

ABSTRACT

Title of Thesis: CAPTIONING THE IMAGINATION: CREATIVE
TYPE AND ACCESS IN HIP HOP ANANSI AND
BEYOND

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The purpose of the following thesis is to document and reflect on the process of creating, and the substance of, the projection and caption design for the production of *Hip Hop Anansi*, directed by Paige Hernandez and produced by the University of Maryland – College Park School of Theatre, Dance, and Performance Studies. The documentation includes research materials, drafting, screenshots and production photos of the final designs as well as an analysis of feedback collected from a d/Deaf focus group on the effectiveness of the captions within the show.

CAPTIONING THE IMAGINATION: CREATIVE TYPE AND ACCESS IN HIP HOP ANANSI AND
BEYOND

by

Timothy Ross Kelly

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Choreographers: Ama Law, Chris Law
Scenic Designer: Margarita Syrocheva
Costume Designer: Emil Mendoza
Lighting Designer: Mariah Faulkner
Sound Designer: Nick Hernandez
Assistant Media Designer: Lee Talbot
Production Manager: Jennifer Schwartz
Projections Coordinator: Zachary Rupp
Guest Experience Coordinator: Emily Shallbetter

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Figure 1: The Hip Hop Anansi Cast and Creative Team. Photo by Taneen Momeni

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“Letterforms that honor and elucidate what humans see and say deserve to be honored in their turn. Well-chosen words deserve well-chosen letters; these in turn deserve to be set with affection, intelligence, knowledge and skill. Typography is a link, and it ought, as a matter of honor, courtesy and pure delight, to be as strong as the others in the chain” (Bringhurst, 1996, p. 18)

Chapter 1: Introduction

1.1 - Aim and Scope

This paper is intended to detail and evaluate the design - and process of designing - the Creative Captions for The University of Maryland School of Theatre, Dance and Performance Studies' production of *Hip Hop Anansi*. In order to do that, I will first outline some key concepts around d/Deaf access in Theatre and give some examples of other instances of Creative Captioning in order to place the production within a wider artistic and political context. Next, I outline key facets of my process and delve into the specific choices that I made as a designer – both in the content of design itself and in the process of making it. As part of my evaluation of the success of the caption design, I have enlisted the help of a small group of d/Deaf participants to view the production and provide feedback on their experience, which I compare with my own reflections to critique the work. Finally, I make a series of recommendations for best practices and highlight lessons learned for myself and others who wish to create work with Creative Captioning in the future.

I should note that the d/Deaf participants in this study constitute a very small sample size, and they skew heavily towards those with a pre-existing interest in theatre. I therefore urge caution with definitive conclusions on the preferences of d/Deaf patrons writ large from the data and feedback that I collected over the course of this study. Rather, I intend the outcome of this project to be the creation of workflows and recommendations to both ease the process for myself and others who implement Creative Captioning in their work, and improve the provision of captioning more generally.

This is not intended to be a complete chronological account of the theatrical design process. While I do go into some technical detail around the development of software and the programming of video design, I attempt to keep this connected to choices I made specifically to aid myself as the designer / captioner and the operator to ease the undertaking of captioning a show, choices that had a material effect on the appearance and function of the captions.

1.2 - Explanation of terms

Before I begin, I'd like to lay out a few terms and concepts that I will be relying on in this thesis. Some of these terms are common parlance in the world of Film and TV, but I am using them here specifically in the context of Live Theatre.

“d/Deaf”

Through this thesis, you will see me use the construction “d/Deaf” to refer to people with a range of hearing conditions. This term is an amalgamation of “deaf” and “Deaf”, which refer to different identities around disability and communication modalities. Jill Bradbury explains the distinction in her article *Deaf Theater in the United States*:

“Since the 1970s, lowercase deaf has been used in the United States to refer to those who tend to use spoken English and identify with the hearing world. Sometimes referred to as oral deaf, they are more likely to describe their hearing status as a disability and to reject the idea that deafness is a defining part of their identity. Deaf with a capital “D” has been used to refer to the customs, arts, and social bonds among people with nonnormative hearing who use American Sign Language (ASL) and consider themselves part of a minority language community. People who identify as Deaf typically socialize primarily with other Deaf people and use ASL, though they may also use spoken language and have hearing friends and family. People may describe themselves as Deaf and yet have a high level of functional hearing, read lips well, and be able to carry on conversations in spoken English in some situations.” (Bradbury, 2024)

For this study, I use d/Deaf to be explicit that I am referring to both groups.

“Captioning” versus “Surtitles”

For the purposes of this paper, I am using “captions” to refer to the translation of both dialogue and sounds into a text-based form. I am basing this on the distinction that Fryer and Cavallo draw between caption and surtitles in their book *Integrated Access in Live Performance*:

“Unlike opera surtitles for hearing people, the captions give additional information that is helpful to deaf and hard-of-hearing audiences, such as indicating speaker names, sound effects and offstage noises.” (Fryer & Cavallo, 2022, p. 21)

“Closed” vs “Open” Captions

Closed Captions in theatre (much like their TV / film namesake) are captions that are an optional part of the viewing experience - i.e. they can be turned on and off by individual viewers. In theatre, closed captions often take the form of a tablet, seat back device, or phone that can display captions directly to an individual audience member.

Open Captions, on the other hand, are captions that are part of the viewing experience for all. The TV/Film analog for this is captions that are rasterized into the image of the video, rather than controllable via a menu. In theatre, this usually refers to captions presented on an LED board, or projected in a place where all audience members can see them.

“Creative Captioning”

Creative Captioning, then, is the artistic manipulation of the appearance and formal qualities of the text itself to augment captions and communicate more information about the performance. As Ben Glover, a Deaf video designer from the UK, and board member of the captioning charity StageTEXT, defines it:

“A written form of the script (captions) that are integrated into set design and included as part of the creative process for a theatre production. The idea of captions is similar to subtitles on TV. However, by being creative there are many ways these can be incorporated as part of the set or overall theatrical experience. [...] Captions can be used to reflect characterisation using font, colour, animation and position. They can give tone to a scene helping convey the time period and location.” (Glover, 2021)

Creative Captioning implicitly means open rather than closed captioning, but in this paper I begin to explore the ways in which ideas from Creative Captioning can influence and enhance the closed captioning experience.

“Equity of experience”

From previous work around access for d/Deaf audiences, I have developed an ethos of “equity of experience”, which underpins my work and my approach. What I mean by this is that I consider it my duty to create experiences for d/Deaf audiences that are equally as rich as the experience of a hearing audience watching a production - but may not be completely the same. In practice, this means that my focus is less on simply communicating to d/Deaf audiences what sounds they may be missing, but instead working to make sure that the meanings of sounds and the things they represent are communicated through the visual language of the show in a more integrated fashion. In my role as a video designer and creative captioner, I stray from just creating captions alone. I include many non-text-based elements to help visualize and make accessible the aural elements of a performance. Sometimes these elements stand in place of captions, where a more interesting or experiential choice can be made to communicate the same thing. This is not an uncontroversial approach (as many audience members have different preferences), which I reflect upon later, but it is one that is rooted in the spirit of providing an equitable experience, and based on d/Deaf feedback.

“Integrated Access”

Integrated Access is the construction of theatrical work that designs access modalities into the form, fabric and process of a production, rather than treating them as interventions that are added on to a production after it has been created. Integrated Access creates work where the provision and aesthetics of accessibility are inextricable from the rest of the performance. Fryer and Cavallo put it like this:

“IA is inclusive (available to all) subjective, auteur (involving the director), and provided by the company from the start.” (Fryer & Cavallo, 2022, p. 81)

“Curb-Cut Effect”

The Curb-Cut Effect is a phenomenon whereby an access accommodation made for one group has unintended benefits for a much wider population. It is named after the lowered sections of sidewalks

that provide level access for wheelchair users, or those with other mobility aids. In their essay, “*The Curb-Cut Effect*”, Angela Glover Blackwell describes the way in which these curb cuts have benefited more people than originally anticipated:

“Parents pushing strollers headed straight for curb cuts. So did workers pushing heavy carts, business travelers wheeling luggage, even runners and skateboarders. A study of pedestrian behavior at a Sarasota, Fla., shopping mall revealed that nine out of 10 “unencumbered pedestrians” go out of their way to use a curb cut.” (Blackwell, 2017)

1.3 - Examples of Creative Captioning

While Creative Captioning is still a burgeoning field of design in the US (although it has begun to develop more interest recently), it has been relatively established in the UK for a number of years now, with video designers like Josh Pharo and Ben Glover and companies like Zoo Co and Hot Coals folding it into much of their work. Creative Captioning has no particular set of rules or expectations around it and it is inherently intended to merge into the overall design of the piece; there are a near infinite number of ways that it could be incorporated into a performance. I include a number of photos below (FIGURE 2-4) to illustrate but a range of styles, effects and approaches that are possible with this emerging discipline:



Figure 2: China Plate's The Shape of the Pain. Caption Design by Josh Pharo. Photographer unknown.



Figure 3: Bush Theatre's *Going Through*. Caption Design by Nina Dunn. Photo from somethinggraphic.net



Figure 4: Deafinitely Theatre / New Diorama's *4:48 Psychosis*. Caption Design by Paul Burgess. Photo by Becky Bailey

I am lucky enough to have designed and worked on a range of shows and productions in the UK that have incorporated creative captioning, in both in-person theatre and filmed performance. This prior experience informs my choices in and approach to my thesis project. Here are a couple of examples of my work (FIGURE 5-8):

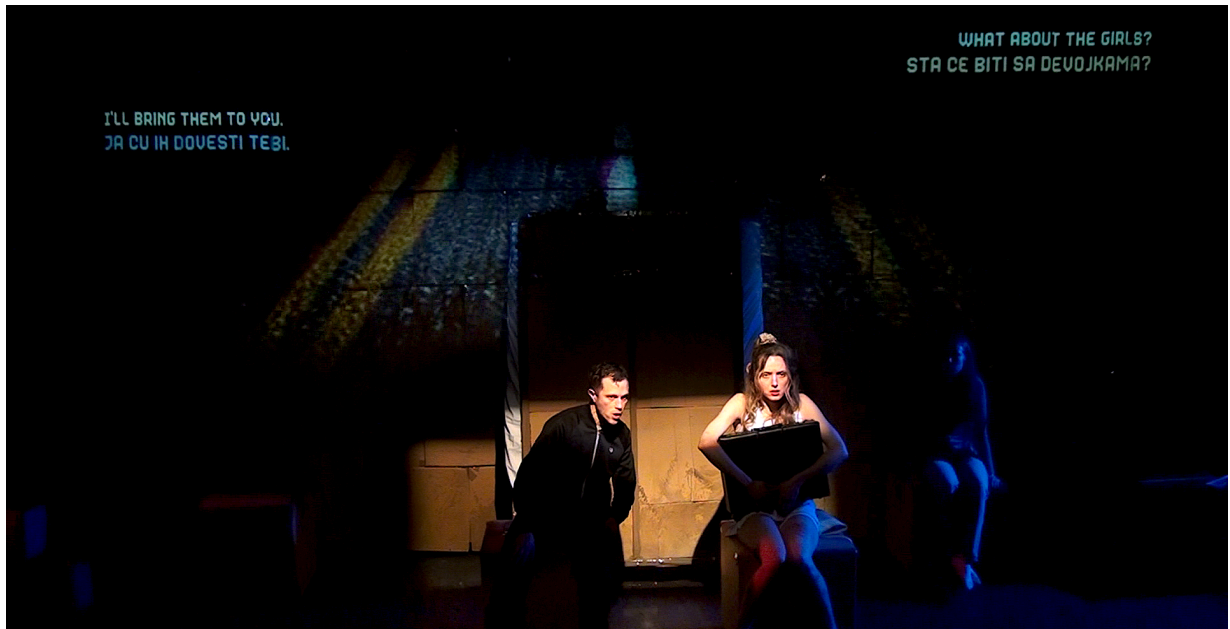


Figure 5: *TRADE* at Clapham Omnibus Theatre. Caption Design by Timothy Kelly. Photo by Timothy Kelly



Figure 6: Zoo Co's *Sirens*. Caption Design by Timothy Kelly. Photo by Timothy Kelly



Figure 7: Still from Hot Coal's *My Darling Christopher*. Caption design & editing by Timothy Kelly DOP: David Monteith-Hodge



Figure 8: Still from one of the animated poems from Eastside's *I Know I Wish I Will* project. Design by Timothy Kelly

1.4 - On the need for d/Deaf audience feedback

I am a hearing person. Although I have experience working with and creating work with d/Deaf audiences, which informs the choices I make through this project, I have no personal, lived experience of Deafness. It is necessary to have input from people that do. After all, you cannot make work for someone else's benefit without checking that it is actually working for them.

I am grateful to have had the support and feedback from Deaf researcher and co-chair of my committee Dr Jill Bradbury - who was able to advise through the process and guide my choices. However, much like Deafness itself is a spectrum, d/Deaf people are not a monolith. Opinions and preferences around access interventions vary depending on a wide range of factors such as the particular nature of one's hearing loss, their politics, and just what they are used to.

In order to make work that is accessible to the widest range of d/Deaf people possible, it is similarly necessary to gather feedback from a similar range. I have done what I was able to based on the resources I had to achieve this goal, but acknowledge that there is significant need for much larger-scale research into d/Deaf preferences around captioning for live events. While I am able to evaluate the success of many elements of the systems and design that I outline in this paper, I leave the final judgement to the d/Deaf audience members who have participated in this study.

1.5 – Methodology

To ensure I got a range of d/Deaf feedback, I enlisted 6 participants to take part in a study. Firstly, they would take part in an online pre-study questionnaire to identify demographic information and establish any preconceived notions or expectations that the participants had. After watching the performance of *Hip Hop Anansi*, participants would then complete a second questionnaire with a mix of qualitative and quantitative questions that would enable them to reflect and give feedback on their experiences. This focus group was recruited via email and social media from Dr Bradbury's existing network and were offered \$100 participant incentives. It was important to me that this project must not be reliant on the free labor of a marginalized group. I was also interested in the opinions of other d/Deaf people that happened to come and see *Hip Hop Anansi*, so I created an additional questionnaire that was advertised in the program for the show, and on a poster outside the venue which audience members could complete if they were interested in doing so.

This questionnaire was open to hearing patrons as well because I was also interested to understand how they reacted to Creative Captioning as they would also be experiencing it as part of the play. While by no means the main focus, their perspective would be useful in discovering any potential Curb-Cut Effects that may present themselves.

Chapter 3: Hip Hop Anansi

3.1 - Original Production

Hip Hop Anansi premiered at Imagination Stage, a children's theater in Bethesda, Maryland in 2006, directed by Patrick Crowley and written by Eisa Davis, the niece of civil rights activist Angela Davis. In keeping with her belief in the Ghanaian idea of *Sankofa* (PEN America, 2014) - the importance of looking back at history and ancestral wisdom to help us better understand and guide us in the present - *Hip Hop Anansi* remixes traditional West-African folklore for a modern young audience. It tells the story of Anansi, a spider and trickster character, who enlists the help of his children and the goddess of Hip-Hop, Nawmean, to win the "Fly Pie" - a prize for the best trickster in all the land. The original production was in many places devised by the cast, featuring movement and music sections that are only briefly summarized in the text of the play to allow for new productions to create their own and keep the spirit of ownership and devising alive within the cast. Additionally, the original production had a cast including both d/Deaf and hearing actors and made heavy use of American Sign Language throughout. This commitment to accessibility is written into the text. In the original production, Nawmean's lines were performed by the Deaf actor playing the character Worm standing behind Anansi and signing as if they were some of his additional spider legs - leading to the line "Why don't you stop using my spider limbs to speak?" (Davis, 2009, p. 19). Likewise, the Author Notes explicitly state that the script is "tailored to be accessible to all audiences and performers, regardless of hearing ability."

3.2 - The Pitch

The University of Maryland's production of *Hip Hop Anansi* was not originally intended to include any form of media design, but upon hearing of its programming and the access elements that had been present in the original production, I decided that I would pitch the use of Creative Captioning. I did not know of the concept of *Sankofa* at the time, but it nonetheless felt to me that it would be a shame to remount this production without keeping the spirit of d/Deaf access that the original production had alive. As I had been working in the Creative Captioning space for a while during my career in the UK, and as it

had been an explicit research avenue that I had wanted to explore at UMD without yet having an opportunity to do so, this felt like an ideal place to implement it. I did not want to insert myself into the project without buy-in from the rest of the creative team that had already been assigned to it - both from a political standpoint and in the knowledge that the addition of this element was likely to require large adaptations and/or concessions from them in their own disciplines to ensure this idea's success. I casually raised the idea with Margarita Syrocheva and Mariah Faulkner, the scenic and lighting designers, to see if they were interested and, thankfully, they were. Next, I needed the School of Theatre, Dance and Performance Studies to agree to support this direction and the addition of media design to a show for which it had not initially been budgeted. Luckily, this was not met with much opposition - and I was put in touch with the director of the show, Paige Hernandez, for the final sign off. It took a few weeks to organize a Zoom meeting with Hernandez, but when we were able to meet, I pitched the idea to her and she agreed right away. She had been in the cast of the original production (in the role of Spray), and expressed to me that one of her favorite parts of the original show had been working with ASL. Because of this, she was excited by the idea of implementing Integrated Access into this production and for the creative potential that this direction could open up.

With all relevant parties signed off, I was able to go into the first concept meeting for the show months later confident that we were all committed to steering in this direction and able to set parameters for the design of the space from day one.

3.3 - Research

Hip-Hop is not a genre of music I am intimately acquainted with - and much of my knowledge of it has been through osmosis and the elements of it and particular songs and artists that have become mainstream. As a British person, my cultural engagement with the genre has been filtered through the work that made it across the Atlantic. It was important to me that my work on this show be rooted in an appreciation and understanding of the history, symbolologies and cultures of Hip-Hop based on more than just a surface level exposure.

My research started off at the very origins of Hip-Hop. I began by reading up and watching documentaries about how the genre and its accompanying subculture developed. To focus myself on the

typography and design languages of Hip-Hop, I moved on to looking at posters and invitations for some of the first block parties and DJ sets (FIGURE 9), before researching graffiti (FIGURE 10-11) and album artwork.

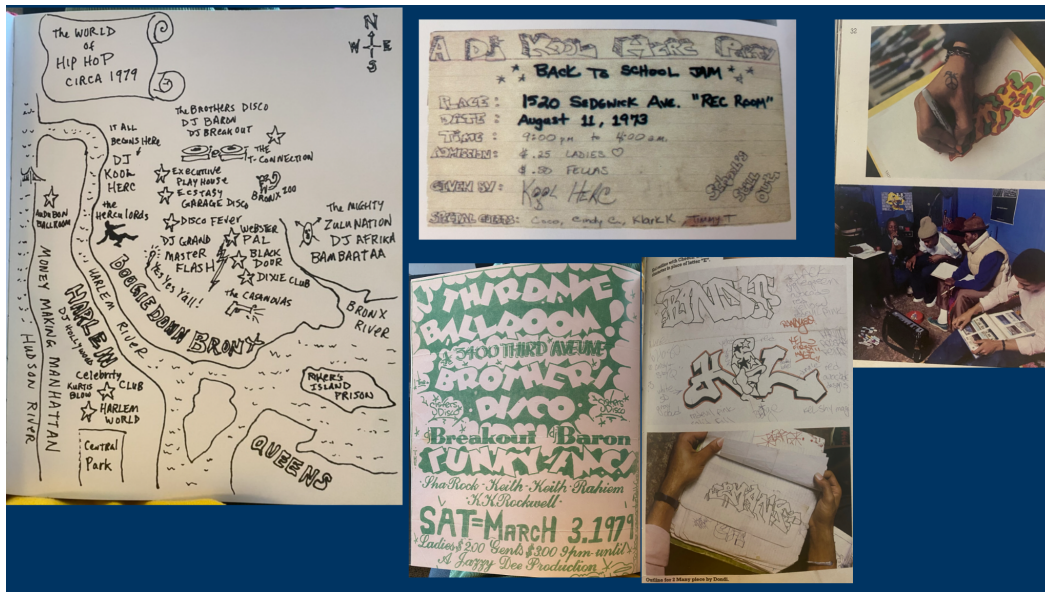


Figure 9: Research plates showing early Hip-Hop typography. Top center is the invite to DJ Kool Herc's "Back to School Jam", often regarded as the birth of Hip-Hop.



Figure 10: Research plates showing various graffiti styles.

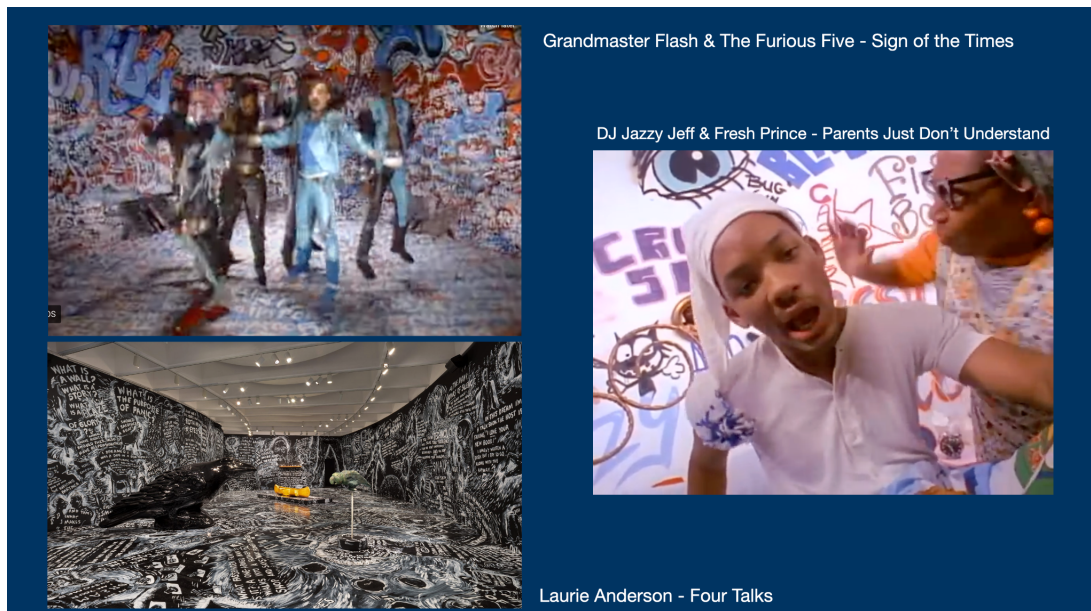


Figure 11: Research plates showing graffiti in use as a texture in music videos and installation.

As I looked at that album artwork through the various eras of the genre, I noticed many similar typographic ideas and languages crop up, and I tried to map these out (FIGURE 12) in order to visually group them. This would serve as one of my most important reference points in my research - each of these rough groupings roughly represented a different era or movement in Hip-Hop effectively served as the blueprint for the typeface of each character. In our reading of the play, the characters serve as archetypes, each representing a thing that is important to Hip-Hop culture. Traditionally, 4 pillars of Hip-Hop have been identified (graffiti, emceeing, Djing, B-Boying), but in his song, "9 Elements", rapper KRS-One expands this to 9:

*"One: Breaking or breakdancing
 Rally b-boying, freestyle or streetdancin'
 Two: MC'ing or rap
 Divine speech what I'm doing right now no act
 Three: Grafitti art or burning bombin'
 Taggin', writin', now you're learning! uh!
 Four: DJ'ing, we ain't playing!
 You know what I'm saying!
 Five: Beatboxing*

Give me a... Yes and we rockin'!

Six: Street fashion, lookin' fly

Catchin' the eye while them cats walk on by

Seven: Street language, our verbal communication

Our codes throughout the nation

Eight: Street knowledge, common sense

The wisdom of the elders from way back whence

Nine: Street entrepreneur realism

No job, just get up call 'em and get 'em" (KRS-One, 2003)

These facets of Hip-Hop culture largely line up with the characters in the play. Spray is Graffiti, Two-Turn is the DJ, Gab is MC, Worm breakdances, Ai-ght (at least in our characterization) represents Street Fashion and Street Language, Nawmean has the Street Knowledge and Anansi represents Street Entrepreneurialism. With each character functioning as a depiction of an important facet of the culture, I felt it would be appropriate to, in turn, represent each character by the typographic language of a recognizable movement, era, or subgenre within it.

