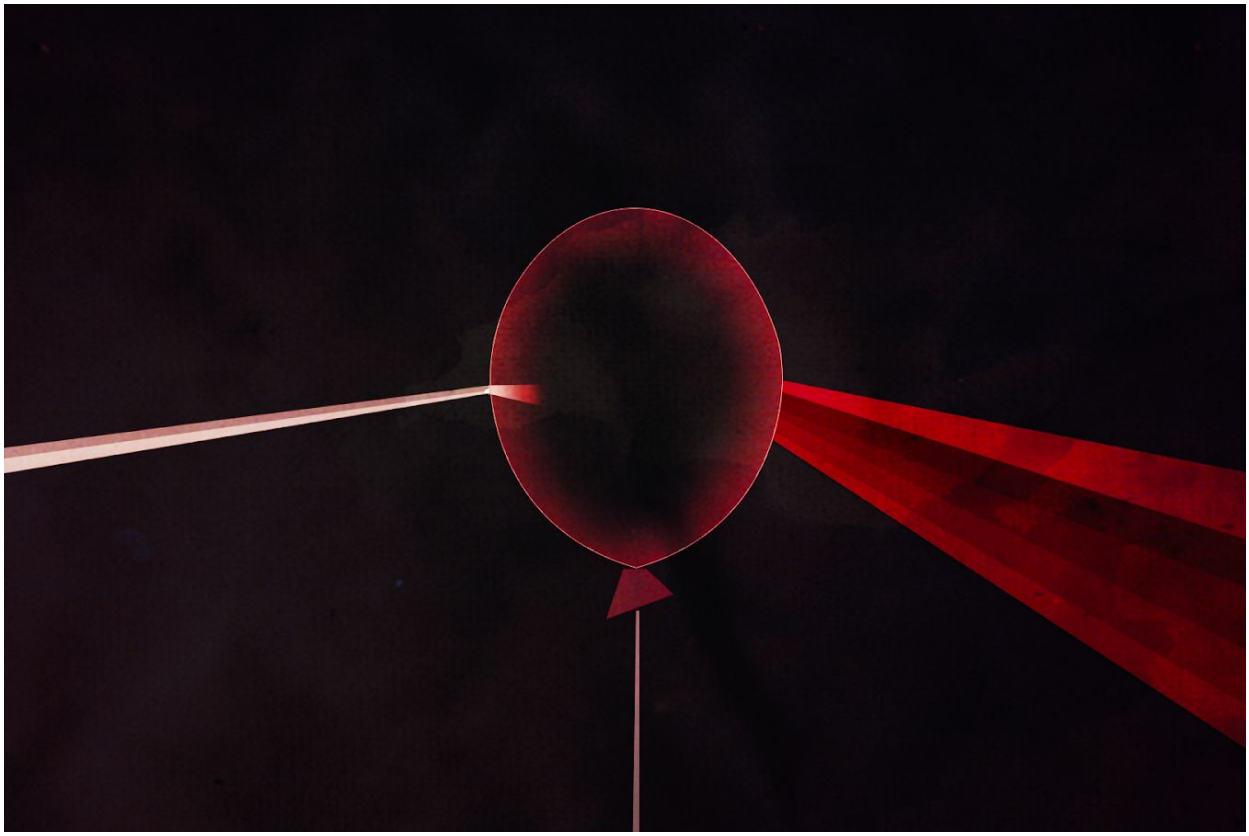


Dark Side of Balloon

05.14.2018

Jerry Belich

Game Design & Reflection Report

Pitch

Dark Side of Balloon is a multiplayer "brawler" game. Players control a partially-inflated balloon and manipulate objects with its string to try to pop other players' balloons. Players can also use the environment in the game's several domestically-themed stages - kitchen, living room, backyard, garage, and others - to gain an advantage on their opponents and emerge the victor.

Overview

The goal of this project was to design and implement a playable vertical slice of a digital game. Specifically, a local multiplayer versus game following the theme in the pitch above, using tension and stress as primary motivators in the gameplay. This will be achieved by making the player avatars, the balloons, harmless to each other directly and forcing them to use the environment around them to create situations where harm comes to the opposing players.

This document will outline various aspects of the design process, successes, failures, and what comes next if development continues.

Game Design Goals

These are higher level goals leading to a pitchable game prototype. Most will require numerous levels of iteration and will serve more as guiding design principles to evaluate if progress towards a viable product is being made.

1. Determine if the game concept is commercially viable and fun.
    a. Tension based gameplay with player avatars that are directly harmless.
    b. Fun failure: Players should still enjoy themselves when losing. Beyond player success it is a 'show', entertaining to all players, winner/loser/skilled/unskilled, as well as spectators.
    c. The environment should be rich with interactions that can interplay with each other, promoting emergent strategy and gameplay.
2. Prototype various balloon simulations. The feel of the balloons will be core to all gameplay and should be fun to control even with no gameplay at all.
    a. Manipulating the balloons should succeed as a toy. If this can't be achieved, the game is not viable.

b. Although balloons will be strange to control, especially with numerous physics systems acting upon them, they should be intuitive. Frustration should never stem from the balloons acting in a way the player doesn't expect given their input.

c. Frustration at the fragility and stress is acceptable and sometimes even desired. The emotional graph of play will be affected by this.

