

My Unicode Symbol Translations

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Abstract

I tend to use `(set-input-method "Agda")` in many of my Emacs buffers to provide Unicode support so that `\forall` immediately produces \forall , and likewise a variety of symbols: $\forall x \bullet x \leq y \approx z \exists \equiv \Rightarrow \wedge \vee \sqcap \sqcup < \sqsubseteq$.

This Org-mode file produces a \LaTeX style file which can be utilised in nearly all of my documents which generate PDFs.

The file's 'footer' declares the 'compile command' to perform an `(org-babel-tangle)` so as to produce the latest style file, then `(org-latex-export-to-pdf)` to produce this PDF.

Maintained at <https://github.com/alhassy/MyUnicodeSymbols>.

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1 Top Matter

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{MyUnicodeSymbols}[2019/01/30 Unicode Symbol Translations]

\RequirePackage[utf8]{inputenc}
\RequirePackage{newunicodechar}
\RequirePackage{bbold} % \mathbb{n} to make double stroke digit
\RequirePackage{pifont}
\RequirePackage{stmaryrd}
```

The stmaryrd package provides two types of multiset, or bag, delimiters: thick: `\lbag` and `\rbag`; and skinny: `\Lbag` and `\Rbag`.

2 Lattices –Sets, Booleans, Quantifiers

2.1 Orders

```
% arbitrary lattice
\newunicodechar{\sqsubseteq}{\ensuremath{\sqsubseteq}}
\newunicodechar{\sqsupseteq}{\ensuremath{\sqsupseteq}}

% numeric
\newunicodechar{\leq}{\ensuremath{\leq}}
\newunicodechar{\geq}{\ensuremath{\geq}}
\newunicodechar{\mid}{\ensuremath{\mid}} % divisibly ordering

% sets
\newunicodechar{\subseteq}{\ensuremath{\subseteq}}

% logical
\newunicodechar{\vdash}{\ensuremath{\vdash}}
\DeclareUnicodeCharacter{8872}{\ensuremath{\vDash}} % semantic consequence
\newunicodechar{\dashv}{\ensuremath{\dashv}}
```

2.2 Meets & Joins

```
% arbitrary lattice
\newunicodechar{\sqcup}{\ensuremath{\sqcup}}
\newunicodechar{\sqcap}{\ensuremath{\sqcap}}

% numeric
\newunicodechar{\uparrow}{\ensuremath{\uparrow}}
\newunicodechar{\downarrow}{\ensuremath{\downarrow}}

% boolean
\newunicodechar{\lor}{\ensuremath{\lor}}
\newunicodechar{\land}{\ensuremath{\land}}
\newunicodechar{\bigvee}{\ensuremath{\bigvee}}
\newunicodechar{\bigwedge}{\ensuremath{\bigwedge}}
\newunicodechar{\exists}{\ensuremath{\exists}}
\newunicodechar{\forall}{\ensuremath{\forall}}
```

```
% sets
\newunicodechar{\cap}{\ensuremath{\cap}}
\newunicodechar{\cup}{\ensuremath{\cup}}
```

2.3 External Elements

```
% arbitrary lattice
\newunicodechar{\bot}{\ensuremath{\bot}}
\newunicodechar{\top}{\ensuremath{\top}}

% numeric
\newunicodechar{\infty}{\ensuremath{\infty}}
```

```
% sets
\newunicodechar{\emptyset}{\ensuremath{\emptyset}}
\newunicodechar{\emptyset}{\ensuremath{\emptyset}}
```

2.4 Pseudo-Complements

```
% arbitrary lattice
\newunicodechar{\to}{\ensuremath{\to}}
\newunicodechar{\leftarrow}{\ensuremath{\leftarrow}}
\newunicodechar{\longrightarrow}{\ensuremath{\longrightarrow}} % pseudo-complement
\newunicodechar{\hspace{-1em}.;.;\,}{\ensuremath{\hspace{-1em}.;.;\,}} %% to be used in compound symbol:  $\rightarrow$ 
%% to form a natural transformation
```

