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Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA
SANTA CRUZ

**TRACKS IN SNOW: A DIGITAL PLAY ABOUT JUDAISM AND
HOME**

A thesis submitted in partial satisfaction of the
requirements for the degree of

Masters of Fine Arts

in

DIGITAL ARTS AND NEW MEDIA

by

Nick Junius

June 2021

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2021

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Abstract

Tracks in Snow: A Digital Play About Judaism and Home

by

Nick Junius

The game making up this thesis, *Tracks in Snow*, and by extension the underlying technology of Puppitor, began with a simple premise: what if instead of players choosing what they wanted to say they instead were mainly focused on *how* they were saying it? This approach has been heavily inspired by the work on theater productions, particularly when production started, seeing the actors and directors take the words I'd written in quite different directions than what I'd had initially envisioned. Also let's face it, we call a play a *play*. Why not try to make the playing of a play the basis for digital character interaction? After all, it's been working for humans for several thousand years. To reach these ends I built a computational caricature of theatrical acting practices, including Stanislavsky's Method, Anne Bogart and Tina Landau's Viewpoints, and Zeami's Treatises on Nō drama as a way to shift players away from controlling the structure of a narrative and towards control over the details. *Tracks in Snow* is built in Ren'Py to wrap this novel interaction style in a more familiar format. The game's story focuses on one character's crisis of faith and another's longing for a home that only really exists in the past. My hope is that the interface I have created gets players to focus more on role-playing characters than trying to optimize their responses.

For everyone struggling to tell their own stories

Acknowledgments

I would not have been able to make *Tracks in Snow* without the help of my collaborators Ronald Murray working on character art, C. Marshall doing the character designs and concept art, Tamara Duplantis for all her musical work, Isaac Karth doing the 3D art and animation among other things, and Max Kreminski for saving me from making the worst text parser ever. Additionally thank you to everyone in the Seabright Camerata for all the support you have given me these past three years. There are so many other people who have helped me while I have worked on this project and I can't thank you all individually so if you one day read this, know I appreciate your support however you gave it.

Chapter 1

Introduction

Three years ago I proposed what, conceptually anyways, was a fairly simple idea, what if instead of choosing dialogue off of a menu and then characters responding to that choice, a game changed its text to fit what was happening in the simulation? Well it turns out this was not a question that could be answered in a year. Finding anything close to an answer has taken a long time because, well, it's a complicated question since not many people have asked it. For my master's thesis I made a little Python library called Puppitor [26]. I sort of knew what Puppitor was when I finished the bulk of the work on it back in 2019. It was a theatrical performance inspired game interface designed to map button presses onto character actions which would update an emotional state, allowing a player to control a character's gestures and by extension the emotions they were expressing. That is the brief, technically oriented summary anyways. Looking at that old thesis, it's clear to me I didn't really know what Puppitor was, after all, nothing had been made with it at that point. This is one of the reasons for making *Tracks in*

Snow, to figure out just what Puppitor is and what kind of experiences it can enable.

Theater and videogames have had a lengthy relationship from Brenda Laurel's early work [29] to Michael Mateas and Andrew Stern's work on *Façade* [32–35], to Theresa Tanenbaum's transformative play [21, 47, 48], to my own work on Puppitor and dramaturgical analysis of games [26–28]. Some of the connection between these two forms has to do with games frequently asking players to roleplay in a live, if digital, environment and theater having centuries worth of knowledge regarding what it means to take on a role. As a result much of the work inside the space of interactive drama is concerned with what a player's job is within the world of a game and how a story can reasonably be told if one or more of its participants can do things that would dramatically alter the plot's trajectory. This is where discussions of player agency [41], frequently drawing from Aristotle [32], come from and why many of the systems calling themselves interactive dramas offer a large number of affordances and actions for a player to perform. The more things someone can do, the more immersive the experience, or so the argument has gone.

This is why I call *Tracks in Snow* a *digital play*. Even if I still think it falls under the interactive drama umbrella, I've largely taken the opposite approach to projects like *Façade* and *Versu*. Rather than allow players to perform in ways that are capable of altering the plot of a story to significant degrees, I only allow players control over the details of how a scene is performed. This includes the high level pacing of a scene, the gestures characters perform and by extension the general emotional tone at any given moment expressed by facial expressions, the background music, and typography of the

currently displayed line ¹. The events may stay the same but *how* the events play out is up to the player and their AI partner in much the same way actors performing a script must stay within the bounds of what is written but otherwise can experiment how they and the rest of the production see fit. From all this I will answer the following research questions:

- What kind of experience does Puppitor enable?
- How does removing plot structure as part of player agency affect *Tracks in Snow* as a work of interactive drama?
- Why did I choose to tell a ghost story set during Passover as the first project using Puppitor?
- What are the influences that led to my creation of a digital play?

1.1 A Summary of Tracks in Snow

While basically this whole document is devoted to the question of what *Tracks in Snow* in fact is, the simplest description I can give it is this: *Tracks in Snow* is a kinetic visual novel ² built using Ren'Py [43]. Ren'Py ³ is a flexible if very obviously opinionated framework built around the Python programming language and the pygame library ⁴ to

¹To have a facsimile of different types of line reads.

²Kinetic novels do not have the branching choice structures commonly associated with other visual novels.

³I'm obligated to bring this up after helping teach assembly programming for many years: the control flow in Ren'Py is extremely similar to the MIPS assembly language. Sorry, I just really want to horrify you if you're reading the footnotes.

⁴There is very little actual Ren'Py scripting in any of *Tracks in Snow* due to all of the dynamic elements in the game as well as the arduous nature of copying dialogue out of text files. Instead there's



Figure 1.1: A screenshot of a moment in the current version of *Tracks in Snow* where Chiara (left) is expressing anger while performing her projected energy gesture and Rika (right) is expressing joy while performing her open flow gesture.

help facilitate the development of visual novels. As a result all the tools supporting the *Tracks in Snow*, namely Puppitor (further summarized in Section 1.2), are also written in Python. Before I keep going I just want to take a moment to appreciate Ren'Py for letting me do a bunch of things to it that I don't think it was ever supposed to be doing, and it let me ⁵.

My approach to writing the script is one of the less profound reasons for calling *Tracks in Snow* a digital play. Playwriting is what I have the most training in and as a result I decided to write the script for the game in mostly the same way as I would a parser that grabs the scene files in the format I normally write in and loads them into the game. I'm not going to talk too much more about the parser but its note on the production schedule was "save Nick's sanity".

⁵The worst thing that happened was when I got the console to crash the game when it opened because I was importing python modules multiple times. Also don't try and make a real time dialogue pausing system, it also has the tendency of breaking a lot of the nice things Ren'Py does for an actually worse experience.

