Queer Identities in Video Games: Data Visualization for a Quantitative Analysis of Representation

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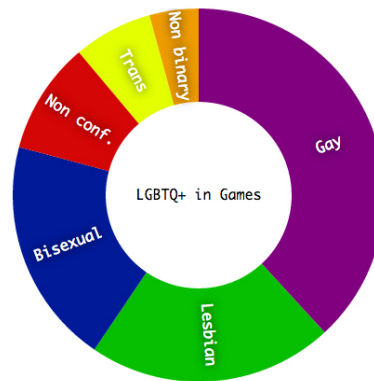[1]Universidade Federal de Minas Gerais, Brazil

Figure 1: A comparison of the number of instances of content representing each one of those LGBTQ identities

ABSTRACT

LGBT Game Studies has been a field mostly focused on qualitative analysis of games. There hasn't been many efforts towards a bigger understanding of the context of queer representation in the medium as a whole. Recently, there's been the creation of two online databases to gather together queer content in videogames, one of them being the LGBTQ Game Archive. Using interactive visualizations that were developed based on the dataset provided by the archive, this paper proposes a quantitative analysis of the instances of queer characters present in video games, to discover more about the evolution of LGBTQ representation in the medium. We wanted to look into how the representation has evolved, regarding the number of characters with queer identities, and the number of characters with each sexuality or gender identity; the intersections of different identities inside the same game; the presence of queer characters regarding game genres. We found out that the number of instances of queer characters in games has largely increased, and that is also true for the analysis of individual sexualities and gender identities. We also discovered that RPG and Adventure are the genres that have the most LGBTQ characters. And finally, we found a big correlation of non-binary and gender non-conforming characters with bisexual ones. While this work has granted us a clearer understanding of how queer characters have been portrayed in video games, further studies about the quality and importance of those portrayals are necessary.

Keywords: LGBTQ representation, queer, videogames, games.

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1 INTRODUCTION

Video Games are a social artifact and as such it is important to look at them from a cultural angle. Video games and the representation of people in it impact the cultural corpus of those who interact with them. Through cultural representation, we can better understand the world around us and the people with different life experiences from ours. It is also possible to provide validation for stigmatized identities and life experiences. Some of the identities that need to be addressed in this context are LGBTQ people[20].

In comparison to other medias such as cinema and television, the presence of queer representation in games is still small. People who are not gender normative or belong to an underprivileged position in society often suffer from a lack of visibility in the medium [17]. In some cases, it even goes beyond exclusion and grows into explicit aggression and prejudice. Some contexts in online gaming, like the community of World of Warcraft, are still hostile towards LGBTQ gamers [13]. It is important to study the context of the queer presence in video games to understand how we can build a more welcoming community, and how the medium can be more representative of diverse identities.

While there has been research on how LGBTQ representation happens in video games, those works tend to focus on the players' behavior and response to that representation, or in the analysis of the queer presence in specific titles. The field lacks information on the context of queer representation as a whole [5]. This work aims to start a discussion about overall perspective of the topic, by doing a quantitative analysis of the evolution of the LGBTQ presence in video games from the 1980's to the 2010's.

To achieve that, this research developed interactive visualizations, used to help in the detection of patterns in the data regarding queer presence in video games. The data used in the visualizations was gathered from the LGBTQ Video Game Archive [11], which is a project concerning LGBTQ+ representation and is being carried out at the Temple University's Lew Klein College of Media and Communication. The work of data extraction from the archive is led by the professor Adrienne Shaw and is still in progress. The al-

ready collected data has information on more than 300 games from the 80's to the present time, and more than 500 kinds of representation were catalogued. Details of these data collection was published in [18].

This research's goal is to use the visualizations to identify patterns in the representation of queer characters in video games, and to try to identify ways in which it has evolved. Some questions that might be of interest to achieve this objective are:

1. How has the LGBTQ+ representation in digital games evolved through the years?

2. Which sorts of representation have increased and which have decreased?

3. How has the amount of explicitly LGBTQ+ characters evolved compared to the amount of implicitly or rumored ones? Has it increased or decreased?

4. Which are the genres in which the LGBTQ+ content is more present?

5. Which are the gender identities that are more addressed?

6. Is there any coexistence of different LGBTQ identities in games, and if so how does it happen?

2 RELATED WORK

Before starting the analysis, it is important to acknowledge how queer issues in video games are being studied. According to Ruberg and Shaw, "Like most game studies scholarship, LGBTQ game studies can be grouped into three main areas: community/cultural research, textual analysis, and design studies." [15] Most of the studies so far tend to fit the first group, community and cultural research, approaching the relations between queerness and fan communities, as well as online gaming. The third group mentioned, design studies, focuses on how to challenge preconceptions on game design by analyzing the systems of play from a queer point of view. However, because of the context of this research, this paper will focus on studies from the second group, textual analysis, which approaches LBGTQ content in games.

