The hamnosys package*

Marc Schulder
Thomas Hanke

25 January 2022

Contents

1 Introduction **3**
1.1 Requirements . . . 3
1.2 Installation . . . 3
1.3 Usage . . . 4
1.4 Licence . . . 4

2 HamNoSys using character input **4**
2.1 Activating the HamNoSys font . . . 4
2.2 The package option *autofont* . . . 5
2.3 HamNoSys in the source document . . . 6

3 HamNoSys using symbol commands **6**

4 HamNoSys using symbol names **6**

5 List of HamNoSys symbols **8**
5.1 Handshapes . . . 8
5.2 Handshape modifiers . . . 8
5.3 Extended finger directions . . . 8
5.4 Palm orientation . . . 9
5.5 Location . . . 9
5.6 Location modifiers . . . 11
5.7 Movement . . . 11
5.8 Movement modifiers . . . 12
5.9 Other symbols . . . 13
5.10 Version symbol . . . 14
5.11 Regular Unicode characters . . . 14
5.12 Obsolete spacing symbols . . . 14

*This document corresponds to hamnosys v1.0.2, dated 2022/01/25. An archival copy can be found at https://doi.org/10.25592/uhhfdm.9845.

6 Implementation **15**
6.1 Initialisation and Dependencies . . . 15
6.2 HamNoSys font setup . . . 15
6.3 Automatic font switching . . . 15
6.4 HamNoSys symbol commands . . . 16
6.4.1 Handshapes . . . 16
6.4.2 Handshape modifiers . . . 17
6.4.3 Extended finger directions . . . 17
6.4.4 Palm orientation . . . 18
6.4.5 Location . . . 19
6.4.6 Location modifiers . . . 21
6.4.7 Movement . . . 22
6.4.8 Movement modifiers . . . 26
6.4.9 Other symbols . . . 26
6.4.10 Version symbol . . . 27
6.4.11 Regular Unicode characters . . . 28
6.4.12 Obsolete spacing symbols . . . 28
6.5 Symbol name sequence . . . 28
6.5.1 For each . . . 29
6.5.2 Symbol name to symbol command . . . 29
6.5.3 Symbol name sequence command . . . 30

References **30**

Index **31**

Change History **34**

1 Introduction

The Hamburg Notation System, HamNoSys for short, is a system for the phonetic transcription of signed languages. It was originally introduced in 1984 and the first public version followed in 1987 (Prillwitz et al., 1987; Prillwitz et al., 1989). The latest release of HamNoSys is version 4.1 (Schmaling and Hanke, 2001). For a brief introduction into the structure of HamNoSys see Hanke (2004).

The TeX package *hamnosys* enables the use of HamNoSys symbols in TeX documents. It provides three methods of entering HamNoSys symbols:

1. direct input of symbols as Unicode characters in the TeX file, just like one would enter regular characters (see Section 2).
2. using TeX commands that have been defined for each individual symbol (see Section 3),
3. listing names of symbols inside the command `\hamnosys` (see Section 4).

This document describes the technical requirements (Section 1.1), how to install the package (Section 1.2), how to use the TeX file (Section 1.3), the licence conditions of the package (Section 1.4), the three usage methods (Sections 2, 3 and 4), and provides an overview of all HamNoSys symbols (Section 5).

1.1 Requirements

This package requires the use of XeLaTeX or LuaLaTeX. It unfortunately does not work with regular LaTeX (i. e. the compilers `latex` and `pdfLatex`) as it needs to import an external unicode font.

1.2 Installation

The source code of the *hamnosys* package can be found in a git repository on the Github account of the DGS-Korpus project.[1] It is also archived via the research data repository of Universität Hamburg.[2]

As the *hamnosys* package is still in its test phase, it is not (yet) part of CTAN and is not listed in any TeX distribution. Therefore it has to be integrated manually into each LaTeX project. To do this you download the repository and copy the files `hamnosys.sty` and `HamNoSysUnicode.ttf` into the main directory of your LaTeX project.

To also be able to use HamNoSys elsewhere on your computer (see Section 2.3), it is recommended to install the font through your operating system as well. It is available online as part of the HamNoSys software package.[3] In addition to the font file (Mac/Linux/Windows/Web), the archive also includes an application for writing HamNoSys via an input palette (Mac/Linux/Windows) and a HamNoSys keyboard layout (Mac only). The input palette is also available as a web interface[4] and as part of the corpus software iLex[5].

[1] https://github.com/DGS-Korpus/HamNoSys4TeX
[2] TeX package *hamnosys* (latest version): https://doi.org/10.25592/uhhfdm.9643
[3] HamNoSys software package (latest version): https://doi.org/10.25592/uhhfdm.9724
[4] https://www.sign-lang.uni-hamburg.de/hamnosys/input/
[5] https://www.sign-lang.uni-hamburg.de/ilex/

1.3 Usage

The package can be imported normally via `\usepackage{hamnosys}`. It has a single optional parameter, *autofont*, which automates switching to the HamNoSys font when entering HamNoSys symbols as Unicode characters. (siehe Section 2.2).

HamNoSys is displayed through the special font *HamNoSysUnicode*. To input HamNoSys symbols as regular Unicode characters in your document, you need to switch to this font by using the command `\texthamnosys{}` or the switch command `\hamnosysfont` (see Section 2.1).

Alternatively you can enter HamNoSys symbols via invidual commands (Section 3) or enter their names inside the command `\hamnosys{}` (Section 4). For an overview of all HamNoSys symbols, their names and the commands with which they can be generated, see Section 5.

1.4 Licence

Copyright © 1986–2022 Universität Hamburg. Permission is granted to copy, distribute and/or modify this software under the terms of the LaTeX Project Public License, version 1.3c or later.[6]

The HamNoSysUnicode 4.0 TrueType font may also be obtained under a Creative Commons Attribution 4.0 International licence as part of the *HamNoSys software package* (see Footnote 3).

2 HamNoSys using character input

HamNoSys symbols can be entered directly into a TeX document like any other character. This allows you to copy-paste them from other programs or to enter them as direct input via HamNoSys keyboard layouts.

HamNoSys is displayed via a special font. You therefore need to either actively switch between regular fonts and the HamNoSys font (Section 2.1) or activate the package option *autofont* (Section 2.2).

2.1 Activating the HamNoSys font

`\texthamnosys`
`\hamnosysfont`

To explicitly tell LaTeX that content should be displayed using the HamNoSys font, you can use the command `\texthamnosys{}` or the switch command `\hamnosysfont`. These behave like e. g. the italics commands `\textit{}` and `\itshape` do, respectively.

```
You can use \texthamnosys{}
```

or

```
You can use {\hamnosysfont }
```

Output: *You can use* *to sign Hamburg.*

[6] https://www.latex-project.org/lppl.txt

Warning: The HamNoSys font knows *only* HamNoSys symbols, but no other characters. Therefore you have to be careful to switch back to the regular font after using it. The easiest way to do so is to always put HamNoSys symbols inside the `\texthamnosys{}` command. If you use `\hamnosysfont`, it is best to limit its scope by using curly braces (see above). The following example shows display issues that follow from not limiting the scope of the font:

```
You can use \hamnosysfont  to sign Hamburg.
```

Output: *You can use* .

2.2 The package option *autofont*

An alternative to explicitly activating the HamNoSys font is the optional package parameter *autofont*, which activates automatic switching between regular and HamNoSys fonts. This makes the use of `\hamnosysfont` and `\texthamnosys{}` unnecessary in many cases. *autofont* is available in XeLaTeX, but not in LuaLaTeX.

An important limitation is that *autofont* only recognises those characters as HamNoSys symbols that are not also used in regular texts. It works for almost all HamNoSys symbols, except for those listed in Section 5.11, which will be displayed using the regular document font unless you have activated the HamNoSys font explicitly. The following example shows such a case. Note that the curly braces and the vertical bar are displayed thinner in the regular font than in the HamNoSys font:

```
...
\usepackage[autofont]{hamnosys}
\begin{document}

Compare the braces and bar in
\{|\}
with those in
\texthamnosys{\{|\}}.

\end{document}
```

Output: *Compare the braces and bar in* {|} *with those in* **{|}**.

The technical reason for this behaviour is that *autofont* takes advantage of the fact that almost all characters of the HamNoSys font are located in *Private Use Area* of Unicode. This is a group of characters that the Unicode Consortium intentionally provides no meanings for, reserving them instead for use by special use cases that are not covered by Unicode, such as HamNoSys. *autofont* uses the XeLaTeX package *ucharclasses* to define commands that automatically switch fonts for all characters in the *Private Use Area*. However, there is a small number of characters relevant to HamNoSys that are located in the regular areas of Unicode, e. g. the question mark and curly braces. As these lie outside of the *Private Use Area* *autofont* cannot detect that they are supposed to be part of HamNoSys.

Another limitation is that *autofont* will always format all characters in the *Private Use Area* with the HamNoSys font. In the special case where you are using yet another font that also makes use of the *Private Use Area* this could lead to conflicts. In such cases you should not use *autofont* and instead change fonts explicitly or use one of the other methods.

2.3 HamNoSys in the source document

If you would like to also correctly display HamNoSys symbols in your TeX source code (instead of as many identical rectangles) you need to make sure that the font *HamNoSysUnicode* is installed in your operating system (see Section 1.2). Should it not be possible to install fonts (e. g. in an online editor) or the editor you use still does not display the symbols, it might be preferable to use symbol commands or names instead (see Sections 3 and 4). It should be noted, however, that it does not matter for the final PDF output file whether the source code was readable in the editor. As long as the font was correctly activated (see Section 2.1) all symbols should be displayed, even if they looked like identical rectangles in the input.

