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# An Abundance of Fruit Trees

## A Garbology of the Artifacts in Animal Crossing: New Leaf

Jared Hansen

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### Article abstract

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# **An Abundance of Fruit Trees: A Garbology of the Artifacts in *Animal Crossing: New Leaf***

**Jared Hansen**  
University of Oregon  
[jhansen3@uoregon.edu](mailto:jhansen3@uoregon.edu)

## **Abstract**

The *Animal Crossing game series* is founded on materialism and consumerism, and its mechanics emphasize the economic principles of production, trade, and consumption. As a social simulator, its gameplay focuses on inventory management, with items and artifacts as rewards for behaviors. Players are urged to customize their town and avatar, by buying and selling clothing, accessories, furniture, and other items. The method of garbology concludes that trash is a valuable resource in revealing the attitudes and motivations of a culture. This article uses garbology to examine the trash left behind by players in ten random towns of *Animal Crossing: New Leaf* to create a taxonomy of what players valued and disposed of. This study found patterns of production (non-native and “perfect” fruit trees) to maximize monetary gains, and signs of customization through consumption (such as creating a gothic-themed town). The author concludes based on the findings that players of *New Leaf* are engaged in a culture of economy and thrift, as opposed to conspicuous consumption, per Rathje’s (1984) hypothesis of garbage.

## **Author Keywords**

Video games; garbage; archaeogaming; material culture; consumerism; textual analysis

## **Introduction**

In 2019 a story went viral on Twitter of an 87-year-old grandmother who had logged (at that time) 3580 hours in her copy of *Animal Crossing: New Leaf* over four years (Gach, 2019). Inspired by the positive feedback, the grandson who initially shared the story convinced his grandmother to give the internet a tour of her town and what she had accomplished over four years of active play.

This story highlighted the personal impact that this game has had on players. As a series of social simulation games, *Animal Crossing* has open-ended gameplay that incorporates high levels of player-driven customization. This blank canvas though has at its backbone gameplay mechanics that center on economic principles of consumerism (Bogost, 2008). In this way, the player has opportunities and chances to play the game in their own personal way almost indefinitely (or at least for 4000 hours like mentioned above) while still collecting and selling the items or artifacts embedded in the game.

This article offers an analysis of such items and player perceptions of them. Since the game is driven by consumerism, the theory of material culture suggests that players of *Animal Crossing* will value certain items and find other items useless. How valuable or worthless items are perceived can reveal the play styles and motivations of players. This study is a garbology—or the study of the items deemed garbage or trash—of public towns of *Animal Crossing: New Leaf*. It analyzes ten towns to examine the research question: do players of *Animal Crossing* squander resources through conspicuous consumption or do they have a culture of economy and thrift?

## **Literature Review**

### **Virtual Economics**

A virtual economy is an economic system that mirrors rules of micro and macroeconomics but exchanges real goods and services for virtual ones, as production, consumption, and money supply can be tracked similarly to real-world economics (Castronova et al., 2009; Lehdonvirta, 2005). These systems of trade and consumption are the backbone of many video games. Edward Castronova has pioneered much of the research into video game economics and the patterns of these virtual economies. Virtual worlds and digital economies are emblematic of the physical world's economics, while also granting players the freedom to craft their appearance as they wish (Castronova, 2002). Avatars need clothes, food, equipment, housing, transportation, entertainment, just like humans (Castronova, 2008). These material needs manifest as required resources and items and the mechanisms of inventory management facilitate the meeting of these needs.

Video games can be used to supplement teaching on microeconomics, helping students learn about concepts such as the circular flow model, demand and supply, types of market structure, sunk costs, and game theory (Ng, 2019). Video games are also an example of collaborative consumption, or economic coordination within communities by sharing access to goods and services (Hamari, Sjöklint, & Ukkonen, 2016). While economics can predict the actions of a virtual economy, it still cannot predict all behavior patterns of players. Economics has no concept of *fun*, and Castronova (2008) argues that much of what players do in video games is driven by fun instead of utility. Players could produce and consume items not based upon their monetary value, but instead upon the mechanism of fun involved.