Some research has been done to investigate how queer content takes place in video games, but those studies tend to focus on individual commercial titles, and not the full context of representation in the medium. Some examples are Consalvo's work investigating relationships in The Sims [6] and Greer's examination of the inclusion of non-heterosexual identities in Role Playing Games [8]. It is noticeable that the majority of explicitly queer content in games takes place in the possibility of pursuing a relationship with characters of the same gender. However, this doesn't necessarily configure LGBTQ representation, since it depends on the player's will to take part in those relationships, and it is not going to appear in the game if the player chooses otherwise. They indicate the possibility of homosexuality and bisexuality, but "are not inherent examples of queerness"[15].

The presence of transgender, non binary and gender nonconforming representation, however, is very rarely addressed [18]. Explicitly shown transgender characters are mostly presented as small secondary roles, and are often victims of transphobia, with trans women also being subjects of overt sexualization. Character creation systems, with a few exceptions, tend to be based in gender stereotypes, and don't offer the possibility of creating non binary or gender non conforming characters [3].

Switching the focus to independent, often personal developed games, it is possible to notice a bigger presence of queer relevant content. When game making tools and distribution became available to wider audiences, the presence of minorities and different developers increased, and now there's a considerable presence of games which challenge hegemonic preconceptions and narratives in video games [1]. Alongside, communities of queer developers interested in talking about their own experiences have been formed. Perhaps the biggest example was the Twine revolution, a movement of games that talked about the personal narratives of queer creators [9].

However, the context of how queer content in video games happens, from a wider perspective, has not been a subject of further exploration by researchers.To find out more about a holistic approach on queer game studies, two important resources have been founded in 2016: the LGBTQ Game Archive and Queerly Represent Me. The LGBTQ Game Archive, which has been used as a primary source of information for this research, will its content addressed further on this paper. Queerly Represent Me was founded in May 2016, in Australia, and is described as a resource hub and research organization for LGBTQ content in games. The website holds a database of games that feature queer content, and also further resources for research in the area[14].

Gathering data from both those sources, Cole, Shaw and Zammit [5] have analyzed the growth of queer representation in games from 2013 to 2015. In the time span between those two years, the number of games featuring LBGTQ themes has doubled. It was also concluded that the representation of diverse sexualities is more present than the representation of diverse genders, and that, regarding sexualities, lesbians and gay men have more instances of representation than bisexual people.

3 METHODOLOGY

This section will explain how the process of gathering data and the confection of the visualizations happened.

3.1 The LGBTQ Video Game Archive

To provide a base for building the visualizations, a database collected from the LGBTQ Game Video Archive was used. The Archive is a great resource for a qualitative approach in research. However, its data is structured for an individual analysis of each game and so, comparisons of a larger amount of entries can be laborious. The generation of the visualizations has the objective of offering tools to better comprehend this multifaceted data set. Through data visualization, this work explores the data on the LGBTQ Game Archive on a quantitative way, in order to find patterns of queer content in video games.
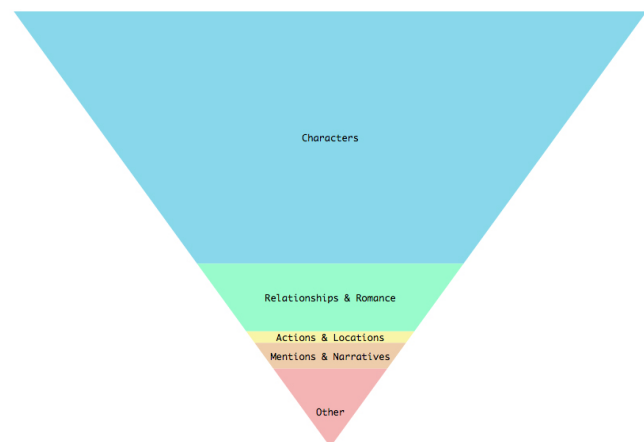

Figure 2: From all types of queer related content in the initial database, characters were the majority of the instances.

The gathered data was processed and a suite of X data visualizations using *D3.js* was created. To build the visualizations, the data

had to be cleaned and structured to make sure the visualizations would be faithful to the content of the archive. When making data visualization, the amount of data used is crucial, as patterns will hardly emerge from a small pool of data. The amount of information on the archive concerning LGBTQ representation in the form of game characters was by far the most numerous of the content types as it can be observed in figure 2.

Unfortunately, the amount of instances of the other content types in the Archive was too small to enable the craft of conclusive visualizations about them. With that in mind, it was decided to focus the analysis in the character instances of representation declared on the database. After the instances unrelated to Characters from the database were removed, there was still data about 861 video games.

In the final dataset, there were detailed instances of characters with a set of characteristics of the representation. Each instance has attached to them information about the character and about the game. We have the character sexuality if the instance was about sexuality and we have the character gender or gender performance if thats what the instance is about. We also have the year of release, country of origin and game genre attached to each instance. Other information we have available is if the representation was explicit - meaning the character queerness is made clear in the game - or if it is implicit - where the representation appears through coded queer characteristics or rumours.