3 HamNoSys using symbol commands

The *hamnosys* package defines individual commands for each HamNoSys symbol. This is an alternative ASCII-compatible input method for HamNoSys. A list of all symbol commands can be found in Section 5.

```
You can use \hamceeall\hamthumbopenmod\hamfingerstraightmod\hamextfingerul
\hampalmdl\hamforehead\hamlrat\hamclose\hamparbegin\hammover\hamreplace
\hampinchall\hamfingerstraightmod\hamparend{} to sign Hamburg.
```

Output: *You can use* *to sign Hamburg.*

As is usual for LaTeX you should make sure to close commands with `{}` where necessary to prevent the accidental consumption of the following character.

The names of the commands match the official names of the HamNoSys symbols as they are defined in the *HamNoSysUnicode* font. An exception are symbols whose names contain digits (see Sections 5.1 and 5.10). As digits are not allowed to be part of LaTeX commands, they are written out as English words instead. For example, the symbol ☝ has the name *hamfinger2* and the command `\hamfingertwo`.

An advantage of symbol commands is that they are always displayed in the correct font. Explicitly switching fonts with the help of `\hamnosysfont` or `\texthamnosys{}` is not required.

4 HamNoSys using symbol names

`\hamnosys` The command `\hamnosys{}` allows you to input HamNoSys as a comma-separated sequence of symbol names. The symbol names can be taken from the lists in Section 5 or copied from the web input palette (see Section 1.2).

```
You can use \hamnosys{hamceeall,hamthumbopenmod,hamfingerstraightmod,
    hamextfingerul,hampalmdl,hamforehead,hamlrat,hamclose,hamparbegin,
    hammover,hamreplace,hampinchall,hamfingerstraightmod,hamparend} to
    sign Hamburg.
```

Output: *You can use* *to sign Hamburg.*

Unlike the symbol commands of Section 3), symbol names in `\hamnosys{}` may contain digits. In fact, both the name version with digits and the one with written out number words are accepted.

```
\hamnosys{hamfinger2}
```

or

```
\hamnosys{hamfingertwo}
```

Output: ⌟

Symbol names must be separated by commas. Whitespaces are allowed after the comma, but not required.

If a sequence contains an unknown term you will receive a compiler warning and the unknown term will be output as regular text. Unknown terms may be caused by typos, terms that are not part of the HamNoSys symbol name vocabulary, errors in comma separation or that a whitespace was entered **before** a comma. In the following example the symbol *hampalmdl* was accidentally spelled *hanpalmdl*:

```
\hamnosys{hamceeall,hamthumbopenmod,hamfingerstraightmod,hamextfingerul,
    hanpalmdl,hamforehead,hamlrat,hamclose,hamparbegin,hammover,hamreplace
    ,hampinchall,hamfingerstraightmod,hamparend}
```

Output: $\overline{\ni}\,{}_{\ulcorner}\,hanpalmdl\sqcap{}^{\blacksquare}{}^{)([\rightarrow\rightarrowtail\overline{\lhd}]}$

5 List of HamNoSys symbols

The following tables provide an overview of all HamNoSys symbols. For each symbol they provide its name, which command produces it, the symbol itself, and the hexadecimal value that is used to represent it in Unicode. Modifiers are symbols that function as diacritics, combining with the preceding character.

5.1 Handshapes

Name	Command	Symbol	Hex
hamfist	\hamfist		E000
hamflathand	\hamflathand		E001
hamfinger2	\hamfingertwo		E002
hamfinger23	\hamfingertwothree		E003
hamfinger23spread	\hamfingertwothreespread		E004
hamfinger2345	\hamfingertwothreefourfive		E005
hampinch12	\hampinchonetwo		E006
hampinchall	\hampinchall		E007
hampinch12open	\hampinchonetwoopen		E008
hamcee12	\hamceeonetwo		E009
hamceeall	\hamceeall		E00A
hamceeopen	\hamceeopen		E00B

5.2 Handshape modifiers

Name	Command	Symbol	Hex
hamthumboutmod	\hamthumboutmod	◌	E00C
hamthumbacrossmod	\hamthumbacrossmod	◌	E00D
hamthumbopenmod	\hamthumbopenmod	◌	E00E
hamfingerstraightmod	\hamfingerstraightmod	◌	E010
hamfingerbendmod	\hamfingerbendmod	◌	E011
hamfingerhookmod	\hamfingerhookmod	◌	E012
hamdoublebent	\hamdoublebent	◌	E013
hamdoublehooked	\hamdoublehooked	◌	E014

5.3 Extended finger directions

Name	Command	Symbol	Hex
hamextfingeru	\hamextfingeru		E020
hamextfingerur	\hamextfingerur		E021
hamextfingerr	\hamextfingerr		E022
hamextfingerdr	\hamextfingerdr		E023
hamextfingerd	\hamextfingerd		E024

Name	Command	Symbol	Hex
hamextfingerdl	\hamextfingerdl		E025
hamextfingerl	\hamextfingerl		E026
hamextfingerul	\hamextfingerul		E027
hamextfingerol	\hamextfingerol		E028
hamextfingero	\hamextfingero		E029
hamextfingeror	\hamextfingeror		E02A
hamextfingeril	\hamextfingeril		E02B
hamextfingeri	\hamextfingeri		E02C
hamextfingerir	\hamextfingerir		E02D
hamextfingerui	\hamextfingerui		E02E
hamextfingerdi	\hamextfingerdi		E02F
hamextfingerdo	\hamextfingerdo		E030
hamextfingeruo	\hamextfingeruo		E031

5.4 Palm orientation

Name	Command	Symbol	Hex
hampalmu	\hampalmu		E038
hampalmur	\hampalmur		E039
hampalmr	\hampalmr		E03A
hampalmdr	\hampalmdr		E03B
hampalmd	\hampalmd		E03C
hampalmdl	\hampalmdl		E03D
hampalml	\hampalml		E03E
hampalmul	\hampalmul		E03F

5.5 Location

Name	Command	Symbol	Hex
hamhead	\hamhead		E040
hamheadtop	\hamheadtop		E041
hamforehead	\hamforehead		E042
hameyebrows	\hameyebrows		E043
hameyes	\hameyes		E044
hamnose	\hamnose		E045
hamnostrils	\hamnostrils		E046
hamear	\hamear		E047
hamearlobe	\hamearlobe		E048
hamcheek	\hamcheek		E049
hamlips	\hamlips		E04A
hamtongue	\hamtongue		E04B
hamteeth	\hamteeth		E04C
hamchin	\hamchin		E04D

Name	Command	Symbol	Hex
hamunderchin	\hamunderchin	◡	E04E
hamneck	\hamneck	) (	E04F
hamshouldertop	\hamshouldertop	▀	E050
hamshoulders	\hamshoulders	▀	E051
hamchest	\hamchest	▀	E052
hamstomach	\hamstomach	▀	E053
hambelowstomach	\hambelowstomach	▀	E054
hamneutralspace	\hamneutralspace	∅	E05F
hamupperarm	\hamupperarm	⌝	E060
hamelbow	\hamelbow	⌞	E061
hamelbowinside	\hamelbowinside	⌞	E062
hamlowerarm	\hamlowerarm	⌙	E063
hamwristback	\hamwristback	¬	E064
hamwristpulse	\hamwristpulse	⌐	E065
hamthumbball	\hamthumbball	⌒	E066
hampalm	\hampalm	⌒	E067
hamhandback	\hamhandback	⌒	E068
hamthumbside	\hamthumbside	1	E069
hampinkyside	\hampinkyside	5	E06A
hamthumb	\hamthumb	1	E070
hamindexfinger	\hamindexfinger	2	E071
hammiddlefinger	\hammiddlefinger	3	E072
hamringfinger	\hamringfinger	4	E073
hampinky	\hampinky	5	E074
hamfingertip	\hamfingertip	▯	E075
hamfingernail	\hamfingernail	▯	E076
hamfingerpad	\hamfingerpad	▯	E077
hamfingermidjoint	\hamfingermidjoint	▮	E078
hamfingerbase	\hamfingerbase	▯	E079
hamfingerside	\hamfingerside	▮	E07A

5.6 Location modifiers

Name	Command	Symbol	Hex
hamlrbeside	\hamlrbeside	▫	E058
hamlrat	\hamlrat	▪	E059
hamcoreftag	\hamcoreftag	□	E05A
hamcorefref	\hamcorefref	○	E05B

5.7 Movement

Name	Command	Symbol	Hex
hammoveu	\hammoveu	↑	E080
hammoveur	\hammoveur	↗	E081
hammover	\hammover	→	E082
hammovedr	\hammovedr	↘	E083
hammoved	\hammoved	↓	E084
hammovedl	\hammovedl	↙	E085
hammovel	\hammovel	←	E086
hammoveul	\hammoveul	↖	E087
hammoveol	\hammoveol	↖	E088
hammoveo	\hammoveo	↥	E089
hammoveor	\hammoveor	↗	E08A
hammoveil	\hammoveil	↙	E08B
hammovei	\hammovei	↧	E08C
hammoveir	\hammoveir	↘	E08D
hammoveui	\hammoveui	↖	E08E
hammovedi	\hammovedi	↙	E08F
hammovedo	\hammovedo	↘	E090
hammoveuo	\hammoveuo	↗	E091
hamcircleo	\hamcircleo	↻	E092
hamcirclei	\hamcirclei	↺	E093
hamcircled	\hamcircled	↻	E094
hamcircleu	\hamcircleu	↺	E095
hamcirclel	\hamcirclel	↺	E096
hamcircler	\hamcircler	↻	E097
hamcircleul	\hamcircleul	⬁	E098
hamcircledr	\hamcircledr	⬁	E099
hamcircleur	\hamcircleur	⬀	E09A
hamcircledl	\hamcircledl	⬀	E09B
hamcircleol	\hamcircleol	⬁	E09C
hamcircleir	\hamcircleir	⬁	E09D
hamcircleor	\hamcircleor	⬂	E09E
hamcircleil	\hamcircleil	⬂	E09F
hamcircleui	\hamcircleui	⬃	E0A0
hamcircledo	\hamcircledo	⬃	E0A1
hamcircleuo	\hamcircleuo	⬂	E0A2