Sprint Progress

This is a high level summary of the work that was completed over the semester.

1. Completed a playable vertical slice suitable to demo and exhibit.
    a. Prototyped balloon simulation including 2D physics soft body and string.
        i. At least three different physics simulation approaches were used, with multiple new strategies planned for future development.
    b. At least one demo environment with both sharp and blunt objects to pick-up/use.
        i. A kitchen was modeled and filled with a variety of dangerous objects to serve as a 'playground' and test bed for the physics and mechanics.
    c. At least one environmental installation that directly influences balloons and play.
        i. The ceiling fan applies a blunt force to objects that collide with it. Although the fridge, drawers, and oven are all prepared for animation and interaction, they are currently static (lower priority in the task list).
2. Learned in much more depth a few specific aspects of the Unity game engine.
    a. 3D rendering and dynamic mesh creation
        i. Developed numerous methods for generating dynamic meshes (3D rendered surfaces) to visualize the balloon and string simulations.
    b. 2D and 3D physics
        i. The game is a hybrid of 2D and 3D visuals and physics. Due to the complexity of the physics, the ability to limit aspects to two dimensions both simplifies design and reduces computational overhead.
3. Learned asset workflow from Blender (open source 3D modeling software) to Unity.
    a. Reworked all 3D game assets in Blender to proper scaling (relative size of virtual objects). This comes into play when physics are involved, as a 1 meter object reacts differently than a 10 meter object.
    b. Developed workflow to fix rotation problems because Blender and Unity use different coordinate systems (you have no idea how painful this is).

    c. Fix model origin issues which influence the rotation point of an object (a completely separate problem from above).
4. Determine the scope and required resources for achieving a minimum viable product, meaning ready to seek support and funding.
    a. The MVP is far beyond the scope of 3.5 months, but better defining what the MVP includes is part of this initial prototype.
    b. About 6 months of additional effort would be required to achieve MVP, assuming I was able to provide deep technical focus individually. More realistically, this would involve bringing on another developer part time, as well as 3D modeler/artist.
    c. This does not include sound design, which will be vital once simulation is truly functional and in the long polish phase, but not worth investment until that stage is reached.
5. Researched possible commercial paths for the project including incubation, publishing, and distribution.
    a. The NYU Incubator Program
        i. Would provide 3 months of on-site resources and mentorship in exchange for a percentage of sales.
    b. Stugan Accelerator
        i. Would provide 2 months of isolated development with peers. No percentage taken.
    c. Publishers
        i. Indie Fund: Internal connections, they specifically seek to help small studios with realistic scope and budget succeed while taking a smaller cut than most.
        ii. Devolver Digital: Strong indie supporter, prefers games with an edge to them.
        iii. Double Fine: Strong internal connections, supports games with a sense of humor and strong sense of style.
        iv. Adult Swim: Really enjoys dark, macabre, and absurd humor. Would be a strong marketing presence with the right pitch.
    d. Play is being designed to be 100% compatible with the Nintendo Switch platform. A pre-existing relationship exists here so self-publishing would technically be possible, but funding would likely be required simply to complete development.
        i. Although numerous platforms are possible, it is pointless to target multiple until the game approaches completion. They are kept in mind throughout the process however, to ensure basic compatibility.

