

Playing in Synch:

A Three-Part Typology of Synch Points between Image and Sound in

Bioshock Infinite

by

Robert Brewer

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Robert Brewer

Abstract

Video games make extensive use of image and sound, as well as player interactivity to communicate narrative and gameplay information. While scholars (e.g., Kaae, 2008 and Collins, 2013) have made significant contributions to understanding these forms of communication, there are still fruitful directions to explore. This thesis adds Chion's (1994) concept of points of synchronization to the discussion by addressing how they might be used as a tool to create emphasis and to provide an auditory and visual setting around a video game's narrative and gameplay elements. I will argue that it is useful to divide synch points into three types (narrative, gameplay, and serendipitous), and will explore how Chion's concept, originally developed for cinematic sound, can be expanded to include the complexities afforded by interactive gameplay. I will use *Bioshock Infinite* (2K Games, 2013) as a case study to demonstrate the practical utility of this typological approach to synch points.

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Chapter 1: Theoretical Context

Theory addressing audiovisual media has a significant history in film studies. While, as Collins notes (2008, pg. 5), “Games are not films!,” they do share many characteristics. Moreover, games are in some important ways a “continuation of linear media” such as film (5). These similarities have motivated scholars (e.g., Collins, 2013; Kaae, 2008) to extend and expand film theory to accommodate the more recent video game medium. Other work (e.g., Galloway, 2006; Aarseth, 1997) has developed a separate literature that draws from other fields while also producing theory that is unique to the study of video games. In this thesis, I will connect these various literatures by expanding film sound scholar Michel Chion’s concept of the point of synchronization to include theory around interactivity and gameplay.¹ I will present a case study on the video game *Bioshock Infinite* (2K Games, 2013) to demonstrate this theory in practice.

Chion (1994) defines a point of synchronization (synch point) as “a salient moment of an audiovisual sequence during which a sound event and a visual event meet in synchrony. It is a point where the effect of synchresis... is particularly prominent, rather like an accented chord in music” (58). He defines synchresis as “the spontaneous and irresistible weld produced between a particular auditory phenomenon and visual phenomenon when they occur at the same time” (63). It is not entirely clear what he means by spontaneous and irresistible. The link might be spontaneous in that it does not always require a set-up. For example, if we hear the sound of ping-pong balls, as in Tati’s *Mon Oncle* (Tati, 1958; Chion offers this example), matched precisely with the foot falls

¹ Note that I will generally speak in terms of ‘sound’ as opposed to ‘music’ because music is sound, but sound is not necessarily music. I will use the term ‘music’ when specifically discussing music.

of a person walking then we will very likely, even without much prior conditioning, link the two, therefore creating a spontaneous link. The link might be irresistible in that it appears natural for the viewer/listener to link the two events (again, little prior conditioning or knowledge is required).² It is so natural and easy for us to make these kinds of associations that we do so without conscious effort and therefore without resistance (any attempt to resist would just strengthen the association due to the attention given to it). While this example makes sense in the context of synchresis, it becomes problematic with synch points, since synch points may (and perhaps must) acquire their salience through the context surrounding them, and thus are not necessarily spontaneous in the sense of occurring without a prior context or set of conditioning.

Likewise, claiming that all synch points are irresistible is a strong statement. Someone with more background knowledge of a particular piece of music or sound effect, for example, might notice a synch point that another person may not because they³ are drawing from a different knowledge pool. In this case the synch point is only irresistible to the first person. The naturalness explained earlier will not apply because the required background knowledge is simply not there. Also important to note is that Chion is writing about sound phenomena in general rather than limiting himself to music. This thesis will address examples of both.

Chion elaborates by suggesting that synch points can act as a tool for punctuation and emphasis in that they give an “audiovisual flow its phrasing, just as chords or

² I am borrowing the term “viewer/listener” from Chion (or rather from Gorbman’s translation of Chion) to emphasize that these experiences recruit both sensory modalities. I will use this term when discussing film and will use the term “player” when discussing video games unless I am evoking a specific scholar who uses a different term.

³ I will use “they” as a gender-neutral singular pronoun throughout this thesis.

cadences, which are also vertical meetings of elements, can give phrasing to a sequence of music” (59). He notes that this can also be done using false synch points, which set up for a meeting of sound and image but then do not follow through. Note that here the synch point is created by the preceding (and possibly following) context, but is not actually extended horizontally to include that context. In other words, an analysis of a synch point will include the horizontal context even if the synch point itself is still a vertical moment.

Chion’s final point of emphasis is the power of synch points to create “temporal elasticity” (61), suggesting that synch points can allow time to “swell, fold, puff up, tighten, stretch or, on the contrary, to gape or hang loosely like fabric” (62). He gives the example of the slow-motion sequences that might surround a physical punch (in a martial arts film, for example) and notes that synch points allow auditory and visual continuity to be hooked together. Chion’s wording here does little to clarify what exactly it means for time to “puff up” or “gape,” preferring to describe the point poetically instead of analytically. One can imagine a sound effect and image demarking a daydream or fantasy that might appear extended in time, but is actually, in the diegesis of the film, only a moment. In this case the synch point is allowing time to “swell” in the daydream (and for the viewer/listener) even if it is only an instant outside of the dream (and in the world of any other characters in a scene). In a similar vein, one can imagine a synch point ending a daydream sequence, thus creating the possibility of synch points bracketing a scene during which time is altered in some way.

Video games provide a new medium with which to apply and expand Chion’s concept. While a video game may use synch points in the same way that film does, there

is the additional component of player interactivity. For this reason, I will argue that there are three broad and dynamic types of synch points: narrative, gameplay, and serendipitous. Narrative synch points add emphasis to certain moments in the game: those which play a prominent role in composing the overall narrative arc. They are particularly important in video games because the player's attention will shift between tasks required to progress through the game and the narrative elements that are given to the player through dialogue, cut-scenes, etc.

The second type of synch point, gameplay synch points, provide information about gameplay states such as health, combat, etc. An example might be a "game over" screen when the player is killed in combat, or a pulsing red hue on the screen synchronized with the sound of a heart beat to indicate low health. These can vary in their urgency. For example, a low health synch point requires more urgent attention than one that tells the player that the character has jumped up and down.

Finally, serendipitous synch points are moments during which a chance "encounter" between image and sound -- one not pre-programmed -- is particularly salient. These moments are possible because of the interactivity of video games. A sound may be triggered by the action of a player and matched with an image that would have been there regardless of the player's actions. In this case, the sound and image have no pre-determined link but may still carry semiotic weight if the player interprets the connection in a particular way (even if the player believes that the synch point was not intentional). Serendipitous synch points include those that are based on intertextual

references.⁴ For example, if a player has a particular background with a given piece of music that plays when an image is seen, then that intertextual relationship between the player's previous experience and the image may create an experience completely unique for that player (game developers are unable to be aware of all pre-existing knowledge and therefore can not plan for all possible relationships). Serendipitous synch points are always contingent on the subjective response of the viewer.⁵

These three types of synch points are not mutually exclusive. Narrative information may be communicated at the same time as gameplay information. For example, if part of the narrative identifies the enemy in a game, this may also indicate who the player is required to fight during gameplay. In addition, a narrative synch point might have a secondary meaning to a particular player because of an intertextual link that the player makes, thus creating a serendipitous synch point. This point may even share gameplay information, making it an example of all three. So, these terms are not intended to permanently segregate our experience of a video game, but rather to provide an analytical tool that lets us pull apart the experience, examine it as individual pieces, and then put it back together and eventually understand its parts as well as its holistic identity.

Further, I am presenting synch points as an analytical tool that requires the analyst to choose particular synch points to focus on. While a video game (or film) will have hundreds and hundreds of potential synch points, it is up to the analyst to decide which ones are important for the purposes of their analysis. This is potentially reductive in that

⁴ Serendipitous synch points that occur through intertextuality can, and often do, occur in other mediums (such as film or music). It is only the chance encounter serendipitous synch points that are potentially unique to videogames.

⁵ It could be argued that all synch points (and even all perception) is based on subjective response. Here I mean to suggest that serendipitous synch points do this to a greater degree than narrative and gameplay synch points.

it is less interested in an objective reality of important synch points in favour of subjective interpretation of which synch points to focus on to explore particular aspects of a video game. Analysts will therefore have to spend some time justifying their choices, and readers of an analysis will have to make a decision regarding their agreement with the analyst's choices.

Another point relates to how sound effects and music relate to synch points. Generally, but certainly not always, the auditory aspect of a synch point will be a sound effect rather than part of a musical cue. This results from the often shorter duration of sound effects. A sound effect can be a single instant, whereas music often requires time to build. This distinction between sound and music is reductive, and music can sometimes act in a similar manner to a sound effect (for example, a sudden harsh chord that relates to a moment of fear). Likewise, sound effects can take place over a very long span of time (e.g., an engine running in the background). Another issue is that music can sometimes play the auditory role of a synch point, even when it is not acting as a sound effect. For example, a musical cadence may facilitate associations with images. The point in distinguishing the two in the first place is merely to draw attention to a tendency towards sound effects, rather than to establish any impermeable barrier between the two.

Finally, a note on how duration relates to synch points. While synch points are tied up in their surrounding context (the horizontal), the synch point itself is a vertical moment. I choose to keep synch points as very brief moments because it provides a specific point on which to focus analysis. Expanding this concept to allow for a more extensive duration of time risks losing precision. The decision to focus on precise points does introduce some problems for synch points as an analytical tool. In particular, we are

often interested in sets of moments that extend over a sequence of events. While it is tempting to analyze the whole sequence as a single piece, and while this has benefits of its own, using sets of synch points potentially allows for a more nuanced analysis that gives attention to many specific moments. While more research is required to ultimately decide if my approach is the best one, I will focus on it for the purposes of this thesis. Of course, how we define a single moment (vs. a “duration”) is problematic. For the purposes of this thesis, I do not intend to set a line which cannot be passed, but rather to provide examples, through the following case study, that demonstrate moments of interests as a model of what I am calling synch points (rather than synch durations).

Bioshock Infinite: A Case Study

My three-part typology of synch points will be explored through the case study of *Bioshock Infinite*. Before describing the game itself I want to explain why *Bioshock Infinite* works as a case study. The game has a completely linear narrative. No matter what the player does, the main series of events will always occur in the same order and will be associated with the same locations and characters. In between these central plot points the player interacts with the game during combat and exploration. The combination of these two factors renders *Bioshock Infinite* similar enough to film (through its linearity) to allow for the use of synch points while still offering room to expand concepts due to the game’s interactive aspects. A game that had a more interactive narrative may produce different or more interesting examples, but it would likely also introduce many complications. Such examples will eventually be important in developing a complete understanding of the topic, but in a pilot study like this it is useful to build a sturdy foundation on which expansions can later be built. This is also why I

have chosen to focus on my particular experience of the game, rather than trying to gather data on a wide range of experiences. While that variety might be useful at some point, it adds a great deal of complexity that could cloud the potential gains from a pilot study.⁶

The third game in the *Bioshock* series *Bioshock Infinite* is a first-person shooter game released on March 26th, 2013, to widespread praise.⁷ The game is set in 1912 in a fictional city called Columbia that floats above the clouds on flying platforms. Players take on the role of Booker DeWitt, a former Pinkerton agent who is tasked with finding a mysterious girl named Elizabeth in exchange for the forgiveness of a debt he acquired through gambling.⁸ Booker discovers that Elizabeth has been imprisoned in a large angel statue in the middle of Columbia for her entire life and that she has the ability to open “tears” in space-time. Prophet Comstock, supposedly her father, is responsible for her imprisonment and is trying to groom her so that she will take over as the zealot dictator of Columbia when he dies. In particular, Comstock wants Elizabeth to achieve his goal of “cleansing” the world of sin by attacking the cities below (on the ground) with the weapons attached to Columbia. Columbia is, at first, presented as a Utopia, but as players explore the city they learn about the racism and religious extremism that act as a fundamental undercurrent to the city’s personality.

⁶ As a general rule, the more times someone plays a video game the more detail they will notice in it. It follows that some synch points will not be experienced in the first play through, but will occur in a later play through. However, for the sake of simplicity, in this thesis I am writing from the perspective of an idealized player who notices everything in a single play through.

⁷ As of the time of writing, March 14, 2018, *Bioshock Infinite* is rated 94/100 on Metacritic, an aggregate rating site, placing it as the 13th highest rated game of all time for PC.

<http://www.metacritic.com/browse/games/score/metascore/all/pc/filtered?sort=desc>

⁸ See Appendix C for a complete plot summary. Relevant plot details will be introduced as they become relevant, but the plot is too complex to include a complete summary in the body of this thesis.

Gameplay is composed of exploring Columbia while fighting off the city's law enforcement officers and military after Booker is recognized as the "False Prophet" (who the people of Columbia believe will "lead the Lamb⁹ astray," the lamb being Elizabeth). Players fight using a variety of guns and "vigors" (magic-like super powers) acquired throughout the game. Eventually, the player can ask Elizabeth to bring items, robots, and environmental tools through tears in space-time, making combat easier. Narrative information is communicated throughout the game via conversations and events that occur at particular locations and moments. The player's primary goal for most of the game is either find Elizabeth or get her out of the city.

As mentioned, the game is set in 1912 and the general aesthetic of the architecture, clothing, music, etc. are designed to reflect the American exceptionalism¹⁰ of this period. The most significant divergence from an accurate depiction of 1912 is the available technology. The city is home to a brilliant physicist named Rosalind Lutece (and eventually her supposed brother, Robert Lutece, who is actually her from another world) who has helped to accelerate the technological capabilities of the citizens far beyond what had been achieved in real-world 1912¹¹. The most obvious example of this is that the city flies, but other examples include weapons and powerful "vigors," which effectively give people super powers. The most significant technological development for both narrative and gameplay is the ability to open tears in space-time, which Booker

⁹ Note the Christian associations implied by this term. Religion is a common theme and topic in *Bioshock Infinite*.

¹⁰ By this I am referring to the perspective that American history is unique and that America is in some way superior to other nations and has a unique responsibility to protect freedom. See Lloyd (2014) for an overview of this concept.

¹¹ While *Bioshock Infinite* does not conform completely to a steampunk aesthetic, this technology does add some steampunk qualities to the visuals and sounds in the game.

discovers underlies the entire relationship between the Lutece's, Comstock, Elizabeth, and himself. Additional narrative information will be described as it becomes relevant to the examples used.

Because this thesis is primarily concerned with synch points, a general description of the music and sounds would be useful. *Bioshock Infinite* makes use of two broad categories of music: a composed sound track (see Appendix B) and a selection of pre-existing songs/pieces (See Appendix A, which includes the originals and covers). Garry Schyman has been the composer for all three games in the *Bioshock* series; he has been recognized for his skill at creating powerful atmospheric and character pieces. Daniel Schweiger, writer for filmmusicmag.com, notes the “stripped down” quality of Schyman’s score. He describes its “[trembling] strings, saloon-ready pianos, melancholy bells, a tortured violin and a small, creeping orchestra” as casting “a dark, fairy tale ambience over this realm of barbershop quartets, rocket-firing zeppelins and enraged tin men” (2013). In the same article, Schweiger interviews Schyman. When asked about the sparse and violin-driven score, Schyman states,

I experimented with an orchestral style when I first started working on the game and it didn't feel right for the characters, it didn't feel right for the time period, the 1912 American city in the clouds. So I started working with these small string ensembles, and that really started with a theme I wrote for Elizabeth... Once I developed that style, and it worked perfectly for her, we decided that was a great feel for the entire game including the combat music which used small string ensembles playing very intense, hard-driving music but utilizing small groups of string players with percussion... [O]nce that sound, that sparse, small string

ensemble sound felt right, it really drove the style and became the sound of the score for “*Bioshock Infinite*.” (Schweiger, 2013)

Schyman’s description covers his approach to all of the music in the game, and therefore serves as a general description. Specifics will be mentioned as they become relevant to examples.