3.2 Data collection

The data utilized in the visualizations was extracted from a spreadsheet that encompassed each LGBTQ content and their game data in a single line, spread in attributes such as *Game Genre*, *Type of Content*, *Release Year*, *Country* and etc. Due to the fact that the spreadsheet was filled by several collaborators, the data lacked pattern. Some fields had many different values that in reality were the same. For example, an "RPG" game would often appear with the genres of "RPG", "Role-playing" or "Role playing game". Therefore, prior to feeding the visualizations with the data, a process of formatting and data structuring was carried out.

Data formatting. The whole spreadsheet was formatted to lowercase strings in order to make the analysis easily case-insensitive. Also, to allow the coalescing of different field values that in reality were equal (such as "RPG" and "Role playing game"), some basic values for each field were defined and the whole data was processed in a way where each field value would either fit in one of the predefined values or it would be considered "other". For example, in the Game Genre case, the 6 most common genres were selected: RPG, Adventure, Shooter, Fighting, Simulation and Action. Any game that didn't fit in one of those (such as RTS - Real Time Strategy) would be considered "other" because its presence was negligible.

Removing redundancy. Many lines in the spreadsheet were related to the same game. This created redundancy in the data, once although the content might vary, many important features of the game remained the same, such as name, country, year and etc. Considering this,two tables were created in our Data Base: GAME and CONTENT. They were related by each game_ID. By doing that, a separation between game data and content data was determined. Now, each content might be related to one and only one game, while one game might have one or more entries of LGBTQ Content. The figure 3 shows the relationship diagram for the database.

Sparse data. Some games and contents had fields with missing values. Unfortunately, filling up the missing values would entail going through the LGBTQ Game Archive manually analyzing each game. Since this is not the purpose of this work, the data was simply structured and uploaded in the database. Hence, some LGBTQ game's content is not entirely complete, especially for more recent games (2010 onward, from which year the data starts to become sparser).
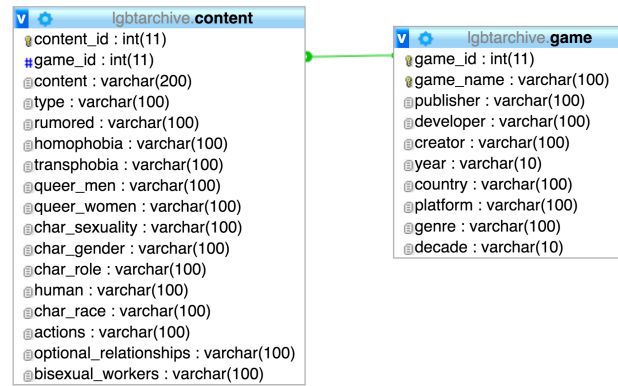

Figure 3: Every instance in GAME can be related to one or more instance of CONTENT, but each instance of CONTENT can be referred to only one game.

3.3 Visualizations

With the database up and running, a suite of X visualizations to aid the analysis of the LGBTQ Content across the video games in the last 30 years was developed. The D3.js Javascript library was used to implement the interactive visualizations [2]. The analyses of each visualization shall be discussed later in this paper. They are as follows:

Dashboard: an overview. The Dashboard is a panel with three interactive visualizations [7] and was filled with data from both the GAME and CONTENT tables. The pie chart represents the types of content between 6 categories of representation: Gay man, Lesbian, Bisexual, Transgender, Non-binary and Gender non-conforming. All the 6 categories sum up to a 100%, so the pie chart encompasses every character content represented in our database. When the user selects one of the categories, the histogram and the line chart change to show data for that specific category. The histogram on the right shows each genre and the number of games (not content entries) that showcase that specific category. The line chart represents the number of games with that theme through the years. If the user clicks on the same category again, the dashboard will show this info for the whole database.

Dendrogram by game genre. The next visualization is a simple Dendrogram [16] that shows content in each major game genre based on the sexual orientation of the characters. The scale is from 1 to 5, in which 1 means few games and 5 means loads of games. The three most common sexualities in the dataset - Gay, Lesbian, Bisexual - are represented as a horizontal bar, and the dendrogram shows how the genres are related to LGBTQ Content concerning sexual orientations of the characters. Gender identities were not contemplated because their presence in video games, compared to diverse sexualities, is not sufficient for a conclusive analysis in this visualization.

Streamgraph: gender and sexuality through time. The streamgraph [4] correlates the same 6 categories present in the dashboard with the release years of their respective games. It was built in a scale of 2, because the dataset has 3 sexual orientations - Gay, Lesbian and Bisexual - and 3 gender identities and expressions - Transgender, Gender Non-Conforming and Non-binary. Each set sum up to 1, and both groups together sum up to 2. Therefore, the sexualities and gender identities are being treated as different groups, compared within themselves. This graph aids the visualization of how the representation in games has changed through the years.

