

Defragmentation and Mashup: Ludic Mashup as a Design Approach

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ABSTRACT

The history of technological progress has involved a repeated application of abstraction, of encapsulation, specialization and composition. Film, for example, has moved from a specialized field of equipment and concepts only available to trained professionals, into a field which has been commoditized and composited, and made available to almost everyone with basic equipment. New media has become more modular and thus passes into the hands of users who rely less on crafting from scratch and rely more on pre-built, readymade components that can be assembled.

This “pulling together”, i.e. this “mashup” or “remix” approach is already trivially true in the field of games in the modding community, which may introduce new 3D models, images, music or even new code blocks which change behaviors. These are very important, but signal a future move toward more sophisticated, pre-packaged modular blocks which players might assemble on their own in a more controlled manner. This might include swappable A.I. algorithms, interchangeable in-game weapons, interoperable “rulesets” and other key game entities that are normally thought of as being integral to a specific, single game.

While mashup, assemblage and perhaps actor-network-theory has highlighted the ways in which a game *played* in context is more than the sum of its parts, this paper looks to the future of game *design*, in which players can assemble (on-the-fly) a set of game components. Such a situation is a defragmenting of ready-made ludic chunks, resulting in unpredictable and chaotic games created by players, and forces designers to consider their role less as a creator of a game *in toto*, but also as designers of interoperable ludic components.

Keywords

Assemblage, digital games, games, new media, personalized games, pervasive games, play, technology, ubiquitous games, mashup, remix, defragment

INTRODUCTION

The idea of a game designer is somewhat akin to a gunsmith, circa 1800 in the United States. At the time, each gun created by a gunsmith was a custom, handcrafted affair. Each gun, from the barrel to the grip, was unique and the role of the gunsmith was important, as the average citizen lacked the knowledge, equipment and skill to be able to create a gun from scratch.

In 1801, Eli Whitney changed (gun) technology by appearing before the U.S. Congress with a pile of disassembled gun parts, and proceeded to indiscriminately put them together to create ten separate guns (defragmentation). (Latham 1962) No longer was a specific gun unique: any gun could be assembled by the average person using *standard* parts. In one move, this concept of interchangeable parts broadened the abilities of the average person to work with guns, and more relevantly, it changed the role of the gunsmith in society. From that point on, gunsmiths no longer thought completely in terms of “guns”, they thought in terms of “standard gun parts”.

This trend is present in every thread of technology in society. A technology exists and the manipulation of that technology is only available and/or understood by a set of specialists, even if the product of that technology is available to the average citizen. As time progresses, the manipulation of that technology is abstracted and streamlined, simplified by hiding or automating the parts that are complex. This moves the manipulation of that technology from specialists into the hands of the average person.

In computers, punch cards and vacuum tubes have made way for the flat screen and mouse. The film studio system of the early 20th century has weakened in favor of indie filmmakers, not to mention the easy accessibility of video tools that allow almost anyone to edit and create films without effort. Video and sound manipulation have transferred from the realm of complex skills and knowledge into something that everyone has on their own handheld phone.

Unlike other new media, digital games have not yet made the same full leap. Certainly, modding is a strong contender to the idea of a user/player being able to get in and create something on their own, but modding still requires a bit of technical know-how. Even more importantly, it requires that the digital game to have been reasonably open to being modded in the first place (this concept of open maybe intentional on the part of the designer or not). Games are not *designed* to be fragmented.

Unlike this accidental, still “backend” way of allowing users to design and express themselves through games, the digital games field would benefit greatly from its own Eli Whitney: a game designer who champions modularity at *every level of a digital game*, essentially purposely fragmenting game design so that it can be defragmented and mashed-up by the average player. Indeed, given the sweep of history, technology and new media, this trend seems inevitable and thus this paper looks to the future to discuss what this might mean for the game design field.

