Glyph mirroring: NonBidiMirroring.txt

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Individual contribution

Introduction

The Unicode database has a data file called *BidiMirroring.txt*. It provides for character-based mirroring for bidi, for characters that have the property value *bidiMirrored=Yes*. Bidi mirroring is "normally" supposed to be done via an unspecified font mechanism (in OpenType, this mechanism is the rtlm feature), where the glyph for a character is "mirrored" in a suitable manner for text that has been determined to be set in right-to-left direction. This determination is assumed to be done by the Unicode bidi algorithm.

The *BidiMirroring.txt* data file allows for a (partial) alternative method: instead of "mirroring" at the glyph level, do the mirroring by changing the character to another character that is the "mirror" of the original character.

This allows for another possibility: when editing a text (whether in a bidi context or not), one may sometimes want to replace a character (often a math operator) with the corresponding mirror character. Sometimes that is really easy without any programmatic help, e.g. "oops, that should be <, not >" where both characters commonly occur directly on the keyboard. For other math operators (or other characters that are "mirrorable"), it is not all that straight-forward. Needing to use a (somewhat large) character picker table or editing some kind of macro for systems that allow that.

However, by using *BidiMirroring.txt*, manually or even better programmatically, the mirror character can be found much more easily. But… apart from that some bidi mirrorable characters do not have a mirror character, there are a bunch of "potentially mirrorable" characters that do not have the *bidiMirrored=Yes* property value, and thus are not in *BidiMirroring.txt*. In particular, arrow and arrow-like characters often has a mirror character. One could argue that they should have had the *bidiMirrored=Yes* property value, but they don't, and cannot now get that.

What can be done, is to make a data file similar to *BidiMirroring.txt*, but for symbols that have the *bidiMirrored=No* property value and have a mirror character. Mostly for arrows and arrow-like symbols, but also other symbols. Note that various arrows are commonly used in math expressions. And in editing math expressions or other text, one may (for whatever reason, error fixing, swapping the arguments, "no, you should go right, not left" symbolised with an arrow in the text, …) want to mirror also symbols that have the *bidiMirrored=No* property value.

Both *BidiMirroring.txt* and *NonBidiMirroring.txt* can be used by typeface foundries, or even typeface editing tools, be used to make consistently looking mirror glyphs for mirror character pairs.

Two glyph horrors

Unicode does not prescribe glyphs. Except when it does… Two of those are at odds with the mirrorings we are concerned with here.

REVERSED TILDE

NamesList.txt has:
```
223D    REVERSED TILDE
        = lazy S
        * reversed tilde and lazy S are glyph variants
```

This is at odds with the mirrorings (in *BidiMirroring.txt*):
```
        223C; 223D # TILDE OPERATOR
        223D; 223C # REVERSED TILDE
```

and also at odds with (also in *BidiMirroring.txt*, "have no appropriate mirroring character" part):
```
        # 223E; INVERTED LAZY S
```

Thus, the assertion "`reversed tilde and lazy S are glyph variants`" in the *NamesList.txt* should be removed, both for the reason of mirroring, as well as "not being nice as a variant". "Lazy S" should be given its own character allocation, and that new character be made to bidi mirror with `INVERTED LAZY S` in *BidiMirroring.txt*.

EMPTY SET

NamesList.txt has (along with *StandardizedVariants.txt*):
```
2205    EMPTY SET
        ...
        ~ 2205 FE00 zero with long diagonal stroke overlay form
```

That fallback rendering is at odds with the new (non-bidi) mirrorings in *NonBidiMirroring.txt* (below):
```
2205;29B0 # EMPTY SET
29B0;2205 # REVERSED EMPTY SET
```

"`zero with long diagonal stroke overlay form`" is a fallback, not really recognisable as the empty set symbol, except from context. This fallback(!), if one really wants to use it, can and should (if one really wants to use it, please don't) be formed by using `<U+0030, U+0338>`. So there is no need for the "standardized variant", nor for a new character allocation for this fallback.

Proposing NonBidiMirroring.txt

We here propose the *NonBidiMirroring.txt* data file, for just the above purposes. Like the *BidiMirroring.txt* data file, not all potentially mirrorable symbols have a mirror character (yet). So it is also incomplete. But many symbols do have a mirror character.

Some of the symbols are character mirrorable, if one uses decomposition (not permitted in *BidiMirroring.txt*). For instance:
```
005C 0304;29F6 # reverse solidus with overbar
29F6;005C 0304 # SOLIDUS WITH OVERBAR
```
forms a mirror pair when allowing a decomposition (here an informal one, for lack of a canonical one; but canonical decomposition was also used when making *NonBidiMirroring.txt*).

Note though, that the mirroring mappings in *NonBidiMirroring.txt* must not be used when mirroring due to bidi RTL text. But both *BidiMirroring.txt* and *NonBidiMirroring.txt* can be used for an editing operation to mirror a symbol (when that symbol has a mirror symbol encoded).

If more arrow or arrow-like characters, or other symbols that are "mirrorable" or are mirrors of existing characters, are encoded, then this data file should be updated appropriately.

