 em White Down Triangle	\WhiteDownTriangleC	▼
0.50 em White Down Triangle	\WhiteDownTriangleD	▼
0.60 em White Down Triangle	\WhiteDownTriangleE	▼
0.70 em White Down Triangle	\WhiteDownTriangleF	▼
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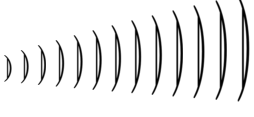
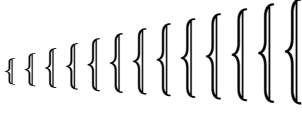
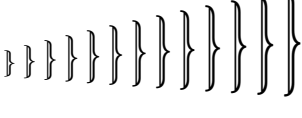
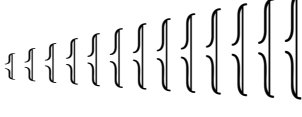
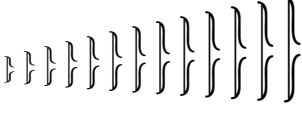
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0.50 em Black Down Triangle	\BlackDownTriangleD	▼
0.60 em Black Down Triangle	\BlackDownTriangleE	▼
0.70 em Black Down Triangle	\BlackDownTriangleF	▼
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0.90 em Black Down Triangle	\BlackDownTriangleH	▼
1.00 em Black Down Triangle	\BlackDownTriangleI	▼

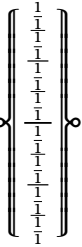
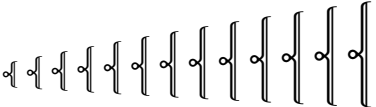
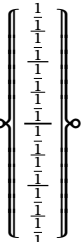
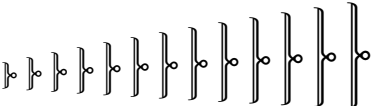
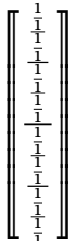
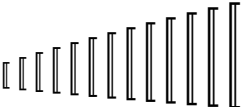
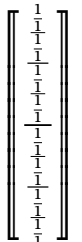

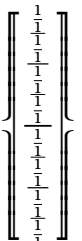
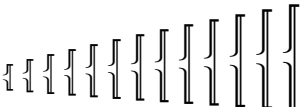
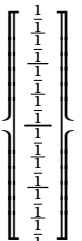

$\backslash\text{OpnBarS}, \backslash\text{OpnBar}[A-L]$	$\left \frac{1}{2+\frac{3}{4}} \right $	$\left \frac{1}{2+\frac{3}{4}} \right $	
$\backslash\text{ClsBarS}, \backslash\text{ClsBar}[A-L]$	$\left \frac{1}{2+\frac{3}{4}} \right $	$\left \frac{1}{2+\frac{3}{4}} \right $	
$\backslash\text{BndBarS},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

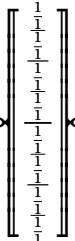
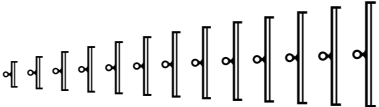
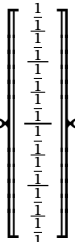
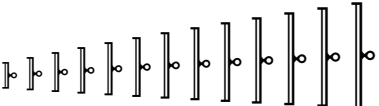
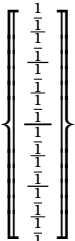
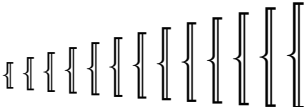
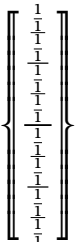
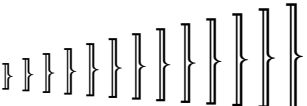
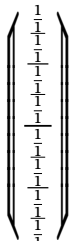

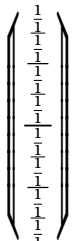

$\backslash\text{OpnBracS}, \backslash\text{OpnBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left(\begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	
$\backslash\text{ClsBracS}, \backslash\text{ClsBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left(\begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	
$\backslash\text{OpnBrknBracS}, \backslash\text{OpnBrknBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left(\begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	
$\backslash\text{ClsBrknBracS}, \backslash\text{ClsBrknBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left(\begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	
$\backslash\text{OpnCircBracS}, \backslash\text{OpnCircBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left(\begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	
$\backslash\text{ClsCircBracS}, \backslash\text{ClsCircBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left(\begin{array}{c} \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \\ \frac{1}{1} \end{array} \right)$	