Name	Command	Symbol	Hex
hamcircledi	\hamcircledi		E0A3
hamfingerplay	\hamfingerplay		E0A4
hamnodding	\hamnodding		E0A5
hamswinging	\hamswinging		E0A6
hamtwisting	\hamtwisting		E0A7
hamstircw	\hamstircw		E0A8
hamstirccw	\hamstirccw		E0A9
hamreplace	\hamreplace		E0AA
hamnomotion	\hamnomotion		E0AF
hamclocku	\hamclocku		E0B0
hamclockul	\hamclockul		E0B1
hamclockl	\hamclockl		E0B2
hamclockdl	\hamclockdl		E0B3
hamclockd	\hamclockd		E0B4
hamclockdr	\hamclockdr		E0B5
hamclockr	\hamclockr		E0B6
hamclockur	\hamclockur		E0B7
hamclockfull	\hamclockfull		E0B8
hamarcl	\hamarcl		E0B9
hamarcu	\hamarcu		E0BA
hamarcr	\hamarcr		E0BB
hamarcd	\hamarcd		E0BC
hamwavy	\hamwavy		E0BD
hamzigzag	\hamzigzag		E0BE
hamellipseh	\hamellipseh		E0C0
hamellipseur	\hamellipseur		E0C1
hamellipsev	\hamellipsev		E0C2
hamellipseul	\hamellipseul		E0C3
hamincreasing	\hamincreasing		E0C4
hamdecreasing	\hamdecreasing		E0C5
hamfast	\hamfast		E0C8
hamslow	\hamslow		E0C9
hamtense	\hamtense		E0CA
hamrest	\hamrest		E0CB
hamhalt	\hamhalt		E0CC
hamclose	\hamclose		E0D0
hamtouch	\hamtouch		E0D1
haminterlock	\haminterlock		E0D2
hamcross	\hamcross		E0D3
hamarmextended	\hamarmextended		E0D4
hambehind	\hambehind		E0D5
hambrushing	\hambrushing		E0D6

5.8 Movement modifiers

Name	Command	Symbol	Hex
hamsmallmod	\hamsmallmod	∘	E0C6
hamlargemod	\hamlargemod	.	E0C7

5.9 Other symbols

Name	Command	Symbol	Hex
hamrepeatfromstart	\hamrepeatfromstart	⁺	E0D8
hamrepeatfromstartseveral	\hamrepeatfromstartseveral	⁺⁺	E0D9
hamrepeatcontinue	\hamrepeatcontinue	⁺»	E0DA
hamrepeatcontinueseveral	\hamrepeatcontinueseveral	⁺⁺»	E0DB
hamrepeatreverse	\hamrepeatreverse	⁺«	E0DC
hamalternatingmotion	\hamalternatingmotion	∼	E0DD
hamseqbegin	\hamseqbegin	(	E0E0
hamseqend	\hamseqend	)	E0E1
hamparbegin	\hamparbegin	[	E0E2
hamparend	\hamparend	]	E0E3
hamfusionbegin	\hamfusionbegin	⟨	E0E4
hamfusionend	\hamfusionend	⟩	E0E5
hambetween	\hambetween	\	E0E6
hamplus	\hamplus	⁺	E0E7
hamsymmpar	\hamsymmpar	⁝	E0E8
hamsymmlr	\hamsymmlr	⁚	E0E9
hamnondominant	\hamnondominant	∅	E0EA
hamnonipsi	\hamnonipsi	⸗	E0EB
hametc	\hametc	…	E0EC
hamorirelative	\hamorirelative	~	E0ED
hammime	\hammime	⋃	E0F0

5.10 Version symbol

Name	Command	Symbol	Hex
hamversion40	`\hamversionfourzero`		E0F1

5.11 Regular Unicode characters

The following characters are not correctly recognised as HamNoSys symbols by *autofont* (see Section 2.2). If the HamNoSys font is not explicitly activated, these characters will instead be displayed using the regular document font. To compare these two possible output forms, they are contrasted in the columns *Symbol* (HamNoSys) and *Unicode* (normal).

Name	Command	Symbol	Unicode	Hex
hamspace	`\hamspace`			20
hamexclaim	`\hamexclaim`	!	!	21
hamcomma	`\hamcomma`	,	,	002C
hamfullstop	`\hamfullstop`	.	.	002E
hamquery	`\hamquery`	?	?	003F
hamaltbegin	`\hamaltbegin`	{	{	007B
hammetaalt	`\hammetaalt`	|	|	007C
hamaltend	`\hamaltend`	}	}	007D

5.12 Obsolete spacing symbols

The following symbols are marked as obsolete, but can still be found in the HamNoSys font.

Name	Command	Symbol	Hex
hamwristtopulse	`\hamwristtopulse`		E07C
hamwristtoback	`\hamwristtoback`		E07D
hamwristtothumb	`\hamwristtothumb`		E07E
hamwristtopinky	`\hamwristtopinky`		E07F
hammovecross	`\hammovecross`		E0AD
hammoveX	`\hammoveX`		E0AE

6 Implementation

6.1 Initialisation and Dependencies

Make sure the user uses Xe- oder LuaTeX.

```
\RequirePackage{iftex}
\ifXeTeX
\else
 \ifLuaTeX
 \else
   \PackageError{hamnosys}{XeTeX or LuaTeX required}{The hamnosys package
    requires either LuaTeX or XeTeX. You must change your typesetting engine
    to, e.g., "xelatex" or "lualatex"instead of "latex" or "pdflatex".}
 \fi
\fi
```

Additional package dependencies.

```
\RequirePackage{fontspec}
\RequirePackage{ifthen}
\RequirePackage{kvoptions}
```

Specify the *autofont* package option (see Section 2.2).

```
\SetupKeyvalOptions{family=hns, prefix=hns@}

\DeclareBoolOption{autofont}

\ProcessKeyvalOptions{hns}
```

6.2 HamNoSys font setup

`\hamnosysfont` Load the HamNoSys Unicode font family. This also declares the `\hamnosysfont` command for switching to the font (see Section 2.1).

```
\newfontfamily\hamnosysfont{HamNoSysUnicode}[
    Extension = .ttf,
    UprightFont = HamNoSysUnicode,
    ]
```

`\texthamnosys` Declare font command `\texthamnosys` (see Section 2.1).

```
\newcommand{\texthamnosys}[1]{{\hamnosysfont #1}}
```

6.3 Automatic font switching

Implement the *autofont* package option (see Section 2.2). Use of this option adds the package *ucharclasses* as a depedency, which is only available for XeTeX.

```
\ifthenelse{\boolean{hns@autofont}}{%
  \ifXeTeX
```

Only import *ucharclasses* if option is active to avoid unnecessary errors in LuaTeX.

```
  \RequirePackage[Latin, PrivateUseArea]{ucharclasses}

```

Make it so that any characters in the *Private Use Area* of Unicode switch to the HamNoSys font and then back to the font setting they were at before. As any *Private Use Area* character will always do this, this is incompatible with using a second font that provides characters in the same Unicode area.

```
  \setTransitionsFor{PrivateUseArea}%
    {\let\curfamily\f@family\let\curshape\f@shape\let\curseries\f@series\hamnosysfont}
    {\fontfamily{\curfamily}\fontshape{\curshape}\fontseries{\curseries}\selectfont}
```

If user is not using XeTeX, throw a warning.

```
  \else
    \PackageWarning{hamnosys}{Option autofont only available in XeTeX.}
\fi}{}
```

6.4 HamNoSys symbol commands

Declare commands for individiual HamNoSys symbols. See Section 3 for a general discussion of how these are used and Section 5 for a tabular representation of all symbols.

6.4.1 Handshapes

`\hamfist` Declare the symbol ⬭ (hamfist)

```
\DeclareTextCommand{\hamfist}{TU}{\texthamnosys{\char "E000}}
```

`\hamflathand` Declare the symbol ⬭ (hamflathand)

```
\DeclareTextCommand{\hamflathand}{TU}{\texthamnosys{\char "E001}}
```

`\hamfingertwo` Declare the symbol ☝ (hamfinger2)

```
\DeclareTextCommand{\hamfingertwo}{TU}{\texthamnosys{\char "E002}}
```

`\hamfingertwothree` Declare the symbol ☝ (hamfinger23)

```
\DeclareTextCommand{\hamfingertwothree}{TU}{\texthamnosys{\char "E003}}
```

`\hamfingertwothreespread` Declare the symbol ☝ (hamfinger23spread)

```
\DeclareTextCommand{\hamfingertwothreespread}{TU}{\texthamnosys{\char "E004}}
```

`\hamfingertwothreefourfive` Declare the symbol 🖖 (hamfinger2345)

```
\DeclareTextCommand{\hamfingertwothreefourfive}{TU}{\texthamnosys{\char "E005}}
```

`\hampinchonetwo` Declare the symbol ◡ (hampinch12)

```
\DeclareTextCommand{\hampinchonetwo}{TU}{\texthamnosys{\char "E006}}
```

`\hampinchall` Declare the symbol ◡ (hampinchall)

```
\DeclareTextCommand{\hampinchall}{TU}{\texthamnosys{\char "E007}}
```

`\hampinchonetwoopen` Declare the symbol ◡ (hampinch12open)

```
\DeclareTextCommand{\hampinchonetwoopen}{TU}{\texthamnosys{\char "E008}}
```