Content explicitness. Several entries in the CONTENT table were tagged as explicit or implicit. For example, a Lesbian charac-

ter could appear as "Lesbian implicit" or "Lesbian explicit". Considering that, two horizontal bar charts were built to visually aid the analysis of how explicit and implicit LGBTQ content in games has evolved through the years. A second bar chart was also built to show the explicitness by country, based on each game's origin country.

Chords: representation sets. The chord chart [10] correlates all the 6 categories present in the dashboard. Very often a game would appear more than once in the CONTENT table - as explained in section data redundancy. Bearing that in mind, a chord graph was developed tot correlate two types of character contents when they appear in the same game. If the same game has contents of Transgender and Bisexual characters, for instance, then there will be a chord connecting both in the graph. By selecting a representation type in the graph, the user is able to see for each of the other representation types how many games are shared between them.

4 ANALYSIS

The analysis will follow each of the visualizations developed for this research: first providing an overview of the dataset; second, presenting a study on the evolution of LGBTQ representation through time; third, showing how the representation of different sexualities happens in different game genres; forth, comparing explicit with implicit representation; and fifth, analyzing how the representation of different queer identities relate to each other inside the same game. The visualizations are available online, in https://sutsch.github.io/lgbtq-games-represent/.

However, it is again important to point out that the dataset is incomplete from 2010 to 2016, since the LGBTQ Video Game Archive is still a work in progress and the information regarding these years is still being documented. Therefore, all the available data from those years has been taken into consideration, and with it is still possible to point out some tendencies, but it's necessary to keep in mind that there's more content to still be evaluated. This will become an important issue when analyzing temporal series, especially.

4.1 Dashboard

The dashboard is a set of three different interactive visualizations, with the objective of providing an overall view on the gathered data. First, there's a pie chart representing the percentage of characters of each identity and sexuality in the games present on the database, followed by a time series from 1985 to 2016 showing the amount of games that feature queer characters in each of those years. Finally, theres a histogram of the number games with LGBTQ characters distributed in six game genres.

The pie chart, displayed on figure 1, shows that gay male characters are the most present in video games, with a percentage of 38% of the representation. Theyre followed by lesbians and bisexual characters, which respectively have 21% and 20% of the representation. Gender non conforming presentation, binary transgender identities and non binary identities are the least represented, gathering together only 21% of the representation in the database.

In the general time series, theres a noticeable rise in the numbers of queer characters per year up to 2010, which is when the data becomes sparse (see figure 4 for more information). Theres a dip in the numbers in 2006 and 2007, but overall a distinct rise can be noticed. The time series representing the sexualities follow a similar curve, and the same rise can be observed in them. The graphs displaying the evolution of gender related representation, however, show a slightly divergent progression. The transgender and non-binary time series show a growing tendency, but at a small and less consistent rate. The most divergent time series is the one displaying representations of gender non-conforming characters; it rises until 2002, and decreases after that. It is the only graph that has better numbers before that year than in the following years.
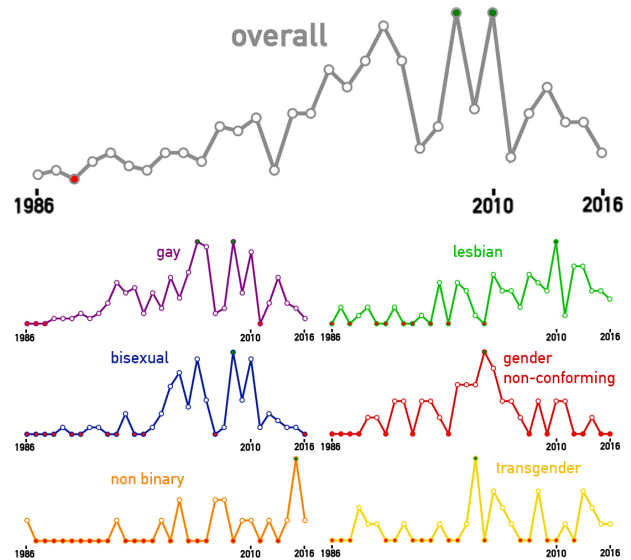

Figure 4: Time series displaying the quantitative evolution of LGBTQ representation

The analysis of those two graphs are aligned to what was concluded by Cole, Shaw and Zammit [5], both regarding the comparison of the presence of each identity in games, and the overall evolution of the numbers in queer representation. It was stated that there's a bigger presence of diverse sexualities in comparison to gender identities, and that the presence of LGBTQ representation is growing.

Moving on to the third element of the dashboard, the histogram (displayed on figure 5), what can be observed is that RPG, Adventure and Action are the genres with higher numbers of LGBT representation, with RPG being the most representative one, with almost 40% of the total. The instances of representation in Fighting, Simulation and Shooters are considerably less numerous, each representing less than 5% of the of games in the dataset.

It could be hypothesized that this behavior happens mostly because of the genre's characteristics, regarding character and narrative complexity. RPGs, Adventure, and, to a lesser extent, Action games tend to focus more on character development and story than Shooters, Fighting games and Simulations. This opens up more possibilities for the introduction of diverse characters.