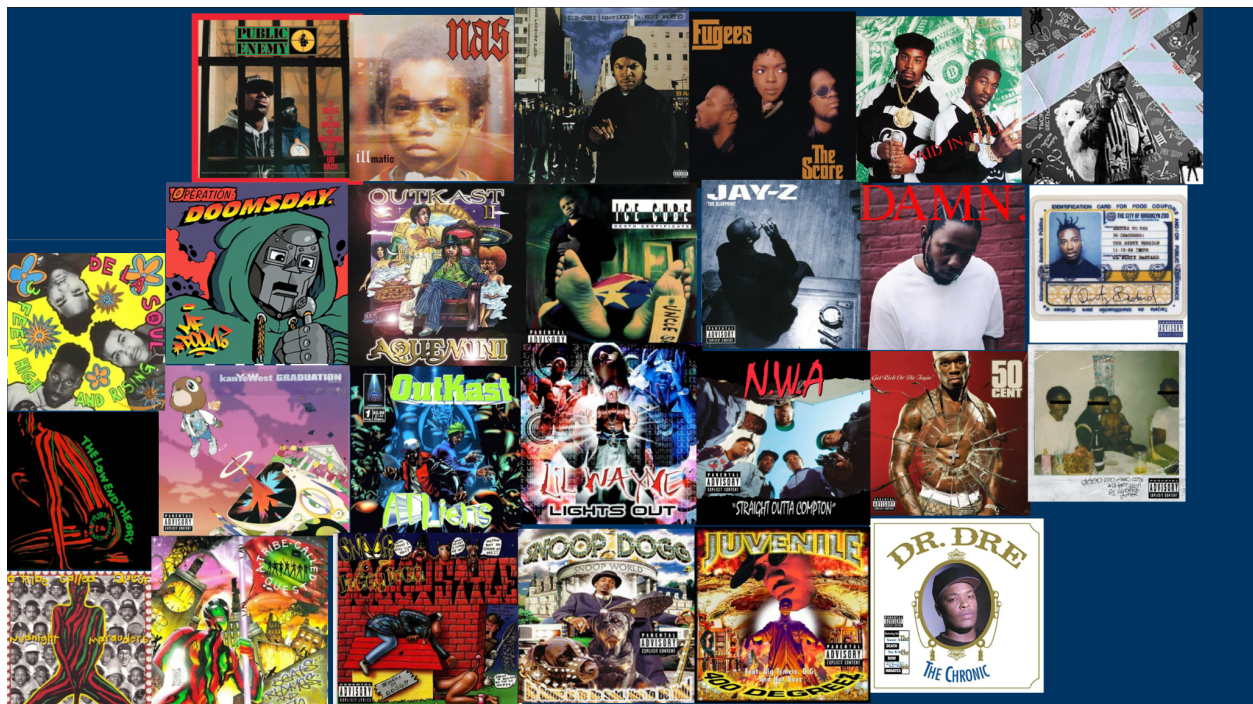


Figure 12: Research plate mapping typography styles in Hip-Hop album artwork.

I was particularly drawn to the artwork of the artist MF Doom (FIGURE 13), whose comic-book aesthetic seemed to match the playful vibes of the show quite well. Similarly, the very concept of superheroes felt thematically fitting with this play. Anansi's children are not unlike superheroes - they have identities that are focused solely around their extraordinary abilities, which they harness to save the day. As it turns out, I was not the only person on the design team who found a link to comics. Both the scenic and lighting designers also included similar imagery in their research plates.



Figure 13: Research plate showing comic book style imagery from artwork for the artist MF Doom.

This superhero / comic book connection cropped up multiple more times in my research. I began looking at lyric videos for Hip-Hop tracks, to see how they were using typography, and came across the videos for Eminem and Kid Cudi's *Adventures of Moon Man and Slim Shady* (Kid Cudi & Eminem, 2020), and Post-Malone's *Sunflower* (Post Malone & Swae Lee, 2025) from the soundtrack to the *Spiderman: Into the Spider-verse* movie (FIGURE 14-15). I took particular inspiration from the way that the Eminem / Kid Cudi video mashed together multiple typefaces (graffiti, label-maker / typewriter, comic book) but managed to make these coalesce into a cohesive whole through the use of neon colors and glitch textures. Similarly, in the Post Malone video, I was inspired by the interpolation of text into the

environment that the characters inhabit, which felt connected to the way the captions would be integrated into the scenic design in our production.



Figure 14: Stills from the lyric video for Eminem and Kid Cudi's *Adventures of Moon Man and Slim Shady*



Figure 15: Stills from the music video for Post Malone's *Sunflower* from the *Spiderman: Into the Spideverse* soundtrack

My last avenue of research came during rehearsal. As I listened to the tracks that had been created by the sound designer, Nick Hernandez, I remembered the Winamp / iTunes visualizers of the mid-2000s (FIGURE 16). Excited by both the nostalgia, and the prospect of visuals that could dynamically reflect the music being played, I began to explore if it might be possible to utilize some of them live in the

design. In the end, I never did directly use any visualizers, but they heavily inspired the choice of content I used for the music sections.



Figure 16: Screenshot of old Winamp "Milkdrop" visualizer

3.4 - Collaboration with other departments

Through the process of making *Hip Hop Anansi*, there were a number of deep collaborations that I had to develop with the rest of the creative team.

From the beginning of the design process, I had to work closely with Margarita Syrocheva, the scenic designer, on finding places that the captions could appear. Syrocheva came up with the idea of building several comic book style speech bubbles into the set itself (FIGURE 17). I was thrilled with how much Syrocheva threw herself into the idea of building the idea of captioning into the very concept of the set, making a real statement of accessible intent. I had expressed that I wanted a number of surfaces around the space that would enable me to caption characters spatially (i.e. that they could have their captions appear close to the actor saying them) and this set design provided that affordance. This would

mean that d/Deaf audiences didn't have to look away from the action. Something that I was aware of was that sometimes in creatively captioned shows, d/Deaf audiences can have a hard time predicting where captions will appear as they could go anywhere. StageTEXT offer this advice in their Caption Display Standards guidance:

"If you're planning for the captions to move around or appear in different places, please include visual cues that make it clear where to look. Members of your deaf audience are unlikely to pick up on aural cues on who is speaking." (StageTEXT, 2022)

For our production, the use of speech bubbles as places to expect captions to appear combined with the attempt to make sure that captions appeared in proximity to the performers helped serve as these visual cues to audience members.



Figure 17: A rendering of the scenic design by Margarita Syrocheva. The numbers are mine, that I initially used to refer to the surfaces. (Eventually I renumbered these)

We worked closely throughout the design process to settle on size and placement of the bubbles to make sure that captions remained visible to audience members. Surfaces that were too small would afford text that was too small to read and poorly positioned surfaces could be blocked by actors or other set pieces from certain sightlines. As much as we tried to consider all these elements early on, as we

learnt more about how the set would be used, sometimes we needed to make some late-in-the-game changes. Syrocheva proved herself incredibly willing to accommodate and compromise here which I was very grateful for. For example, as we worked through rehearsals, I became concerned that the layout of caption surfaces that we had was not going to give us a large enough area center stage for the amount of text that was going to need to happen there, so I suggested that we swap the positions of surfaces 4 and 5. This ended up being doubly important as when we later got into the space, it became evident that the bubble at position 5 was being often obscured for audiences in the far left seating bank by actors standing on the stairs and by the circular structure. Two-Turn, being so often inside the circle had no particularly useful surface to have his captions projected onto. As a result, during tech, I started to use the basketball hoop as a caption surface. This was not something which it was originally intended for, and as such, its position and appearance were not completely ideal for this usage. I had to ask Syrocheva if she would be willing to move it lower down, to make it feel more connected to the circular structure and further into the audience members' eyelines. She additionally offered to sand down the markings on it slightly so it provided a less intrusive surface for captions to appear on.

An area where I found myself able to return the favor and assist the scenic design was during the UV scene. In this scene, the kids sneak out of the house and go to the "Sneaker Cemetery". To create an eerie look, Syrocheva had integrated lines of UV paint all over the floor, and Faulkner, the lighting designer, had incorporated blacklights into the design to make them glow. Parts of this scene are played with very low ambient light, relying mainly on the glowing UV paint to provide shape. In tech, Syrocheva indicated that they wished they were able to line some elements on the wall with UV paint as well, but we were concerned that there would not be enough labor or paint remaining, and Faulkner was concerned they might not be able to hit them with enough UV light, as there were few extra blacklights and the existing ones in the rig were all focused on the floor. I suggested that I could imitate the blacklight paint outlines from the floor of the space around the caption bubbles instead using projection (FIGURE 18). This had the benefit of costing nothing additional, and we would not have to worry about shadows breaking the illusion as the surfaces were high enough out of the way.



Figure 18: Example of the fake-UV outlines around the caption bubbles, mimicking the UV lines on the floor. Photo by Taneen Momeni

Another area of deep collaboration was in the creation of the hallway exhibit. The design team came up with the idea of having a family portrait of Anansi and his kids in the entryway (FIGURE 19), and we wanted to find ways that we could all work on it - in the same way that Anansi's kids learn to work together to earn the pie. Emil Mendoza (the costume designer) provided the illustration, adapted from his original costume renderings, Syrocheva designed and placed the frame, Faulkner added LED tape into the frame to add a sense of depth, and I provided the animated backdrops via a mini projector that could be tucked into the corner of the ceiling of the hallway, out of the way of audience members' heads. I also incorporated some slides of text from the script's preface telling the original story, as a way to help audiences place the show in a wider context - like an experiential version of a program note.



Figure 19: The finished hallway installation in situ, complete with LED tape. Photo by Taneen Momeni

3.5 - Typeface Design

As discussed in the research section of this chapter, I wanted each character to have a visually distinct typographic identity that could draw from recognizable eras and facets of Hip-Hop. While many of the design choices came from the research and my dramaturgical analysis of the text, I also took great inspiration from the renderings of the costume designer, Emil Mendoza. These renderings were invaluable to me for my own development of the typefaces and for demonstrating and communicating my choices to the director. The ability to juxtapose type next to an image of the character served both to inspire new ideas and directions and as a sort of immediate litmus test that could show me very quickly if it “felt right” or not.

I needed to ensure that the type treatments I designed were actually re-creatable in the projection software I was going to use. So, before I got too far into the weeds drawing up concepts, I had to decide what software that would be, and design in there from the start. I decided to use Isadora for this work as I already had significant experience using it for captioning and I knew it allowed me the customizability and

flexibility that would lend itself well to this task. Something that my coursemate Leo Grierson also noted was that Isadora (especially the visually disorganized way in which I program with it) has a tendency to resemble a spider's web through its knot of connecting lines (FIGURE 20). This little dramaturgical connection, while being entirely invisible to the audience, and having absolutely zero effect on the actual content of the design, was nonetheless a fun Easter egg for me.

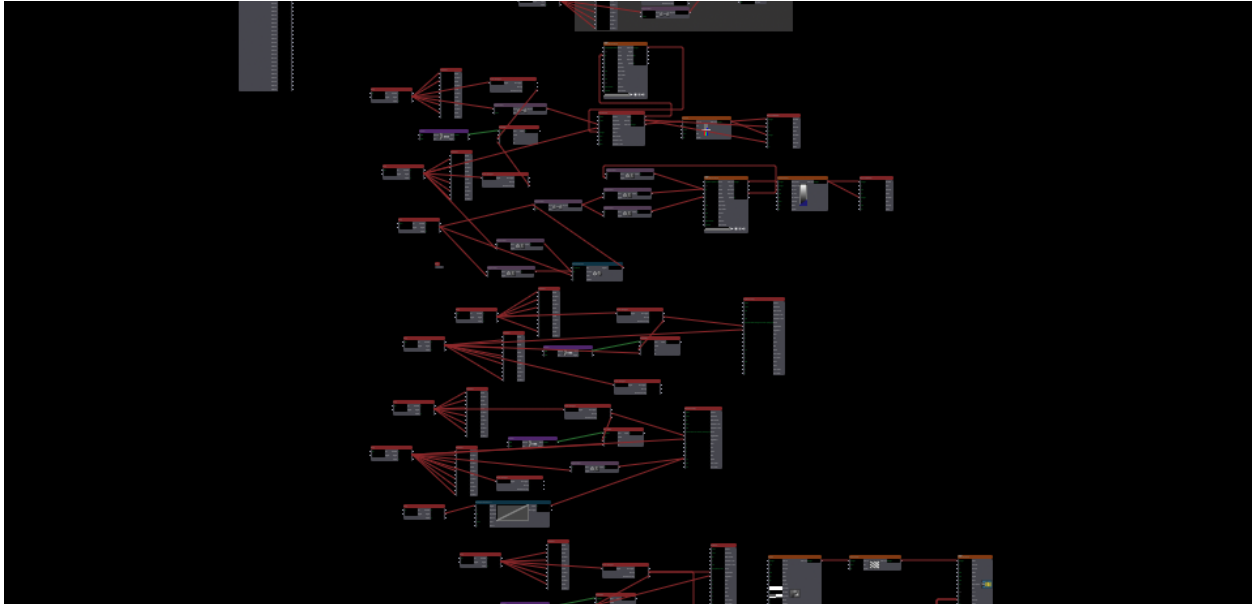


Figure 20: A screenshot of the Isadora patch, with overlapping red connection lines forming a web effect

Spray

Spray, as their name suggests, is the graffiti artist of the group – and despite this providing the most explicit jumping off point for typographic inspiration, I ended up going through several iterations when developing their typeface. In my original version (FIGURE 21) that I presented to Hernandez, I used a handstyle font, placed over a spray paint texture background. These captions were intended to stack, so that with every line the spray texture animated over the top of the previous line, erasing it. I eventually found this use of a background element to be both visually distracting and annoying to program. The original thinking behind this choice had been that it would serve to differentiate from Two-Turn who also had a graffiti- inspired type. However, scaling the background to match the length and size of the caption and to work on surfaces of significantly varying aspect ratio proved to be a challenge - and one that did

not eventually feel worth it. Instead, I opted to look for typefaces that incorporated drips to keep the artsy, messy style that the previous idea had been scratching at.

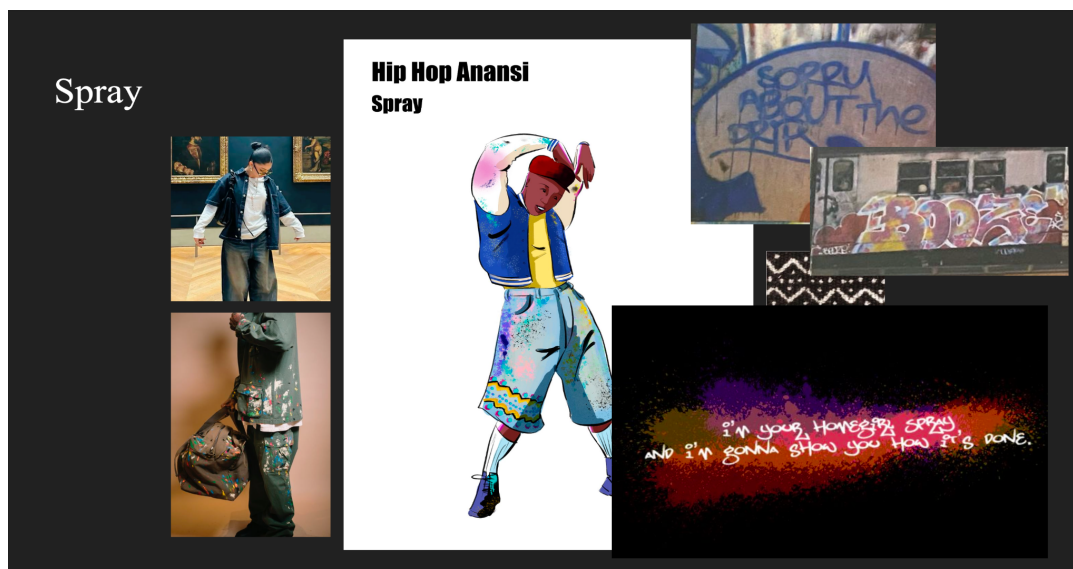


Figure 21: Initial concept plate for Spray's typeface, showing typographic inspiration, Mendoza's costume research and rendering, and a first draft of the caption style.

Unfortunately, I struggled to find anything that was legible enough for my liking - too many had distorted letter forms that I knew would raise access issues. Many of the fonts were also quite angular and/or in all-caps, which felt too brash and aggressive for Spray's character. Annoyingly, some of the better typefaces were missing glyphs like exclamation points and speech marks, which made them effectively useless as these are necessary for helping to parse tone. Through the tech process, I tried out several typeface options - many of which Hernandez ended up quite liking. She was ultimately willing to trust me when I came back and said I still thought it was not right, and it became a bit of a running joke that I would have a new font every day.

Eventually, after having sunk more hours than I had intended to in search of the perfect pre-existing font, I gave up on trying to find one, and instead decided to make my own. Redownloading an app called iFontMaker I had used to create fonts for the very same reason on the show *Sirens* six years prior, I drew out a simple typeface (FIGURE 22) within about 20 minutes. To get the lines to feel like graffiti, and to help myself work out where to raise the pen, I found myself drawing each one pretending I

was spray painting, making “pssshht” noises as I went, much to the amusement of my assistant. After drawing the letter forms, I went back and drew on details of drips and thicker sections at the start of each drawn line, to mirror the more intense burst an aerosol makes when you first press the button. Trying out this font was a bittersweet experience. *Sweet*, as I realized it was exactly what I had been looking for the whole time (recognizably graffiti, but still legible and friendly with all the glyphs I needed) but *bitter*, as I realized how much time I had wasted looking for something when I could have made it myself from the beginning. Thankfully, Hernandez also liked this new font better than the previous ones. The finishing touch to Spray’s typeface was an animated drip effect (in addition to the static drips drawn into the font itself). To create this, I used a video of ink running down a wall as a displacement map (a technique where one video is used as a template to warp and distort a second video).

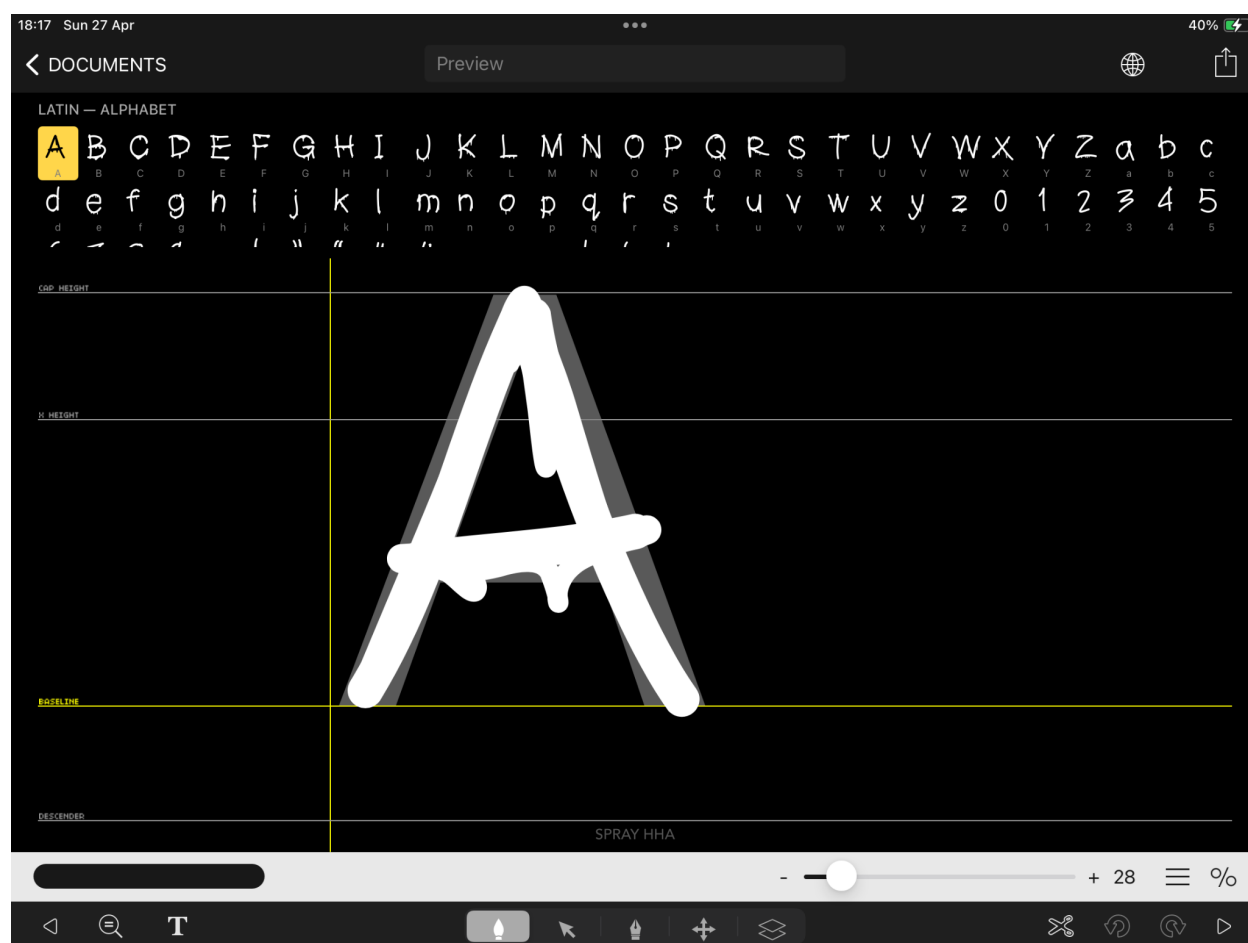


Figure 22: Screenshot of the process drawing spray’s custom typeface in iFontmaker.

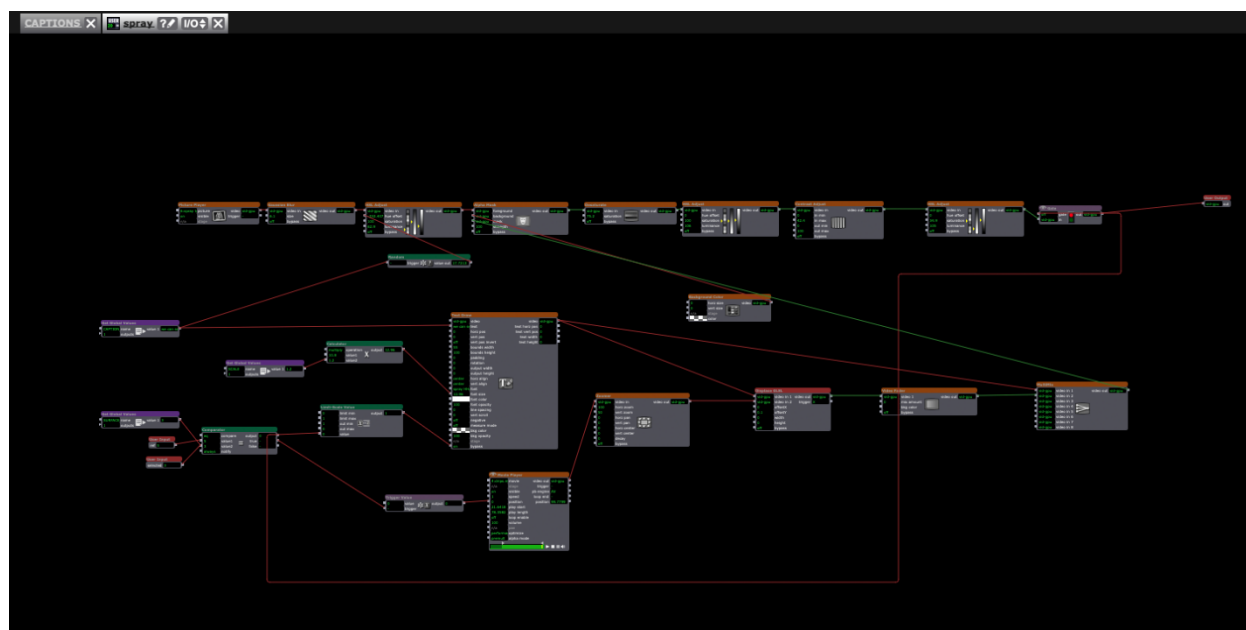


Figure 23: Screenshot of Spray's Isadora Patch



Figure 24: Spray's finished typeface.



Figure 25: Spray's finished typeface in a production photo by Taneen Momeni.

Two-Turn

Two-Turn is the character connected most with nostalgia in the show - he obsesses over his records of Hip-Hop tracks, and was given a 90s-inspired costume design heavily inspired by looks from shows like *Fresh Prince of Bel Air* that used strong bold colors and geometric shapes. I wanted a caption style for Two-Turn to immediately invoke that era, so in my initial design, I used a lightly wildstyle-inspired graffiti font named *ROADVANDERS* and adapted it to include a gradient that slowly morphed color (FIGURE 26). This font came in two versions - one just featuring a shadow / extrusion effect, and another to act as the fill, or front face of the text, which could be layered upon each other to create a classic 3D-style graffiti look. Creating the color morph effect required some out-of-the box thinking, as Isadora does not natively have a way to use a gradient as a fill for a text item. To counter this, I used a technique that I would then reuse in other typefaces - using the text as a "mask". This effectively turns the text into a stencil to reveal an image (in this case a gradient) in the layer below, which would take the shape of those letters. As I wanted the gradient to only go vertically across single lines, rather than cover the entire caption, I had to write some code to analyze the text and recognize how many lines it was being rendered

as and duplicate and scale the underlying gradient such that it sat correctly, lined up underneath each line of text.