```
% boolean
\newunicodechar{\Rightarrow}{\ensuremath{\Rightarrow}}
\newunicodechar{\Leftarrow}{\ensuremath{\Leftarrow}}
\newunicodechar{\lnot}{\ensuremath{\lnot}}
```

```
% sets
\newunicodechar{\in}{\ensuremath{\in}}
\newunicodechar{\sim}{\ensuremath{\sim}}
```

3 Equality-Like Symbols

```
\newunicodechar{\neq}{\ensuremath{\neq}}
\newunicodechar{\equiv}{\ensuremath{\equiv}}
\newunicodechar{\iff}{\ensuremath{\iff}}
\newunicodechar{\approx}{\ensuremath{\approx}}
\newunicodechar{\cong}{\ensuremath{\cong}}
\newunicodechar{\! =}{\ensuremath{\! =}}
% \DeclareUnicodeCharacter{8788}{\ensuremath{\mathrel{\! =}}} % =
```

4 Brackets

```
\newunicodechar{\lfloor}{\ensuremath{\lfloor}}
\newunicodechar{\rfloor}{\ensuremath{\rfloor}}

\newunicodechar{\lceil}{\ensuremath{\lceil}}
```

```

\newunicodechar{\}{\ensuremath{\lceil}}

\newunicodechar{(|}{\ensuremath{(\!|)}}
\newunicodechar{(|)}{\ensuremath{(|!\)}}
%
% \DeclareUnicodeCharacter{10631}{\ensuremath{(\hspace{-0.4ex}|)}} % (|
% \DeclareUnicodeCharacter{10632}{\ensuremath{(|\hspace{-0.4ex})}} % |)

\newunicodechar{\}{\ensuremath{\lrcorner}}
\newunicodechar{\}{\ensuremath{\Rcorner}}

\DeclareUnicodeCharacter{10627}{\ensuremath{\{\!|\!|\}} %
\DeclareUnicodeCharacter{10628}{\ensuremath{|\!|\!|\}} %

```

5 Greek Letters

```

\newunicodechar{\lambda}{\ensuremath{\lambda}}
\newunicodechar{\gamma}{\ensuremath{\gamma}}
\newunicodechar{\delta}{\ensuremath{\delta}}
\newunicodechar{\sigma}{\ensuremath{\sigma}}
\newunicodechar{\eta}{\ensuremath{\eta}}
\newunicodechar{\epsilon}{\ensuremath{\epsilon}}
\newunicodechar{\mu}{\ensuremath{\mu}}
\newunicodechar{\Phi}{\ensuremath{\Phi}} % capital case
\newunicodechar{\phi}{\ensuremath{\phi}} % lower case
\newunicodechar{\pi}{\ensuremath{\pi}}

```

6 Compositional Operators

```

\newunicodechar{\oplus}{\ensuremath{\oplus}}
\newunicodechar{\otimes}{\ensuremath{\otimes}}
\newunicodechar{\odot}{\ensuremath{\odot}}
\newunicodechar{\mathop{\fatsemi}}{\ensuremath{\mathop{\fatsemi}}}
\newunicodechar{\lhd}{\ensuremath{\lhd}}
\newunicodechar{\circ}{\ensuremath{\circ}}
\newunicodechar{\llangle}{\ensuremath{\llangle}}
\newunicodechar{\rrangle}{\ensuremath{\rrangle}}
\newunicodechar{\langle}{\ensuremath{\langle}}
\newunicodechar{\rangle}{\ensuremath{\rangle}}

\newunicodechar{\}{\ensuremath{\backslash}} % under
\newunicodechar{/}{\ensuremath{/}} % over

\newunicodechar{\circ}{\ensuremath{\circ}} % Looks like, but is not bullet!