`\hamceeonetwo` Declare the symbol ⊃ (hamcee12)

```
\DeclareTextCommand{\hamceeonetwo}{TU}{\texthamnosys{\char "E009}}
```

`\hamceeall` Declare the symbol ⊃ (hamceeall)

```
\DeclareTextCommand{\hamceeall}{TU}{\texthamnosys{\char "E00A}}
```

`\hamceeopen` Declare the symbol ⊃ (hamceeopen)

```
\DeclareTextCommand{\hamceeopen}{TU}{\texthamnosys{\char "E00B}}
```

6.4.2 Handshape modifiers

`\hamthumboutmod` Declare the symbol ◞ (hamthumboutmod)

```
\DeclareTextCommand{\hamthumboutmod}{TU}{\texthamnosys{\char "E00C}}
```

`\hamthumbacrossmod` Declare the symbol ⸗ (hamthumbacrossmod)

```
\DeclareTextCommand{\hamthumbacrossmod}{TU}{\texthamnosys{\char "E00D}}
```

`\hamthumbopenmod` Declare the symbol ◞ (hamthumbopenmod)

```
\DeclareTextCommand{\hamthumbopenmod}{TU}{\texthamnosys{\char "E00E}}
```

`\hamfingerstraightmod` Declare the symbol ‾ (hamfingerstraightmod)

```
\DeclareTextCommand{\hamfingerstraightmod}{TU}{\texthamnosys{\char "E010}}
```

`\hamfingerbendmod` Declare the symbol ⁀ (hamfingerbendmod)

```
\DeclareTextCommand{\hamfingerbendmod}{TU}{\texthamnosys{\char "E011}}
```

`\hamfingerhookmod` Declare the symbol ⁐ (hamfingerhookmod)

```
\DeclareTextCommand{\hamfingerhookmod}{TU}{\texthamnosys{\char "E012}}
```

`\hamdoublebent` Declare the symbol ^ (hamdoublebent)

```
\DeclareTextCommand{\hamdoublebent}{TU}{\texthamnosys{\char "E013}}
```

`\hamdoublehooked` Declare the symbol ˇ (hamdoublehooked)

```
\DeclareTextCommand{\hamdoublehooked}{TU}{\texthamnosys{\char "E014}}
```

6.4.3 Extended finger directions

`\hamextfingeru` Declare the symbol ˄ (hamextfingeru)

```
\DeclareTextCommand{\hamextfingeru}{TU}{\texthamnosys{\char "E020}}
```

`\hamextfingerur` Declare the symbol ↗ (hamextfingerur)

```
\DeclareTextCommand{\hamextfingerur}{TU}{\texthamnosys{\char "E021}}
```

`\hamextfingerr` Declare the symbol › (hamextfingerr)

```
\DeclareTextCommand{\hamextfingerr}{TU}{\texthamnosys{\char "E022}}
```

`\hamextfingerdr` Declare the symbol ↘ (hamextfingerdr)

```
\DeclareTextCommand{\hamextfingerdr}{TU}{\texthamnosys{\char "E023}}
```

`\hamextfingerd` Declare the symbol ˅ (hamextfingerd)

```
\DeclareTextCommand{\hamextfingerd}{TU}{\texthamnosys{\char "E024}}
```

`\hamextfingerdl` Declare the symbol ↙ (hamextfingerdl)

```
\DeclareTextCommand{\hamextfingerdl}{TU}{\texthamnosys{\char "E025}}
```

`\hamextfingerl` Declare the symbol ‹ (hamextfingerl)

```
\DeclareTextCommand{\hamextfingerl}{TU}{\texthamnosys{\char "E026}}
```

`\hamextfingerul` Declare the symbol ↖ (hamextfingerul)

```
\DeclareTextCommand{\hamextfingerul}{TU}{\texthamnosys{\char "E027}}
```

\hamextfingerol Declare the symbol (hamextfingerol)
62 \DeclareTextCommand{\hamextfingerol}{TU}{\texthamnosys{\char "E028}}

\hamextfingero Declare the symbol (hamextfingero)
63 \DeclareTextCommand{\hamextfingero}{TU}{\texthamnosys{\char "E029}}

\hamextfingeror Declare the symbol (hamextfingeror)
64 \DeclareTextCommand{\hamextfingeror}{TU}{\texthamnosys{\char "E02A}}

\hamextfingeril Declare the symbol (hamextfingeril)
65 \DeclareTextCommand{\hamextfingeril}{TU}{\texthamnosys{\char "E02B}}

\hamextfingeri Declare the symbol (hamextfingeri)
66 \DeclareTextCommand{\hamextfingeri}{TU}{\texthamnosys{\char "E02C}}

\hamextfingerir Declare the symbol (hamextfingerir)
67 \DeclareTextCommand{\hamextfingerir}{TU}{\texthamnosys{\char "E02D}}

\hamextfingerui Declare the symbol (hamextfingerui)
68 \DeclareTextCommand{\hamextfingerui}{TU}{\texthamnosys{\char "E02E}}

\hamextfingerdi Declare the symbol (hamextfingerdi)
69 \DeclareTextCommand{\hamextfingerdi}{TU}{\texthamnosys{\char "E02F}}

\hamextfingerdo Declare the symbol (hamextfingerdo)
70 \DeclareTextCommand{\hamextfingerdo}{TU}{\texthamnosys{\char "E030}}

\hamextfingeruo Declare the symbol (hamextfingeruo)
71 \DeclareTextCommand{\hamextfingeruo}{TU}{\texthamnosys{\char "E031}}

6.4.4 Palm orientation

\hampalmu Declare the symbol (hampalmu)
72 \DeclareTextCommand{\hampalmu}{TU}{\texthamnosys{\char "E038}}

\hampalmur Declare the symbol (hampalmur)
73 \DeclareTextCommand{\hampalmur}{TU}{\texthamnosys{\char "E039}}

\hampalmr Declare the symbol (hampalmr)
74 \DeclareTextCommand{\hampalmr}{TU}{\texthamnosys{\char "E03A}}

\hampalmdr Declare the symbol (hampalmdr)
75 \DeclareTextCommand{\hampalmdr}{TU}{\texthamnosys{\char "E03B}}

\hampalmd Declare the symbol (hampalmd)
76 \DeclareTextCommand{\hampalmd}{TU}{\texthamnosys{\char "E03C}}

\hampalmdl Declare the symbol (hampalmdl)
77 \DeclareTextCommand{\hampalmdl}{TU}{\texthamnosys{\char "E03D}}

\hampalml Declare the symbol (hampalml)
78 \DeclareTextCommand{\hampalml}{TU}{\texthamnosys{\char "E03E}}

\hampalmul Declare the symbol (hampalmul)
79 \DeclareTextCommand{\hampalmul}{TU}{\texthamnosys{\char "E03F}}

6.4.5 Location

`\hamhead` Declare the symbol ○ (hamhead)

```
80 \DeclareTextCommand{\hamhead}{TU}{\texthamnosys{\char "E040}}
```

`\hamheadtop` Declare the symbol ⊖ (hamheadtop)

```
81 \DeclareTextCommand{\hamheadtop}{TU}{\texthamnosys{\char "E041}}
```

`\hamforehead` Declare the symbol ∩ (hamforehead)

```
82 \DeclareTextCommand{\hamforehead}{TU}{\texthamnosys{\char "E042}}
```

`\hameyebrows` Declare the symbol ∼ (hameyebrows)

```
83 \DeclareTextCommand{\hameyebrows}{TU}{\texthamnosys{\char "E043}}
```

`\hameyes` Declare the symbol ∞ (hameyes)

```
84 \DeclareTextCommand{\hameyes}{TU}{\texthamnosys{\char "E044}}
```

`\hamnose` Declare the symbol ∧ (hamnose)

```
85 \DeclareTextCommand{\hamnose}{TU}{\texthamnosys{\char "E045}}
```

`\hamnostrils` Declare the symbol ≙ (hamnostrils)

```
86 \DeclareTextCommand{\hamnostrils}{TU}{\texthamnosys{\char "E046}}
```

`\hamear` Declare the symbol ʔ (hamear)

```
87 \DeclareTextCommand{\hamear}{TU}{\texthamnosys{\char "E047}}
```

`\hamearlobe` Declare the symbol ʔ (hamearlobe)

```
88 \DeclareTextCommand{\hamearlobe}{TU}{\texthamnosys{\char "E048}}
```

`\hamcheek` Declare the symbol ☽ (hamcheek)

```
89 \DeclareTextCommand{\hamcheek}{TU}{\texthamnosys{\char "E049}}
```

`\hamlips` Declare the symbol ⌓ (hamlips)

```
90 \DeclareTextCommand{\hamlips}{TU}{\texthamnosys{\char "E04A}}
```

`\hamtongue` Declare the symbol ◡ (hamtongue)

```
91 \DeclareTextCommand{\hamtongue}{TU}{\texthamnosys{\char "E04B}}
```

`\hamteeth` Declare the symbol ◡ (hamteeth)

```
92 \DeclareTextCommand{\hamteeth}{TU}{\texthamnosys{\char "E04C}}
```

`\hamchin` Declare the symbol ∪ (hamchin)

```
93 \DeclareTextCommand{\hamchin}{TU}{\texthamnosys{\char "E04D}}
```

`\hamunderchin` Declare the symbol ⊍ (hamunderchin)

```
94 \DeclareTextCommand{\hamunderchin}{TU}{\texthamnosys{\char "E04E}}
```

`\hamneck` Declare the symbol ☾ (hamneck)

```
95 \DeclareTextCommand{\hamneck}{TU}{\texthamnosys{\char "E04F}}
```

`\hamshouldertop` Declare the symbol ⊽ (hamshouldertop)

```
96 \DeclareTextCommand{\hamshouldertop}{TU}{\texthamnosys{\char "E050}}
```

