HyperSnips LaTeX Snippets User Guide

Contents

1 Introduction

This guide describes how to use the custom LaTeX snippets defined in the provided `.hsnips` file with HyperSnips (e.g., in VS Code). Each snippet is triggered by typing a keyword (often followed by pressing `Tab`) and will expand into a predefined LaTeX code template. Below, snippets are organized into categories with their triggers, descriptions, usage examples, and the resulting expanded output. Beginners should find clear explanations and examples to understand and use these shortcuts.

2 Document Structures and Environments

This section covers snippets related to common document elements and environments.

2.1 Figures and Tables

Trigger: `fig`
Description: Inserts a `figure` environment with placeholders for an image, caption, and label.
Usage: Type `fig` and press `Tab`.
Output:

```
\begin{figure}[H]
    \centering
    \includegraphics[width=0.8\textwidth]{<image path>}
    \caption{<caption>}
    \label{fig:<label>}
\end{figure}
```

Trigger: `table`*m n*
Description: Creates a `table` environment with a `tabular` of `m` rows and `n` columns (all centered, separated by `|`). Includes `\toprule`, `\midrule`, and `\bottomrule`, and placeholders for caption and label.
Usage: For example, type `table2 3` and press `Tab` to generate a 2x3 table template.
Output (for 2x3 example):

```
\begin{table}[H]
    \centering
    \begin{tabular}{c|c|c}
    \toprule
    a & b & c \\
    \midrule
    d & e & f \\
    \bottomrule
    \end{tabular}
    \caption{<caption>}
    \label{tab:<label>}
\end{table}
```

Replace `a,b,…,f` and the caption/label with your content.

2.2 Theorem-like Environments

Trigger: `dfn`
Description: Inserts a `definition` environment skeleton.
Usage: Type `dfn` and press `Tab`.
Output:

```
\begin{definition}
    <content>
\end{definition}
```

Trigger: `rmk`
Description: Inserts a `remark` environment skeleton.
Usage: Type `rmk` and press `Tab`.
Output:

```
\begin{remark}
    <content>
\end{remark}
```

2.3 References and Labels

Trigger: `lbl`
Description: Inserts a `\label` command for referencing a figure, table, or section.
Usage: Type `lbl` and press `Tab`.
Output:

```
\label{<key>}
```

Trigger: `atf`
Description: Inserts a `\autoref` command (requires `hyperref` package).
Usage: Type `atf` and press `Tab`.
Output:

```
\autoref{<key>}
```

Trigger: `hpr`
Description: Inserts a `\hyperref` command.
Usage: Type `hpr` and press `Tab`.
Output:

```
\hyperref[<label>]{<text>}
```

Trigger: `qed`
Description: Inserts `\qed` (end-of-proof symbol).
Usage: Type `qed` and press `Tab`.
Output:

```
\qed
```

3 Mathematical Environments and Equations

Trigger: `fm`
Description: Creates an inline math environment `\( ... \)`, with careful spacing.
Usage: Type `fm` and press `Tab`, then enter your math content.
Output:

```
\(<content>\)
```

Trigger: `dm`
Description: Creates a display math environment using `\[ ... \]`.
Usage: Type `dm` and press `Tab`.
Output:

```
\[
    <content>
\]
```

Trigger: `ary`*m n*
Description: Inserts an `array` environment with `m` rows and `n` columns (all centered).
Usage: For example, type `ary2 2` and press `Tab` to get a 2x2 array.
Output (for 2x2):

```
\begin{array}{cc}
    a_{11} & a_{12} \\
    a_{21} & a_{22}
\end{array}
```

Trigger: `bmat`*n* *m* or `pmat`*n* *m*
Description: Inserts a `bmatrix` (brackets) or `pmatrix` (parentheses) with `n` rows and `m` columns.
Usage: For example, type `bmat2 2` and press `Tab`.
Output (for `bmat2 2`):

```
\begin{bmatrix}
    a_{11} & a_{12} \\
    a_{21} & a_{22}
\end{bmatrix}
```

Trigger: `case`
Description: Inserts a `dcases` environment for piecewise definitions. Multiple lines with conditionals are provided.
Usage: Type `case` and press `Tab`.
Output:

```
\begin{dcases}
    <expr1>, & \text{if } <cond1>; \\
    <expr2>, & \text{if } <cond2>; \\
    <expr3>, & \text{otherwise}.
\end{dcases}
```