Specifications

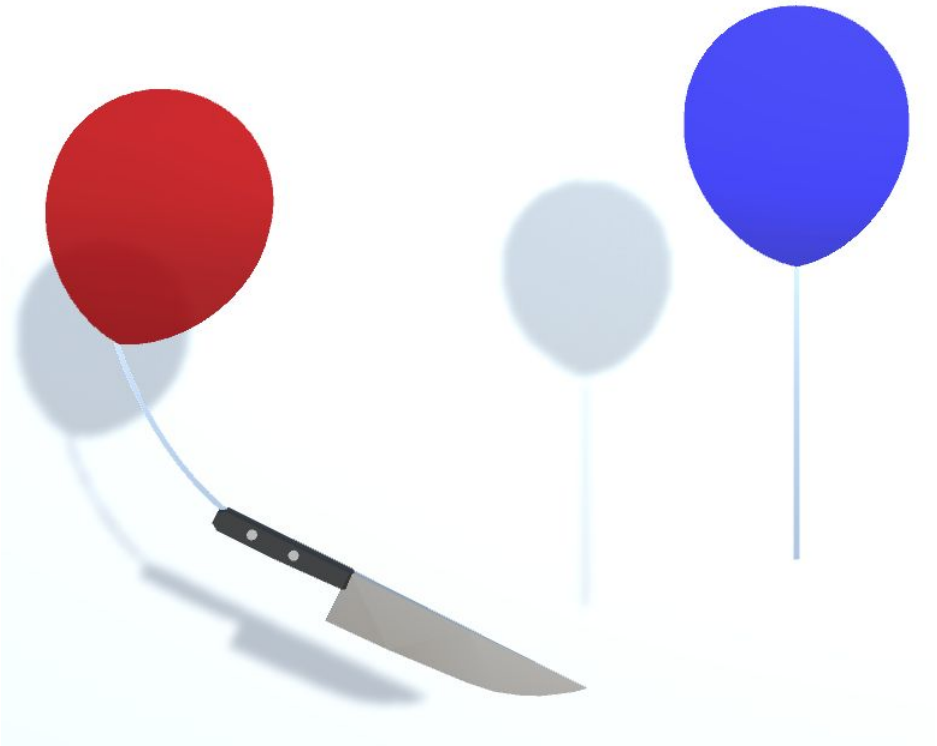
The current prototype can be found online at darksideofballoon.com (this forwards to https://jerrytron.itch.io/dark-side-of-balloon on the off chance the initial URL isn't working). The game can be run on any modern windows and mac operating system.

Next we will dig into a summary of the game design itself, broken down into various components and systems, and how they affect each other.

Balloon Controls

Player avatars consist of two different systems or components.

- The body of the balloon, a squishy physics system that also presents the primary vulnerability of the player.
- The string of the balloon, a floppy tentacle that provides the player a way to interact directly with the environment. Damage to it may increase difficulty of play, but not kill the player.



The control interface is designed to require only the following inputs:

- Directional joystick

- Action button
- (Secondary action button: The goal is not to require even this second button, but playtesting will be the final determining factor.

The balloon body is not directly controlled by the player. There are a number of potential influences players may be able to apply, but it provides buoyancy and is pulled or pushed along by the attached string.

Potential player influences:

- The ability to temporarily compress or expand to change density, allowing players to rise or fall a small amount.
- Releasing hellium to provide acceleration (applying force opposite of the balloon tie point), or to reduce buoyancy to drop.
    - A cooldown may slowly fill a player's balloon back to equilibrium.

The balloon string endpoint is controlled by the player joystick, much like a mouse pointer, but with constraints due to the length and stretch of the string. The player can tap the action button to grab objects or environmental points with the end of the string, the joystick contextually switching to apply 'pull' or 'push' forces against the anchor point.

Alternatively, the player can hold the action button without grabbing to tense or 'clench' the end of the string like a fist, making it rigid. If pushed against a collider surface an opposite force would be applied to the main body of the balloon, providing additional methods of navigating the space.

Prototype Controls

The initial prototype, what is currently playable, did not follow the above intended design, but a much simpler version in order to allow quickly testing other aspects of play. It also provided additional evidence that the desired control scheme was worth investing resources into.

In the prototype, players can use the joystick to directly apply force to the body of the balloon, slowly moving around the space and bouncing off the environment. The string, or tentacle, must be draped over objects to pick them up, but does allow some control through curving or tensing the end of the string, allowing players to throw objects. This allowed us to focus on the fun that balloon simulation can provide to players, though didn't contribute toward tension based play.

2.5D Playfield

The game is rendered in 3D though the field players navigate is a 2D space, layered between a front and back slice of 3D space. Imagine a kitchen with a row of cabinets, drawers, a stove, and a fridge existing in 3D. Players can move in front of all of these objects, but using their string interact with that back layer. Interacting with the handle of a

drawer to open in, the drawer now intersects with the middle play layer as an obstacle, also revealing tools that can be grabbed from inside of it. Similarly a front layer filling foreground space, such as a kitchen island. If completely in front, players could hide behind it, or grab a tool off the surface. The player string can be aware of objects in front and behind it for contextual actions.

Background 3D layer plus environment boundaries.

