

A T_EX_{MACS} Demo

BY XW

November 23, 2015

Abstract

This is a small demonstration of the usage of T_EX_{MACS}, for more detailed explanation, see [my blog](#).

Table of contents

1 Basic Usage	2
2 Typing Mathematics	2
3 Dealing with Tables	3
4 Inserting/drawing Images	3
5 Automatically Generated Content	4
5.1 adding table of content	4
5.2 using bibliography	4
Bibliography	4

1 Basic Usage

- *Context* of cursor is shown in right-bottom corner
- Use *contextual menu*
- Basic tex tags can be applied
- Use `ctrl-tab` to change display style
- **Bold** or *Italic* can use shortcut-key: `ctrl-b`, `ctrl-i`.
- Code can be entered either by button or by `\texttt` tag
- Underline text can be added by typing `\underline` tag
- [Links](#) can be inserted by menu button

2 Typing Mathematics

To enter math context, either use menu button or just type `$` or `alt-$`.

In the math environment:

- use `tab` to switch between similar symbols, $\alpha\beta\oplus\in\neq\leq\varphi$
- use `ctrl-tab` to switch style
- `alt-f` to enter a fraction $\frac{a}{b}$
- `alt-s` to enter root \sqrt{x}
- `^` to enter superscript, `_` to enter subscript x_i^2
- `alt-a` and `alt-b` to insert superscript above and below $\sum_{i=0}^n i$
- integral and sum: can use tag `\int` and `\sum`
- reference to equation 2 using `\label` and `\ref` tags

Here are some examples:

$$\tan \alpha = \frac{\sin \alpha}{\cos \alpha} \tag{1}$$

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}$$

$$\int_a^b f(x)dx = F(b) - F(a) \tag{2}$$

Writing a theorem:

Theorem 1. *Cauchy-Schwarz in L^2*

let $f, g \in L^2$, their inner product is smaller than the product of their L^2 norm:

$$\left| \int f \bar{g} \right|^2 \leq \int |f|^2 \cdot \int |g|^2 \quad (3)$$

Question. How to insert such an equation in $T_{E^X_{MACS}}$?

$$\mathbb{1}_{x_0}(x) = \begin{cases} 1 & \text{if } x = x_0 \\ 0 & \text{otherwise} \end{cases}$$

Answer. \implies see next section.

3 Dealing with Tables

- use menu button to insert a table
- use `ctrl-tab` to switch style
- insert/delete columns: use contextual menu button, or shortcut key: `win-direction`, `win-backspace`.

a	b	c
1	200	3

Table 1. a sample table

$$\begin{pmatrix} x_{1,1} & \cdots & x_{n,1} \\ \vdots & \ddots & \vdots \\ x_{n,1} & \cdots & x_{n,n} \end{pmatrix}$$

4 Inserting/drawing Images



Figure 1. pic from clipboard

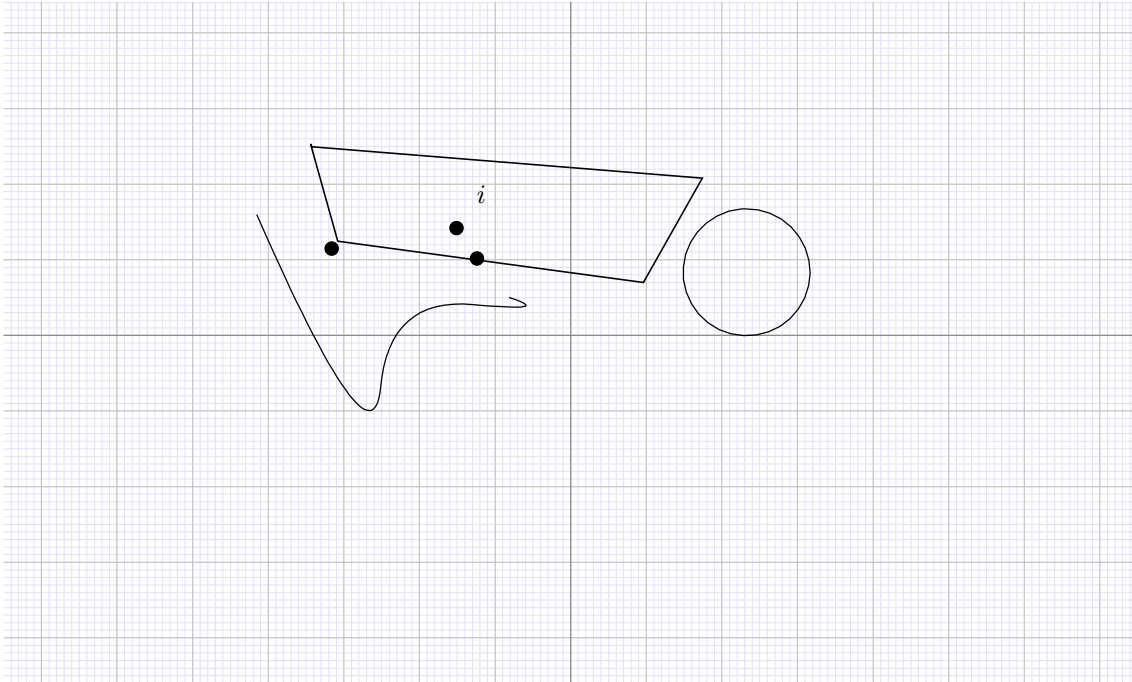


Figure 2. example of drawing images

5 Automatically Generated Content

5.1 adding table of content

first insert toc using buttons, then click **document**→**update**→**toc**.

5.2 using bibliography

- first need a *demo.bib* file containing bibtex code
- use `\cite` to add visible citation, *ex.* citing document [1].
- use `\nocite` to add *invisible citation*, then update bibliography *twice* to see changes.

Bibliography

- [1] David M. Blei, Andrew Y. Ng, Michael I. Jordan and John Lafferty. Latent dirichlet allocation. *The Journal of Machine Learning Research*, , 2003.
- [2] Yehuda Koren, Robert Bell and Chris Volinsky. Matrix faactorization techniques for recommender systems. *IEEE Computer*, :42–49, 2009.
- [3] Toby Segaran. *Programming Collective Intelligence: Building Smart Web 2.0 Applications*. 2007.