4.1.1 Sexualities

When looking at the visualizations for each different sexuality separately, it is possible to reach further conclusions. Starting with the time series of games featuring lesbian characters, we noticed that the number of lesbians were higher from the start, but suffer a less steep rise than the number of male gay characters. In the histogram, the tendency noted in the overall analysis is confirmed when looking at lesbian representation. The three genres most present are still RPG, Adventure and Action. However, the distribution between those three genres is less constant in that case: there's 44% in RPGs, 15% in Action, and 27% in Adventure. Comparing to the overall graph, and the graphs of gay men and bisexuals, lesbians tend to have an even bigger percentage of the representation in RPGs, and less in Action games.

The number of gay male characters has a slower rise until 1995, but after that year, it starts to grow on the highest rate amongst the observed identities and sexualities. In the histogram, we see a behavior similar to the general view, with the number of games with
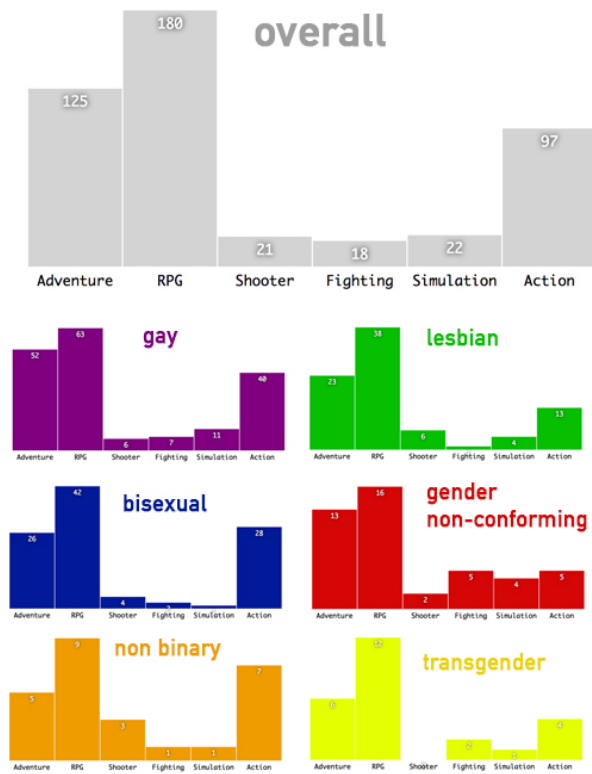
Figure 5: Histograms displaying the presence of queer character in each of the six most relevant game genres

gay male characters in each genre keeping the proportion with what is seen in the general histogram. Theyre also the most represented in the game genres with the least queer representation: Shooters, Fighting games and Simulations.

The number of bisexual characters stays constantly low until 1999, when it begins a gradual rise to reach its peak and stabilize in 2008. Looking at the histogram, it can be observed that the game genres with the most representation there's a higher number of games with bisexual characters than Lesbian characters, in absolute numbers. It is also noticeable that the representation in those three genres is more proportional than what is seen on the other sexual orientations, but there's still a higher number of instances in RPGs than in Action or Adventure games. However, the presence of bisexuals is the lowest in the three less represented genres, summing up to only 6% of the total, half of the percentages seen for lesbians and gay men.

4.1.2 Gender presentation and identity

Non binary characters dont have any representation for most of the time frame analyzed, with the exception of a couple of years until 2002. From 2002 to 2016 there's at least a constant, but low, number of non binary character in games. In the histogram, the number of non binary characters is slightly more balanced between RPGs and Action games, with Adventure games still having the least amount of characters amongst the three main genres. The genres with least representation still have some non binary characters with most of them appearing in Shooters, and less on Simulations or Fighting games.

Transgender men and women have a similar behavior to the non binary characters, but with higher numbers. They also reach their

peak in 2001 and from there have a decrease in the number of characters appearing in games until 2007. From there on theres a higher number of instances, even as the data becomes sparse. The distribution of binary transgender characters in game genres follow a proportion closer to the one seen in the lesbian histogram, with a significant drop of instances in Action games and a higher number in RPGs. Theres no instances in the database of binary trangender characters in Shooters, and the numbers in Fighting games and Simulation are low, similarly to what happened to the non binary graph.

The gender non conforming characters have the biggest presence in games regarding diverse gender representation, and have been slowly increasing in numbers from 1989 to 2002, when the graph begins to drop and then stabilize at an amount close to the what is seen in the 1990s. For gender non conforming characters, the two main game genres are RPG and Adventure, which have a similar amount of representation in them. The number of character in Action games is not as significant as in the other histograms, and there's a more even distribution of characters amongst the other game genres than in the other identities and sexualities studied.

4.2 Streamgraph

The streamgraph, displayed in figure 6 is another time series, but this one focus on an overview of how each of the sexualities and gender identities is distributed in relation to one another. There is one color for each of the profiles and the thickness of the lines in the graph represents the proportion of said profile in relationship with the others in each year.

