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. Main Features
   (a) Hyphenation & Knuth-Plass Line Breaking Algorithm.
   (b) Widows & Orphans penalty control.
   (c) Listing items with a bullet or numbering.
   (d) Math formula & equation like TeX
   (e) Writing a program source code.
   (f) Footnotes[3].
2. For Japanese
   (a) Japanese hyphenation rules.
   (b) Japanese Ruby. 日本語(にほんご), or 日本語(にほんご) to be separated for each character. (how to read)

[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 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.

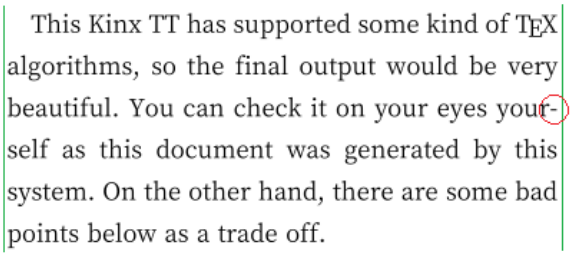

Fig 2.1 Hyphenation and justification

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.

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 `\pagebreak` 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

2.4 Math formula and equation

Here is an example of Math fomula 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.

$$E = mc^2$$

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

Fig 2.2 Math example

2.5 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));
```