

OneHotkey -- Math Formula Input Simplification Tool

This is a script that simplifies math formula inputs in `OneNote`, `Word` and `PowerPoint` with `AutoHotKey` script, e.g., `\a` for α (`\alpha`).

Demonstration video 1 (Early version):

- [AutoHotKey增强OneNote公式输入测试1哔哩哔哩 bilibili](#)

This project is still updating. Your suggestions and contributions are welcome.

If the formulas aren't displayed correctly, go to [README_EN.pdf](#).

How to Use

1. Download and run [OneNote.exe](#).
2. Input the code of the symbol, then press `Space` to get the symbol. For example, input `\a` and press `Space` to get α .
3. For editing the symbol mapping, please refer to [Code Editing Guide](#). If you need help, go to the [AutoHotKey official website](#).
4. To stop the script, right click the `H` icon in the system tray and select `Exit`.

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Symbol Mapping

Overview

The script contains multiple symbol mappings, including Greek letters, math fonts, frequently used letters, and structures. The following is a list of some typical mappings. Make sure that you have entered the formula input mode with `Alt+=`.

Code	Output	Category	Source
<code>\a</code>	α	lowercase Greek letters	<code>\alpha</code>
<code>\D</code>	Δ	uppercase Greek letters	<code>\Delta</code>
<code>\R, \C, \Z, \N</code>	$\mathbb{R}, \mathbb{C}, \mathbb{Z}, \mathbb{N}$	frequently used letters	<code>\doubleR, ...</code>
<code>\do x, \sc x, \fr x</code>	$\mathbb{X}, \mathcal{X}, \mathfrak{X}$	fancy letter forms	<code>\doubleX, \scriptX, \frakturX</code>
<code>\m3, \m4, ...</code>	3 by 3 empty matrix, ...	matrices	<code>[\matrix{@@&&}], ...</code>
<code>x\h, x\~, x\d2</code>	$\hat{x}, \tilde{x}, \ddot{x}$	modifiers	<code>\hat, \tilde, \ddot</code>
<code>\x, \X, \sq, \pa, \eq</code>	$\cdot, \times, \sqrt{\square}, \parallel, \equiv$	operators	<code>\cdot, \times, \sqrt, \parallel, \equiv</code>
<code>\pd, \di, \dt, \inf</code>	$\partial, d, \frac{d}{dt}, \infty$	frequently used symbols	<code>\partial, "d", "d" / "d" t, \infty</code>
<code>\ls</code>	\square^P	left super-and-lowerscript	<code>^_ P</code>
<code>\i, \j, \k</code>	i, j, k	imaginary/quaternion symbols	<code>"i", "j", "k"</code>
<code>\ejw</code>	$e^{j\omega}$	complex exponential factor	<code>e^j\omega</code>

You shall notice that (space) is commonly used, which is the key feature of OneNote formula input. Capital letter code should be inputted with `Shift`, not `CapsLock`.

Full Table

Frequently Used Letters

Code	Output	Source	Code	Output	Source
<code>\pd</code>	∂	<code>\partial{space}</code>	<code>\di</code>	d	<code>"d"</code>

Code	Output	Source	Code	Output	Source
<code>\inf</code>	∞	<code>\infty{Space}</code>	<code>\dt</code>	$\frac{d}{dt}$	<code>"d"{Space}/"d"{Space}t{Space}</code>
<code>\R</code>	\mathbb{R}	<code>\doubleR{Space}</code>	<code>\E</code>	\mathbb{E}	<code>\doubleE{Space}[] {Space}{Left}</code>
<code>\Q</code>	\mathbb{Q}	<code>\doubleQ{Space}</code>	<code>\Z</code>	\mathbb{Z}	<code>\doubleZ{Space}</code>
<code>\N</code>	\mathbb{N}	<code>\doubleN{Space}</code>	<code>\C</code>	\mathbb{C}	<code>\doubleC{Space}</code>
<code>\J</code>	\mathbb{J}	<code>\doubleJ{Space}</code>			