`\hamshoulders` Declare the symbol (hamshoulders)

```
\DeclareTextCommand{\hamshoulders}{TU}{\texthamnosys{\char "E051}}
```

`\hamchest` Declare the symbol (hamchest)

```
\DeclareTextCommand{\hamchest}{TU}{\texthamnosys{\char "E052}}
```

`\hamstomach` Declare the symbol (hamstomach)

```
\DeclareTextCommand{\hamstomach}{TU}{\texthamnosys{\char "E053}}
```

`\hambelowstomach` Declare the symbol (hambelowstomach)

```
\DeclareTextCommand{\hambelowstomach}{TU}{\texthamnosys{\char "E054}}
```

`\hamneutralspace` Declare the symbol ∅ (hamneutralspace)

```
\DeclareTextCommand{\hamneutralspace}{TU}{\texthamnosys{\char "E05F}}
```

`\hamupperarm` Declare the symbol (hamupperarm)

```
\DeclareTextCommand{\hamupperarm}{TU}{\texthamnosys{\char "E060}}
```

`\hamelbow` Declare the symbol (hamelbow)

```
\DeclareTextCommand{\hamelbow}{TU}{\texthamnosys{\char "E061}}
```

`\hamelbowinside` Declare the symbol (hamelbowinside)

```
\DeclareTextCommand{\hamelbowinside}{TU}{\texthamnosys{\char "E062}}
```

`\hamlowerarm` Declare the symbol (hamlowerarm)

```
\DeclareTextCommand{\hamlowerarm}{TU}{\texthamnosys{\char "E063}}
```

`\hamwristback` Declare the symbol (hamwristback)

```
\DeclareTextCommand{\hamwristback}{TU}{\texthamnosys{\char "E064}}
```

`\hamwristpulse` Declare the symbol (hamwristpulse)

```
\DeclareTextCommand{\hamwristpulse}{TU}{\texthamnosys{\char "E065}}
```

`\hamthumbball` Declare the symbol (hamthumbball)

```
\DeclareTextCommand{\hamthumbball}{TU}{\texthamnosys{\char "E066}}
```

`\hampalm` Declare the symbol (hampalm)

```
\DeclareTextCommand{\hampalm}{TU}{\texthamnosys{\char "E067}}
```

`\hamhandback` Declare the symbol (hamhandback)

```
\DeclareTextCommand{\hamhandback}{TU}{\texthamnosys{\char "E068}}
```

`\hamthumbside` Declare the symbol (hamthumbside)

```
\DeclareTextCommand{\hamthumbside}{TU}{\texthamnosys{\char "E069}}
```

`\hampinkyside` Declare the symbol (hampinkyside)

```
\DeclareTextCommand{\hampinkyside}{TU}{\texthamnosys{\char "E06A}}
```

`\hamthumb` Declare the symbol (hamthumb)

```
\DeclareTextCommand{\hamthumb}{TU}{\texthamnosys{\char "E070}}
```

`\hamindexfinger` Declare the symbol ² (hamindexfinger)

```
\DeclareTextCommand{\hamindexfinger}{TU}{\texthamnosys{\char "E071}}
```

`\hammiddlefinger` Declare the symbol ³ (hammiddlefinger)

```
\DeclareTextCommand{\hammiddlefinger}{TU}{\texthamnosys{\char "E072}}
```

`\hamringfinger` Declare the symbol ⁴ (hamringfinger)

```
\DeclareTextCommand{\hamringfinger}{TU}{\texthamnosys{\char "E073}}
```

`\hampinky` Declare the symbol ⁵ (hampinky)

```
\DeclareTextCommand{\hampinky}{TU}{\texthamnosys{\char "E074}}
```

`\hamfingertip` Declare the symbol (hamfingertip)

```
\DeclareTextCommand{\hamfingertip}{TU}{\texthamnosys{\char "E075}}
```

`\hamfingernail` Declare the symbol (hamfingernail)

```
\DeclareTextCommand{\hamfingernail}{TU}{\texthamnosys{\char "E076}}
```

`\hamfingerpad` Declare the symbol (hamfingerpad)

```
\DeclareTextCommand{\hamfingerpad}{TU}{\texthamnosys{\char "E077}}
```

`\hamfingermidjoint` Declare the symbol (hamfingermidjoint)

```
\DeclareTextCommand{\hamfingermidjoint}{TU}{\texthamnosys{\char "E078}}
```

`\hamfingerbase` Declare the symbol (hamfingerbase)

```
\DeclareTextCommand{\hamfingerbase}{TU}{\texthamnosys{\char "E079}}
```

`\hamfingerside` Declare the symbol (hamfingerside)

```
\DeclareTextCommand{\hamfingerside}{TU}{\texthamnosys{\char "E07A}}
```

6.4.6 Location modifiers

`\hamlrbeside` Declare the symbol ▫ (hamlrbeside)

```
\DeclareTextCommand{\hamlrbeside}{TU}{\texthamnosys{\char "E058}}
```

`\hamlrat` Declare the symbol ▪ (hamlrat)

```
\DeclareTextCommand{\hamlrat}{TU}{\texthamnosys{\char "E059}}
```

`\hamcoreftag` Declare the symbol □ (hamcoreftag)

```
\DeclareTextCommand{\hamcoreftag}{TU}{\texthamnosys{\char "E05A}}
```

`\hamcorefref` Declare the symbol ○ (hamcorefref)

```
\DeclareTextCommand{\hamcorefref}{TU}{\texthamnosys{\char "E05B}}
```

6.4.7 Movement

`\hammoveu` Declare the symbol ↑ (hammoveu)

```
128 \DeclareTextCommand{\hammoveu}{TU}{\texthamnosys{\char "E080}}
```

`\hammoveur` Declare the symbol ↗ (hammoveur)

```
129 \DeclareTextCommand{\hammoveur}{TU}{\texthamnosys{\char "E081}}
```

`\hammover` Declare the symbol → (hammover)

```
130 \DeclareTextCommand{\hammover}{TU}{\texthamnosys{\char "E082}}
```

`\hammovedr` Declare the symbol ↘ (hammovedr)

```
131 \DeclareTextCommand{\hammovedr}{TU}{\texthamnosys{\char "E083}}
```

`\hammoved` Declare the symbol ↓ (hammoved)

```
132 \DeclareTextCommand{\hammoved}{TU}{\texthamnosys{\char "E084}}
```

`\hammovedl` Declare the symbol ↙ (hammovedl)

```
133 \DeclareTextCommand{\hammovedl}{TU}{\texthamnosys{\char "E085}}
```

`\hammovel` Declare the symbol ← (hammovel)

```
134 \DeclareTextCommand{\hammovel}{TU}{\texthamnosys{\char "E086}}
```

`\hammoveul` Declare the symbol ↖ (hammoveul)

```
135 \DeclareTextCommand{\hammoveul}{TU}{\texthamnosys{\char "E087}}
```

`\hammoveol` Declare the symbol ↰ (hammoveol)

```
136 \DeclareTextCommand{\hammoveol}{TU}{\texthamnosys{\char "E088}}
```

`\hammoveo` Declare the symbol ↥ (hammoveo)

```
137 \DeclareTextCommand{\hammoveo}{TU}{\texthamnosys{\char "E089}}
```

`\hammoveor` Declare the symbol ↗ (hammoveor)

```
138 \DeclareTextCommand{\hammoveor}{TU}{\texthamnosys{\char "E08A}}
```

`\hammoveil` Declare the symbol ↙ (hammoveil)

```
139 \DeclareTextCommand{\hammoveil}{TU}{\texthamnosys{\char "E08B}}
```

`\hammovei` Declare the symbol ↧ (hammovei)

```
140 \DeclareTextCommand{\hammovei}{TU}{\texthamnosys{\char "E08C}}
```

`\hammoveir` Declare the symbol ↘ (hammoveir)

```
141 \DeclareTextCommand{\hammoveir}{TU}{\texthamnosys{\char "E08D}}
```

`\hammoveui` Declare the symbol ↖ (hammoveui)

```
142 \DeclareTextCommand{\hammoveui}{TU}{\texthamnosys{\char "E08E}}
```

`\hammovedi` Declare the symbol ↙ (hammovedi)

```
143 \DeclareTextCommand{\hammovedi}{TU}{\texthamnosys{\char "E08F}}
```

`\hammovedo` Declare the symbol ↳ (hammovedo)

```
144 \DeclareTextCommand{\hammovedo}{TU}{\texthamnosys{\char "E090}}
```

\hammoveuo Declare the symbol ↗ (hammoveuo)

```
\DeclareTextCommand{\hammoveuo}{TU}{\texthamnosys{\char "E091}}
```

\hamcircleo Declare the symbol ↻ (hamcircleo)

```
\DeclareTextCommand{\hamcircleo}{TU}{\texthamnosys{\char "E092}}
```

\hamcirclei Declare the symbol ↺ (hamcirclei)

```
\DeclareTextCommand{\hamcirclei}{TU}{\texthamnosys{\char "E093}}
```

\hamcircled Declare the symbol ↻ (hamcircled)

```
\DeclareTextCommand{\hamcircled}{TU}{\texthamnosys{\char "E094}}
```

\hamcircleu Declare the symbol ↺ (hamcircleu)

```
\DeclareTextCommand{\hamcircleu}{TU}{\texthamnosys{\char "E095}}
```

\hamcirclel Declare the symbol ↺ (hamcirclel)

```
\DeclareTextCommand{\hamcirclel}{TU}{\texthamnosys{\char "E096}}
```

\hamcircler Declare the symbol ↻ (hamcircler)

```
\DeclareTextCommand{\hamcircler}{TU}{\texthamnosys{\char "E097}}
```