### **Conspicuous Consumption**

*Animal Crossing* is a game series centered on the value of commodities and accessories. The literature suggests that our public appearance shapes how we feel about ourselves and present our identities (Rudd & Lennon, 2001), and dress can reveal social status (Rafaeli & Pratt, 1993). Economist and sociologist Thorstein Veblen (2017) defined the impulses that lead people to purchase items such as clothing for social status as *conspicuous consumption*. In this economic principle, individuals purchase luxury items to publicly display their affluence.

Conspicuous consumption can also explain how market demand for products can predict the snob effect, higher market demand leads to lower individual demand, or its opposite, the bandwagon effect, where higher market demand leads to higher individual demand (Corneo & Jeanne, 1997). In a study of how players treat attractive avatars in *Second Life*, Mills (2012)

found that 70% of all products sold were coded as accessories. Shang and colleagues (2012) found that two major reasons that individuals pay for digital accessories are emotional and social values. The sense of need for virtual goods is constructed on symbolic meanings around individuality, power, status, community, and belonging (Martin, 2008).

### **Material Culture and Garbology**

Material culture is a theory that suggests the study of artifacts uncovers the beliefs of a particular community or society (Prown, 1982). However, while material culture had appeared to be fading out of anthropology, it returned as a tool to analyze consumerism and the rise of commodities (Miller, 1995). The fetishism of commodity was originally described by Karl Marx in his first volume of *Capital* (1976), with Max Horkheimer and Theodor Adorno worried about the debasing of taste with the advent of mass production and consumerism (Horkheimer & Adorno, 1944). But most early literature on consumerism through material culture was a reaction to mass consumption, instead of examinations of it (Belk, 2015).

Archaeology as a discipline analyzes the remnants of ancient societies (either clothing, accessories, tools, or art), and garbology as a method seeks to understand modern societies from their garbage (Rathje & Murphy, 1992). William Rathje is considered the pioneer of this method, starting the Garbage Project in 1974 and conducting an investigation over two decades into American consumer waste habits (Rathje & Murphy, 1992). Rathje found that garbage can reveal two types of cultures: those that squander resources on material symbols of conspicuous consumption, and those that stretch out the use-life of resources (Rathje, 1984). Since then garbology studies have found the strength of brand loyalty based upon the different brands of products found in the garbage (Reilly, 1984), the role that public health interventions have in shaping food waste (Evans, 2011), and have even been implemented into high school classrooms (Hume, 2013). Garbology research typically leads to waste-prevention programs or other environmentally-minded actions in reaction to the findings (Hume, 2013).

Archaeologist Andrew Reinhard (2019) in his book on archaeogaming argues that the study of garbology within video games can reveal attitudes about consumption and waste. These items that are deemed rubbish by the player can then be interpreted by the garbologist either in the cultural context of the game's lore, or by how they contribute to the game mechanics (2019). Reinhard argues that inventory-driven games create a constant decision-making process from players, who have to decide repeatedly if items are either trash or collectible (2019). These decisions of collecting or trashing are found in the inventory-driven mechanics of *Animal Crossing*, a simulator of materialism.

### ***Animal Crossing***

*Animal Crossing* is a social simulation video game series developed by Nintendo in which the player lives in a village inhabited by anthropomorphic animals. As a social simulation, the game mechanics push the player toward interactions with the inhabitants of the village. The game series also has an open-ended gameplay structure that allows the player to carry out various activities including fishing, bug catching, fossil hunting, and an accumulation of material accessories. Since its initial game in 2001, the series has been both critically and commercially successful and has sold over 30 million units worldwide across four games ("Animal Crossing," n.d.).

Other researchers have discussed the various aspects of *Animal Crossing*, including its relation to affect and nurturing (Järvinen, 2007), and the feminine concepts of virtual space (Fullerton et al., 2007). One notable feature of the *Animal Crossing* series is the vast array of customization available, with many of the choices that players make affecting the outcome of the game (Schneider, 2002). *Animal Crossing* though portrays a life with repetitive and menial tasks (Kim, 2014), asking the player to engage in playbor (a portmanteau of play and labor; Flynn-Jones, 2013; Kücklich, 2005). Kim's (2014) ethnographic study of *Animal Crossing: Wild World* found that the dominant ideologies in the game such as hard work ethic and consumerism are not only given by the game creators but also voluntarily emphasized and accepted by players. This playbor is found in how players of the game seek after consumerism through the neo-liberal principles of a free market, in a game that is supposed to be fun.