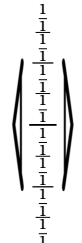
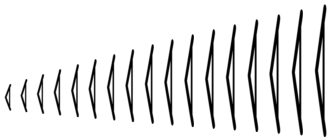
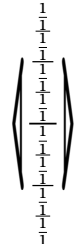
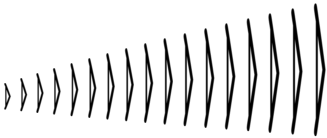
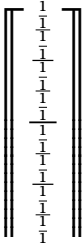

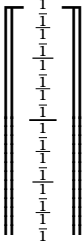

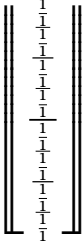
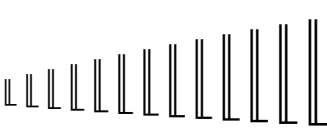
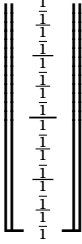
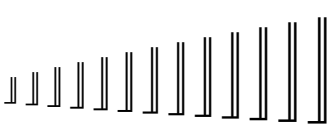
$\backslash\text{OpnTrpBarS}, \backslash\text{OpnTrpBar}[A-L]$	$\left\ \frac{1}{2+\frac{3}{4}} \right\ $	$\left(\frac{1}{2+\frac{3}{4}} \right)$	
$\backslash\text{ClsTrpBarS}, \backslash\text{ClsTrpBar}[A-L]$	$\left\ \frac{1}{2+\frac{3}{4}} \right\ $	$\left(\frac{1}{2+\frac{3}{4}} \right)$	
$\backslash\text{OpnDblGrpS}, \backslash\text{OpnDblGrp}[A-L]$	$\left(\left(\frac{1}{2+\frac{3}{4}} \right) \right)$	$\left(\left(\frac{1}{2+\frac{3}{4}} \right) \right)$	
$\backslash\text{ClsDblGrpS}, \backslash\text{ClsDblGrp}[A-L]$	$\left(\left(\frac{1}{2+\frac{3}{4}} \right) \right)$	$\left(\left(\frac{1}{2+\frac{3}{4}} \right) \right)$	
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$\backslash\text{OpnDblBracS}, \backslash\text{OpnDblBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	
$\backslash\text{ClsDblBracS}, \backslash\text{ClsDblBrac}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$	
$\backslash\text{OpnDblAnglS}, \backslash\text{OpnDblAngl}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	
$\backslash\text{ClsDblAnglS}, \backslash\text{ClsDblAngl}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$	
$\backslash\text{OpnSqrParnS}, \backslash\text{OpnSqrParn}[A-L]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$	
$\backslash\text{ClsSqrParnS}, \backslash\text{ClsSqrParn}[A-L]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$	

$\backslash\text{OpnParnBarS}, \backslash\text{OpnParnBar}[A-L]$	$\left(\frac{1}{2+\frac{3}{4}}\right)$	$\left(\frac{1}{2+\frac{3}{4}}\right)$	
$\backslash\text{ClsParnBarS}, \backslash\text{ClsParnBar}[A-L]$	$\left(\frac{1}{2+\frac{3}{4}}\right)$	$\left(\frac{1}{2+\frac{3}{4}}\right)$	
$\backslash\text{OpnBracBarS}, \backslash\text{OpnBracBar}[A-L]$	$\left\{\frac{1}{2+\frac{3}{4}}\right\}$	$\left\{\frac{1}{2+\frac{3}{4}}\right\}$	
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$\backslash\text{OpnBrknBracBarS}, \backslash\text{OpnBrknBracBar}[A-L]$	$\left\{\frac{1}{2+\frac{3}{4}}\right\}$	$\left\{\frac{1}{2+\frac{3}{4}}\right\}$	
$\backslash\text{ClsBrknBracBarS}, \backslash\text{ClsBrknBracBar}[A-L]$	$\left\{\frac{1}{2+\frac{3}{4}}\right\}$	$\left\{\frac{1}{2+\frac{3}{4}}\right\}$	