Trigger: `split`
Description: Inserts a `split` environment (for breaking equations over lines) inside an equation.
Usage: Type `split` and press `Tab`.
Output:

```
\begin{split}
    <content>
\end{split}
```

Trigger: `opmin`
Description: Template for an optimization problem (minimization).
Usage: Type `opmin` and press `Tab`.
Output:

```
\[
\begin{aligned}
    \min~ & <objective>  \\
    & <constraints>
\end{aligned}
\]
```

Trigger: `opmax`
Description: Template for a maximization problem.
Usage: Type `opmax` and press `Tab`.
Output:

```
\[
\begin{aligned}
    \max~ & <objective>  \\
    & <constraints>
\end{aligned}
\]
```

Trigger: `opPD`
Description: Primal-dual optimization problem template (primal (P) and dual (D)).
Usage: Type `opPD` and press `Tab`.
Output:

```
\[
\begin{alignedat}{5}
    \min~&c^{\top}x\quad\;\;& &\max ~\;& &y^{\top}b\\
    &Ax = b               & &      & &y^{\top}A \le c^{\top}\\
    (\mathrm{P})\; &x \ge 0 & &(\mathrm{D})\; & &
\end{alignedat}
\]
```

4 Text and Abbreviations

Trigger: `wrt`
Description: Expands to "*w.r.t.*" (with respect to).
Usage: Type `wrt` and press `Tab`.
Output:

```
w.r.t.
```

Trigger: `iid`
Description: Expands to "*i.i.d.*" (independent and identically distributed).
Usage: Type `iid` and press `Tab`.
Output:

```
i.i.d.
```

Trigger: `wp`
Description: Expands to "*w.p.*" (with probability).
Usage: Type `wp` and press `Tab`.
Output:

```
w.p.
```

Trigger: `%--`
Description: Inserts a long horizontal comment line.
Usage: Type `%--` and press `Tab`.
Output:

```
%-------------------------------------------------------------------------
%-------------------------------------------------------------------------
```

5 Greek Letters (Math Mode)

All snippets below work in math mode and expand to the corresponding Greek letter. Triggers usually start with a semicolon (`;`).

Trigger: `;a` or `;alpha` **Output:** α.

Trigger: `;b` or `;beta` **Output:** β.

Trigger: `;g` or `;gamma` **Output:** γ.

Trigger: `;G` or `;Gamma` **Output:** Γ.

Trigger: `;m` or `;mu` **Output:** μ.

Trigger: `;S` or `;Sigma` **Output:** Σ.

Trigger: `;d` or `;delta` **Output:** δ.

Trigger: `;D` or `;Delta` **Output:** Δ.

Trigger: `;z` or `;zeta` **Output:** ζ.

Trigger: `;e` or `;eta` **Output:** η.

Trigger: `;t` or `;theta` **Output:** θ.

Trigger: `;T` or `;Theta` **Output:** Θ.

Trigger: `;vt` or `;vartheta` **Output:** ϑ.

Trigger: `;i` or `;iota` **Output:** ι.

Trigger: `;k` or `;kappa` **Output:** κ.

Trigger: `;l` or `;lambda` **Output:** λ.

Trigger: `;L` or `;Lambda` **Output:** Λ.

Trigger: `;n` or `;nu` **Output:** ν.

Trigger: `;;n` or `;nable` **Output:** ∇.

Trigger: `;p` or `;pi` **Output:** π.

Trigger: `;P` or `;Pi` **Output:** Π.

Trigger: `;r` or `;rho` **Output:** ρ.

Trigger: `;u` or `;upsilon` **Output:** υ.

Trigger: `;U` or `;Upsilon` **Output:** Υ.

Trigger: `;;p` or `;phi` **Output:** ϕ.

Trigger: `;;P` or `;Phi` **Output:** Φ.

Trigger: `;vp` or `;varphi` **Output:** φ.

Trigger: `;c` or `;chi` **Output:** χ.

Trigger: `;;;p` or `;psi` **Output:** ψ.

Trigger: `;;;P` or `;Psi` **Output:** Ψ.

Trigger: `;o` or `;omega` **Output:** ω.

Trigger: `;O` or `;Omega` **Output:** Ω.

Trigger: `;x` or `;xi` **Output:** ξ.

Trigger: `;X` or `;Xi` **Output:** Ξ.