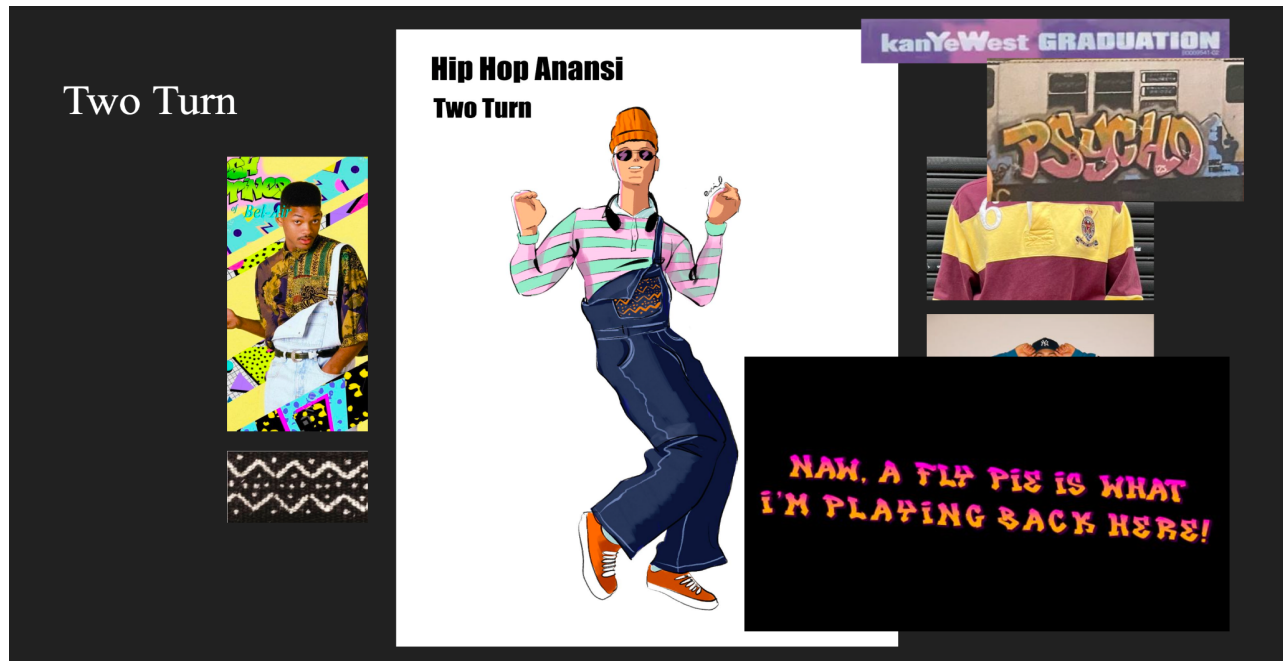


Figure 26: Initial concept plate for Two-Turn's typeface, showing typographic inspiration, Mendoza's costume research and rendering, and a first draft of the caption style

Ultimately, however, when viewed on the surfaces themselves, it became obvious that audiences would struggle with reading this caption style - especially during a section where it appears on the curve of the turntable. It was simply too detailed to be legible from both a distance and at lower resolutions. Likewise, the gradient created an inconsistency in contrast across the caption line - with the top half of the characters often being much harder to pick out from the background of the caption panel. I additionally found that the changing hue of the gradient created a temporal inconsistency with contrast. Where a caption might have been easy enough to read one moment on one surface, on another it may have been significantly less so. Any audience members who looked at the caption at this inopportune time were likely to have a significantly worse experience of it.

Fixing this issue took multiple attempts. Firstly, I searched for a new font with more standard letter-forms, but was still available with a shadow version that I was able to stack together to create the desired 3D effect, eventually stumbling across one called *Rhuma Sinera*. Secondly, after first just trying to

pause the gradient color change effect, I opted to remove it entirely and instead utilized a solid orange interior. In an attempt to increase contrast I also added a white outline to the text which had the effect of also making it feel a bit more like the retro graffiti that I had taken inspiration from. In both this typeface and the original one, the default vertical line spacing was bigger than the typefaces for any of the other characters. This caused an issue where Two-Turn's lines took up significantly more vertical space, and meant I had to set it to a smaller font size to make sure the same number of lines fit within the caption surfaces. This was necessary as, while Isadora can increase line spacing, it cannot make line spacing any smaller than the font's default. As the smaller size created unacceptable legibility issues, I found a script that enabled me to manually adjust the line-spacing baked into the font file itself in order to solve this.

At the time, I believed these adjustments were enough to enhance readability without compromising aesthetic. However, at Faculty Run I received notes that Two-Turn's lines had been significantly harder to parse than the other characters'. Sitting at the back of the theater and looking at it again with fresh eyes, I realized that my outline alongside the narrow tracking (how close the letters are to each other laterally) was causing the font to be seen at a distance as a mash of thin white vertical lines. I surmised that increasing the tracking would have solved this issue, but unfortunately this is not a feature Isadora offers. I attempted to find a similar script to the one that had been able to solve my line-spacing problem, but I was unable - and had to think of another solution. Initially, I was loath to remove the outlines as I thought they were very important in making it feel like the sort of graffiti I was referencing, but after experimenting with it for a while, I realized that it reading as graffiti was much less important to this character than it simply feeling retro. Still sticking with the same font, I removed the outlines and changed my color pairing to a more vivid purple for the shadow/extrusion, and a bright yellow for the text fill (FIGURE 27).



Figure 27: Two-Turn's final font treatment

Another particular challenge for Two-Turn's captions is that at one point, he speaks through a sampled recording that he plays off his DJ Deck, which the actor mouths. I wanted to be able to clearly indicate that those lines are being spoken by Two-Turn using the recordings as a proxy for his own voice. The large circular structure on stage that Two-Turn hung out in had already been successfully set up (through the use of the LED tape activating and spinning around it to the music) as a sort of giant inverted turntable, so I thought that projecting onto it in Two-Turns font for those lines (and only those lines) would be able to communicate this idea. (FIGURE 28-30) Mapping this text to a curve proved slightly complex, as Isadora cannot natively make text follow a path, so I instead ensured that the text fitted neatly on a single straight line and warped it to follow the circle. (FIGURE 30)



Figure 28: Production photo by Taneen Momeni from final dress, of Two-Turn's penultimate caption style.



Figure 29: Production photo from final dress, of Two-Turn's penultimate caption style, using the "turntable" set piece as a surface. Photo by Emily Pan.

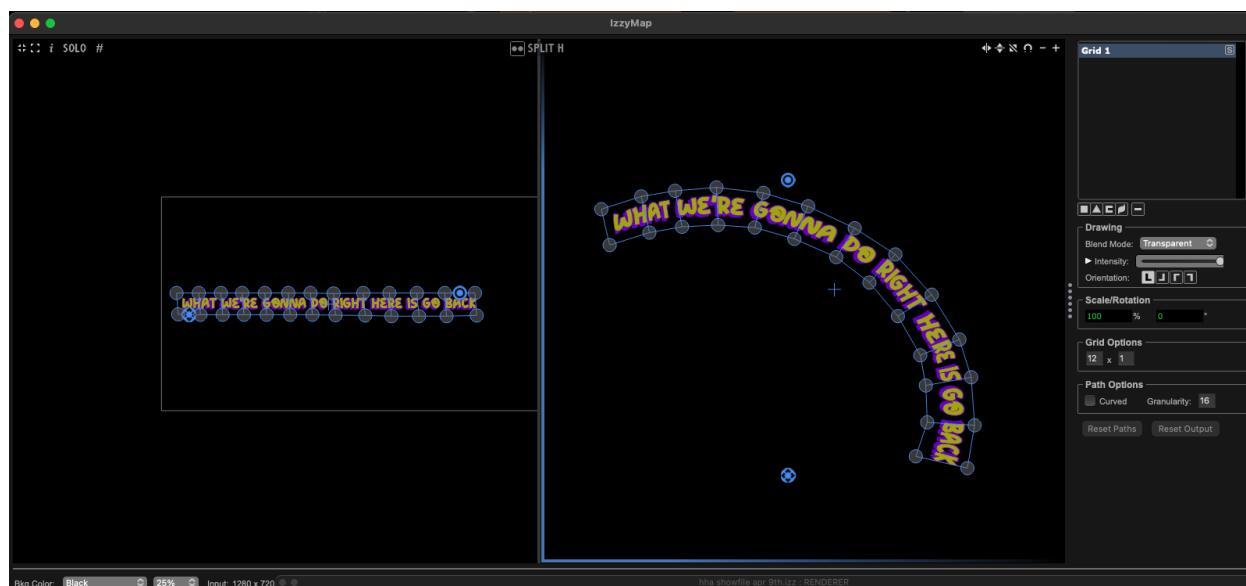


Figure 30: Mapping the Turntable Curve in Isadora.

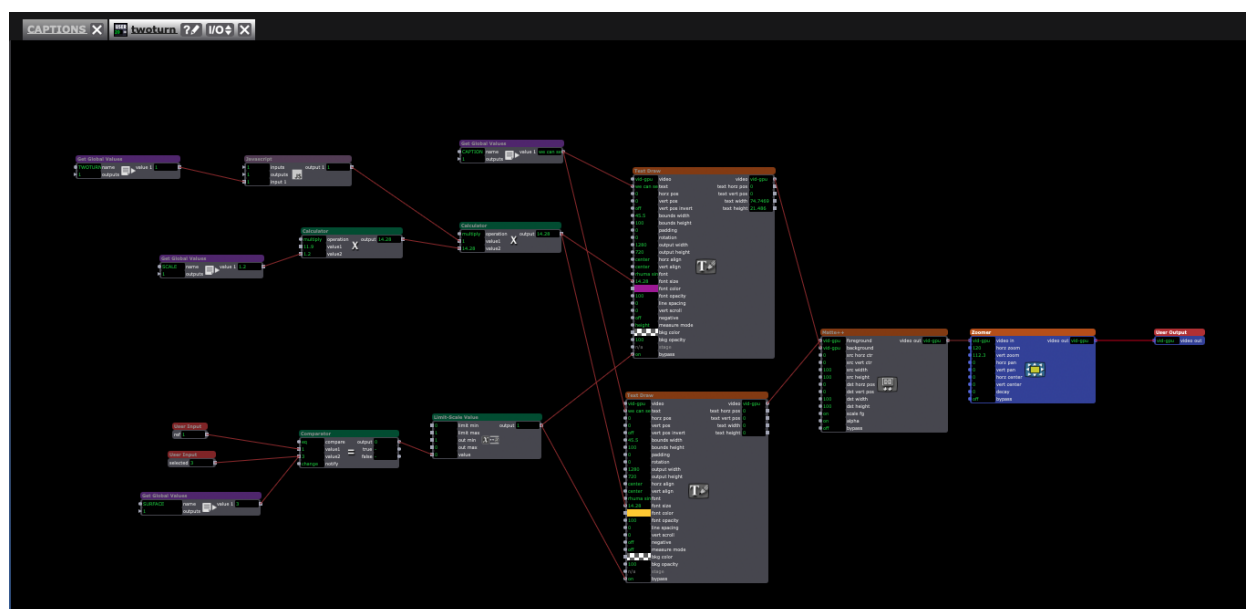


Figure 31: Two-Turn's Isadora patch.

Anansi

For Anansi's font, I was inspired by the bejeweled typefaces of the Southern Rap subgenre (FIGURE 32) - pioneered by design companies like Pen and Pixel. Shawn Braush, one of the founders of that studio describes the invention of their aesthetic as being a defiance to more overtly violent and political artwork that was the prevailing aesthetic at the time. (VICE JAPAN, 2015) Instead, this style served as a gaudy, and often comical, expression of their clients' desires of capitalist excess. Anansi, hell bent on hustling his way to the win of the Fly Pie, felt like the perfect match for a reference to this era of Hip-Hop. His interactions with the audience as he reacts to overhearing his children plotting against him to steal the pie for themselves, and his own scheming and evil laughter set him up as an over-the-top, almost pantomime character. His material ambition matched with his gaudy performance seemed to connect well with the visual language of this sub-genre.



Figure 32: Initial concept plate for Anansi's typeface, showing typographic inspiration, Mendoza's costume research and rendering, and a first draft of the caption style.

To create Anansi's typeface, I once again utilized the technique of using text as a mask for an underlying image texture - this time an array of diamonds. In the original demo of this text treatment, I had a relatively blocky font with a moving glint effect on the diamonds in the text to try and push this ostentatious appearance. Later on, in tech, I realized that the movement was likely to be too distracting.



Figure 35: Production photo by Taneen Momeni showing Anansi's captions

Worm

Worm's typeface was inspired by the artwork from early Tribe Called Quest albums (FIGURE 37). Worm's character, the dancer of the group, seemed to lend itself to the easy, more organic handwritten shapes. I liked the idea that Worm's font could always be doing the worm, so I wanted to find a way to integrate this movement in a way that would not feel too distracting or affect the ease of parsing its text. I duplicated the typeface, stacking a bright green version on top of a red version, offsetting them slightly, and gave just the top green layer a very slight wiggle effect. This wiggle effect would later be reused much more prominently for emphasizing lines for other characters, but I kept it almost imperceptibly subtle here, with a low frequency and amplitude so that it moved slowly, and only a short distance. I found the effect of this movement particularly successful, as it gave the caption a sense of life within the text itself, without feeling like an effect laid over the top.

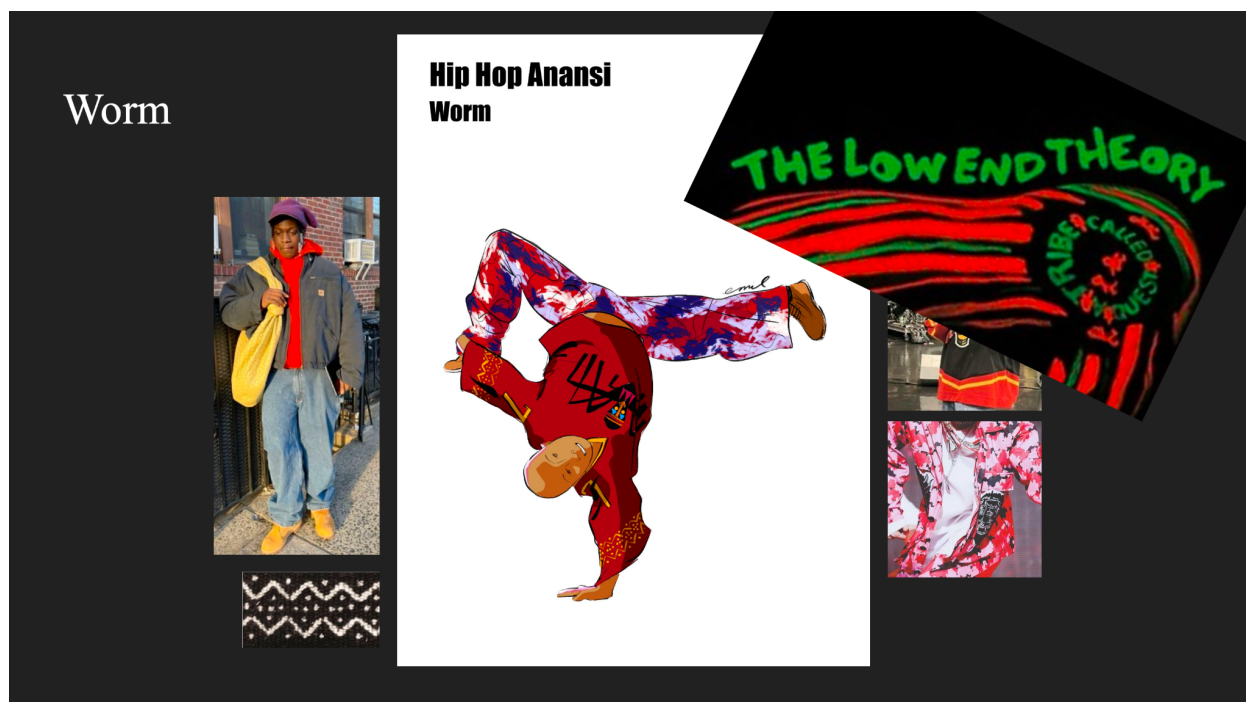


Figure 36: Concept plate for Worm's typeface, showing typographic inspiration, Mendoza's costume research and rendering

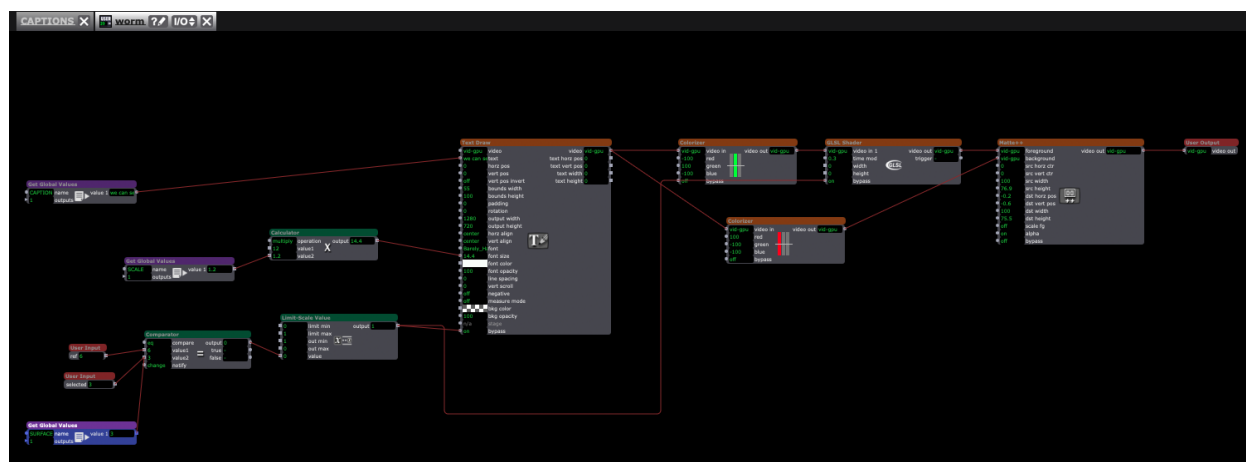


Figure 37: Isadora patch for Worm's typeface.

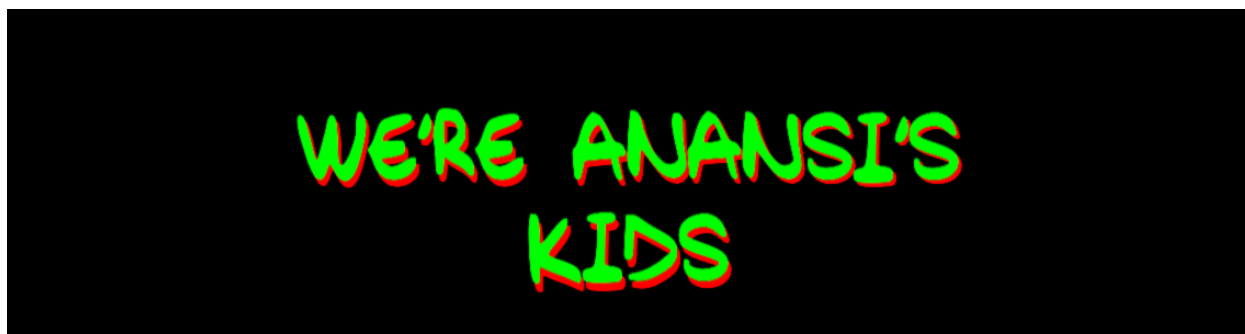


Figure 38: Worm's final typeface.



Figure 39: Production photo by Taneen Momeni showing Worm's final typeface.

Ai-ght

Ai-ght's font took inspiration from album artworks from Tyler the Creator (FIGURE 40) and other visual references like the opening titles of the Comedy Central show *Broad City* (FIGURE 41), and from DJ Kool Herc's Back-to-School jam invite. Ai-ght's character is the hype-woman (or hype-man, in the case of our understudy) of the group, so I wanted to find something fun, colorful and bold. Mendoza's costume design felt cool, but with a childlike playfulness, which led me to a cartoon / hand-drawn style. Creating the look meant stacking a few versions of the font on top of each other (FIGURE 42), like I had for Two-Turn. To give it some life and energy, I randomly wiggled each layer independently of each other by a

couple of pixels in each direction to create a frame-to-frame inconsistency reminiscent of cell animation. Much like the subtle wiggle effect in Worm's typeface, the aim here was not to be particularly noticeable – if the movement had been large enough to be obvious, it is also likely that it would have been a detriment to legibility. Instead, my aim here was to inject the font with a sense of energy, but not to draw attention to itself.

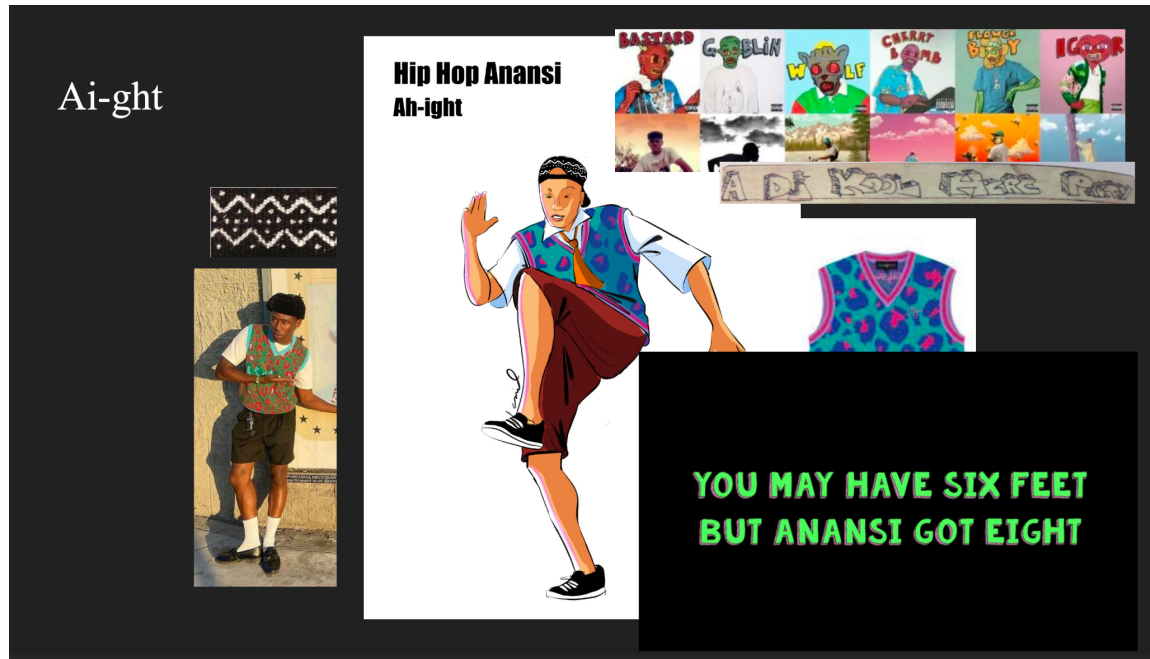


Figure 40: Concept plate for Ai-ght's typeface, showing typographic inspiration, Mendoza's costume research and rendering, and a first draft of the caption style.



Figure 41: Some title cards from the Comedy Central show, Broad City.



Figure 44: Production photo by Taneen Momeni showing Ai-ght's caption style.

Gab

Gab is the Emcee of the group. He's all about the attitude and the words, so I wanted his captions to feel brash and no-frills. I was drawn very early to this typewriter / label-maker aesthetic from albums like Ice Cube's *AmeriKKKa's MOST WANTED*. (FIGURE 45) Initially, I wanted to give the captions a background so that they could appear to stack - like Spray's original concept -but instead of erasing the previous caption, they would keep it around, visible underneath the new one, and by having each caption appear in a different randomized rotation. Eventually, I found that this would not work as I had not thought about how that stacking works if other characters interject on the same surface - or whether the whole stack would migrate with Gab if he switched surfaces, or whether he would start from scratch every time he moved or started speaking after a break. Likewise, I found that the font's larger default letter spacing meant that longer lines were needed to show the same number of characters if I wanted to avoid having more lines per caption. As all the speech bubbles in the set were much squarer, I either had to scale everything down and waste a lot of space making the type too small to read well, or square up the aspect of each caption, which looked weird when a background was used. Eventually, I cut both the background

and stacking ideas but kept the randomized rotation, and a very slight rotation wiggle to keep them feeling alive and animated (FIGURE 46),.