## Method

As a game series, *Animal Crossing* was built upon commodities and their economic value. In selecting a game within that series to study the material resources and refuse, the researcher decided that the most recent installment, *Animal Crossing: New Leaf*, would be best suited. Although all prior installments in the series (*Animal Crossing*, 2001; *Animal Crossing: Wild World*, 2005; *Animal Crossing: City Folk*, 2008) have had a game feature for depositing unwanted items (either as a dump or a recycling bin), these prior installments were limited in their connectivity. *City Folk* and *Wild World* allowed for online multiplayer, but the official servers for such connections have been discontinued. For that reason, the author chose to use *Animal Crossing: New Leaf* (2012), which still has a thriving online community and official servers to connect to. In this way, the author could observe multiple towns easily, without having to compile used copies of the game cartridges.

This study expands the literature on archaeogaming and garbology by proposing a framework for the application and use of the method into video games (which has currently never been done). In this context, the author adapts garbology into a form of textual analysis by analyzing the artifacts and items within the game of *Animal Crossing* as texts for qualitative measures. It also borrows from the traditional archaeological method of site surveying to give a context of place and location to the items themselves.

## Dream Suite

The Dream Suite is a building introduced in *New Leaf* and is a service where the player can visit the imprint of other towns without interfering with them. The traditional multiplayer service of visiting other towns requires the sharing of Friend Codes—unique identifiers for every 3DS system—wherein each party has to have each other's code, and where one decides to “open their gates,” or allow the other player to visit. This amount of coordination and gatekeeping is framed as a way of protecting the privacy and autonomy of players, for when another player visits your town there is the potential for them to harm it.

However, as an option that allows for players to interact with random towns with no consequences, the Dream Suite frames these visits as *dreams*, where the player enters a town for a period of time, but cannot bring back any items or artifacts or disturb the architecture of the

town. This game mechanic allows for players—such as the author—to visit a wide variety of towns beyond their local limitations or their immediate friend circle. A limitation of using the Dream Suite however comes with its design—since it is framed as a dream, and the player is not allowed to return with any items, they cannot enter shops. It proved to be a useful tool in analyzing random towns without intruding upon the privacy of players.

### **Sample selection and variables**

For this sample, the author used the Dream Suite in *New Leaf* to visit a total of ten ( $N = 10$ ) towns during the months of September and October 2019. This sample was chosen by the system's randomized feature, wherein the game pulled one dream at random from the server. From this sample of 10 towns, the author coded the artifacts or items that were accessible in the dream that could be interpreted as *trash*.

### *Trash*

The author determined that those items that could be interpreted as trash would have to be left behind in some way. Thus, items that are on display inside a house would not be considered trash. Items on the ground are considered trash, unless they are planted, such as a tree or flower. Items that could be dug up from the ground would be considered trash if they were buried by the original owner (five fossils and or pitfall seeds appear randomly in the ground naturally each day). And if the owner of the town has paid for it, there could be a Police Station, which accumulates items that are left behind in a “lost and found.” All items in the Police Station were considered trash, however, the author could not determine what these items were due to the limitations of the dream sequence (the author is prohibited from picking them up, which would reveal their name). Thus, these items in the lost and found are only labeled from their category (furniture, umbrella, accessory, etc.).

### **Data analysis plan**

To analyze the data, the researcher collected screenshots of the items of trash found and compiled a journal of play sessions. This record of each town was kept to describe some of the observations the author had with the town as a whole, as well as descriptions of the items found and their location within the town. This compilation of all artifacts found is included in the appendix, and all other data will be available on the Open Science Framework for analysis.

Once a master list of items found was created, as well as short descriptions of each town and its player inhabitants, the individual items were analyzed in a form of textual analysis. These items were coded based upon their iconography (what their visual signifiers were) as well as their semiotic connotations (what they symbolized or represented). Each town or site was analyzed based upon these questions, pulled from another garbology study (Kalmon, O'Neil-Jones, Stout, & Wood, 2012): What is there? What does an object reveal? What is its purpose? What can be said definitely about the player based on the evidence? What can be inferred? What is not there?

