

Erm... what the SIGBOVIK?

Bringing visual novels to the next billion devices

Aaron Thapa
hello@ggrks.moe*

Northern Virginia Community College

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Abstract

Yes, the title is clickbait and has little to do with the paper. What if Class of '09 didn't just have "PDF files" in it, but was itself a playable PDF file? This paper introduces RenTeX, a Ren'Py to L^AT_EX transpiler, compatible with a small range of Ren'Py visual novels.

-1. QR Code

Use this QR code to get to the project page on GitHub, and eventually I'll link other stuff from there too. No reason to have one because it's linked elsewhere, but I'm sure it'll be eye-catching for those scrolling through the PDF or flipping through the physical volume.



0. Disclaimers

This paper should not be construed as support for SNB3 or anything he does. I just needed a recognizable, culturally relevant visual novel, made in Ren'Py that's also simple and doesn't rely on being a game too much¹.

Nothing I say or do in this paper represents the views of anyone at Northern Virginia Community College, or anybody for that matter, besides myself.

Any output L^AT_EX or PDF from this program is almost certainly a derivative work of whatever original file was being used. Make sure that you have a valid license for any games that you decide to do this to, and do not distribute anything you are not allowed to.

1. Introduction

You ~~likely don't~~ may remember my previous appearance at SIGBOVIK 2023, "VOACaloid: A "better" "hardware-based" "portable" "so-

*Turns out I bet on the wrong horse with Mastodon last time. What can I say? I thought it would be more popular.

¹Looking at you, DDL

lution” for the “real-time” “generation” of “singing” [1]. Since then, I have graduated from high school and have become far less active in the field of singing voice synthesis (SVS). But worry not, as I have not stopped making things worth demonstrating at this conference.

I hope the amount of waffling I am doing at the beginning of this paper properly conveys how ready I am not; I didn’t bother to start writing this paper until today (March 26).

2. The Real Introduction

Imagine being a visual novel enjoyer. What a loser. Couldn’t be me. Such a person faces an unparalleled challenge in taking their entertainment on the go. Movies can be streamed on mobile devices. E-Books and webcomics also translate to portable formats very well.

Because most software is distributed as compiled binaries, video games, including visual novels, are tied to the platforms of their original release. Some games can be emulated, or can be streamed from the cloud. This comes at the cost of a much poorer user experience and, in the case of cloud streaming, additional cost and high bandwidth usage [2].

The nature of visual novels gives them a unique escape from this problem. Most visual novels mostly consist of images and text, with the main user input being advancing dialogue and making choices which could impact the progression of the story [3].

PDF files present a convenient solution to this problem. They are the standard for presenting static text and images, and support interactivity through clickable links between pages. Additionally, PDF readers are commonplace on all operating systems.

3. Process

Ren’Py, technically, has a very flexible, and thus difficult to parse, syntax. To save effort, instead of attempting to fully logically parse the input files, much of the information is thrown out and

many assumptions are made in the name of simplifying processing.

In the first pass, all the lines in the original file are parsed to “logical lines” which can each have different kinds of “statements” which can include lines of dialogue or even things like the individual choices from a menu.

In the second pass, these logical lines are used to find and mark the different paths a player could take through the script. The program goes through every logical line and outputs “logical pages” along the way.

The last step involves translating these logical pages into \LaTeX . Labels, buttons, text, and graphics are all marked and noted in the outputted \LaTeX code. Beamer is used to create clean and easy to control pages.

4. Usage

First, ensure the desired visual novel is made in Ren’Py. Then, use a tool like `unrpyc` to extract the `rpym` files and other required contents. Clone the RenTeX repository and create an input and output directory. Copy “`script.rpy`” to the input folder, and copy the “`images`” folder to the output folder, and ensure that all the images are in PNG format. If not, convert them.

Once everything has been prepared, simply running the Rust program will create an “`out.tex`” file inside the output folder. Compile that into the desired format.

5. Successes

RenTeX technically achieves what I had originally set out to do with it. For a lot of beginner Ren’Py projects, this could probably give a reasonably faithful conversion. The translation process itself is also very quick; it can convert the entire script of “Class of ’09” in about 80 milliseconds.

6. Concessions

The only visual novels that I have tested are the Ren’Py example game and “Class of ’09”.

Anything else will likely mostly work but require heavy modifications to the program. Background images also aren't supported. Obviously features like music, voiced lines, save files, and animations are completely gone and likely impossible²

In its current state, RenTeX is almost enough to make a playable printed visual novel; what's missing is logic to figure out what page a reader would have to turn to. The link system currently is unaware of the visible page numbers³ so without major refactoring this would not be possible.

Most Japanese visual novels are completely left out by RenTeX because they usually use other engines. High Unicode support is also completely untested but should be easy enough to add⁴.

Compilation of the L^AT_EX output is very slow. Because the output can be in excess of thousands of pages, it takes more than two minutes to create the PDF file for "Class of '09".

Any game state that isn't representable as a position on the route map is also impossible as of now. It likely could be done but may require multiplying the number of pages many times over, making the resulting PDF even more of a pain to use than it already is.