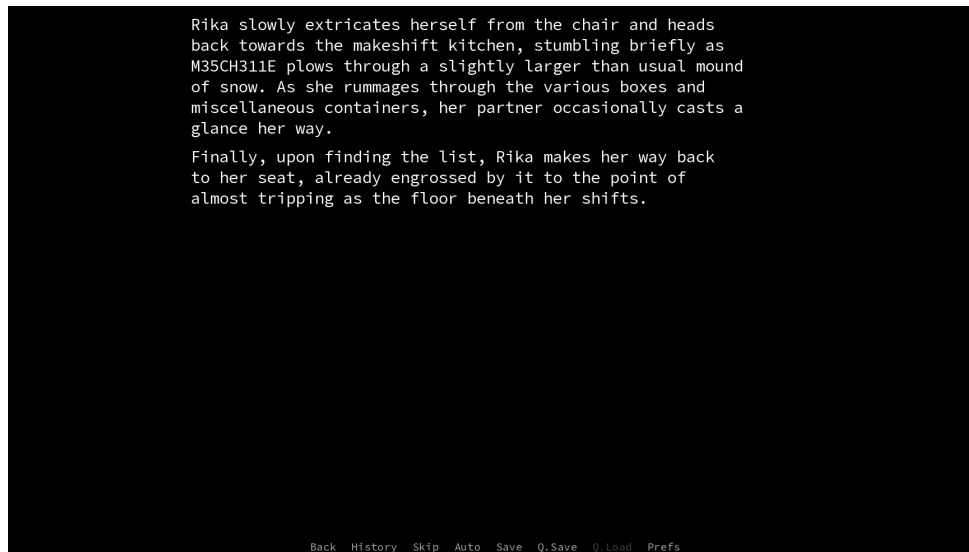


Figure 1.2: One of the scene transitions in *Tracks in Snow*. These purely text moments exist both to give players a chance to rest and reflect on the scene they just played through as well as allow for more physical action to happen beyond the confines Puppitor places on the dialogue scenes.

writing a stage play. The main focus of the script itself is structure and dialogue with a few differences from my other plays to accommodate the gesture focused mechanics and player defined pacing. In the main, dialogue oriented parts of the game, the stage directions are mostly there to provide sound cues, in contrast with how I frequently have important actions, in addition to effects cues, in the stage directions in my more traditional scripts. Where these actions wound up is in the scene transitions which do not feature any dialogue and provide a place for players to take a break from performing characters as well as shift the context into the next scene as shown in Figure 1.2. At one point, before the pandemic made it impossible, I had thought having a production, or at the very least a dramatic reading, of the script alongside the digital version would

make for a potentially illuminating juxtaposition between the two formats ⁶.

The story of this digital play is set in a snowy, ghost-filled, post-apocalyptic future where our two Jewish disasters, Chiara and Rika, have finally decided they've had enough of the city they've called home. It also happens to be Passover, a detail that Chiara forgot about before they set out. This little moment of thoughtlessness becomes something of a lightning rod for the two's insecurities and relationship problems. As of me writing this thesis, four scenes have been written, out of nine or ten total of the final script. The first three are dialogue heavy, Puppitor-using scenes dealing with the consequences of Chiara and Rika's choices as well as introducing their crises of faith: Chiara's strong, troubled relationship with the city and Rika's fraught, uncomfortable relationship with her culture. The final scene is a dialogue free telling of a very awkward and out of character Passover Seder where, at the end, a ghost who may or may not be the spirit Elijah appears before the two, says nothing, and leaves, finally giving Chiara and Rika a way to break the silence they'd imposed on themselves.

1.2 What Puppitor Does

Puppitor is what I would call an emotional state machine and interface mapping system. Its three core modules (the Input Mapper, Affect Vector and Update Rules, and the Animation State Machine as shown in Figure 1.3.) translate player inputs from a standard computer keyboard into *actions* and *modifiers* which are in turn used to update

⁶I still would love to see this happen one day. The script is still a play script even if it's broken up a bit oddly as files so the parser and game can actually do transitions between scenes.

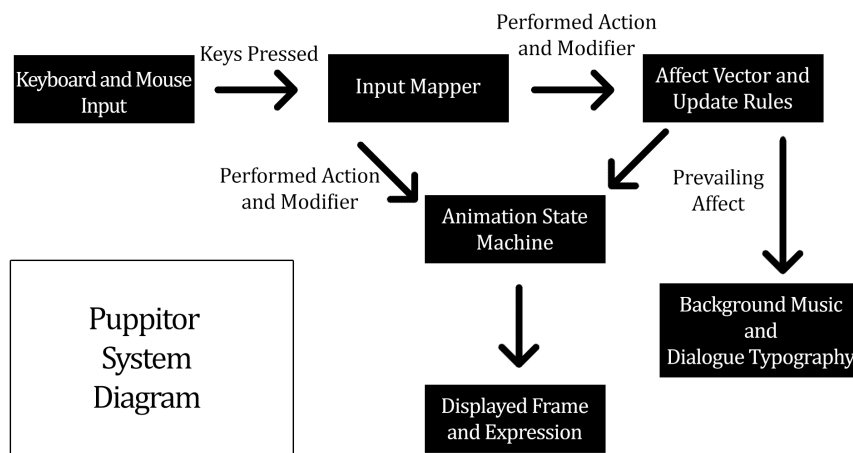


Figure 1.3: The flow of information through Puppitor, converting player input to visible emotional feedback in *Tracks in Snow*. A version of this diagram was originally used in my MS Thesis [26] where one of the original intents of the system, that is still completely possible as a future endeavour, was to also use the affects representing a character’s state in Puppitor as input for a generative grammar system like James Ryan’s Expressionist [44] to generate lines of dialogue.

values in an underlying emotional state based on a character-specific rule set and then are shown as changes in that character’s pose and expression. *Actions* and *modifiers* respond directly to input with actions changing the a character’s pose and modifiers changing some minor details about their idle animation and adding screen effects ⁷. In *Tracks in Snow* the actions *open flow*, *closed flow*, *projected energy*, and *resting* are mapped onto the keys N, M, B, and none respectively.

A character’s emotional state determines which facial expression they show as well as the typography associated with the line currently being displayed ⁸. Each character has an instrument associated with them as part of the dynamic score. Rika

⁷This additional feedback about the modifiers and character state unfortunately did not make it into the current version of the game.