6 Mathematical Operators and Symbols

6.1 Basic Operations

Trigger: `frac` (or typing a number followed by `/`)
Description: Inserts a fraction.
Usage: Type `frac` and press `Tab`, or type e.g. `1/` and press `Tab`.
Output:

```
\frac{<num>}{<den>}
```

Trigger: `sq`
Description: Inserts a square root.
Usage: Type `sq` and press `Tab`.
Output:

```
\sqrt{<content>}
```

Trigger: `sum`
Description: Inserts a summation symbol with a subscript placeholder.
Usage: Type `sum` and press `Tab`.
Output:

```
\sum_{i}
```

Trigger: `Sum`
Description: Inserts a big summation $\sum_{i=1}^{\infty}$.
Usage: Type `Sum` and press `Tab`.
Output:

```
\sum_{i=1}^{\infty}
```

Trigger: `int`
Description: Inserts an integral symbol.
Usage: Type `int` and press `Tab`.
Output:

```
\int
```

Trigger: `dint`
Description: Inserts a definite integral from $-\infty$ to ∞.
Usage: Type `dint` and press `Tab`.
Output:

```
\int_{-\infty}^{\infty} <integrand>\,\mathrm{d}<variable>
```

Trigger: `pdif`
Description: Inserts a partial derivative $\frac{\partial V}{\partial x}$.
Usage: Type `pdif` and press `Tab`.
Output:

```
\frac{\partial <V>}{\partial <x>}
```

Trigger: `dif`
Description: Inserts a total derivative $\frac{\mathrm{d}y}{\mathrm{d}x}$.
Usage: Type `dif` and press `Tab`.
Output:

```
\frac{\mathrm{d}<y>}{\mathrm{d}<x>}
```

Trigger: `oo`
Description: Inserts the infinity symbol ∞.
Usage: Type `oo` and press `Tab`.
Output:

```
\infty
```

Trigger: `ôo`
Description: Inserts superscript infinity $^{\infty}$.
Usage: Type `ôo` and press `Tab`.
Output:

```
^{\infty}
```

Trigger: `Conj`
Description: Inserts big logical conjunction $\bigwedge$ with index.
Usage: Type `Conj` and press `Tab`.
Output:

```
\bigwedge_{i=1}^{\infty}
```

Trigger: `Disj`
Description: Inserts big logical disjunction $\bigvee$ with index.
Usage: Type `Disj` and press `Tab`.
Output:

```
\bigvee_{i=1}^{\infty}
```

6.2 Set and Logic Symbols

Trigger: `cap`
Description: Intersection $\cap$.
Usage: Type `cap` and press `Tab`.
Output:

```
\cap
```

Trigger: `Cap`
Description: Big intersection $\bigcap$ with limits.
Usage: Type `Cap` and press `Tab`.
Output:

```
\bigcap_{i=1}^{\infty}
```

Trigger: `cup`
Description: Union $\cup$.
Usage: Type `cup` and press `Tab`.
Output:

```
\cup
```

Trigger: `Cup`
Description: Big union $\bigcup$ with limits.
Usage: Type `Cup` and press `Tab`.
Output:

```
\bigcup_{i=1}^{\infty}
```

Trigger: `sub`
Description: Subset $\subset$.
Usage: Type `sub` and press `Tab`.
Output:

```
\subset
```

Trigger: `sube`
Description: Subset or equal $\subseteq$.
Usage: Type `sube` and press `Tab`.
Output:

```
\subseteq
```

Trigger: `subn`
Description: Proper subset $\subsetneq$.
Usage: Type `subn` and press `Tab`.
Output:

```
\subsetneq
```

Trigger: `sups`
Description: Superset $\supset$.
Usage: Type `sups` and press `Tab`.
Output:

```
\supset
```

Trigger: `supe`
Description: Superset or equal $\supseteq$.
Usage: Type `supe` and press `Tab`.
Output:

```
\supseteq
```

Trigger: `supn`
Description: Proper superset $\supsetneq$.
Usage: Type `supn` and press `Tab`.
Output:

`\supsetneq`

Trigger: `nsub`
Description: Not a subset $\not\subset$.
Usage: Type `nsub` and press `Tab`.
Output:

`\nsubseteq`

Trigger: `nsup`
Description: Not a superset $\not\supset$.
Usage: Type `nsup` and press `Tab`.
Output:

