hetvid: A template for light notes

itpyi
Ci'en Translation College of Xijing, Tang Empire

Date created: 2025-03-27
Date modified: 2025-04-22

Abstract

This is a template designed for writing scientific notes.

Contents

1. Usage

Copy `hetvid.typ` to your working directory, then

```
#import "hetvid.typ": hetvid
#show: hetvid.with(
  title: [A template for light notes],
  author: "Feifei",
```

```
  header: "Instruction", // indicating the class of the file
  date_created: "2025-03-27",
  date_modified: "2025-03-30",
  abstract: [This is the abstract],
  toc: true, // whether to display table of contents, default to be true
)
```

It might be good to publish this template later so that one can use it without copying the file.

2. Fonts

Fonts can be globally adjusted in the `#let hetvid()` block. In this block, several types of fonts are specified, including

body-font This is the font used for the main text.

raw-font This is the font used for the `raw text`.

heading-font This is the font used for the headings. I choose to use sans serif fonts for the headings for a modern look. You can modify it to serif fonts with higher weight if you like. See Section 3.1 for details.

math-font This is the font used for the math equations.

For each type of font, I provide several options. The compiler will choose the first available font in the list. All these fonts I choose is free to download from the internet.

2.1. More on math fonts

I would to comment more on the math font. I have set it to match the body font in the first 3 options. I highly recommend this matching since text can appear in equations, while different fonts for text in and out of equations look really weird. For example, compare the following two examples:

- The failure probability is $P[\text{fail}] = 1/2$. (The math font is set to be the same as the body font, i.e., the New Computer Modern font, which is default for LaTeX.)
- The failure probability is $P[\text{fail}] = 1/2$. (The math font is set to be the same as the body font, i.e., the Libertinus font.)
- The failure probability is $P[\text{fail}] = 1/2$. (The math font is set to be Libertinus Math, not matching the text font.)

Human beings should be uncomfortable with the third example. For available opentype fonts supporting math, please refer to Which OpenType Math fonts are available?

The default font is set to be New Computer Modern, which is embeded in typst. Typst provides two weights of this font for body text: 400 (regular) and 450 (book). We use the regular weight by default, which has a conventional LaTeX look. You can set `body-font-weight` to book yourself as below

```
#show: hetvid.with(
  // other parameters
  body-font-weight: 450,
```

```
  // other parameters
)
```

This weight is more friendly to screens with low resolution.

3. Headings

3.1. Adjusting fonts of headings

Headings are set to their default size in typst, but using a sans serif font with normal weight. You can set it to serif font with higher weight if you like, by setting

```
#show: hetvid.with(
  // other parameters
  heading-font: "New Computer Modern",
  heading-font-weight: 700,
  // other parameters
)
```

3.2. Second-level heading

3.2.1. Third-level heading

Note that third-level heading has the same font size as the body text. A light note within 100 pages should rarely use a third-level heading. For example, Kitaev's paper [1–3] and Witten's note [4–6] never uses a third-level heading.

3.2.1.1. Please avoid using headings of higher levels

If a still higher-level heading is needed, the note might be malstructured.

4. Quotes

Block quotes.

> Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri.
>
> Cicero

Then this is still the same paragraph.

Another paragraph. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri.

> Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat.
>
> Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri.

Then this is true.

5. Equation

Equations are numbered by default,

$$\mathcal{F} f(k) = \frac{1}{2\pi \mathrm{i}} \int \mathrm{d}k \, \mathrm{e}^{\mathrm{i}kx} f(x), \tag{1}$$

and you can refer to it by its number (1).

By default, line after an equation is not indented,

$$1 + 1 = 2. \tag{2}$$

This is an example. But if you want to end a paragraph by an equation, you can add a parbreak manually by `#parvirtual`.

$$1 + 1 = 2. \tag{3}$$

And then you can add a new paragraph.

6. Theorems

Our template provides several theorem environments through a theorem package `dingli`.

Theorem 6.1. This is a theorem.

This is a paragraph after a theorem. Note the vertical space.

For theorems with a name, we set it to look like the default behaviour of the `amsthm` package. The "theorem" is strong, the "name" is put in a parenthesis while the point is put after the name.

Theorem 6.2 (name)**.** This is a theorem with name.

Theorem 6.3. This is a theorem. The space is set to weak so that no extra space is added between two theorems.

Proof. This is the proof.

$$1 + 1 = 2 \tag{4}$$

This is what to be prooved.

Another paragraph of the proof. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet. ■

Now we have other types.

Lemma 6.1. This is a lemma.

Corollary 6.1. This is a lemma.

Definition 6.1. This is a lemma.

Refer to theorems by Lemma 7.1.

7. Theorem by section

Theorem 7.1. Recount the theorem

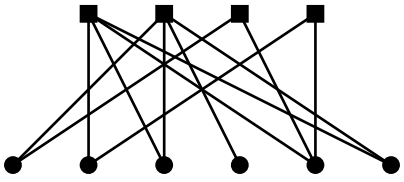
Lemma 7.1. This is a lemma.

Corollary 7.1. This is a lemma.

Definition 7.1. This is a lemma.

8. Figure and caption

This template allows for two kinds of figures. First, a figure inside a paragraph. Such a figure is described by contents round it in the main text and hence has no caption or label. As a result, content following this figure should not be indented since it is not a new paragraph. For example, we can plot a bipartite graph as follows:



and go on to say something about it.

Another kind of figure is a standalone figure, which has a caption and label. For such figures, we change the typst default behaviour by following 3 features:

- Figure caption is centered if it in within one line, otherwise it is aligned to the left. See Figure 1 and Figure 2 for examples. Refer to Typst Examples Book: Multipline detection.

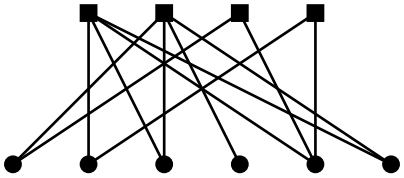


Figure 3: A figure placed at the top of a page.

- Figure caption has a smaller size than the main text, defined by `caption-size`.
- We add vertical space equal to one line of text before and after such a figure.

The second and the third features are set to avoid mixing the caption with the main text.

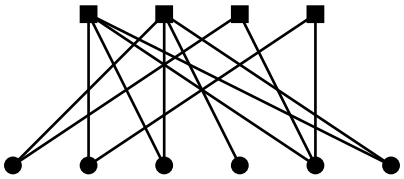


Figure 1: A figure with a centered short caption.

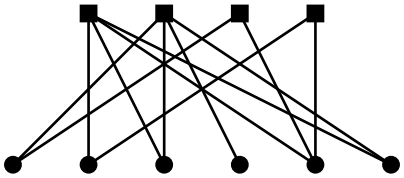


Figure 2: A figure with a long caption. If the caption is long enough such that it occupies multiple lines, then the caption is aligned to the left.

You can see that contents following a standalone figure is indented, indicating that is is a new paragraph. The following paragraph is well separated from the figure caption.

You can also force a figure to be placed at the top of a page. See Figure 3.

9. Bibliography and citation

Bibliography and citation style is set in

```
// set citation
set bibliography(style: "american-physics-society")
```

You can also choose other styles, see https://typst.app/docs/reference/model/bibliography/#parameters-style.

Bibliography

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