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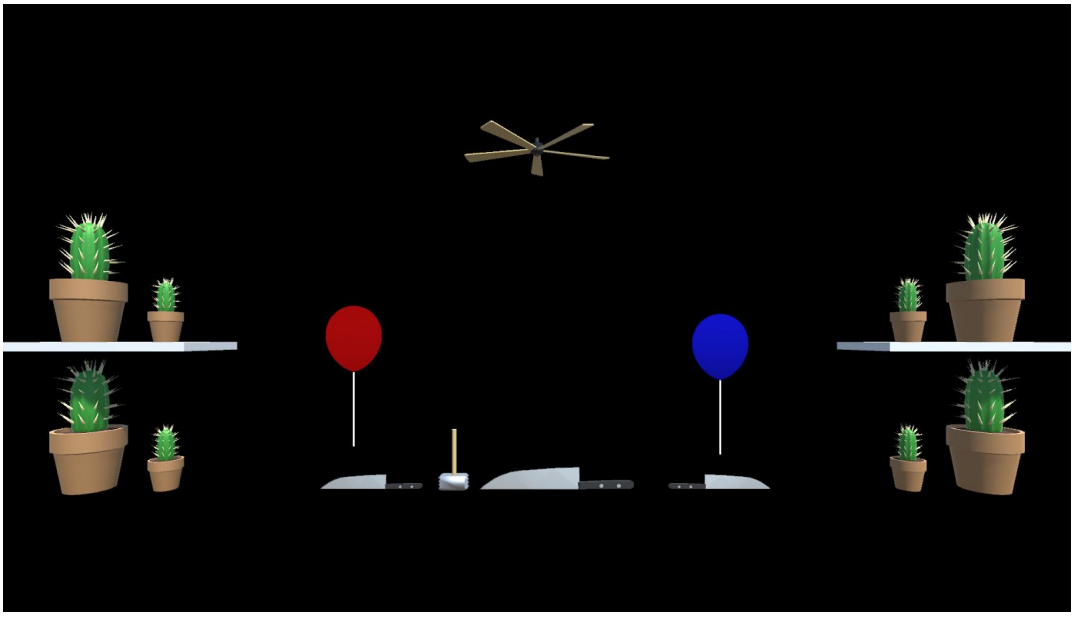

Middle play field layer with players and collidable objects.

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Layers combined into complete environment space. A foreground 3D layer is also possible.

This design allows for detailed environments of play that resist needlessly cluttering the playfield. In the case of a drawer or fridge door opening, the playfield changes form introducing new obstacles and access to objects, but they can be temporary and so used strategically as opposed to frustrating set dressing that gets in everyone's way.

Limiting player movement to 2D is also necessary for keeping the style of controls intuitive enough to pick up easily, yet take time to master. Moving to 3D would cause a dramatic increase in the spatial dissonance between the player, controls, and resulting actions on screen; this dissonance being perfectly balanced is key to the tension building and 'fun failing' style experience being designed.

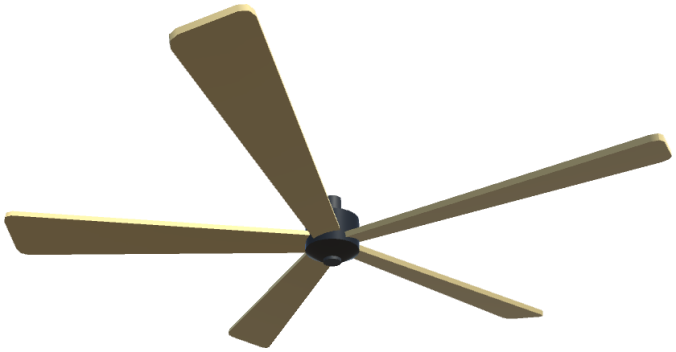
Play Spaces

Each play space will be themed around different places balloons might find themselves. The initial prototyping is focusing on a typical suburban house, albeit with layouts that may not be so typical. Specifically, the kitchen is the first playable environment being designed and used for testing. Beyond the home, concepts include an office retirement party, a playground, a wedding, and even a party supply store itself.

Environmental Mechanics

As players cannot harm each other directly, the environment and objects (weapons) in the environment are vital to shaping and transforming how play unfolds. The below is a list of planned interaction points. Most have specific examples planned for prototyping but can be applied to various effects and settings in the game. Interaction points can also serve as grabbing points to aid in navigation, without manipulating the interaction at all.

- **Opening/Moving Furniture**: As described in the *2.5D Playfield* section, various pieces of furniture can be manipulated, both creating or removing obstacles from the play space, and revealing/concealing other objects or interaction points.
    - Drawers pulled open creating small obstacles in mid space.
    - Fridge or oven doors open creating vertical and horizontal obstacles along or originating from the ground.



- **Gas/Temperature Field**: A form of liquid simulation (using a grid based vector field to define physics forces) will be applied over the playfield to track, at the very least, airflow, temperature, ionization (static electricity field), and even a mix of gases (such as natural gas).
    - A ceiling fan can generate force into the field blowing away, or even pull objects in depending on the direction it spins.