The proposed data file is given below.

```
# NonBidiMirroring-proposed-v1.txt
# Date: 2022-01-14
# © 2022 Unicode®, Inc.
# For terms of use, see https://www.unicode.org/terms_of_use.html
#
# Unicode Character Database
# For documentation, see https://www.unicode.org/reports/tr44/
#
# Non_Bidi_Mirroring_Glyph Property ?????????
#
# This file is an informative contributory data file in the
# Unicode Character Database.
#
# This data file lists characters that have the Bidi_Mirrored=No property
# value, for which there is another Unicode character that typically has a glyph
# that is the mirror image of the original character's glyph. Letter characters
# are mostly excluded. Included are mathematical symbols, arrows and arrow-like
# symbols. Arrows and arrow-like symbols were never given the Bidi_Mirrored=Yes
# property, though many are non-left-right symmetric and many of those already
# have a "mirror" character. Many of the more common arrows are used in mathematical
# and formal logic expressions. An application may use this data to mirror
# "non-bidi-mirrored" characters, as an edit operation.
#
# The repertoire covered by the file is Unicode 14.0.0.
#
# The file contains a list of lines with mappings from code point(s)
# to other code point(s) for character-based mirroring as an edit operation.
# There are a number of would-be-mirrorable non-bidi-mirrored characters that
# do not have a mirror character.
#
# Each mapping line contains two fields, separated by a semicolon (';').
# Each of the two fields contains code point(s) represented as
# variable-length hexadecimal value(s) with 4 to 6 digits.
# A comment indicates where the characters are "BEST FIT" mirroring.
#
# "Mirrorable" code points for which Bidi_Mirrored=No, but for which
# no appropriate character currently exist with mirrored glyph, are
# listed as comments at the end of the file.
#
# This file was originally created by Kent Karlsson.

002C;2E41 # COMMA
002F;005C # SOLIDUS
003B;204F # SEMICOLON
003F;2E2E # QUESTION MARK
005C;002F # REVERSE SOLIDUS
005C 0304;29F6 # reverse solidus with overbar
00AC;2310 # NOT SIGN

037B;03F2 # GREEK SMALL REVERSED LUNATE SIGMA SYMBOL
037C;037D # GREEK SMALL DOTTED LUNATE SIGMA SYMBOL
037D;037C # GREEK SMALL REVERSED DOTTED LUNATE SIGMA SYMBOL
03F2;037B # GREEK LUNATE SIGMA SYMBOL
03F5;03F6 # GREEK LUNATE EPSILON SYMBOL
03F6;03F5 # GREEK REVERSED LUNATE EPSILON SYMBOL
03F9;03FD # GREEK CAPITAL LUNATE SIGMA SYMBOL
03FD;03F9 # GREEK CAPITAL REVERSED LUNATE SIGMA SYMBOL
03FE;03FF # GREEK CAPITAL DOTTED LUNATE SIGMA SYMBOL
03FF;03FE # GREEK CAPITAL REVERSED DOTTED LUNATE SIGMA SYMBOL

2032;2035 # PRIME
2033;2036 # DOUBLE PRIME
2034;2037 # TRIPLE PRIME
2035;2032 # REVERSED PRIME
2036;2033 # REVERSED DOUBLE PRIME
2037;2034 # REVERSED TRIPLE PRIME
204F;003B # REVERSED SEMICOLON
2190;2192 # LEFTWARDS ARROW
2192;2190 # RIGHTWARDS ARROW
2196;2197 # NORTH WEST ARROW
2197;2196 # NORTH EAST ARROW
2198;2199 # SOUTH EAST ARROW
2199;2198 # SOUTH WEST ARROW
219A;219B # LEFTWARDS ARROW WITH STROKE
219B;219A # RIGHTWARDS ARROW WITH STROKE
219C;219D # LEFTWARDS WAVE ARROW   ; pointing upwards
219D;219C # RIGHTWARDS WAVE ARROW  ; pointing upwards
```

```
219E;21A0 # LEFTWARDS TWO HEADED ARROW
21A0;219E # RIGHTWARDS TWO HEADED ARROW
21A2;21A3 # LEFTWARDS ARROW WITH TAIL
21A3;21A2 # RIGHTWARDS ARROW WITH TAIL
21A4;21A6 # LEFTWARDS ARROW FROM BAR
21A6;21A4 # RIGHTWARDS ARROW FROM BAR
21A9;21AA # LEFTWARDS ARROW WITH HOOK   ; hook on the upper side
21AA;21A9 # RIGHTWARDS ARROW WITH HOOK  ; hook on the upper side
21AB;21AC # LEFTWARDS ARROW WITH LOOP   ; loop on the upper side
21AC;21AB # RIGHTWARDS ARROW WITH LOOP  ; loop on the upper side
21B0;21B1 # UPWARDS ARROW WITH TIP LEFTWARDS
21B1;21B0 # UPWARDS ARROW WITH TIP RIGHTWARDS
21B2;21B3 # DOWNWARDS ARROW WITH TIP LEFTWARDS
21B3;21B2 # DOWNWARDS ARROW WITH TIP RIGHTWARDS
21B6;21B7 # ANTICLOCKWISE TOP SEMICIRCLE ARROW
21B7;21B6 # CLOCKWISE TOP SEMICIRCLE ARROW
21BA;21BB # ANTICLOCKWISE OPEN CIRCLE ARROW     ; head on top
21BB;21BA # CLOCKWISE OPEN CIRCLE ARROW         ; head on top
21C4;21C6 # RIGHTWARDS ARROW OVER LEFTWARDS ARROW
21C5;21F5 # UPWARDS ARROW LEFTWARDS OF DOWNWARDS ARROW
21C6;21C4 # LEFTWARDS ARROW OVER RIGHTWARDS ARROW