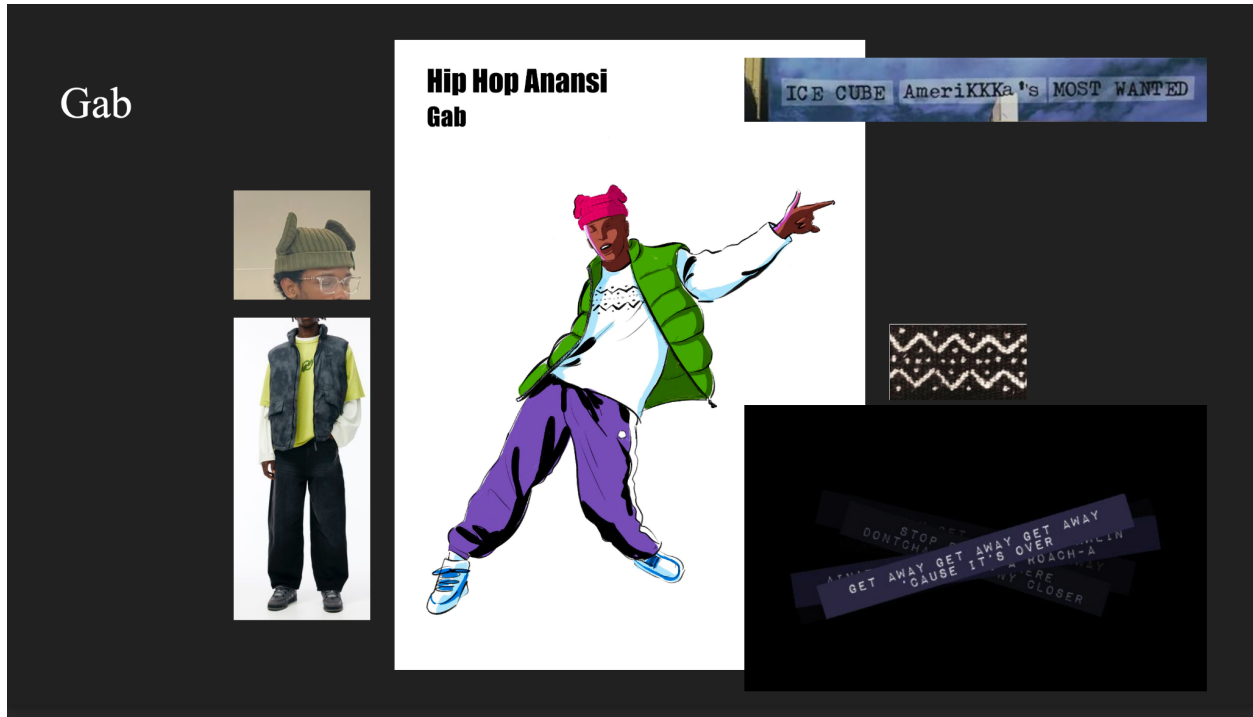


Figure 45: Initial concept plate for Gab's typeface, showing typographic inspiration, Mendoza's costume research and rendering, and a first draft of the caption style.



Figure 46: Gab's finished typeface.

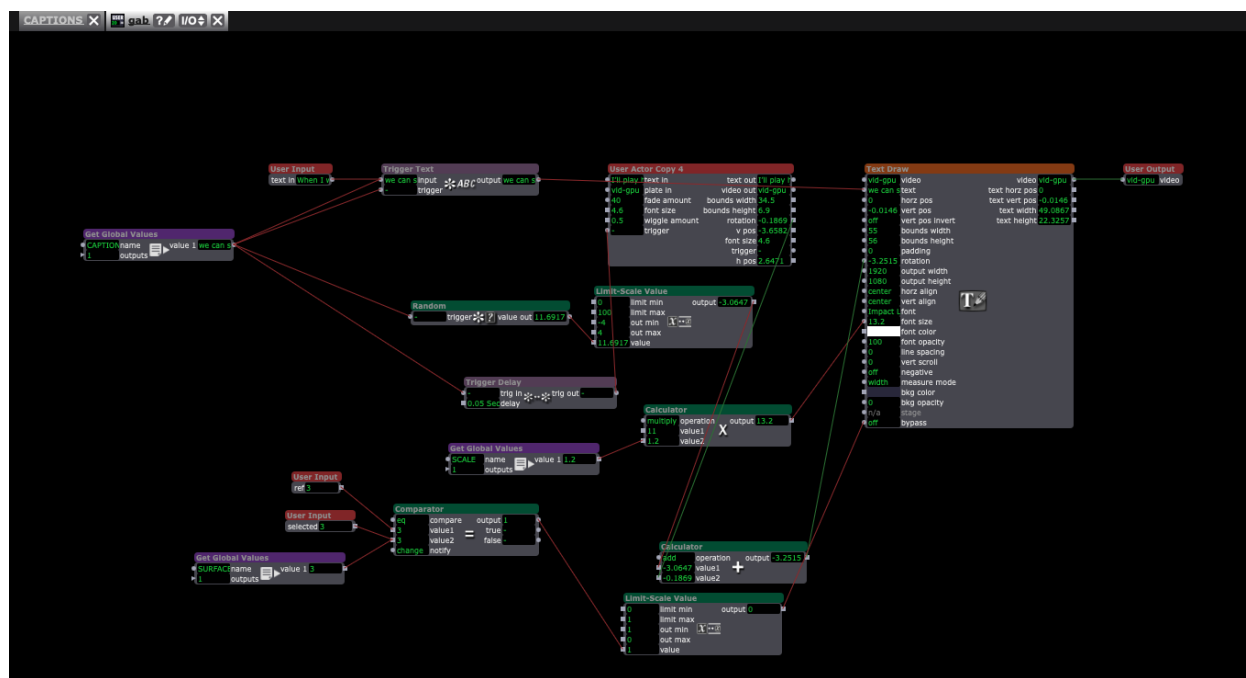


Figure 47: The Isadora patch for Gab's finished typeface.



Figure 48: Production photo by Emily Pan demonstrating Gab's finished typeface in use.

Nawmean

In *Hip Hop Anansi*, the character Nawmean is the goddess of Hip-Hop (and unbeknownst to the children, their mother). She never appears corporeally in the play, instead portrayed solely via voice-over (and for our production, captions too). When looking for inspiration for Nawmean's typeface, I immediately thought of Lauryn Hill - the quintessential female rapper. The Fugees' (of which she was a member) iconic album *The Score* (FIGURE 49) pastiches the poster and typography of the movie *The Godfather*, and this felt like it was hitting exactly the right level of divinity and playfulness, so I decided to include it in my design for her as well (FIGURE 50). In order to assist in highlighting her non-physical existence, and the way her voice filled the whole space, I opted to have her captions appear simultaneously on every surface at once (FIGURE 51). To help visually echo the reverb effect that was on the microphone of the actor voicing Nawmean, I added a light rays effect.



Figure 49: Nawmean's typographic inspiration, the album cover for The Fugees' *The Score*



Figure 50: Nawmean's final type treatment



Figure 51: Production photo showing Nawmean's captions across all surfaces. Photo by Taneen Momeni.

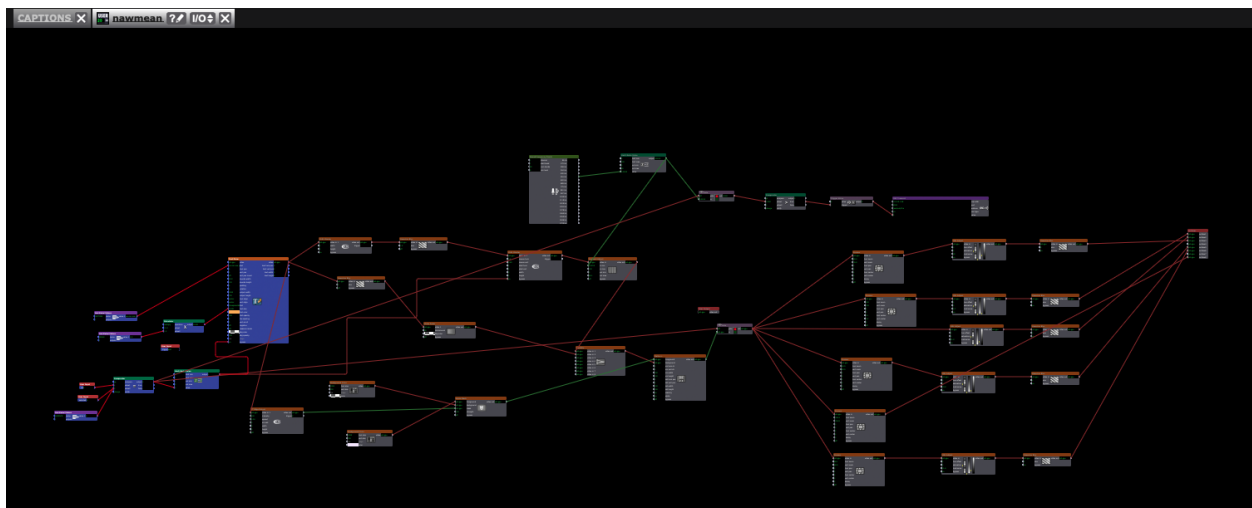


Figure 52: Nawmean's Isadora Patch

3.6 Non-Dialogue Elements and audio-reactivity

Having established typefaces and visual languages for the dialogue captions, my mind turned to the need to provide access for many of the non-dialogue elements in the show. In keeping with my ethos of “equity of experience”, I established early on in the process that I wanted to find ways to visually represent the sound and music without just resorting to projecting text descriptions of the sounds that were playing. It was important to me that the play feel designed from the ground up to be engaging d/Deaf audiences, rather than for access to seem tacked on.

Video was not the only discipline that had a role in this. The video design’s communication of tone, style and rhythm were also backed up by the lighting effects, the use of subwoofers to physically shake the audience’s chairs, and the performances of the cast themselves through their dance. Nonetheless, as hearing audiences are privy to these features of the performance *in addition* to the sound itself, I wanted to make sure d/Deaf audiences also had this information double-encoded. This made it important to ensure that I added elements into the video design that achieved the same thing wherever I could. This often frustrated me during tech, as I had backed myself into a corner of having to add a visual cue for every single sound that played. As the sound designer, Nick Hernandez, added new sounds throughout the tech process, I had to likewise come up with and create new cues every time this occurred. For many of these sound cues it was harder to think of images that could communicate their meaning than others. For example, at one point the children characters perform a series of tricks on their father, and on each successful trick, the sound designer had a different cartoon sound effect play. Unlike in the original cartoons that they hailed from, where the sounds are deeply connected to the movement occurring when they play (for example, a “skedaddle” sound effect accompanying someone dashing away quickly), here in *Hip Hop Anansi*, they were used purely for emphasis and as an aural button for visual gags from the performers. What was happening on stage did not necessarily align with the generally understood meaning of the sounds, and this made it tricky to work out how to present them visually.

Where a hearing audience could parse the disconnect between the sound and performance as part of the joke, if I leaned in too much to the meaning of the sound (for example, projecting the classic dust cloud left behind when a cartoon character skedaddles out of frame), I was concerned about causing confusion by pushing the balance further away from the actual content of what was occurring on stage.

For this section I initially opted to simply have a large empty cartoon bubble pop in on every sound, filling up the set over the course of the section - my thoughts being that the goofiness and abruptness and the way the sound effects buttoned each trick was of more importance to communicate rather than what the actual sound was. Later, I received feedback from Dr. Bradbury that it was hard as a Deaf audience member to parse this visual as it seemed spatially disconnected from the performance. Similarly, this scene occurred under quite bright lights so this content was significantly harder to see anyway. I could have asked Faulkner to bring the lighting level down in this scene, but I was very aware I had made this ask a lot already on other scenes that had what I considered much more crucial video design, and didn't want to spend goodwill on sections that I was less confident in. After briefly experimenting with the bubbles all appearing larger and in the center of the set, stacking on top of one another, I decided to cut the idea entirely in favor of allowing a moment to really bring the focus to the narrative playing out in the mimed performances on stage. In hindsight, I do slightly regret this decision as I think this scene felt less visually dynamic than all the others, so it stood out to me - but I remain unsure what a better solution here would have been.

On the other hand, some of my more successful choices to present sounds visually, was through the use of text-as-particles (i.e. text that is able to move in a direction as if it has been emitted from something). This was mainly featured in two moments - one where the children sneak out of the house and the floorboard began to creak, and one where Anansi lies down to pretend to start snoring. What ties both of these sections is the directionality - the importance of sound emanating *from* something - the floor, and Anansi himself. In both, I had a descriptive text ("creak" or "zzz") appearing to float up from the floor (FIGURE 53) or from where Anansi is lying. While there are clear benefits to d/Deaf audience members in the use of media in these sections to communicate what sound is playing (particularly as these sounds have narrative importance), there is a potential benefit to hearing audiences as well. For the creak effect in particular, as the sound effects were not spatially localized, but rather mixed across all the speakers, they may well have helped add a way of communicating the direction and source of the sound that could otherwise have been unclear.



Figure 53: Demonstration of the “creak” particle effect.

One particularly successful idea to realize an audio-visual synergy was the use of audio reactivity. In Hip-Hop, the backbeat of the music is central to the genre’s identity, so I wanted to find ways to visualize that rhythm. Using audio-reactivity to make elements on stage pulse, grow, or change color could both add a life and sense of liveness to the video design, as well as help communicate the beat to audience members who cannot hear it.

The set design featured a number of speaker cones dotted around the walls. Early in the process, there was concern from the Technology Shop that the design team may change their mind once they got into the space and ask that these speakers be made functional, in order to make them visually pulse and move as real ones do. This was likely to be significantly expensive in terms of both budget and labor – and this would be exacerbated if this decision was only made after the beginning of technical rehearsals. Instead, I offered that I might be able to work out a way to create the illusion of function using a projected effect. Faulkner, likewise, offered to line them with LED pixel tape that could help give them a sense of reactivity.

To accomplish this illusion of function, I leaned into the comic book aesthetic we had already established in the scenic and video designs more generally and surrounded each speaker cone with a ring of lightning bolt shapes emanating from it. (FIGURE 54) This is a widely understood trope within illustration that indicates “loud sound is playing from this device”. To make these reactive, I first had to

acquire a feed of the music being played to ingest into Isadora, which was achieved by asking the sound department to create for me my own mix from the sound desk into a Scarlett Focusrite audio interface attached to the video computer. I then used a 'frequency watcher' actor in Isadora to find the correct frequency for the beat of the music, which I then converted to live numerical data and assigned it to control the scale of the lightning bolts. The effect: bolts that pulsed into and out of existence on every drumbeat in the music. I found that the optimum frequency for each song section changed as the main beat of each track was not necessarily the same pitch, so I had to set up the patch such that the frequency I was isolating changed depending on which song was being played. Similarly, I found the pulsing from infinitely small to their full size to be a little less subtle than I wanted - and slightly distracting to look at. To solve this problem, I chose to look at multiple frequencies per track and added them together, but with the main beat at a much higher scale factor. This created the effect of constant movement, with the bolts disappearing from view much less frequently, but still ensured that the beat stood out from the rest as it triggered the largest visual pulses.



Figure 54: Production photo by Taneen Momeni, demonstrating the speaker "lightning bolt" effect.

A second element of audio-reactivity that I included in the design was in Nawmean's captions. As we never see her on stage (her character is only present through voiceover), it was important to me to ensure her captions captured as much of the vocal performance as possible, as there was no physical performance for d/Deaf viewers to look at. Using the same technique that I had for the speakers, I connected the feed from the microphone that the performer voicing Nawmean was using to the intensity of a glow effect around the captions. Nawmean's character, being the goddess of Hip-Hop, needed to have an ethereal, divine quality - and this pulsating glow helped achieve that. Although the effect was only very subtle, so as to not draw too much focus or hamper legibility, one of the research participants from the study noted in their feedback "Naw mean [sic] was invisible but the captions showed her divinity so well!" This effect was also augmented by lighting - Faulkner wanted the LED pixel tape around the speakers also pulse in tandem with Nawmean's voice, and I was able to facilitate this by converting the live numerical data I was extracting from the audio feed and mapping it over Open Sound Control (OSC) to the level of one of her submasters on the lighting desk.

The use of moving textures in the song sections was one of the more visible places that I attempted to visually communicate information about the audio. Projected across the set, these motion backgrounds were intended to give a concert feel to the scenes, imitating the sort of graphics one might see on screens behind the performers at a live music show. Most of these were sourced and licensed from Storyblocks, and used without significant alterations from myself. Some minor editing to them that I did do included making sure that they looped smoothly, and tweaking contrast and color to help them more closely match the color story that lighting was telling. Occasionally in the play, these textures are layered on top of each other to create new effects. For example during a section where the character Spray performs a rap, a "colorful dust" texture video plays across the set, (FIGURE 55) while over the top of it, large splashes of paint rhythmically erupt from the floor on the beat of the music. Unlike the speakers, this was not achieved with audio reactivity, but instead through calculating the beats per minute (BPM) of the playing track and having the splash video be triggered repeatedly by a pulse set to that speed.



Figure 55: Production photo by Taneen Momeni, demonstrating the motion background for Spray's rap section.

During a previous project that utilized Closed Captioning, I had received some feedback from a d/Deaf audience member that I was not including enough sound effects, information about the music and ad-libs in the captions. I became nervous during the tech for *Hip Hop Anansi* that I was falling prey to the same error - and that some or all of my d/Deaf audiences would expect to have every sound effect and piece of music explicitly captioned using text. Up to that point, I had been solely relying on images or video that felt tonally or rhythmically responsive to the audio. In an attempt to create a compromise and solve this, I began the process of creating another set of captions describing each and every sound effect and music track (including changes when the beat or different instruments enter etc.). These captions were triggered automatically from QLab using a separate system to the dialogue captions, so that I didn't have to load my operator with more work to do during the show, and so that they could be precisely timecoded to the sounds they were describing. To make them visually separate from the dialogue captions, I chose to have them presented in a neutral typeface preceded by a speaker emoji (to keep it whimsical) (FIGURE 56) and to be persistently visible on a surface that I was not otherwise using. Unfortunately, as this was not something I had initially planned for, the one possible remaining surface for this had significant sightline problems for one half of the audience for the right half of the panel, so I was

forced to make the text quite small. Feedback from Dr Bradbury after faculty run was that they didn't really end up adding much to the experience for her - they were too small to read and even then, the information such as "electric guitar riff" was not massively meaningful to her. She said that I probably didn't need to have them at all, as the show was already very rich visually, so I decided to cut them and focus instead on doubling down on trying to make the rest of the video content do the work of communicating the affective, tonal and rhythmic qualities of the sound. I wanted to create a show that was more interested in crafting an experience that integrates an audience into feeling like something has been made for them more than it focuses on telling them what they are missing. I was expecting that some of my participants would disagree with this choice to remove the sound effect captions, based on their level of hearing loss. For example, an audience member that can hear that a sound is happening but can't necessarily make it out may feel more like they are losing out on something if it isn't explicitly captioned than someone who cannot hear the sound effects at all. I also anticipated that how much they expect theatre shows to follow the standards of captioning that exist for film and TV (where this sort of description of sound is strictly enforced) could have an impact on their reception of this change. Nonetheless, only one of my participants mentioned that they felt like there was background information missing that they explicitly wanted to be communicated through the captions.



Figure 56: The sound effect caption style, that was eventually cut.

Lastly, a visual element that I had to include in the video design and was intended to aid both d/Deaf and hearing audiences was the inclusion of The Roach, a character which functions as the main villain in the story despite having no lines, and not being portrayed by an actor. We made the decision early on that the Roach should be presented via video. Because the set comprised of so many different

size and shape panels with so many holes in it, and on so many different planes, I did not feel like I could simply have the roach pop up life size (that is, human sized, not roach sized) to be a simple digital avatar playing alongside the cast. There was simply no clean, human-sized uninterrupted surface to project him onto. Regardless, the text itself describes the roach appearing as huge, “the size of a ‘64 Impala” (Davis, 2009, p. 7), so I opted to have the Roach glitch into the world, abstracted slightly by being scaled up so that only sections of it were visible to give it a more threatening, mysterious presence. The Roach has to feel scary (but not *too* scary) for the stakes of the show to work. This first version of the roach - a realistic CGI model (FIGURE 57) - may have been slightly *too* effective in this respect as it unnerved most people who saw it when projected onto the wall (not least myself). We were concerned that it would be too frightening for the children who would be watching the show. As a somewhat photoreal image, it felt like it was speaking in a slightly different language to much of the rest of the design that was leaning on a cartoony aesthetic. After searching for a while for a premade cartoon (but evil-looking) image of a roach that I could license to use in the show, I - as with Spray’s typeface - found myself turning to making one myself. I drew up two versions of the roach in a rough cartoon style (FIGURE 58) - one of him on all 6 feet in profile, and one of him facing the viewer, steeping with his hands - a gesture stereotypically reserved for those scheming and generally being dastardly. Swapping this file in instead, it immediately felt more in-keeping with the vibes - clearly the ‘bad guy’ of the show and big enough to cast an influence over the space (FIGURE 59) - and by extension, the story - but simultaneously funny and absurd. I decided to continue to extract some visual gags from the Roach by shrinking it down having it run around the turntable set piece, and by having it pop its head in and out of frame - decidedly silly, but the right choice in a show that included many equally silly (but effective) elements like a pie made out of flies being portrayed by a basketball-discoball-hybrid.

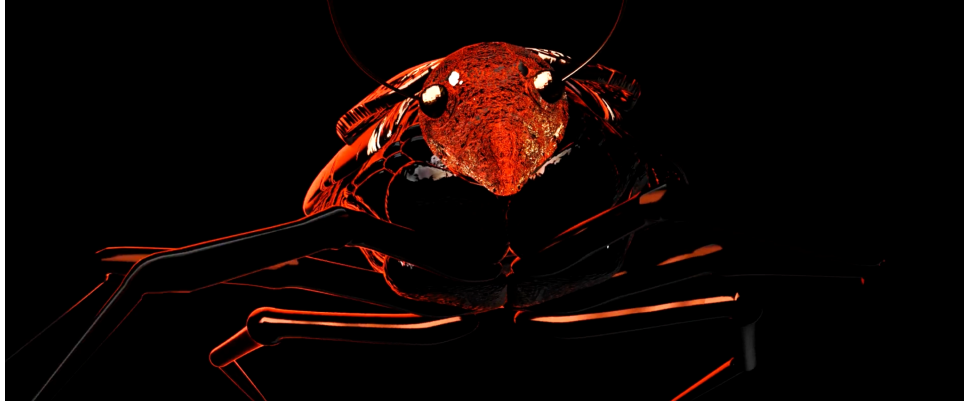


Figure 57: The original, terrifying, Roach



Figure 58: The final Roach illustrations



Figure 59: Production photo showing the looming appearance of the Roach. Photo by Margarita Syrocheva



Figure 60: Production photo by Emily Pan. The Roach illustration can be seen in the background.

3.7 - Programming the System

Creating the captions for *Hip Hop Anansi* required the building and designing not only of the typefaces themselves, but also of the systems used to store, display and update them. There are no tools available that can do the type of creative captioning I was attempting straight out of the box, so it was necessary to build workflows (and even software) from scratch that would afford both the flexibility within the design and in process. As the rehearsal process was relatively short, I needed to build the system in such a way that I could make changes easily late in the game as things like blocking or ad-libs were likely to change all the way almost up to opening. I needed systems that could enable me to work smarter, not harder - saving me time on data entry in favor of more creative work. This would allow me to delegate work to others, and minimize the amount of re-making I would need to do should I change my mind on any of the choices that I made.

The Scanner App

The production office at TDPS has Undergraduate and Graduate students that prepare typed-up scripts of each show for Stage management to use to create their calling books, instead of using the scanned versions. In past captioning experience, I relied on copying and pasting lines from this document, but for this project I was personally as much interested in developing ways to make the

process of captioning easier and more efficient for myself and others in the future. As such, (in what could be considered somewhat of a tangent to the main focus of my work on this production) I looked for ways to automate the process of getting from a physical script to a usable spreadsheet. In particular, I was interested in the way that Artificial Intelligence (AI) could be harnessed towards this aim.

Coming up short in my attempt to find a one-stop-shop platform or service that could take a scanned pdf and output a file I could use as a base for captioning, I eventually found myself (with the assistance of ChatGPT augmenting my minimal skills in coding python) developing my own custom cross-platform application to achieve this. This app had two main functions - the first of which was to parse a scanned pdf, and output plain digital text by using an open-source Optical Character Recognition (OCR) model to detect and extract characters. In order to do this accurately it was also necessary that first the code checked to see if the scanned document was a double page spread, which it did by looking for a black line roughly in the center of the page (representing the spine of the book) (FIGURE 61). Detecting this line enabled the software to split the pdf pages into individual pages and make sure that each physical page was read correctly in sequence. It also enabled the calculation of an angle of skew of the page (if it had not been placed at right angles on the scanner bed), which could then be compensated for (FIGURE 62) prior to running the OCR model, to improve the accuracy of the output.