A DYNAMIC SOCIETY

Technology in the new millennium has perhaps forced a certain dynamic expectation. The concept of interchangeable parts pervades everything in ways that are not always obvious. Society expects that similar components will work together seamlessly or with minimal problems, and friction comes when this expectation is not fulfilled.

If a person emails a file to another person, there is an expectation that first, the language will be understood, that the email format will be understood, that all of the computers between the two persons will be able to transmit successfully, that the file itself should be readable by the other person's machine and that any pictures or sound within the file can be properly parsed and rendered. Cellular phones of different makes and models, across different providers, are expected to interoperate without a problem. When purchasing a new keyboard or mouse, the expectation is that it will "just work" (which used to not be the case even 20 years ago).

Despite being modular, this also opens up a kind of preference for preference. Interoperability means that a viewer can view five hundred channels of different news on their television, but it also means that they can choose a *specific* one over all others. With the rise of internet news media, the average user now has the ability to construct their own sense of news and reality, perhaps choosing to focus specifically on right-wing issues, or only celebrity news, or no news at all. This is also an expectation of customization, perhaps seen most brightly in the Youtube realm, with users taking existing content (video, pictures, music) and remixing them into their own personal visions.

Riedl discusses two aspects of this when talking about scalability of interactive experiences, namely that there are two facets: *On-Demand* (meaning interactive entertainment when wanted), and *Just-In-Time* (in which the interactive experience is constructed and personalized somewhat to the user's context and experience) (Riedl 2010).

These are the kinds of dynamic forces that would also apply to digital games. Online multiplayer games are unthinkable without this kind of interoperable communication network. Most Augmented Reality Games (ARG), Pervasive games, and Ubiquitous games would be unthinkable without an advanced, ever-present way of communicating silently and efficiently behind the scenes (cell phones, pagers, phone booths, internet, fax, GPS, laptops or any number of communication methods).

Consider micro-transactions, where small purchases might occur without repeated authorization, as a way of the game "just working". Newer devices can silently detect position (GPS), altitude, velocity, proximity (relative position), and biological data (heartbeats, skin conductance, etc.), and what is more, integrate that without fuss into games experience. The experiential "speed bumps" are slowly ironed out so that the user/player can continue without worrying about whether something will work correctly.

Of equal importance is a philosophical one in software: a continual push towards open toolkits, public API's of code and web services that standardize certain types of information, and make it more widely available to those who don't need to know the technical details. A host of protocols and API standards such as OData, OAuth, REST, and others are intentionally designed to create virtual interchangeable parts.

Of a piece with this is the digital games modding community, which has a drive to be able to get into a piece of digital games software and to modify it in some way. To be sure, this is a user/player driven attitude that is not always taken up by the designers of the digital games (or at least gently tolerated).

This is to say that more and more, the default attitude of the user/consumer/player is one of being able to easily take pieces of a system and put it together in a more personally meaningful way.

Mashup, Remix, Assemblage

If digital games are considered in terms of interchangeable fragments, it seems to stop at certain points, primarily aesthetic. A simple approach is precisely what modders typically do today, which is to swap out textures, meshes, 3D models, sounds and other “game assets”. This is most easily accomplished because the assets themselves are already fragmented (usually into files or embedded as resources).

It is also possible to interchange code blocks, such as is possible in *Minecraft* (2011) and the various mods that exist. These mods typically modify a core code-level behavior or rule, allowing new functions or player actions to be accomplished. However, this is only *easily* possible if the original developers of the digital game made it open enough to do so.

This attitude on the part of the game designer is one of considering the game as a set of components that are *intended* to be modified. Many, if not most, games are not explicitly designed or intended to be easily modded. This could be for liability reasons (a mod could be confused with the game, such as in the Hot Coffee mod of *Grand Theft Auto* (2004)), for aesthetic reasons (a indie auteur may have a specific aesthetic vision that they don’t want confused or changed), for messaging reasons (a studio may not want to convey a “weakness” in their own intellectual property, and thus don’t want modders to change anything) or many other reasons.

