Kinx TT - Kinx Tiny Typesetting

Abstract

This system is a small typesetting system written in Kinx. Most of people knows the LaTeX[1] is being used for that purpose, but the TeX[2] system is very huge. This system provides only a limited functionality, but supports some of TeX algorithms in this small system. This would be your best partner as long as used for your personal use.

1 Overview

1.1 Goals

The goal of the Kinx Tiny Typesetting is as follows.

- Keeping it small.
- Pretty beautiful.
- Direct output to PDF.

Kinx TT has supported some kind of TeX algorithms, so the final output would be pretty beautiful. You can check it yourself as this document was generated by this system. On the other hand, there are some known bad points below as a trade off.

- Needs a performance improvement.
- Prvides only a limited functionality.

1.2 Features Overview

This system supports following algorithms.

1. Hyphenation & Knuth-Plass Line Breaking Algorithm, and also for Japanese hyphenation rules.
2. Footnotes[3].
3. Widows & Orphans penalty control.
4. Listing items with a bullet or numbering.
5. Images, and it can be also put with floating inside paragraph.
6. Math formula & equation like TeX
7. Tables, and the header of table is automatically repeated each page.
8. Writing a program source code.
9. Japanese Ruby. 日本語, or 日本語 to be separated for each character.

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[1] Leslie Lamport, https://en.wikipedia.org/wiki/LaTeX
[2] Donald E. Knuth, https://en.wikipedia.org/wiki/TeX
[3] This is a footnote example.

2 Features Details

2.1 Hyphenation & Line Breaking

The figure on the right[4] is an example of hyphenation and justification. Hyphenation will be done before applying line-breaking algorithm. The algorithm is based on `Hyper.js`, and it relies on the hyphenation algorithm by Franklin M. Liang commonly known from LATEX.

And also, this system is supporting **Knuth-Plass Line Breaking Algorithm** for line-break. This is well known algorithm because the TEX uses it. These algorithms are known as the best way so far for a typesetting system.

This Kinx TT has supported some kind of TEX algorithms, so the final output would be very beautiful. You can check it on your eyes yourself as this document was generated by this system. On the other hand, there are some bad points below as a trade off.

Fig 2.1 Hyphenation and justification

2.2 Widows & Orphans

Widows and orphans control is not perfect so far. But normally it is available for a section and a paragraph. Unfortunately it is not available for listing items, images, and so on. Please check it and you can use \columnbreak command anywhere you need.

2.3 List items

You can use an **itemize** and an **enumerate** listing items as follows.

Here is an example of 'itemize'.

- Item level 1-1
- Item level 1-2
  - Item level 2-1
  - Item level 2-2
  - Item level 2-3
    - Item level 3-1
    - Item level 3-2
      * Item level 4-1
      * Item level 4-2

Here is an example of 'enumerate'.

1. Item level 1-1
2. Item level 1-2
   (a) Item level 2-1
   (b) Item level 2-2
   (c) Item level 2-3
       i. Item level 3-1
       ii. Item level 3-2
           A. Item level 4-1
           B. Item level 4-2

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[4] This is also the example of a floating image.

2.4 Math formula and equation

Here is an example of Math formula and equation. You will think as if it is LaTeX output. Yes, you are quite right because this is came from TeX output, but it is never using a huge TeX system. Instead, it is using an output of KaTeX, which is included in this system.

$$E = mc^2$$

$$m = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$

$$\int_{-\infty}^{\infty} f(x)dx = \sqrt{\pi}$$

Fig 2.2 Math example

If you want to write a math formula inline, use $...$ style directly in paragraph. For example, $E = mc^2$ is written as `$E = mc^2$`, and another example is $\int_{-\infty}^{\infty} f(x)dx = \sqrt{\pi}$ written as `$\int_{-\infty}^{\infty} f(x) dx = \sqrt{\pi}$`.

If you want to use $ in paragraph, use $ with \ like \$.

And also you can use \displaystyle keyword, the Math fomula is directly inside paragraph like

$$\int_{-\infty}^{\infty} f(x)dx = \sqrt{\pi}$$

, by `$\displaystyle\int_{-\infty}^{\infty} f(x) dx = \sqrt{\pi}$`.

2.5 Table

Here is an example of table. The ruled line can be selected from no line, a single line, or a double line. Besides, the column width is also automatically calculated according to inside text size.

Align Left	Align Center	Align Right
A1	B1[5]	C1
A2	If you want to write a math formula inline, use $...$ style directly in paragraph.	C2
A3	$$\int_{-\infty}^{\infty} f(x)dx = \sqrt{\pi}$$ is a good example of the Math formula in the table of Kinx Tiny Typeseting library.	This column is aligned to the right.

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[5] This is a footnote in table.

Align Left	Align Center	Align Right
1	Aligned to the center.	On the right.
2	Aligned to the center.	On the right.

The table header can be automatically repeated each page.

2.6   Program source code

Here is an example of a source code.

```
function fib(n) {
    if (n < 3) return n;
    return fib(n-2) + fib(n-1);
}

System.println("fib(34) = ", fib(34));
```