⁸This typography is determined by the currently expressed emotion when the line starts being printed

is the viola and Chiara is the clarinet. There are six different audio tracks for each character corresponding to each of the six parts of the emotional state used in *Tracks in Snow* (joy, anger, fear, sadness, worry, love) which are swapped between based on the currently expressed emotion. The three modifier states in the game (*tempo up*, *neutral*, and *tempo down*, mapped onto C, none, and Z respectively) do not have an effect on the score though this is mainly a result of time constraints.

Poses react the fastest to player input but will not always immediately change the emotional state of a character. Expressions change immediately with the character's emotional state. The cross fade with the music adds a slight delay in the music catching up to the currently expressed emotion. When combined alongside the dynamic typography, this creates a rippling effect of emotion that potentially leaves a shadow of what came before should a line be lingered on.

Chapter 2

Related Work

2.1 Related Technical Work

Tracks in Snow is what ultimately came out of my previous research into performance inspired computational systems [26, 28] and it uses my prior thesis project of Puppitor as the foundation for its core interaction. Puppitor began its life, conceptually at least, with a different focus from the gesture based system it ultimately became, though its sources of inspiration remained consistent. Initially, drawing from the writings of Anne Bogart and Tina Landau on the Viewpoints [5], Zeami on Nō theater [42], and Irina and Igor Levin on Stanislavsky [30], I wanted to build a system that had an understanding of theatrical blocking and actors' relationships to space as well as giving some computer legible meaning to gestures players had their characters perform.

Time constraints led to all of the spacial oriented concepts, like the narrative nav-mesh [28] ¹, getting cut from the final system, which as *Tracks in Snow* shows,

¹Having finished Puppitor and the end of working on *Tracks in Snow* in sight, I could certainly

only deals in gestures. The underlying structure and use of Puppitor in *Tracks in Snow* directly draws from those original theatrical inspirations [26]. The most obvious is the labeling ² of the three active actions as open flow, closed flow, and projected energy which is lifted directly from Stanislavsky’s discussion of the energy between performers on a stage [30]. The main affordance of Puppitor focusing on what gesture to perform, how it might be slightly altered, and how long to hold the gesture, are also lifted directly from the Viewpoints of gesture, duration, and tempo [5]. Zeami’s writing fits in a little more ethereal way as it has to do with the relationship between the script and the gestures performed. He briefly discusses the importance of contextualizing gestures through the script as “first communicate by hearing, then by sight” [42]. I may not enforce this in *Tracks in Snow* but when players are reading the script for the first time and don’t know what comes next, this mode of connecting gestures to words is one of the closest things to latch onto.

As *Tracks in Snow* has gotten closer to being finished and I’ve had more time to reflect on what kind of experience it provides, it still has one foot in the space of games focused on performance but its other foot, as I’ve come to understand it, rests in interpretation as an aesthetic of play. I have broached some of this idea of interpretation as another mode of interactive storytelling in a paper written earlier this year about Supergiant Games’ narrative heavy roguelike *Hades* [46], and its parallels to a theatrical show’s production run over a period of time [27]. This paper discusses interpretation at a relatively high level and is more focused on the similarities between *Hades*’ structure

imagine revisiting the narrative nav-mesh idea using Puppitor as a foundation.

²These labels are designer editable in naming, number, and mapping to inputs.

as a roguelike and daily performances of the same production in how they allow for creativity within a fairly rigid framework. My work on *Tracks in Snow* is much more about the way performance involves interpretation of a script and, though my concern is still with creativity in a fixed structure, the *interpretation* itself as core to the play experience rather than existing on the periphery as it does in *Hades*.

While I call *Tracks in Snow* a digital play, it falls under the umbrella of interactive drama and *Façade* [34] is a foundational work in the medium. *Façade* is a parser based game with a 3D environment and characters set inside Trip and Grace's apartment. The eponymous couple's relationship is falling apart and the player can try to help them make amends, make things even worse between them, or a variety of other outcomes thanks to the free text input and beat system that can alter the plot's trajectory in real time [35]. These plot alterations are in the service of giving players agency to ultimately give them more a more immersive experience [32]. I see my relative lack of concern about the *player's* agency within the *plot* as a stark difference between my approach to interactive drama and the approach used in *Façade*. I call *Tracks in Snow* a digital play because like a traditional play, the events themselves are fixed but the small details about how those events transpire are left open for players. I wind up treating the player more like an actor than something between a character in the story and an actor performing a role.

Versu is an interactive drama system built around social simulation through social practices and takes the form of a choice-based text adventure [13]. As a simulation oriented system, Versu allows all characters participating in its story space to make

decisions autonomously, with an overarching drama manager largely only providing suggestions to agents rather than forcing them into certain kinds of action [13]. Evans and short describe an advantage of this approach as providing a distinction between cast roles and the characters themselves, allowing characters to be moved between roles without much effort [13]. I would describe Puppitor and *Tracks in Snow* as simultaneously a far cry from the technical detail of Versu and surprisingly close in some of its implementation decisions. There are no social practices in *Tracks in Snow* but it is possible to play as either character due to the character rule files in Puppitor providing nearly all the affordances for both the AI behaviors and player to work within. I hesitate to say there is a drama manager of any kind in *Tracks in Snow* but as part of the way the AI controls its character, some of the time (based on continuous traversal of a sign curve) the AI will switch from mirroring the player to trying to perform the emotional baseline of a scene as defined by the designer. Due to the continuous nature of Puppitor as implemented in *Tracks in Snow*, this shift doesn't always express that baseline emotion and, a bit like Versu's hands off drama manager, this simple system will provide a suggestion (through the AI controlled character) about the emotional tone of a scene the player can choose to ignore or follow.

I have included the Viewpoints AI project [24] because I see it in many ways as an opposite approach to my interpretation and implementation of theatrical practice into computational systems. Both my work with Puppitor and *Tracks in Snow* and the Viewpoints AI are ultimately projects about mapping human input into a form that an AI agent can understand. The Viewpoints AI uses the Viewpoints as described

by Bogart and Landau to map actual human gestures onto interpretations of those actions as seen through a Microsoft Kinect and then have an AI character respond with an appropriate gesture [24]. In contrast my work is much more focused on using theatrical knowledge to build affordances for new kinds of character expression within more traditional game interfaces in a more conventional narrative environment.