\newunicodechar{\star}{\ensuremath{\star}}
\newunicodechar{\times}{\ensuremath{\times}}
\newunicodechar{\bullet}{\ensuremath{\bullet}}
\newunicodechar{\triangle}{\ensuremath{\triangle}}
\newunicodechar{\triangledown}{\ensuremath{\triangledown}}

\DeclareUnicodeCharacter{9829}{\ensuremath{\heartsuit}} %

```

```
\DeclareUnicodeCharacter{9785}{\ensuremath{\frownie{}} } %
\DeclareUnicodeCharacter{9733}{ {\color{red}$\bigstar$} } %  should be printed red ;-)
```

7 Types – \mathbb{N} , \mathbb{B} , etc

```
\newunicodechar{\mathcal{N}}{\ensuremath{\mathcal{N}}}
\newunicodechar{\mathbb{N}}{\ensuremath{\mathbb{N}}}
\newunicodechar{\mathbb{Z}}{\ensuremath{\mathbb{Z}}}
\newunicodechar{\mathbb{B}}{\ensuremath{\mathbb{B}}}
\newunicodechar{\mathbb{1}}{\ensuremath{\mathbb{1}}}
```

8 Subscript and Superscript

```
\DeclareUnicodeCharacter{7525}{\ensuremath{_{}} } % subscript v
\DeclareUnicodeCharacter{8343}{\ensuremath{_{\ell}} } % subscript
```

```
\newunicodechar{^o}{\ensuremath{^o}}
\newunicodechar{^p}{\ensuremath{^p}}
\newunicodechar{_0}{\ensuremath{_0}}
\newunicodechar{_1}{\ensuremath{_1}}
\newunicodechar{_2}{\ensuremath{_2}}
\newunicodechar{_3}{\ensuremath{_3}}
```

```
\newunicodechar{_a}{\ensuremath{_a}}
```

% I have no access to subscript b,c,d with my “current” agda input mode -- to fix!

```
\newunicodechar{_e}{\ensuremath{_e}}
```

% I have no access to subscript f,g with my “current” agda input mode -- to fix!

```
\newunicodechar{_h}{\ensuremath{_h}}
```

```
\newunicodechar{_i}{\ensuremath{_i}}
```

```
\newunicodechar{_j}{\ensuremath{_j}}
```

```
\newunicodechar{_k}{\ensuremath{_k}}
```

```
\newunicodechar{_l}{\ensuremath{_l}}
```

```
\newunicodechar{_m}{\ensuremath{_m}}
```

```
\newunicodechar{_n}{\ensuremath{_n}}
```

```
\newunicodechar{_o}{\ensuremath{_o}}
```

```
\newunicodechar{_p}{\ensuremath{_p}}
```

% I have no access to subscript q with my “current” agda input mode -- to fix!

```
\newunicodechar{_r}{\ensuremath{_r}}
```

```
\newunicodechar{_s}{\ensuremath{_s}}
```

```
\newunicodechar{_t}{\ensuremath{_t}}
```

```
\newunicodechar{_u}{\ensuremath{_u}}
```

```
\newunicodechar{_v}{\ensuremath{_v}}
```

% I have no access to subscript w with my “current” agda input mode -- to fix!

```
\newunicodechar{_x}{\ensuremath{_x}}
```

% I have no access to subscript y with my “current” agda input mode -- to fix!

% I have no access to subscript z with my “current” agda input mode -- to fix!

9 \mathcal Calligraphy

