

**Research Question: Is the musical practice
of sampling applicable in the video game
industry?**

Name: Luisa Mai Maerkl Student Number 18022829

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Introduction

Video games are a new and emergent medium compared to cinema, music, or literature. With their popularity, capacity, and commercial potential having increased exponentially over the past decades, many industry regulations have yet to be installed or streamlined. Game designers lack guidelines targeting the process of taking inspiration from other games, as well as protecting their own intellectual property, which may be one reason for the frequent use of the terms “clones” or “copies” when referring to similar games. This paper will investigate how the music industry has streamlined the act of taking inspiration from existing works and reusing materials through the practice of sampling to examine if and how a similar system could benefit or constrain video game designers and the game industry.

Methodology

It is the aim of this paper to create parallels between how musical material is reused through sampling and how video game material is reused. This paper will only consider examples of “responsible sampling” (Hess, p.284) meaning samples that have received clearance and are legally not regarded as plagiarism or theft.

Sampling will first be investigated to understand its origins, to identify techniques, and to determine artists’ motivations when sampling. Through a case study, the timeline and trajectory of J.S. Bach’s Orchestral Suite No.3 in D major (1730) from its original composition to its sampled version in the dance-pop song Feel My Rhythm by Red Velvet (2022) will be established.

Following the musical analysis, a second case study on cooking mechanics from the video game Cooking Mama (Cooking Mama Limited, 2006) in their recontextualized appearance in the life-simulation and Role-Playing Game (RPG) Fantasy Life (Level-5, 2012) will be conducted.

A comparative discussion will ensue, where similarities and differences regarding execution, and ethical and legal implications of sampling across the two media will be analyzed.

Definitions of musical and video game terminology can be found in Appendix A.

Literature Review: Sampling

Before delving into the case study, a literature review of the origins and practices of sampling will be conducted to establish sufficient context for the analysis.

Sampling Practice

Sampling a song means extracting a fragment of an original piece and reusing it in a new piece and context (Tracklib, 2022). Often, sampling artists alter attributes of the original fragment. This could pertain to tone, pitch, tempo, instrumentation, the addition or removal of distortion or reverberation, or even the change of words in the case of lyrical samples.

Alteration of a sample can be done deliberately, but arguably also often occurs naturally, as tempo and pitch rarely correspond exactly across two pieces of music.

To be considered legal, samples require clearance, meaning permission from, accreditation to, and potential payments to the original creator or owner of the rights (BBC, n.d.). Exceptions apply if the sampled piece falls under the public domain, in which case, according to the Public Domain Information Project, artists can “arrange, reproduce, perform, record, publish it, and use or sell it commercially” (2023).

Sampling Evolution

The term “sampling” is derived from the sampler, an instrument popularized in the 1960s that could save excerpts of sound and play them on button press. This was initially a technique used by hip-hop artists (Computer Music, 2014). Nowadays, according to Tracklib, an online music service for sampling, in 2018, 20% of Billboards Hot 100 Songs contained samples, and the practice is common in numerous genres (2023).

Variation

Though sampling is generally considered a modern practice, it bears significant resemblance with the musical terms “variations” or “variant”, defined as follows by The New Grove Dictionary of Music and Musicians:

“**Variant.** A broadly used term referring to anything from a musical motif to a complete composition that is found in more than one form. The difference can range from the very slight to the very great” (Macmillan and Co., 1987).

For example, variations of the Passacaglia, a baroque dance, can be found in the fourth movement of Brahms’ Symphony No.4 (1885). It can thereby be argued that sampling is equivalent to creating a “variant”, or including a “variation” of a sample in a new piece. The key difference lies in the fact

that, nowadays, the term “sampling” holds intrinsic legal implications that stem from the increasing amount and accessibility to content in the digital age.

Sampling Motivation

The motivations behind sampling are diverse and vary from practicality to sentimentality. Below is a list of some possible motivations identified in primary and academic sources:

- Chris Rojek, professor of sociology argues in his book Pop Music, Pop Culture that: “Unlike classical musicians, most pop musicians have no formal training. They relate to pop music and pop culture with the same ‘cut and paste’ attitude as ordinary consumers.” (2011, p.122)
- DJ Mark Ronson states in his TED Talk that sampling can be used to pay homage through direct citation (2014, 10:00). This can also be seen in Chopin’s works, which often pay homage to his Polish heritage through the citation of traditional Polish folk music (Trochimczyk, n.d.)
- Hip-hop studies researcher Mickey Hess (2006, p.283) and DJ Mark Ronson (2014, 12:00) argue that sampling entails contributing or responding to material.
- Tracklib cites sampling as a source of inspiration for new songs (2023).
- With reference to IVE’s 2022 song After Like sampling Gloria Gaynor’s I Will Survive (1978), Billboard cites “creating a nostalgic, sentimental feel” as motivation behind sampling (Kakei, 2022).
- Similarly, Tracklib prompts: “Get the warm, vintage sound from original music”. This also suggests the replication of a soundscape as motivation.