21C7;21C9 # LEFTWARDS PAIRED ARROWS
21C9;21C7 # RIGHTWARDS PAIRED ARROWS
21CD;21CF # LEFTWARDS DOUBLE ARROW WITH STROKE
21CF;21CD # RIGHTWARDS DOUBLE ARROW WITH STROKE
21D0;21D2 # LEFTWARDS DOUBLE ARROW
21D2;21D0 # RIGHTWARDS DOUBLE ARROW
21D6;21D7 # NORTH WEST DOUBLE ARROW
21D7;21D6 # NORTH EAST DOUBLE ARROW
21D8;21D9 # SOUTH EAST DOUBLE ARROW
21D9;21D8 # SOUTH WEST DOUBLE ARROW
21DA;21DB # LEFTWARDS TRIPLE ARROW
21DB;21DA # RIGHTWARDS TRIPLE ARROW
21DC;21DD # LEFTWARDS SQUIGGLE ARROW       ; pointing directly left
21DD;21DC # RIGHTWARDS SQUIGGLE ARROW      ; pointing directly right
21E0;21E2 # LEFTWARDS DASHED ARROW   ; quadruple dash
21E2;21E0 # RIGHTWARDS DASHED ARROW  ; quadruple dash
21E4;21E5 # LEFTWARDS ARROW TO BAR
21E5;21E4 # RIGHTWARDS ARROW TO BAR
21E6;21E8 # LEFTWARDS WHITE ARROW
21E8;21E6 # RIGHTWARDS WHITE ARROW
21F4;2B30 # RIGHT ARROW WITH SMALL CIRCLE
21F5;21C5 # DOWNWARDS ARROW LEFTWARDS OF UPWARDS ARROW
21F6;2B31 # THREE RIGHTWARDS ARROWS
21F7;21F8 # LEFTWARDS ARROW WITH VERTICAL STROKE
21F8;21F7 # RIGHTWARDS ARROW WITH VERTICAL STROKE
21FA;21FB # LEFTWARDS ARROW WITH DOUBLE VERTICAL STROKE
21FB;21FA # RIGHTWARDS ARROW WITH DOUBLE VERTICAL STROKE
21FD;21FE # LEFTWARDS OPEN-HEADED ARROW
21FE;21FD # RIGHTWARDS OPEN-HEADED ARROW
2205;29B0 # EMPTY SET ; glyph is ALWAYS based on a circle, NEVER based on a 0 or similar-to-0
     glyph; for a 0-like glyph (not recommended) use <U+0030, U+0338>.
220B 0307;22F5 # contains with dot above
220B 0331;22F8 # contains with underbar
2226;2226 # [BEST FIT] NOT PARALLEL TO

223D 0307;2A6A # reversed tilde operator with dot above
223D 0338;2241 # reversed not tilde
#223D # REVERSED TILDE ; note: lazy s is NOT a glyph variant
#2241;223D 0338 # NOT TILDE (has bidiMirroring=Yes)
2244;22CD 0338 # NOT ASYMPTOTICALLY EQUAL TO
#2246;2246 # APPROXIMATELY BUT NOT ACTUALLY EQUAL TO
#2247;2247 # NEITHER APPROXIMATELY NOR ACTUALLY EQUAL TO
224C 0307;2A6D # reversed congruent with dot above
#225F;225F # [BEST FIT] QUESTIONED EQUAL TO
#2260;2260 # NOT EQUAL TO
#2262;2262 # NOT IDENTICAL TO
226B 0331;2AA3 # double nested greater-than with underbar
22A3 0338;22AC # reversed does not prove
22AC;22A3 0338 # DOES NOT PROVE
22AD;2AE4 0338 # NOT TRUE
22AE;2AE3 0338 # DOES NOT FORCE
22AF;2AE5 0338 # NEGATED DOUBLE VERTICAL BAR DOUBLE RIGHT TURNSTILE
22CD 0338;2244 # not reversed tilde equals
22F5;220B 0307 # ELEMENT OF WITH DOT ABOVE
22F8;220B 0331 # ELEMENT OF WITH UNDERBAR
230C;230D # BOTTOM RIGHT CROP
```

```
230D;230C # BOTTOM LEFT CROP
230E;230F # TOP RIGHT CROP
230F;230E # TOP LEFT CROP
2310;00AC # REVERSED NOT SIGN
231C;231D # TOP LEFT CORNER  ; left Quine quote symbol
231D;231C # TOP RIGHT CORNER ; right Quine quote symbol
231E;231F # BOTTOM LEFT CORNER
231F;231E # BOTTOM RIGHT CORNER
2326;232B # ERASE TO THE RIGHT
232B;2326 # ERASE TO THE LEFT
239B;239E # LEFT PARENTHESIS UPPER HOOK
239C;239F # LEFT PARENTHESIS EXTENSION
239D;23A0 # LEFT PARENTHESIS LOWER HOOK
239E;239B # RIGHT PARENTHESIS UPPER HOOK
239F;239C # RIGHT PARENTHESIS EXTENSION
23A0;239D # RIGHT PARENTHESIS LOWER HOOK
23A1;23A4 # LEFT SQUARE BRACKET UPPER CORNER
23A2;23A5 # LEFT SQUARE BRACKET EXTENSION
23A3;23A6 # LEFT SQUARE BRACKET LOWER CORNER
23A4;23A1 # RIGHT SQUARE BRACKET UPPER CORNER
23A5;23A2 # RIGHT SQUARE BRACKET EXTENSION
23A6;23A3 # RIGHT SQUARE BRACKET LOWER CORNER
23A7;23AB # LEFT CURLY BRACKET UPPER HOOK
23A8;23AC # LEFT CURLY BRACKET MIDDLE PIECE
23A9;23AD # LEFT CURLY BRACKET LOWER HOOK
23AB;23A7 # RIGHT CURLY BRACKET UPPER HOOK
23AC;23A8 # RIGHT CURLY BRACKET MIDDLE PIECE
23AD;23A9 # RIGHT CURLY BRACKET LOWER HOOK
23B0;23B1 # UPPER LEFT OR LOWER RIGHT CURLY BRACKET SECTION
23B1;23B0 # UPPER RIGHT OR LOWER LEFT CURLY BRACKET SECTION
23E9;23EA # BLACK RIGHT-POINTING DOUBLE TRIANGLE
23EA;23E9 # BLACK LEFT-POINTING DOUBLE TRIANGLE
23ED;23EE # BLACK RIGHT-POINTING DOUBLE TRIANGLE WITH VERTICAL BAR
23EE;23ED # BLACK LEFT-POINTING DOUBLE TRIANGLE WITH VERTICAL BAR
25B6;25C0 # BLACK RIGHT-POINTING TRIANGLE
25B7;25C1 # WHITE RIGHT-POINTING TRIANGLE
25B7;25C1 # WHITE RIGHT-POINTING TRIANGLE
25B8;25C2 # BLACK RIGHT-POINTING SMALL TRIANGLE
25B9;25C3 # WHITE RIGHT-POINTING SMALL TRIANGLE
25BA;25C4 # BLACK RIGHT-POINTING POINTER
25BB;25C5 # WHITE RIGHT-POINTING POINTER