`\nsupseteq`

Trigger: `nin`
Description: Not an element $\notin$.
Usage: Type `nin` and press `Tab`.
Output:

`\notin`

Trigger: `land`
Description: Logical AND $\wedge$.
Usage: Type `land` and press `Tab`.
Output:

`\land`

Trigger: `lor`
Description: Logical OR $\vee$.
Usage: Type `lor` and press `Tab`.
Output:

`\lor`

Trigger: `\|=` or `mdl`
Description: "Models" symbol $\models$.
Usage: Type `\|=` or `mdl` and press `Tab`.
Output:

`\models`

Trigger: `\|-` or `vdh`
Description: Turnstile (derivability) symbol $\vdash$.
Usage: Type `\|-` or `vdh` and press `Tab`.
Output:

`\vdash`

6.3 Relations and Comparisons

Trigger: `>=` or `geq`
Description: Greater-than or equal $\geq$.
Usage: Type `>=` or `geq` and press `Tab`.
Output:

```
\geq
```

Trigger: `<=` or `leq`
Description: Less-than or equal $\leq$.
Usage: Type `<=` or `leq` and press `Tab`.
Output:

```
\leq
```

Trigger: `!=` or `neq`
Description: Not equal $\neq$.
Usage: Type `!=` or `neq` and press `Tab`.
Output:

```
\neq
```

Trigger: `==`
Description: Equivalent $\equiv$.
Usage: Type `==` and press `Tab`.
Output:

```
\equiv
```

Trigger:`~` or `apx`
Description: Approximately equal $\approx$.
Usage: Type `apx` or`~` and press `Tab`.
Output:

```
\approx
```

Trigger: `=~`
Description: Congruence $\cong$.
Usage: Type `=~` and press `Tab`.
Output:

```
\cong
```

Trigger: `-~`
Description: Approximately equal $\simeq$.
Usage: Type `-~` and press `Tab`.
Output:

```
\simeq
```

6.4 Arrows and Implications

Trigger: `->` or `to`
Description: Right arrow $\to$.
Usage: Type `->` or `to` and press `Tab`.
Output:

```
\to
```

Trigger: `<->`
Description: Double arrow $\leftrightarrow$.
Usage: Type `<->` and press `Tab`.
Output:

```
\leftrightarrow
```

Trigger: `=>` or `implies`
Description: Implies $\implies$.
Usage: Type `=>` or `implies` and press `Tab`.
Output:

```
\implies
```

Trigger: `=<` or `impliedby`
Description: Implied by $\impliedby$.
Usage: Type `=<` or `impliedby` and press `Tab`.
Output:

```
\impliedby
```

Trigger: `iff`
Description: If and only if $\iff$.
Usage: Type `iff` and press `Tab`.
Output:

```
\iff
```

Trigger: `!>`
Description: Maps to $\mapsto$.
Usage: Type `!>` and press `Tab`.
Output:

```
\mapsto
```

Trigger: `>>`
Description: Much greater than $\gg$.
Usage: Type `>>` and press `Tab`.
Output:

```
\gg
```

Trigger: `<<`
Description: Much less than $\ll$.
Usage: Type `<<` and press `Tab`.
Output:

```
\ll
```

6.5 Miscellaneous Symbols

Trigger: `||`
Description: | (vertical bar used as a divisor symbol).
Usage: Type `||` and press `Tab`.
Output:

```
\mid
```

Trigger: `prp`
Description: $\perp$ (perpendicular symbol).
Usage: Type `prp` and press `Tab`.
Output:

```
^{\perp}
```

Trigger: `inv`
Description: $^{-1}$ (inverse superscript).
Usage: Type `inv` and press `Tab`.
Output:

```
^{-1}
```

Trigger: `qs`
Description: ^{2} (square superscript).
Usage: Type `qs` and press `Tab`.
Output:

```
^{2}
```

Trigger: `vph`
Description: `\vphantom` (vertical phantom for spacing).
Usage: Type `vph` and press `Tab`.
Output:

```
\vphantom{<content>}
```

Trigger: `fk`
Description: (fraktur font).
Usage: Type `fk` and press `Tab`.
Output:

```
\mathfrak{<letter>}
```

Trigger: `tg`
Description: $\triangle$ symbol.
Usage: Type `tg` and press `Tab`.
Output:

```
\triangle
```