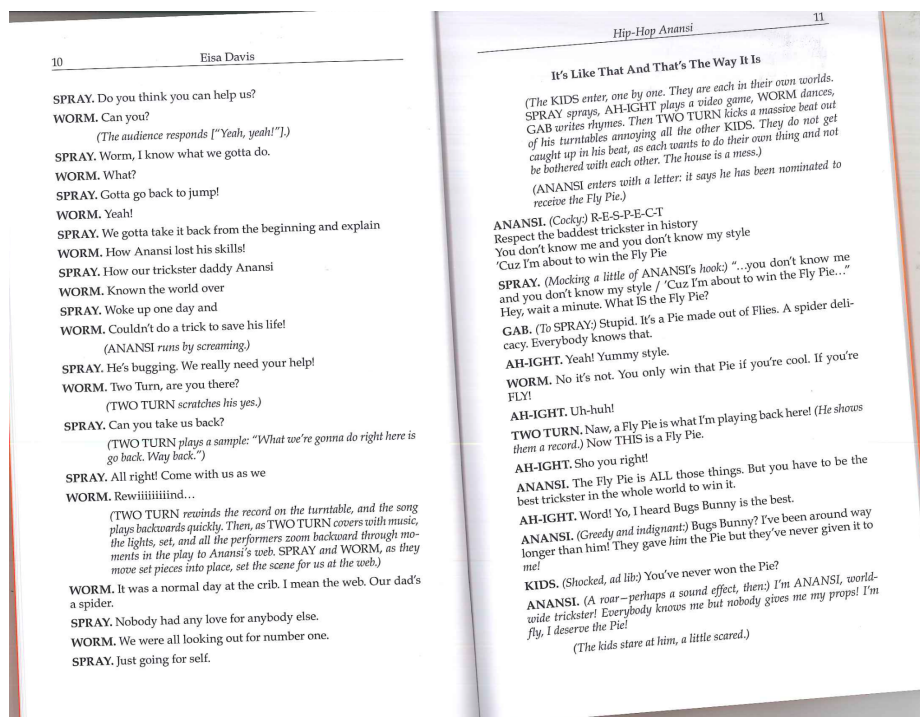


Figure 61: Example of a scanned double page spread with a detectable spine, and a significant skew on the right hand page

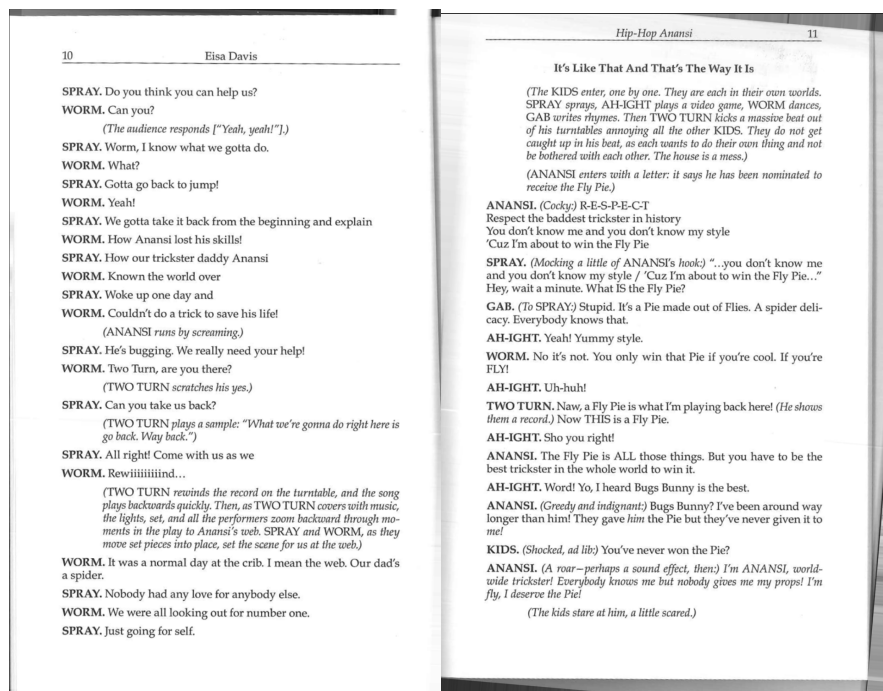


Figure 62: The same pages after programmatically splitting, de-skewing and contrast adjustment

Secondly, after extracting the words as plain text, the app took this output and ran it through a custom Machine Learning model to try and detect character names and stage directions, and separate them from the lines themselves. I trained the AI on a small dataset that I put together of examples from the scripts of TDPS' 2024/5 mainstage productions - *Emma*, *Metamorphoses* and *Hip Hop Anansi* - all of which had different, but still relatively standard, formatting styles. *Metamorphoses*, for example, used all-caps followed by a colon to dictate character name, with the dialogue appearing on the line below - whereas *Hip Hop Anansi* used all-caps followed by a period and the dialogue continuing on the same line.

After classifying the text elements, the app was then programmed to output a spreadsheet (FIGURE 63), with names in one column, dialogue lines in the next, and stage direction deleted. The finished output was by no means perfectly accurate, but it was correct enough to stand as a usable first pass that needed minimal cleanup and demonstrated the potential to save hours, if not days of work. Where simply copying and pasting lines in previous processes had taken days of my time to complete, the same process using this application for *Hip Hop Anansi* took a single day - with 90 percent of that time spent on development of the app itself.

I felt uncomfortable with the inclusion of copyrighted material within the training data (even though any potential distribution of this app would not include the raw data, rather just the trained model, which would therefore not allow an end-user to access it), so I opted to paraphrase many lines, and ask ChatGPT to create a lot of invented examples using the same formats to use as the training data instead of the text that I had lifted from the real scripts, further obscuring the origin. The dataset (FIGURE 64) and resulting model were still very small - both in size, and narrowness of style, which makes the model in its current form hyper-specialized to these particular scripts and unlikely to be useful to the general public unless significantly expanded upon. This is an undertaking that I may take on at some point in the future.

SPRAY.	It's Like That And That's The Way It Is
ANANSI.	R-E-S-P-E-CT
ANANSI.	Respect the baddest trickster in history
ANANSI.	You don't know me and you don't know my style
ANANSI.	'Cuz I'm about to win the Fly Pie
SPRAY.	"...you don't know me
SPRAY.	and you don't know my style / 'Cuz I'm about to win the Fly Pie..."
SPRAY.	Hey, wait a minute. What IS the Fly Pie?
GAB.	Stupid. It's a Pie made out of Flies. A spider deli-
GAB.	cacy. Everybody knows that.
AH-IGHT.	Yeah! Yummy style.
WORM.	No it's not. You only win that Pie if you're cool. If you're
WORM.	FLY!
AH-IGHT.	Uh-huh!
TWO TURN.	Naw, a Fly Pie is what I'm playing back here!
TWO TURN.	Now THIS is a Fly Pie.
AH-IGHT.	Sho you right!
ANANSI.	The Fly Pie is ALL those things. But you have to be the
ANANSI.	best trickster in the whole world to win it.
AH-IGHT.	Word! Yo, I heard Bugs Bunny is the best.
ANANSI.	Bugs Bunny? I've been around way
ANANSI.	longer than him! They gave him the Pie but they've never given it to
ANANSI.	me!
KIDS.	You've never won the Pie?
ANANSI.	I'm ANANSI, world-
ANANSI.	wide trickster! Everybody knows me but nobody gives me my props! I'm
fly,	I deserve the Pie!
fly,	— — — — mrvaaSaSEss_

Figure 63: An example of the output from the scanner app. Not perfect, but requiring minimal cleanup - and still quicker than typing!

```

# More character name variations
("DOCTOR STRANGE.", 1),
("DOCTOR: What seems to be the problem?", 1),
("DR. FATE:", 1),
("SIR LANCELOT: You must return to Camelot!", 1),
("PROFESSOR X:", 1),
("FRANKENSTEIN. It's alive!", 1),
("DRACULA:", 1),
("KING ARTHUR.", 1),
("COUNT CHOCULA:", 1),
("CAPTAIN JACK SPARROW: A pirate's life for me.", 1),

# More dialogue misclassifications
("a pirate's life for me.", 0),
("A life of adventure and plundering.", 0),
("I see you have returned, Sir Lancelot.", 0),
("Swords clashing, knights battling.", 0),

# More stage direction edge cases
("(Running into the battlefield)", 0),
("(Crying out in pain)", 0),
("He gestures toward the sky", 0),
("{Lowers his sword}", 0),
("(Text that starts but doesn't close", 0),
("(But now he realizes he has lost.)", 0),

# More ML confusion cases (uppercase vs. lowercase)
("arthur. You have no power here!", 0),
("arthur:", 0),
("KING. Kneel before your ruler.", 1),
("queen elizabeth:", 1),
("QUEEN ELIZABETH.", 1),
("Queen. It is my duty to lead.", 1),
("QUEEN elizabeth: The crown is mine.", 1),

# More sentence variations
("To battle! Raise your swords!", 0),
("I shall never surrender.", 0),
("the war is over.", 0),
("The people cheer as the hero enters.", 0),
("A long journey lies ahead.", 0),

# More dashes and slashes in character names
("CAPTAIN-AMERICA: I can do this all day.", 1),
("SPIDER-MAN / PETER: Responsibility is a burden.", 1),
("BATMAN/Bruce: Gotham needs me.", 1),
("JAMES - The truth must be told.", 1),

# More cases similar to existing data
("ANANSI. I will show you a trick.", 1),
("ANANSI. I will show you a trick", 1),
("ANANSI I will show you a trick", 1),
("ANANSI, I will show you a trick", 1),
("Anansi... He disappears.", 0),
("Where did Anansi go?", 0),
("the trickster vanishes into thin air.", 0),
("Did you see that?", 0),

# Edge cases for numbers, symbols
("42. That is the answer to everything.", 0),
("MR. 47", 1),
("AGENT 007", 1),
("MRS. SMITH - Report to duty!", 1),
("GENERAL ZOD: Kneel before Zod!", 1),
("COMMANDER: Fire the missiles!", 1),

# More capitalization inconsistencies
("dracula. The night is mine.", 0),
("frankenstein: The creature lives.", 1),
("professor xavier", 0),
("PROF. SNAPE:", 1),
("Gandalf the grey", 0),
("GANDALF: YOU SHALL NOT PASS!", 1),
("Smeagol. My precious...", 0),

```

Figure 64: A selection of some of the ChatGPT generated training data for the custom AI model. It really wanted to use names of characters from history or well-known IP, rather than make some up.

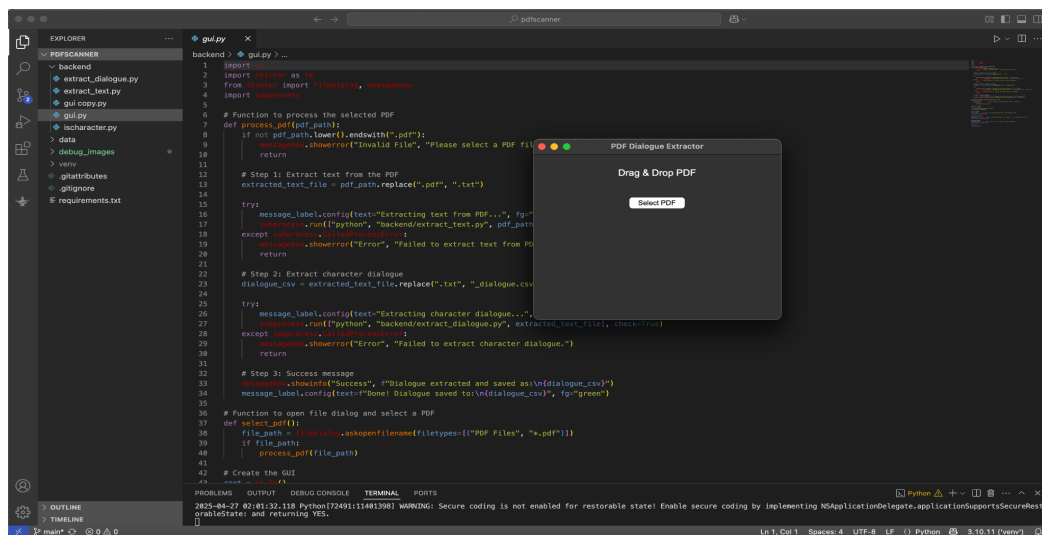


Figure 65: Screenshot of some of the code and the GUI for the scanner app.

Spreadsheets and Isadora

To manage the storing, display and appearance of the captions, I decided to adapt an approach I have used for previous creative captioning projects that I have worked on - where a single spreadsheet contains all the information needed as pure text (FIGURE 66). This spreadsheet would have a column for the character name, a column for the line style, and a column for the line itself. Each row would represent a new caption.

	A	B	C	D	E	F	G
1	Character		Line				
2	KIDS	SPOKEN	Anansi! Where you be?	1			
3	KIDS	SPOKEN	What? What is it?	1			
4	KIDS	SPOKEN	Why are you running?	1			
5	ANANSI	SHOUTED	ROACH!!!!	6			
6	KIDS/ANANSI	SPOKEN	AAAAAAAH!	1			
7	ANANSI	SPOKEN	Gab!	2			
8	ANANSI	SPOKEN	Worm!	3			
9	ANANSI	SPOKEN	Spray,	1			
10	ANANSI	SPOKEN	Ah-ight,	4			
11	ANANSI	SPOKEN	Two Turn!	5			
12	ANANSI	SPOKEN	Help me!	6			
13	ANANSI	SPOKEN	Help your father Anansi!	6			
14	KIDS	SPOKEN	Anansi! We be we!	1			
15	KIDS	SPOKEN	Go Two Turn! Go Two Turn!	1			
16	KIDS	SPOKEN	Go Two Turn! Go Two Turn!	1			
17	KIDS	SPOKEN	Go Gab! Go Gab!	1			
18	KIDS	SPOKEN	Go Gab! Go Gab!	1			
19	GAB	SPOKEN	Stop right there	2			
20	GAB	SPOKEN	doncha come any closer	2			
21	GAB	SPOKEN	Ain't no point in that crawlin	2			
22	GAB	SPOKEN	we can see you a roach-a	2			
23	GAB	SPOKEN	Get away get away	2			

Figure 66: Version 1 of the Excel Spreadsheet

Isadora does not natively support spreadsheet files, be that Excel or Numbers - so instead I exported the captions as a tab-separated-values (.tsv) format (FIGURE 67), which uses nothing but plain text, with tab characters delineating each column, and returns / new lines separating the rows. Software like Isadora can parse these files as an array of data, with the ability to step through rows in the file and send the value within each column to a different output. Using this system, it is possible to programmatically send the content in the “Line” column for each row to the text input, and use the data in the “Character” and “Style” columns as switches, to turn on and off various effects, or apply the correct typeface for that character. This spreadsheet also had a column for surface, which accepted a numerical value and routed the caption to the corresponding caption bubble. This meant that I could build globally applicable effects, typeface styles and surface mappings, and edit lines to assign or re-assign those properties by simply changing a value in one column of the spreadsheet. This workflow saved hours -

perhaps even days - of time that would have been spent rendering individual lines as image or video files, and meant that changes could be made easily all the way through tech. It also required significantly fewer assets to manage. In the end, there were almost 900 individual lines of dialogue which, should they have been image or video files, would have been incredibly difficult to keep track of, and would have taken significant time and effort to sort through to find and replace as and when updates and edits were needed. It also meant that only one file needed to be swapped out for our understudy performance, where some references to the gender of one character (played by a female-identifying overstudy and male-identifying understudy) in the script meant that we needed a different caption file depending on which actor was performing.

HHACAPSingle.tsv		Open with Numbers	
Character	Line		
KIDS	SPOKEN	Anansi! Where you be?	1 REPEATED followed by anansi screaming
KIDS	SPOKEN	What? What is it? Why are you running?	1 order may change
ANANSI	SHOUTED	ROACH!!!!	1
KIDS/ANANSI	SPOKEN	AAAAAAAH!	1
ANANSI	SPOKEN	Gab! Worm! Spray, Ah-ight, Two Turn! Help me! Help your father Anansi!	1
KIDS	SPOKEN	Anansi! We be we!	1
KIDS	SPOKEN	Go Two Turn! Go Two Turn! Go Two Turn! Go Two Turn!	1 two turn beats
KIDS	SPOKEN	Go Gab! Go Gab! Go Gab! Go Gab!	1
GAB	SPOKEN	Stop right there dontcha come any closer	1
GAB	SPOKEN	Ain't no point in that crawlin we can see you a roach-a	1
GAB	SPOKEN	Get away get away get away 'cause it's over	1
GAB	SPOKEN	You're up against the tricksters both above and below ya	1
GAB	SPOKEN	I'm Gab, so fab, have you heard the phrase "boo-ya"?	1
GAB	SPOKEN	You're brown and shiny but you still get the boot-YA!	1
GAB	SPOKEN	You got them antennae waving round let me school ya	1
GAB	SPOKEN	Insects are ancient spiders are way cooler	1
KIDS	SPOKEN	Go Worm! Go Worm! Go Worm! Go Worm!	1 worm sound effects provided by two turn
AH-IGHT	SPOKEN	We're Anansi's kids here to set you straight	1
AH-IGHT	SPOKEN	You may have six feet but Anansi got eight	1
KIDS	SPOKEN	We're Anansi's kids here to set you straight	1
KIDS	SPOKEN	You may have six feet but Anansi got eight	1
KIDS	SPOKEN	We're Anansi's kids here to set you straight	1
KIDS	SPOKEN	You may have six feet but Anansi got eight	1 kids adlibs
KIDS	SPOKEN	Go Spray! Go Spray! Go Spray! Go Spray!	1
SPRAY	SPOKEN	Which way did he go? Which way did he go? Over here!	1
SPRAY	SPOKEN	Over here!	1
SPRAY	SPOKEN	Roaches don't scare me	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	I've seen you before	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	Crouched in a corner	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	Duckin' under a door	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	I'm Spray and I shade	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	Any well custom-made	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	But if you look me in the eyes	1
KIDS	SPOKEN	Watch out for that	1
SPRAY	SPOKEN	I'll spray you like Raid!	1
KIDS	SPOKEN	Watch out for that...	1
KIDS	SPOKEN	..SPRAY! 1 roach sprayed dropping sound effect	
SPRAY	SPOKEN	Worm, do you know what's going on?	1
WORM	SPOKEN	No.	1
SPRAY	SPOKEN	Well, we know there's a big old roach	1
SPRAY	SPOKEN	trying to get all of us. All of us kids and Anansi!	1
SPRAY	SPOKEN	Wait, where's Anansi?	1 anansi screaming
WORM	SPOKEN	But everything went on cease when you sprayed the roach in the face!	1
SPRAY	SPOKEN	Time just stopped!	1
WORM	SPOKEN	Yea, for them, but Anansi's still running and we're still talking.	1
SPRAY	SPOKEN	Right.	1
WORM	SPOKEN	Right.	1
SPRAY	SPOKEN	I'm gonna repeat my question. Do you know what's going on?	1
WORM	SPOKEN	No.	1
SPRAY	SPOKEN	Maybe everything stopped so we could talk to all of you.	1
WORM	SPOKEN	Yeah, maybe everything stopped so we could ask you for help!	1
SPRAY	SPOKEN	Do you think you can help us?	1
WORM	SPOKEN	Can you?	1 audience yeah!
SPRAY	SPOKEN	Worm, I know what we gotta do.	1
WORM	SPOKEN	What?	1

Figure 67: The resulting .tsv file

Another significant benefit of this approach is that the code for the captions could be completely self-contained. Running the logic for the caption display in its own permanently-running “background scene” meant that captions could go forward and back, jump, reset etc. independently of the other cues, so if actors skipped lines, or were particularly quick or slow in certain sections we didn’t have to fire other cues until they were actually supposed to happen.

The other main reason I used this approach is that it enabled me to delegate tasks in the most productive way possible. By networking a second computer to the main show computer and sharing the spreadsheet file on that network, it was possible for Lee Talbot, my assistant, to be editing captions for accuracy, re-assigning surfaces as blocking changed, and line-breaking the captions where needed at the same time as I was working on programming other elements, or during runs where the operator had control of the computer. I programmed the patch to re-import the .tsv file every time the showfile opened, we moved to a new caption, or upon the press of the “r” key on the keyboard (which I had set as a reset button) so that updates appeared almost live.

While .tsv is a useful file format for ingesting into Isadora, and while it is plain text so is readable and relatively easy to make small edits in any basic text editor software, it is not particularly intuitive to make consistent large, or bulk edits (like reassigning tens of captions in sequence to a different surface), so I wanted to still be able to use Microsoft Excel to be able to do this. The fill handle and ability to select multiple rows at once would make bulk editing much faster, and being able to tab down within columns using arrow keys, not having to use the mouse, was essential in keeping up with making edits during dress runs of the show - which was the best time to ensure our accuracy and positioning. It would have been inconvenient to have to take notes on every edit needed and implement them after the run - if not impossible - as it would take more time to write a note that would make sense later than edit a single value there and then.

Additionally, Excel afforded me the ability to implement a number of custom macros (small, automatic pieces of code) that could speed up common tasks that came up when editing the spreadsheet. One of these common tasks was splitting lines into two separate captions. By default, the way to do this would be a multi-step process of selecting the latter half of the line and cutting and pasting it into a newly inserted line and then copying the information from the other columns across. With the

assistance of ChatGPT, I was able to develop a macro that enabled an editor to simply type a “\” character at the point they wanted a line to split, and it would programmatically complete all the steps to do that in under a second. Likewise, I built a function to merge a caption back up into the line prior by typing a “<” at the start of the line.

Unfortunately getting Excel to cleanly edit and save TSV files proved more challenging than I had hoped, due to a bug I discovered in the way it formatted UTF-8 encoded text (which is the format Isadora needs to read). Eventually, the solution for this issue was a complex series of scripts that were triggered whenever save was pressed. Firstly, the captions were edited in a macro-enabled excel file (.xlsm) rather than a TSV. When saved, this file automatically saved a second copy of itself without macros enabled (.xlsx), which a python script that I had set to run continuously in the background recognized a change in, and converted to a TSV file of the same name. The entire process took around 2 seconds to complete every time, and that meant we were still able to have our near-live updates to the captions upon edits in the spreadsheet, while still providing us with the macros I had built and native excel tools that could speed up, and make the editing process easier.

Using a bespoke system like this also enabled us to expand what we could do if we realized we wanted new functionality at some point. For example, midway during tech, we discovered that it would be really useful to be able to edit the text size of each line, so I added a new column with a size multiplier. As we had already scaled the default font size for each character and tuned them individually to the surfaces, I was loath to undo all this work halfway through tech by resorting to direct control of the font size from the spreadsheet instead. A multiply factor that assumed a value of 1 (i.e. no change) if no value was entered in the column meant that we could focus on only adjusting lines that felt particularly small, or we wanted to make them bigger for emphasis. One place we used this to particular effect was during repeated lines, where the caption slightly increased in size on each repeat - which served double duty of providing a visual cue to d/Deaf audience members that a line had been repeated - and helped communicate the increasing emphasis on each time it was said.

Another feature that I added during tech was the ability to control line breaks within a single caption. By default, Isadora worked out how to wrap the text by itself based on the aspect ratio of the surface, but this sometimes resulted in words being awkwardly stranded in their own lines, or lines that

were just slightly too long and looked unbalanced against the rest of the caption. To address this, I programmed in some logic that told Isadora to replace a "]" character with the regex symbol "\n\r", which computers parse as an instruction to move to a new line (and hide the symbol from view). This enabled us to augment Isadora's text wrapping algorithm by overriding it through quick and efficient insertion of a single text character, with the results pushed back to the captions themselves just like everything else in the caption spreadsheet.

Lastly, I realized that there were multiple times I needed all the kids to speak at once. While I had built logic to do this, it was not as customizable as it turns out that I needed. When it detected the character name "KIDS" in the name column, my original version of this programming simultaneously displayed the same line in each one of the kids' typefaces - but to default surfaces based on where the kids "home bases" were on the set. However, as rehearsals went on it became obvious that the kids were not always going to be in those same places, and I needed a way of specifying which surface each kids' captions should go to. Solving this took a bit more brainpower than expected, but I eventually came up with a solution that, while not elegant, did work. Previously, when Isadora received a KIDS caption, it completely ignored the surface number as it was already sending out to a predefined set of them. Now for these captions, I could write in a value like "12345" and it would route these to the children's typefaces in the order 'Spray, Gab, Two-Turn, Ai-ght, Worm'. In this example Spray's caption goes on surface 1, Gab's on 2, etc. If I wanted Spray's to be on surface 6 instead, but the others to stay the same, that value would be "62345" instead.

While having this functionality meant we could make essential changes to the physical layout of the captions, allowing them to be in proximity to their characters wherever they were on stage, it did slow us down significantly as we had to be able to remember which order of children the program would map the surfaces in. I wrote a cheat-sheet (FIGURE 68) with the surface labels numbered, and the order of the children, which helped mitigate this.