25C0;25B6 # BLACK LEFT-POINTING TRIANGLE
25C1;25B7 # WHITE LEFT-POINTING TRIANGLE
25C1;25B7 # WHITE LEFT-POINTING TRIANGLE
25C2;25B8 # BLACK LEFT-POINTING SMALL TRIANGLE
25C3;25B9 # WHITE LEFT-POINTING SMALL TRIANGLE
25C4;25BA # BLACK LEFT-POINTING POINTER
25C5;25BB # WHITE LEFT-POINTING POINTER
25E2;25E3 # BLACK LOWER RIGHT TRIANGLE
25E3;25E2 # BLACK LOWER LEFT TRIANGLE
25E4;25E5 # BLACK UPPER LEFT TRIANGLE
25E5;25E4 # BLACK UPPER RIGHT TRIANGLE
25F8;25F9 # UPPER LEFT TRIANGLE
25F9;25F8 # UPPER RIGHT TRIANGLE
25FA;25FF # LOWER LEFT TRIANGLE
25FF;25FA # LOWER RIGHT TRIANGLE
27F2;27F3 # ANTICLOCKWISE GAPPED CIRCLE ARROW   ; head on the left
27F3;27F2 # CLOCKWISE GAPPED CIRCLE ARROW        ; head on the right
27F4;2B32 # RIGHT ARROW WITH CIRCLED PLUS
27F5;27F6 # LONG LEFTWARDS ARROW
27F6;27F5 # LONG RIGHTWARDS ARROW
27F8;27F9 # LONG LEFTWARDS DOUBLE ARROW
27F9;27F8 # LONG RIGHTWARDS DOUBLE ARROW
27FB;27FC # LONG LEFTWARDS ARROW FROM BAR
27FC;27FB # LONG RIGHTWARDS ARROW FROM BAR
27FD;27FE # LONG LEFTWARDS DOUBLE ARROW FROM BAR
27FE;27FD # LONG RIGHTWARDS DOUBLE ARROW FROM BAR
27FF;2B33 # LONG RIGHTWARDS SQUIGGLE ARROW ; pointing directly right
2900;2B34 # RIGHTWARDS TWO-HEADED ARROW WITH VERTICAL STROKE
2901;2B35 # RIGHTWARDS TWO-HEADED ARROW WITH DOUBLE VERTICAL STROKE
2902;2903 # LEFTWARDS DOUBLE ARROW WITH VERTICAL STROKE
2903;2902 # RIGHTWARDS DOUBLE ARROW WITH VERTICAL STROKE
2905;2B36 # RIGHTWARDS TWO-HEADED ARROW FROM BAR
2906;2907 # LEFTWARDS DOUBLE ARROW FROM BAR
2907;2906 # RIGHTWARDS DOUBLE ARROW FROM BAR
290C;290D # LEFTWARDS DOUBLE DASH ARROW
290D;290C # RIGHTWARDS DOUBLE DASH ARROW
```

```
290E;290F # LEFTWARDS TRIPLE DASH ARROW
290F;290E # RIGHTWARDS TRIPLE DASH ARROW
2910;2B37 # RIGHTWARDS TWO-HEADED TRIPLE DASH ARROW   ; with tail
2911;2B38 # RIGHTWARDS ARROW WITH DOTTED STEM
2914;2B39 # RIGHTWARDS ARROW WITH TAIL WITH VERTICAL STROKE
2915;2B3A # RIGHTWARDS ARROW WITH TAIL WITH DOUBLE VERTICAL STROKE
2916;2B3B # RIGHTWARDS TWO-HEADED ARROW WITH TAIL
2917;2B3C # RIGHTWARDS TWO-HEADED ARROW WITH TAIL WITH VERTICAL STROKE
2918;2B3D # RIGHTWARDS TWO-HEADED ARROW WITH TAIL WITH DOUBLE VERTICAL STROKE
2919;291A # LEFTWARDS ARROW-TAIL
291A;2919 # RIGHTWARDS ARROW-TAIL
291B;291C # LEFTWARDS DOUBLE ARROW-TAIL
291C;291B # RIGHTWARDS DOUBLE ARROW-TAIL
291D;291E # LEFTWARDS ARROW TO BLACK DIAMOND
291E;291D # RIGHTWARDS ARROW TO BLACK DIAMOND
291F;2920 # LEFTWARDS ARROW FROM BAR TO BLACK DIAMOND
2920;291F # RIGHTWARDS ARROW FROM BAR TO BLACK DIAMOND
2921;2922 # NORTH WEST AND SOUTH EAST ARROW
2922;2921 # NORTH EAST AND SOUTH WEST ARROW
2923;2924 # NORTH WEST ARROW WITH HOOK  ; hook on the lower side
2924;2923 # NORTH EAST ARROW WITH HOOK  ; hook on the lower side
2925;2926 # SOUTH EAST ARROW WITH HOOK  ; hook on the upper side
2926;2925 # SOUTH WEST ARROW WITH HOOK  ; hook on the upper side
2928;292A # NORTH EAST ARROW AND SOUTH EAST ARROW
292A;2928 # SOUTH WEST ARROW AND NORTH WEST ARROW
292B;292C # RISING DIAGONAL CROSSING FALLING DIAGONAL
292C;292B # FALLING DIAGONAL CROSSING RISING DIAGONAL
2931;2932 # NORTH EAST ARROW CROSSING NORTH WEST ARROW
2932;2931 # NORTH WEST ARROW CROSSING NORTH EAST ARROW
2933;2B3F # WAVE ARROW POINTING DIRECTLY RIGHT
2936;2937 # ARROW POINTING DOWNWARDS THEN CURVING LEFTWARDS
2937;2936 # ARROW POINTING DOWNWARDS THEN CURVING RIGHTWARDS
2938;2939 # RIGHT-SIDE ARC CLOCKWISE ARROW ; this is with "plain" head
2939;2938 # LEFT-SIDE ARC ANTICLOCKWISE ARROW
293E;293F # LOWER RIGHT SEMICIRCULAR CLOCKWISE ARROW
293F;293E # LOWER LEFT SEMICIRCULAR ANTICLOCKWISE ARROW
2940;2941 # ANTICLOCKWISE CLOSED CIRCLE ARROW    ; head on top
2941;2940 # CLOCKWISE CLOSED CIRCLE ARROW       ; head on top
2942;2943 # RIGHTWARDS ARROW ABOVE SHORT LEFTWARDS ARROW
2943;2942 # LEFTWARDS ARROW ABOVE SHORT RIGHTWARDS ARROW
2945;2946 # RIGHTWARDS ARROW WITH PLUS BELOW
2946;2945 # LEFTWARDS ARROW WITH PLUS BELOW
2947;2B3E # RIGHTWARDS ARROW THROUGH X
294A;294B # LEFT BARB UP RIGHT BARB DOWN HARPOON
294B;294A # LEFT BARB DOWN RIGHT BARB UP HARPOON
294C;294D # UP BARB RIGHT DOWN BARB LEFT HARPOON
294D;294C # UP BARB LEFT DOWN BARB RIGHT HARPOON
294F;2951 # UP BARB RIGHT DOWN BARB RIGHT HARPOON
2951;294F # UP BARB LEFT DOWN BARB LEFT HARPOON
2952;2953 # LEFTWARDS HARPOON WITH BARB UP TO BAR