## **Findings**

In this garbology of *Animal Crossing*, the researcher visited a variety of towns, some with more interesting data to analyze than others. Out of the ten towns in the sample, three appeared to have the most relevant findings: Fourside, Spooky, and Borian. In that way, the author offers some

thick description for those three towns, following some general trends from all of the items found.

In general, the vast majority of trash coded in this study were related to fruit and other consumables, as seen in Table 1. This dominance comes from the baskets of perfect pears found in Fourside (mentioned later), but also is due to the abundance of other fruit in other towns. The number of items in the Police Station's lost and found is minimal to the study, accounting for only 30 of the 296 items of trash. Thus, those that have this public work are likely to find their abandoned items disposed of in a timely manner, rather than accumulating. Another interesting finding is that across the ten towns in this sample, there were only two "lost" items, a quest-starting item that requires the player to ask villagers who owned the dropped item, which is normally unknown to the player, but in the dream becomes listed.

The second most recurring category in the study was "other," with items such as unknown fossils, pitfall seeds, and beehives. These items can often be interpreted as "worthless," as they mostly do not hold very many attributes or values associated with materialism. These items have either one singular purpose (such as being sold for bells), or are used to customize the town or player's avatar. In this way, this category seems to include items that could be easily coded as trash or garbage.

Category	Item name	Frequency	Category	Item name	Frequency
Fruit	Perfect pears	172	Gyroid	Mini --oid	9
	Perfect peaches	18		--oid	5
	Oranges	11		Tall --oid	3
	Earth/Stone eggs	6		Mega --oid	2
	Perfect apples	4		Total:	20
	Apple	1	Furniture	Creepy skeleton	9
	Peach	1		Unknown furniture	6
	Rotten apple	1		Total:	15
	Total:	214	Clothing & Accessories	Unknown shirt	2
Other	Unknown fossil	12		Unknown umbrella	2
	Pitfall seed	12		Eye patch	1
	Beehive	6		Mitten	1
	Unknown paper	4		Total:	6
	Tricky pitfall seed	2			
	Fertilizer	2			
	Boot	1			
	Present	1			
	Ruby	1			
	Total:	41			

*Table 1. Artifact frequencies sorted by category*

### **Town 1: Fourside**

The first town worthy of discussion based on its findings is Fourside. This town had a single player occupant, Ronica, who used a female avatar. Ronica was dressed like a businesswoman, which mirrors the order and organization of the town she had shaped. This town was judged by the author to be a mid-sized one, which is probably not fully developed but still fairly strong. However, the level of development can be judged objectively (the number of public works, the level of work done on the landscape, the size of the player's house) and also subjectively (as an open-ended game, there can be player-created goals and endings). The trees in the town were also varied, showing that Ronica has invested in visiting other towns to bring back new fruit that did not grow natively in Fourside.



*Figure 1. The Baskets of perfect pears near the train station*

What made this town especially relevant was the abundance of items left lying on the ground. The first unique finding was the number of perfect pear baskets left near the train station. Nineteen baskets, which each likely held the maximum of nine pears each, meant 171 perfect pears to be sold in another town. As a background, rare versions of fruit can be grown (labeled as “perfect”) which are more valuable. This accumulation of rare items that can hold even more value when sold at another town can be interpreted in two ways. Either Ronica was planning on taking these baskets in her next visit outside of Fourside to cash out for a personal profit, or they were stockpiling them for when they opened the gates of their town for a visitor to take for their gain. Thus, this act could be interpreted as an act of personal gain, or selfless altruism. The researcher in preliminary research saw a similar act carried out on a stream of *New Leaf*, where the streamer visited a town to be greeted with baskets as a gift from their friend.

These items are left on the ground—and considered trash by the study—but also clearly valuable items in some way. While these perfect pears can be sold for a profit in another town, they are



not the only act of production to earn bells. Growing perfect fruit is much like any other fruit, it requires three days from harvest to grow new fruit. However, each perfect tree has at most seven yields (and as few as four) before it dies and will not produce fruit anymore. Thus growing perfect fruit is a lengthy gamble, requiring the player to continually replant new trees and chop down the dead ones, and wait in between harvests. This long term investment requires continually renewal (at the cost of the fruit that will not be sold) and has a very finite daily return. However, other activities of production—such as fishing or catching bugs—are more random in their rewards, varied in the value of each item sold, but can be performed every day, nearly all day long. Thus, the infinite resources of the fauna should appeal to not only the utility costs of production but also the fun because of the randomized element, especially with fishing.