Figure stream:

In the 1980s, there was less representation, and the majority of the identities present consisted of lesbians, and in a smaller number, transgender characters. As the time goes on, male gay characters get more space in the graph, meaning their presence has increased in video games. It's also observed that every representation grows as the graph gets thicker with each passing year. Starting in the year 2000, the distribution of sexualities starts to get more even. However, the male gay representation remains the most stable and numerous amongst the others.

An interesting finding is that the area that in the 1990s was occupied with gender non conforming characters, is completely filled with the transgender identities in the last year. Similarly, transgender characters occupy a more balanced space in the graph in the later years, in relation to the sexualities being analyzed. In the last years represented in the graph, there are less male gay characters than lesbians and virtually no bisexuals.

It's also possible to notice that non binary characters are very rare before 2005. This could be attributed to the heavily binary and cisnormative bias of western society, considering that one of the first instances of legal recognition of genders beyond the binary dates from 2003. [12] Taking this into consideration, it is expected that the representation of people of non binary identities would only start to appear later in the time period analyzed.

4.3 Dendrogram

This visualization is a comparison between the sexualities with the goal of discovering how each game genre is representing different sexualities. The number of games of a certain genre featuring gay men, lesbians, and bisexuals are compared, and then normalized in a scale that goes from 1 to 5. The patterns found in the dendrogram, which can be seen on figure 7, are in accordance with the ones seen in the histograms present on the Dashboard, which also analyzed the distribution of queer representation in different game genres.

The first thing noticed was that gay men representation is classified with 5 in every one of the selected genres. This is no surprise and is aligned to what was displayed in the pie chart. Since gay
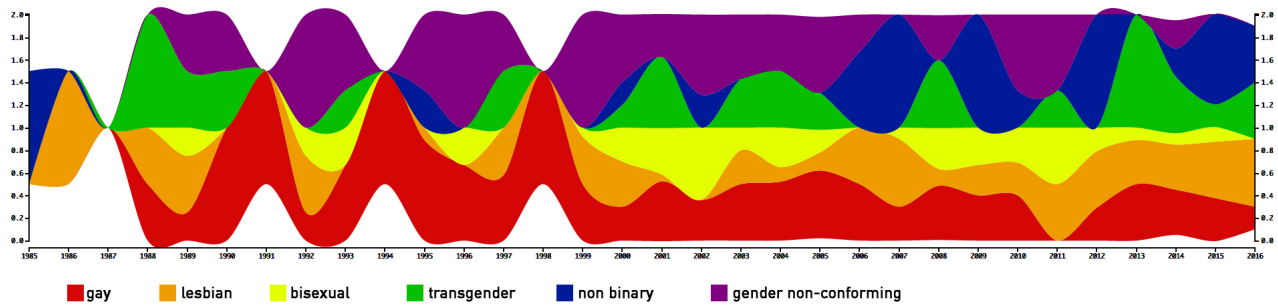
Figure 6: Streamgraph displaying the difference in the proportion of the representation if each LGBTQ identity through the years
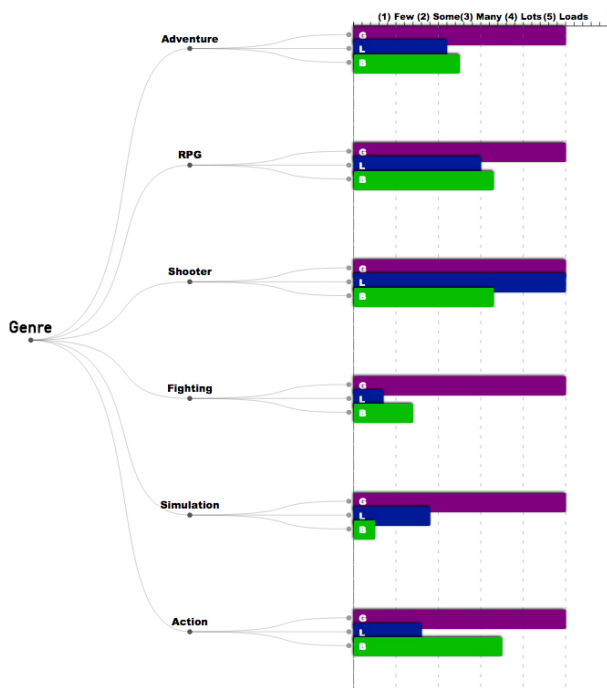

Figure 7: Dendrogram used to compare the presence of different sexualities in each of the selected game genres

men are by far the most present identity, it is expected that this trend would be confirmed in the analysis of separate genres as well.

Among the three genres with the biggest presence of LGBTQ characters, RPG, Adventure and Action, RPG is the only one of them that displays a reasonable proportion between all sexualities, with both lesbians and bisexuals reaching the third category, Many. In Action games, lesbians are not very present, their numbers don't even reach the second category. Adventure games, however a bit more proportional, still show that both lesbian and bisexual representation are considerably less numerous than gay men, reaching only the second tier, Some.