$\backslash\text{OpnCircBracBarS}, \backslash\text{OpnCircBracBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$		
$\backslash\text{ClsCircBracBarS}, \backslash\text{ClsCircBracBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$		
$\backslash\text{OpnBrktBarS}, \backslash\text{OpnBrktBar}[A-L]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$		
$\backslash\text{ClsBrktBarS}, \backslash\text{ClsBrktBar}[A-L]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$		
$\backslash\text{OpnBrknBrktBarS}, \backslash\text{OpnBrknBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$		
$\backslash\text{ClsBrknBrktBarS}, \backslash\text{ClsBrknBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$		

$\backslash\text{OpnCircBrktBarS}$, $\backslash\text{OpnCircBrktBar}[A-L]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$		
$\backslash\text{ClsCircBrktBarS}$, $\backslash\text{ClsCircBrktBar}[A-L]$	$\left[\frac{1}{2+\frac{3}{4}} \right]$		
$\backslash\text{OpnCryBrktBarS}$, $\backslash\text{OpnCryBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$		
$\backslash\text{ClsCryBrktBarS}$, $\backslash\text{ClsCryBrktBar}[A-L]$	$\left\{ \frac{1}{2+\frac{3}{4}} \right\}$		
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$\backslash\text{OpnAnglBarS}, \backslash\text{OpnAnglBar}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$		
$\backslash\text{ClsAnglBarS}, \backslash\text{ClsAnglBar}[A-P]$	$\left\langle \frac{1}{2+\frac{3}{4}} \right\rangle$		
$\backslash\text{OpnDbfCeilS}, \backslash\text{OpnDbfCeil}[A-L]$	$\left\ \frac{1}{2+\frac{3}{4}} \right\ $		
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Greek lower case alpha	α	<code>\grualpha</code>	Greek upper case alpha	A	<code>\gruAlpha</code>
Greek lower case beta	β	<code>\grubeta</code>	Greek upper case beta	B	<code>\gruBeta</code>
Greek lower case gamma	γ	<code>\grugamma</code>	Greek upper case gamma	Γ	<code>\gruGamma</code>
Greek lower case delta	δ	<code>\grudelta</code>	Greek upper case delta	Δ	<code>\gruDelta</code>
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Greek lower case chi	χ	<code>\gruchi</code>	Greek upper case chi	X	<code>\gruChi</code>
Greek lower case psi	ψ	<code>\grupsi</code>	Greek upper case psi	Ψ	<code>\gruPsi</code>
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Greek italic lower case alpha	α	<code>\grialpha</code>	Greek italic upper case alpha	A	<code>\griAlpha</code>
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Greek italic lower case sigma	σ	<code>\grisigma</code>	Greek italic upper case sigma	Σ	<code>\griSigma</code>
Greek italic lower case sigma	ς	<code>\grivarsigma</code>			
Greek italic lower case tau	τ	<code>\gritau</code>	Greek italic upper case tau	T	<code>\griTau</code>
Greek italic lower case upsilon	υ	<code>\griupsilon</code>	Greek italic upper case upsilon	Y	<code>\griUpsilon</code>
Greek italic lower case phi	ϕ	<code>\griphi</code>	Greek italic upper case phi	Φ	<code>\griPhi</code>
Greek italic lower case phi	φ	<code>\grivarphi</code>			
Greek italic lower case chi	χ	<code>\grichi</code>	Greek italic upper case chi	X	<code>\griChi</code>
Greek italic lower case psi	ψ	<code>\grips</code>	Greek italic upper case psi	Ψ	<code>\griPsi</code>
Greek italic lower case omega	ω	<code>\griomega</code>	Greek italic upper case omega	Ω	<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
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

Logical Variable: \symkli{<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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

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abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ

Map Variable: \symcli{<alphanum>} -- calligraphic 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

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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 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

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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

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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

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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

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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 ρ 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 ρ ς φ

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμνξοπρστυφχψω
εθϖρςφ

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 ρ 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 ρ ς φ

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμνξοπρστυφχψω
εθϖρςφ

Map Variable: \symlu{<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

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

Logix Mono Latin-1 printable symbols (U+0020 .. U+007E, U+00A0 .. U+00FF)

! " # \$ % & ' () * + , - . /
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 { | } ~

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À Á Â Ã Ä Å Æ Ç È É Ê Ë Ì Í Î Ï
Ð Ñ Ò Ó Ô Õ Ö × Ø Ù Ú Û Ü Ý Þ ß
à á â ã ä å æ ç è é ê ë ì í î ï
ð ñ ò ó ô õ ö ÷ ø ù ú û ü ý þ ÿ