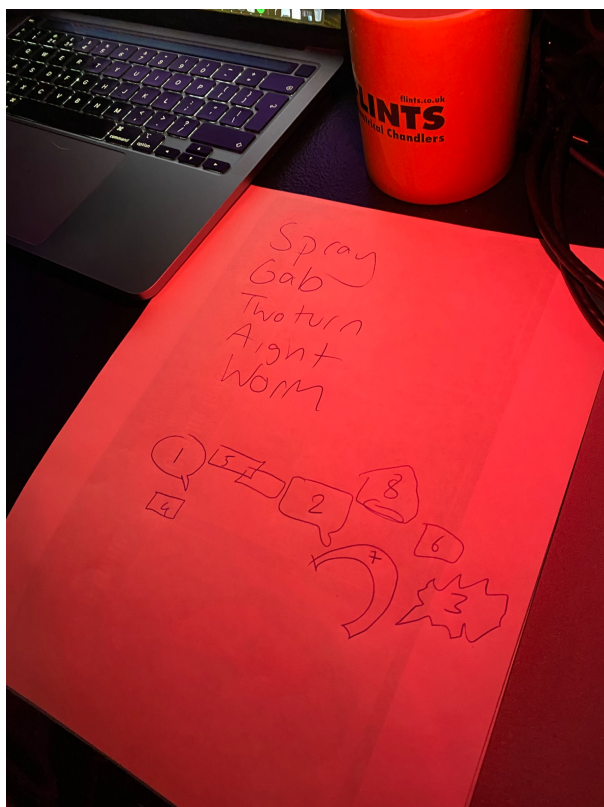


Figure 68: Cheat sheet for remembering surface numbering and the order of the characters in sections where the kids speak simultaneously

HIP HOP ANANSI MEDIA BIBLE

File Edit View Insert Format Data Tools Extensions Help

100% 123 Default... 18 B I A

AT:G1 HHA MEDIA DESIGN NOTES

1	A	B	C	D	E	F	G	H	I	J	K	L
2	ADDED DATE	PRIORITY	NOTE	ASSIGNED TO	STATUS							
3	4/7/25	MEDIUM	Add logic to order kids in all sections		COMPLETE							
4	4/7/25	HIGH	BUILD A JUMP IN CAPTIONS		COMPLETE							
5	4/8/25	LOW	work out dream sequence delays		COMPLETE							
6	4/8/25	LOW	take worm's vision off sr		COMPLETE							
7	4/8/25	MEDIUM	pre-show it up		COMPLETE							
8	4/8/25	MEDIUM	center (2) captions askew		COMPLETE							
9	4/8/25	MEDIUM	add spray pulses to qslab		COMPLETE							
10	4/8/25	HIGH	ppssshhhht-needs-a-t		COMPLETE							
11	4/8/25	HIGH	fix 9s		COMPLETE							
12	4/7/25	MEDIUM	Fix typing effect (flashing full caption)									
13	4/7/25	MEDIUM	Make Nawmean look pretty									
14	4/8/25	MEDIUM	Fix bouncey roach									
15	4/8	MEDIUM	find cartoon roach									
16	4/8/25	MEDIUM	crop the "horrid white line" from the top of first video									
17	4/8/25	LOW	creak captions plz									
18	4/8/25	MEDIUM	work out flicker at top of creeping									
19	4/8/25	LOW	loop spray in the sneaker cemetery									
20	4/8/25	MEDIUM	look at cue points for sneaker cemetery									
21	4/10/25	MEDIUM	build nawmean wipes									
22	4/10/25	LOW	fix floating point error									
23	4/11/25	MEDIUM	fix into old baking factory cue osc									
24	4/11/25	MEDIUM	fix spray to unfreeze worm									
25												
26												
27												
28												
29												
30												
31												

roaches
<https://www.storyblocks.com/video/stock/close-up-cockroach-isolated-on-white-background-cockroaches-are-d>
https://stock.adobe.com/search/video?filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0
https://stock.adobe.com/search/video?filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0
https://stock.adobe.com/search/video?filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0&filters%5Bcontent_type%3Aphoto%5D=0

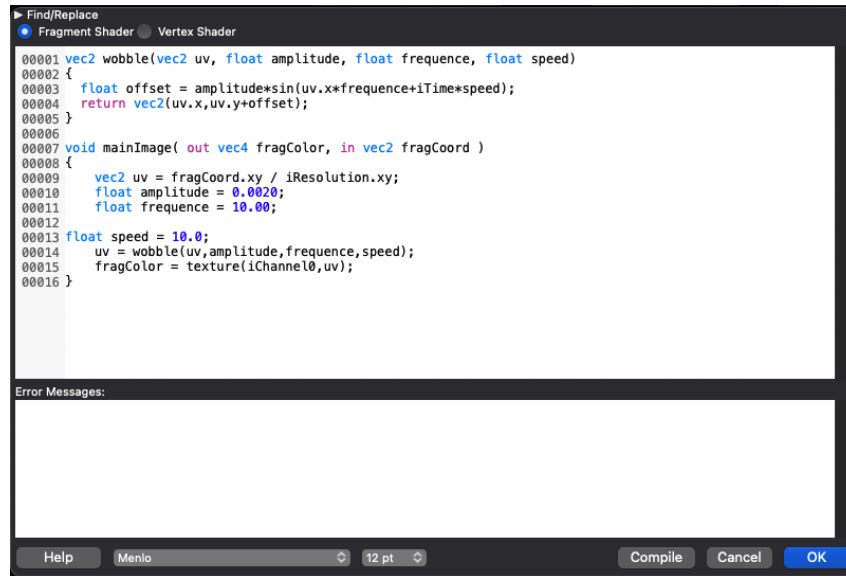
+ CUE LIST CAPTION STYLES RUN SHEET DEVICE INFO FOCUS SHEET SHOP NOTES DESIGN NOTES EMERGENCY INFO / ISSUE TRACKING

Figure 69: Design Notes page of the Media Bible, where Talbot and I could keep track of upcoming tasks.

Effects

In addition to the typefaces themselves and the use of multiple surfaces across the set, an important feature of the captions I wanted to implement was the ability to add effects that could help communicate tone. While the fonts were able to give an idea of each character's personalities, it wasn't able to highlight how the performance of that dialogue could change line-to-line. Using punctuation and capitalization was able to get me some of the way, but I still felt there was something missing.

Concerned that I might be setting myself an open-ended challenge (I didn't want to find myself in a place where I was building bespoke effects on a per-line basis) I set out to instead create a palette of effects that I could draw from and even combine if wanted. These effects would be controlled from the spreadsheet much like size and surface, by typing the assigned keyword/s into the effect column. On the Isadora end, I was concerned about the processor impact that having all these effects could create. In order to make these effects cumulative so several could occur at once, I wouldn't be able to simply switch which effect the text was being routed through. Instead, I had to chain them together (FIGURE 70) into one singular route and build logic to switch off any that were not in use. Turning an effect down to zero intensity could still create phantom processor drain, so being able to fully bypass and disable unused effects was vital. In order to create these effects in an acceptably performant manner, I found myself usually relying on 3rd party code instead of Isadora's built in tools. Many of the effects. For example, a VHS-style glitch effect (which ultimately was cut, but was originally used for Two-Turns' sampled lines) would have required the use of several effects in Isadora combined together. Others had single-node options, but were significantly less performant than third-party alternatives. For these third-party effects, I utilized open-source code from a website called shadertoy.com, which is a repository of video shaders (effects and fully live-generated visuals) written in GLSL code (FIGURE 71), which runs incredibly fast on Mac Graphics Processing Units, and made sure that the rest of the show did not slow down, or start stuttering.



```

Find/Replace
Fragment Shader Vertex Shader

00001 vec2 wobble(vec2 uv, float amplitude, float frequency, float speed)
00002 {
00003     float offset = amplitude*sin(uv.x*frequency+iTime*speed);
00004     return vec2(uv.x,uv.y+offset);
00005 }
00006
00007 void mainImage( out vec4 fragColor, in vec2 fragCoord )
00008 {
00009     vec2 uv = fragCoord.xy / iResolution.xy;
00010     float amplitude = 0.0020;
00011     float frequency = 10.00;
00012
00013     float speed = 10.0;
00014     uv = wobble(uv,amplitude,frequency,speed);
00015     fragColor = texture(iChannel0,uv);
00016 }

```

Error Messages:

Help Menu 12 pt Compile Cancel OK

Figure 71: GLSL code from Shadertoy.com in use for the “wobble” effect.



Figure 72: Production photo by Emily Pan, demonstrating the “wobble” effect as Anansi laughs.

The Operator Experience

As much as the design and accuracy of the captions was important to the success of this production, I was well aware from previous creative captioning experience that the outcome also depended on the environment and systems I set up for the operator. Isadora has the benefit of having minimal native control layouts, and instead encourages the creation of quite complex custom views with buttons and text readouts and previews to enable the designer to specify the exact way they want the

operator to control the show - or to build in bespoke functionality that they know would be of use to the operator. I knew, for example, that the operator would need to be able to see the current line and the line that was up next in order to know when to advance. Likewise, I knew that my operator would need to be able to skip forward and backwards in case of prematurely firing the next caption. I built this functionality, connected to a keyboard button for each ("a" for forward, "b" for back - although this exact key mapping was intended as a placeholder, as later I was able to ask my operator which keys they wanted to use for each function, and remapped them accordingly).

I was also aware that it was likely that we would need the ability to jump to specific lines without having to fire through every single caption in sequence to get there, and I built this functionality on the second day of tech, which helped speed up our ability to reset and be ready to run scenes out of order as necessary in rehearsal.

Towards the end of tech, I realized that we also needed the ability to cue up a caption of potentially unknown line number "in blind" - i.e. without skipping through them in a way that is visible to the audience. To achieve this, I adapted the "jump" function with the addition of plus and minus buttons that increased or decreased the line number (from the current caption index) in the jump field, ready to be fired (FIGURE 73). Without features like these for the caption operator, it is possible for the captions to get out of sync with the performers should lines be skipped - and from previous experience, I know that it can be quite difficult to orient oneself to get back in sync. They also ensure that this re-syncing process is hidden from the audience, which is vital to the professional appearance of the production, and for maintaining the trust of the patrons watching who rely on the captions to be accurate.

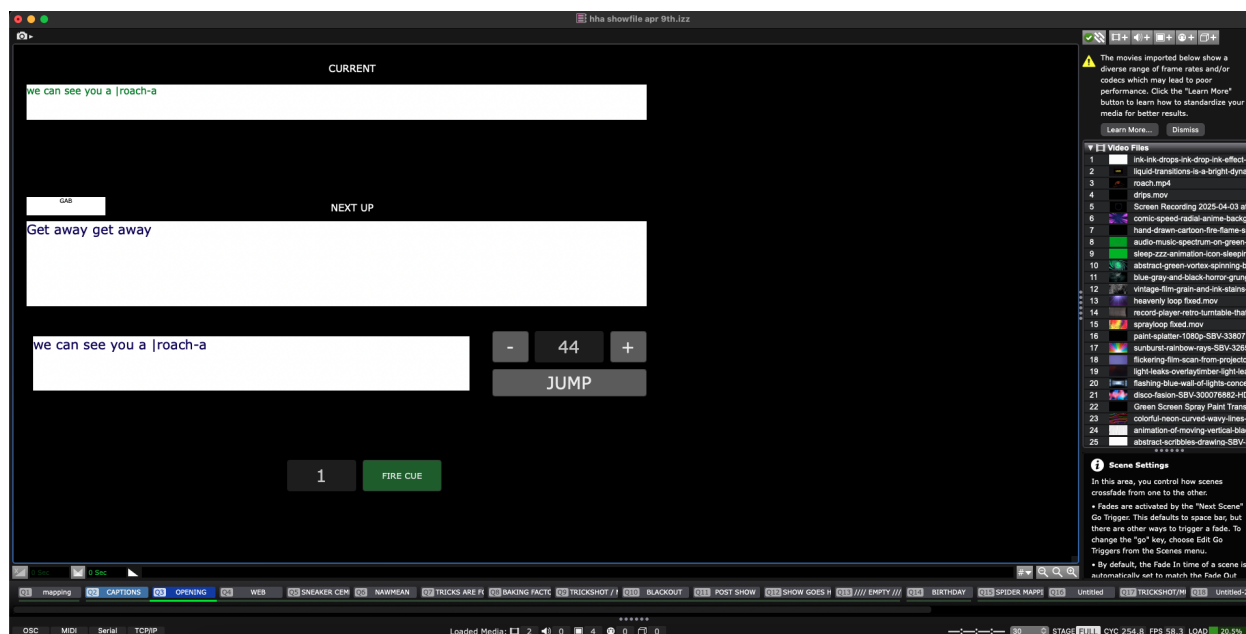


Figure 73: Screenshot of the operator view

The User Interface for the operation of the captions themselves was only one element in my attempt to create an intuitive experience for the operator. Equally as important was the ability for them to successfully power on, run checks on, and, if needs be, troubleshoot the system. If the projectors cannot be ascertained to be working correctly, it cannot be guaranteed that the captions and other content that are of particular importance for d/Deaf audience members will be correct either.

Towards this aim, I utilized a technique I had developed over the last few shows at UMD, by using a built-in Mac application called “Automator” (FIGURE 74), which allowed me to create a single button on the desktop of the computer that would in sequence open the applications needed to control the projectors, power them all on, and open the correct Isadora file. Once the Isadora file had opened, the projectors displayed a mapping grid, and text saying “[CAPTION]” into the center of every surface, for the operator to be able to quickly visually ascertain that the mapping and routing were correct, and that no projectors were offline, or had been knocked from their correct focus. This view also enabled the operator to get feedback that the audio feed needed for the reactive effects was live and being ingested correctly by the computer. Once the operator was happy that everything looked correct, they had a single, simple button to press entitled “Looks good! Start the show!” which moved the video into the preshow cue, and reset the captions to the first line.

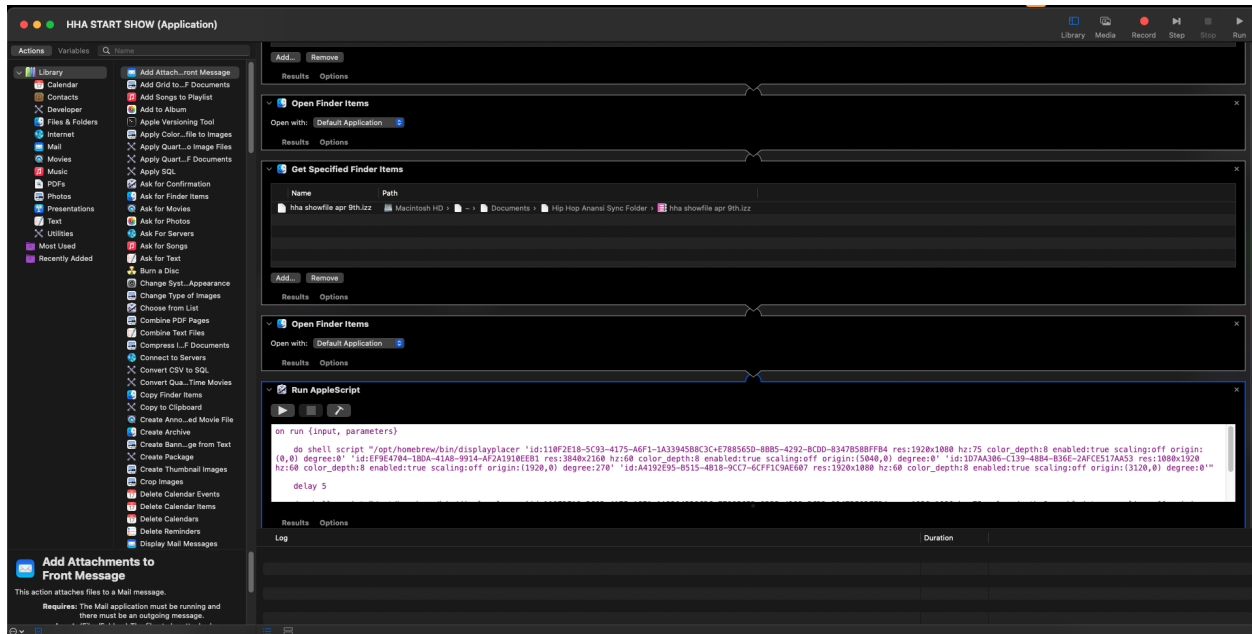


Figure 74: Screenshot of the Automator sequence.

We discovered a frustrating bug during tech where one of the projectors would habitually fail to display any output upon powering on, with the only solve we could find being switching it to another resolution and back to the required 1920 x 1200 pixels, requiring my operator to a) identify the problem and b) go into the system settings of the computer to fix. As this was consistently happening every day, I was concerned about adding this additional labor onto the plate of my operator, so I began searching for a seamless solution to solve it. Eventually, I came across an open-source command-line application called DisplayPlacer*, which enabled me to save and recall a display configuration, and could be automatically run as part of my Automator package. Using DisplayPlacer, I was able to get the computer to automatically switch the troubled projector from its default resolution, to a different one and back instantaneously and without the need for any input from my operator, which gave me as a designer much more confidence that this step would not be missed or not completed fully, resulting in the captions appearing incorrectly, which would have had a significant negative impact on the audience experience.

From previous experience operating captions for shows, I knew that my operator would have very limited capacity to take cues in addition to following the dialogue, as it would have required them to split their focus. As such, I decided quite early on that I would have all video cues that weren't captions triggered via show control, so that my operator did not have to think about them at all. Between myself,

the stage manager and the sound designer, we decided that this show control should be fired from the QLab, rather than from lighting. There were two main thoughts behind this reasoning, the first of which being that most cues were tied temporarily or thematically to sound cues anyway - I had a video cue planned almost every time there was a sound effect. Secondly, that using QLab 5's collaboration mode, my assistant and I would be able to remotely edit the QLab file and insert the OSC cues that we needed without having to wait until the lighting desk was free, or have someone else program them for us - and saved a massive amount of additional back-and-forth communication to work out placement, when we could instead look ourselves to see what each cue did and when it went. Using OSC in this way meant it was vital to keep track of not just my own cue numbers, but also those of the sound cues that we were tacking on to, so I added an additional column to the cue list to note these.



Figure 75: The operator's physical view.

#	cue point	pg	description	With Sound	TIMECODE	built?	osc?
0.5	preshow				0.5		
1	manual		announcement				
2	1	7	visualizer in		5	X	x
3	2	7	roach in		6	X	x
4	3	8	large roach		7	X	x
5	4	9	spray effect		10	X	x
6	5	9	something		15	???	x
7	6	10	something		20	???	x
8	7	40	awww-yeah		26		
9	8	40	what-we're gonna do right now is go back		30		
10	9	10	rewinnnnnnnd		30	X	x (check timing)
11	10	10	arrive at web		35	X	x
12	11	11	beat in		40		x
13	12	11	music fade down				x
14	12.5	11	letter sound		42		x
15	13	12	cleaning up music		45		x
16	14	42	music-build				
17	15	12	music sharp stop (broom down)		50		x
18	16	12	letter sound		55		x
19	17	12	music back		60		x
20	18	12	daaaaad music stop		65		x
21	19	12	letter sound		70		x
22	20	13	dancing with broom		75		x
23	21	13	bedtime		80		x
24	22	13	sound effects		85		not in play group
25	23	13	sneaking music		90		x
26	24	13	sneaking music build 1				
27	25	13	sneaking music beat build				
28	26	13	arrive in sneaker cemetery				x

Figure 76: Cue List page of the Media Bible, to track cue numbers and what sound cue number they should be triggered by.

3.8 – Equipment

Drafting & Lens Choice

To ensure the clarity and legibility of the captions, I had to account for both brightness and resolution of the projectors I was to use. I opted to create 2 “systems” of projectors. The first of these systems comprised two projectors with wide lenses focused on a half of a stage each, providing the coverage for the non-caption elements, such as the motion backgrounds, and the roach. These projectors were positioned to hit the walls of the set, the turntable and the basketball hoop which were not to be used for captioning. The second was a series of 3 projectors that were fitted with much narrower lenses and focused specifically on 1-2 caption surfaces each. To maximize pixel density, creating a sharper image and giving each caption surface a higher effective resolution, I used closer, longer-throw lenses, which also helped make sure that less of the projectors’ light output was wasted across an unused area. Starting with the drafting from the lighting designer, I used Joshua Benghiat’s ProjectorViz plugin for Vectorworks (FIGURE 77-78) to model the position of each of the projectors in 3D, and previsualize their

output onto the set, so that I could get a clear idea of where they would be most useful and what lenses I needed to spec them with.

This rendering from the ProjectorViz software would also serve as an incredibly useful reference during focus for me to remind myself a) what my intended coverage for each projector had been and b) what that would look like in the real world so I could confirm I had the coverage I needed.

During tech, I found myself having to fight much more with getting clear lines of sight from the projectors to the caption surfaces on Stage Left than anticipated, as much more of the show was being blocked to take place on the steps in front of that surface, and the height of the actors obscured the caption bubble. As a result, I found myself having to turn the basketball hoop into a surface for captioning as the closest usable surface to the turntable. Unfortunately, as I had not planned on using this surface in that way, the coverage I had over it was only from one of the wider, non-caption projectors, resulting in a pixelated, low resolution and dim caption, which significantly hampered the readability. I asked the tech shop to add a 6th projector to the rig, and worked with them to find the easiest and cleanest place for them to rig it with minimal effort, but still get the shot I need. This projector position ended up being in the back house left corner, almost as far across the space as it was possible to get from the hoop surface. In order to keep the image narrowed in on just the hoop, to ensure the brightness and sharpness, my calculations indicated we would need a lens around the 7:1 ratio - far narrower than anything I had used before.

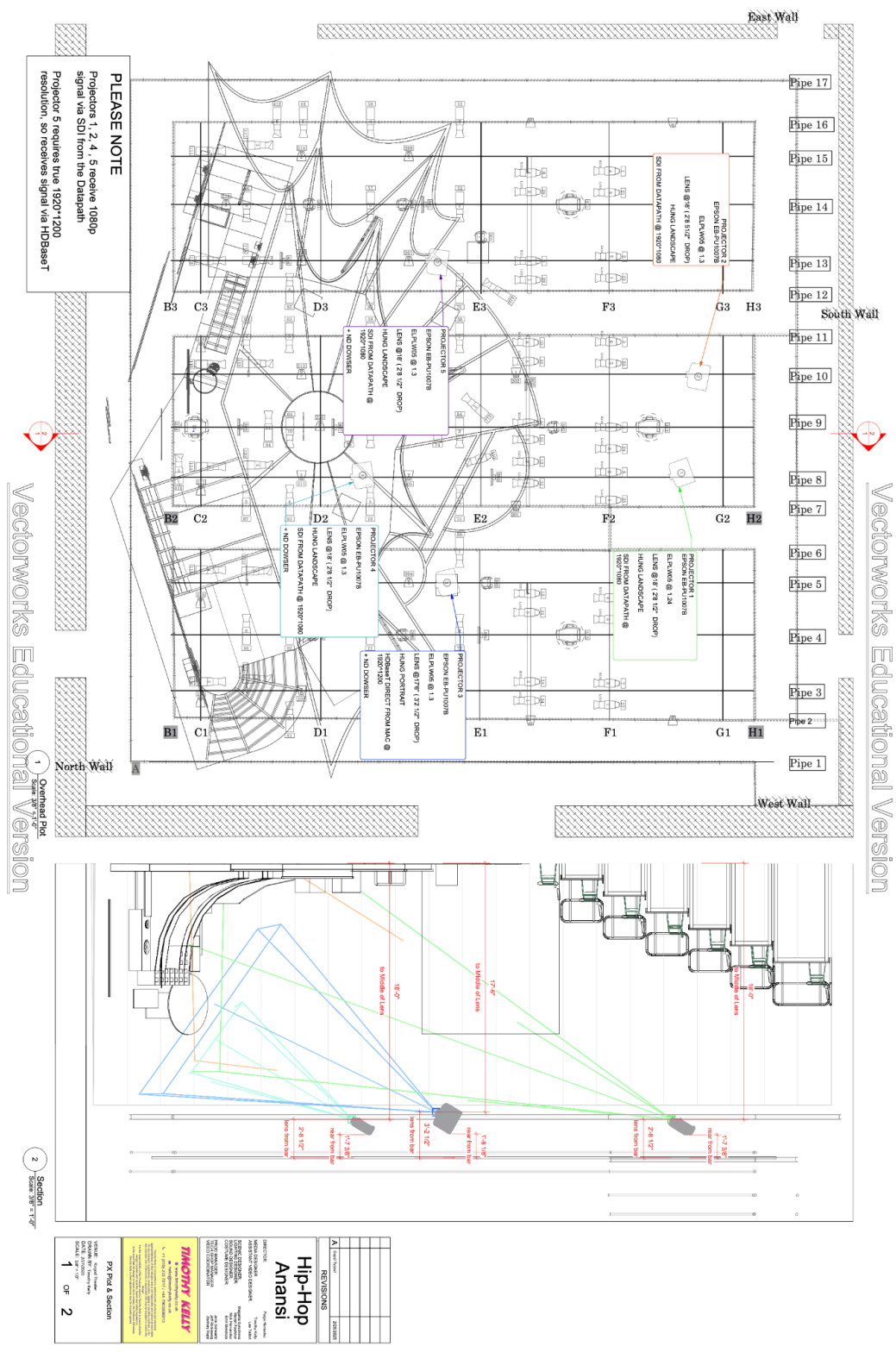


Figure 77: Drafting plan and section views.