```
\newunicodechar{l}{\ensuremath{\mathcal{l}}}  
\newunicodechar{r}{\ensuremath{\mathcal{r}}}  
\newunicodechar{M}{\ensuremath{\mathcal{M}}}  
\newunicodechar{F}{\ensuremath{\mathcal{F}}}  
\newunicodechar{u}{\ensuremath{u}}  
\newunicodechar{n}{\ensuremath{n}}  
\newunicodechar{c}{\ensuremath{c}}  
\newunicodechar{A}{\ensuremath{\mathcal{A}}}  
\newunicodechar{B}{\ensuremath{\mathcal{B}}}  
\newunicodechar{C}{\ensuremath{\mathcal{C}}}  
\newunicodechar{D}{\ensuremath{\mathcal{D}}}  
\newunicodechar{E}{\ensuremath{\mathcal{E}}}  
\newunicodechar{e}{\ensuremath{e}}  
\newunicodechar{g}{\ensuremath{g}}  
\newunicodechar{l}{\textit{l}}  
\newunicodechar{L}{\ensuremath{\mathcal{L}}}  
\newunicodechar{R}{\ensuremath{\mathcal{R}}}  
\newunicodechar{S}{\ensuremath{\mathcal{S}}}  
\newunicodechar{T}{\ensuremath{\mathcal{T}}}  
\newunicodechar{t}{\ensuremath{t}}  
\newunicodechar{Q}{\ensuremath{\mathcal{Q}}}
```

10 Math Italics

```
\newunicodechar{a}{\ensuremath{\mathit{a}}}  
\newunicodechar{b}{\ensuremath{\mathit{b}}}  
\newunicodechar{c}{\ensuremath{\mathit{c}}}  
\newunicodechar{d}{\ensuremath{\mathit{d}}}  
\newunicodechar{e}{\ensuremath{\mathit{e}}}  
\newunicodechar{f}{\ensuremath{\mathit{f}}}  
\newunicodechar{g}{\ensuremath{\mathit{g}}}  
\newunicodechar{h}{\ensuremath{\mathit{h}}}  
\newunicodechar{i}{\ensuremath{\mathit{i}}}  
\newunicodechar{j}{\ensuremath{\mathit{j}}}  
\newunicodechar{k}{\ensuremath{\mathit{k}}}  
\newunicodechar{l}{\ensuremath{\mathit{l}}}  
\newunicodechar{m}{\ensuremath{\mathit{m}}}  
\newunicodechar{n}{\ensuremath{\mathit{n}}}  
\newunicodechar{o}{\ensuremath{\mathit{o}}}  
\newunicodechar{p}{\ensuremath{\mathit{p}}}  
\newunicodechar{q}{\ensuremath{\mathit{q}}}  
\newunicodechar{r}{\ensuremath{\mathit{r}}}
```

11 Math Bold

```
\newunicodechar{I}{\ensuremath{\mathbf{I}}}  
\DeclareUnicodeCharacter{119924}{\ensuremath{\mathbf{M}}} % math bold caps  
\DeclareUnicodeCharacter{119931}{\ensuremath{\mathbf{T}}} % math bold caps
```

12 Misc

```
\newunicodechar{-}{\text{\textemdash}}
\DeclareUnicodeCharacter{9472}{---} % \---

% \DeclareUnicodeCharacter{8759}{\ensuremath{::\!}} % ::
\newunicodechar{::}{\ensuremath{::\!}}
\newunicodechar{...}{\ensuremath{\cdots}}
\newunicodechar{:}{\ensuremath{\vdots}}

\newunicodechar{\mapsto}{\ensuremath{\mapsto}}

% In LaTeX documents, the "¿" is written as ?' (question mark, backtick) or \textquestiondown,
% and "¡" as !' (exclamation point, backtick) or \textexclamdown.
\newunicodechar{;}{\text{!'}}
\newunicodechar{¿}{\text{?'}}
\DeclareUnicodeCharacter{8265}{ {\color{red}\large !? } } %

\DeclareUnicodeCharacter{8603}{\ensuremath{\nrightarrow}} % , partial functions
% \DeclareUnicodeCharacter{10073}{\ensuremath{\with}} %

\DeclareUnicodeCharacter{120015}{\ensuremath{\mathfrak{z}}} % fancy small z

\DeclareUnicodeCharacter{8239}{\ensuremath{\,\,}} % \, %% an invisible space

\newunicodechar{X}{\ding{55}}
```