Musical Case Study

The following case study will closely examine an instance of sampling, as well as the intentions behind the artistic choices.

Bach & Red Velvet

In their 2022 track Feel My Rhythm, the group Red Velvet sampled segments of August Wilhelmj's 1871 arrangement of the second movement of J.S. Bach's Orchestral Suite No. 3 in D-major (1730). It should be noted that Wilhelmj's arrangement of Bach's original composition already is a variation. The timeline below summarizes the original piece's trajectory.

Figure 1 : J.S. Bach Orchestral Suite No. 3 to Red Velvet Feel My Rhythm Trajectory Timeline



Wilhelmj's arrangement transposes the original's key, changes instrumentation, and alters the melody's rhythm (Wen, 2001, p.87). Figure 2 and the table below showcase a comparison of the three pieces by conductor Jun Märkl (2023):

Figure 2 : Comparative Analysis of Bach & Red Velvet by Jun Märkl

Red Velvet Alterations

- 1- Structure
- 2- Bassline
- 3- Instrumentation
- 4- Tonality
- 5- Melody
- 6- Voice Leading
- 7- Tempo

Table: Comparative Analysis of Bach, Wilhelmj, Red Velvet by Jun Märkl

Comparison: Bach Suite No 3, Air bars 1 - 6 & Red Velvet "Feel My Rhythm" Version

Element	Bach (Original) Orchestral Suite No. 3 in D major, Air	August Wilhelmj <i>Air on the G String</i> performed by Robert Gayler, 1920 recording	Red Velvet <i>Feel My Rhythm</i>
1. Structure	The original Bach version consists of 6 bars in 8/8; this is a total of 48 quavers (eight notes).	Same as the original without repetition.	The Red Velvet version is written in 8 bars in 4/4, a total of 32 crotchets (eight notes), therefore much shorter: 16 quavers/crotchets are omitted. In the score of the original, the omitted parts are marked with 1. This change simplifies the structure to a 8 bar period which is the standard in this style.
2. Bassline	The bassline is a progression of quavers, changing pitch every crotched up to bar 6 when semiquavers are introduced to create the cadence of the dominant leading back to the tonica in bar 1 after the repeat sign. The quavers are moving intervals of octaves, changing directions: ascending and falling octaves.	Like the original ; since there is no repeat in this version, the bassline of the second half of bar 6 is omitted.	The bassline is progressing in crotchets, the direction is always ascending.
3. Instrumentation	The Bach version is scored for string instruments and harpsichord as part of the continuo section. It is a purely instrumental version.	Intrumentation for violin and piano only	The Red Velvet version asks for a harmony section (keyboard), a percussion section which is mainly marking every beat, different digital sound effects and reverberation. A vocal part for the lead singer is added which has no motivic relationship to the instrumental part.
4. Tonality	the Bach version is written in B-Major (H-Dur).	Written in C-Major, necessary to be able to play the piece on the G-String of a violin.	The Red Velvet version has been transposed to Csharp Major, one whole tone step up from the original. The change might be related to the ability of the singer to perform in her favorite range.
5. Melody	The Bach version has this unique shape of a tune which starts with a long note, which leads into a melody in the second half of the bar. The length of the first note is decreasing by each bar: 9 quavers, 4 quavers plus one semiquaver, 4 quavers plus one semiquaver, 3 quavers.	Unchanged from original.	The Red Velvet version in the instrumental part is more simplified. The length of the initial notes are: 9 crotchets, 2 crotchets, 2 crotchets, 2 crotchets.
6. Voice Leading	N/A	Like the original, all in the violin, in bar 2 on third beat there is a trill (c#/d) added which functions as an additional ornamentation.	The Red Velvet version has changed some pitches in the melody: last two semiquavers of the original Bach version in bar 3 and 4 were changed from original a''-g'' to [##''-a'' in bar 3 and g''-[##'' to e''-g'' in bar 4. This might make the melody easier to sing.
7. Tempo	The original Bach version does not have a tempo indication. Today's interpretations are raging between 66 and 80 beat per minute on the quaver. The movement of the bass line creates a steady pulse.	Very flexible and changing. Avoids a steady pulse. in the typical style of the early 20th century.	The tempo of the Red Velvet version is 80 beats per minute on the crotchet. This is faster than most interpretations of the Bach version. The addition of percussion creates a steady pulse.