2953;2952 # RIGHTWARDS HARPOON WITH BARB UP TO BAR
2954;2958 # UPWARDS HARPOON WITH BARB RIGHT TO BAR
2955;2959 # DOWNWARDS HARPOON WITH BARB RIGHT TO BAR
2956;2957 # LEFTWARDS HARPOON WITH BARB DOWN TO BAR
2957;2956 # RIGHTWARDS HARPOON WITH BARB DOWN TO BAR
2958;2954 # UPWARDS HARPOON WITH BARB LEFT TO BAR
2959;2955 # DOWNWARDS HARPOON WITH BARB LEFT TO BAR
295A;295B # LEFTWARDS HARPOON WITH BARB UP FROM BAR
295B;295A # RIGHTWARDS HARPOON WITH BARB UP FROM BAR
295C;2960 # UPWARDS HARPOON WITH BARB RIGHT FROM BAR
295D;2961 # DOWNWARDS HARPOON WITH BARB RIGHT FROM BAR
295E;295F # LEFTWARDS HARPOON WITH BARB DOWN FROM BAR
295F;295E # RIGHTWARDS HARPOON WITH BARB DOWN FROM BAR
2960;295C # UPWARDS HARPOON WITH BARB LEFT FROM BAR
2961;295D # DOWNWARDS HARPOON WITH BARB LEFT FROM BAR
2962;2964 # LEFTWARDS HARPOON WITH BARB UP ABOVE LEFTWARDS HARPOON WITH BARB DOWN
2964;2962 # RIGHTWARDS HARPOON WITH BARB UP ABOVE RIGHTWARDS HARPOON WITH BARB DOWN
2966;2968 # LEFTWARDS HARPOON WITH BARB UP ABOVE RIGHTWARDS HARPOON WITH BARB UP
2967;2969 # LEFTWARDS HARPOON WITH BARB DOWN ABOVE RIGHTWARDS HARPOON WITH BARB DOWN
2968;2966 # RIGHTWARDS HARPOON WITH BARB UP ABOVE LEFTWARDS HARPOON WITH BARB UP
2969;2967 # RIGHTWARDS HARPOON WITH BARB DOWN ABOVE LEFTWARDS HARPOON WITH BARB DOWN
296A;296C # LEFTWARDS HARPOON WITH BARB UP ABOVE LONG DASH
296B;296D # LEFTWARDS HARPOON WITH BARB DOWN BELOW LONG DASH
296C;296A # RIGHTWARDS HARPOON WITH BARB UP ABOVE LONG DASH
296D;296B # RIGHTWARDS HARPOON WITH BARB DOWN BELOW LONG DASH
296E;296F # UPWARDS HARPOON WITH BARB LEFT BESIDE DOWNWARDS HARPOON WITH BARB RIGHT
296F;296E # DOWNWARDS HARPOON WITH BARB LEFT BESIDE UPWARDS HARPOON WITH BARB RIGHT
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2971;2B40 # EQUALS SIGN ABOVE RIGHTWARDS ARROW
2972;2B41 # TILDE OPERATOR ABOVE RIGHTWARDS ARROW
2973;2B4C # LEFTWARDS ARROW ABOVE TILDE OPERATOR
2974;2B4B # RIGHTWARDS ARROW ABOVE TILDE OPERATOR
2975;2B42 # RIGHTWARDS ARROW ABOVE ALMOST EQUAL TO
2976;2978 # LESS-THAN ABOVE LEFTWARDS ARROW
2977;2B43 # LEFTWARDS ARROW THROUGH LESS-THAN
2978;2976 # GREATER-THAN ABOVE RIGHTWARDS ARROW
2979;297B # SUBSET ABOVE RIGHTWARDS ARROW
297A;2B44 # LEFTWARDS ARROW THROUGH SUBSET
297B;2979 # SUPERSET ABOVE LEFTWARDS ARROW
297C;297D # LEFT FISH TAIL
297D;297C # RIGHT FISH TAIL
29B0 0304;29B1 # reversed empty set with overbar
29B0 030A;29B2 # reversed empty set with small circle above
29B0 20D6;29B3 # reversed empty set with left arrow above
29B0 20D7;29B4 # reversed empty set with right arrow above
29B0;2205 # REVERSED EMPTY SET
29B1;29B0 0304 # EMPTY SET WITH OVERBAR
29B2;29B0 030A # EMPTY SET WITH SMALL CIRCLE ABOVE
29B3;29B0 20D6 # EMPTY SET WITH RIGHT ARROW ABOVE
29B4;29B0 20D7 # EMPTY SET WITH LEFT ARROW ABOVE

#29C9;29C9 # TWO JOINED SQUARES
#29E3;29E3 # EQUALS SIGN AND SLANTED PARALLEL
#29E4;29E4 # EQUALS SIGN AND SLANTED PARALLEL WITH TILDE ABOVE
#29E5;29E5 # IDENTICAL TO AND SLANTED PARALLEL
29F6;005C 0304 # SOLIDUS WITH OVERBAR
#2A24;2A24 # PLUS SIGN WITH TILDE ABOVE
#2A26;2A26 # PLUS SIGN WITH TILDE BELOW
#2A29;2A29 # MINUS SIGN WITH COMMA ABOVE
2A6A;223D 0307 # TILDE OPERATOR WITH DOT ABOVE
2A6D;224C 0307 # CONGRUENT WITH DOT ABOVE
2AA3;226B 0331 # DOUBLE NESTED LESS-THAN WITH UNDERBAR
#2ADC;2ADC # FORKING  ; actually negated: 'not independent'
2AE3 0338;22AE # reversed does not force
2AE4 0338;22AD # reversed not true
2AE5 0338;22AF # negated double vertical bar double left turnstile
#2AF3;2AF3 # PARALLEL WITH TILDE OPERATOR
2B00;2B01 # NORTH EAST WHITE ARROW
2B01;2B00 # NORTH WEST WHITE ARROW
2B02;2B03 # SOUTH EAST WHITE ARROW
2B03;2B02 # SOUTH WEST WHITE ARROW
2B05;2B95 # LEFTWARDS BLACK ARROW
2B08;2B09 # NORTH EAST BLACK ARROW
2B09;2B08 # NORTH WEST BLACK ARROW
2B0A;2B0B # SOUTH EAST BLACK ARROW
2B0B;2B0A # SOUTH WEST BLACK ARROW
2B0E;2B10 # RIGHTWARDS ARROW WITH TIP DOWNWARDS
2B0F;2B11 # RIGHTWARDS ARROW WITH TIP UPWARDS
2B10;2B0E # LEFTWARDS ARROW WITH TIP DOWNWARDS
2B11;2B0F # LEFTWARDS ARROW WITH TIP UPWARDS
2B30;21F4 # LEFT ARROW WITH SMALL CIRCLE
2B31;21F6 # THREE LEFTWARDS ARROWS
2B32;27F4 # LEFT ARROW WITH CIRCLED PLUS
2B33;27FF # LONG LEFTWARDS SQUIGGLE ARROW  ; pointing directly left
2B34;2900 # LEFTWARDS TWO-HEADED ARROW WITH VERTICAL STROKE