On two of the three less representative game genres, Fighting and Simulation, the disproportion is even more noticeable. Neither lesbian or bisexual representation reach the second category used, and lesbians stay short of 1 in Fighting, while bisexual fail to reach the Few tier in Simulations. Shooter games, however, show the most surprising behaviour. It is the genre with the most equal proportion between the three sexualities, with lesbians reaching the same

numbers as gay men, and bisexuals reaching beyond the third tier.

Overall, the domination of gay men representation in every genre is expected, likely because men are far more represented in video games, compared to women [19]. Something unexpected is the somewhat well balanced distribution of the three sexualities in the shooter and RPG genres.

4.4 Implicit vs. Explicit representation

In the dataset, there's information about the nature of the representation, if it is either explicit or implicit. Explicit representation happens in a way that leaves no margin for the character to be perceived as cisgender and/or heterosexual, while implicit one comes from the interpretation of players and researchers. This distinction is important because it considers queer representation as a complex matter, which can happen in broader contexts than just characters explicitly stating their identities in game. Queer readings by players are an important form of resistance for LGBTQ audiences, and add a fundamental perspective for the understanding of how video game culture relates to matters of gender and sexuality. While explicit representation shows an interest on game developers and producers towards a more diverse medium, implicit representation is not directly linked to an authorial intent, and therefore can be a product of the discussion present in game communities.

4.4.1 Per Country

Diverging stacks were used to represent the amount of implicit and explicit representation in the games produced by each of the following countries: USA, Canada, Australia, France, Germany, Japan, UK and others.

A pattern that can be seen easily is that all the countries considered have more games with implicit representation in them. However, Japan and Germany, as the most balanced countries, have roughly the same amount of implicit and explicit instances. On the other hand, France doesnt have any entries of explicit representation in the database, and other countries also have very few instances of explicitly queer characters in their games.

Japan is an interesting case because it is the most balanced country, with almost the same amount of explicit instances as explicit ones. It is also, outside of the USA, the country with the most instances of explicit representation. This variation could partially be explained by the countrys relationship to games. In Japan, video games are seen as an activity for people of all ages, and not only as children's entertainment, as it is common in western countries. This determines a market more open to the inclusion of sexual content suited only for a mature audience, and games have the liberty to deal with sexuality in a more explicit way [17]. However, this behavior could still be explored in further research, as the difference in the Japanese scenario from the rest of the world is very striking.
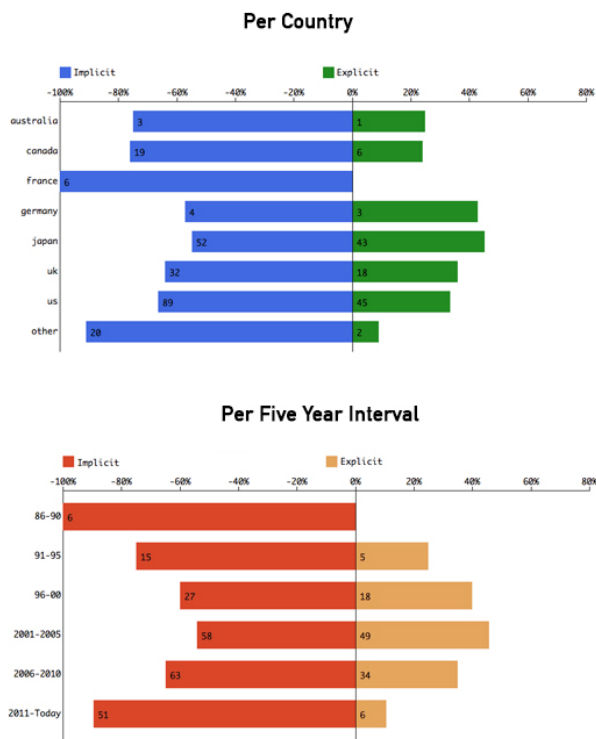
Per Country

Per Five Year Interval

Figure 8: Bar graphs comparing implicit and explicit representation, regarding country of origin and release date

4.4.2 Per Five Year Interval

The overall number of explicit representation grows from each interval to the next until it reaches the peak in 2001-2005. From that point on, it decreases slightly until 2011-2016, but the data for this time frame is already sparse.

Between 1986 to 1990, every instance of representation in the database is implicit and the number of explicitly queer characters in games increases steadily until 2005. Its also noticeable that in that time period, the proportion of explicit and implicit representation begins to even out. In the years from 2001-2006, the graph reaches the point where the number of explicit representation is almost equal to implicit ones.

In the last two intervals, from 2006-2010 to 2011-2016, there's a slight decrease of explicit instances. But as previously stated, the data relative to those years does not encompasses all the instances of queer characters in video games on those years. Further investigation would need to be pursued to better understand those years, as there was a distinct growing tendency of the explicit instances up to the year when the data becomes sparse. However, to achieve conclusive results regarding that time period, another analysis will be needed with a complete database.

It is also interesting to note that even with the dataset being incomplete in those year the total amount of representation on them is still higher that the amount in the years before the peak (2001-2010).