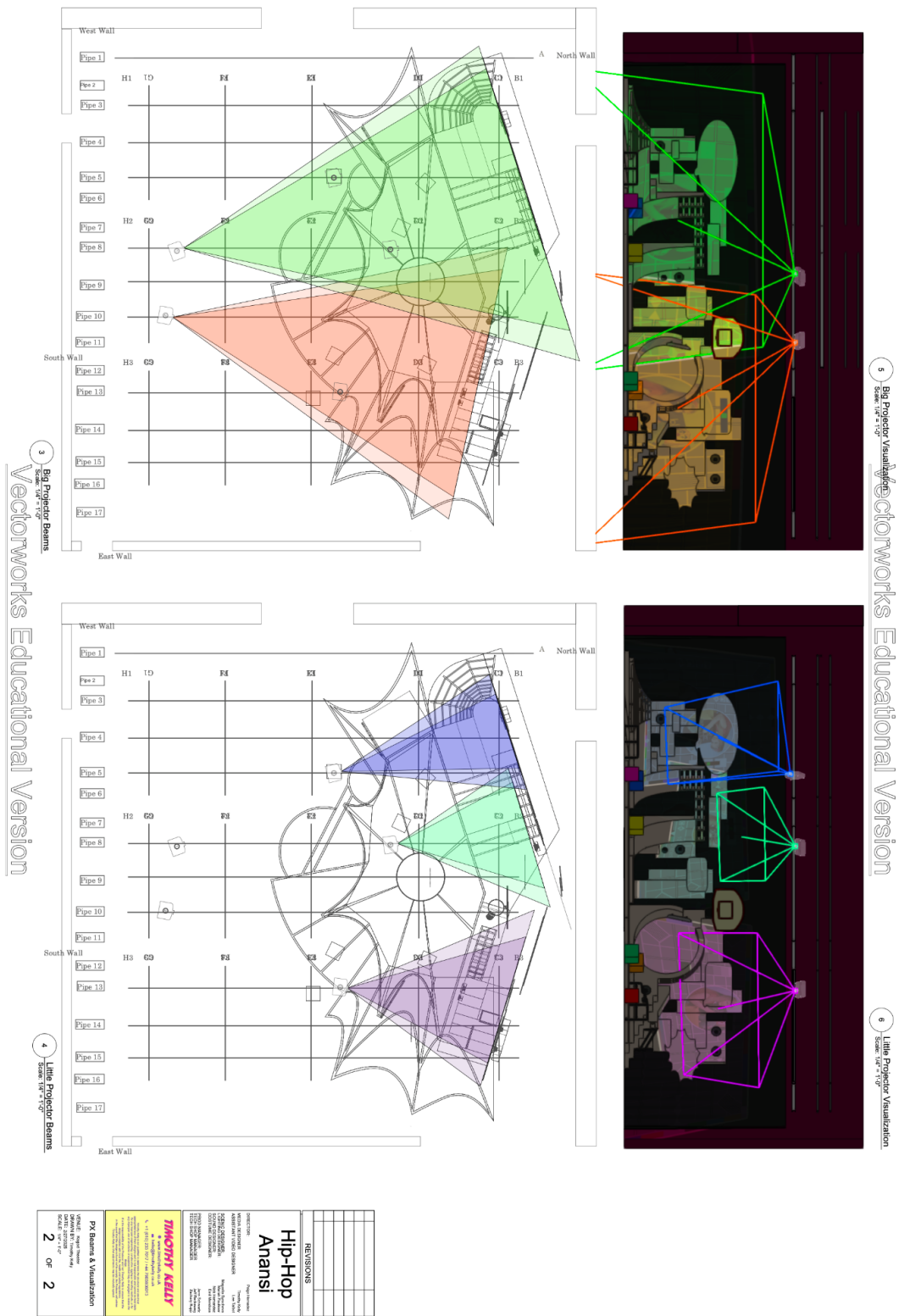


Figure 78: Drafting beam calculations, including the renderings provided by the ProjectionViz plugin.

Focus

Focus for this production ended up being a slightly unusual process due to a confluence of factors. There was a desire from the stage team to install the seating bank early in the load-in process, which would result in my front of house projectors needing to be focused using a ladder on the audience risers as we would not be able to get a genie lift underneath them. As these projectors were rigged in cages with aircraft cable on four points, this was going to be physically quite difficult, as adjusting the height for these meant being able to take the entire weight of the projector in one's hands to provide slack while simultaneously adjusting the length of the cables. Zachary Rupp, the projections coordinator for the venue, asked if I would be willing to "pre-focus" these projectors before the seats went in, a few days before our official focus session was scheduled for, and I agreed.

Calling this pre-focus proved a new challenge for me, as the main elements of the set that these projectors were to be focused to had not yet been installed, so I was going to have to rely on informed guesswork to make sure the projectors were pointing in the right direction. Luckily, I had spec'd these projectors with wiggle-room for zoom, to allow me to adjust after the fact - and they had a lens shift function that meant we would be able to later make adjustments within that tolerance. I made sure to set the lens shift to the middle of the range both horizontally and vertically then pre-focus the projector purely through physically pointing it (by adjusting the heights of all 4 aircraft cables in relation to each other), so that we would maximize the leeway we were creating for ourselves later on when the set pieces were actually put up in the space.

Trying to identify whether the projector was hitting where we thought the set pieces would be was another challenge - and one that we solved with the use of a big stick that we found backstage. (FIGURE 79) With the projectors on and in a test pattern mode, I was able to walk around and use the stick to ascertain the height and width the projection was hitting at the points in the space that the set would be, and confirm I had the coverage I needed. When we were able to do our full scheduled focus with the set a few days later, I was heartened to discover that our estimation had worked out, and that the projectors were covering as much of the set as we needed them to - even without having to rely on much lens shift. The other 3 projectors (at the time - the extra one for the hoop came much later) were able to wait to be focused until the official session as they were accessible using the lift.



Figure 79: Using the stick to focus

One unfortunate thing we discovered during our focus session, once the set was fully installed, was that due to the angle and position of my front of house projectors, two big shadows in the projection were being cast on the large wall element behind the turntable. (FIGURE 80) The ProjectorViz plugin did not show this shadow in the previsualization, but I had anticipated it would probably be there. I hadn't, however, anticipated quite how prominent it would be. Neither shadow from each projector overlapped, which would theoretically mean that I could have mitigated each shadow somewhat by filling in the gap from the other projector's image. In reality, this was unlikely to look good or be worth the time it would take due to it relying on some incredibly precise curved mapping. Likewise, the source direction for the light that was filling the shadow and the light from the surrounding image would be different. This meant that from different viewing angles there would be a great variance in the brightness of each part of the image. Since I had anticipated this possibility, I had not really planned any significant content for this surface, and I realized that it wasn't a particularly useful surface from an audience sightline perspective, as almost half of it (although a different half depending where you were seated) was physically blocked from view by the turntable for most of the audience. I was therefore happy to just commit to not using it full stop. After Faculty Run, as a team we noted that the wall looked a bit bare and blank without much in the way of media content or lighting texture on it, so Syrocheva decided to paint a giant spider

(specifically, Anansi from the animated cartoon of the story) in the same UV paint as the floor. While the large shadow made it difficult to place media content on that surface for the show itself, it did become incredibly useful for easing the process for the scenic art department. I was able to project the spider image that they were then able to trace - albeit filling in the gaps in the image from the shadow themselves. (FIGURE 81)



Figure 80: Oops! The unfortunate shadow on the back surface



Figure 81: Fred Via, Scenic Artist, tracing the spider image from the projection

Dowsers

During design meetings, I brought up the potential issue that as we had 3 projectors close to, and focused relatively narrowly onto the set, we might see some quite obvious projector black (that is the light that gets emitted even when it is not projecting an image - something that it is generally undesirable to see) in particularly dark sections. I was particularly concerned about this in the blacklight scene, so we decided to test a projector during one of the test sessions that Faulker held in the venue - and sure enough, the blank square of the projector's output was very visible. I wasn't able to simply electronically shutter the projectors for this scene (which would be my usual solution to this concern), as we might still need captions if dialogue happened in this low light section, so instead I came up with the idea of co-opting some of the old DMX projector dowsers we had lying around. These devices, controlled by the lighting desk, simply move a flag of black metal in front of the lens to block all light output and had become largely defunct due to our new stock of projectors having built in electronic shutters that could be controlled remotely. I suggested we swap out the solid black flags for DIY ones made of a neutral density (ND) filter (a type of lighting gel that cuts light output down, while keeping the same color), as this would dim the projector enough to hide the projector black square, but keep the caption visible. The caption would be darker, but we could afford to lose some brightness as these would only be used in sections of near-blackout, so the caption would not need to be as bright to counter the stage lights. This solution was agreed upon by all parties and Rupp built and installed these adapted dowsers (FIGURE 82) in front of all 3 of the caption projectors. In the end, we did not end up actually using them at any point. Ironically the one projector that I could have done with it on (the added 6th projector for the basketball hoop - which was so narrow and bright that the projector black was visible even in only slightly dim section) was added so late that it was never given one. This was not a problem however, as I found it too bright in comparison to the other projectors throughout the show, so rather than use ND, I changed the lamp mode of that projector to permanently run at a significantly lower brightness.

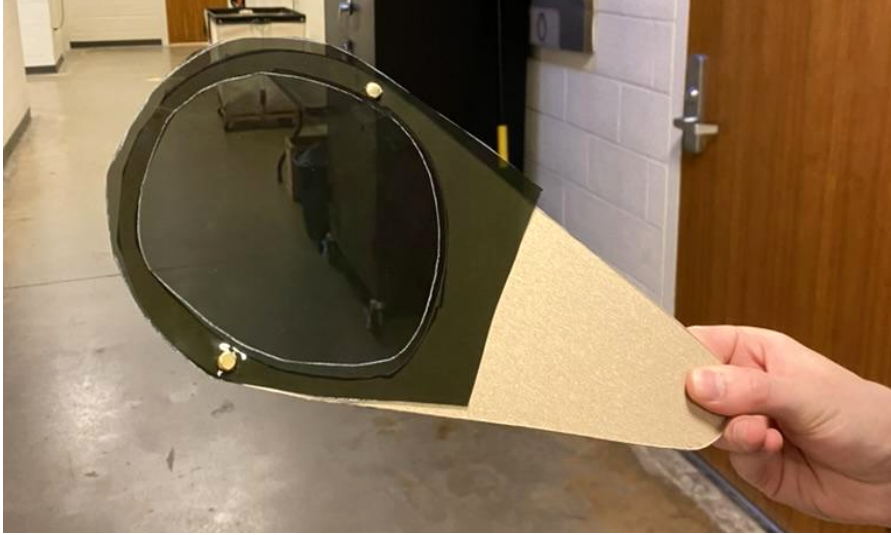


Figure 82: One of the projector Neutral Density filter flags

Chapter 4: Reflections & Survey Feedback

In this chapter, I will analyze and reflect on the feedback and responses I received from the surveys that I conducted after *Hip Hop Anansi*. This is not intended to be a comprehensive qualitative analysis of all the data - rather, I will pull out specific figures and quotes that are of particular interest. I attach the questionnaires in the appendices.

Section 4.1 - Demographic Analysis

Before I move on to the meat of the study, it is worth taking a look at the demographic information of those who took part, as it may have an impact on the applicability of the findings for other groups. I want to make sure that I am identifying and accounting for any biases that might be present in the data when drawing conclusions from it.

In the focus group, we had a relatively even spread of ages, with the participants between the ages of 18 and 64. d/Deaf responders to the general audience questionnaire after *Hip Hop Anansi* expanded this age range to the 75 and over category. All told, we had d/Deaf responders in every age group except 25-34. Likewise, while the focus group had no male-identifying participants, our 4 d/Deaf general audience responders were predominantly male, and identified with two of the ethnic background categories that were not represented in the focus group sample. Although it only added a small handful of new responders, the use of this general audience survey has increased the diversity and representation within the d/Deaf population of the study overall.

Section 4.3 - *Hip Hop Anansi* & Creative Captioning

d/Deaf Audiences

The response to the Creative Captioning in *Hip Hop Anansi* was universally positive - but not without a handful of specific concerns. In the pre-study survey, I asked my focus group whether they had experience watching shows that used Creative Captioning before, and two-thirds of them had. I wanted to know what sorts of implementations they had seen and they listed the use of many of the elements I

would be using: color, font, projection onto walls etc. I was particularly interested in the concerns or challenges they may have had with previous Creatively Captioned shows - as this was still early enough in the process that I could let it influence my design choices. In their responses, the main theme that emerged was a fear of not being able to follow the performance because often in Creative Captioned shows captions do not necessarily appear where expected - and/or their eyeline is not guided to them by other design or blocking elements:

“Sometimes it’s hard to realize there’s captioning THERE. Requires a bit of a mental switch.”

“May miss a few times if not clear where the captions are at.”

I had been expecting this response - as I mentioned earlier, it is listed as a core concern in StageTEXT’s guidance. As such, we had attempted to build a fix for this into the design of the stage itself: speech bubbles that clearly indicate the surfaces that text should be expected on, and setting up a rule where the caption appeared next to the performer saying it.

It would appear that I was generally successful in this regard - 87.5% of the combined d/Deaf respondents said they were effectively or very effectively able to follow the performance using the captions, with one respondent saying *“The projected captions were placed in an easily identifiable place that made it easy to both read and watch the performance.”* That said, several participants noted being overwhelmed by the captions at one point or another. This usually seemed to be the start of the show, before “The Rules” of how the captions work have been able to be established:

“i was slightly overwhelmed for about 10 sec because i had to track which screen was coming on. but that was very short-lived. after very little time i acclimated”

“At first, I was a little taken aback and had to get used to the captioning, but once I understood how they worked, and how they attributed lines to different characters, I was FULLY hooked! I was able to watch the entire stage and see the actors moving around!”

This communication of “The Rules” of how the captions functioned was something I had taken specific care with. I knew in particular that it would be really important to explicitly link each character to their name and typeface really early on. This was especially true for the kids where there is so much overlap

between lines (and the fact they are all talking in scenes together) that I knew that context alone probably wouldn't be adequate in communicating who is who and which is their caption style. Luckily there is a moment where Anansi shouts out the names of the kids and they each pose while their name appears next to them in their font. Ironically, this usage breaks "The Rules" in an attempt to explain them. As the lines themselves are the kids' names spoken by Anansi, they logically should be in his typeface, and next to him - but in this instance it was better to take the opportunity the text and blocking provided to communicate this information. This also meant that d/Deaf audiences and hearing audiences were both able to put a face (and typeface) to a name at the same time.

On the topic of how easy the captions were to follow, responses to questions of legibility and clarity were again generally very positive, with no audience members responding negatively to the question "Were the captions clear and easy to read throughout the performance?". However, some participants did highlight that the speed of the captions was occasionally a little too fast to read comfortably. One said *"Captions too quick sometimes, but then I guess they were talking quite fast."* As this participant alludes, there is only so much to be done about line speed, if actors are just talking that fast. This also seems to come down to personal preference somewhat, as one responder states that the captions were at a "nice pace". Even so, I think there are things that I could have done differently to help mitigate this a bit.

Firstly, the need for slightly longer lines. I think part of the reason that lines went by so quickly is that we had had to quite aggressively split up lines of dialogue in order to make them fit on the caption bubble surface in as few lines as possible while maintaining font size for visibility. While there were still a few times that we had to use three lines, we tried to make these a rarity as I knew that going over two lines was not recommended by StageTEXT in their guidance (StageTEXT, 2022), or by standards for online video captions. Pushing Syrocheva during the design process for wider caption surfaces would have gone a long way to solving this.

The second thing I would like to have done is implement some sort of way for captions to linger, so that they didn't snap out upon the next line. This is something that I had actually done for *Trade* in 2022, but due to the complexity of the programming task here versus the relative simplicity of the caption system in that show, I had just run out of time to do it. This idea could have manifested itself as captions

staying around for a second and slowly fading out after the next caption is fired (provided that next caption is on a different surface) so that they overlap temporally and give audience members a couple of extra beats to catch a line if they missed it.

Respondents universally felt that the creative elements of the captions (such as colors, fonts and animations) enhanced their experience, saying that they *“lent a lot of character and expressiveness to the characters typically conveyed through voice and tone”*, which aided understanding of the characters and their personalities. Nevertheless, some had concerns over the legibility of some of the specific font choices themselves:

“Some of the fonts were hard to read, and the captions were pretty quick a good deal of the time—they flipped past quickly so really did have to pay attention to catch what was being said sometimes.”

“I was a bit concerned about how something like this might be accessible for someone who also is low vision--since there was a lot of color, rather than white text on a black background.”

I received specific feedback that the typefaces for Anansi and Two-Turn were less legible than they should be. Dr Bradbury noted that the very high contrast texture in Anansi’s font and the lack of internal negative space in Two-Turn’s font (FIGURE 83) made them hard to make out at times.



Figure 83: Comparing "a" letter-forms in Anansi and Two-Turn's typefaces

Something that I have learned during this process is to not get bogged down in trying to find the perfect thing, when making it yourself may well be quicker and more effective - and this was particularly true of the custom font that I made for Spray. In hindsight, I think I could have both saved a lot of time and been able to focus on creating highly legible letter-forms should I have made my own fonts for all the characters - or at least those where it took a while to find their final looks (Two-Turn, for example) using this approach from the off.

Also the lighting made it hard to catch actors signing briefly for some [of] the lines because I was focusing on the captioning. So may be nice to time it a bit apart rather than doing both simultaneously

One of the key areas in which the caption design for *Hip Hop Anansi* appears to have been successful is in the way that it helped d/Deaf audiences feel more included in the performance. Alternative forms of captioning – such as closed captioning – can single d/Deaf patrons out as “other” as they are visibly using devices to provide an access accommodation. Likewise, both standard Open Captions using an LED board or screens by the side of the stage and Closed Captions can split d/Deaf patron’s attention from the stage, and make it harder to follow along with what is happening. From the feedback I received, *Hip Hop Anansi* did not have this problem:

i was able to watch the actors and feel like i was expieriancing [sic] the same show as the hearing audience and not missing stuff because i was forced to look away.

As I discussed earlier, one of my big concerns about the design for the show was whether I was doing enough to communicate non-dialogue elements, so I was anxious to hear the feedback in this area which, ultimately, was mixed. Participants generally responded very well to the ideas behind the visual representations of music and sound effects, but often wished these were a little more obvious, developed further, and used more consistently across the show:

“i didn’t realize that indication for a lot of the music cues was the lightning bolts around the speakers. making those more apparent would have helped me a little. i really enjoyed how integrated they were.”

“additionally i would love if info about the music (style, instruments etc) could also be integrated. background sounds (like the floor creaking) were really cool and if the same could be done with music i would feel even more included.”

Similarly, I also received feedback that my attempt to demonstrate that Two-Turn’s sampled lines were recorded audio (rather than spoken dialogue) by projecting it onto the turntable was not successful. Dr Bradbury suggested that maybe the use of music note symbols – a standard borrowed from TV and Film captioning - might have helped communicate this. This was not a complete surprise to me – originally, I had also used a VHS glitch effect on those lines to help imbue them with a “recorded media” quality. Unfortunately, this caused readability issues, so I had opted to cut it. Nevertheless, I hope that the choice to put those captions on an otherwise unused surface created a similar sense of novelty that Hearing audience members got from those lines being the only ones that were samples.

After adding and then cutting the sound effect captions, I was worried that I would receive a lot of feedback saying that I should have included them, but only one participant expressed that they would have preferred that this information be included in the text of the captions themselves:

I think it would've helped to offer more background information in the captioning somehow like (sound of can spraying). The creative captioning was more subtitling.

All told, I think that my general instincts towards visually representing the non-dialogue elements were right (at least for this show) - but needed further development and more consistent usage. This makes sense, as much of these ideas were developed in the room during tech, as I heard and reacted to new sound effects. As I wasn’t really planning at that point, I didn’t create a consistent language for myself. In hindsight, leaning into the text-as-particles idea for more sounds could have been a helpful approach here, as it is both visually interesting, and generic enough to be repeated for a range of different effects. As in other areas where I built a palette of effects for myself, here I could have also built a copy-and-pasteable system with control over particle direction, spawn location, speed, number of particles and typeface to adapt to the aural quality of whatever it was representing. It also has the added benefit of being text that explicitly says what it is - which helps place the whole design more firmly in the “captioning” camp than the “subtitling” camp.

Hearing Audiences

I additionally polled Hearing audience members for their feedback on the creative Captioning in *Hip Hop Anansi*. This was partly in order to glean how much they enjoyed the show - and more specifically, the design (they are still audience members and must be catered to), but I was also particularly interested in any Curb Cut Effects that may present themselves. These are important to identify as they are additional reasons to highlight when pitching Creative Captioned productions to producers and directors - although the desire to provide access for d/Deaf audiences should be convincing enough in its own right, being able to quote a wider population benefit can only be more convincing.

The Hearing response to the captions and the video design was very positive. 100% of those polled said that the captions enhanced their experience. In particular, they note the way that the captions helped connect to the visual identity of Hip-Hop culture, and helped tie design elements together:

"I felt they simply became part of the set and were a play on the importance of slang, graffiti and language to the culture being represented."

"Accenting the set with visual effects to complement audio effects helped bring the entire experience together in ways that are usually absent"

I, like many other Hearing people nowadays, use captions most of the time I watch TV, Film or content online. This was borne out in the responses, where 75% of Hearing responders said they used captions on TV often - clearly, there must be benefits to their usage, otherwise this would not be the case. Some of the feedback on the captions in *Hip Hop Anansi* from Hearing audience members sheds a little bit of light on why this might be. Most of these responses detail how they were concerned they might miss something - either through the pace of the dialogue, or just that their attention is being split between other things happening on stage - and that having captions present for them to reference if needed was able to reassure them:

“Without them I might have missed something. My eyes went to them often and I found it reassuring.”

“Some of the words were said quickly and I could look at the screen and confirm I understood.”

“I was watching the captions when each of the children was rapping their vision - it helped me to parse meaning while still being able to take in all the light, costume, sound and acting choices”

One Hearing participant also noted that there is a Curb Cut Effect here for people with auditory processing disorders. While able to hear, these people may struggle to make out or follow dialogue and recognize who it is coming from. They explain how the provision of spatially-realized captions were particularly useful for them:

Even though I am a hearing person, I still sometimes struggle with auditory processing. The captions were very helpful for that, and they [sic] way they were placed made it so I could still enjoy the show to the fullest while reading the captions.

A participant who identified as Hard-of-Hearing also explained how the captions were able to help provide access for their specific needs:

I can't have noise cancelling accommodations and still understand a show, but this gave me the opportunity to engage in the performance and understand what was going on without having to force myself to be uncomfortable or push beyond my limits

In this case, it appears that in previous shows they had attended they had been forced to utilise an auditory processing accommodation (noise cancelling headphones) in order to mitigate for loud noises, but this also had a negative effect on their ability to hear the performers. They were concerned that they might have to leave the show if they weren't going to be able to follow the dialogue while keeping their headphones, but due to the captions they were able to do both.

On the negative side, an audience member did note that they *“felt a little pressure for the actors’ need to be perfect because the audience were de-facto ‘fact checkers’”* as they can hear the line as spoken and unconsciously compare it to the written caption. If these don't match, it can sometimes hinder

that audience member's ability to suspend their disbelief and engage properly in the show. This is not an uncommon complaint about Open Captioning in theatre, and is feedback I have received before in previous work (including a review for the show *Jade City*, which I designed in 2019). Going into this process we were aware of this pressure and established early on in the rehearsal process the need for actors to be off-book early on and to avoid paraphrasing at all costs. In this knowledge, our stage management team took detailed line notes for the actors throughout rehearsals to correct any mistakes they made. Likewise, through tech I had my assistant Lee Talbot focus on editing the captions to be accurate to what was being said on stage - if there were lines that were consistently paraphrased a certain way, we changed them. Although this ideally would have been purely the responsibility of the cast to ensure they were getting their lines right, as this is an educational establishment with actors still learning (and for some, their very first show) we felt the need to meet in the middle. As a result of all this hard work, I believe that - while audiences may have experienced some pressure to "fact-check" - the captions were ultimately accurate to what was being said, and this was not a significant problem in this particular show.

The use of Creative Captioning also served as an educational experience for Hearing audience members. 75% of them said they had never seen a creatively captioned show, and many had never heard of it before this. Many responders describe how the experience has changed their views on access accommodations in theatre, explaining that they had not previously realized that access could be integrated into performance in a way that *"doesn't have to mean compromising artistic choices"* and inspired them to think of *"other ways accessibility can be integrated into shows"*. I particularly enjoyed one response that stated: *"It made me realize that accessibility is necessary and helps everyone. Theatre is too creative of an art form to not have solutions for accessibility."*

4.5 Key Recommendations and Takeaways

When it comes specifically to Creative Captioning, I have a number of key takeaways for myself and others of things that worked particularly well in *Hip Hop Anansi*, as well as some things that I will take forward into my work to improve upon in the future:

Firstly, it is important to manage expectations of where captions will appear. In *Hip Hop Anansi*, we achieved this well by having captions appear near their characters - which was universally received as a good idea. We also achieved this by signposting certain scenic elements as specifically for dialogue. The design does not necessarily need to be as structured as this, but is important to find some sort of visual cue to indicate where to look. It is not a problem to use other surfaces and 'break the rules' from time to time (such as when Two-Turn's lines appear on the turntable), but this should be done with caution and intention to keep those moments surprising and special, and to not unnecessarily increase the friction to following the show.

Secondly, varying typeface and color of captions is a highly effective tool to differentiate characters and communicate personalities. It is important, though, to be careful to choose typefaces and colors that are easily legible so as not to alienate d/Deaf audiences that may also have lowered vision. Achieving this may be better accomplished through the creation of custom typography rather than spending time and money searching for the perfect pre-made typeface. Many typefaces that are clearly themed are "display fonts" which are intended for a couple of words in titles and headlines for posters and webpages, rather than for continued reading, and may become hard to read for longer captions - or exhausting to read after a longer period of time. Care should be taken to choose fonts without ornamental flourishes that distort the letter forms too much, and to avoid typefaces that compress the internal negative space in letters like "e" and "B".