2B35;2901 # LEFTWARDS TWO-HEADED ARROW WITH DOUBLE VERTICAL STROKE
2B36;2905 # LEFTWARDS TWO-HEADED ARROW FROM BAR
2B37;2910 # LEFTWARDS TWO-HEADED TRIPLE DASH ARROW    ; with tail
2B38;2911 # LEFTWARDS ARROW WITH DOTTED STEM
2B39;2914 # LEFTWARDS ARROW WITH TAIL WITH VERTICAL STROKE
2B3A;2915 # LEFTWARDS ARROW WITH TAIL WITH DOUBLE VERTICAL STROKE
2B3B;2916 # LEFTWARDS TWO-HEADED ARROW WITH TAIL
2B3C;2917 # LEFTWARDS TWO-HEADED ARROW WITH TAIL WITH VERTICAL STROKE
2B3D;2918 # LEFTWARDS TWO-HEADED ARROW WITH TAIL WITH DOUBLE VERTICAL STROKE
2B3E;2947 # LEFTWARDS ARROW THROUGH X
2B3F;2933 # WAVE ARROW POINTING DIRECTLY LEFT
2B40;2971 # EQUALS SIGN ABOVE LEFTWARDS ARROW
2B41;2972 # REVERSE TILDE OPERATOR ABOVE LEFTWARDS ARROW
2B42;2975 # LEFTWARDS ARROW ABOVE REVERSE ALMOST EQUAL TO
2B43;2977 # RIGHTWARDS ARROW THROUGH GREATER-THAN
2B44;297A # RIGHTWARDS ARROW THROUGH SUPERSET
2B45;2B46 # LEFTWARDS QUADRUPLE ARROW
2B46;2B45 # RIGHTWARDS QUADRUPLE ARROW
2B47;2B49 # REVERSE TILDE OPERATOR ABOVE RIGHTWARDS ARROW
2B48;2B4A # RIGHTWARDS ARROW ABOVE REVERSE ALMOST EQUAL TO
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2B49;2B47 # TILDE OPERATOR ABOVE LEFTWARDS ARROW
2B4A;2B48 # LEFTWARDS ARROW ABOVE ALMOST EQUAL TO
2B4B;2974 # LEFTWARDS ARROW ABOVE REVERSE TILDE OPERATOR
2B4C;2973 # RIGHTWARDS ARROW ABOVE REVERSE TILDE OPERATOR
2B60;2B62 # LEFTWARDS TRIANGLE-HEADED ARROW
2B62;2B60 # RIGHTWARDS TRIANGLE-HEADED ARROW
2B66;2B67 # NORTH WEST TRIANGLE-HEADED ARROW
2B67;2B66 # NORTH EAST TRIANGLE-HEADED ARROW
2B68;2B69 # SOUTH EAST TRIANGLE-HEADED ARROW
2B69;2B68 # SOUTH WEST TRIANGLE-HEADED ARROW
2B6A;2B6C # LEFTWARDS TRIANGLE-HEADED DASHED ARROW
2B6C;2B6A # RIGHTWARDS TRIANGLE-HEADED DASHED ARROW
2B6E;2B6F # CLOCKWISE TRIANGLE-HEADED OPEN CIRCLE ARROW     ; head on top
2B6F;2B6E # ANTICLOCKWISE TRIANGLE-HEADED OPEN CIRCLE ARROW ; head on top
2B70;2B72 # LEFTWARDS TRIANGLE-HEADED ARROW TO BAR
2B72;2B70 # RIGHTWARDS TRIANGLE-HEADED ARROW TO BAR
2B76;2B77 # NORTH WEST TRIANGLE-HEADED ARROW TO BAR
2B77;2B76 # NORTH EAST TRIANGLE-HEADED ARROW TO BAR
2B78;2B79 # SOUTH EAST TRIANGLE-HEADED ARROW TO BAR
2B79;2B78 # SOUTH WEST TRIANGLE-HEADED ARROW TO BAR
2B7A;2B7C # LEFTWARDS TRIANGLE-HEADED ARROW WITH DOUBLE HORIZONTAL STROKE
2B7C;2B7A # RIGHTWARDS TRIANGLE-HEADED ARROW WITH DOUBLE HORIZONTAL STROKE
2B80;2B82 # LEFTWARDS TRIANGLE-HEADED ARROW OVER RIGHTWARDS TRIANGLE-HEADED ARROW
2B81;2B83 # UPWARDS TRIANGLE-HEADED ARROW LEFTWARDS OF DOWNWARDS TRIANGLE-HEADED ARROW
2B82;2B80 # RIGHTWARDS TRIANGLE-HEADED ARROW OVER LEFTWARDS TRIANGLE-HEADED ARROW
2B83;2B81 # DOWNWARDS TRIANGLE-HEADED ARROW LEFTWARDS OF UPWARDS TRIANGLE-HEADED ARROW
2B84;2B86 # LEFTWARDS TRIANGLE-HEADED PAIRED ARROWS
2B86;2B84 # RIGHTWARDS TRIANGLE-HEADED PAIRED ARROWS
2B88;2B8A # LEFTWARDS BLACK CIRCLED WHITE ARROW
2B8A;2B88 # RIGHTWARDS BLACK CIRCLED WHITE ARROW
2B90;2B91 # RETURN LEFT
2B91;2B90 # RETURN RIGHT
2B92;2B93 # NEWLINE LEFT
2B93;2B92 # NEWLINE RIGHT
2B95;2B05 # RIGHTWARDS BLACK ARROW
2B98;2B9A # THREE-D TOP-LIGHTED LEFTWARDS EQUILATERAL ARROWHEAD
2B9A;2B98 # THREE-D TOP-LIGHTED RIGHTWARDS EQUILATERAL ARROWHEAD
2B9C;2B9E # BLACK LEFTWARDS EQUILATERAL ARROWHEAD
2B9E;2B9C # BLACK RIGHTWARDS EQUILATERAL ARROWHEAD
2BA0;2BA1 # DOWNWARDS TRIANGLE-HEADED ARROW WITH LONG TIP LEFTWARDS
2BA1;2BA0 # DOWNWARDS TRIANGLE-HEADED ARROW WITH LONG TIP RIGHTWARDS
2BA2;2BA3 # UPWARDS TRIANGLE-HEADED ARROW WITH LONG TIP LEFTWARDS
2BA3;2BA2 # UPWARDS TRIANGLE-HEADED ARROW WITH LONG TIP RIGHTWARDS
2BA4;2BA5 # LEFTWARDS TRIANGLE-HEADED ARROW WITH LONG TIP UPWARDS
2BA5;2BA4 # RIGHTWARDS TRIANGLE-HEADED ARROW WITH LONG TIP UPWARDS
2BA6;2BA7 # LEFTWARDS TRIANGLE-HEADED ARROW WITH LONG TIP DOWNWARDS
2BA7;2BA6 # RIGHTWARDS TRIANGLE-HEADED ARROW WITH LONG TIP DOWNWARDS
2BA8;2BA9 # BLACK CURVED DOWNWARDS AND LEFTWARDS ARROW
2BA9;2BA8 # BLACK CURVED DOWNWARDS AND RIGHTWARDS ARROW
2BAA;2BAB # BLACK CURVED UPWARDS AND LEFTWARDS ARROW
2BAB;2BAA # BLACK CURVED UPWARDS AND RIGHTWARDS ARROW
2BAC;2BAD # BLACK CURVED LEFTWARDS AND UPWARDS ARROW
2BAD;2BAC # BLACK CURVED RIGHTWARDS AND UPWARDS ARROW
2BAE;2BAF # BLACK CURVED LEFTWARDS AND DOWNWARDS ARROW
2BAF;2BAE # BLACK CURVED RIGHTWARDS AND DOWNWARDS ARROW
2BB0;2BB1 # RIBBON ARROW DOWN LEFT