    - A hot oven with the door open, or burners on, heats up the field which generates upward forces as hot air rises.
        - A visual shader can create a distortion so players see where air is particularly hot.
    - Stove burners on but unlit releasing natural gas which rises because of its lower density.
        - A visual shader can create a distortion so players see where the gas is rising and accumulating.
    - Static electricity can create attractive (or repulsive) forces against balloons.
    - The ability for players to grab onto things while being pushed/pulled by external forces provides additional opportunity for strategy and tension building.
- **Fire**: Balloon strings can burn, shortening their length over time, but also used strategically within the environment.
    - Sources might include a lit stove burner or candles (such that you might find on a birthday cake or fancy dinner table).
    - If gas has been released into the playfield, lighting your string (or an object that you are holding) could be applied to the gas, creating a large amount of chaotic force to shake things up!
- **Lights/Switches/Knobs**: Various small human inputs can be turned on/off/adjusted, causing numerous appliances or machines in the environment to change their behavior.
    - Lights: Change how the space is illuminated. Potentially lights can also be a source of heat, affecting airflow.
    - Switches: Turn on/off/reverse a ceiling fan, turn on/off a garbage disposal, blender, etc - any type of electronic device.
    - Knobs: Adjust inputs for turning stove gas on or adjusting the thermostat to change the temperature for the entire environment.

Weapon Design

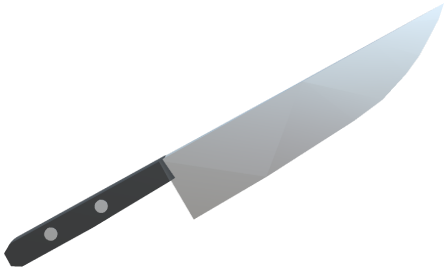
As the initial play space is a kitchen, the objects that can be picked up and wielded by players are ones likely or at least plausibly found in a kitchen space. Weapons can be **blunt**, **sharp**, and **piercing**. Most weapons have blunt surfaces and sharp or piercing surfaces, so the orientation in which they contact players will change the resulting effect.

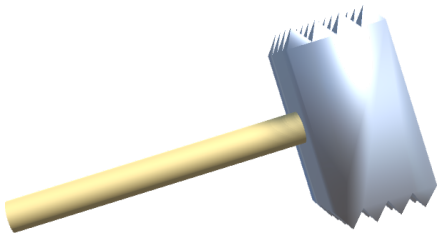
- **Blunt**: Energy is transferred from the weapon to the object it collides with. The amount of force is determined by the momentum (mass + velocity).
- **Sharp**: The object hit is cut. If a balloon, it almost always pops. If the string, it is severed.

- **Piercing**: The object is punctured. If a balloon, it may simply spring a leak, causing changes to the buoyancy and applying acceleration from the leak. Piercing has no effect on string as the surface lacks rigidity.

Kitchen Weapons

- **Chef Knife**: A knife with blunt handle, blunt back of blade, and sharp blade.
    - Multiple scales with different mass (eventually alternate blade styles).
- **Tenderizer (aka Kitchen Hammer)**: Large blunt head with rounded blunt handle.
    - Purely for transferring a lot of energy to whatever it hits.
- **Fork**: A small dinner fork, piercing end and blunt handle.
    - Light and fast, but won't guarantee popping.
- **Cactus**: Most of the cactus is very sharp, with a blunt pot. Can be used similar to a flail.
    - Not as easy to wield, but dangerous with a good swing going!
    - Multiple scales, tossable and a scale that is only draggable, pulling off a shelf onto a foe for instance.





Art Direction

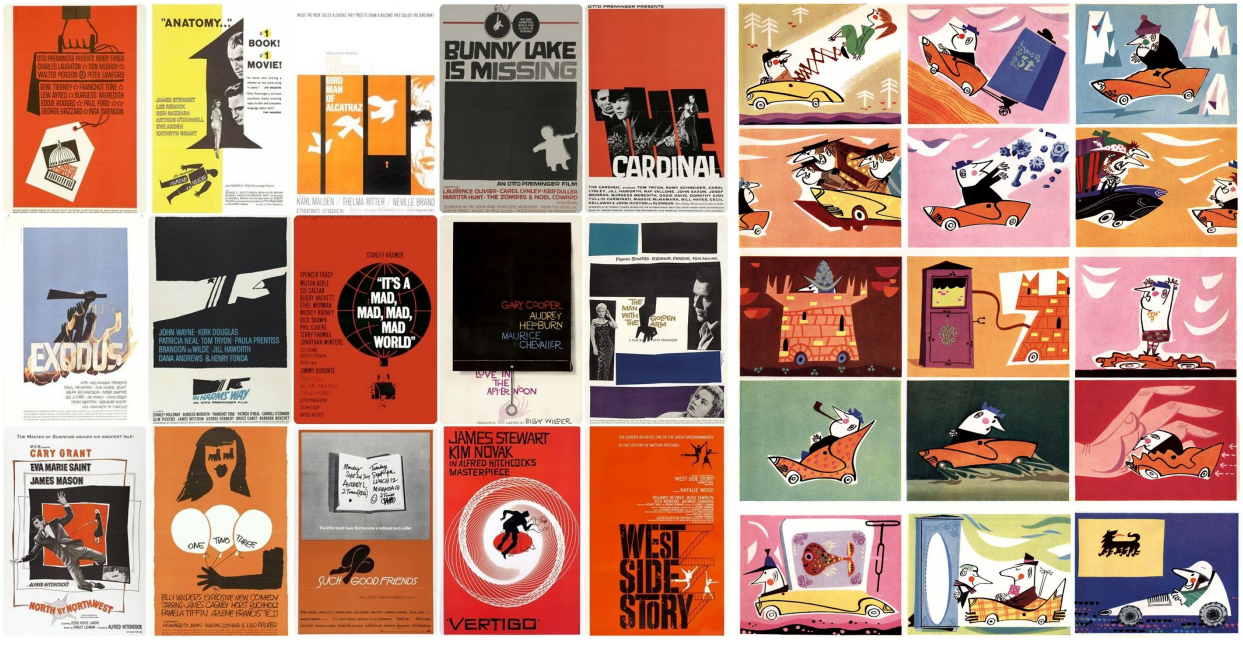
For the majority of the project the art direction was a big open question and it is important to note that none of the prototype gameplay represents the art direction we intend for the