Operators

Code	Output	Source	Code	Output	Source
<code>\x</code>	\cdot	<code>\cdot{Space}</code>	<code>\X</code>	\times	<code>\times{Space}</code>
<code>\sq</code>	$\sqrt{\quad}$	<code>\sqrt{Space 2} {Left}</code>	<code>\pa</code>	\parallel	<code>\parallel{Space}</code>
<code>\ss</code>	\subset	<code>\subset{Space}</code>	<code>\sse</code>	\subseteq	<code>\subsepeq{Space}</code>
<code>\op</code>	\oplus	<code>\oplus{Space}</code>	<code>\ox</code>	\otimes	<code>\otimes{Space}</code>
<code>\od</code>	\odot	<code>\odot{Space}</code>	<code>\dd</code>	\ddots	<code>\ddots{Space}</code>
<code>\cd</code>	\cdots	<code>\cdots{Space}</code>	<code>\vd</code>	\vdots	<code>\vdots{Space}</code>
<code>\map</code>	\mapsto	<code>\mapsto{Space}</code>	<code>\pro</code>	\propto	<code>\propto{Space}</code>
<code>\as</code>	\because	<code>\because{Space}</code>	<code>\so</code>	\therefore	<code>\therefore{Space}</code>
<code>\eq</code>	\equiv	<code>\equiv</code>			

Greek Letters

Code	Output	Source	Code	Output	Source
<code>\a</code>	α	<code>\alpha{Space}</code>	<code>\b</code>	β	<code>\beta{Space}</code>
<code>\e</code>	ε	<code>\varepsilon{Space}</code>	<code>\ve</code>	ϵ	<code>\epsilon{Space}</code>
<code>\d</code>	δ	<code>\delta{Space}</code>	<code>\D</code>	Δ	<code>\Delta{Space}</code>
<code>\s</code>	σ	<code>\sigma{Space}</code>	<code>\S</code>	Σ	<code>\Sigma{Space}</code>
<code>\l</code>	λ	<code>\lambda{Space}</code>	<code>\L</code>	Λ	<code>\Lambda{Space}</code>
<code>\t</code>	θ	<code>\theta{Space}</code>	<code>\T</code>	Θ	<code>\Theta{Space}</code>
<code>\p</code>	ϕ	<code>\phi{Space}</code>	<code>\P</code>	Φ	<code>\Phi{Space}</code>

Code	Output	Source	Code	Output	Source
<code>\o</code>	ω	<code>\omega{Space}</code>	<code>\O</code>	Ω	<code>\Omega{Space}</code>
<code>\g</code>	γ	<code>\gamma{Space}</code>	<code>\G</code>	Γ	<code>\Gamma{Space}</code>

- `\ve` means variant epsilon. For convenience, `\e` is set to ε and `\ve` is set to ϵ , which is different from their original code.

Matrix

Code	Output	Source
<code>\m4</code>	4 by 4 empty matrix	<code>[\matrix{@@@&&}{Space}]{Space}</code>
<code>\m3</code>	3 by 3 empty matrix	<code>[\matrix{@@&&}{Space}]{Space}</code>
<code>\m2</code>	2 by 2 empty matrix	<code>[\matrix{@&}{Space}]{Space}</code>
<code>\m</code>	empty matrix awaiting <code>&</code> <code>@</code> to set size.	<code>[]{Space}{Left}\matrix(){Left}</code>

Modifiers

Code	Output	Source
<code>\d1</code>	\dot{x}	<code>\dot{Space 2}</code>
<code>\d2</code>	\ddot{x}	<code>\ddot{Space 2}</code>
<code>\d3</code>	3 dots above	<code>\dddot{Space 2}</code>
<code>\d4</code>	4 dots above	<code>\ddddot{Space 2}</code>
<code>\~</code>	\tilde{x}	<code>\tilde{Space 2}</code>
<code>\v</code>	\vec{x}	<code>\vec{Space 2}</code>
<code>\h</code>	\hat{x}	<code>\hat{Space 2}</code>