Another finding of Fourside was a cache of fossils left near the beach. Fossil hunting has been an aspect of the series since its inception, with players able to dig up five fossils each day that randomly appear throughout the town, and are buried in the ground. In the first game, these fossils had to be sent off to the Faraway Museum for identification via physical letters and visits to the post office, which would be returned the next day. This delay in gratification and their reveal changed, however, and every succeeding game (including *New Leaf*) has allowed the local museum's curator, Blathers, to both identify unknown fossils and accept donations of known fossils.



*Figure 2. A pile of unknown fossils found on the beach*

Fossils then are daily, randomized rewards where the player does not know where they appear, nor what they will be until after they take them to the museum to be identified. There is a total of 67 fossils that can be found, which can either be sold for a profit (up to 6,000 bells depending upon the fossil) or donated to the museum. Donating to the museum has some minor rewards (at certain thresholds other things can be unlocked, such as an expansion to the museum and the café), but for the most part the benefits are the intrinsic value placed by the player.

This leads to the finding of Fourside's cache of unknown fossils. The researcher concludes that there might be a few reasons for this pile. Important to note is the location, they were found in a

corner of the beach, on the other side of the river and waterfall, of which there was only one bridge near the north end of town. Thus, the inaccessibility of this pile stands in contrast to the pile of perfect pears in a highly trafficked area. This pile could then be a secret pile set aside for some reason, perhaps for another player to find and earn. Locating a pile of randomized rewards (unidentified fossils) could be more intrinsically rewarding than finding a pile of known rewards (perfect pears), even though these fossils would likely be worth much less to sell. However, these unknown fossils would be a great benefit to players attempting to fill their museum's collection, which implies that Ronica had plans to give these fossils to another player, probably a new one.

## **Town 2: Spooky**

This second town of note for this study had items of trash that mirrored what the researcher expected from the outset of this study. While Fourside and Barian had organized and planned areas of garbage placement, Spooky's trash felt more natural and accidental. Spooky had three player residents, however, the researcher assumes that its primary player was Logan, who was outside a medium-sized house (compared to Sarah and Sydney who were near tents). The town, like many others in the sample, was filled with large orchards with a variety of fruit growing on them, including perfect apples. However, scattered among the trees was evidence of a previous quest to capture a bee.



*Figure 3. An example of the items left near trees: two apples and an unknown fossil.*

This seems evident from the number of beehives found lying on the ground—four in total—sometimes at the foot of a tree, and sometimes not (where its host tree was likely chopped down and dug up). The player could have been attempting to catch a bee for a profit (they sell for 2500 bells, compared to the 500 for the hive), or for the Town Initiative (there is a daily quest to catch a bee), or for their museum's collection.

In addition to these beehives that were scattered among the town, there were other dropped items among the orchards. These items included dropped fruit (including a rotten apple) and an unknown fossil. The patterns for the placement and types of items left suggests that they were forgotten by the player, perhaps when their bags were full and needed to sell. The abundance of forgotten fruit suggests—as do the abundance of fruit types and the number of fruit trees—that

the players of Spooky were primarily concerned with producing fruit for bells. Spooky appeared to be a mid-sized town, based upon the dwellings of the players, the number of public works done, and the lack of a café and police station.

### Town 3: Barian

Of all of the towns visited in this study, Barian proved to be the most unique. While the open-ended nature of *Animal Crossing* leaves much of the world design up to the player, for the most part, players craft similar towns and environments. The aesthetics of *Animal Crossing* lead to many versions of cute, appealing, and adorable towns. However, Barian took the palette and expressed itself in a different way.

Most notable with Barian is the atmosphere of the town. While the sample was spread across the four seasons, with some captured at day and night, Barian is the only one that truly set out to make a memorable atmosphere based upon its environmental design. At first glance, this town is only populated by dead trees or tree stumps, which is a little shocking to see at first, when compared with the green usually adorning *Animal Crossing* towns. Not only that, but there were 33 cracks in the ground from buried items, which added to the creepy atmosphere. These buried items proved to be 9 creepy skeletons (buried in a graveyard, see Figure 4), 20 gyroids, and 4 fossils. The fossils were likely generated by the game, but the other 29 items were deliberately buried by the player. This attention to detail outlines the motivation to customize their town as they see fit.