2BB1;2BB0 # RIBBON ARROW DOWN RIGHT
2BB2;2BB3 # RIBBON ARROW UP LEFT
2BB3;2BB2 # RIBBON ARROW UP RIGHT
2BB4;2BB5 # RIBBON ARROW LEFT UP
2BB5;2BB4 # RIBBON ARROW RIGHT UP
2BB6;2BB7 # RIBBON ARROW LEFT DOWN
2BB7;2BB6 # RIBBON ARROW RIGHT DOWN
2BEC;2BEE # LEFTWARDS TWO-HEADED ARROW WITH TRIANGLE ARROWHEADS
2BEE;2BEC # RIGHTWARDS TWO-HEADED ARROW WITH TRIANGLE ARROWHEADS
2E2E;003F # REVERSED QUESTION MARK
2E41;002C # REVERSED COMMA
FD3E;FD3F # ORNATE LEFT PARENTHESIS
FD3F;FD3E # ORNATE RIGHT PARENTHESIS
FF0F;FF3C # FULLWIDTH SOLIDUS
FF3C;FF0F # FULLWIDTH REVERSE SOLIDUS
1F780;1F782 # BLACK LEFT-POINTING ISOSCELES RIGHT TRIANGLE
1F782;1F780 # BLACK RIGHT-POINTING ISOSCELES RIGHT TRIANGLE
1F800;1F802 # LEFTWARDS ARROW WITH SMALL TRIANGLE ARROWHEAD
1F802;1F800 # RIGHTWARDS ARROW WITH SMALL TRIANGLE ARROWHEAD
1F804;1F806 # LEFTWARDS ARROW WITH MEDIUM TRIANGLE ARROWHEAD
1F806;1F804 # RIGHTWARDS ARROW WITH MEDIUM TRIANGLE ARROWHEAD
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1F808;1F80A # LEFTWARDS ARROW WITH LARGE TRIANGLE ARROWHEAD
1F80A;1F808 # RIGHTWARDS ARROW WITH LARGE TRIANGLE ARROWHEAD
1F810;1F812 # LEFTWARDS ARROW WITH SMALL EQUILATERAL ARROWHEAD
1F812;1F810 # RIGHTWARDS ARROW WITH SMALL EQUILATERAL ARROWHEAD
1F814;1F816 # LEFTWARDS ARROW WITH EQUILATERAL ARROWHEAD
1F816;1F814 # RIGHTWARDS ARROW WITH EQUILATERAL ARROWHEAD
1F818;1F81A # HEAVY LEFTWARDS ARROW WITH EQUILATERAL ARROWHEAD
1F81A;1F818 # HEAVY RIGHTWARDS ARROW WITH EQUILATERAL ARROWHEAD
1F81C;1F81E # HEAVY LEFTWARDS ARROW WITH LARGE EQUILATERAL ARROWHEAD
1F81E;1F81C # HEAVY RIGHTWARDS ARROW WITH LARGE EQUILATERAL ARROWHEAD
1F820;1F822 # LEFTWARDS TRIANGLE-HEADED ARROW WITH NARROW SHAFT
1F822;1F820 # RIGHTWARDS TRIANGLE-HEADED ARROW WITH NARROW SHAFT
1F824;1F826 # LEFTWARDS TRIANGLE-HEADED ARROW WITH MEDIUM SHAFT
1F826;1F824 # RIGHTWARDS TRIANGLE-HEADED ARROW WITH MEDIUM SHAFT
1F828;1F82A # LEFTWARDS TRIANGLE-HEADED ARROW WITH BOLD SHAFT
1F82A;1F828 # RIGHTWARDS TRIANGLE-HEADED ARROW WITH BOLD SHAFT
1F82C;1F82E # LEFTWARDS TRIANGLE-HEADED ARROW WITH HEAVY SHAFT
1F82E;1F82C # RIGHTWARDS TRIANGLE-HEADED ARROW WITH HEAVY SHAFT
1F830;1F832 # LEFTWARDS TRIANGLE-HEADED ARROW WITH VERY HEAVY SHAFT
1F832;1F830 # RIGHTWARDS TRIANGLE-HEADED ARROW WITH VERY HEAVY SHAFT
1F834;1F836 # LEFTWARDS FINGER-POST ARROW
1F836;1F834 # RIGHTWARDS FINGER-POST ARROW
1F838;1F83A # LEFTWARDS SQUARED ARROW
1F83A;1F838 # RIGHTWARDS SQUARED ARROW
1F83C;1F83E # LEFTWARDS COMPRESSED ARROW
1F83E;1F83C # RIGHTWARDS COMPRESSED ARROW
1F840;1F842 # LEFTWARDS HEAVY COMPRESSED ARROW
1F842;1F840 # RIGHTWARDS HEAVY COMPRESSED ARROW
1F844;1F846 # LEFTWARDS HEAVY ARROW
1F846;1F844 # RIGHTWARDS HEAVY ARROW
1F850;1F852 # LEFTWARDS SANS-SERIF ARROW
1F852;1F850 # RIGHTWARDS SANS-SERIF ARROW
1F854;1F855 # NORTH WEST SANS-SERIF ARROW
1F855;1F854 # NORTH EAST SANS-SERIF ARROW
1F856;1F857 # SOUTH EAST SANS-SERIF ARROW
1F857;1F856 # SOUTH WEST SANS-SERIF ARROW
1F860;1F862 # WIDE-HEADED LEFTWARDS LIGHT BARB ARROW
1F862;1F860 # WIDE-HEADED RIGHTWARDS LIGHT BARB ARROW
1F864;1F865 # WIDE-HEADED NORTH WEST LIGHT BARB ARROW
1F865;1F864 # WIDE-HEADED NORTH EAST LIGHT BARB ARROW
1F866;1F867 # WIDE-HEADED SOUTH EAST LIGHT BARB ARROW
1F867;1F866 # WIDE-HEADED SOUTH WEST LIGHT BARB ARROW
1F868;1F86A # WIDE-HEADED LEFTWARDS BARB ARROW
1F86A;1F868 # WIDE-HEADED RIGHTWARDS BARB ARROW
1F86C;1F86D # WIDE-HEADED NORTH WEST BARB ARROW
1F86D;1F86C # WIDE-HEADED NORTH EAST BARB ARROW
1F86E;1F86F # WIDE-HEADED SOUTH EAST BARB ARROW
1F86F;1F86E # WIDE-HEADED SOUTH WEST BARB ARROW
1F870;1F872 # WIDE-HEADED LEFTWARDS MEDIUM BARB ARROW
1F872;1F870 # WIDE-HEADED RIGHTWARDS MEDIUM BARB ARROW
1F874;1F875 # WIDE-HEADED NORTH WEST MEDIUM BARB ARROW
1F875;1F874 # WIDE-HEADED NORTH EAST MEDIUM BARB ARROW
1F876;1F877 # WIDE-HEADED SOUTH EAST MEDIUM BARB ARROW
1F877;1F876 # WIDE-HEADED SOUTH WEST MEDIUM BARB ARROW
1F878;1F87A # WIDE-HEADED LEFTWARDS HEAVY BARB ARROW
1F87A;1F878 # WIDE-HEADED RIGHTWARDS HEAVY BARB ARROW
1F87C;1F87D # WIDE-HEADED NORTH WEST HEAVY BARB ARROW
1F87D;1F87C # WIDE-HEADED NORTH EAST HEAVY BARB ARROW
1F87E;1F87F # WIDE-HEADED SOUTH EAST HEAVY BARB ARROW
1F87F;1F87E # WIDE-HEADED SOUTH WEST HEAVY BARB ARROW
1F880;1F882 # WIDE-HEADED LEFTWARDS VERY HEAVY BARB ARROW