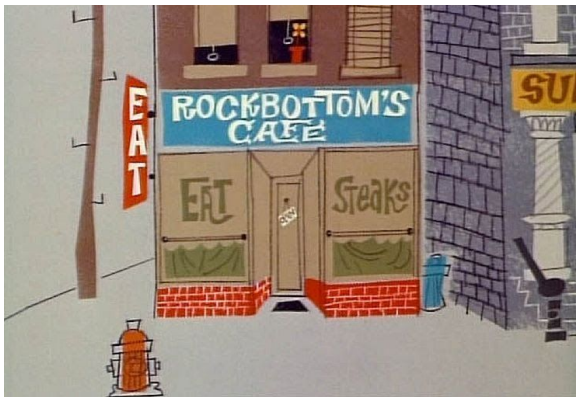
game. The gameplay is designed to explore some dark and sinister places, yet still hold onto a childlike whimsy and humor (which in some ways add to the creepiness). It wasn't until after working with photographer and illustrator Izzy Gramp on the title screen (seen on the cover page), instructional, and end game illustrators for the prototype, that we really honed in on a few styles of art that have become vital to the art direction we are now heading.

In the title illustration, the way the balloon in the title image is composed of a set of separate shapes, the string, tie, and balloon body, to compose the complete image connects deeply with the style of Saul Bass, a famous graphic designer that did incredible work in the film industry, including posters for Alfred Hitchcock's films. The way he uses shape, separation, and texture are fascinating and something we want to explore bringing to life.

The other primary influence is the cartoon modern style developed in the period between the 1940s and 1960s. These two influences potentially solve another problem. It is intended that there are human and animal inhabitants of the various environments as is explored more in the next section. The focus stylistically must be the balloons, so how the inhabitants are portrayed is vital to the attention they draw and what influence they have over the gameplay. Cartoon modern provides a simplistic style that can deemphasize them without discounting their presence and importance. The family cat, for instance, could take on a sharper shape and texture as it will have a stronger effect on play.

We are currently developing concept artwork to help zero in on how in game play might look with these artistic styles as our compass. Although they are not ready for display, below is a visual summary of a mood board that was put together for this process.




EAT
ROCKBOTTOM'S
CAFE
EAT
Steaks


SORDID
BAR
VULGAR
HOTEL

Narrative

As the title of the game is pun and the primary gameplay goals are local multiplayer, the role of narrative is not a traditional one. Justifying why balloons would want to murder each other is already a few miles down the road of the absurd and macabre. While pitching the game to a few peers, one joked that the balloons were filled with hellium instead of helium, which was funny enough to me that I decided to use it as the core motivator of the almost exclusively backdrop narrative.

I believe strongly in world building, even if (especially if) it doesn't seem relevant or useful. When you build a world you create constraints and rules that force your design decisions to provide a certain level of consistency and internal logic. A story no one ever explicitly hears can dramatically influence gameplay mechanics and engage players on a level they may not even be aware.

Brief

What do balloons do once the party has ended? When they've partially deflated and float in the middle of the room, don't they seem a little... creepy? In *Dark Side of Balloon*, players control anthropomorphic, psychopathic balloons that decide to take matters into their own hands (or strings). Desiring to control the house, they must eliminate their floating comrades in a winner-take-all deathmatch where they must not only contend with each other, but their own floaty squishy natures.

Once upon a time...

...there was a normal suburban family living in a normal suburban house. The parents were throwing a birthday party for their child; they had a cake, decorations, party favors, presents, and of course, balloons. Unfortunately, when they went to pick up all the supplies, including a tank to fill the balloons, the underpaid worker at the second-rate party store gave them the wrong tank. It looked the same at a glance, except for one extra little 'L'. But they didn't notice.

They didn't notice after getting home and filling their balloons. The balloons floated and bobbed about just as you like.

They didn't notice during the party when the balloons floated around the room bumping into each other and the children. The kids just squealed with delight.

They didn't notice after the party was done and all the guests had left. It already looked like a battle had taken place.