Theresa Tanenbaum’s work drawing from theater has largely focused on the transformative potential of digital games and the implications and possibilities of focusing on performance as a core aesthetic of play [21, 47, 48]. In “Empathy and Identity in Digital Games: Towards a New Theory of Transformative play”, Tanenbaum cites a variety of theatrical sources, including Stanislavsky and a mention of Nō theater’s usage of masks, with the focus being on how these practices allow an actor to, however briefly, become a character and encourages further exploration of the way digital games can use this knowledge in their interaction design [48]. Though my work stems from a similar place of performance practice, I have found myself drawn to the interpretive side of theatrical practice, even as far as performance is concerned ³. Even where there is an acknowledgement of the choices an actor makes in relation to a script, Tanenbaum’s focus rests with what that means internally for an actor or player at an emotional level without much discussion of the process of interpretation that is also, maybe invisibly much of the time, taking place. Even if I would still agree that *Puppitor* and *Tracks in Snow* are performative systems and experiences and have the potential for similar experiences to the work done by Gupta et al [21], my approach that eventually resulted

³This is probably because I’m a trained playwright and have at least some dramaturgical training compared to my relatively low amount of acting experience.

in a digital play has pushed me to want to explore interpretation and reinterpretation as core aesthetics of interaction unto themselves rather than simply as a vehicle for empathy or agency.

2.2 Related Narrative Work

One of the earliest inspirations for this project’s narrative as well as a guiding light for its scope was *Girls’ Last Tour*, a manga by Tsukumizu [50] adapted as animation for television by White Fox [15]. It is the story of two girls’ (Chiito and Yuuri) travels through a dead city as they climb higher in the hopes of finding *something* that will help their situation. *Girls’ Last Tour* is told in vignette style with each manga chapter (usually half an episode of the show) being a small window into the girls’ everyday lives in the apocalyptic setting, often focusing on their appreciation of the small bits of comfort they find like a warm bath after getting out of a blizzard or listening to rain fall on cans and bottles they’ve collected. Even if the visual style of *Tracks in Snow* ended up more realistic than the sketchy style of the manga, the repurposed military equipment as a core of the aesthetic has remained consistent along with the very small cast of two characters in a lonely environment.

Another road trip based story, with a much more upbeat tone and relationship focus than *Girls’ Last Tour*, I found inspiration was *Highway Blossoms*, a kinetic ⁴ visual novel by Studio Élan [12]. The story begins with a chance meeting between the Amber (who is running away from her problems) and Marina (who is chasing rumors about

⁴Again kinetic visual novels do not have branching choices.



Figure 2.1: Yuuri (light hair) and Chiito (dark hair) from the *Girls' Last Tour* television show.

buried treasure in the desert). The two eventually bond as they look for the rumored treasure and much of the run time is spent exploring their relationship and the baggage each of them are carrying with them. In terms of tone and content, *Tracks in Snow* leans closer to *Highway Blossoms* than it does *Girls' Last Tour* as my main focus with the story has been the relationship between the game's two characters, Chiara and Rika, though like *Girls' Last Tour*, the relationship is ongoing rather than newly formed.

Seeing *Indecent* by Paula Vogel [51] in 2019 was what started me wanting to write *something* about being Jewish as it tells the story of the controversy that developed around Sholem Asch's play *God of Vengeance* [1]. The play deals heavily with the fraught relationship of Jewish culture to the sensibilities of the mainstream United States in the early twentieth century. These concerns are typified when the obscenity complaints



Figure 2.2: Marina (left) and Amber (right) in one of *Highway Blossoms*' driving scenes.

begin to be filed against *God of Vengeance* by American Jews worried about how a play largely set in a brothel would make them look to the gentile audiences of Broadway [10]. Late in *Indecent*, Asch the character regrets the criticisms of Judaism he put in his play after the Holocaust resulting in “six million [having] left the theater” and feels a certain amount of responsibility toward those who’ve died while the *play* celebrates those same critiques and the story that brought them forth [10]. *Indecent* sees the true indecency of *God of Vengeance* in the way it was thrown under the bus to appeal to the perceived sensibilities of gentiles, ultimately for nothing as the United States Congress refused to take Jewish refugees fleeing the rising antisemitism in Europe [6].

God of Vengeance is an intra-community discussion of some uncomfortable subjects that became popular enough to make its way outside of the community it was critiquing, running into the deferential respectability politics of the assimilated New



Figure 2.3: The, according to Transport for London, offending poster for *Bad Jews*' 2015 production.

York Jews and the white, Christian values of Broadway theater [31]. Almost a hundred years later, another Jewish play would run into similar, if less punitive, claims of offence across the Atlantic Ocean.

Bad Jews by Joshua Harmon [22] centers on Daphna and Liam's escalating quarrel over their grandfather's Chai necklace. Daphna is devout, practicing, and by all accounts a *real* Jew while Liam is secular, assimilated, and a *bad* Jew, if Daphna has anything to say about it. Of course the Chai should go to the *best* Jew in the family

according to Daphna even if Liam is the one who their grandfather apparently gave it to. The play ultimately concludes by saying that trying to measure someone's Jewishness, especially if it's in service of winning something, is what will actually make someone a bad Jew. In 2015, when the play was produced in London, posters advertising the show were banned by Transport for London for the potential for causing "widespread or serious offense" [3]. Again, here is a play about grappling with Jewish identity in a potentially uncomfortable way running into questions of decency.

Part of what is compelling about, *Bad Jews*, *Indecent*, and *God of Vengeance* is their willingness to be personal stories and be about struggles against expectations provided by, in this case religious and cultural tradition. The title of Harmon's play being considered indecent only makes sense to me, admittedly I'm a Jew (possibly a very bad Jew as it were), if read from a gentile perspective. My first association with hearing "bad Jew" is someone, as the play's title attempts to imply, a Jew who has lapsed religious practice [3]. It's one thing to have people within a community discussion feel discomfort and voice their opinions from within, as the assimilated Jews of New York did with *God of Vengeance* while it was produced on the Bowery and in Greenwich Village [31], it is a very different, potentially very damaging, move to make an example out of the work participating in these personal and intra-community discussions ⁵ I

⁵Since this is the thread I saw running between these three plays, I feel obligated to mention the controversies and accusations of indecency surrounding Isabel Fall's short story "I Sexually Identify as an Attack Helicopter" [14], a piece of military science fiction reflecting on the potential dystopic uses of the more medical parts of transition. The story's title and content stirred up controversy as it's a direct quote of a transphobic internet meme and has quite blunt descriptions of gender and transition. This led to a harassment campaign against Fall, who ultimately asked for the story to be taken down. Again here is a messy, personal story that asks some uncomfortable things and is accused of obscenity [11]. As someone who tells messy, personal stories, seeing this happen over and over with no one with authority seeming to care, it hurts, even if Fall was ultimately vindicated.

don't know if *Tracks in Snow* has anything that could be inflammatory in the same way as *Indecent* or even *Bad Jews* but I wrote it knowing full well the kinds of discussions that have taken place about Jewish identity within and without of the culture.