\hamcircleul Declare the symbol ↖ (hamcircleul)

```
\DeclareTextCommand{\hamcircleul}{TU}{\texthamnosys{\char "E098}}
```

\hamcircledr Declare the symbol ↘ (hamcircledr)

```
\DeclareTextCommand{\hamcircledr}{TU}{\texthamnosys{\char "E099}}
```

\hamcircleur Declare the symbol ↗ (hamcircleur)

```
\DeclareTextCommand{\hamcircleur}{TU}{\texthamnosys{\char "E09A}}
```

\hamcircledl Declare the symbol ↙ (hamcircledl)

```
\DeclareTextCommand{\hamcircledl}{TU}{\texthamnosys{\char "E09B}}
```

\hamcircleol Declare the symbol ↙ (hamcircleol)

```
\DeclareTextCommand{\hamcircleol}{TU}{\texthamnosys{\char "E09C}}
```

\hamcircleir Declare the symbol ↙ (hamcircleir)

```
\DeclareTextCommand{\hamcircleir}{TU}{\texthamnosys{\char "E09D}}
```

\hamcircleor Declare the symbol ↘ (hamcircleor)

```
\DeclareTextCommand{\hamcircleor}{TU}{\texthamnosys{\char "E09E}}
```

\hamcircleil Declare the symbol ↘ (hamcircleil)

```
\DeclareTextCommand{\hamcircleil}{TU}{\texthamnosys{\char "E09F}}
```

\hamcircleui Declare the symbol ↙ (hamcircleui)

```
\DeclareTextCommand{\hamcircleui}{TU}{\texthamnosys{\char "E0A0}}
```

\hamcircledo Declare the symbol ↙ (hamcircledo)

```
\DeclareTextCommand{\hamcircledo}{TU}{\texthamnosys{\char "E0A1}}
```

`\hamcircleuo` Declare the symbol ⇖ (hamcircleuo)

```
\DeclareTextCommand{\hamcircleuo}{TU}{\texthamnosys{\char "E0A2}}
```

`\hamcircledi` Declare the symbol ⇖ (hamcircledi)

```
\DeclareTextCommand{\hamcircledi}{TU}{\texthamnosys{\char "E0A3}}
```

`\hamfingerplay` Declare the symbol ⇟ (hamfingerplay)

```
\DeclareTextCommand{\hamfingerplay}{TU}{\texthamnosys{\char "E0A4}}
```

`\hamnodding` Declare the symbol ⇸ (hamnodding)

```
\DeclareTextCommand{\hamnodding}{TU}{\texthamnosys{\char "E0A5}}
```

`\hamswinging` Declare the symbol ⇸ (hamswinging)

```
\DeclareTextCommand{\hamswinging}{TU}{\texthamnosys{\char "E0A6}}
```

`\hamtwisting` Declare the symbol ⇸ (hamtwisting)

```
\DeclareTextCommand{\hamtwisting}{TU}{\texthamnosys{\char "E0A7}}
```

`\hamstircw` Declare the symbol ⇾ (hamstircw)

```
\DeclareTextCommand{\hamstircw}{TU}{\texthamnosys{\char "E0A8}}
```

`\hamstirccw` Declare the symbol ⇾ (hamstirccw)

```
\DeclareTextCommand{\hamstirccw}{TU}{\texthamnosys{\char "E0A9}}
```

`\hamreplace` Declare the symbol ⇸ (hamreplace)

```
\DeclareTextCommand{\hamreplace}{TU}{\texthamnosys{\char "E0AA}}
```

`\hamnomotion` Declare the symbol ⇗ (hamnomotion)

```
\DeclareTextCommand{\hamnomotion}{TU}{\texthamnosys{\char "E0AF}}
```

`\hamclocku` Declare the symbol ⇧ (hamclocku)

```
\DeclareTextCommand{\hamclocku}{TU}{\texthamnosys{\char "E0B0}}
```

`\hamclockul` Declare the symbol ⇧ (hamclockul)

```
\DeclareTextCommand{\hamclockul}{TU}{\texthamnosys{\char "E0B1}}
```

`\hamclockl` Declare the symbol ⇧ (hamclockl)

```
\DeclareTextCommand{\hamclockl}{TU}{\texthamnosys{\char "E0B2}}
```

`\hamclockdl` Declare the symbol ⇧ (hamclockdl)

```
\DeclareTextCommand{\hamclockdl}{TU}{\texthamnosys{\char "E0B3}}
```

`\hamclockd` Declare the symbol ⇧ (hamclockd)

```
\DeclareTextCommand{\hamclockd}{TU}{\texthamnosys{\char "E0B4}}
```

`\hamclockdr` Declare the symbol ⇧ (hamclockdr)

```
\DeclareTextCommand{\hamclockdr}{TU}{\texthamnosys{\char "E0B5}}
```

`\hamclockr` Declare the symbol ⇧ (hamclockr)

```
\DeclareTextCommand{\hamclockr}{TU}{\texthamnosys{\char "E0B6}}
```

\hamclockur Declare the symbol ᵒ (hamclockur)

```
\DeclareTextCommand{\hamclockur}{TU}{\texthamnosys{\char "E0B7}}
```

\hamclockfull Declare the symbol ⊕ (hamclockfull)

```
\DeclareTextCommand{\hamclockfull}{TU}{\texthamnosys{\char "E0B8}}
```

\hamarcl Declare the symbol ᶜ (hamarcl)

```
\DeclareTextCommand{\hamarcl}{TU}{\texthamnosys{\char "E0B9}}
```

\hamarcu Declare the symbol ᶜ (hamarcu)

```
\DeclareTextCommand{\hamarcu}{TU}{\texthamnosys{\char "E0BA}}
```

\hamarcr Declare the symbol ᵓ (hamarcr)

```
\DeclareTextCommand{\hamarcr}{TU}{\texthamnosys{\char "E0BB}}
```

\hamarcd Declare the symbol ᵕ (hamarcd)

```
\DeclareTextCommand{\hamarcd}{TU}{\texthamnosys{\char "E0BC}}
```

\hamwavy Declare the symbol ᵕ (hamwavy)

```
\DeclareTextCommand{\hamwavy}{TU}{\texthamnosys{\char "E0BD}}
```

\hamzigzag Declare the symbol ᵕ (hamzigzag)

```
\DeclareTextCommand{\hamzigzag}{TU}{\texthamnosys{\char "E0BE}}
```

\hamellipseh Declare the symbol ⊖ (hamellipseh)

```
\DeclareTextCommand{\hamellipseh}{TU}{\texthamnosys{\char "E0C0}}
```

\hamellipseur Declare the symbol ⊘ (hamellipseur)

```
\DeclareTextCommand{\hamellipseur}{TU}{\texthamnosys{\char "E0C1}}
```

\hamellipsev Declare the symbol ⊘ (hamellipsev)

```
\DeclareTextCommand{\hamellipsev}{TU}{\texthamnosys{\char "E0C2}}
```

\hamellipseul Declare the symbol ⊘ (hamellipseul)

```
\DeclareTextCommand{\hamellipseul}{TU}{\texthamnosys{\char "E0C3}}
```

\hamincreasing Declare the symbol ⊿ (hamincreasing)

```
\DeclareTextCommand{\hamincreasing}{TU}{\texthamnosys{\char "E0C4}}
```

\hamdecreasing Declare the symbol ⊾ (hamdecreasing)

```
\DeclareTextCommand{\hamdecreasing}{TU}{\texthamnosys{\char "E0C5}}
```

\hamfast Declare the symbol * (hamfast)

```
\DeclareTextCommand{\hamfast}{TU}{\texthamnosys{\char "E0C8}}
```

\hamslow Declare the symbol ¯ (hamslow)

```
\DeclareTextCommand{\hamslow}{TU}{\texthamnosys{\char "E0C9}}
```

\hamtense Declare the symbol ˣ (hamtense)

```
\DeclareTextCommand{\hamtense}{TU}{\texthamnosys{\char "E0CA}}
```

\hamrest Declare the symbol ˷ (hamrest)

```
196 \DeclareTextCommand{\hamrest}{TU}{\texthamnosys{\char "E0CB}}
```

\hamhalt Declare the symbol ‖ (hamhalt)

```
197 \DeclareTextCommand{\hamhalt}{TU}{\texthamnosys{\char "E0CC}}
```

\hamclose Declare the symbol)((hamclose)

```
198 \DeclareTextCommand{\hamclose}{TU}{\texthamnosys{\char "E0D0}}
```

\hamtouch Declare the symbol ˣ (hamtouch)

```
199 \DeclareTextCommand{\hamtouch}{TU}{\texthamnosys{\char "E0D1}}
```

\haminterlock Declare the symbol ˀ (haminterlock)

```
200 \DeclareTextCommand{\haminterlock}{TU}{\texthamnosys{\char "E0D2}}
```

\hamcross Declare the symbol × (hamcross)

```
201 \DeclareTextCommand{\hamcross}{TU}{\texthamnosys{\char "E0D3}}
```

\hamarmextended Declare the symbol ↝ (hamarmextended)

```
202 \DeclareTextCommand{\hamarmextended}{TU}{\texthamnosys{\char "E0D4}}
```

\hambehind Declare the symbol ↶ (hambehind)

```
203 \DeclareTextCommand{\hambehind}{TU}{\texthamnosys{\char "E0D5}}
```

\hambrushing Declare the symbol ˧ (hambrushing)

```
204 \DeclareTextCommand{\hambrushing}{TU}{\texthamnosys{\char "E0D6}}
```

6.4.8 Movement modifiers

\hamsmallmod Declare the symbol ◦ (hamsmallmod)

```
205 \DeclareTextCommand{\hamsmallmod}{TU}{\texthamnosys{\char "E0C6}}
```