The pre-existing music chosen for the game includes licensed recordings, contemporary covers, and anachronistic covers of modern songs. Some of the songs and pieces used are period appropriate (e.g., “[Give Me That] Old-Time Religion” by Pork Miller, 1909, and “Shine On, Harvest Moon”, by Ada Jones and Billy Murray, 1909), while others fit the general aesthetic that *Bioshock Infinite* creates to represent the period, even if they were composed significantly later than 1912 (e.g., “Little Pal” by Lew White, from 1929, and “Makin’ Whoopee” by Rudy Vallee, also 1929). Contemporary covers of older songs and pieces are arranged to match the general aesthetic of the game and so do not clash in any significant way with what the player hears from the rest of the soundtrack. The final group of songs includes two sorts of more contemporary material: anachronistic covers and originals of modern songs. An example of this is The Beach Boys’ “God Only Knows,” which is arranged for a barbershop quartet, and therefore matches the period of the game. The game also uses original recordings of some modern pieces. For example, the original recording of “Girls Just Want to Have Fun” (sung by Cyndi Lauper) is heard through a tear in one location in the game. While these songs clash with the general aesthetic of the game, their inclusion is made reasonable because they are heard through tears and therefore originate from a different time and place. This acts to “break the fourth wall” in a sense because we understand this song to be part of

our (relatively) modern music aesthetic, whereas many of the other songs will sound old enough to be from “somewhere else.” The pre-existing music, as a whole, creates a sense of setting and time for Columbia while also, occasionally, providing commentary through lyrics. The modern music acts as a tool to demonstrate the power of the tears to open other worlds and times.

The game incorporates a wide variety of sound effects. They include footsteps, the sounds of guns firing and reloading, a variety of sound effects to match the various “super powers” that the player acquires through using vigors (e.g., a fire effect from a vigor called “Devil’s Kiss”), the sound of the tears being opened and closed, sound associated with a variety of machines, and so on. Specific sound effects will be described in detail when they are relevant to the examples below. Taken as a whole, sound effects help to communicate gameplay information (e.g., gun shots), narrative information (e.g., tears opening and closing), and also help to create the general aesthetic of the game, both as a place in the past as well as a high-tech flying city.

Videogame Theory

The concepts mentioned above are steeped in the context of the fields from which they have been taken, and so a brief summary of previous research is necessary to create a more complete portrait. I will return to synch points, but first it is important to introduce some key ideas from video game studies which can be used to provide a larger framework for synch point theory. In defining the three types of synch points mentioned above I used the term “interactivity,” a concept that is very difficult to define. In *Playing with Sound* (2013) Karen Collins argues that interactivity implies a sense of agency in the player as well as some potential for the media (in this case the gaming machine) to

respond physically to the inputs of the player. She quotes Bongers' (2000, pg. 128) argument that:

Interaction between a human and a system is a two way process: control and feedback. The interaction takes place through an interface (or instrument), which translates real-world actions into signals in the virtual domain of the system...

The system is controlled by the user, and the system gives feedback to help the user to articulate the control, or feed-forward to actively guide the user.

In other words, the user and the system are in what Galloway (2006) calls a "step by step, move by move" (2) relationship in which the user gives information to the machine, the machine receives that information and acts on it, which sends new information to the user (the player in the case of videogames), beginning another cycle.

Galloway (2006) differentiates this relationship into two types of actions:

"operator" and "machine." In his conception, operator actions are those made by players and machinic actions are those made by the software and hardware. Like Bongers, he argues that the two are in a kind of dialogue with each other, resulting in a "cybernetic relationship" (5) and that "[t]he two types of action are ontologically the same. In fact, in much of gameplay, the two actions exist as a *unified, single phenomenon*, even if they are distinguishable for the purposes of analysis" (5, italics in original). This relationship is a defining feature of video games versus other media. In most media, the text is completely created prior to reading. In video games, the code provides a basic template of potential actualizations, but the final experience is largely contingent on the player's narrative and gameplay choices. It is important to be mindful that Galloway purposely avoids using the term "interactivity" because of the potential confusion it creates in relation to active

audience theories of media that claim that the audience is bringing their own experiences to a work and is therefore interacting with it. Galloway instead calls video games an “action-based medium” (3), because there are physical actions performed by both the operator and the machine.

Other video game scholars have also been concerned with the relationship between interactivity and reader response theory. In *Cybertext: Perspectives on Ergodic Literature*, Aarseth (1997) suggests the use of the terms “cybertext” and “ergodic” when discussing videogames. He describes cybertext as a concept that “focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange” (1). Cybertext is also aware of the consumer or user “as a more integrated figure than even reader-response theorists would claim” because it claims that the user is performing beyond merely the confines of thought (1).¹² The term “ergodic” is taken from the Greek words “ergon” and “hodos”, meaning “work” and “path” respectively.¹³ Aarseth uses the term to describe literature that requires nontrivial effort to engage and progress through the text. He places this in contrast to nonergodic literature, which requires very little physical effort to get through.¹⁴ Aarseth was using these terms to describe hyper-texts, adventure games, and multi-user dungeons, all of which require significant engagement from the user.

¹² They are physically acting as Galloway notes with operator actions and Bongers with his control and feedback model.

¹³ Aarseth does not appear to intend any link with the mathematical use of the term “ergodic” used in probability and physics, although he acknowledges that he has “appropriated” the term from these fields. While the mathematical use may have some relevance to video game theory, I do not intend to draw on that in this thesis.

¹⁴ For example, reading might require the movement of one’s eyes and the turning of pages, but these are not significant for most people.

Aarseth is very explicit about the difficulties he faced when trying to discuss these concepts with scholars who had not experienced playing a cybertext, noting that they did not believe there was a significant difference between cybertexts and literary texts, citing challenges such as:

These texts (hypertexts, adventure games, etc.) aren't essentially different from other literary texts, because (1) all literature is to some extent indeterminate, nonlinear, and different for every reading, (2) the reader has to make choices in order to make sense of the text, and finally (3) a text cannot really be non-linear because the reader can read it only one sequence at a time, anyway.

In Aarseth's attempt to understand and contest these challenges he notes that his interest is with "what was being read *from*" (3) rather than what was being read. This distinction, Aarseth argues, is fairly insignificant for most media (giving the example of literature and plays), but in a cybertext the distinction is crucial because you are "constantly reminded of inaccessible strategies and paths not taken, voices not heard. Each decision will make some parts of the text more, and others less, accessible, and you may never know the exact results of your choices; that is, exactly what you missed" (3). Aarseth argues that this is very different from the ambiguity that literary theorists are often thinking about when discussing reader interpretation of other types of texts. Ambiguity is an uncertainty of meaning, whereas inaccessibility is a lack of access to certain meanings.

A final theoretical approach that will help define interactivity in the context of a videogame, as opposed to another medium, comes from Glassner (2004). When discussing interactive story telling he distinguishes between a one-way and two-way story. In a one-way story information flows from the medium to the audience, but not the

other way. A book is an example of this since information is taken from the book, but the reader cannot provide input that influences the actualization of the text. A two-way story is one in which the information flows both ways. Glassner notes that this is an ideal that is very difficult to achieve. Many video games, he argues, switch between one-way and two-way types of interactivity. He gives the example of *Star Wars: The Clone Wars* in which the player plays through a series of missions that involves fighting through levels. Between each of these missions the player sees a movie-like cut scene that presents narrative information. Neither of these elements physically affects the other (what you do in the mission will not change the cut-scenes; at most you will simply not reach the cut scene), but both are required to justify the inclusion of the other. Without the missions the cut-scenes would be disjointed, and without the cut-scenes the missions would lack purpose and justification. In this case the game alternates between the one-way interaction of the cut-scenes and the two-way interaction of the missions (since enemies will still react to you, the machine is still responding even if that does not affect the overarching narrative).

In more recent games, such as *Bioshock Infinite*, this is complicated a bit. *Bioshock Infinite*'s narrative is essentially linear: the plot will not change regardless of what the player does (interestingly, it is the only game in the *Bioshock* series for which this is true). Like Glassner's example, the most the player can do to change the plot is simply not advance through the game. The primary interactive aspect of the game is therefore exploration and combat, analogous to the missions in Glassner's example. The two are not exactly equivalent, however, since the "cut-scenes" in *Bioshock* are often integrated into the flow of gameplay, making the phenomenological experience of the

player seem more coherent or cohesive. In this sense, interactivity can be understood as lying on a kind of continuum, at least insofar as it is experienced. In *Bioshock Infinite*, the player is interacting in the kind of relationship that Bonger and Galloway describe. The player acts, and this causes the game to act, leading to a required (re-)action from the player. However, this type of relationship is not as relevant to the narrative arc of the game. The player's actions will affect when the player reaches particular locations in the game, and therefore when the narrative information associated with those locations is revealed, but the information revealed will be the same regardless. As noted in the Introduction, this interaction between the two types of interactivity is one important reason that I have chosen *Bioshock Infinite* as a case study. It is similar enough to film to allow for the cross-pollination of theory while still being a clear example of a video game, making it an excellent case for a pilot study in synch points in video games.

There is one case that complicates the above, by providing an example that seems to be between one- and two-way interactivity. Throughout the game there are items, called Voxophones, that the player can find and pick up. These are essentially recordings that were made by characters in the game, and they tend to reveal information about subplots or provide more detail to major plot points. Through them the plot of *Bioshock Infinite* has an element of two-way interactivity, since the player must explore to find them and even if the player does find them, the player is not required to listen to the recordings to progress in the game. They do not quite constitute true two-way interactivity, since the player cannot alter what the recordings say in any way; however,

the player can choose in what order to listen to them and may or may not find them, depending on how they choose to explore the game world.¹⁵

It is important to note that all of these approaches are primarily about the physical/sensory interaction between a person and the medium. In this thesis, this is a very prominent type of interactivity because *Bioshock Infinite* is a single player game. However, many games are multiplayer, and even in single player games additional layers of interactivity are available. Collins (2013) offers a layered circular description of interactivity (see Figure 1.1). In the centre of the circle are cognitive and psychological interactions, since these are the foundations of our experience of perception and therefore are foundational to any experience of interactivity. The next layer includes two categories: in-game interactivity and metagame interactivity. These two categories include cognitive/psychological interactions. Multimodal/perceptual interactions relate to the in-game half because the game provides us with data to interpret and react to. Out of the metagame side of the circle come sociocultural interactions. These might include off shoots like fan fiction. The last two categories in the outermost circle are interpersonal interactions and physical interactions. Both of these have in-game and metagame elements and are therefore illustrated as coming from both of them. Interpersonal interactions can include interactions between players in the game (in a multiplayer setting) or in the world (talking about a game during lunch break). While the metagame aspects of interactivity are fascinating and essential to a complete understanding, the focus of this thesis will be on the in-game elements except for some references to

¹⁵ See Aldred and Greenspan (2011) for a fascinating take on how the Voxophone equivalent from *Bioshock I* (they are not given a diegetic name) relate to media convergence in the game and more broadly in the digital game industry.

intertextuality. It is necessary to limit the scope to ensure that sufficient attention can be given to one element before expanding to others.

For the rest of this thesis I will continue to use the term “interactivity” in the hope that the above discussion has clarified the distinction between reader-response theory approaches to interactivity and the use of the term in relation to video games. When I use the term interactivity, I am using it to suggest the relationship between a user, in this case a player, and a machine, in this case the machine running a game. Implicit in this is the cyclical communication process during which the player gives a command to the machine and the machine provides feedback, requiring the player to input more information (in this case an action). I will draw on Glassner’s one- and two-way classification of interactivity in particular when discussing *Bioshock Infinite*. These distinctions are important for synch points because synch points, especially gameplay and serendipitous synch points, draw from interactivity to create meaning and impact.

Interactivity and sound

Interactivity, however we conceptualize it, intersects in a variety of ways with sound. Synch points are the result of a connection between sound and image, and in video games interactivity adds information to this equation; therefore a discussion of interactivity and sound is essential for an understanding of synch points in video games. Collins (2013) argues “that there is distinction between listening to sound, evoking sounds already made (by pressing a button, for instance), and creating sound (making new sounds)” (2). She cites Chion’s (1994) three modes of listening (causal, semantic, and reduced) as a starting point. The first of these is causal listening, which refers to listening to gather information about what is causing a particular sound. In a video game

we might hear the footstep of another in-game character and be required to identify what caused it so that we can react. The second, semantic listening, describes our ability to listen for and interpret meaning in sound (e.g., language). In a video game this can be as simple as listening to dialogue to ensure that we understand what we are expected to do and why we are expected to do it. These two are not necessarily mutually exclusive. The final type is reduced listening, which corresponds to attempts to hear sound through the physical characteristics or traits of the sound (e.g., timbre or other acoustic traits). Collins (2013) also cites a conference presentation during which David Huron (2002) expanded on this by including signal listening, which involves listening in anticipation of a particular sound. This is important in video games and for interactivity because many games require that the player be ready to respond to enemies or events and the cue may be auditory (e.g., enemies talking). Note that this overlaps to some degree with Chion's causal listening, since the reason a sound requires a reaction is often rooted in the cause of that sound. To expand the footstep example, we might be listening for large heavy footsteps that accompany a monstrous enemy who is trying to kill us. In this case we are listening for a particular signal (footsteps) that suggests a particular response (run away), and are also attempting to listen for the cause of footsteps since that is bound up in knowing that the footsteps belong to the monster.

Collins (2013) also argues that evocation and creation are important concepts for interactive sound in video games. A seemingly straightforward example of evocation might be when the player presses the move button, the character moves forward and the player hears footsteps (his or her avatar's own this time, rather than those of a monster). In this case, the player's action is evoking a pre-existing sound (the footsteps) that is

stored in the game files on a hard drive. While in most games this example is fairly inconsequential, in stealth games, such as *Splinter Cell*, *Thief*, and *Metal Gear Solid*, the sound (the volume and quality – on cement, metal, dirt, etc.) is important information for predicting how enemies will react (if they will notice you). A final type of sound interaction that Collins suggests is creation. She notes that the distinction between evoking and creating is subtle, and argues that the existence of a pre-determined context is an important (although not foolproof) distinguisher.

Collins expands on these ideas by introducing the term “kinesonic synchresis” (32). By this she means that in video games sound is not only matched to an image (as in film), but to an action. The footstep example mentioned above is also illustrative here. It is our action (“kine-”) that leads to the sound (“-sonic”). Collins suggests that this type of relation is often used to provide the player with feedback that acknowledges the occurrence of an event. The sound of footsteps confirms to the player that the movement command they have inputted has been received by the game (in this example there is generally visual confirmation as well through a changing field of view). Interestingly, this specific example is very similar to what I call a gameplay synch point. However, there is a distinction between kinesonic synchresis and gameplay synch points. First, synchresis is a broad term that describes a general relationship, whereas synch points are specific points of connection, as the name suggests. Further, kinesonic synchresis is a subtype of synchresis and includes only some gameplay synch points, but is unlikely to contain many cases of narrative or serendipitous synch points. Therefore, while my approach and Collins’ approach overlap, they are describing different levels of analysis (synchresis vs.

synch points), as well as different types (kinesonic synchresis does not include all of the synch points I describe in my typology).