Motivation

Red Velvet's label's press release for the corresponding album can be used to discern the motivation behind sampling Bach, as it clarifies how listeners were primed to achieve the desired reaction:

“This album contains six songs with various charms, including the single, 'Feel My Rhythm,' which stimulates spring emotions. [...] The single, 'Feel My Rhythm,' is a pop-dance song that sampled Bach's 'Air On The G String' and features a delicate and elegant string melody, intense trap beat, and great vocal charms.” (SM Entertainment, 2022)

From the statement, the following motivations can be deduced:

Firstly, the song intends to emulate the feeling of spring, likely through the “delicate and elegant string melody” from the sample. Therefore, Bach's piece was used to replicate a specific soundscape.

Secondly, the press release emphasizes the inclusion of the “delicate and elegant string melody” and the “intense trap beat”, highlighting contrast. Juxtaposing sounds are integral to Red Velvet's musical identity, which is formed by the clash of bold “red” sounds and soft “velvet” influences (Red Velvet, 2020). Thus, the sample was used to support and expand on the group's musical concept.

Lastly, Bach's original piece is widely recognizable and therefore carries a sense of familiarity. Potentially, listeners' preexisting knowledge of the sampled tune was used to lure them into a position of comfort that could be subverted by the ensuing new and unexpected contrasting elements. This point may be applied more broadly, as familiarity in general may be a common motivation for artists to sample, whether it be with the intention to subvert or fulfill the according expectations.

Video Game Case Study

To draw parallels between the musical practice of sampling and the video game industry, the following case study will investigate an instance of cooking mechanics incorporated into a game outside the cooking genre.





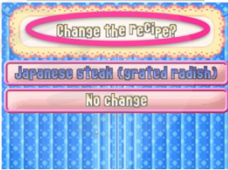

Cooking Mama

Cooking Mama (CM) is a popular and classic cooking game, as inferred by its numerous installments.

The original's cooking mechanics can be broken down as follows:

Figure 3 : Cooking Mama Cooking Mechanics

Annotated Screenshots

Mechanic	Timer Mechanic	Step-by-step Guide	Collecting/Unlocking
			
Description	Players manage their time to complete tasks before timer elapses	Players are shown the amount of steps in the recipe and their progress	Players collect or unlock recipes
Mechanic	Quick Time Events	Ingredient Selection	Performance Scoring
			
Description	Players replicate specific gestures to complete tasks	Players are given the choice to pick ingredients to slightly alter recipes	Players' performance is rated and points are attributed accordingly

Fantasy Life

Fantasy Life (FS) is a life-simulation RPG. The player assumes various job roles—hunter, carpenter, cook, etc...— which must be learned and feature their own sub-plot and mechanics. The cook role has the player engage in mini-game-like activities to follow recipes and level up skills.

Thematic Motivation

Because of the difference in genres between CM and FS, the motivation behind including food as a theme should be examined:

Though CM’s experience is abstracted from the real act of cooking, the game’s blurb suggests that one of the designers’ ambitions was to create a learning tool for young audiences.

Figure 4 : Cooking Mama Blurb

Annotated Image

Transcript:
 Heading: Let’s get cookin’, Mama!
 Blurb: Now you can learn how to cook on your Nintendo DS! Prepare foods, combine raw ingredients, cook the meal and present your culinary masterpieces to Mama for your final score.



FS’ blurb, on the other hand, presents the game as a life simulation with ample opportunity for customization and individual experiences.

Figure 5 : Fantasy Life Blurb

Annotated Image

Transcript:
 Heading: Your World, Your Quest, Your Life!
 Blurb: Enter a fantasy world bustling with excitement and adventure! Travel far and wide and follow your very own path!









One motivation for including cooking could be that, like many life simulation games such as the Sims (Maxis, 2000) or Harvest Moon (Victor Interactive Software, 1999), FS acknowledges the centrality of cooking in daily life. To a certain extent, the cooking mechanic makes the game feel grounded, despite its fantasy elements.

Additionally, as emphasized by game researcher Agata Waszkiewicz, featuring food in games often conjures feelings of coziness and comfort due to the emotional value attributed to food in most cultures (p.75). With its PEGI 7 age rating and colorful aesthetic, it is evident that FS was marketed to younger audiences. Including cooking in FS strengthens the already existing wholesomeness of the game and balances its slightly harsher combat mechanics.