\hamlargemod Declare the symbol • (hamlargemod)

```
206 \DeclareTextCommand{\hamlargemod}{TU}{\texthamnosys{\char "E0C7}}
```

6.4.9 Other symbols

\hamrepeatfromstart Declare the symbol ⁺ (hamrepeatfromstart)

```
207 \DeclareTextCommand{\hamrepeatfromstart}{TU}{\texthamnosys{\char "E0D8}}
```

\hamrepeatfromstartseveral Declare the symbol ⁺⁺ (hamrepeatfromstartseveral)

```
208 \DeclareTextCommand{\hamrepeatfromstartseveral}{TU}{\texthamnosys{\char "E0D9}}
```

\hamrepeatcontinue Declare the symbol ⁺˃ (hamrepeatcontinue)

```
209 \DeclareTextCommand{\hamrepeatcontinue}{TU}{\texthamnosys{\char "E0DA}}
```

\hamrepeatcontinueseveral Declare the symbol ⁺⁺˃ (hamrepeatcontinueseveral)

```
210 \DeclareTextCommand{\hamrepeatcontinueseveral}{TU}{\texthamnosys{\char "E0DB}}
```

\hamrepeatreverse Declare the symbol ˂⁺ (hamrepeatreverse)

```
211 \DeclareTextCommand{\hamrepeatreverse}{TU}{\texthamnosys{\char "E0DC}}
```

\hamalternatingmotion Declare the symbol ~ (hamalternatingmotion)

```
\DeclareTextCommand{\hamalternatingmotion}{TU}{\texthamnosys{\char "E0DD}}
```

\hamseqbegin Declare the symbol ((hamseqbegin)

```
\DeclareTextCommand{\hamseqbegin}{TU}{\texthamnosys{\char "E0E0}}
```

\hamseqend Declare the symbol) (hamseqend)

```
\DeclareTextCommand{\hamseqend}{TU}{\texthamnosys{\char "E0E1}}
```

\hamparbegin Declare the symbol [(hamparbegin)

```
\DeclareTextCommand{\hamparbegin}{TU}{\texthamnosys{\char "E0E2}}
```

\hamparend Declare the symbol] (hamparend)

```
\DeclareTextCommand{\hamparend}{TU}{\texthamnosys{\char "E0E3}}
```

\hamfusionbegin Declare the symbol ⟨ (hamfusionbegin)

```
\DeclareTextCommand{\hamfusionbegin}{TU}{\texthamnosys{\char "E0E4}}
```

\hamfusionend Declare the symbol ⟩ (hamfusionend)

```
\DeclareTextCommand{\hamfusionend}{TU}{\texthamnosys{\char "E0E5}}
```

\hambetween Declare the symbol \ (hambetween)

```
\DeclareTextCommand{\hambetween}{TU}{\texthamnosys{\char "E0E6}}
```

\hamplus Declare the symbol + (hamplus)

```
\DeclareTextCommand{\hamplus}{TU}{\texthamnosys{\char "E0E7}}
```

\hamsymmpar Declare the symbol ⁝ (hamsymmpar)

```
\DeclareTextCommand{\hamsymmpar}{TU}{\texthamnosys{\char "E0E8}}
```

\hamsymmlr Declare the symbol ⋮ (hamsymmlr)

```
\DeclareTextCommand{\hamsymmlr}{TU}{\texthamnosys{\char "E0E9}}
```

\hamnondominant Declare the symbol ∅ (hamnondominant)

```
\DeclareTextCommand{\hamnondominant}{TU}{\texthamnosys{\char "E0EA}}
```

\hamnonipsi Declare the symbol ∤ (hamnonipsi)

```
\DeclareTextCommand{\hamnonipsi}{TU}{\texthamnosys{\char "E0EB}}
```

\hametc Declare the symbol … (hametc)

```
\DeclareTextCommand{\hametc}{TU}{\texthamnosys{\char "E0EC}}
```

\hamorirelative Declare the symbol ~ (hamorirelative)

```
\DeclareTextCommand{\hamorirelative}{TU}{\texthamnosys{\char "E0ED}}
```

\hammime Declare the symbol ⋃ (hammime)

```
\DeclareTextCommand{\hammime}{TU}{\texthamnosys{\char "E0F0}}
```

6.4.10 Version symbol

\hamversionfourzero Declare the symbol ⏎ (hamversion40)

```
\DeclareTextCommand{\hamversionfourzero}{TU}{\texthamnosys{\char "E0F1}}
```

6.4.11 Regular Unicode characters

`\hamspace` Declare the symbol (hamspace)

```
229 \DeclareTextCommand{\hamspace}{TU}{\texthamnosys{\char "20}}
```

`\hamexclaim` Declare the symbol ! (hamexclaim)

```
230 \DeclareTextCommand{\hamexclaim}{TU}{\texthamnosys{\char "21}}
```

`\hamcomma` Declare the symbol , (hamcomma)

```
231 \DeclareTextCommand{\hamcomma}{TU}{\texthamnosys{\char "002C}}
```

`\hamfullstop` Declare the symbol . (hamfullstop)

```
232 \DeclareTextCommand{\hamfullstop}{TU}{\texthamnosys{\char "002E}}
```

`\hamquery` Declare the symbol ? (hamquery)

```
233 \DeclareTextCommand{\hamquery}{TU}{\texthamnosys{\char "003F}}
```

`\hamaltbegin` Declare the symbol { (hamaltbegin)

```
234 \DeclareTextCommand{\hamaltbegin}{TU}{\texthamnosys{\char "007B}}
```

`\hammetaalt` Declare the symbol | (hammetaalt)

```
235 \DeclareTextCommand{\hammetaalt}{TU}{\texthamnosys{\char "007C}}
```

`\hamaltend` Declare the symbol } (hamaltend)

```
236 \DeclareTextCommand{\hamaltend}{TU}{\texthamnosys{\char "007D}}
```

6.4.12 Obsolete spacing symbols

`\hamwristtopulse` Declare the symbol (hamwristtopulse)

```
237 \DeclareTextCommand{\hamwristtopulse}{TU}{\texthamnosys{\char "E07C}}
```

`\hamwristtoback` Declare the symbol (hamwristtoback)

```
238 \DeclareTextCommand{\hamwristtoback}{TU}{\texthamnosys{\char "E07D}}
```

`\hamwristtothumb` Declare the symbol (hamwristtothumb)

```
239 \DeclareTextCommand{\hamwristtothumb}{TU}{\texthamnosys{\char "E07E}}
```

`\hamwristtopinky` Declare the symbol (hamwristtopinky)

```
240 \DeclareTextCommand{\hamwristtopinky}{TU}{\texthamnosys{\char "E07F}}
```

`\hammovecross` Declare the symbol (hammovecross)

```
241 \DeclareTextCommand{\hammovecross}{TU}{\texthamnosys{\char "E0AD}}
```

`\hammoveX` Declare the symbol (hammoveX)

```
242 \DeclareTextCommand{\hammoveX}{TU}{\texthamnosys{\char "E0AE}}
```

6.5 Symbol name sequence

Code required for entering HamNoSys as a sequence of symbol name as described in Section 4.

6.5.1 For each

Declare an internal *for loop* macro that can iterate over a comma-separated list and perform a given command on each item of the list.[7]

`\@foreach` The *for each* loop. Takes two arguments:

1. Command that is called on each item of the list.
2. Comma-separated list of items.

```
\def\@foreach#1#2{%
  \@test@foreach{#1}#2,\@end@token%
}
```

`\@swallow` Internal helper function that eats one input at a time.

```
\def\@swallow#1{}
```

`\@test@foreach` Internal helper function that checks the next character after #1 and continues the loop iteration unless `\@end@token` is found.

```
\def\@test@foreach#1{%
  \@ifnextchar\@end@token%
    {\@swallow}%
    {\@recurse@foreach{#1}}%
}
```

`\@recurse@foreach` Internal helper function that splits the sequence at the next comma thanks to the patter matching of `\def`.

```
\def\@recurse@foreach#1#2,#3\@end@token{%
  #1{#2}%
  \@test@foreach{#1}#3\@end@token%
}
```

6.5.2 Symbol name to symbol command

`\@wordtohamnosys` Internal command for converting a single HamNoSys symbol name to its TeX-command (and thus into the actual character). Most symbol names are passed straight through to the command of the same name, but symbols whose name contains digits are intercepted and manually replaced with their matching symbol command.

```
\newcommand{\@wordtohamnosys}[1]{%
\ifthenelse{\equal{#1}{hamfinger2}}{\hamfingertwo}{%
\ifthenelse{\equal{#1}{hamfinger23}}{\hamfingertwothree}{%
\ifthenelse{\equal{#1}{hamfinger23spread}}{\hamfingertwothreespread}{%
\ifthenelse{\equal{#1}{hamfinger2345}}{\hamfingertwothreefourfive}{%
\ifthenelse{\equal{#1}{hampinch12}}{\hampinchonetwo}{%
\ifthenelse{\equal{#1}{hampinch12open}}{\hampinchonetwoopen}{%
\ifthenelse{\equal{#1}{hamcee12}}{\hamceeonetwo}{%
\ifthenelse{\equal{#1}{hamversion40}}{\hamversionfourzero}{%
\@ifundefined{#1}{#1\PackageWarning{hamnosys}{%
Unknown symbol "#1" in \protect\hamnosys. Typo?}}{\csname #1\endcsname}}}}}}}}}}
```

[7] Code adapted from https://stackoverflow.com/a/2408268.