Collins injects issues of congruence and incongruence here as well. While sound and image in film can be congruent or incongruent with each other, video games add a third element of action. Player action can be congruent or incongruent with a sound or congruent or incongruent with an image in addition to sounds and images being potentially congruent or incongruent with each other. Perhaps the most clear cut examples of this relate to synching. For example, if a player is able to control how fast they open a door in a game (again, something that occurs in stealth-based games such as *Splinter Cell*), then the sound that activates can be congruent by matching the speed of the player's action, or incongruent by being set at a pre-determined speed, regardless of how fast or slow the player acts (thereby making the sound either too long or too short to match the action).¹⁶

The importance of interactivity for this thesis hinges on the degree of interactivity in synch points. As mentioned earlier, serendipitous synch points are fundamentally reliant on the interactivity of video games. Some examples include one-way interactivity (such as the player interpreting a game event based on previous knowledge of some piece of music or sound – intertextually), but others require two-way interactivity (for example, a sound and image that happen to occur at the same point of time because of the player and machine reacting to other information). Gameplay synch points are also tightly bound to interactivity, since they tend to involve game developers trying to communicate information to the player through the code written for the game. The player must do

¹⁶ This might happen because developers are trying to minimize the game's size, because the game has been rushed out to meet a deadline, or for any number of other reasons.

something to elicit a reaction from the machine that tells the player what to do next.

Narrative synch points are less reliant on interactivity (at least in the context of *Bioshock Infinite*), since they are often associated with pre-planned moments. They are usually interactive only in so far as the player must act to reach the point at which the information is shared, but the same information will be shared regardless of player action (again, in the context of *Bioshock Infinite* -- other video games may have more interactive plots).

If the player learns gameplay information or makes an intertextual relationship, then we need to explore if this synch point is also acting as a gameplay or serendipitous synch point. It is worth noting that this kind of question is what the concept of synch points can add to video game studies beyond what has already been written by scholars such as Collins. Synch points act to narrow an analysis to a moment before expanding it to include what that moment means in a particular context. This facilitates a more fine-grained exploration than that which is afforded by synchresis (kinesonic or otherwise). Both concepts are essential for developing a complete understanding, but they represent different grains or levels of analysis.

Film music theory

Now that we have explored interactivity and its implications for synch points, it is useful to dig deeper into how film sound studies developed with regard to sound and what position synch points take in this development. Powrie and Stilwell (2006) note that the study of film music became increasingly important in the 1980s. The long delay, they argue, was the result of “the primacy of the visual for theorists of spectatorship” (xiii). They note Rick Altman (for editing the 1980 edition of *French Studies*), Michel Chion

(for significant theory contributions during the 1980s and 90s), and Claudia Gorbman (for the seminal *Unheard Melodies: Narrative Film Music*, 1987) as foundational members in the genesis of film music studies.

Also interested in the broad trends of film music theory history, Ashby (2013, p. 15) notes that there have been three broad phases through which the study of film music has progressed. The first of these is “the relatively recent institution of film music... as a disciplinary category” (15). Historically, film studies has focused almost exclusively on the image and so film music was neglected. The recent increase in research may be due, in part, to increased interest from musicologists. The second phase involved an attention to the use of popular music in film, especially as a contrast to the more common symphonic non-diegetic scores. Ashby attributes this to a break down in the cultural elitism that surrounded orchestral music and which defined art through its exclusion of everything else. The third and most recent phase has explored the ways that filmmakers have used pre-existing music. When we dig deeper into specific examples from *Bioshock Infinite*, we will explore how the game uses pre-existing music as well as music specifically composed for the game, since both are interesting in terms of their relation to synch points.

Stanley Kubrick’s integration of pre-existing music into his films marks an interesting example of the third phase that Ashby describes. One of the most telling examples of this is the use of *Also sprach Zarathustra* in *2001: A Space Odyssey* (UK/USA, 1968). Gorbman (2006) notes that this period marks a shift to the “postclassical era” (classical in terms of film scoring approaches, not classical music). Where music had previously been subordinate to image, the hierarchal relationship was

now in flux. In Chion's writings on *2001: A Space Odyssey* he echoes this sentiment, noting Kubrick's use of pre-existing music "in broad, autonomous swaths" (Chion, 2001. p.90). Brown (1994) suggests that this autonomy acts:

as a kind of parallel emotional/aesthetic universe [...] [T]he affect... tends to remain within the music itself, which sheds its traditional invisibility rather than being transferred onto a given diegetic situation to which it is subordinated. (239 – 40)

Gorbman notes that Kubrick often used pre-existing music to create a sense of irony, giving the example of "battle-seasoned American soldiers sing[ing] the *Mickey Mouse Club* song as they march through a devastated and still-smoking Vietnam landscape" in *Full Metal Jacket* (6). In the context of synch points, this shedding of invisibility is important because it makes pre-existing music as present to the audience or player as the visual aspects, essentially providing fertile ground from which a synch point can more readily spring: ironic (as in Gorbman's example) or otherwise. This is especially true if the audience or player is familiar with the piece of music.

Anahid Kassabian (2001) offers an additional interpretation of the functional difference between composed and pre-existing soundtracks. She identifies composed scores, which she suggests tend to be associated with classical Hollywood scoring, with the term "assimilating identifications" (2). By this she means that these types of scores function to pull a viewer/listener into the world of film. She contrasts this with "affiliating identifications," (3) which tend to follow from compiled scores (which I have been calling pre-existing scores). In this case, there is history associated with the pieces and so these histories affect the viewer/listener's experience of a film (or video game).

This approach seems to support the argument mentioned above, that pre-existing music has a quality of autonomy. The personal history that clings to pre-existing pieces distinguishes them from the more homogenous current of a composed track. When we identify with a piece of music through affiliation, we connect our experience of that piece to the film, expanding the semiotic field. When we identify through assimilation, the semiotic field remains narrower, constrained to fit the film's diegesis.

While the difference between pre-existing music and composed music is important for how we identify with a film, scholars have also noted the importance of other functions. Donnelly (2005) notes that film music is fundamentally a method of manipulation. It is used "to influence behaviour, shaping audience reaction to the film" (4). He notes that this has a kind of "insidious" (4) quality to it, since its function relies on its presence in the background, reaching into the viewer/listener through subliminal means. Donnelly goes so far as to link the effectiveness of film music to Foucault's concept of power as a set of "techniques for assuring the ordering of human multiplicities" (5, citing Foucault's *Discipline and Punish: The Birth of the Prison*, p. 218). In other words, film music tailors our emotions and actions to fit the needs of the film. This happens through a kind of Pavlovian mechanism. We are conditioned to react to "a swelling bank of sweet strings" by becoming tearful, or to a "stinger (a sudden blast of music) in a horror film" with shock and fear (6). All of this is to say that music is a powerful manipulator that tends to remain in the background and balances on the edge of consciousness.

On one level, Donnelly's analysis seems to be at odds with what I have said above: if pre-existing music is powerful because of its ability to stand-out, then it may

lose some of its emotive potential. However, this trade-off can be understood as one which exchanges emotive power for narrative or informative power. In *Bioshock Infinite* we encounter some examples where pre-existing music is used to communicate information, while the composed soundtrack is used for emotive purposes. Related to this is the potential for a pre-existing piece to carry an additional semiotic load, as suggested by Kassabian's notion of affiliation.

Film music serves many functions,¹⁷ but Chion's perspective is particularly important for this thesis. To him (Chion, 1994), sound's primary function is to unify or bind "the flow of images" (47). This is done by bridging visual breaks, by establishing a sense of atmosphere through the creation of a "'heard space' in which the 'seen' bathes" (47), and through the use of non-diegetic music which creates a "homogenizing bath or current" in which images flow (47). Chion also notes that sound and music can be used as a form of punctuation in film, analogous to the use of a comma or period in written language (the synch point is a case of film music and sound as punctuation).

These cases of sound and film that Chion introduces eventually lead to the concept of a "point of synchronization" or "synch point" (58). As described above, this is "a salient moment of an audiovisual sequence during which a sound event and a visual event meet in synchrony. It is a point where the effect of synchresis... is particularly prominent, rather like an accented chord in music" (58). He defines synchresis as "the spontaneous and irresistible weld produced between a particular auditory phenomenon and visual phenomenon when they occur at the same time" (63). He gives some examples of possible synch points including:

¹⁷ See Donnelly (2005) and Brown (1994) for more perspectives.

- “an unexpected double break in the audiovisual flow, a synchronous cut in both sound and image track”
- “a form of punctuation at the end of a sequence whose tracks seemed separate until they end up together (synch point of convergence)”
- “its physical character: for example when the synch point falls on a closeup that creates an effect of visual fortissimo, or when the sound itself is louder than the rest of the soundtrack”
- “its affective or semantic character: a word of dialogue that conveys a strong meaning and is spoken in a certain way can be the locus of an important point of synchronization with the image” (59)

While we will explore examples of the various entries in this list, this typological approach is distinct from my own. Here Chion is describing ways that synch points can happen or characteristics of the synch points themselves. My typology is intended to describe the purpose of synch points through the information and meaning that they communicate (narrative, gameplay, or serendipitous). In other words, Chion’s typology is focused on the form that synch points take, whereas mine describes their function.

The point of synchronization has been largely passed over by film scholars, with the exceptions of Sergio Miceli’s analytical method, as originally described in *Composing for the Cinema* (2011), and Donnelly’s *Occult Aesthetics* (2014). Miceli’s contribution to the theory surrounding synch points is to differentiate between explicit and implicit synch points. He defines explicit synch points as “a precise meeting place between image and music, which the music underlies in a very evident way” (Miceli 2011, 3). Often these synch points take the form of “mickey mousing” because they are

so obviously connecting the image and sound that it becomes cartoonish. Implicit synch points are “those that perhaps maintain an autonomous musical course. In coincidence with a filmic event, they insert [only] a slight modification of structural [musical] characteristics. Also this [is] slightly and above all subtly allusive” (3). One can imagine that these two categories capture end points on a continuum from obvious and direct synchresis to very subtle, almost undetectable synchresis. This concept will be explored more in chapter 3, particularly in the context of serendipitous synch points.

Donnelly (2014) draws attention to synchronization by noting its contributory role to “film’s fundamental lie... the implication that sound is produced by the image when in fact it remains independent of it” (3, citing Rick Altman, 1980). Viewer/listeners become especially aware of this contribution when synchronization breaks down (whether through some mechanical error in playback, dubbing in a different language, or some other issue). This issue was particularly important in the early development of the “talkies” which required that sound and image be synchronized to create a new illusion that was not required in silent film. In this sense, synch points became foundational, since the matching of a moving mouth with the sound supposedly coming out of the mouth was so essential to the illusion. Donnelly refers to Chion’s definition of synch points (provided above) when he notes that incidental music also became an important aspect of the illusion that talkies needed to create, for the synchronization of incidental music and images often marked the end of a scene or an important moment in the narrative. Donnelly also agrees with Chion’s use of musical harmony (cadences, chords) as a metaphor for describing the importance of synch points, citing examples of the build up and release of tension, of the development of material, and so on.

One of the most interesting expansions that Donnelly makes on Chion's work on synchronization relates to its neurological underpinning. While Donnelly does not go into great detail with the topic, he does note that culture in general may emanate "from or is determined by patterns in the human brain and physical human perception" (5). He also notes the power of the human brain and sensory organs to notice (or create) patterns in the surrounding environment, suggesting that even while walking around with an iPod or other personal music device, we might begin to draw links between our music and the surrounding visual stimuli (5).¹⁸ Donnelly links this tendency directly to Chion's synchresis, stating that it "describes the appearance of a perceived connection between sound and image, pulling them into a seeming unity of either illusion or aesthetics" (6).

Perhaps one of the most interesting points Donnelly brings up relates to the additive quality of image and sound by citing work done by psychologists McGurk and MacDonald in the 1970s. The McGurk-MacDonald effect, first articulated in *Nature* (1976), describes the tendency of our perceptual streams (in this case vision and audition) to combine rather than to remain objective and distinct channels. McGurk and McDonald's experiment matched images of a person's mouth making a particular sound syllable with a recording of a different vocal syllable. Participants perceived neither the sound suggested by the image nor the sound played but rather a new sound, synthesized due to the synchrony between the two. One example of this includes the image of a mouth saying "ga" matched with a recording of a person saying "ba". Instead of perceived either of these, the viewer/listener perceives "da" (26-7). The importance of this example, Donnelly asserts, is that it may be invalid to isolate sound and image when

¹⁸ Note the similarity between this and a serendipitous synch point.

analyzing an audio-visual medium since the actual experience may be a combined effect different from either effect on its own. This stresses the importance of synch points by emphasizing the importance of understanding points at which sound and image meet as more than just the sum of sound and image.

Another related effect is the ventriloquist effect which describes the tendency to try and resolve ambiguous relations between sounds and images so that they make sense as an integrated whole. This is illustrative of “auditory capture” (Bolivar, Cohen, & Fentress, 1994), which describes the tendency of sound to immediately attach itself to an image (Donnelly, 2014, pg. 26).

A final example is the “motion bounce illusions,” an effect noted by Lau, Sekuler, and Sekuler (1997) that occurs when shapes move towards and through each other on a screen. When accompanied by a sound at the moment of connection they are perceived as bouncing off of each other, but in the absence of sound this perception does not happen. Again, this is illustrative of the fact that sound and image are additive beyond the simple sum of each. Such examples illustrate the combinatory potency of synch points (23). If what we perceive from a synchronized point of image and sound is greater than or different from the mere sum of the image and sound, then it is necessary to study these points as synch points rather than as just an image and a sound, to avoid missing out on potential meaning. In other words, the whole of a synch point is greater than the sum of its parts: if we do not study synch points as such, we risk missing out on the excess.

While the above cases demonstrate the power of synchrony, Donnelly also notes the importance of asynchrony. He conceptualizes film as shifting between synchrony and asynchrony in a similar way to how music modulates from the tonic to other keys and

then back to the tonic. He notes, “films have emphasized the need for continuity, yet films are clearly a dynamic relationship between conventional continuity and novel, discontinuous elements” (11). This recalls Chion’s metaphor of musical cadences while expanding synch points into a fundamental technique used to create the pace and emotional and cognitive valence of the progression of a film. Donnelly also introduces “plesiochrony,” (29) which acts as a point in between synchrony and asynchrony. In this case, sound and image fit vaguely in synchrony but do not have precise points of reference.

Synch points are not only interesting and important in and of themselves, they are also important in how they shape the entire experience of a film (or video game) in a similar way to harmony in music. Thus, the study of synchronization “looks to how sound and image are orchestrated across time (‘horizontally’) through great investment in moments or sustained sections of synchrony (‘vertically’)” (12). Donnelly goes so far as to say that “the crucial essence of sound film is the synchronization of image and sound at key moments that hold together the film experience” (12). This is an enormous claim, and while I do not wish to argue for synchrony as the “crucial essence” of video games, it is clear that it plays an important role in the player’s understanding of the experience of a video game.

Chapter 2: *Bioshock Infinite* and Narrative Synch Points

Upon achieving a basic understanding of what synch points are, and of the larger context in which they exist, it is possible to focus on a more nuanced case study. In this chapter, I will explore how narrative synch points communicate information in *Bioshock Infinite*. The first example I introduce demonstrates that narrative synch points are an effective method for creating emphasis, much like an accented chord (recall Chion's comparison). They are also effective as pivot points for the affective character of a scene. Finally, this example draws attention to the relation between music and sound in synch points: specifically, synch points are often constructed from sound effects even if they are used to emphasize or articulate music.

The rest of the examples I give fall broadly into three categories. The first deals with tears in time-space that Elizabeth, one of the main characters, can create. Her examples help develop the ways through which narrative synch points can facilitate changes in setting and tempo (including the temporal elasticity that Chion mentions) as well as draw attention to important information. The second category relates to the Lutece twins, two scientists in the *Bioshock Infinite* universe. Here we will see how pairs of synch points can be used to "bracket" narrative information. This allows developers to draw attention to particular conversations or events. It also promotes the discussion of temporal elasticity. The final set of examples involves Booker, the player-controlled character, falling unconscious. In these examples, we see narrative synch points acting again to alter the setting and sense of time as well as to create a kind of "synch point motif" that draws attention to the game's theme of drowning and to the development of this theme and its importance to the plot as a whole.