7. Other Things

There are a lot of things that this paper could have been. The obvious gag with the title is to do some kind of lexical analysis of previous proceedings and find funny, unintentional instances of "brainrot". Hey, I may still do that, but leave this section in to fill paper space. You never know.

I wanted to include code listings, but that would bring this paper's length to more than 17 pages, an amount of useless garbage which even I would not be comfortable submitting.

At some time before or after the conference proceedings, I may or may not create a YouTube video companion to this paper, showcasing the

converter and some other things. That QR code at the beginning will link to anything should it come.

I'd like to apologize for the paper not being that funny. Had I taken more time I would have probably made a better thing and written a funnier paper about it. Maybe the video will be funny, but I wouldn't count on it.

8. Acknowledgements

I would like to thank the mailing list admins for reminding me to submit this paper. I would also like to recognize Tom Murphy VII, whose work in previous editions of this conference [5] (and no doubt this one) constantly raises the bar for us who work in the other three quarters of academia. Of course, I would like to thank the developers and contributors of Ren'Py and L^AT_EX. Without their tireless efforts a lot of things would be difficult, and this project would be impossible.

References

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- [2] A. A. Laghari, H. He, K. A. Memon, R. A. Laghari, I. A. Halepoto, and A. Khan, "Quality of experience (qoe) in cloud gaming models: A review," *Multiagent and Grid Systems*, vol. 15, no. 3, pp. 289–304, 2019. DOI: 10.3233/MGS-190313. [Online]. Available: <https://journals.sagepub.com/doi/abs/10.3233/MGS-190313>.
- [3] J. Camingue, E. Carstensdottir, and E. F. Melcer, "What is a visual novel?" *Proc. ACM Hum.-Comput. Interact.*, vol. 5, no. CHI PLAY, 2021. DOI: 10.1145/

²This thread[4] may suggest otherwise but no way am I going to figure that out in time.

³Even the page indexing within the converter is also somehow inconsistent.

⁴Switching to X_gL^AT_EX or LuaL^AT_EX should be enough to solve it, but you might need to mess with fonts

3474712. [Online]. Available: <https://doi.org/10.1145/3474712>.

- [4] yannisl and user1996. “How to include audio file in PDF,” Accessed: Mar. 27, 2025. [Online]. Available: <https://tex.stackexchange.com/questions/7502/how-to-include-audio-file-in-pdf>.
- [5] T. Murphy. “Badness 0 (apostrophe’s version),” Accessed: Mar. 27, 2025. [Online]. Available: <https://www.youtube.com/watch?v=Y65FRxE7uMc&t=66>.

A. Some pictures



Figure 1: An example from “The question”, the example game that comes with the Ren’Py engine.

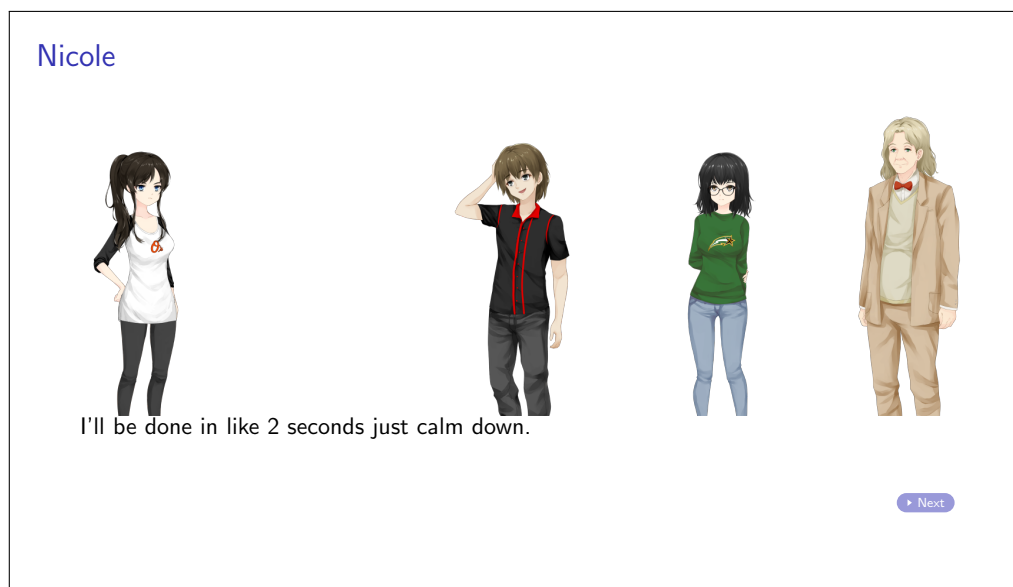


Figure 2: An example from “Class of '09” showing multiple characters.

- ▶ "HUMOR THE SCHOOL TOUR":
- ▶ "DECLINE AND GO STRAIGHT TO CLASS":
- ▶ "TELL HIM OFF AND CUT CLASS":

Figure 3: Another example from "Class of '09" showing menu choices.



Figure 4: I don't know about you but my H2C is pretty EZ [5].