6.5.3 Symbol name sequence command

`\hamnosys` Declare the user command for generating a HamNoSys symbol name sequence (see Section 4).

```
267 \DeclareRobustCommand{\hamnosys}[1]{\@foreach{\@wordtohamnosys}{#1}}
```

References

Hanke, Thomas (2004). "HamNoSys – Representing Sign Language Data in Language Resources and Language Processing Contexts". In: *4th International Conference on Language Resources and Evaluation (LREC 2004). Proceedings of the LREC2004 Workshop on the Representation and Processing of Sign Languages: From SignWriting to Image Processing. Information techniques and their implications for teaching, documentation and communication* (Lisbon, Portugal). Ed. by Oliver Streiter and Chiara Vettori. Paris, France: European Language Resources Association (ELRA), pp. 1–6. URL: https://www.sign-lang.uni-hamburg.de/lrec/pub/04001.pdf.

Prillwitz, Siegmund, Regina Leven, Heiko Zienert, Thomas Hanke, Jan Henning et al. (1987). *HamNoSys. Hamburg Notation System for Sign Language. An Introduction*. Hamburg, Germany: Zentrum für deutsche Gebärdensprache.

— (1989). *HamNoSys. Version 2.0. Hamburg Notation System for Sign Languages. An Introductory Guide*. Hamburg, Germany: Signum. 46 pp. ISBN: 978-3-927731-01-1.

Schmaling, Constanze and Thomas Hanke (2001). "Encoding manual aspects of sign language: HamNoSys 4.0". In: *ViSiCAST Deliverable D5-1: Interface Definitions*. Ed. by Thomas Hanke, pp. 26–41. URL: https://vhg.cmp.uea.ac.uk/tech/hamnosys/ViSiCASTD5-1.pdf.

Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Symbols

\@end@token 244, 248, 252, 254
\@foreach 243, 267
\@ifnextchar 248
\@ifundefined 265
\@recurse@foreach 250, 252
\@swallow 246, 249
\@test@foreach 244, 247, 254
\@wordtohamnosys 256, 267

A

autofont *4*

C

\char 34–242
\csname 266
\curfamily 29, 30
\curseries 29, 30
\curshape 29, 30

D

\DeclareBoolOption 16
\DeclareRobustCommand 267
\def 243, 246, 247, 252

F

\fontfamily 30
\fontseries 30
\fontshape 30

H

\hamaltbegin *13*, 234
\hamaltend *13*, 236
\hamalternatingmotion *12*, 212
\hamarcd *11*, 184
\hamarcl *11*, 181
\hamarcr *11*, 183
\hamarcu *11*, 182
\hamarmextended *11*, 202
\hambehind *11*, 203
\hambelowstomach *9*, 100
\hambetween *12*, 219
\hambrushing *11*, 204
\hamceeall *7*, 44
\hamceeonetwo *7*, 43, 263
\hamceeopen *7*, 45
\hamcheek *8*, 89
\hamchest *9*, 98
\hamchin *8*, 93
\hamcircled *10*, 148
\hamcircledi *11*, 163
\hamcircledl *10*, 155
\hamcircledo *10*, 161
\hamcircledr *10*, 153
\hamcirclei *10*, 147
\hamcircleil *10*, 159
\hamcircleir *10*, 157
\hamcirclel *10*, 150
\hamcircleo *10*, 146
\hamcircleol *10*, 156
\hamcircleor *10*, 158
\hamcircler *10*, 151
\hamcircleu *10*, 149
\hamcircleui *10*, 160
\hamcircleul *10*, 152
\hamcircleuo *10*, 162
\hamcircleur *10*, 154
\hamclockd *11*, 176
\hamclockdl *11*, 175
\hamclockdr *11*, 177
\hamclockfull *11*, 180
\hamclockl *11*, 174
\hamclockr *11*, 178
\hamclocku *11*, 172
\hamclockul *11*, 173
\hamclockur *11*, 179
\hamclose *11*, 198
\hamcomma *13*, 231
\hamcorefref *10*, 127
\hamcoreftag *10*, 126
\hamcross *11*, 201
\hamdecreasing *11*, 192
\hamdoublebent *7*, 52
\hamdoublehooked *7*, 53
\hamear *8*, 87
\hamearlobe *8*, 88
\hamelbow *9*, 103
\hamelbowinside *9*, 104
\hamellipseh *11*, 187
\hamellipseul *11*, 190
\hamellipseur *11*, 188
\hamellipsev *11*, 189
\hametc *12*, 225
\hamexclaim *13*, 230
\hamextfingerd *7*, 58
\hamextfingerdi *8*, 69

\hamextfingerdl 8, 59
\hamextfingerdo 8, 70
\hamextfingerdr 7, 57
\hamextfingeri 8, 66
\hamextfingeril 8, 65
\hamextfingerir 8, 67
\hamextfingerl 8, 60
\hamextfingero 8, 63
\hamextfingerol 8, 62
\hamextfingeror 8, 64
\hamextfingerr 7, 56
\hamextfingeru 7, 54
\hamextfingerui 8, 68
\hamextfingerul 8, 61
\hamextfingeruo 8, 71
\hamextfingerur 7, 55
\hameyebrows 8, 83
\hameyes 8, 84
\hamfast 11, 193
\hamfingerbase 9, 122
\hamfingerbendmod 7, 50
\hamfingerhookmod 7, 51
\hamfingermidjoint 9, 121
\hamfingernail 9, 119
\hamfingerpad 9, 120
\hamfingerplay 11, 164
\hamfingerside 9, 123
\hamfingerstraightmod 7, 49
\hamfingertip 9, 118
\hamfingertwo 7, 36, 257
\hamfingertwothree 7, 37, 258
\hamfingertwothreefourfive 7, 39, 260
\hamfingertwothreespread . . 7, 38, 259
\hamfist 7, 34
\hamflathand 7, 35
\hamforehead 8, 82
\hamfullstop 13, 232
\hamfusionbegin 12, 217
\hamfusionend 12, 218
\hamhalt 11, 197
\hamhandback 9, 110
\hamhead 8, 80
\hamheadtop 8, 81
\hamincreasing 11, 191
\hamindexfinger 9, 114
\haminterlock 11, 200
\hamlargemod 12, 206
\hamlips 8, 90
\hamlowerarm 9, 105
\hamlrat 10, 125
\hamlrbeside 10, 124
\hammetaalt 13, 235
\hammiddlefinger 9, 115
\hammime 12, 227
\hammovecross 13, 241
\hammoved 10, 132
\hammovedi 10, 143
\hammovedl 10, 133
\hammovedo 10, 144
\hammovedr 10, 131
\hammovei 10, 140
\hammoveil 10, 139
\hammoveir 10, 141
\hammovel 10, 134
\hammoveo 10, 137
\hammoveol 10, 136
\hammoveor 10, 138
\hammover 10, 130
\hammoveu 10, 128
\hammoveui 10, 142
\hammoveul 10, 135
\hammoveuo 10, 145
\hammoveur 10, 129
\hammoveX 13, 242
\hamneck 9, 95
\hamneutralspace 9, 101
\hamnodding 11, 165
\hamnomotion 11, 171
\hamnondominant 12, 223
\hamnonipsi 12, 224
\hamnose 8, 85
\hamnostrils 8, 86
\hamnosys 5, 266, 267
\hamnosysfont 3, 19, 23, 29
\hamorirelative 12, 226
\hampalm 9, 109
\hampalmd 8, 76
\hampalmdl 8, 77
\hampalmdr 8, 75
\hampalml 8, 78
\hampalmr 8, 74
\hampalmu 8, 72
\hampalmul 8, 79
\hampalmur 8, 73
\hamparbegin 12, 215
\hamparend 12, 216
\hampinchall 7, 41
\hampinchonetwo 7, 40, 261
\hampinchonetwoopen 7, 42, 262
\hampinky 9, 117
\hampinkyside 9, 112
\hamplus 12, 220
\hamquery 13, 233
\hamrepeatcontinue 12, 209
\hamrepeatcontinueseveral . . . 12, 210
\hamrepeatfromstart 12, 207
\hamrepeatfromstartseveral . . 12, 208
\hamrepeatreverse 12, 211

\hamreplace 11, 170
\hamrest 11, 196
\hamringfinger 9, 116
\hamseqbegin 12, 213
\hamseqend 12, 214
\hamshoulders 9, 97
\hamshouldertop 9, 96
\hamslow 11, 194
\hamsmallmod 12, 205
\hamspace 13, 229
\hamstirccw 11, 169
\hamstircw 11, 168
\hamstomach 9, 99
\hamswinging 11, 166
\hamsymmlr 12, 222
\hamsymmpar 12, 221
\hamteeth 8, 92
\hamtense 11, 195
\hamthumb 9, 113
\hamthumbacrossmod 7, 47
\hamthumbball 9, 108
\hamthumbopenmod 7, 48
\hamthumboutmod 7, 46
\hamthumbside 9, 111
\hamtongue 8, 91
\hamtouch 11, 199
\hamtwisting 11, 167
\hamunderchin 9, 94
\hamupperarm 9, 102
\hamversionfourzero 13, 228, 264
\hamwavy 11, 185
\hamwristback 9, 106
\hamwristpulse 9, 107
\hamwristtoback 13, 238
\hamwristtopinky 13, 240
\hamwristtopulse 13, 237
\hamwristtothumb 13, 239
\hamzigzag 11, 186

I

\ifLuaTeX 4
\ifthenelse 24, 257–264
\ifXeTeX 2, 25

L

\let 29

N

\newcommand 23, 256
\newfontfamily 19

P

\PackageError 6
\PackageWarning 32, 265
\ProcessKeyvalOptions 18
\protect 266

R

\RequirePackage 1, 11–13, 26

S

\selectfont 30
\setTransitionsFor 28
\SetupKeyvalOptions 14

T

\texthamnosys 3, 23, 34–242

Change History

v1.0.0
General: Initial version 1
v1.0.1
\hamnosysfont: Fix: Find font file in tex installation 14
v1.0.2
General: Fix license/copyright info 1