A trip above the clouds: Pivoting setting and affect

I will begin by describing examples of narrative synch points because these are the most similar to film and therefore provide a solid foundation on which to bridge film theory and video game theory. The first example I will introduce is a transition sequence which moves from a lighthouse on Earth to Columbia in the sky. The game begins during a dark storm with Booker in a rowboat behind a man and a woman in yellow rain jackets (note that the game takes place entirely from Booker's first-person perspective; even cut-scenes use this perspective). Once they reach the dock, Booker (the player is now in control) gets out and the boat is rowed away. The player must then go into the lighthouse (there are no other reasonable options) at which point they find a sign stating "Booker, Bring Us the Girl, Wipe Away the Debt. This is your LAST CHANCE!", providing the player with the first objective of the game, although the details are vague (see Figure 2.1). The player enters the lighthouse, which is dark and daunting, and begins to ascend to the light at the top. The most shocking image the player comes across is a dead man in a chair with a bag over his head, presumably left as a sign to Booker (and the player) to indicate the severity of the debt and that Booker's life is at stake. When the player finally reaches the top of the lighthouse, they must play a short melody on bells (using a diagram given to Booker by the two people in the rowboat) that acts as a signal to Columbia, which is floating above the clouds. Once this is complete the player hears loud foghorns from the clouds above and a door opens which allows the player to enter a room just under the actual light of the lighthouse. The player must then sit in a chair in the middle of the room (again, there are no other options that advance the narrative). To Booker's

surprise, the floor of the room opens up and encloses him before becoming a rocket that launches Booker above the clouds and into a landing area in Columbia.

The actual synch point occurs during this trip through the air, but it is made salient through the dark, mysterious, and disturbing imagery that the player sees as they ascend the lighthouse. As Booker (and the player) becomes aware that the chair is a rocket that is launching into the air, Booker, understandably, panics and the music reflects this, opening into rapidly played, dissonant strings that progressively increase in volume. I experience these strings as inducing tension through the creation of a kind of auditory claustrophobia. As the player ascends there is a moment which I argue is the synch point, during which the rocket breaks through the clouds, the darkness of the storm gives way to the sun, and the ominous lighthouse is exchanged for the beautiful floating city of Columbia (see Figure 2.2). The music changes from the rapid, stress-inducing strings to a slow piano lullaby melody that, for me, created a sense of calm and even a sort of floating sensation (both the strings and the piano are entitled “Welcome to Columbia” on the Official Sound Track, see Appendix B). In between these two musical sections is a sound effect that presumably represents the engine shutting down, allowing the rocket to glide on momentum until a parachute deploys shortly afterward. As the player is ascending, a woman’s voice is also speaking (presumably from a speaker in the rocket). She states the current rocket altitude (“five thousand, ten thousand, fifteen thousand”), and shortly after the moment when the player breaks through the clouds she says “Hallelujah,” a minor precursor of the zealotism soon to come. It is worth noting that it is not clear if the music is diegetic (sounding from inside the game world) or non-diegetic (outside of the game world such that the characters cannot hear it). We are likely

to assume that the strings are non-diegetic, but the piano could be coming from the same speaker as the woman's voice (which we are likely to assume is diegetic).

This moment is an example of a narrative synch point for several reasons. Recall Chion's definition: "a salient moment of an audiovisual sequence during which a sound event and a visual event meet in synchrony. It is a point where the effect of synchresis... is particularly prominent, rather like an accented chord in music" (1994, 58). The sound event is the sound effect in between the two musical sections. The visual event is the sudden bursting forth from the clouds that reveals Columbia in all its splendour. This moment is made salient through the build-up of dark and mysterious imagery and tense and stressful music. To draw on Chion's musical chord metaphor, the bursting forth from the clouds matched with the shift in music is analogous to dissonance resolving into consonance, and is accented through its difference from the early moments of the game (visually and musically). The synch point acts as a kind of pivot on which the music swings. The sound effect and visual breaking through creates a space in between the two musical moments, amplifying the emotional effect of the piano. I also experience a sense of expectation that is created by the space between the music. We are likely to expect music to accompany the image of Columbia and when the piano satisfies this we feel a sense of relaxation. The synch point, a vertical moment, acts as a vertex on which two musical lines or edges are hinged. The synch point, in other words, articulates the relation between the two pieces of music. It is also important to emphasize that the auditory event is a sound effect rather than a musical note. This is generally true of all types of synch points in *Bioshock Infinite*. While they are usually sound effects, they tend to draw attention to music, thereby increasing its effect.

The narrative importance of this moment lies in the introduction of Columbia. Through contrasting the bright, sunny image and relaxed music with the dark storm and harsh strings, the moment creates the impression that Columbia is a beautiful utopian shelter from the storm below. It also serves a pacing role in the overall narrative arc. As already mentioned, the tension of the first moments of the game is momentarily resolved, but this is done in order to make the first impression of Columbia calming and beautiful. By building up this impression, the developers have set the narrative up once again to introduce tension by showing Columbia's underbelly of racism and violence.

The music surrounding this moment was all composed for the game and as such suggests Kassabian's (2001) notion of assimilation. We are being introduced to Columbia and being asked, musically, to allow ourselves to be drawn into the world. There are neither lyrics nor obvious intertextuality and therefore the player is free to step into Columbia rather than try and pull Columbia into their own experience. While one might expect that the sound effect would draw the player into causal listening (Chion, 1994), the sudden appearance of a city above the clouds overrides this, furthering the emotional strength of the moment (the shock of Columbia as a beautiful and miraculous place) over the cognitive faculties that might otherwise weaken the narrative impact. So, this example requires the horizontal context of the surrounding styles of music to create its impact, but is, in and of itself, a single vertical instant (or at most a moment no longer than a second or two).

The above example is unique in the sense that it does not belong to a larger motivic group. Many of the other narrative synch points correspond to three loose categories: tears, moments surrounding the Lutece twins (two of the non-player

characters in the game), and moments of unconsciousness or death. The first of these, tears, corresponds to the openings that Elizabeth can create between worlds (and that periodically open of their own accord).

Tears and the Luteces: Shifting setting, tempo, and time

The first significant tear in the game occurs soon after Booker first finds Elizabeth. The player (Booker) has finally fought their way through enough of Columbia's police force and military to arrive at a large statue of an angel-like figure in the middle of Columbia (on a platform called "Monument Island"; see Figure 2.2 for an image of the statue). The player has learned that Elizabeth is imprisoned in this statue, but knows little else about her. As the player enters and begins to ascend, they encounter a variety of scientific apparatus and records suggesting that Elizabeth has been very carefully observed and possesses some unusual and powerful abilities. Eventually, the player reaches the top and sees several windows (soon realizing that they are one-way mirrors) into what appears to be Elizabeth's home (several rooms with varying purposes). After following Elizabeth (unbeknownst to her), Booker arrives at the one-way mirror that looks into her dining room, in which she has a painting of the Eiffel Tower in Paris. At this moment Elizabeth's Theme is playing, a slow melancholy descending melody that Schyman has sparsely composed for strings. Elizabeth turns towards the painting, reaches towards it with her hands, and appears to rip a tear in the painting open. The tear quickly expands beyond the confines of the paintings and can only be understood as a kind of portal into another place. Inside the tear is the real Eiffel Tower and a theatre sign that says "La Revanche Du Jedi" (see Figure 2.3). The player hears rock music ("Everybody Wants To Rule the World" by Tears for Fears) coming out of the tear, suggesting

(combined with the theatre sign, which most would associate with Star Wars) that this tear actually links the present to the future. The player then hears loud sirens that are soon followed by a fire truck and Elizabeth quickly closes the tear to avoid being hit. After the closing of the tear, the player hears Booker exclaim in shock and confusion and a lone piercing violin note.

The precise moment that can be called a synch point is harder to define than in the first example. In the first example, there was a clear moment when the rocket broke through the clouds, but in this case the tear is opened and lingers for a bit before closing again. For the purposes of this analysis I will define the synch point as the moment that the tear reaches its full size (when it can be understood as completely “open”). At this point we see Elizabeth and her room, distinguished from the tear by a white shimmering border that surrounds its contents and the black and white shading of what is on the other side of the tear.¹⁹ As mentioned earlier, Elizabeth’s Theme is playing prior to her opening the tear. As she actually opens the tear, the player hears a sound effect that is perhaps comparable to a very strong wind, or the sound a plane makes when it closely passes the listener. Ascending filter sweeps are applied to the wind sound effect to create an overall rising frequency profile. This sound dissipates as the rock music and sirens begin. So, our specific visual event is the tear at its full size, with a white shimmering border, containing a black and white Eiffel Tower and movie theatre sign. Our auditory event is a loud wind-like sound that peaks as the tear reaches its full size (possibly suggesting air moving between worlds).

¹⁹ This fades into colour, but the tear is initially black and white, making it clearly distinct from the rest of what the player sees

The narrative element of this moment introduces the player to Elizabeth's ability to open tears and suggests that these tears are holes to different times (the player does not yet know that they can be to different worlds as well), providing the groundwork for the rest of the game's narrative. It also makes Booker aware of Elizabeth's love of Paris, something that he later uses to motivate her to come with him. The use of "Everybody Wants to Rule the World" is interesting and may act to evoke the effect that Kassabian (2001) calls affiliation. Unlike the previous example, which included composed music, this song has a very familiar aesthetic to most modern players (new wave music), and has lyrical content that may inspire the player to draw associations or make assumptions about why it was chosen (note that this is unlikely on a first play-through since everything else is so attention-grabbing – see footnote 5 in Chapter 1). The modern sound asks the player to associate the moment with their own world as does the sound of warning sirens produced by the fire truck. It is interesting to note that this music seems to be diegetic,²⁰ and so the affiliation effect is made even stronger because the player knows that this music has a function beyond just creating affect (to alert people of the presence of an emergency vehicle). This is contrasted, however, with the sign that says "La Revanche Du Jedi," which links loosely to our world (*Star Wars*), but keeps itself distant by being the "wrong" title (even if the player does not read French, they are likely to read "revanche" as "revenge," rather than "return").²¹ The synch point does not necessarily

²⁰ We do not see the performers, but the music has an auditory quality, a kind of fuzziness, that suggests it is coming from speakers. While we cannot confirm that it is diegetic, this aural quality gives us reason to believe so.

²¹ This title was used earlier, but not for the final product. Instead "Return of the Jedi" became the final title. To people who know this, the effect of "another world" (in which the former title was used) may be even more powerful. See

include all of this information, but it precedes the tear and draws attention to the tear's contents. The synch point is, in this case, a type of signal to notify the player that something strange is happening that requires their attention. In a sense, it could be understood as a request that the player engage in the "signal listening" mentioned by Collins (2013).²² In this case the reaction is not interactive in the bidirectional sense: the player can do nothing more than move their field of view at this moment, but the player still knows that they need to be aware of what is about to happen if they want to understand Elizabeth's role in the plot.

Tears are used throughout the game, with some of the most important examples being used to develop the narrative through allowing quick changes in setting, pace, and temporal frame when Booker and Elizabeth go through them. In the first major example, the player has been tasked with finding a man named Chen Lin, a weapon maker in Columbia's industrial district. The mission comes from Daisy Fitzroy, the leader of a violent rebellion that is being staged by Black and Irish citizens who are tired of being repressed by the racism and ethnically based repression that is so prominent in the city. Daisy has commandeered the airship that Booker and Elizabeth intended to use to escape Columbia and has promised to return it if Booker can get Chen Lin to create weapons for the Vox Populi (the rebellion group). The player makes their way through the district and eventually finds Chen Lin's shop but, unfortunately, Chen Lin has been arrested by the military because he has been correctly suspected of being sympathetic with the objectives of the Vox Populi. The player then proceeds on foot to the prison cell of Chen Lin

<http://www.radiotimes.com/news/2016-05-27/rare-star-wars-revenge-of-the-jedi-trailer-discovered-in-the-oscars-archive>

²² Referring to a conference presentation by Huron; listening for something that requires a reaction.

(fighting many opponents on the way). They find Chen Lin dead, having obviously been tortured. This is not only a shocking image (to the extent that gamers can be shocked by violence), but also an obvious problem for completing the mission that Daisy has sent them on. Fortunately, the Lutece twins appear and explain that Chen Lin is only dead in this world and that the player and Elizabeth can step through a tear into another world in which Chen Lin is still alive and able to produce the weapons required to get the airship back (see Figure 2.4).

There are three notable synch points in this last series of events. The first two involve the use of narrative synch points to bracket important information. The third is associated with the tear that they step through and represents a change in setting and pacing. The Lutece twins are a recurring audiovisual motif (with an associated musical leitmotif) throughout *Bioshock Infinite*. They are two physicists who, the player eventually learns, have developed technology that allows them to open links between different worlds. Rosalind Lutece is a physicist born in the world of Columbia. Robert Lutece is the “same” person from another world (or dimension). They present themselves as twins to avoid the complications that might be associated with a public that knows of their true nature.²³ They have the strange ability to appear out of nowhere, convey information, and then disappear back into nothingness. In all cases that they appear (except for a few times at the very end of the game), the Lutece twins are accompanied by a whimsical non-diegetic musical motif (composed by Schyman), which suggests their

²³ The Lutece twins are fascinating as a case of gender ambiguity. They are, in a sense, the same person; however, one is male and one is female. They each have their own clearly gendered voices, but their musical voice, their motif, applies to both of them equally. While an exploration of how gender relates to synch points is beyond the scope of this thesis, the Lutece twins may be a particularly fruitful example for trying to understand gender ambiguity as it relates to video games and synch points.

odd nature and announces their presence to the player (and that there is something important about them).

In the current example, Booker and Elizabeth have just entered the room in which Chen Lin's corpse is seated in a chair. There is an assortment of tools, clearly used for torture, and a single light hanging over Chen Lin's head. Entry is through a single barred door that has been left ajar. When Booker and Elizabeth realize that Chen Lin is dead, they contemplate what options are left to them. At that moment, the Lutece twins appear in the doorway, and a darker, sparser version of their usual motif begins playing (the change in motif is presumably because of the disturbing nature of the situation—they are meeting around a tortured body). The Lutece twins begin talking about death in pseudo-physics terms, suggesting that life and death are two sides of the same coin and that the state in which a person is in relies on the perspective from which the observer looks. The implication is that in another world, a different perspective, Chen Lin will be alive. Once the twins are satisfied that this information has been conveyed, they disappear into nothingness and the musical motif associated with them ceases.

There are two synch points in this part of the sequence, one when the Luteces appear and one when they disappear. The visual event associated with their appearance is a flickering of lights followed by their actual appearance. The auditory event is a bit harder to pin down. The dialogue leading up to the moment includes the following:

Booker: Now we need to find someone else to make those guns

Elizabeth: No

Booker: Dead is dead, Elizabeth

Enter Luteces

Robert Lutece: Dead is dead

Booker: What the hell?

The auditory cue that seems most obviously to mark their entry is when Robert Lutece says “Dead is dead,” after which there is a “ding” sound as if from a bell, followed by the entrance of the Lutece’s leitmotif in full. After the Lutece’s explain the situation, they disappear. The visual event here is a similar flickering of light, followed by their disappearance. The auditory event is much subtler. There is a quiet wind effect, but it is not clear whether this is from their departure or from the tear that is now visible to Booker and Elizabeth (although it is only a slit at this moment). The other auditory event is that the leitmotif ends, although without any obvious cadence: it just stops.

The importance of this moment for the concept of narrative synch points is that the two synch points bracket narrative content, thus drawing attention to what happens in between. The content in between the two synch points does not constitute the synch points, but is given emphasis by them, perhaps in a similar way to a capital letter and an exclamation mark. This bracketing has an added effect of seemingly stopping time since gameplay stops and, in the specific case of the Lutece twins, there seems to be a pausing of everything else, perhaps because the characters demand so much attention. Chion (1994) noted that synch points seem to allow for the manipulation of perceived time. In this case, the player may experience it as a sort of stepping out of time (although this effect is probably amplified by the associations of the narrative, and especially the Lutece twins, with time as a variable that can be manipulated). When expanded to video game analysis more generally, narrative synch points might represent a more precise tool for

understanding how narrative information is segregated from gameplay (if it is), and how narrative synch points can bracket events and draw player attention.