Sampled Cooking Mechanics

While there is no evidence that the designers of FS were directly inspired by a specific game when creating their cooking mechanics, overwhelming similarities display the intent to emulate mechanics found in the cooking genre. Figure 6 compares FS's mechanics to CM's mechanics as seen previously in Figure 3:

Figure 6 : Fantasy Life & Cooking Mama Mechanics Comparison

Mechanic	Timer Mechanic	Step-by-step Guide	Collecting/Unlocking
			
Description	Players manage their time to complete tasks before timer clapses	Players are shown the amount of steps in the recipe and their progress	Players collect or unlock recipes
Mechanic	Quick Time Events	Ingredient Selection	Performance Scoring
			
Description	Players replicate specific gestures to complete tasks	Players do <u>not</u> select ingredients	Players' performance is rated and points are attributed accordingly

As can be seen, both games' cooking sequences are timed, and the expiration of the timer means the player has failed the task.

The games also show players their progress through the recipe, letting them gauge how many chances remain before the segment ends. Both in CM and FS, the display of progress encourages strategic thinking since players will know how many chances are left to score points.

Like CM, FS lets players collect recipes. Both feature unlocking systems where certain amounts of points or levels are required to unlock more complicated dishes. In both games, this encourages a sense of progression and completionism, which also ties in well with RPG systems.

CM and FS both include quick time events (QTEs) to actively involve players in the cooking process. QTE sequences are uncommon in life-simulation games or RPGs outside of combat. This mechanic could thus be inspired by the cooking game genre. Notably though, FS's QTEs are simplified significantly as gamifying the cooking experience was prioritized over teaching players details of the cooking process. While CM players use their stylus and even microphones to perform diverse actions, FS limits QTEs to pressing the A button.

Lastly, CM and FS rate players' performances of cooking a recipe after completion. While in CM, the rating system further encourages completion and skill development, in FS, achieving the

best rank in recipes means that consuming the cooked dishes gives players higher status effects, such as more health points, thus tying cooking into the traditional RPG systems.

Differences

There are two main differences between CM and FS, besides the aforementioned deviance in QTE styles:

As seen in Figure 6, FL does not let players choose the ingredients of the recipe. Instead, players need to collect ingredients to be able to make dishes. It could be argued that the mechanic of ingredient selection was therefore replaced by ingredient collection, which is also a common RPG mechanic and therefore potentially a design choice attributed to genre fidelity.

Additionally, while CM shows players performing sequences from the first-person perspective and looking down at the workstation, FS shows the player character performing actions through the third-person perspective. Again, this is likely attributed to the life-simulation and RPG genres, in which the third-person perspective is well established since players often customize their characters and should therefore be able to see them perform actions in their stead. Furthermore, the first-person perspective may not have been sustainable for different jobs in the game, such as combat in the paladin job, and the third-person perspective was thus key to maintaining consistency.

Cooking Mama & Fantasy Life

Considering all the similarities between the two games, it may be speculated that FS was heavily inspired by, or perhaps even copied, some of CM's mechanics without crediting. However, much like in the musical case study, FS designers recontextualized the original material and reformatted it to support their individual artistic motivations. In doing so, it may be argued that FS effectively samples CM mechanics in the same way Red Velvet sampled the theme of Bach's piece.

Discussion

The following discussion will aim to examine the positive and negative implications of sampling and how they would affect game design. It should be noted that even in the music industry, sampling remains a topic of controversy, with its legality and morality often scrutinized.

Sampling & Citing

Mickey Hess, a professor of English and researcher in the field of Hip-Hop Studies, compares sampling to the literary practice of citation, stating:

“Sampling transforms sources by placing them in the new context of hip-hop lyrics and other samples. Rather than copying the source, hip-hop producers critique and respond to the original through juxtaposition, parody, and direct commentary. Sampling, therefore, is like academic citation systems in that it builds upon existing texts by making new connections and responding to them with new ideas.” (2006, p.283)

By viewing sampling as a citation system, both the music and the game industry could benefit from the practice. Credited sampling of material can honor original creators whilst helping newer ones maintain the right to build on and recontextualize older materials for new purposes. Furthermore, it would allow audiences and researchers to retrace sources and develop an understanding of the trajectory of materials over time in their respective industries.

Sampling & Legislation

Being a legal practice, sampling and the attributed act of copyrighting complicates or even inhibits the creative process.

If samples are not cleared by the owner of the rights or compensation fees are too high, material with samples cannot be published. Because of the cost and time required to make games, sampling would thus be a high-risk endeavor for studios.

Furthermore, games are complex systems that rely on individual but intertwined pieces. Claiming an entire mechanic or system as legal property may be difficult, since small details of a system can easily be varied, creating countless legal loopholes. In contrast, copyrighting small individual components would make it impossible for future creators to reuse any preexisting material, even if by coincidence or default, impeding new creations.