In fact, they still haven't noticed... the tank of hellium is still sitting in the corner. The balloons are still bobbing about, starting to flex their strings and grasp onto whatever they can find. Sure, hellium is just as buoyant as its helium cousin, but it is also far more evil.

Narrative Influence on Play

Although not currently implemented, humans will be a part of the gameplay passively. There are two immediate design concepts for how their inclusion can provide meaningful contribution to the play.

1. Humans occasionally enter and leave the playfield, blissfully unaware of the battle unfolding around them. "Just air currents", they suspect.
2. While in the playfield, humans change the space. Perhaps pulling out a knife and chopping some vegetables. Now the knife is easily accessible. Or a bottle of sauce from the fridge, a tossable blunt weapon.
3. Potentially there could be a penalty for being noticed by humans. Perhaps they reposition you or tie you to something, putting you at a disadvantage to the other players.
4. The family cat may appear if play is taking too long, or a cat attracting element is released (the leftover fish from the fridge perhaps).
    a. The cat is attracted to the moving string and might want to 'play', forcing players to be still if the cat approaches.
    b. The cat is terrified by the body of the balloon, extending claws and swinging wildly.
    c. The cat creates static, attracting nearby balloons.

Milestone Journal

I. Design

Although I had thought up the core of the concept prior to the semester beginning, very little work has been put into outlining how it would actually function mechanically. In fact, the primary reason I wanted to use this independent study for

this project was to answer the question I had about whether this type of tension building gameplay would be possible to achieve, and would it be any fun. These aren't the sorts of questions you simply answer, however, so the honest goal was to either find some fun in the concept to justify further design and development, or fail, evaluate the results, and move on to another concept.

II. Train Jam

Mid March I took part in a game jam event called Train Jam, which consisted of 2.5 days of train travel from Chicago to San Francisco. I felt this would be a great opportunity to make fast progress on prototyping various solutions for the game while having feedback from peers. I gathered a small team that was excited by my pitch and wanted to be a part of it, good practice in and of itself.

The event was extremely successful. Not only was significant progress made in testing multiple strategies for balloon physics simulation, but the assistance in making game assets such as 3D models, illustrations, and music were vital in providing a level of polish I would not have been able to achieve on my own.

A VICE News crew was covering the event and decided to feature my team and project, helping gain additional exposure and build excitement for the concept. Their video can be viewed here: *We Spent 54 Hours On a Train Full of Video Game Developers*

There is also footage of play by YouTube streamer Jupiter_Hadley in part 6 of their Train Jam Indie Game series. Relevant footage is found at 12:46, which this gameplay video link will take you directly to.

III. GDC

Immediately after Train Jam was the Game Developers Conference. The demo completed on the train was submitted to the Train Jam exhibit that was featured on the exhibition hall floor. This provided us a place to observe players and conduct a few sessions of playtesting and feedback gathering.

There were two primary takeaways. First, the squishy, weird physics of a balloon is immediately engaging and delightful, even on a basic level. Second, due to time we allowed direct control over moving the balloon, rather than through sole use of the string (which was meant to behave like a tentacle), we were not achieving any level of tension based play. This was expected, but confirmed for us that applying forces directly to the balloon with the game input was too direct to support the play we wanted.

We were able to provide some amount of string control, including the ability to grab and fling objects which felt limited but good. This is the direction that player control

must head. Level design will also play a crucial role in allowing this control scheme to generate tension, which also wasn't possible in the short time. Larger spaces along with numerous environmental challenges will be right on the tale of full string articulation.

IV. Refactoring

Game jam code is terrible by necessity, but in this case also provided me a unique opportunity. One of my primary goals was to learn the 3D and physics systems in Unity on a much deeper level. Models in the jam version were a mess, scaled at least 50 times what they should be, rotations and origins in complete disarray. I spent at least a week digging deep into the asset pipeline from Blender, understanding and fixing these problems.

Alongside that was rebuilding the entire play space in Unity to proper scale with the corrected assets. The goal was to gut just about everything and rebuild to the same level of functionality. I took and completed an online Blender course and Unity Mesh course to speed up understanding and implementation of the concepts required. This took approximately two weeks of effort, but resulted in a maintainable codebase and asset pipeline.

V. Research & Prototyping

This was probably the most frustrating phase of the project, though I was expecting that to be the case. I spent approximately three weeks diving deeply into physics simulation research and exploring a multitude of possible strategies for implementation in Unity. Some variations of what already existed and others far from that path. It was important to me to expose myself to the deepest technical levels of what I wanted to design. I needed to map out the borders of where my understanding weakened and stopped and explore what kind of time and energy investment would be required to learn it. In essence, what am I capable of in this design space?

It was a long road of feeling terrible about how slowly it felt like I was learning, with moments of success and surprise at what I did understand at the end. It also meant I was far more prepared and capable in talking to technical experts in Unity rendering and physics, which has been pivotal in outlining new, more attainable strategies for simulating the squishy, poppable balloons and articulable strings.