A ludic mashup/remix/assemblage approach suggests that digital games be conceived in terms of virtual “modules” of functional, aesthetic, “agentic” and narrative blocks that can be purposefully discovered, accessed, retrieved and recombined according to player wishes. Even more radically, these blocks would be standardized and understood to such a point that they could even conceivably be interchanged *between different digital games*.

This fragmenting and defragmenting lends itself to a radically different way of understanding game design, one where the relationships between these ludic blocks are an important, unstable and continually evolving composition of ludic interaction composed by the players, game designers or even artificial agents or algorithms.

Mashup/Remix

From the beginnings of reusable parts in the industrial revolution, we have seen a default trend of specialization and interoperability. If pieces of objects are standardized and predictable, they can be swapped out with other pieces that do the same thing, much like spark plugs or tires on a car. In the context of digital content, this has become more abstract, such that *similar* objects can be swapped if they have a shared interface.

Consider drill bits for a cordless power drill, where many different drills and screwdriver attachments can be applied. The attachments serve different purposes, but because they all implement the same interface they can be swapped (the shape of the hexagonal base is fitted into the recess of the drill chuck).

This is a subtle change because it means that with a base interoperability, new functions can be added. A “combing” attachment could be added to a power drill (as ill-advised as

this may seem). As long as an attachment fits the drill interface, new behaviors can be added to a well-defined interface.

This is touching upon what Manovich calls “remixability” and also “mass modularity”. A salient quote:

“It is interesting to imagine a cultural ecology where all kinds of cultural objects regardless of the medium or material are made from Lego-like building blocks. The blocks come with complete information necessary to easily copy and paste them in a new object – either by a human or machine. A block knows how to couple with other blocks, and it even can modify itself to enable such a coupling” (Manovich 2005)

And even more tantalizingly:

“The scenario I am entertaining proposes a very different kind of modularity that may appear like a contradiction in terms. It is modularity without a priori defined vocabulary. In this scenario, any well-defined part of any finished cultural object can automatically become a building block for new objects in the same medium. Parts can even “publish” themselves and other cultural objects can “subscribe” to them the way you now subscribe to RSS feeds or podcasts” (Manovich 2007)

As applied to games, remixability implies a thinking about *all* of the component aspects of games and thinking of them in isolation. This challenges an assumption that a game is “packaged” by the designer/creator and should be consumed as such.

In many games there is a strong “modding” culture, where the designer/creator opens up a kind of sandbox to users and presents the software not just as a game, but also as a platform for creation. Remixability suggests that the game designer does not *only* package up a mono-unit “game”, but rather an explicit set of ludic modules that are temporarily in relation to each other (for the purposes of a functioning game) and can legitimately be broken up and recombined.

This is not just recombination for the sake of it, but follows on the impulses of certain mods, which are a commentary on the original game. Yet, unlike a pure mod of a single game, a mashup specifically combines materials and resources from *different* examples of the same genre. Lego produces multiple standalone kits which come from different “universes”, such as the Harry Potter series or the Star Wars series. Each is designed towards completing the vision of the specific kit, but is also designed to be interoperable and even combined with kits from other Lego universes. A Lego enthusiast can break down a Harry Potter kit and combine it to create a Jedi Quidditch game if they so choose.

This is the spirit of digital game ludic modularity per Manovich. To illustrate, imagine if a user were able to relatively effortlessly combine atomic modules from different games to create their own vision, a mashup/remix across digital or mixed games, resulting in a new digital game. This is an explicit embracement of digital games as a part of new media, subject to the same forces of recontextualization and remix.

Assemblage

Assemblage (as well as remix and mashup) are highly emblematic terms that carry a large amount of cultural and historical practices and meanings. The new media and art fields have a wide and deep relationship to these terms and they should not be treated lightly. At the risk of short-changing them, this paper can afford only to point to them and highlight certain concepts.