The Price of Whiteness is an overview of the complicated relationship of American Jews to the idea of assimilation into the mainstream culture of the United States [19]. The book provides the much larger historical context that *God of Vengeance*, *Indecent*, *Bad Jews*, and *Tracks in Snow*⁶ draw their conflicts from. One of the striking parts of this history was how there was always some degree of discomfort regardless of if Jews were choosing to remain a distinct group (as can be seen dramatized in *Indecent*) or in the act of allowing themselves to be assimilated or even whether or not they were allowed to make that decision (dramatized in *Bad Jews* and *Tracks in Snow*). For my work with *Tracks in Snow* I would even go so far as to say my two characters are haunted by their perceived lack of agency in the choices about their connection to their Jewish culture.

I have and will continue to refer to my work, both narrative and technical as haunted throughout this thesis. This is because I am fascinated by ghosts and chose to tell a ghost story as the inaugural project using Puppitor which is itself haunted by various theatrical practices and my own experiences growing up playing games as Lindsay Grace describes [20]. Michael Chemers describes ghosts as “a memory with an agenda” and connects this broader concept to the nature of theater more broadly as a medium with a perpetually spectral quality to it thanks to everything about performance

⁶And basically every play written in the United States in the twentieth century in the words of Henry Bial.

stemming from the moment and the tools used to support performance often being more symbolic than direct representations [9]. The ghost in the ghost story that is the narrative portion of *Tracks in Snow* most definitely has an agenda, an ultimately benevolent one of forcing the two characters to finally shine a light on their long running problems. Now, *Tracks in Snow* is a digital play and a game emphasizing performing a script and as a result the certain moments flowing from the game's systems have a slippery, spectral quality to them as that exact performance may not be possible to reproduce. In this way *Tracks in Snow* is a ghost system as well as a ghost story.

Chapter 3

Project Discussion

3.1 Why Tell This Story in This Way?

Why tell a Passover ghost story as a digital play?. This is *the* dramaturgical question. Reflecting on how long I've spent working on this one game compared to any other project, my answers have changed over time, as one might expect over the course of three very tumultuous years. I initially set out to make something to demonstrate my simple idea of flipping the interaction paradigm of picking some dialogue off of a menu and having the characters animate in response. That is to say the initial idea for this project was born from curiosity and my desire to use some of what I'd learned from theater through playwriting and apply it to a videogame.

Now I am a playwright and at some point this game was going to need a story and I decided I wanted to challenge myself to write something cozier and warmer (even if I did set everything in perpetual winter) than I had tended to write before starting

the project. Between my time spent developing games and working on play productions during my time as an undergraduate, scope had been a perpetual concern of mine. *Tracks in Snow* was always about two characters as a matter of limiting the amount of technical and visual work in as many ways as possible while also playing into my predilection for writing lengthy scenes between characters trying to pry information or feelings out of each other. There was also always a road trip of some kind as part of the framing for why these two characters were stuck inside the entire time.

It took me about a year to get around to sitting down and fleshing any of the story out beyond those initial details (in no small part because I was spending most of my time trying to make sure Puppitor did what I wanted and could actually connect to Ren'Py). During that year, there was another uptick in the amount of antisemitism I was seeing, even if it wasn't ever really directed at me. That when combined with feeling simultaneously very disconnected from Judaism (at least compared to many other Jews I knew) while still knowing enough of the culture, stories, and practices to realize I was definitely *Jewish* in some vague sense. This remained as a piece of the characters' backgrounds with less of a direct connection to the plot for almost another year, as I was still focused on making sure all the scary technical things worked while also trying to decide on some bare minimum idea of where the story would finish.

Before I decided to fully commit to making *Tracks in Snow* largely about my weird, dissonant relationship to Judaism, I'd been more focused on ideas about leaving home and home being taken from you. I'm from San Francisco, and while Santa Cruz isn't that far, it's just far enough that I don't go back frequently. Whenever I do, it feels

like the city has become a little stranger and a little less welcome to someone like me every time, mostly thanks to the extreme gentrification that finally made its way to the neighborhood where I grew up. At the same time I was also worrying (and still worry) about what to do after graduate school and where I would end up living, potentially more permanently, most likely far away from San Francisco. I would say I've found something resembling freedom in not feeling as close to my home town as I once did but with it some sadness at not feeling like I have a *home* in that particular, deeply connected way.

As my interest in trying to find some understanding of Judaism that would include me grew, I found that I could use it to balance out the original, extreme focus on home and its different definitions. So I let Chiara have the fears and worries about home and gave Rika fears and worries about Judaism. In a much earlier version of the story, Rika's hangups were about being far too attached to their re-purposed military vehicle and she would have had to come to some understanding about her relationship to home like Chiara. This change may have originally been to give more breadth to the plot, but in retrospect it also makes Rika and Chiara far more complimentary to each other than they originally were. Rika is haunted by her relationship to her culture and her history with it. Chiara is haunted by her ties to the home she left behind.

I use "haunted" here because ultimately *Tracks in Snow* is a ghost story. I've always liked ghost stories and more generally stories about the ways the past touches and shapes the present (which is after all what ghost stories are). So when I decided to make the characters deal with problems that have been on my mind for many years,

there really wasn't any way it *couldn't* be a ghost story, even if my ghost is only literally in the script for a single scene. Now as to whether or not the ghost is in fact Elijah, if this were a traditional play, my instinct as a playwright would be to leave that answer up to the production. *Tracks in Snow*, however, is not a traditional play. I still try to leave the ghost's identity ambiguous as not only is the portrayal of Elijah as a wandering spirit a staple of Jewish tradition, it is a somewhat common interpretation that, should Elijah appear during Passover, unresolved questions will be answered. In some versions of the story, Elijah drinks the fifth cup of wine before answering these questions, hence the ghost apparently drinking yet ultimately leaving the cup untouched as far as Chiara and Rika can tell.

One of the most integral parts of Judaism, at least for me, is the importance of interpreting the stories told every year and asking how, and if, they have remained applicable for thousands of years. This is why Passover, being a lengthy meal devoted to a discussion of one particular story, has held so much meaning for me. It is also why I felt it was important to keep the ghost's identity ultimately ambiguous. Some of this of course was to add fuel to the plot because I do enjoy writing characters arguing over their individual interpretations of an event. The more thematic reason, however, is that there is rarely a definitive, divine answer as to why events play out the way they do. Sitting with that fact and using it as a way of processing and learning from stories as well as the past is a huge part of how I try to understand the world, even if I lean far more into the mundane rather than the divine in my interpretations.