1F882;1F880 # WIDE-HEADED RIGHTWARDS VERY HEAVY BARB ARROW
1F884;1F885 # WIDE-HEADED NORTH WEST VERY HEAVY BARB ARROW
1F885;1F884 # WIDE-HEADED NORTH EAST VERY HEAVY BARB ARROW
1F886;1F887 # WIDE-HEADED SOUTH EAST VERY HEAVY BARB ARROW
1F887;1F886 # WIDE-HEADED SOUTH WEST VERY HEAVY BARB ARROW
1F890;1F892 # LEFTWARDS TRIANGLE ARROWHEAD
1F892;1F890 # RIGHTWARDS TRIANGLE ARROWHEAD
1F894;1F896 # LEFTWARDS WHITE ARROW WITHIN TRIANGLE ARROWHEAD
1F896;1F894 # RIGHTWARDS WHITE ARROW WITHIN TRIANGLE ARROWHEAD
1F898;1F89A # LEFTWARDS ARROW WITH NOTCHED TAIL
1F89A;1F898 # RIGHTWARDS ARROW WITH NOTCHED TAIL

# The following characters have no appropriate mirroring character.

# 0606; ARABIC-INDIC CUBE ROOT
# 0607; ARABIC-INDIC FOURTH ROOT
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# 2052; COMMERCIAL MINUS SIGN
# 2057; QUADRUPLE PRIME
# 214B; TURNED AMPERSAND
# 21AF; DOWNWARDS ZIGZAG ARROW       ; arrow to the south-west
# 21B4; RIGHTWARDS ARROW WITH CORNER DOWNWARDS
# 21B5; DOWNWARDS ARROW WITH CORNER LEFTWARDS
# 21B9; LEFTWARDS ARROW TO BAR OVER RIGHTWARDS ARROW TO BAR
# 2319; TURNED NOT SIGN          ; 'line marker'
# 237C; RIGHT ANGLE WITH DOWNWARDS ZIGZAG ARROW ; arrow to the south-west
# 238B; BROKEN CIRCLE WITH NORTHWEST ARROW
# 23B2; SUMMATION TOP
# 23B3; SUMMATION BOTTOM
# 23EF; BLACK RIGHT-POINTING TRIANGLE WITH DOUBLE VERTICAL BAR
# 2794; HEAVY WIDE-HEADED RIGHTWARDS ARROW
# 2798; HEAVY SOUTH EAST ARROW
# 2799; HEAVY RIGHTWARDS ARROW
# 279A; HEAVY NORTH EAST ARROW
# 279B; DRAFTING POINT RIGHTWARDS ARROW
# 279C; HEAVY ROUND-TIPPED RIGHTWARDS ARROW
# 279D; TRIANGLE-HEADED RIGHTWARDS ARROW
# 279E; HEAVY TRIANGLE-HEADED RIGHTWARDS ARROW
# 279F; DASHED TRIANGLE-HEADED RIGHTWARDS ARROW
# 279F; HEAVY DASHED TRIANGLE-HEADED RIGHTWARDS ARROW
# 27A1; BLACK RIGHTWARDS ARROW
# 27A2; THREE-D TOP-LIGHTED RIGHTWARDS ARROWHEAD
# 27A3; THREE-D BOTTOM-LIGHTED RIGHTWARDS ARROWHEAD
# 27A4; BLACK RIGHTWARDS ARROWHEAD
# 27A5; HEAVY BLACK CURVED DOWNWARDS AND RIGHTWARDS ARROW
# 27A6; HEAVY BLACK CURVED UPWARDS AND RIGHTWARDS ARROW
# 27A7; SQUAT BLACK RIGHTWARDS ARROW
# 27A8; HEAVY CONCAVE-POINTED BLACK RIGHTWARDS ARROW
# 27B2; CIRCLED HEAVY WHITE RIGHTWARDS ARROW
# 27B3; WHITE-FEATHERED RIGHTWARDS ARROW
# 27B4; BLACK-FEATHERED SOUTH EAST ARROW
# 27B5; BLACK-FEATHERED RIGHTWARDS ARROW
# 27B6; BLACK-FEATHERED NORTH EAST ARROW
# 27B7; HEAVY BLACK-FEATHERED SOUTH EAST ARROW
# 27B8; HEAVY BLACK-FEATHERED RIGHTWARDS ARROW
# 27B9; HEAVY BLACK-FEATHERED NORTH EAST ARROW
# 27BA; TEARDROP-BARBED RIGHTWARDS ARROW
# 27BB; HEAVY TEARDROP-SHANKED RIGHTWARDS ARROW
# 27BC; WEDGE-TAILED RIGHTWARDS ARROW
# 27BD; HEAVY WEDGE-TAILED RIGHTWARDS ARROW
# 27BE; OPEN-OUTLINED RIGHTWARDS ARROW
# 292D; SOUTH EAST ARROW CROSSING NORTH EAST ARROW
# 292E; NORTH EAST ARROW CROSSING SOUTH EAST ARROW
# 292F; FALLING DIAGONAL CROSSING NORTH EAST ARROW
# 2930; RISING DIAGONAL CROSSING SOUTH EAST ARROW
# 2934; ARROW POINTING RIGHTWARDS THEN CURVING UPWARDS
# 2935; ARROW POINTING RIGHTWARDS THEN CURVING DOWNWARDS
# 293A; TOP ARC ANTICLOCKWISE ARROW
# 293B; BOTTOM ARC ANTICLOCKWISE ARROW
# 293C; TOP ARC CLOCKWISE ARROW WITH MINUS
# 293D; TOP ARC ANTICLOCKWISE ARROW WITH PLUS
# 2944; SHORT RIGHTWARDS ARROW ABOVE LEFTWARDS ARROW
# 2970; RIGHT DOUBLE ARROW WITH ROUNDED HEAD
# 299A; VERTICAL ZIGZAG LINE
# 29BC; CIRCLED ANTICLOCKWISE-ROTATED DIVISION SIGN
# 2B4D; DOWNWARDS TRIANGLE-HEADED ZIGZAG ARROW
# 2B7E; HORIZONTAL TAB KEY; leftwards triangle-headed arrow to bar over rightwards triangle-
         headed arrow to bar
# 2B7F; VERTICAL TAB KEY; downwards triangle-headed arrow to bar left of triangle-headed
         upwards arrow to bar
# 2B8C; ANTICLOCKWISE TRIANGLE-HEADED RIGHT U-SHAPED ARROW
# 2B8D; ANTICLOCKWISE TRIANGLE-HEADED BOTTOM U-SHAPED ARROW
# 2B8E; ANTICLOCKWISE TRIANGLE-HEADED LEFT U-SHAPED ARROW
# 2B8F; ANTICLOCKWISE TRIANGLE-HEADED TOP U-SHAPED ARROW
# 2B94; FOUR CORNER ARROWS CIRCLING ANTICLOCKWISE
# 2B99; THREE-D RIGHT-LIGHTED UPWARDS EQUILATERAL ARROWHEAD
# 2B9B; THREE-D LEFT-LIGHTED DOWNWARDS EQUILATERAL ARROWHEAD
# 1F10E; CIRCLED ANTICLOCKWISE ARROW
# 1F5D8; CLOCKWISE RIGHT AND LEFT SEMICIRCLE ARROWS
# 1F8B1; ARROW POINTING RIGHTWARDS THEN CURVING SOUTH WEST


# EOF
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