Earlier, I mentioned that there was a third synch point associated with the tear itself. After the Lutece twins disappear, the player is required to ask Elizabeth to open the tear,²⁴ after which they step through into the “other” Columbia (same place, different perspective). The visual event here is similar to that in the aforementioned Paris example. The tear has a white shimmering border and its content gradually shifts from black and white to full colour. An important difference is that the contents of the tear are similar enough to be understood as the same cell (it is still a cell-like area, but Chen Lin is no longer where he was, instead replaced by boxes full of confiscated weapons). The auditory event is also the same strong wind effect. The new element is that after the tear has been fully opened and Booker and Elizabeth enter the second Columbia, the player hears angry shouting from above. The player soon discovers that a civil war between Columbia’s military and the Vox Populi has broken out in this alternate world, and the Vox have somehow acquired weapons without Booker and Elizabeth’s involvement. As Booker says, “Something tells me that one dead gunsmith ain’t the only thing that’s changed.”

This narrative synch point acts like a powerful shifting narrative moment. Unlike the other narrative synch points that have been described, this one communicates information on the scale of the game-world beyond just the main characters. This expands the role of the player in the story beyond the confines of getting Elizabeth out of Columbia. There is also an element of time being manipulated. Unlike the Lutece

²⁴ The Lutece twins seem to reveal the tear by making Elizabeth and Booker aware of it, but they do not actually open it.

example, during which time seems to pause, in this case time seems to have accelerated, an effect allowed by the potential for temporal elasticity afforded by synch points. In the first Columbia, the player is helping (albeit unwillingly) the Vox Populi stage their rebellion. In the second Columbia, this process has been bypassed. The Vox Populi already appear to have acquired weapons and are engaged in civil war. The narrative synch point allows, or at least marks, a jump forward in narrative, allowing the developers to effectively skip to a more interesting point in the story. The tension of Chen Lin's death is resolved through the removal of his corpse, but is very quickly replaced with the angry shouting and weapons of a newly empowered rebellion group. This anger and the associated tension seem to define the soundscape of the alternate world. In this sense, not only has the tear contributed to a change in narrative pacing, but also to a literal change in soundscape and therefore the auditory character or geography of the game.

A final example of a tear-oriented narrative synch point occurs near the end of the game. The player discovers that the bottom part of the angel tower in which Elizabeth was held was a siphon designed to drain Elizabeth's power so that she could not use all of it. Near the end of the game, Booker and Elizabeth use Songbird, a giant mechanical bird-like monster designed to protect Elizabeth, to destroy this siphon. The explosion destroys the device used to control Songbird and, now free to fulfill its purpose of protecting Elizabeth, it comes to kill Booker (since he has taken Elizabeth from the tower). However, Elizabeth now has access to her full abilities and can open tears to whichever destination she wants. Just when Songbird is about to crash into them, a tear opens and shifts them into an underwater city. Elizabeth and Booker are inside an

enclosure, but Songbird is stuck outside and drowns (see Figure 2.5). I experienced this moment as extremely powerful, from both an emotional and narrative perspective.

Despite Songbird being an enemy of Booker, it was Elizabeth's protector and they have a special relationship with each other. This creates a moment of sadness as the player watches Elizabeth say goodbye to what was her only companion for much of her life.

More important, though, we discover that this underwater city is Rapture, the setting of *Bioshock 1* and *2*. For any player who fell in love with the first game (as many did—it is one of the highest rated games of all time and enters into every discussion about video games as art), this may act as a moment of reflection that ties the series together full circle.

This moment seems to consist of two synch points. The first occurs when the tear is created and Elizabeth and Booker suddenly appear in a new setting. This synch point is essentially the same as the one in Chen Lin's cell. It acts as a pivoting moment in terms of setting, but also in terms of the narrative.²⁵ This moment, when Elizabeth gains access to her full set of powers, marks the beginning of the concluding sequence of events, which involves stepping through many tears in a denouement that explains the complex set of relationships between the story's main characters. In terms of sound, the synch point is preceded by fast and tense strings (similar to those used in the rocket scene) as Songbird comes towards them. This is followed by a brief silence punctuated only by Elizabeth saying "no." Once they arrive in Rapture, Booker asks "Where is he?" (referring to Songbird) but otherwise there is silence. Soon we see and hear Songbird

²⁵ It might also act as a shift in perceived time for people who played the first two games. Since *Infinite* is the most recent game, players may feel like they have been shifted back in time to their memories of playing the first two games years before *Infinite*.

crash into the glass wall that separates Booker and Elizabeth from the ocean outside and start yelling (it has a bird-like call) as it dies. Elizabeth's melancholy theme plays to emphasize the emotional bond between them. As her theme fades out, the second synch point occurs. Just as Songbird fades from view into the water, "La Mer" by Django Reinhardt and Stephane Grappelli plays.²⁶ The player turns around and notices, for the first time, that they are in Rapture, clearly marked by the signs, architecture, etc., all familiar to someone who played one of the first two games. It is important to note that someone who had not played the first two games would likely be confused here, but it is unlikely that a gamer would not be at least somewhat familiar with what Rapture looks like. "La Mer" is an important song in *Bioshock 1*, because it leads the player from the entryway of a lighthouse down to the basement where a submarine-like ship waits to bring them down into the city (note that this is a clear and likely purposeful parallel to the lighthouse and rocket at the beginning of *Bioshock Infinite*).

The synch point is interesting in terms of Kassabian's (2001) notions of assimilation and affirmation, because it is not only a piece of music that exists outside of videogames, but it acts as an intertextual link to the first game in the series. As such there are two potential layers of affiliation. Kassabian uses the term "affiliation" to refer to the fact that there is a history associated with a piece of music that affects the player's perception and experience of the moment associated with the piece. In this case, the synch point acts to pull the entire experience of *Bioshock 1* into *Bioshock Infinite* and

²⁶ In *Bioshock 1* "La Mer" plays when the player first enters a lighthouse that leads to the underwater city of Rapture. The piece is used diegetically in the first game (the volume gets louder as the player moves closer to a radio), and this seems also to be the case in *Bioshock Infinite*. In *Bioshock 1* "La Mer" is used to guide the player down into Rapture, and acts as an introduction to the musical character of Rapture. In *Bioshock Infinite*, "La Mer" announces that the player is in the potentially familiar environment of Rapture.

draws an unexpected and powerful link between the two narratives. The player discovers that Rapture is in another world in the same sense as the Lutece's revealed Chen Lin was alive in another Columbia. This opens the possibility that Jack, the player's character in *Bioshock 1*, is Booker from a different world. There was a lot of discussion about these parallels after *Bioshock Infinite* was released and players and game journalists have made strong cases for parallels of almost every character throughout the three games. This synch point therefore acts as the seed for all this extra-gamic discussion as well. It not only communicates in-game plot information, but also allows for a continuation of discussion far beyond the confines of the game world. This echoes Collin's (2013) suggestion that there is a metagame type of interactivity that takes place in the social environment (film and other media also have effects like this among fans, but to my knowledge, this has not been linked to synch points before).

These examples demonstrate the utility of narrative synch points in analyzing the use of tears throughout *Bioshock Infinite*. The next example will develop this idea further by introducing the potential for narrative synch points to draw attention to synch-point related narrative and musical motifs.

Unconsciousness: Synch points as motifs

The final group of narrative synch points that I will discuss involves Booker becoming unconscious. This happens several times as a scripted narrative event and can also occur when the player's health bar reaches 0 (to be discussed in the next chapter). The first occasion occurs soon after the rocket to Columbia example given earlier. The rocket lands on a platform that then descends through a building, the player proceeding through a church-like building that introduces some of the religious ideals that the people

of Columbia believe. After this, the player enters a large room with several people in white robes praying at the front, while a preacher talks about what the Prophet has done for them. When Booker reaches this group, the preacher asks him if he would like to be baptised (there is about a foot of water filling the entire room, and a deeper tub at the front). Eventually Booker (and the player) realizes that the only way into the city is to accept the baptism, and so he does. The preacher dips Booker underwater and, since the game takes place from the first-person perspective, this means that the player sees through eyes and hears through ears that are also underwater. After a bit (long enough that we hear Booker start to struggle to hold his breath), the preacher allows Booker back up but is unsatisfied. He says, “I don’t know brothers and sisters, but this one doesn’t look clean to me,” before dipping Booker back into the water. We hear him struggling for breath again before the screen fades to black.

After a brief moment of silence we hear loud knocking as if on a door. Soon, as Booker seems to come back to consciousness, we see Booker’s office. His desk is covered in papers and has a badge (from Pinkerton) and gun on it. At the same time we hear a distorted voice (with both female and male qualities) shouting “Bring us the girl and wipe away the debt! We had a deal DeWitt. Open this door right now!” Booker tells them he is not going to do it and demands that they go away. The player can explore the room, but the only thing that will move the game forward is opening the door. When Booker does this eventually he does not see a person, but rather a modern looking New York City with burning skyscrapers and a floating platform of Columbia attacking it (see Figure 2.6). During this scene, we again hear fast strings that build up as a rocket shoots from the platform towards Booker. At the moment the rocket would hit Booker, the

screen fades to white, we hear Booker sputter (as if spitting out water) and wake up from unconsciousness (really this time) to see statues of “the Founders” staring down at him. He is once again in Columbia and everything is calm.

This series of events includes several narrative synch points, each of which acts to shift settings while providing new narrative content. The first of these occurs when Booker blacks out after being submerged under water for the second time. The visual event is the blacking of the screen. The auditory event is silence, the gap between struggling for air and the knocking from the door. This moment acts as a kind of break between paragraphs or a double stop (both image and sound). It also acts as the opening bracket of a section of narrative information.

The second synch point occurs when Booker opens the door. Here the visual event is the sudden and very unexpected image of New York City being attacked by a flying city. The auditory event is a stopping of the ambient sounds in the room and the beginning of the strings, combined with the sound effects of the fires in the city and the rockets that are causing them. Unlike the Lutece example, this second synch point does not close the synch point bracket; that is left for the final synch point for which the visual event is the screen fading to white and the auditory event is a brief silence followed by Booker’s sputtering and gasping for air. At this point, the player is returned to Columbia and is allowed to continue through the game world. It is interesting to note that both brackets involve religious imagery. The first involves a baptism sequence and the second includes a “revival” of sorts (from the near-drowning experience, but also, potentially, a revival in the religious sense) as well as the image of the Founders (sacralized versions of George Washington, Benjamin Franklin, and Thomas Jefferson). This example of synch

points as narrative brackets is also significant because it more obviously distinguishes itself from the ordinary pace of the game. Unlike the Lutece example during which we experience time seeming to stop, in this example we (through Booker) are actually in an altered state of being. We are no longer able to access the information that Booker's senses would normally perceive and communicate to us. The synch points make this distinction clear for the player, ensuring that the player can understand the narrative information being presented (or at least understand that it is important and is vague only to build interest for later reveals).

Perhaps the most important aspect of this set of moments is that all of them are foreshadowing future events. Booker experiences near drowning once more in the game, and actual drowning at the very end of the game (the moment is, again, set up as a baptism). The second case of almost drowning occurs just after Booker gets Elizabeth out of the tower. Songbird comes to stop him and return Elizabeth and after a chase scene on the "skylines" of the city (tracks that people can use to travel between platforms), Songbird destroys a section of the track, causing Elizabeth and Booker to fall off. Elizabeth is separated from Booker (she is soon trying to revive him after he has washed up on a beach – it's not clear how she survived) and Booker falls into a fabricated ocean below. Songbird follows Booker into the water and struggles to reach him as he sinks deeper and deeper. Eventually Songbird gives up because it seems to be unable to deal with water pressure (a foreshadowing of its drowning in the ocean surrounding Rapture) and Booker blacks out. Again, after silence and the screen fading to black, the player hears knocking on a door as Booker's office fades into view. This time Elizabeth is in the room humming "Will the Circle be Unbroken" as the unknown people once again shout

form the other side of the door about bringing them the girl to wipe away the debt. Again, the player must open the door to progress, at which point Booker wakes up again looking up at the sky, but this time Elizabeth is looking down at him, clearly anxious about his well-being.

At this point, after Booker rescues Elizabeth from the tower, the set of synch points that bracket the office moment are becoming a kind of motif in and of themselves. They initiate a setting (the office) and the tension associated with the girl (Elizabeth) and the debt. They also highlight the theme of drowning and water, for there are three major characters who drown in the game: Booker, Songbird, and Prophet Comstock. Booker drowns at the end of the game, as mentioned above, Songbird drowns behind the window in Rapture, and the Prophet Comstock is drowned by Booker in a basin of water as revenge for all that Comstock has put Elizabeth and Booker through.²⁷ All three of these characters are protectors and keepers of Elizabeth in some way (Booker protects from soldiers as they try and escape, and eventually from Comstock and Songbird; Songbird was designed to protect Elizabeth from everything; and Comstock “protects” her in the sense of keeping her in the tower and protecting her from outside influences).

All three also give Elizabeth away or/and take Elizabeth away from others at some point. Booker takes Elizabeth away from Comstock and Songbird (in the tower) and, the player later discovers, had given Elizabeth as a baby (then named Anna) to the

²⁷ A more complete analysis of the narrative of the game suggests that Booker kills Comstock since Comstock is a representation of the horrible things that Booker has done (they are revealed to be the same person from different realities). From a narrative perspective, Comstock can be understood as a personification of Booker’s guilt, and of his struggle against the choices he has made in the past.

Lutece twins to pay off his debt.²⁸ The Lutece twins take Anna in part on order from Comstock, making him ultimately the one who took her from Booker. Comstock does not give Elizabeth away in the same way that Booker does, but rather gives her to the world as his gift (to destroy the “Sodom below” and free the world from sin). Songbird takes Elizabeth from Booker later in the game and gives her to Comstock, at which point Comstock begins to experiment on her to hasten her conversion to his cause. These plot points will seem very confusing to a reader who has not played the game, but the main point here is that the method of applying synch points to the game has helped reveal these connections.

This chapter has focused on narrative synch points specifically, and how they function aurally and visually. They are used to communicate plot information and are similar to what we see in film. By drawing attention to plot points--either through creating pivot points (as in the rocket example), bracketing off sections of narrative (as in the Lutece example), or acting as a transition between settings (as in the unconsciousness examples)--they help the player make sense of what is going on both factually and emotionally. Synch points can also draw attention to themes (e.g., drowning) and create a kind of synch point motif that connects narrative dots, so to speak. This discussion has demonstrated the utility of narrative synch points but has ignored a fundamental characteristic of video games: interactivity. We will now turn to this issue.

²⁸ The Lutece twins harnessed the energy from Anna being in the “wrong” world to help create the tears.

Chapter 3: *Bioshock Infinite* and Interactivity

In his book, *Gaming: Essays on Algorithmic Culture* (2006), Galloway writes, “Begin like this: If photographs are images, and films are moving images, then *video games are actions*” (italics in original, 2). This quote is provocative in its essentialist assertion of what these mediums are, and certainly oversimplifies in its reach for eloquence (not to mention its occularcentrism). However, it does draw our attention to the fundamental importance of action, or interactivity, for video games. In chapter 1, I introduced the idea of interactivity by discussing the perspectives of Collins (2013), Bongers (2000), Aarseth (1997), Galloway (2006), and Glassner (2004). I explained that I use the term interactivity to refer to a relationship between a player and a machine (for example a computer, a Play Station, a phone, etc.) that is cyclical in the sense of being an information feedback loop (player provides input, machine provides feedback, player then makes another choice and inputs the corresponding command). I also noted Glassner’s argument that interactivity can be one-way or two-way. In this chapter I will draw on this theoretical background to argue that gameplay and serendipitous synch points are useful analytical tools for analyzing video game music and sound.