For Rika and Chiara, the ghost is not a direct source of answers. They may

eventually find their own answers to the questions highlighted by their visitor's presence but, like so many of the stories we tell, simply asking the ghost will not yield much. Ultimately reconciling with one's self or the past at large is an individual experience, though help is welcome and often necessary, even from ghosts.

While I have chosen to leave most of the details about the neighborhood Chiara and Rika lived in, and the city as a whole, relatively vague, the details in the current version of the script are inspired by my trips home to San Francisco. The discussion about watching as a perfectly fine house was torn down to make way for something bigger and fancier is referencing something that is happening in almost that exact way on the block across from the house where I grew up. There is something, I guess I'd say surreal, about watching where you grew up slowly changed into someplace that isn't *for you* anymore.

There is of course a long history of people having their communities and homes turned into something unrecognizable because someone else could pay more or thought an area could be redeveloped into something nicer for someone's definition of nicer. What stuck out to me about the long, slow process of gentrification finally reaching my old neighborhood in San Francisco was just that, the speed. It is a slow process and one, especially when it comes to the more residential parts of town, much more individual in nature than prior kinds of redevelopment. A restaurant is altered to feel sleek and new and prices get raised. A house or two is converted into whatever mansion adjacent structure will fit on the property and within the zoning laws. None of this *feels* organized or systematic but that's very little comfort when your neighbors are leaving

because they can't afford to live there because someone with more money wasn't happy with the current state of things.

While I feel like I have had more time than Chiara to accept letting go of this one particular feeling of home, I still can't say it was completely on my own terms. Even though I have moved away from that house in San Francisco twice, I go visit and it in many ways has felt like a home on most of those visits until the last few, which is where the discussion of a house being torn down came from.

Chiara may not be struggling with her relationship to her culture in the same way as Rika, I still find there to be something fittingly Jewish about wrapping up some thoughts about gentrification into a story built around Passover. One of the reminders of the Seder is to remember how it felt to be strangers in Egypt. While the circumstances are different and there is more freedom for Chiara to choose, she is still ultimately making a decision based on feeling like a stranger in the place she calls home.

Judaism is a diasporic culture and as a result there is a certain longing for having a permanent, physical place to call home, particularly one that will not eventually paint a target on the people. This worry and longing was something I don't even know if I consciously connected to Chiara's internal turmoil, but in retrospect it's quite obvious that she is also experiencing a quite literal crisis of faith. It also doesn't surprise me that this side of Judaism found its way into this story so easily given the increase in antisemitism in the United States in the background while I was (and continue) working on this project.

In spite of not being a part of a Seder for a few years now, Passover remains

the holiday I find most meaningful. By writing this story, I feel like I have accidentally managed to take one of the steps Rika will eventually follow me in: understanding that carrying on the stories and traditions *in your own way* is central to Judaism as a diasporic culture. Passover is also a collective exercise in the interpretation and reinterpretation of a story that happens *at home*¹. The importance Judaism places on the interpretation of stories is something I see throughout my writing, and especially *Tracks in Snow*, with the characters performing their own tiny retelling of Exodus as they retell the story themselves.

Now I also unexpectedly found the thread of interpretation in the core loop of the game, which if I'd had more time before now to sit back and reflect on, I probably would have noticed a lot sooner. Puppitor may have initially been created as an interface for performing characters but, again this is something I find quite obvious in retrospect, *performance* is an intensely interpretive process unto itself. When I decided to make a form of gameplay based on theatrical acting, part of what I have found myself asking from players is to do this style of interpretive work themselves as they play. Ultimately what Puppitor provides is a canvas for players to do some interpretation of the story and have the story respond in kind, all while being as hands off about the direction as possible. In this way I can say *Tracks in Snow* is haunted by the need for interpretation in much the same way a raw play script is.

¹Temples will hold Seders as well but Passover is largely considered a “Do it Yourself” holiday.

3.2 Design Reflection

Two years ago when I made Puppitor and wrote my master’s thesis I discussed fighting games ² as a source of inspiration for designing a system of character physicality [26]. Now, having made about half of *Tracks in Snow*, I can say I succeeded in drawing out that inspiration in more ways than I realized when I started the project, for better or worse.

Fighting games have an infamous barrier to entry which Patrick Miller has written about extensively on his blog [36] with one of the ever present questions being “why spend all this time playing these games?” One of the conclusions he repeatedly returns to is how similar fighting games are to real life martial arts [40] and this fact is why they are hard. He argues that fighting games are not about delivering the fantasy of instantly feeling like a skilled martial artist (and that most fighting games will almost immediately destroy the idea of that fantasy when someone plays them). Rather, for him a fighting game’s appeal is that they reward the work players put into them in a very direct and satisfying way and it is this growth that keeps people playing them for years.

The appeal of learning to play and express oneself in a fighting game is in contrast to rhythm games like *Guitar Hero* [23], which are more about delivering on the fantasy of being a rock star and really good at the guitar. Some amount of practice is necessary to play *Guitar Hero* well though most of that time is spent learning to play *the*

²While it is a much less prominent inspiration than fighting games, the ways players have repurposed and made languages out of animations in online games has also been a part of where Puppitor and more generally my interest in giving semantic meaning to character physicality [28] came from.

way the game wants rather than about freely exploring and understanding the expressive space of the game. Getting a high score in *Guitar Hero* looks relatively similar across players when compared to any given match, even between the same players, in the likes of *Street Fighter 4* [8], *Tekken 7* [2], or *Melty Blood* [16]³.

This is why I would say *Tracks in Snow* is the acting equivalent of a fighting game (rather than a rhythm game), for better or worse. Puppitor allows for a lot of expressivity both as a designer and a player but, much like fighting games, it requires someone to be willing to put time into both learning the system and also forming interpretations of the script they are acting out. When I said the game is haunted by the need for interpretation, this is what I was hinting at. If fighting games ask for dexterity, reflexes, and other related physical and mental training adjacent to martial arts, then what I am asking from players with Puppitor and *Tracks in Snow* is for the physical, emotional, and interpretive work adjacent to theatrical acting.

I put three reminders into the tutorial about how there is no right way of playing the game and that whether or not a scene felt “right” is up to whoever is playing the game. My sentiment there echoes Patrick Miller’s own sentiment about fighting games: “There is no one true way to play fighting games; there is no one right game to play” [37]. More broadly I would say that Puppitor and *Tracks in Snow* takes the training mindset inherent to practicing a fighting game and takes it a step further with the removal of the idea of “winning” in a traditional sense and turns success into something internal, even if there is an audience in twitch chat or the like.