Figure 4. The graveyard of Barian

The graveyard in Barian is an interesting site. It is located in the north-west corner of the town near a pond and a villager's home. This graveyard is then situated in a less-accessible portion of the map, suggesting it is a site of discovery or a hidden secret for new players to discover. The graveyard is coded as such, with the custom tiles drawn to be like tombstones placed in a grid, with the creepy skeleton furniture item buried beside them. This furniture item is part of a special event-exclusive set that is only obtainable on Halloween. Thus, the player must have frequently participated with this event on Halloween (likely through manipulating the time clock on their console) in order to collect nine copies of their desired spooky furniture item. This level of

dedication to earn enough of their desired furniture reveals a lot about the player and their motivations.

There were also 20 gyroids buried throughout the town of Barian. Gyroids appear buried in the ground the day following weather such as rain or snow, instead of the usual fossils. However, the accumulation of 20 gyroids indicates that the player had a vested interest in collecting them and burying them. Gyroids are only worth 828 bells each, meaning they are not especially valuable. However, they serve no other purpose in the game, besides their use as furniture. While there are 131 varieties of gyroid, they cannot be donated to the museum, thus a collector must find other locations to store them.

And lastly, another discovery in Barian is the character of Abandone (see Figure 5). The name of this avatar is at the maximum character limit, suggesting that it is intended to be named “Abandoned,” suggesting the creepy nature of this town. This avatar is wearing a Mii mask to change its appearance and is wearing no clothing. A Mii mask is styled after the appearance of a Mii on the player’s 3DS console, thus to have this bald avatar, the player had to create it in a paratext to *New Leaf*, and import it. This is another example of the attention to detail the player went through to create their desired outcome. This town had two other inhabitants—Jason and Shark—and it is difficult to determine who the primary player resident is (if that question is even relevant).



Figure 5. The player Abandone, set against the backdrop of the dead trees and the buried item near his feet.

### Discussion

This study was an analysis of the material culture of *Animal Crossing: New Leaf*. It has documented the trashed items of players across 10 random towns accessed via the Dream Suite. Through this analysis and thick description of three of these towns, the author was able to learn about the patterns of production, trade, and consumption of players in this social simulator. Players are frequently relying on fruit production for income, while also abandoning and forgetting these items periodically in their town. Players are also using the open-ended customization to create towns of trash, such as the final town discussed, Barian.



As a social simulator, it is natural to assume that players of *Animal Crossing: New Leaf* would engage heavily in the pursuit of accessories and clothing. The popularity and success of *Fortnite* proves that clothing accessories (or outfit skins in its case) can serve as a backbone for video game mechanics (Wisecrack, 2018). And while the marketing for the game series often promotes the mechanics of customization and accessory collection (Nintendo, 2012), this study found very few items of clothing or furniture. These markers of conspicuous consumption—or luxury items of clothing and accessories that enable customization of appearance—were not found in the garbage of the towns, suggesting that conspicuous consumption plays a lesser role in *Animal Crossing* players' lives than the marketing suggests.

But to serve as another example, *Animal-Crossing: New Leaf* has a lot in common with *Minecraft*, in that both are open-ended games that allow for players to engage in economic activities of production and consumption and in the customization of avatars (Duncan, 2011). Players are adept at finding activities to do in these open-ended games, and *Minecraft* players are often pushed toward the two mechanics of construction and survival (Duncan, 2011). The findings of this study could also be applied to *Minecraft* and other open-ended construction and customization games, suggesting that their players will likely be driven toward thrift and production instead of conspicuous consumption. These systems, while they include options for players to engage in luxury avatar customization, also include other variables and mechanisms that drive players toward using resources carefully.