I will start with examples of gameplay synch points before moving on to serendipitous synch points. To review, gameplay synch points are salient synchronous occurrences of an audio and visual event that communicate information about gameplay to the player. This can be information about what the player is required to do to progress further in a particular location or situation: for example, which enemies to fight or which street to go down. It can also include information about game states: for example, low

health or ammunition.²⁹ The first examples I explore address the dynamic gameplay synch points that players may react to immediately. These include combat and low health. From here, I will examine how gameplay synch points can be layered to communicate increasingly complex gameplay information. Then I will demonstrate the cross-pollination of narrative and gameplay synch points by exploring moments that communicate both types of information. Finally, I will introduce serendipitous synch points and provide an example of one from *Bioshock Infinite* that illustrates the importance of the player's pool of knowledge and experience to create meaning from a chance encounter of image and sound.

Gameplay synch points: combat, health, and death

Two of the most important cases of gameplay synch points are the triggering and ending of combat music. Combat music is used in many video games to signal that an enemy is present and is aware of the player (and therefore likely to attack). Schyman, the composer for *Bioshock Infinite's* music, states that for this he “used small string ensembles playing very intense, hard-driving music... with percussion” (Schweiger, 2013). As synch points, combat music acts in a similar way to the bracketing synch points discussed in chapter 2. At the beginning of every engagement in *Bioshock Infinite*, the music starts by sounding over any other auditory events that are happening at the same time with sudden rapid strings paired with a deep bass drum beat. The first

²⁹ Health and ammunition are resources that the player uses to complete the game. Health generally begins full and is depleted as enemies attack the player. When health reaches zero, the player “dies” and usually needs to replay the last section of the game. Low health therefore indicates danger through the potential failure of a section of the game. Ammo is short for ammunition and is like its real-world counterpart in application (it is shot from a gun of some kind). It is used to fight enemies and, consequently, low ammo means that the player is running out of resources to defeat enemies.

moments of music act as the auditory event (creating a very explicit synch point). The visual event is one of two things: either an enemy is coming into sight or the player is shifting the field of view rapidly to try and locate the enemy. It may seem strange to consider the player moving the field of view (the camera) as a visual event that makes up a synch point since synch points are used to communicate information. If the player is looking for the enemy, then they presumably already know an enemy is present and are now doing their own information gathering to locate that enemy. I argue that the initial seeking of an opponent is more instinctual than conscious; at least once the player has become accustomed to the music (when the player has developed a conditioned response to the music).³⁰ Therefore, the synch point still acts to make the player aware of what is occurring. They hear the music, react without being aware of what they are doing (a pre-conscious or pre-cognitive response), then their consciousness or cognition catches up and interprets both the music and their searching as indicators of combat.³¹ In this sense, the synch point is not only interactive in the sense of giving the player information to react to, but their reaction defines the synch point. This is further related to interactivity since the player's need to look for an enemy depends on where they are facing when the music starts playing. Often the player will be looking at where the enemy is coming from, since the developers have built the game levels in such a way that they guide the player forward. However, this is not guaranteed. One of the difficulties that game developers face when building a game is that players can be looking anywhere they choose (unless

³⁰ Most gamers will have already developed a conditioned response to combat music through familiarity with video game conventions and so any conditioning unique to *Bioshock Infinite* will be very quick and natural.

³¹ This is of course speculative. It suggests a potential link between synch points and affect theory (see Figlerowicz, 2012 for a summary of affect theory).

the developers have restricted this, in which case they have potentially sacrificed some level of player connection). Thus, the direction that the player is looking prior to the music starting determines, to some extent, the urgency and panic associated with the beginning of combat. In other words, the horizontal context, the direction the player is facing prior to the combat, determines a quality of the information communicated through the vertical synch point (the urgency of finding the enemy).

The ending of combat operates in a similar way. When all the enemies in the immediate area have been eliminated, the music transitions (through three monophonic notes played on the strings with percussion that increase in volume) into an outro section which is made up of the strings increasing in pitch and playing a quick melody that peaks into a sudden stop, after which the ambient noise and any music associated with the setting come back to the forefront. This sudden stop is the auditory event. The visual event is the sight of the last enemy falling. The combination of these two events is salient, because it tells the player that they can now calm down and focus on picking up any items they want as well as looking around and learning about the environment. The end of combat is also interesting as an example of signal listening (Collins 2013 citing Bongers 2000). While there is some signal listening happening at all times in the game (since enemies could attack at any time), when combat starts the player becomes more acutely aware of the music that marks the end of combat since it tells the player that they are safe. If the player were to play the game without sound, it would be much more difficult to ensure that combat was over since it is possible that an enemy could be hiding in a room or behind an object. This therefore illustrates the importance of not only synch points, but also of sound in general.

A second case that illustrates the function of gameplay synch points relates to player health. In *Bioshock Infinite* the player has an energy shield that protects them from incoming damage, represented by a yellow bar in the top left of the screen, and a health bar that indicates how much damage they have taken, signified by a red bar, also in the top left of the screen. It is important to note that these bars have no connection to sound or music, except for when the “low” threshold is met, leading to the sounds mentioned below. These bars are important because when the health bar reaches zero, then the player “dies” or falls unconscious and must re-do some of the gameplay. Many games including *Bioshock Infinite* make use of an audio-visual cue (a gameplay synch point) to indicate low health and therefore danger. This is intended to trigger a reaction from the player that will, hopefully, lead to their survival. In *Bioshock Infinite* the breaking of the energy shield is the first stage of this. The auditory event here resembles glass shattering. The visual event is a yellow “cracking” effect (signifying that the shield is cracking and shattering). The next step involves a low health warning. The visual event here is the image of red vein-like shapes in the corners of the screen that pulse (representing a heart-beat; see Figure 3.1). The auditory event is an eerie gasp-like sound effect that stands apart from the rest of the combat soundscape as well as the thump-thump sound of a heart-beat (matching the image). Both the shield breaking and the low health warning are important as tools for developers and therefore for the machine to communicate information to the player.

Another interesting aspect of these two synch points is that, in conjunction with the beginning of combat music, they represent a continuum of urgency. The introduction of combat music tells the player that they need to get ready to fight by locating the

enemies. This is relatively urgent compared to many events in the game, but the player is still OK. The shield-breaking synch point communicates the next level of urgency. Now the player needs to be careful since they will be taking direct damage and will die relatively quickly.³² The final level of urgency is the low health warning at which point the player needs to quickly find cover, something to heal them, or some way of taking out the enemies. The urgency of all three of these levels depends on the context. If the shield breaks when there is only one enemy left, it is less urgent than if there are five enemies left. Note that these levels of urgency are not necessarily indicated in the music or the image as independent sensory experiences, but when the player puts these together with contextual cues (such as the number of enemies), the final experience will have an attached level of urgency.³³

A final issue of interest relating to low health and combat is how *Bioshock Infinite* deals with death or, perhaps more accurately, unconsciousness. In most video games death leads to a game-over screen or a loading screen (re-loading the game state from the last save the player made). *Bioshock Infinite* tries to tie death into the narrative of the game by introducing another set of synch points. The first of these occurs when the player's health bar reaches zero. The auditory event is similar to someone blowing on the end of a pipe with an echo effect. The pitch begins low, rises, and then returns to the low

³² “Die” is used in the sense of gameplay rather than narrative (the player's character will simply resurrect at an earlier point rather than being eliminated from the narrative of the game). Gamers tend to use terms like “die” or “death” in this context to refer to a health resource of some kind reaching zero, even if the character does not actually die (in *Bioshock Infinite*, Booker seems to fall unconscious, but most gamers would probably still refer to this as “death” because of established convention).

³³ Recall the discussion of the McGurk effect (and related effects) in Chapter 1. The sense of urgency may develop in a similar way. The total experience of urgency is greater than the simple sum of the parts.

pitch. The visual event is the screen fading to white and the player's field of view rotating and dropping, indicating that Booker has fallen to the ground. This is followed by Booker "waking up" in the same office where he awakens during the narrative scenes discussed in the last chapter. This ties the unconsciousness associated with falling in combat to the unconsciousness associated with narrative scenes, thus creating a coherent gameplay-narrative experience that facilitates the player's connection to the game world.

Gameplay synch points as sets

Gameplay synch points are sometimes also used in sets to communicate stages of information to us. Near the end of the game Booker enters Comstock House (a kind of research institution in which they conduct often horrific experiments with the aim of ridding people of sinful tendencies) to find Elizabeth (Songbird has recently taken her back). The player enters a room filled with strange people wearing masks who seem oblivious to his presence. There is a sign that says "No Sin Evades His Gaze," with an image of another person, called a Boy of Silence, who wears a different mask. Soon the player sees one of these Boys in person (see Figure 3.2). He is standing in front of the door that Booker needs to get to and has a cone of light coming out of where his face would be (the mask has no facial features). When the player approaches the door, the Boy gasps as if startled then screams angrily, as if outraged about the presence of an intruder (Booker). Then he disappears in a tear-like animation.³⁴ Suddenly the eyes of all the

³⁴ It is also worth noting that the scream has an otherworldly quality to it, as if the Boy is something between a human and a monster or ghost. The role of the Boy of Silence's gender is potentially interesting here. While they are not clearly labelled "Boys" in the game (this name is communicated through other information released by the developer), they are clearly male and their clothing is reminiscent of a school uniform. While a full exploration of the potential politics of gender and age (and how they relate to screams and synch points) is beyond the scope of this thesis, it is still worth noting.

masked men in the room glow blue and they attack Booker. The player then needs to fight them off. The visual event here is the Boy of Silence's animation (which occurs only slightly prior to the other men attacking). The auditory event is the scream itself. This synch point provides us with gameplay information: being noticed by one of the Boys of Silence (they have a very distinct look) will activate the other masked men and make them attack Booker. Therefore, the player knows that they must either avoid detection or be ready to fight.

Soon after, the player encounters another Boy of Silence. This time, however, the Boy is standing in the middle of a room with pillars that can provide cover. His gaze shifts around the room as he rotates in a circle and so it is possible to avoid detection (in the first case it was not, since he was standing right in front of the door). If the player passes through the room without being detected, then there is no new synch point, since the player has successfully learned the lesson and has been able to adapt their approach to gameplay appropriately. However, if the player is seen, then there is a new gameplay synch point. Detection happens when the player enters the cone of light that emanates from the face of a Boy of Silence,³⁵ or when a Boy of Silence turns such that the light moves across Booker (in the first case, the player's action causes detection, in the second the machine's action or the player's inaction causes detection). When this happens, unlike in the above synch point where screaming was immediate, the Boy gasps as if startled, perhaps inhaling in preparation for a scream, and the cone of light changes from white to

³⁵ The light is a cone for the purposes of gameplay (so the player understands where the Boy is looking and therefore the limits of his detection area), but it also has a dispersed quality to it, as if refracting off a thick fog of dust that has accumulated in the building. This gives a sense that these people have been abandoned and signifies a horror element to this part of the game through its use of a fog-like effect.

yellow. There is also a ticking sound effect that begins, suggesting that the player has a short time to move out of the light to avoid detection before the Boy of Silence sounds the alarm. If the player successfully moves away in time, then the Boy of Silence continues scanning the room as usual and the player can continue their attempt to progress through the area. If not, the alarm goes off (the same angry and otherworldly scream that the first Boy made), and the other masked men attack. The auditory event is the gasping noise from the Boy plus the ticking sound. The visual event is the cone of light changing from white to yellow. This communicates gameplay information about what detection is and how to avoid it and represents an “upgrade” of sorts from the first Boy of Silence synch point because the player can now avoid and move out of the cone of light if they are careful and quick enough. So, in sum, this set of two gameplay synch points progresses the player’s knowledge of how to act and react in a gameplay situation that occurs throughout Comstock House.³⁶

Gameplay synch points that are layered like the above example may be more or less prominent and obvious in different game genres. In first-person shooters like *Bioshock Infinite*, much of what makes the game challenging are the “mechanical” skills required, meaning the player’s reaction time, hand-eye co-ordination, and so on. They do not require gameplay synch points to learn because they will improve through practice.

Other genres, for example puzzle games, make much more effective use of layered gameplay synch points. For example, in *The Witness* (Thekla Inc., 2016) players are taught how the game works through sequences of puzzles that get progressively more complex (they require the player to develop a more complex or nuanced understanding of

³⁶ Ironically, the synch point teaches us to avoid the synch point.

the basic puzzle mechanic; see Figure 3.3). In this case the synch points occur when the player solves each puzzle (there is a “click” sound and the next puzzle lights up, indicating that the player has been successful), so the synch points are acting much like rewards for “good” behaviour and are auditory signals that indicate closure. This teaches the player to apply the same approach to the next puzzle. If it works, then the player has learned what they are supposed to, if not then the next puzzle will help develop the next stage of nuance.

Gameplay synch points like the above (in which there is clear signalling of success or completion) represent one point on the spectrum of how explicit synch points can be. To borrow Miceli’s (2011) term, these are examples of explicit synch points. They rely on the player being able to clearly detect them in order to communicate necessary information. This expands Miceli’s categorization by providing an additional function to explicit synch points (beyond the mickey moussing that he notes). In video games explicit synch points are functionally important as a way of teaching players the rules of play. In this sense, the context of video games allows explicit synch points to transcend their often-limited film role as mickey moussing to become a fundamental tool for game developers. The next type of synch point I will explore, which combines narrative and gameplay synch points, acts as a middle case on the above spectrum with some characteristics of explicit synch points and some of implicit synch points.

Gameplay and narrative: Synch points that communicate multiple meanings

The above examples illustrate gameplay synch points that provide the player with information on which they can immediately act. These synch points are dynamic in that they happen as the player engages with the game. Other gameplay synch points are more

closely associated with the narrative events and cut scenes that happen throughout the game. I mentioned in chapter 1 that a single synch point can communicate multiple kinds of information, for example narrative and gameplay information. In the early part of the game, after Booker has arrived in Columbia but before he finds Elizabeth, there is an excellent case of this happening.

The player discovers that the people of Columbia are celebrating an event and are having an annual raffle. As the player walks towards the location of the raffle they hear a crowd singing “Goodnight Irene.”³⁷ The sound of singing in combination with the level design guide the player towards the raffle.³⁸ As Booker gets closer he hears people talking about how excited they are that the raffle is happening. When Booker arrives, the master of ceremonies (Mr. Fink, the “business king” of Columbia) brings the singing to a close (not diegetically related to Booker’s arrival). A woman asks the player to pick a numbered baseball out of a basket. The player does so and gets the number 77, which turns out to be the winning number. The next event marks the first demonstration of the racism and violence in Columbia. A tied up interracial couple is rolled out from behind a curtain and the raffle winner gets to throw the first ball before the other people join in, presumably to stone the couple to death for their “crime.”³⁹ The player is given a choice of whether to throw the baseball at the couple or at Mr. Fink. Regardless of their choice, a cut-scene starts in which a police officer grabs Booker’s forearm as he is about to throw the baseball because he has noticed the letters “AD” branded into the back of Booker’s

³⁷ An American folk song originally recorded by Lead Belly.

³⁸ The level design is relatively linear so the player is eventually forced to move in the direction of the raffle if they want to progress. The singing creates a sense of interest and stands out from the rest of the soundscape, signalling to the player that something important is happening.

³⁹ For a more in-depth take on racism in *Bioshock Infinite* see Mafe (2015).

hand (see Figure 3.4).⁴⁰ As mentioned above, this brand marks Booker as the “False Prophet” who will lead the “Lamb” (Elizabeth) astray. Another officer then comes up and gets ready to attack, but Booker fights back and kills one of the officers. The player is then given control again and needs to fight off the rest of the officers.