Adding movement and effects to captions can inject a sense of energy and fun - and is an important part of making them feel like they are adding value for Hearing and d/Deaf audiences alike. This should still be approached with caution and subtlety so as to not hinder readability.

It is important to aim for completeness and relative consistency when providing visual versions of sound effects, or other non-dialogue elements. This does not necessarily mean that all sounds should be explicitly captioned in the same way as the dialogue - or even as text - but should be done in a way that is clearly parseable. It is important not to editorialize and leave out certain sounds and information from the visual experience. d/Deaf audiences will be coming to a production with a range of prior experiences and expectations - both positive and negative, so it may be necessary to prepare them by finding a way to

communicate your design philosophy before the show. This could take the form of a program note, or some form of pre-show announcement.

Larger surfaces (in particular surfaces with more width to allow for longer captions) are essential for successful Creative Captioning. While a variety of sizes of caption surface adds visual interest to the scenic design, it can create significant restrictions on the way any given surface can be used. If you are working with a design where captions appear on the closest surface to the actor, but the closest available surface is too small for the lines being said, you run the risk of requiring lines to be broken up into small chunks that remove the sense of line, scaling them too small to fit, or having to ask the director to re-block and move the performer.

One must make sure that your caption surfaces are covered by the densest and brightest pixels possible to make sure text is legible. Achieving this may involve more projectors and/or dedicating projectors to this task so their images can be kept narrow, brighter and at a higher effective resolution.

Lastly, it is important to build systems for yourself that can help you react efficiently to script and blocking changes. This may be in the set-up of your team - for example, having an assistant who can focus on ensuring accuracy and making changes to surface assignment. It could also be making technical systems that facilitate this – e.g. through the use of networking to enable multiple people to work on the same thing simultaneously. The earlier that blocking and any ad-libs or script additions can be solidified, the earlier the caption file can be populated, which will take significant pressure of technical rehearsals.

On a more general note, the thing that this process has really solidified for me in my mind is the need to have a Deaf dramaturg in the room throughout the design and rehearsal process when making work designed to be accessible to d/Deaf audiences. At points during the making of *Hip Hop Anansi* I felt like I was the only person in the room keeping an eye out for access, and as someone without personal experience of Deafness (even though I have experience working with many d/Deaf people) this felt uncomfortable. Likewise, it is important to consider the way that intersecting disabilities might affect a d/Deaf patron's experience of the captions. For example, if they also have a vision condition. It is worth including someone in the process who is able to consult from this perspective to ensure legibility of the captions for the widest range of people possible.

The process of completing this study has highlighted to me the importance of d/Deaf access extending past the captioning or content of the performance itself, into the Front of House experience. As one of the participants notes:

"If everyone who is front-facing learned some basic signs to interact with the general public, that would be amazing! (simple things, such as "your seat is over there," "can I have your ticket?" etc etc"

Through my interactions with the participants, I found myself acutely aware of how little ASL I knew. Although I was able to communicate through a mix of modalities (emailing information in advance, written communication, lip-reading and some interpretation), I couldn't help but think how much smoother this would have been should I have been able to sign. Where I would have loved to have deeper post-show conversations around the captioning, I was instead reliant on the limited pre-written questions in the survey I had written - as I was limited in my ability to communicate with my participants. If I were to do a study like this again, hiring interpreters and running it more as a conversation - like a traditional focus group - would possibly have ended up giving me some richer insight.

I would like to end this thesis with a particular quote from one of my participants that stuck with me long after I read it:

"The joy of captioning was evident in the entire show and that was a nice surprise."

Plays exist both as written works and performed works, and captioning them allows us to highlight that dual existence. Much like Bringhurst, whose quote I opened this thesis with, I am a firm believer that typography is a joy in its own right, and its use in captioning should help elevate and celebrate the written word. Similarly, access and the aesthetics of access, should be seen as a joy in themselves - and a goldmine of creative opportunity that opens us up to new ideas and new audiences.

Appendix I: Tech Rehearsal Notes

Hip Hop Anansi

- Fox Run notes

- Q missing announcement captions.
- Q placeholder music captions in front scene.
- Q Caption says 8 o'clock.
- Q who.
- Q go Spring split capt.
- Q Don't have spring move on Fletcher dolly.
- Q It was a normal day at the c.s.b.
- Q frogs being too.
- Q Anansi & kids.
- Q Just make something out there (kill audio clarity).
- Q Spring sound effect @ top of Spring vision.
- Q Needs 8 eggs.
- Q need a bigger gap for two turn pick up & record characters.
- Q Anansi perhaps make shorter caption.
- Q Some sort of change for Anansi theme green sweater.
- Q Anansi put little illegible.
- Q split and run / one we're there.
- Q move Anansi slap captions to surface 1.
- Q two turn cut part line speaking.
- Q Attached by a roach bell.
- Q need something on cries.
- Q Gab rap needs big shift @ end.
- Q Warm rap more do over.
- Q overusing dog road.
- Q Did final dish sounds move?
- Q Final Section captions all in middle surface.

- Q Work on making sure speakers are in time.
- Q tone down animations.
- Q captions too small.
- Q fuzzy looking.
- Q work on two turn part especially color.
- Q cross it out.
- Q Spring part ~~make~~ make turn then.
- Q bit more content for two turn turntable.
- Q make creak, higher refresh.
- Q can basketball net be lowered.
- Q roach slower.

Dress 2

- Q Roach moment ~~more~~.
- Q white line in opening.
- Q More worn spring over slightly.
- Q Change Two turn sound ?? right change.
- Q Speakers in clean up song.
- Q Speakers at or cracking.
- Q find better frequency for speakers in singing to hearing music.
- Q missing part beat before in or before section dance section.
- Q "GET up".
- Q stop UV actors → 1, 2, 3 (cool it).
- Q LOOPS? → Sneaker. → Niman. → Spring.
- Q Kill UVs in song.

- Q Spring song Two turn & Gab more along surface.

- Q Speakers in dishes are for kids.

- Q Baking padding speakers.

- Q Keep roach going through center.

- Q Spring slider again work??

- Q cut cartoon effects completely.

- Q Niman effect don't go with cartoon.

- Q Shave pix bounce.

- Q some sort of change what?

Dress 2

- Give Alana new ~~for~~ for two turn light.
- Can we do anything about split UV?
- Turn two turn back.
- Need something for restore after Niman.
- Oops left the cartoon effects in.
- Wind came in too early.
- New turntable didn't fire?
- Need something on fly que arrive chime?
- Need a pulse or rhyme.
- Speakers in post show!!!

Appendix II: The Questionnaires

Pre-Study Questionnaire

* Indicates required question

Demographic Information

1. What is your age group?*

Mark only one oval.

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 or older
- Prefer not to say

2. What is your gender identity?*

If you prefer to self-describe, please select other

Mark only one oval.

- Man
- Woman
- Non-Binary
- Prefer not to say
- Other:

3. How do you identify?

Mark only one oval.

- deaf
- Deaf
- Hard-of-Hearing
- Hearing Impaired
- Other:

4. What is your preferred communication modality in day-to-day life?*

Mark only one oval.

- Vocal Speech
- American Sign Language (or other sign language)
- Written communication
- Other:

5. Do you identify as having any additional disabilities?*

Mark only one oval.

- Yes
- No
- Prefer not to say

6. What is your racial / ethnic background?*

Check all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- Prefer not to say
- Other:

Theatre Habits

7. How often do you attend live theatre?*

Mark only one oval.

Almost Never (e.g. less than once every 2 years)

- 1
- 2
- 3
- 4
- 5

Very Regularly (e.g. more than twice a month)

8. How often do you feel that barriers to access stop you from attending live theatre?*

Mark only one oval.

Almost never

- 1
- 2
- 3
- 4
- 5

Very regularly

9. Feel free to elaborate if you wish.

10. Have you used closed captioning (on phones, tablets, smart glasses etc) in live theatre before?*

Mark only one oval.

- Yes (Skip to question 13)
- No (Skip to question 17)

11. Which of the following forms of accessibility support have you used before in live theatre?*

Check all that apply.

- Standard Open Captioning (e.g. caption screens, or projected captions - not creative captioning)
- ASL (or other sign language) interpreters
- Hearing Loops
- None
- Other:

12. What is your preferred form of access support in live theatre?*

Mark only one oval.

- Standard Open Captioning (e.g. caption screens, or projected captions)
- Creative Open Captioning (e.g., stylized captions designed to blend with the performance)
- Closed Captioning (e.g. on phones, tablets, smart glasses)
- ASL (or other sign language) interpreters
- Hearing Loops
- None
- Other:

Closed Captioning

13. What types of closed captioning have you used before?*

Check all that apply.

- Venue-provided tablets
- Seat-back devices
- An app on your own phone
- Smart Glasses
- Other:

14. What did you find most effective about them?

15. What did you find most challenging about using them?

16. How important is the ability to personalize captions (e.g., font size, color, placement) to you for your enjoyment of a performance?*

Mark only one oval.

Not important at all

- 1
- 2
- 3
- 4
- 5

It is a necessity

Creative Captioning

17. Have you heard of creative captioning (e.g., stylized captions designed to blend with the performance) before?*

Mark only one oval.

- Yes
- No

18. Have you ever attended a live theatre performance with creative captioning before?*

Mark only one oval.

- Yes (Skip to question 19)
- No (Skip to question 22)

19. Please briefly describe the form the creative captions took:*

20. What did you find most effective about them?

21. What did you find most challenging about using them?

Further questions

22. Do you think that theatres are generally doing enough to facilitate accessibility for d/Deaf and hard-of-hearing audiences?*

Mark only one oval.

- Yes
- No
- Not sure

23. If no, what more should they be doing?

24. Beyond the accessibility accommodations mentioned above, what other support do you think could enhance your theatre experience?

Post Show Focus Group Questionnaire

* Indicates required question

1. Please enter your Participant ID*

Visual Design and Integration

2. How did you feel about the design and placement of the projected captions on stage?*

3. Did the creative elements (e.g., colors, fonts, animations) enhance or detract from your experience?*

Mark only one oval.

Detracted a lot

- 1
- 2
- 3
- 4
- 5

Enhanced a lot

4. Please elaborate:

5. Were there specific elements of the creative captioning you particularly enjoyed or disliked?

6. Did the captions contribute to your emotional connection to the performance?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

A lot

7. Give examples, if you wish.

8. Did the captions contribute to your immersion in the story?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

A lot

9. Give examples, if you wish.

Engagement and Accessibility

10. Whereabouts were you sitting?*

Mark only one oval.

Far on the left of the auditorium

- 1
- 2
- 3
- 4
- 5

Far on the right of the auditorium

11. Were the captions clear and easy to read throughout the performance?*

Mark only one oval.

Very unclear

- 1
- 2
- 3
- 4
- 5

Very clear

12. How able were you to follow the performance effectively thanks to the creative captioning?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Very Effectively

13. How well did the captions synchronize with the performance?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Perfectly

14. How integrated did the captions feel to the performance of the actors on stage?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely integrated

15. How integrated did the captions feel to the other design elements (lighting, scenery etc)?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely integrated

16. Were there moments where the caption design felt distracting or overwhelming?*

Mark only one oval.

- Yes
- No

17. If yes, how?

18. How included in the performance as an audience member did you feel thanks to the creative captioning?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely Included

19. Expand on the above, if you wish:

Overall Experience

20. Had you attended a production using creative captioning before participating in this study?*

Mark only one oval.

- Yes
- No

21. If yes, how would you say this experience compares?

Mark only one oval.

Much Worse

- 1
- 2
- 3
- 4
- 5

Much Better

22. Elaborate, if you wish:

23. How would you describe your overall experience with this use of creative captioning?*

Mark only one oval.

Very Poor

- 1
- 2
- 3
- 4
- 5

Excellent

24. Are there any changes you would have liked to see with this implementation of creative captioning?*

Mark only one oval.

- Yes
- No
- Not sure

25. If yes, please elaborate

26. Would you attend another show using creative captioning?*

Mark only one oval.

- Yes
- No
- Maybe

27. Has this experience changed your perception of creative captioning?*

Mark only one oval.

- Yes
- No
- Maybe

28. If so, how?

29. Has this experience changed your preferences around access accommodations in live theatre?*

Mark only one oval.

- Yes
- No
- Maybe

30. If so, how?

31. Do you think theatres should be making more shows that include creative captioning?*

Mark only one oval.

- Yes
- No
- Maybe

32. Between the two methods you have experienced in this study (phone captioning vs. creative captioning), which did you prefer?*

Mark only one oval.

Phone, by a lot

- 1
- 2
- 3
- 4
- 5

Creative, by a lot

33. Why?

34. Please note any further comments.

Post Show General Audience Questionnaire

* Indicates required question

Creative Captioning: Post-Performance Questionnaire for general audience

Thank you for your interest in taking part in this questionnaire.

In order to comply with federal regulations around research, here follows some information about the study and a consent declaration.

About the study

This questionnaire is part of a research project entitled "Captioning the Imagination: Creative Type and Integrated Access in Hip Hop Anansi and beyond."

This research is being conducted by Timothy Kelly at the University of Maryland, College Park.

We are inviting you to participate in this research project because you attended a creatively captioned performance of the production Hip Hop Anansi.

The purpose of this research project is to discover preferences around various captioning methods for d/Deaf and Hard-of-Hearing audiences, and to understand how different approaches to captioning may enhance the theatre-going experience for d/Deaf/Hard-of-Hearing and hearing audiences alike.

Procedures

You can answer as many or as few questions as you like.

We anticipate it should take no longer than 30 minutes to complete all the questions.

Potential Risks and Discomforts

We believe there to be minimal risk associated with taking part in this study.

There is a very small amount of psychological risk as some participants may feel some discomfort sharing negative past or present experiences with access, but this is not expected to be a particularly painful topic.

Potential Benefits

There are no direct benefits from participating in this research. We hope that, in the future, other people might benefit from this study through improved understanding of preferences across the d/Deaf community around captioning. We hope that the data collected and increased awareness around alternative approaches captioning will influence venues' policies around access, and increase the availability and richness of access provisions for more people.

Confidentiality

Any potential loss of confidentiality will be minimized by the use of pseudonyms for the data collection.

No personally identifiable information is collected in the surveys.

Standard demographic information is collected in order to assess the representability of the study, but participants are able to opt out of providing this if they prefer not to say.

If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.

Right to Withdraw and Questions

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

If you decide to stop taking part in the study, wish to withdraw your data, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:

Timothy Kelly

[ADDRESS REDACTED]

timkelly@umd.edu

Participant Rights

If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park

Institutional Review Board Office

1204 Marie Mount Hall

College Park, Maryland, 20742

E-mail: irb@umd.edu

Telephone: 301-405-0678

For more information regarding participant rights, please visit:

<https://research.umd.edu/research-resources/research-compliance/institutional-review-board-irb/research-participants>

This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

1. Please provide a pseudonym so that your data can be identified should you wish to remove it from the study.*

This should be memorable but non-identifiable.

2. Statement of Consent*

You can indicate below that you are at least 18 years of age; you have read this consent form and you voluntarily agree to participate in this research study. You may print or save a copy of this consent form if you wish.

Mark only one oval.

- I confirm that I am over the age of 18 and I consent to take part in this study
- I do not consent to take part in this study

Path Selection

3. Please select the option that best fits how you identify:*

Mark only one oval.

- d/Deaf or Hard-of-Hearing (Skip to question 4)
- Hearing (Skip to question 47)

1.1: Demographic Information

We collect this information in order to assess representativeness of the study.

4. What is your age group?

Mark only one oval.

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 or older
- Prefer not to say

5. What is your gender identity?*

If you prefer to self-describe, please select other

Mark only one oval.

- Man
- Woman
- Non-Binary
- Prefer not to say
- Other:

6. How do you identify?

Mark only one oval.

- deaf
- Deaf
- Hard-of-Hearing
- Hearing Impaired
- Other:

7. What is your preferred communication modality in day-to-day life?*

Mark only one oval.

- Vocal Speech
- American Sign Language (or other sign language)
- Written communication
- Other:

8. Do you identify as having any additional disabilities?*

Mark only one oval.

- Yes
- No
- Prefer not to say

9. What is your racial / ethnic background?*

Check all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- Prefer not to say
- Other:

1.2: Theatre Habits

10. How often do you attend live theatre?*

Mark only one oval.

Almost Never (e.g. less than once every 2 years)

- 1
- 2
- 3
- 4
- 5

Very Regularly (e.g. more than twice a month)

11. How often do you feel that barriers to access stop you from attending live theatre?*

Mark only one oval.

Almost never

- 1
- 2
- 3
- 4
- 5

Very regularly

12. Feel free to elaborate if you wish.

13. Have you used closed captioning (on phones, tablets, smart glasses etc) in live theatre before?*

Mark only one oval.

- Yes (Skip to question 13)
- No (Skip to question 17)

14. Which of the following forms of accessibility support have you used before in live theatre?*

Check all that apply.

- Standard Open Captioning (e.g. caption screens, or projected captions - not creative captioning)
- ASL (or other sign language) interpreters
- Hearing Loops
- None
- Other:

15. What is your preferred form of access support in live theatre?*

Mark only one oval.

- Standard Open Captioning (e.g. caption screens, or projected captions)
- Creative Open Captioning (e.g., stylized captions designed to blend with the performance)
- Closed Captioning (e.g. on phones, tablets, smart glasses)
- ASL (or other sign language) interpreters
- Hearing Loops
- None
- Other:

1.3 Visual Design and Integration

16. How did you feel about the design and placement of the projected captions on stage?

17. Did the creative elements (e.g., colors, fonts, animations) enhance or detract from your experience?*

Mark only one oval.

Detracted a lot

- 1
- 2
- 3
- 4
- 5

Enhanced a lot

18. Please elaborate:

19. Were there specific elements of the creative captioning you particularly enjoyed or disliked?

20. Did the captions contribute to your emotional connection to the performance?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

A lot

21. Give examples, if you wish.

22. Did the captions contribute to your immersion in the story?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

A lot

23. Give examples, if you wish.

1.4 Engagement and Accessibility

24. Whereabouts were you sitting?*

Mark only one oval.

Far on the left of the auditorium

- 1
- 2
- 3
- 4
- 5

Far on the right of the auditorium

25. Were the captions clear and easy to read throughout the performance?*

Mark only one oval.

Very unclear

- 1
- 2
- 3
- 4
- 5

Very clear

26. How able were you to follow the performance effectively thanks to the creative captioning?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Very Effectively

27. How well did the captions synchronize with the performance?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Perfectly

28. How integrated did the captions feel to the performance of the actors on stage?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely integrated

29. How integrated did the captions feel to the other design elements (lighting, scenery etc)?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely integrated

30. Were there moments where the caption design felt distracting or overwhelming?*

Mark only one oval.

- Yes
- No

31. If yes, how?

32. How included in the performance as an audience member did you feel thanks to the creative captioning?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely Included

33. Expand on the above, if you wish:

1.5 Overall Experience

34. Had you attended a production using creative captioning before participating in this study?*

Mark only one oval.

- Yes
- No

35. If yes, how would you say this experience compares?

Mark only one oval.

Much Worse

- 1
- 2
- 3
- 4
- 5

Much Better

36. Elaborate, if you wish:

37. How would you describe your overall experience with this use of creative captioning?*

Mark only one oval.

Very Poor

- 1
- 2
- 3
- 4
- 5

Excellent

38. Are there any changes you would have liked to see with this implementation of creative captioning?*

Mark only one oval.

- Yes
- No
- Not sure

39. If yes, please elaborate

40. Would you attend another show using creative captioning?*

Mark only one oval.

- Yes
- No
- Maybe

41. Has this experience changed your perception of creative captioning?*

Mark only one oval.

- Yes
- No
- Maybe

42. If so, how?

43. Has this experience changed your preferences around access accommodations in live theatre?*

Mark only one oval.

- Yes
- No
- Maybe

44. If so, how?

45. Do you think theatres should be making more shows that include creative captioning?*

Mark only one oval.

- Yes
- No
- Maybe

46. Please note any further comments.

2.1 Demographic Information

We collect this information in order to assess representativeness of the study.

47. What is your age group?*

Mark only one oval.

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 or older
- Prefer not to say

48. What is your gender identity?*

If you prefer to self-describe, please select other

Mark only one oval.

- Man
- Woman
- Non-Binary
- Prefer not to say
- Other:

49. Do you identify as having a disability?

Mark only one oval.

- Yes
- No
- Prefer not to say

50. What is your racial / ethnic background?*

Check all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- Prefer not to say
- Other:

2.2 Theatre Habits

51. How often do you attend live theatre?*

Mark only one oval.

Almost Never (e.g. less than once every 2 years)

- 1
- 2
- 3
- 4
- 5

Very Regularly (e.g. more than twice a month)

52. How often do you feel that barriers to access stop you from attending live theatre?*

Mark only one oval.

Almost never

- 1
- 2
- 3
- 4
- 5

Very regularly

53. Feel free to elaborate if you wish.

54. How often do you use subtitles on TV / streaming / internet videos

Mark only one oval.

Never

- 1
- 2
- 3
- 4
- 5

Always

55. Which of the following forms of accessibility support have you used before in live theatre?

Check all that apply.

- Standard Open Captioning (e.g. caption screens, or projected captions - not creative captioning)
- Closed Captioning (on phones, tablets, smart glasses etc)
- ASL (or other sign language) interpreters
- Hearing Loops
- None
- Other:

2.3 Visual Design and Integration

56. How did you feel about the design and placement of the projected captions on stage?

57. Did the creative elements (e.g., colors, fonts, animations) enhance or detract from your experience?

Mark only one oval.

Detracted a lot

- 1
- 2
- 3
- 4
- 5

Enhanced a lot

58. Please elaborate:

59. Were there specific elements of the creative captioning you particularly enjoyed or disliked?

60. Did the captions contribute to your emotional connection to the performance?

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

A lot

61. Give examples, if you wish.

62. Did the captions contribute to your immersion in the story?*

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

A lot

63. Give examples, if you wish.

2.4 Engagement and Accessibility

64. Whereabouts were you sitting?

Mark only one oval.

Far on the left of the auditorium

- 1
- 2
- 3
- 4
- 5

Far on the right of the auditorium

65. Were the captions clear and easy to read throughout the performance?

Mark only one oval.

Very unclear

- 1
- 2
- 3
- 4
- 5

Very clear

66. How well did the captions synchronize with the performance?

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Perfectly

67. How integrated did the captions feel to the performance of the actors on stage?

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely integrated

68. How integrated did the captions feel to the other design elements (lighting, scenery etc)?

Mark only one oval.

Not at all

- 1
- 2
- 3
- 4
- 5

Completely integrated

69. Were there moments where the caption design felt distracting or overwhelming?

Mark only one oval.

- Yes
- No

70. If yes, how?

71. Did the captions make you more aware of the experience of d/Deaf or hard-of-hearing audience members?

Mark only one oval.

- Yes
- No

72. Expand on the above, if you wish:

73. Did you perceive the captions as being intended for all audiences, or specifically for d/Deaf audiences?*

Mark only one oval.

Purely for d/Deaf audiences

- 1
- 2
- 3
- 4
- 5

For all audiences

74. Expand on the above, if you wish:

2.5 Overall Experience

75. Had you attended a production using creative captioning before participating in this study?

Mark only one oval.

- Yes
- No

76. Elaborate, if you wish:

77. How would you describe your overall experience with this use of creative captioning?

Mark only one oval.

Very Poor

- 1
- 2
- 3
- 4
- 5

Excellent

78. Are there any changes you would have liked to see with this implementation of creative captioning?

Mark only one oval.

- Yes
- No
- Not sure

79. If yes, please elaborate

80. Would you attend another show using creative captioning?

Mark only one oval.

- Yes
- No
- Maybe

81. Has this experience changed your perception of creative captioning?

Mark only one oval.

- Yes
- No
- Maybe

82. If so, how?

83. Has this experience changed your thoughts around access accommodations in live theatre?

Mark only one oval.

- Yes
- No
- Maybe

84. If so, how?

85. Do you think theatres should be making more shows that include creative captioning?

Mark only one oval.

- Yes
- No
- Maybe

86. Please note any further comments.

Thank you for participating!

Appendix III: IRB Determination Letter



1204 Marie Mount Hall
College Park, MD 20742-5125
TEL 301.405.4212
FAX 301.314.1475
irb@umd.edu
www.umresearch.umd.edu/IRB

DATE: February 11, 2025

TO: Timothy Kelly
FROM: University of Maryland College Park (UMCP) IRB

PROJECT TITLE: [2278453-1] Captioning the Imagination: Creative Type and Integrated Access in Hip Hop Anansi and beyond.

SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: February 11, 2025

REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category #7. Waiver of Consent Documentation, 45 CFR 46.117(c).

Thank you for your submission of New Project materials for this project. The University of Maryland College Park (UMCP) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Prior to final approval of this project scientific review was completed by the IRB Member reviewer.

This submission has received Expedited Review based on the applicable federal regulations.

This project has been determined to be a MINIMAL RISK project.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Unless a consent waiver or alteration has been approved, Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate Amendment forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Please note that all research records must be retained for a minimum of seven years after the completion of the project.

If you have any questions, please contact the IRB Office at 301-405-4212 or irb@umd.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Maryland College Park (UMCP) IRB's records.

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