³I am absolutely terrible at *Melty Blood* compared to either of the former two games or *Under Night In-Birth* [17], French Bread’s newer, more ground based game.

There is a danger in making an experience that requires a degree of reflection from its players on a regular basis. This can be seen in the hand wringing about how to maintain the fighting game community [39] as well as the question of whether or not there is an audience if one plays *Tracks in Snow* by themselves. The simplest answer to the audience question is that there is if a player chooses to stream the game. Of course this answer isn't really what that question is about.

The real answer goes back to the close relationship to fighting games I see *Tracks in Snow* having. Both types of games are invitations for players to learn about themselves as much as they are tests of patience and skill [38]. Playing *Tracks in Snow* alone is, in my view at least, quite similar to training mode or casuals ⁴ in fighting games in that they are opportunities to both improve mechanical skill and build up a reflective practice about the act of play.

Solitary play with *Tracks in Snow* does not mirror theatrical production in the same way training mode mirrors martial arts practice if the player is *only* an actor. Puppitor may be a performance focused system and interpretation is an important part of the process of acting but what I am asking players for in *Tracks in Snow* goes beyond putting them in a purely acting role. I am also asking them to be a bit of a director and a bit, even, of a dramaturg (if they want to go that deep).

By extending a hand and bringing players onto a digital and potentially private stage, I am offering an opportunity for them to try their hand at performance and a little bit of theatrical production in a much lower stakes environment. As an extension

⁴A term for the less intense matches outside of tournaments. Patrick Miller likens them to sparring matches [39].

of this invitation, I am also potentially giving them an opportunity to read and relate to a *script* in a way they may never experience outside of being a part of theater production or education, with the potential for understanding a script as inherently unfinished and that there is no *definitive* production or even night of a play (no matter what the critics or popular culture say about a particular version).

With all this in mind, the experience Puppitor and *Tracks in Snow* offer is a very double edged sword. There is expressivity and depth of narrative interaction for players who want it but, like the fighting games that inspired it, that is buried behind a not always approachable learning curve. Rather than getting flattened by another player who knows what they're doing, this type of digital play has the problem of a first playthrough being almost exactly like a cold table read of a play and it is a barrier that I feel is inherent to the design, particularly when putting it in direct conversation with fighting games. Whether or not someone wants to spend time with the game beyond that initial, awkward playthrough is something I can only encourage so much and, like the willingness to practice combos for hours in the training room, is something very individual that I can only make an offer towards.

This need to spend time with the narrative as well as the mechanics means that some of the execution challenge of a fighting game has been removed and instead replaced with a more interpretive mode of engagement that needs to be practiced as well. Interpretation in this way is not something many games ask and is a far cry from even the immediacy of throwing a fireball at someone which again makes for an extra barrier to entry. That said, part of my reason for making *Tracks in Snow* a visual

novel was to control some of those expectations from the first time the executable is clicked. Of course if someone is not familiar with the expectations of a visual novel but does associate video games with the immediacy of combat, there is only so much the download page and tutorial are capable of in terms of setting expectations.

When I say I've succeeded a bit too well with making the acting equivalent of a fighting game, this has also come from the reactions I've garnered from players with how polarized opinions on the game are. Some people have completely bounced off of it saying the game is too slow, subtle, or difficult to understand which, aside from the slowness, are all frequently complaints leveled at fighting games as well. When players have decided to engage with the game on its own terms, the reactions have been markedly different though maybe skewed given the nature of who was playing. From briefly noting the silliness of the emotional state during points in scenes that don't quite match what is being said, to talking about how the immediacy of the interaction foregrounds the character emotions in a surprisingly nuanced way, to how being given control over the tone of a scene feels like a natural extension of the way visual novels ask players to read ⁵, I can say people are finding the things I'd hoped they would and more. Given that *Tracks in Snow* is sort of like a fighting game you have to play while reading a visual novel, I'm not expecting to have a huge audience for this sort of experience, at least initially. However, I am comfortable saying that when players engage with the game and listen to what it's offering, they are able to experience some of the things I have talked about in this section as well as ideas I hadn't thought of, even in short

⁵All of these are summarized parts of playtest transcripts via Discord messages.

sessions with *Tracks in Snow*.

3.3 Technical Character Design

One of the more technical parts of the way *Tracks in Snow* has both taken inspiration and gone further afield from fighting games is in the character specific rules for expressing emotions and updating emotional state. Fighting game moves have frame data attached to them determining how long it takes for them to be able to deal damage, how much of the animation they can do damage, and how long it takes until another move can be made (to grossly oversimplify things). Frame data is *physical* semantic information attached to characters' animations and poses. Puppitor allows *emotional* semantic information to be associated with characters' animations and poses.

By its nature, this information is a lot slipperier and less intuitive to express cleanly within a game's standard mechanics and user interface. The slipperiness was something I wanted to lean into with the character rules more generally. There are ceilings and floors on the magnitude of each emotional value but, within those ranges, the values will be constantly updating based on the current actions being taken. This is where differentiating characters in how they physically *feel* to play comes from. Even with a minimal cast, I tried to make Rika and Chiara have different relationships with the modifier keys especially.

Rika is, in my mind anyways, the more straightforward ⁶ character of the two to play. Across the three actions that don't eventually reset values, each gesture has

⁶More like gayforward.

two emotions it increases at slightly different rates (with one being the more default of the two) and the rest are decreased. If I have her perform the projected action, anger and love increase quickly and depending on which modifier is used (if any) anger or love will slightly edge out the other while the other four emotions are either decreasing or increasing at extremely low rates. So generally speaking for her, the modifier keys are for making adjustments and actions carry enough weight on their own most of the time to express the full range of emotions.

Chiara on the other hand *must* use the modifier keys to express anything other than worry. By default all of her actions increase worry at much higher rates than any of the other emotions associated with those actions. To express something other than worry, she has to add a modifier onto any action she performs. As a result each modifier and action combination has a heavier association with a particular emotion than for Rika. That said, as emotional state is continuously updated, those emotions aren't guaranteed to be expressed if another value was already much higher.

In less technical terms Rika is a bit on the mercurial side and Chiara is a worrier, expressed in a little JSON rule file as well as the writing. As I've only made these two characters using Puppitor, I feel it's fairly safe to say I've only scratched the surface in terms of characterization in this more technical way. I'm both excited and a little terrified ⁷ to see what kind of expressivity comes out of this little customizable set of emotions, actions, and modifiers.

⁷Tuning these characters, especially with limited time and very limited resources is hard, who could have guessed.