Arrows

Code	Output	Source	Code	Output	Source
<code>\lr</code>	\leftrightarrow	<code>\leftrightharrow{Space}</code>	<code>\lrs</code>	\Leftrightarrow	<code>\leftrightharrows{Enter}{Left}</code>
<code>\la</code>	\leftarrow	<code>\leftarrow{Space}</code>	<code>\La</code>	\Leftarrow	<code>\Leftarrow{Space}</code>
<code>\down</code>	\downarrow	<code>\downarrow{Space}</code>	<code>\up</code>	\uparrow	<code>\uparrow{Space}</code>
<code>\ul</code>	\nearrow	<code>\nvarrow{Space}</code>	<code>\ur</code>	\nearrow	<code>\nearrow{Space}</code>
<code>\dl</code>	\swarrow	<code>\swarrow{Space}</code>	<code>\dr</code>	\searrow	<code>\searrow{Space}</code>

Symbols

Code	Output	Source	Code	Output	Source
<code>\de</code>	°	<code>\degree{Space}</code>	<code>\st</code>	★	<code>\star{Space}</code>

Structures

Code	Output	Source
<code>\r</code>	\square	<code>\right.{Left}</code>
<code>\ceil</code>	\lceil	<code>\lceil{Space}\rceil{Space 2}{Left}</code>
<code>\floor</code>	\lfloor	<code>\lfloor{Space}\rfloor{Space 2}{Left}</code>
<code>\brak</code>	\langle	<code>\bra{Space}\ket{Space 2}{Left}</code>
<code>\ls</code>	$\square P$	<code>_ P {Left 4}</code>
<code>\fu</code>	myfunction \square	<code>\funcapply</code>
<code>\Norm</code>	$\ $	<code>\norm{Space}\norm{Space 2}{Left}</code>
<code>\limx,</code> <code>\limn,</code> <code>\limh</code>	$\lim_{x \rightarrow \infty}, \lim_{n \rightarrow \infty},$ $\lim_{h \rightarrow 0}$	<code>\lim_(x->\infty{Space}){Space}, \lim_(x->\infty{Space}){Space}</code>

- `\funcapply` is a little different from `\of`. Have a try by yourself!

Prefix for Fancy Letters

Code	Output	Source
<code>\sc</code>	\mathcal{X}	<code>\script</code>
<code>\do</code>	\mathbb{X}	<code>\double</code>
<code>\fr</code>	\mathfrak{X}	<code>\fraktur</code>

- For these mappings, your input should be like `\sc X`.

Recommendations

- Learn more about the math input from this document: [UTN28-PlainTextMath-v3.pdf](#). Page 39~47 is useful.
- Input Unicode characters directly: https://github.com/gtj1/symbol_assist
- Intuitive Vim-like text cursor control: <https://github.com/RUSRUSHB/AutoTextCursor>

Experimental Features (In folder `experimental/`)

`key_combination.exe`

- Contains: Start formula inputting; Division line; Boxed text; Text block

`rus_hotkey.exe`

- Input Russian alphabets. They can be integrated into formula inputting.
- Format: `\+Romanized Alphabet+R`
- e.g., `\dR` generates `Д`, `\DR` generates `Д`

Code Editing Guide

For editing the mapping, please: Edit `symbol_assist.ahk`, compile it with `Ahk2Exe`, and run the compiled `.exe` file. You are recommended to learn more about `AutoHotkey` from its [website](#).

The code of `symbol_assist_OneNote.ahk` is very easy to understand, even if you have not learnt about `AutoHotkey`. For newcomers, the explanation of the code is as follows:

Each line of the code is a mapping of the input code to the output symbol. The format is `: (parameters):input::output`. For example, `::\a::\alpha` means that when you input `\a`, the script will output `\alpha`.

I added some parameters `co?`:

Parameter	Meaning
<code>c</code>	Case-sensitive. <code>\a</code> and <code>\A</code> are different.
<code>o</code>	Delete the <code>space</code> you entered at the end.
<code>?</code>	Output formula even if you have typed something before the code. Otherwise, it will fail in cases like <code>x\h</code>