Rathje's (1984) main finding of garbage is that it can reveal if a culture is in one of two phases: an era of conspicuous consumption, or an era of extending the use of resources. This finding was based upon the garbage and history of two civilizations, the Roman and the Mayan, but can be applied to all garbology studies (Rathje, 1984). The research question of this study asked if players of *Animal Crossing: New Leaf* were in a culture of conspicuous consumption or thrift. Based on the findings of this study, the author concludes that *Animal Crossing* players are likely in the second period, of thrift and economy. This is evident in the findings, as there were many towns that had very few trash items (displaying a thrift and economy), and the most dominant item found across the sample was the perfect pear. As the fruit category of items dominated the findings, it reveals that players are investing their time and resources into production more than aimless consumption or wasting fashionable clothing items. These findings point to a culture of production more than mere consumption, of economy and thrift and maximizing bell output. But these findings do not take into account the number of public work projects, which could signal cultures of conspicuous consumption, as per Rathje's examples.

The backbone mechanics of *Animal Crossing: New Leaf* are all elements of conspicuous consumption though: there are two major types of goals for players to accomplish, either paying for expansions to their home, or paying for public work projects. These major goals serve as the motivations for much of what players do, but not all of it. These two major goals though are what Rathje would likely label as conspicuous consumption, as they are unnecessary uses of resources that cannot be reused or recycled. This study did not take into account the amount of public work projects in the towns, nor the size of the players' homes to determine how many expansions were completed. However, these elements were informally used to interpret the size of the town in the author's field notes. These findings ask then, what is conspicuous consumption? The towns in

this sample showcase players who are resourceful, thrifty, and maximizing profits via production. These players, based upon their trashed items, are more likely to dispose of goods that are only valuable for bells and not customization. These players are not throwing away items that are accessories and clothing items, suggesting that these fashionable items are being sold.

One limitation is the interpretation of how fun interacts with such economic principles of trash and garbage. While economics play into the utility of items (such as the monetary value of perfect pears, or the personal value of wearing a cute outfit), there are many aspects of fun that would be hard to interpret solely from the Dream Suite data. Perhaps the players of Barian really felt that crafting their town was more fun than the items they buried.

Another limitation is the method of sample collection. While the Dream Suite mechanic is dependent upon player choice to upload a snapshot of their town, it is not a perfect performance behavior of players. Uploading a snapshot rewards the player with 5000 bells per day, which reveals a monetary reward for creating these public snapshots. While there is definitely a performative aspect to this mechanic, the findings of this study suggest that each snapshot is not an immaculate display. There is evidence of flaws and trash items. However, the Dream Suite is beneficial to players of *Animal Crossing: New Leaf* as well as researchers, because it gives players a chance to observe the patterns and behaviors of other players in a removed way (without interference with the town or player being observed). The Dream Suite is also limited in that it is not accessible to new or small-sized towns. As a public works project, it can only be built once the player has met certain thresholds and achievements within the game, thus skewing the sample towards players of accomplishment.

## Conclusion

This study adds to the literature about virtual consumerism by applying and using the method of garbology and the analysis of *Animal Crossing* garbage. Its findings are focused on the individual items and patterns in how players interact with them. This microeconomic analysis—which looks at the trends of individual items or transactions—is the most advanced area of virtual economics, while macroeconomic analysis models—which focus on the larger trends and inflation or deflation of currency—are still being developed (Lehdonvirta, 2005). Further research could look into the macroeconomics of *Animal Crossing: New Leaf*, to determine at a larger scale the trends of inflation or recessions over time. Perhaps beginning at the launch of a new game, and extending longitudinally into the twilight of its life.

This study analyzed the garbage of video games. While this theory and its accompanying method was first introduced by Reinhard (2018), a formalized study implementing the method has not been produced. As such, this study with its accompanying files on the Open Science Foundation hopes to inspire more archaeogaming research, and especially more research into the garbology of video games. Much can be learned through the theory of material culture as it relates to the study of trash items in video games. This study found that players of *New Leaf* focus on selling fruit to produce bells, despite the time investment it requires and the non-randomized reward it entails.

*Animal Crossing: New Leaf* provides a nuanced discussion on materialism, capitalism, and conspicuous consumption. Do players choose to chase accessories, or do they choose the production of safe rewards? While both options are available, it seems as though the economic systems of the game, which encourage the player to pay for upgrades to their home and public works, lead many players to forgo conspicuous consumption and the waste or trashing of items related to accessories and clothing. Instead, items of trash and garbage are those with utility and economic value, instead of personal meaning. This thrift within the virtual world could be emblematic of current economic trends and could suggest that players are also part of an offline culture of resource management.

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