Likely due to similar reasons, the U.S. Copyright Act states that ideas, procedures, processes, systems, methods of operation, concepts, principles, or discoveries cannot be copyrighted (Maitra, 2015). Games are largely, perhaps even solely, composed of systems and methods of operation, meaning there is no legal ground for creators to protect their intellectual property (Copyright Alliance, 2023). A game’s “literary or pictorial expressions” can be protected (U.S. Copyright Office, 2023) in the same way lyrics and melodies are protected (Easy Song, 2022). Game materials such as rules, systems, and mechanics, much like harmonies and chord progressions, cannot and perhaps should not be owned (Maitra, 2015)(Easy Song). Thus, games likely cannot be ethically sampled like music, unless declared as public domain and free for use by the creators.

Conclusion

Once a medium has spread far enough, questions about legality and logistics arise. Currently, game contents resemble musical variations before the introduction of sampling; game designers are free to take inspiration from existing materials and alter or adapt them as they see fit without many legal implications. Like music, the freedom to replicate may become a restricted and regulated practice through the introduction of systems like sampling. Through the case studies and discussion presented in this paper, the applicability of sampling to video games can be summarized as follows: Both to protect and constrain game designers, the legislative aspects of sampling are not applicable to video game materials, as video games are complex systems composed of small, individual pieces that would stunt the industry if copyrighted. Academically and for documentation purposes however, sampling, or the introduction of a citation system such as those found in literature and academic writing, would not only grant researchers an understanding of the evolution of material over time, but also permit game designers to ethically reuse content by crediting— and being credited — where appropriate.

Word Count: 2792

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Figure 1.1

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Figure 2: Cooking Mama Cooking Mechanics & Table: Comparative Analysis of Bach, Wilhelmj, Red Velvet by Jun Märkl

Märkl, J. (2023) *Comparison: Bach Suite No 3, Air bars 1-6 & Red Velvet “Feel My Rhythm” Version*.

Figure 3: Cooking Mama Cooking Mechanics

Cooking Mama Limited (2006) *Cooking Mama* [Video Game] Taito. Available at :

<<https://www.ebay.com/p/5021985672?iid=165927360742>> (Accessed March 2023)

Figure 4: Cooking Mama Blurb

Cooking Mama Limited (2006) *Cooking Mama* [Video Game] Taito. Available at :

<<https://www.ebay.com/p/5021985672?iid=165927360742>> (Accessed March 2023)

Figure 5: Fantasy Life Blurb

Level-5 (2012) *Fantasy Life* [Video Game] Nintendo. Available at :

<<https://www.ebay.com/p/1156127970>> (Accessed March 2023)

Figure 6: Fantasy Life & Cooking Mama Mechanics Comparison

Level-5 (2012) *Fantasy Life* [Video Game] Nintendo. Available at :

<<https://www.ebay.com/p/1156127970>> (Accessed March 2023)

Appendix A: Definitions

Musical Terminology

Sampling

definition after Tracklib (2022): Sampling a song means extracting a fragment of an original piece and reusing it in a new piece and context

Variation/Variant

definition after The New Grove Dictionary of Music and Musicians (2022): “**Variant.** A broadly used term referring to anything from a musical motif to a complete composition that is found in more than one form. The difference can range from the very slight to the very great” (Macmillan and Co., 1987)

Video Game Terminology

Life-Simulation Game

A game in which players assume the role of an often customizable character and play through daily life actions

RPG(s)

Role Playing Game, A game in which players assume the role of a character and are often requested to make tactical and strategic decisions to accomplish missions

QTE

Quick Time Event, An event in which players perform specific actions in a highly time-sensitive manner after sudden prompting

Appendix B: Cooking Mechanics in RPGs

RPG Game	Cooking Mechanics						RPG Mechanics		
	Timer	Ingredient Selection	Unlocking Recipes	Step-by-Step Guidance	Gestures/QTEs	Quality Rating	Status Effects	Skill Levelling	Collecting Materials
Fantasy Life (2012)	✓	X	✓	✓	✓	✓	✓	✓	✓
Final Fantasy XV (2016)	X	✓	✓	X	X	✓	✓	✓	✓
Breath of the Wild (2017)	X	✓	✓	X	X	✓	✓	X	✓
Xenoblade 2 (2017)	X	X	✓	X	X	✓	✓	✓	✓
Haven (2020)	X	✓	X	X	✓	✓	✓	X	✓
Rune Factory 5 (2021)	X	✓	✓	X	X	X	✓	✓	✓
Harvestella (2022)	X	✓	✓	X	X	X	✓	X	✓