Trigger: `**`
Description: * (superscript asterisk).
Usage: Type `**` and press `Tab`.
Output:

```
^{\ast}
```

Trigger: `_*`
Description: $_*$ (subscript asterisk).
Usage: Type `_*` and press `Tab`.
Output:

```
_{\ast}
```

Trigger: `'`
Description: $'$ (prime symbol).
Usage: Type `'` and press `Tab`.
Output:

```
^{\prime}
```

Trigger: `\.`
Description: $''$ (double prime).
Usage: Type `\.` and press `Tab`.
Output:

```
^{\prime\prime}
```

Trigger: `_`
Description: _{} (subscript command).
Usage: Type `_` and press `Tab`.
Output:

```
_{<text>}
```

Trigger:
^
Description:
{} (superscript command).
Usage: Type
^ and press `Tab`.
Output:

```
^{<text>}
```

7 Font and Formatting Commands

Trigger: `(letter)bf`
Description: Inserts . E.g., `xbf` becomes **x**.
Usage: Type letter + `bf` in math mode.
Output:

```
\mathbf{x}
```

Trigger: `(word)bf`
Description: Inserts `\textbf{...}`. E.g., `Hello bf` yields `\textbf{Hello}`.
Usage: Type word + `bf` in text.
Output:

```
\textbf{Hello}
```

Trigger: `emph`
Description: Inserts `\emph{}`.
Usage: Type `emph` and press `Tab`.
Output:

```
\emph{<text>}
```

Trigger: `(letter)cal`
Description: Inserts . E.g., `Acal` becomes $\mathcal{A}$.
Usage: Type letter + `cal` in math mode.
Output:

```
\mathcal{A}
```

Trigger: `(letter)scr`
Description: Inserts . E.g., `Ascr` becomes $\mathscr{A}$.
Usage: Type letter + `scr` in math mode.
Output:

```
\mathscr{A}
```

Trigger: `rm`
Description: Inserts (upright font in math).
Usage: Type `rm` and press `Tab`.
Output:

```
\mathrm{<text>}
```

8 Probability and Statistics Notation

Trigger: `mean`
Description: Inserts expectation $\mathbb{E}[\cdot]$.
Usage: Type `mean` and press `Tab`.
Output:

```
\mathbb{E}_{<sub>}[<arg>]
```

Trigger: `Var`
Description: Inserts variance $\mathrm{Var}[\cdot]$.
Usage: Type `Var` and press `Tab`.
Output:

```
\Var_{<sub>}[<arg>]
```

Trigger: `Cov`
Description: Inserts covariance $\mathrm{Cov}[\cdot]$.
Usage: Type `Cov` and press `Tab`.
Output:

```
\Cov_{<sub>}[<arg>]
```

Trigger: `Pr`
Description: Inserts probability Pr(·).
Usage: Type `Pr` and press `Tab`.
Output:

```
\Pr_{<sub>}(<arg>)
```

Trigger: `spt`
Description: Support supp(·).
Usage: Type `spt` and press `Tab`.
Output:

```
\mathop{\mathrm{supp}}(<arg>)
```

9 Common Commands and Miscellaneous

Trigger: `ind`
Description: Inserts $\mathbb{1}$ (indicator function).
Usage: Type `ind` and press `Tab`.
Output:

```
\mathbbm{1}_{<set>}
```

Trigger: `::`
Description: Inserts `\colon` (colon in math).
Usage: Type `::` and press `Tab`.
Output:

```
\colon
```

Trigger: `idd`
Description: Inserts identity symbol id.
Usage: Type `idd` and press `Tab`.
Output:

```
\identity_{<arg>}
```

Trigger: `quo`
Description: Inserts quotient symbol $\frac{a}{b}$.
Usage: Type `quo` and press `Tab`.
Output:

```
\quotient{<a>}{<b>}
```

Trigger: `|_`
Description: Inserts custom $a|_b^c$ macro.
Usage: Type `|_` and press `Tab`.
Output:

```
\at{<a>}{<b>}{<c>}
```

10 Summary

This guide has cataloged all the LaTeX snippet triggers from the `.hsnips` file, organized by category. To use a snippet, type its trigger keyword and press `Tab`. The snippet will expand into the template shown in the output examples above. Replace placeholders like `<content>`, `<arg>`, `<caption>` etc. with your actual text or math. With practice, these shortcuts will speed up your LaTeX writing process.