Numerous small prototypes were created experimenting with ways to plot the points of a string, apply constraints, allow for collision between the string and environment, and finally render in a fluid way maintaining the subtle curve and floppiness that is quintessentially a string. The balloon itself had a similar sprint of

exploration though less so. This included creating a ring of collider objects, a special component in Unity, to brute force handle running into other objects, versus dynamically calculating a single, yet complex, collision mesh every frame of play. If this sounds like nonsense, that's ok, it feels like it too. Alternate rendering methods were also experimented with, from the 2D rendering of the original to a half sphere to provide reactions to scene lighting for a more realistic approach. This ties deeply into how the balloon itself is maintained as a physics object causing a spiral of simulation attempts and rendering attempts that fit the new system.

Finally, some work was done on an initial liquid simulation system that will lay over the 2D playfield. Using a vector grid, forces can be applied to the grid points, and by calculating how those vectors transfer energy to each other (based on the vector values) gases and liquids can be simulated. It is a conceptually simple approach means airflow applying forces on the balloons is possible, including the balloons themselves putting force back into the system by deflating or even through their movement.

A ceiling fan, for example, can add energy into the system, pushing away or pulling toward it as an example of how the system can begin to tie the environment together. The system doesn't require visual rendering for this basic implementation. By adding additional grid data structures that map to the force vector grid, I can add additional properties to the system, such as temperature and density. If the burners on a stove are turned on in game, the increasing temperature of those points on the grid would then generate an upward force. By applying a visual distortion shader to the areas of high temperature, you now have clear communication to players regarding what they can expect to happen if they move above the stove, plus a cool effect to boot!

This is all still under development of course, and although I wish I was able to demo a much newer balloon simulation, it isn't there yet. The vector force grid is also still in mid-prototype, though this aspect does not pose a technical challenge, it simply needs to be completed. This phase concluded with a much stronger understanding of how to best approach the simulations required for this game, but it took a lot of bumbling around in the dark to get here.

VI. Reflection

I'm appreciative of the need to take a step back and document the work that has been done and where it needs to go. The researching phase has been a bit of a rabbit hole due to the complex nature of physics simulating code and the many possible strategies for solving these problems while maintaining high performance and flexibility. In fact, it is because I knew I would need to step back that I allowed myself to get so deep in the first place. I wanted to explore some personal

boundaries of technical development and capability. Basically, which amongst these new technical spaces were reasonably within my grasp of understanding and which were simply a waste of my energy, better relegated to external resources that could be much more efficient than myself? This question has become deeply important to me as of late. Part of it comes down to personal identity professionally and as a creator.

It isn't often that you are afforded the opportunity to dig deep into design work without external pressure or consequence. For many years I've identified myself as a software developer, a coder, but all of my work has been driven by design. As a result, I've felt like an inferior developer compared to most others. Recently I've been accepting a new identity as a designer first. Instead of being a coder that is merely adequate compared to other coders, I'm a designer that is a far superior coder compared to other designers. I'm also a good designer, it just took me a long time to recognize it.

I've always loved exploring interesting technical art and installation pieces, but I used to get really frustrated when I discovered that the artist hadn't built their own work. It felt like cheating. How is it *yours* if you don't even understand how it *works*? There are a lot of reasons I felt this way and some may even be valid, but I was missing some important pieces in my understanding.

My enlightenment has been a slow time coming as a result of numerous collaborative projects over the last few years that have been deeply satisfying. In each case I had moments where I felt inferior, like I wasn't contributing enough because I saw my collaborators do incredible work quickly that I knew I couldn't do. In each case it was revealed to me that the inverse relationship existed. I was provided a huge amount of value in the areas that I was the most invested in where they could not. This was the first step in my conversion.

The second step has simply been solidifying in my mind the role of a designer, including the amorphous nature that design implies. For a long time 'designer' felt too synonymous with the 'idea person' and felt hollow. The flaw with idea people of course is a lack of execution; it has little to do with the idea itself. So after years of doing complex design work from small to large scale, even winning multiple awards for the work, I've decided to accept my identity instead of feeling bad about being mediocre and something I'm simply not.

VII. Conclusion

I do hope to continue work on the game. I think it includes a fascinating set of design problems, along with a great deal of potential for genuinely fun and marketable gameplay. I have numerous concepts that simply take the balloon

simulation work, arguably the most vital and time consuming part of the design, and recontextualizing it to cooperative and individual play.

I also feel less driven to create and sell purely digital game design work for the sake of it, or to prove something. If I work on digital only games, it will be because it is the right project and with the right team.

Learning Unity on a deeper level has been well worth the investment as it will be a tool I use in many projects, including immersive design in physical spaces. Although I am not going to become an expert in physics, there are many systems I simply needed exposure to understand and make use of.