The synch point occurs right as the player is about to throw the baseball and the officer grabs Booker’s arm. The officer exclaims, “It’s him” and Mr. Fink comes over and asks Booker where he got the brand and tells him that it means he is the False Prophet. This leads to the officers attacking Booker, which, in turn, leads to Booker defending himself. The visual moment is seeing the officer grabbing Booker’s arm and looking at the brand. The auditory event is a sound effect that resembles microphone feedback.⁴¹ This is matched with the officer saying, “It’s him.” Another potential synch point occurs soon after as Booker kills the officer who grabbed him. The weapon used is called a “sky hook”: a set of three spinning hooks that is designed to link to the skylines above Columbia but is also used as a melee weapon. As a second attacking officer starts his sky hook spinning, Booker throws the baseball, which was still in his hand, as a distraction before grabbing the officer who first grabbed him by the back of the head and pushing him into the sky hook that the second officer is holding. At the moment that the second officer starts the hooks spinning, the game goes into slow motion and there are several more feedback-like sound effects associated with the action of throwing the baseball and grabbing the first officer’s head. As Booker pushes the first officer’s head

⁴⁰ The letters refer to Anna Dewitt, the name of Booker’s daughter. See the plot summary in Appendix C for information on her relevance to the narrative of the game.

⁴¹ There is no actual microphone, but the effect is likely used because of the context of a man talking from a stage and the associated sense that something has gone wrong when microphone feedback is heard – in other words we hear non-diegetic feedback so that we feel anxiety about the “wrongness” of the situation.

into the hook, the game resumes normal speed and the first officer's face is destroyed by the hooks. The visual event here is the hook hitting the officer (or the officer hitting the hook). The auditory event consists of the sound of the sky hook entering the officer's head – a kind of grating mixed with a fleshy sounding spurt (perhaps similar to striking a watermelon with a cleaver, as in horror movie sound tracks) - the crowd screaming in alarm, and another feedback sound as the officer falls to the ground.

Both synch points are important as conveyors of narrative and gameplay information. The first of these tells the player that they have been discovered as the “False Prophet” and that this is not a good thing (the player infers this from the reaction of the officers and Fink). It also marks the officers as potential enemies. The second synch point confirms that the officers are enemies whom the player must fight (thus giving the player necessary gameplay information) while also marking the beginning of Booker's role in the violence that will extend throughout his time in Columbia. Prior to this point, the only violence the player has seen is the dead man in the lighthouse, and so this synch point marks a de-masking of Columbia from the utopian image that had been built up earlier. The scene introduces the player to the racism in the city while also preparing them to take on a combat-oriented role. These types of synch points also suggest a further issue that relates to the experience of narrative interactivity in video games. While a major comparison of the phenomenological experience of the narrative of a video game with that for a non-interactive medium is beyond the scope of this thesis, it is worth noting that future research might find it fruitful to explore if the immersive nature of video games gives an interactive “feeling” to non-interactive moments in the narrative (since it is the player's character rather than an entirely separate person going

through these events). In this sense the player may experience a false sense of interactivity.

Other examples of narrative gameplay synch points act to condition the player. For example, when Booker first finds Elizabeth in her tower in Columbia, she is initially scared, understandably since she has rarely seen another human being before; however, she soon becomes more comfortable and asks Booker, “are you real?” Right after this the player hears a melody (possibly played on a tin whistle) begin from a gold statue in the room (see Figure 3.5). Elizabeth immediately becomes worried, informing Booker that “He’s coming, you’ve gotta go.” The player soon learns that the whistle statue is essentially an alarm system that summons Songbird (activated, in this case, by Booker’s presence). The next sequence is Booker and Elizabeth running away from Songbird as it tears down the top part of the tower in its effort to rescue Elizabeth from Booker. The auditory event in this synch point is the alarm melody, while the visual event is Elizabeth’s countenance of concern (also audible through dialogue and voice tone). The synch point essentially conditions the player such that anytime they hear the alarm (the gold statues are scattered throughout Columbia), they should be worried. The following chase scene then tells them that the alarm specifically summons Songbird. I argue that the synch point takes place when Elizabeth expresses worry rather than when we see Songbird, because it is the reaction of worry that the player is learning. The synch point sets the emotional context that the player then needs to react to once Songbird arrives, while also communicating both narrative information (who Songbird is) and gameplay information (that the alarm and Songbird are dangerous).

Serendipitous synch points: The chance for meaning

Returning to my three-part typology of synch points: in addition to narrative and gameplay synch points, I suggested serendipitous synch points as a useful analytical category. Serendipitous synch points involve a chance encounter between a visual and auditory event that is salient to the player but that may not be planned by the developers or meaningful to another player. This can include familiar situations from film, literature, music, etc., in which readers of a text make intertextual connections or connect information in the text with their own experiences. The result is a relatively unique understanding of the text that the creator may not have expected. In video games, these moments are especially interesting because the developer cannot always control the player's field of vision or point of audition. The result is that player will sometimes be looking somewhere that they might not be expected to look, or they may otherwise prioritize information in a way that results in the chance encounter required for a serendipitous synch point. One of the most fascinating aspects of these synch points is the potential for an individually unique experience. While different individuals will always perceive a text in different ways, serendipitous synch points amplify this experience.

A moment in *Bioshock Infinite* that I experienced as a serendipitous synch point occurs about two-thirds of the way through the game. The civil war between the Vox Populi and Columbia's military has been effectively won by the Vox Populi, resulting in a largely destroyed city in which violence and death are everywhere. The player is trying to get to Comstock House so that Booker and Elizabeth can find Comstock himself. After fighting off a group of Vox Populi troops, Booker and Elizabeth enter a building that will get them closer to their goal. Immediately when they enter, the player sees a wooden

signboard with six scalps nailed to it. “Tell us Prophet, Do you see us coming?” is written in blood above the scalps, and there are several corpses at the foot of the sign (see Figure 3.6). As the player enters the room, they hear a pre-recorded robotic, tinny voice reminiscent of an old-fashioned circus hawker ask, “Who needs competition when you have quality?” from a vending machine in the corner of the room. The visual event is seeing the signboard with the scalps nailed to it. The auditory event is the vending machine’s question. While there is a possibility that this moment was purposefully designed by the developers, it is important to note that all of the vending machines seem to share the same set of quotes.⁴² This specific room also makes sense as a “resupply” location, since it is placed just after a large fight and before going deeper into a new location, suggesting that this was just a convenient place for a vending machine and the board for separate reasons.

There are several reasons why this moment is salient for me. The first is the irony: the vending machine is making a comment about capitalism that seems far removed from the violence to which it is oblivious. The sense of irony is created by this weird juxtaposition of concerns. In a city that is in the throes of death after a brutal civil war, we do not expect any concern over the quality of products; however, the vending machine is frozen in time, completely unconcerned with what is happening outside of its pre-recorded messages. This is especially blatant when it takes place in a video game, a medium that finds much of its power in giving a machine and a player the power to interact with each other. The moment is in a sense a reduced version of the role of video

⁴² The vending machines try to sell their wares based on the proximity of the player. It therefore would have to speak as the player entered the room, but the vending machines have several possible quotes, so it is not certain that it would say the same thing in a different play through.

games in the real world. The machine that a player is using reacts to the player, but it is oblivious to the world around that player. Like the vending machine it reacts to the proximity of the player (the inputting of commands), but has no concern for the war, poverty, corruption, and so on, that may surround the player with which it is engaged. Its field of view and point of audition are restricted to a single purpose – to play the game, or in the case of the vending machine, to sell products.

This interpretation of the synch point is relatively unique to my experience because of the context of my playing the game and the knowledge pool that I bring to the experience. During my first play through I experienced this synch point as ironic only at the surface level and did not read much into it. When playing the game again prior to writing this thesis, I was more sensitive to the above interpretation because of the knowledge pool from which I was working.⁴³ Furthermore, the complexity of video game interactivity was at the forefront of my consciousness because I was developing ideas about which to write.

This synch point is also interesting from the perspective of Miceli's (2011) explicit and implicit synch point categorization. The vending machine, taken alone, seems like a case of an explicit gameplay synch point. It is obvious that the voice is coming from the vending machine and that the vending machine is providing us with gameplay information (that we can purchase items at this location). However, when experienced in the context of the scalp board, a serendipitous synch point is formed. The serendipitous semiotic potential rips the voice from the vending machine so that it may

⁴³ My knowledge pool was expanding in relation to the topic of interactivity because I was reading Galloway and Aarseth as well as working as a teaching assistant for a course on video games.

create new meanings when paired with the image of the scalp board. The end result is a sort of Frankenstein synch point that comes alive through stitching together two originally disconnected sensory experiences. The resulting serendipitous synch point complicates Miceli's dichotomous categorization because it does not fit neatly into either category. It may be explicit because it is potentially obvious to the player in the moment that it is perceived, but it may not be explicit (or even a synch point of any kind) to anyone else who plays the game. In this sense, the extent to which a synch point is explicit or implicit exists only in the eye and ear of the player, at least as far as serendipitous synch points are concerned. It is important to note that serendipitous synch points can also be implicit in the sense that they may be subtle even to the individual who notices them. As I mentioned with the above example, the first time I played the game I did not read the same amount of depth from the synch point as the second time. In this case, one could argue that the serendipitous synch point had an explicit layer with other layers that are potentially implicit.

Earlier I argued that the linear narrative of *Bioshock Infinite* and its mix of interactive combat and exploration was an important strength for the use of the game as a case study. Serendipitous synch points are the weak point in this approach. While *Bioshock Infinite* creates an opportunity to lay a strong foundation on which to build further theory about the application of synch point analysis to video games, it is not a solid example of the potential of serendipitous synch points. Beyond the above example, there were few if any cases that were noteworthy to me. If we compare this to an open-world game like *Fallout 3* or *The Elder Scrolls: Skyrim* where the primary narrative is meant to be an optional set of tasks for players to complete at their leisure, we become

aware of the difference in serendipitous potential. *Fallout 3* (and *4*) is a particularly good example because it affords the player enormous freedom to explore the world, while also featuring a radio system through which the player can listen to music on a variety of stations. For example, there is a station that plays primarily patriotic pro-America songs, reflecting the nationalism that existed prior to the nuclear war that preceded the events of the game (the radio station somehow survived this war).⁴⁴ The serendipitous synch points that might occur when this station is broadcasting can be wildly different from those that occur when the solo classical violin station is on (or the early 20th century classical station in *Fallout 4*). In this case the developer has given control of the visual, action-based, and auditory context to the player (within the limits of the vast and open game world). Because the player is not familiar with the world, but is able to explore it freely, this allows for significant serendipity. This is even more noticeable if the player uses the wide range of player-made modifications available to change the soundscape (by adding radio stations, adding sound effects, etc.). An exploration of these kinds of examples is beyond the scope of this thesis, but it is important to note that serendipitous synch points may prove especially useful as an analytical tool in open-world games.

In this chapter, we explored the utility of gameplay and serendipitous synch points for analyzing video games in general and *Bioshock Infinite* in particular. We noted that gameplay synch points can communicate information about the beginning and ending of combat sequences. They can also warn the player that their health is low and that action is needed to prevent unconsciousness. The low health synch point is

⁴⁴ In *Sound Play* (2014) William Cheng gives an excellent example of this in his first chapter. While he does not use the concept of a synch point, the term could easily apply to the combination of patriotic American music and the visual of a button that will launch a nuclear missile to destroy a nearby settlement.

particularly illustrative of how gameplay synch points can represent distinct levels of urgency that help the player prioritize the order in which they do things. We also discovered that gameplay synch points can occur in groups that build on each other. These arrangements allow for more complex gameplay information to be communicated, especially in puzzle games like *The Witness* (Thekla Inc., 2016). After this, combination synch points were introduced; in particular those related to narrative and gameplay synch points. These moments communicate both narrative and gameplay information at the same time. Finally, we examined serendipitous synch points and noted that they rely on intertextuality and the previous knowledge of the player. It is also important to understand that *Bioshock Infinite* is not illustrative of the full potential of serendipitous synch points as an analytical category, where open-world games may prove especially fruitful. Gameplay and serendipitous synch points expand the notion of synch points beyond what Chion (1994) conceptualized by allowing them to take the complexities of interactivity into account, thus allowing for new, fascinating, and unpredictable audio-visual experiences.

Conclusion

The purpose of this thesis has been to demonstrate that Chion's (1994) conceptualization of synch points can be fruitfully expanded and applied to the study of videogames. To this end, I proposed a typological approach that offers three categories of synch points: narrative, gameplay, and serendipitous. In the first chapter, I introduced my methodology and the theory on which my conceptualization is based. The second chapter began to explore narrative synch points in the context of *Bioshock Infinite*. I provided examples to demonstrate that narrative synch points can be used as pivot points for setting and atmosphere, and I also showed that synch points can be used to bracket narrative information, thus drawing attention to the enclosed content. Finally, I suggested that narrative synch points can feature visual and musical motifs that emphasize important themes and plot information.

Chapter 3 expanded on this by introducing gameplay synch points. I suggested that gameplay synch points can be used to communicate information to the player about how to play the game. In particular, they can draw attention to game states such as low health. In these cases, they also communicate information about the urgency of response that is required by the player. I also argued that gameplay synch points can be linked to build on previously learned game-related knowledge, communicating increasingly complex information. In addition to demonstrating what gameplay synch points can do on their own, I demonstrated that a single synch point can sometimes communicate both narrative and gameplay information.

Chapter 3 also introduced serendipitous synch points. I explored how they rely on the particular player to create potentially unique sets of meaning. I also suggested that

Bioshock Infinite was not the best example to illustrate serendipitous synch points, since this concept may be especially well-suited for application in open-world games such as *Fallout 3* and *4* and *The Elder Scrolls: Skyrim*.

Throughout these chapters I demonstrate how synch points are chosen to accomplish particular analytical goals. In the case of this thesis, synch points were chosen to demonstrate what synch points are and how they can be used in a broad sense. Future research will focus on more specific issues and will therefore choose more closely related synch points. The issue with choosing synch points is that it requires a subjective decision. It is up to analysts to justify their choices, and readers to make a judgement about the quality of these justifications. This subjectivity means that the synch points and guidelines I have provided are not intended to be prescriptive or definitive, but rather a starting point that future research can build on.

Future research directions

This research is intended as a pilot study that introduces synch points to video game studies; thus, much is left for future research to unearth. Research is required to understand the extent to which synch points help draw attention to social and political issues such as gender, race, and class in video games. Future research is also necessary to develop knowledge relating to synch points in different genres of video games. A final area that will benefit from future research is how new technological innovation will affect the experience and implications of synch points in video games.

One suggestion I have made in this thesis is that synch points may help draw attention to moments that are interesting from a socio-political perspective, including gender, class, and race issues. Many forms of analysis are likely to highlight these kinds

of issues, but synch points are unique in that they can allow us to focus on a very specific moment without the risk of missing out on the context, since synch point theorizes that the importance of the vertical moment is situated in the horizontal context. Synch points therefore allow for an exceptionally detailed analysis of how socio-political issues are depicted audio-visually in video games. Note that this advantage need not only be applicable to gender, class, and race, but can be usefully applied to any socio-political issue.

As an example of gender-related topics, I suggested that the musical motif associated with the Lutece twins may be interesting.⁴⁵ While each of the twins seems to visibly represent a different traditional gendered identity, their musical motif is the same.⁴⁶ This is especially interesting in the case of *Bioshock Infinite* because the Lutece's are actually the "same" person from two different worlds. The gender neutrality of the musical motif suggests this truth by combining the characters into one musical voice, even if their speaking voices are gendered. The Boys of Silence might provide another interesting case of a synch point that directs attention to gender politics.⁴⁷ The Boys of Silence seem to be male, yet their primary method of expression is an agonized scream, a sound sometimes associated with helpless people (especially women and children). It is interesting that the Boys of Silence use the scream as a means of defending themselves and threatening the player. In other words, their scream empowers them, an interesting contrast to the traditional use of the scream as a signal of helplessness.