3.4 Storytelling Practice

I have half jokingly described my writing process as picking a bunch of media I enjoy and tossing them in a blender. Of the work I previously mentioned as being inspirational to *Tracks in Snow*, I would draw the most immediate connections to *Girls' Last Tour*, *Highway Blossoms*, and *Indecent*. *Girls' Last Tour*, with its two characters and post-apocalyptic road trip, was the first thing to go into the blender in 2017. In 2019 I saw the Oregon Shakespeare Festival's production of *Indecent*. Now something I want to note is that I can't really say I immediately put it into the blender. There was another stage play idea I'd been kicking around that time and this was before I had committed to making *Tracks in Snow*, well, *Jewish*. I knew I wanted to make *something* Jewish after watching the play but for a while anyways that and what would become this visual novel remained separate. Eventually, it did find its way into the blender. *Highway Blossoms* is a bit curious out of these three in that I don't actually remember exactly when I played it and, of these three stories I put in the blender, it is the closest in form and writing style (somewhat on account of being a visual novel but also with its heavy focus on relationship dynamics).

Looking at the way I used these stories while working on *Tracks in Snow*, you would probably be more or less right in calling it a fanfic mashup of these three stories. I'm of course being reductive here, there is *a lot* of myself in this game, but, and this is why I'm including this section, that doesn't end at my relationship to one part of my culture or where I have chosen to call home. As important to my process are simply

the kinds of stories I find compelling.

What gets put into the blender of course changes with the needs of whatever I'm working on. For *Unto the Night* [25], my most recent Twine project, there was a lot of *Halo* [7], *Dead Space* [45], some *Metro 2033* [18], and of course a bit of *Freespace 2* [52] as it was a military science fiction story, still with plenty of inspiration from my personal experiences. I have also described *Harm's Way*, my stage play about a group of soldiers, as a mixture of *Reservoir Dogs* [49] in its plot structure and *The Hurt Locker* [4] for some of the subject matter, with far more of my personal thoughts than I realized while I was writing it.

To point out one connection between my stories I have mentioned, I gravitate towards writing stories in a military setting or at least connected to it in some way. Some of this is probably thanks to growing up reading and playing a lot of military science fiction. If that was all there was I wouldn't be telling the stories I am ⁸. *Tracks in Snow* is set in a reclaimed military vehicle, *Unto the Night* and *Harm's Way* have casts of soldiers. Another piece of this is probably having spent most of my life with the US's forever wars in the Middle East. Now, I am a system designer as well as a playwright. The military is a system, a very structured and hierarchical system largely built upon dehumanization in a more concentrated way than other parts of our culture. The system designer in me sees the way these other systems work more opaquely and the playwright in me wants to dramatize and strip those systems of their subtlety.

The last note I want to make about my style of storytelling here is the fact

⁸Well the important details anyway, space and mechs are also just kind of cool to have in your setting.

that practically everything is interconnected in some way, mostly through the setting at the moment. Some of this is a matter of convenience. Starting a new project is much easier without a totally blank canvas and having something to immediately have as a foundation is quite nice. My other reason is that the setting is only about as developed as the stories I have told in it. There does exist a document with some events and dates that hasn't been opened since 2013 but for the most part details of any kind are left as a matter of writing a story set during a particular period. Occasionally there are some direct references to other stories ⁹ but I tend, or more accurately try, to keep the stories I tell self contained as windows into this fictional world by way of the characters.

If you figure out the references I make to my influences in my stories, you can probably paint a more accurate picture of when projects were conceived than what their release dates or development time shows. I have been told I have made some intensely original things, and while in some senses I agree, *Tracks in Snow* is the only thing like it that currently exists after all ¹⁰, there is a part of me that enjoys wearing my influences on my sleeve even as I put perhaps a bit too much of myself into the stories I tell.

⁹*Tracks in Snow* began its life as a side story or sequel of sorts to a still unfinished story about the Library and as a result has a few references to it in its opening scene.

¹⁰Though I do hope this statement becomes out of date very quickly.

Chapter 4

Conclusion

Three years ago I set out to make a game interface that would enable more dynamic interaction between players and AI characters and as I'm in the process of finishing *Tracks in Snow*, I feel like I can say I have succeeded, perhaps a little too well in places. Puppitor was, and still is, a system focused on performance but as I worked on *Tracks in Snow*, I found it was increasingly becoming an *experience* built around interpretation by way of performance. Even thinking about the possibility that playing *Tracks in Snow* might be played for an audience, either in the room or in a live stream chat, I keep coming back to the fact that playing the game involves a lot of similar intrinsic motivation to fighting games.

Some of this was of course intentional as, in addition to theatrical practices, I was inspired by fighting game interface design when building Puppitor. The extent to which *Tracks in Snow*, and by extension Puppitor, shared aesthetic foundations with fighting games didn't really become obvious to me until the game started getting close

to a finished state and this is why I've said the design is a double edged sword. There is the possibility that someone could spend dozens of hours with what, from a certain perspective, is a completely linear narrative game. I don't know if the possibilities and potential for depth I've created are obvious enough to convince someone to spend that much time with Rika and Chiara and get over the expectations that come with a kinetic visual novel and the time needed for someone to familiarize themselves with the interface.

I tend to put a lot of myself into the stories I tell and the script for *Tracks in Snow* is not an exception ¹. I'd wanted to write *something* that let me explore and come to terms with my relationship to Judaism for quite a while and, at least in retrospect, I can say making a digital play wound up being a fitting medium to do that in, what with how reflective and interpretive the play experience wound up being. It seems my answer as to what defines Judaism as a culture is the telling and retelling and reinterpretation of certain stories and here I am telling a story about Passover that was partially written during Passover.

The more time I spend thinking about the fact that the first story I chose to tell with Puppitor is a ghost story, the more fitting it seems to me as a lengthy research project, particularly with the way I approach storytelling and system design. Even if the stories and systems I make are ultimately original, there are plenty of looming shadows of my inspirations that become obvious if you know where and what to look for. There's an honesty I find in storytelling and system design when you embrace the idea

¹Though I might be able to say I was a little more measured about it than some previous stories I've written.

that what you make is going to be haunted by your inspirations. Being able to point to those inspirations isn't just an acknowledgement of what came before, I've found it a way to see how much of myself is in the things I make.

I still want to finish the script for *Tracks in Snow*, especially when I have had multiple people tell me that I'm a monster for having the story stop where it does. There's still work I want to do with character behaviors and having the computer try its hand at acting. I know I've only at best scratched the surface of what I can do with Puppitor with this project that has taken three years. *Tracks in Snow* is the first of what I hope are many more projects exploring what I've only begun to comprehend the implications of. It's exciting and a little scary and I wouldn't change it for anything.

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