4.5 Chords

This visualization allows to identify relationships between the datasets for each representation. The only games represented in this graph are the ones which have two or more types of representation. By selecting a segment of the circle, it can be noticed how many of

the games with that type of representation also have representation of each of the other types.

By taking a closer look at the chords from the three sexualities studied, it is observed that the number of games with bisexual characters and some shared instance of gender related representation is of 40,50%. While from the games representing gay male characters only 23,12% have gender related representation, and this number falls to 15,32% for games with lesbians.

The patterns of the relationship of bisexual representation with gender expression and identities differs meaningfully from the patterns of gay and lesbians representation. The amount of shared representation doubles in comparison with lesbians and almost doubles when comparing to gay men. This can also be noticed by analyzing the non-binary and gender non-conforming chords. On every other chord, the representation that is most linked is gay, but this doesnt happen on the non-binary and gender non-conforming chords. On the lesbian instances, there's 58% of male gay shared representation, while only 26% of bisexual representation. Likewise, on the games with binary transgender characters, gay men share 46% of the instances, and bisexuals, 34%.

When looking at the representation of characters that break from the gender binary paradigm, there's a shift in this trend. From the games with non-binary characters with shared representation, there are only 18% of the games representing male gay characters, and 57% representing bisexual characters. When looking at gender non-conforming instances, the change is even more noticeable, with only 9,5% of games showing gay male characters and 66% showing bisexuals.

There is a distinct connection between bisexual representation and gender related representation that defies the gender binary. To better understand this behavior further investigation is needed.
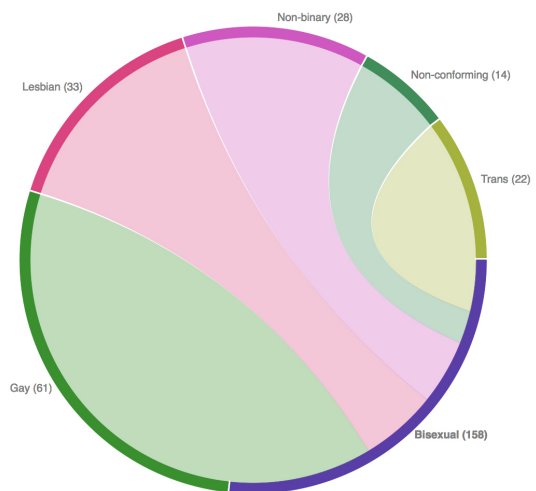

Figure 9: Graph that displays the correlation between bisexual characters and characters of other LGBTQ identities

5 CONCLUSION

Through the analysis of those visualizations, it is possible to conclude that the representation of LGBTQ characters has increased during the past decades and also became more diverse in the identities that it portrays. In later years, the representation of LGBTQ characters is more well balanced and doesnt retain the strong bias towards gay men that can be observed in the 80s and early 90s. It is also noticeable that gender related representation is growing, but that it still remains less represented than diverse sexualities;

gay men are still largely the most present group, followed by lesbians and bisexuals. There's also a growing tendency for explicit instances of representation up to 2006, when the dataset used became sparse.

Another interesting discovery was that gender non-conforming representation is decreasing with time, and that binary and non binary transgender representations are increasing at a similar rate, which could indicate that non traditional gender representations are being more directly linked to transgender identities, instead of only displaying different gender presentations.

When looking at the game genres, it can be concluded that LGBTQ representation happens mostly in RPGs, Adventure and Action games, in that order. The other three genres present in the analysis, Fighting, Simulation and Shooters, weren't as representative. This result probably comes from the more narrative nature of RPG, Adventure and Action games, which tend to open more possibilities to develop characters in depth, which could include an exploration of queer sexualities and identities.

Regarding the co-presence of different identities in the same game, most of them (lesbian, bisexual and transgender men and women) are more commonly paired with gay male characters, which is expected, since the majority of the queer characters portrayed in games are gay men. However, non binary and gender non-conforming representations are often paired with bisexuality.

Overall, this analysis has provided some insight on how LGBTQ representation is happening in video games. And even though the database used for this analysis was still being structured during the process of this research, with some games from 2010 onward not having been accounted for yet, the games from those years that entered the analysis were valuable information for the quantitative analysis made in this work. And while trends can be identified for how the representation of queer characters is evolving - notably the rise in number and variety that is discussed in the Analysis section of this paper - it will be necessary to revisit this analysis in the future with an updated database to have a more complete picture of this theme.

This paper is just a starting point for the quantitative study of LGBTQ representation in games, and there are plenty of possible further explorations on the theme. Research on the causes of the tendencies observed is crucial for a bigger understanding of the full context of this work. And there are plenty of other factors which weren't included in the scope of this research that could provide relevant information, such as the analysis of the roles (playable characters, NPCs, enemies) queer characters are assigned in video game narratives and mechanics, or how queer identities intersect with race. It would be interesting to look more closely into the relationship of bisexuality and gender identities and performances that exist beyond the binary of gender.

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