⁴⁵ See footnote 23 in chapter 2.

⁴⁶ Recall that the motif is a whimsical non-diegetic melody that suggested the odd character of the Lutece twins.

⁴⁷ See footnote 34 in chapter 3.

Synch points may also help to elucidate issues of race and class in video games. The raffle in *Bioshock Infinite* exemplifies this through its use of the synch points that occur when Booker must choose who to throw the baseball at prior to the initial violence in the game. During this choice, the synch point associated with throwing the ball communicates both narrative and gameplay information while very clearly focusing our attention on issues of race. *Bioshock Infinite* may also be a fruitful source of synch points that draw attention to issues of class. Locations such as the slum-like Shanty Town may contain synch points that contrast the living conditions of Mr. Fink's employees to what the player has seen throughout the rest of the game.

Another important direction for future research may involve an in-depth analysis of how synch points operate in video games associated with genres other than *Bioshock Infinite*. I have mentioned examples of open-world games as a fruitful area for developing the idea of serendipitous synch points, while puzzle games (*The Witness*) could be relevant for gameplay synch points. The number of game genres and sub-genres is constantly growing as genres combine and mix, and entirely new genres are developed: synch point analysis will take different forms based on the particular audiovisual milieu that a given genre uses.

Synch points are especially useful tools for understanding video game genres because they allow us to focus on precise moments. These moments, as was the case in the example of the Boys of Silence and *The Witness*, can reveal a great deal about how a genre (and even a particular game) communicates information to the player and how this communication is different from other genres and games. The information that is being communicated may be unique to a genre, as well as the method of communicating that

information. In addition, synch points address both audio and visual information, giving them unique potential to approach the varying aesthetics that players will encounter in different genres.

Changing technology is also an important aspect of video game development; new ways of playing, such as virtual reality and motion detection, may lead to new kinds of synch points as well as new ways of experiencing those synch points I have already suggested. Thus, the frantic moving of the field of view that I discussed when analyzing the beginning of combat music might be even more frantic if the player were more completely in the position of the character, and if the world and its associated sounds actually surrounded the player.

The above suggests future directions for applying synch points to video game music and sound, but it is also important to address the limitations of this study. The case study in this thesis was based on my own experience, limiting the generalizability and repeatability of the results. Future research could also take advantage of a more varied collection of viewpoints by referring to message boards, reviews, interviews, and other sources of different perspectives. In addition, I avoided issues relating to multiple play-throughs by assuming that the player would notice everything in one experience of the game. This was done to avoid introducing too many complications into a pilot study. However, the reality is that players do not notice everything in a single play-through, and may miss certain aspects and features altogether. Future research can explore the impact of these realities on the utility of synch points in video games.

Final remarks

This thesis has argued that a three-category conceptualization of synch points is a useful tool for analyzing video games. While this study has several limitations because of its preliminary purpose, it lays a foundation on which future research can build. Video games have a massive influence on current popular culture, and for this reason it is important to develop ways to understand video games so that we can get the most out of them. The careful conceptualization and analysis of synch points will help us do this.

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Appendix A: Pre-existing Music

Licensed Recordings

Title	Artist	Year
(Give Me That) Old-Time Religion	Polk Miller	1909
(What Do we Do on a) Dew-Dew-Dewey Day	Charles Kaley & His Orchestra	1927
Indian Love Call	Sigmund Krumgold (organ)	1927
Little Pal	Lew White (organ)	1929
Ain't She Sweet	Ben Bernie and the Hotel Roosevelt Orchestra with Scrappy Lambert and Billy Hillpot	1927
Ain't We Got Fun?	Van & Schenck	1921
Watermelon Party	Polk Miller	1909
Makin' Whoopee	Rudy Vallee	1929
St. James Infirmary Blues	Irving Mills with Duke Ellington and his Orchestra (recorded under the pseudonym Ten Blackberries)	1930
Me and My Shadow	The Sam Lanin Orchestra (recorded under the pseudonym The Rangers)	1927
Black Gal	Ed Lewis with unidentified prisoners, recorded by Alan Lomax	1959
I'm Wild About That Thing	Bessie Smith	1929
Button Up Your Overcoat	Helen Kane	1929

Shake Sugaree	Elizabeth Cotton (guitar) Brenda Evans (vocals)	1967
It All Depends on You	Irving Kaufman with Fred Ruch and His Hotel Astor Orchestra	1927
The Bonnie Blue Flag	Polk Miller	1909
Shine On, Harvest Moon	Ada Jones and Billy Murray	1909
The Grand Old Rag	Billy Murray	1906
La Mer	Django Reinhardt (guitar) and Stephane Grappelli (violin)	First recorded in 1945 by Roland Gerbeau

Contemporary Covers

Title	Original Composer	Year Composed	Performer
After You've Gone	Henry Creamer (lyrics) Turner Layton (composer)	1918	Jessy Carolina (vocals), Scott Bradlee (piano), Sean Condron (guitar)
Solace	Scott Joplin	1909	Duncan Watt (piano)
The Easy Winners	Scott Joplin	1901	Duncan Watt (piano)
The Strenuous Life	Scott Joplin	1902	Duncan Watt (piano)
Sunflower Slow Drag	Scott Joplin	1901	Duncan Watt (piano)
Bridal Chorus	Richard Wagner	1850	Unknown
Air on the G String	Johann Sebastian Bach	1723	Unknown
Will the Circle Be Unbroken (Choir)	Ada R. Habershon (lyrics), Charles H. Gabriel (composer)	1907	Marc Lacuesta (arrangement), Maureen Murphy (soloist)
Agnus Dei	Wolfgang Amadeus Mozart	1791	Unknown

Confutatis	Wolfgang Amadeus Mozart	1791	Unknown
Lacrimosa	Wolfgang Amadeus Mozart	1791	Jessy Carolina
Rex Tremendae	Wolfgang Amadeus Mozart	1791	Unknown
Goodnight Irene	Huddler Ledbetter (composer/lyricist)	1932	Jim Bonney (performance/arrangement), Bill Lobley (main speaker)
Just a Closer Walk with Thee	Unknown, The Selah Jubilee Singers (first known recording)	Unknown, first recorded version in 1941	Courtnee Draper (vocals), James Edwards (piano)
Nocturne in E-flat major, Op. 9, No. 2	Frederick Chopin	1832	Duncan Watt (piano)
Canon in D Major	Johann Pachelbel	1694	Jim Bonney (piano)
Will the Circle be Unbroken (Elizabeth and Booker)	Ada R. Habershon (lyrics), Charles H. Gabriel (composer)	1907	Courtnee Draper (vocals), Troy Baker (guitar)
Valse Sentimentale No. 1	Franz Schubert	1823	Duncan Watt (piano)

Anachronizing Covers of Modern Songs

Title	Original Artist	Year of Original Recording	Performer
God Only Knows	The Beach Boys	1966	A Mighty Wind barbershop quartet
Girls Just Want to Have Fun*	Robert Hazard (composer), Cyndi Lauper (vocals)	1979	Jim Bonney (calliope)
Tainted Love	Ed Cobb (composer), Gloria Jones (1964), Soft Cell (1981)	1964	Scott Bradlee (piano), Miche Braden (vocals)
Fortunate Son*	Creedence Clearwater Revival	1969	Jessy Carolina (vocals)
Shiny Happy People	R.E.M.	1991	Tony Babino (vocals), Tom Abbott (clarinet), Scott Bradlee

			(piano), Sean Condron (banjo), Adam Kubota (bass), Allan Mednard (drums)
Everybody Wants to Rule the World*	Tears for Fears	1985	Scott Bradlee (vocals, piano)
Wild Prairie Rose	Ommie Wise	2013	Ommie Wise

* = use of both the original and a cover

Note that all of these lists are based heavily on those from
http://bioshock.wikia.com/wiki/BioShock_Infinite_Licensed_Soundtrack

Appendix B: Composed Soundtrack

Soundtrack Title	Artist/Composer
Welcome to Columbia	G. Schyman, J. Bonney
Lighter than Air	G. Schyman
Lutece	G. Schyman
The Battle for Columbia I	G. Schyman, J. Bonney
The Girl in the Tower	G. Schyman
Elizabeth	G. Schyman
The Songbird	G. Schyman
The Battle for Columbia II	G. Schyman
The Readiness is All	K. Levine, J. Bonney
Lions Walk with Lions	G. Schyman
Unintended Consequences	G. Schyman
The Battle for Columbia III	G. Schyman
Family Reunion	G. Schyman
The Battle for Columbia IV	G. Schyman
The Battle for Columbia V	G. Schyman

Let Go	G. Schyman
Doors	G. Schyman
The Girl for the Debt	G. Schyman
Back in the Boat	G. Schyman
AD	G. Schyman
Smothered	G. Schyman
Baptism	G. Schyman

Based heavily on
http://bioshock.wikia.com/wiki/BioShock_Infinite_Original_Soundtrack

Appendix C: Plot Summary⁴⁸

“In 1912, Booker DeWitt is taken by the mysterious Lutece twins to an island lighthouse off the coast of Maine. With instructions from the Luteces to "bring us the girl and wipe away the debt," DeWitt enters the structure which houses a rocket silo that transports Booker to the flying city of Columbia.

Booker's presence in Columbia goes unnoticed until a policeman identifies the letters "AD" branded on Booker's hand. This is a sign of the “False Shepherd” which city leader and prophet, Zachary Comstock, prophesied would corrupt 'the girl' Elizabeth and bring about Columbia's downfall. Booker, now a wanted man, fights his way to Monument Island where Elizabeth is held within a tower. Along the way he discovers a large device called the Siphon and the ability Elizabeth wields which can open Tears, rips in the space-time continuum that lead to other parallel worlds. After freeing Elizabeth, her warden, the Songbird -- a thirty foot tall bird creature -- attacks and destroys the tower she was held in, and Booker and Elizabeth narrowly escape with s lives. The pair work towards the Aerodrome, planning to take an airship to Paris, a city Elizabeth has always wanted to see. When Booker directs the ship to New York City with the intention of delivering Elizabeth to the Luteces, she knocks him out. He awakes to find the airship under the control of Daisy Fitzroy and the Vox Populi, a rebel organization. The “Vox” are made up primarily of those of the working class, foreigners, and people of color, all of whom suffer in some way at the hands of Columbia's government and society. Fitzroy offers to return the airship if Booker recovers a shipment of weapons from the slums of Columbia.

Booker rejoins Elizabeth and they venture deeper into the city. While Elizabeth uses her ability to manipulate Tears to aid their journey, she grows disturbed by the physiological and psychological consequences of manipulating reality on Booker and the other citizens of Columbia. One Tear leads them to a world where Booker has become a martyr for the Vox Populi cause, where there is open warfare between the Vox Populi and Columbia's Founders. That universe's Fitzroy believes that this Booker undermines her Booker's sacrifice, threatening to weaken the Vox Populi cause, and so turns her forces against him. Elizabeth kills Fitzroy to prevent her from executing a Founder boy. Later, as Booker starts up the airship, Elizabeth comes out with a changed appearance (blue dress, shorter hair, pale makeup, etc.). As they prepare to leave Columbia by airship, Songbird attacks and they crash back to Columbia.

Realizing they cannot leave Columbia without stopping the Songbird, Booker and Elizabeth seek the instrument to control it. While continuing their search for escape, they begin to unravel a conspiracy behind the founding of the city, through Tears and an alternate-specter of Lady Comstock brought to life by the Siphon. The Lutece Twins are revealed as not actual siblings, rather as being two versions of the same quantum

⁴⁸ Summary quoted verbatim from the Bioshock Infinite wiki (checked for accuracy). Accessed on March 15, 2017.
http://bioshock.wikia.com/wiki/BioShock_Infinite#Storyline

physicist from two different realities. "Rosalind", the female Lutece, is originally of this reality whereas "Robert", the male, comes from another. Comstock had taken Elizabeth from his alternate self in Robert's universe, and adopted her as his daughter, groomed to be the city's future leader. He had been rendered sterile from his use of the "Tear" device while obtaining his 'prophecies'. Comstock had the Luteces construct the "Siphon" to subdue her powers. He then plotted their murder, along with that of his wife, to conceal the truth about Elizabeth's origin, and to blame their deaths on the Vox Populi. However, in the process, Comstock inadvertently spread the Luteces throughout the multiverse through the attempt on their lives, giving them the same powers as Elizabeth. On reaching access to Comstock House, Elizabeth is captured by Songbird and is taken to the mansion. Booker follows but is drawn into the future by an elderly Elizabeth who has suffered decades of torture and brainwashing in Booker's absence; she has inherited Comstock's cause and wages war on the world below. She reveals that Songbird would always stop his rescue attempts in the past, and implores Booker to stop this future from coming to pass by offering the means to control Songbird.

Booker returns to the present and rescues Elizabeth, and the pair pursue Comstock to his airship. Comstock demands that Booker explain Elizabeth's past to her, and why Elizabeth is missing a finger. Booker becomes enraged and drowns Comstock when he begins to assault Elizabeth and is blaming Booker for all her hardships. Booker denies knowledge about Elizabeth's finger, but she asserts that he knows but does not remember. Booker decides to destroy the Siphon so Elizabeth can access her full power and learn the truth. With Songbird under their control, the pair fend off a Vox Populi attack, before ordering Songbird to destroy the Siphon. When the device Booker used to control Songbird is destroyed, it attempts to attack him. Elizabeth opens a Tear, transporting the three of them to the underwater city of Rapture, Booker and Elizabeth remain safe inside, but Songbird appears outside in the water and is crushed by the immense pressure of the ocean.

Elizabeth takes Booker to that reality's surface and lighthouse. They travel out through the building's door to a place outside space and time containing countless lighthouses and alternate versions of Booker and Elizabeth. Elizabeth explains that they are within one of an infinite number of possible realities both similar and drastically different due to choices that have been made. She shows Booker the truth, that on October 8, 1893, Robert Lutece approached Booker on behalf of Comstock, requesting that he "give us the girl and wipe away the debt," referring to Booker's infant daughter, Anna DeWitt — the origin of Booker's "AD" branding. Booker reluctantly agreed to sell Anna, but soon changed his mind. He arrived too late to stop Comstock escaping to Rosalind's universe through a Tear; the closing of which severed the child's finger. Comstock subsequently raised Anna as Elizabeth, his daughter. Due to the severed finger, Elizabeth exists in two realities at once, her finger in Robert's reality and the rest of her body in Rosalind's. This is what gives Elizabeth the ability to open and create Tears at will. Later, Robert, angry at Elizabeth's treatment and Comstock's betrayal, convinced Rosalind to help him bring Booker to Columbia in Rosalind's reality to rescue Elizabeth. Hence the rowboat at the beginning of the game. Elizabeth explains that whatever actions Booker takes against Comstock, Comstock will still remain alive in at least one of these

universes; the Luteces have tried to enlist a Booker from different universes numerous times to end the cycle, but the result is always the same.

The only way to break the circle is to prevent Comstock from being created in the first place. Elizabeth transports Booker to the place he went to be baptized and cleansed of his sins after his actions at the Battle of Wounded Knee. Booker avoided baptism at the last moment and later fathered his daughter Anna in Robert's universe, while in Rosalind's universe he took the baptism, found religion, became Comstock, and never had children. Comstock, sterile from exposure to the Luteces' technology, was aware of his identity as Booker, and engineered Anna's abduction to provide him with a blood-related heir for Columbia. Booker and Elizabeth, at the baptism, are joined by alternate versions of Elizabeth from other universes. Booker allows them to drown him, preventing his baptismal choice from ever being made and thus stopping Comstock and Elizabeth from ever existing. One by one, the Elizabeths begin to disappear, the screen cutting to black on the original.

In a post-credits scene, a Booker awakens in his apartment on October 8, 1893. Hearing a baby in the next room, he calls out for Anna and opens the door to her room before the screen cuts to black.”