While mashup and remix are functional and technical treatments of such a combination, the meaning of these new combinations are important. The defragmentation of ludic chunks across digital game genres can provide new relationships and meanings that are greater than the sum of their parts. Assemblage gets more to the heart of the relational aspects of these kinds of combinations.

There is a delightful passage from Deleuze and Parnet's *Dialogues* where they describe this concept of assemblage in more poetic terms: "If one takes this exteriority of relations as a conducting wire or as a line, one sees a very strange world unfold, fragment by fragment: a Harlequin's jacket or patchwork, made up of solid parts and voids, blocs and ruptures, attractions and divisions, nuances and bluntness, conjunctions and separations, alternations and interweavings, additions which never reach a total and subtractions whose remainder is never fixed." (Deleuze and Parnet 1987)

Assemblage as a term can be somewhat misleading. It is not just collage or montage, the soldering together of pieces. Jean Debuffet first used the term Assemblage in 1953 as a description of a three dimensional sculpture consisting of found objects joined to make a singular piece of work. (Loreau 1953) This puts the origin within the art world, but should not be understood solely as art, but also as a system. Assemblage is the bringing together of differentiated entities into a transient relation (or even a group of relations), but without deciding up-front that the relations will *necessarily* make up a new single entity. The assemblage is the sum of the relations, but is understood as temporary and transformational arrangement. The form is well-understood, but is not all that it is. Assemblage is a process that encompasses the relations within.

Assemblage thinking "allows us to: foreground ongoing processes of composition across and through different human and *non-human* actants; rethink social formations as complex wholes composed through a diversity of parts that do not necessarily cohere into seamless organic wholes; and attend to the expressive powers of entities" (Anderson et al. 2012)

The process of assemblage is a process of shaping, that the form is the process itself, that the end result is the result as it stands at that moment, subject to the forces within and without. "Assemblages consist of a multiplicity of heterogeneous objects, whose unity comes solely from the fact that these items function together, that they 'work' together as a functional entity." (Patton 1994)

As a digital game designer, this is a shift in tone, perhaps. When working in this mode, a digital game designer is aware of the relationships and sub-pieces of a game and advances those as a primary way of a potential player approaching the game. A designer working in those mode would see their own "finished" game as simply another assemblage, a collection of pieces, though one which is certainly privileged as being "by the designer".

Rather than a completed magnum opus, there is an up-front intentional design motivation to acknowledge the multiplicity of game design elements and to open them up. This preserves the original vision of the designer while simultaneously allowing for other interpretations and usages of the game's ludic, narrative and aesthetic elements.

The game designer considers every level of the game as a ludic block, from the digital assets (textures, sounds, animations), to the code (Object Oriented (OO) libraries, Service Oriented (SOA) APIs, etc.). But, less concretely and conceptually, the rules contained in the code, the Artificial Intelligence algorithms, the behaviors and even the rules.

Finally, even the players themselves are considered to be modular ludic elements. This could mean the well-known matchmaking mechanisms for online multiplayer games, but also custom artificial agents drawn from disparate sources. In this view, the meaning of play turns on the meaning of how a player 'functions as a player'.

It is precisely this relational and dynamic set of forces that is encouraged and designed in by the designer, to produce the patchwork of play described by Deleuze.

Assemblage of Play

Assemblage has been talked about in relation to games previously, perhaps most prominently in T.L. Taylor's *Assemblage of Play*, which talks about the contextual assemblage of the found objects within a game. The essay describes the complexity inherent within a video game system, the entities and relations that make it up:

Games and their play, are constituted by the interrelation between (to name just a few) technological systems and software (including the imaged player embedded in them), the material world (including our bodies at the keyboard), the online space of the game (if any), game genre, and it's histories, the social worlds that infuse the game and situate us outside of it, the emergent practices of communities, our interior lives, personal histories, and aesthetic experience, institutional structures that shape the game and our activities as players, legal structures and indeed the broader culture around us with its conceptual frames and tropes.

While looking at a game as it is presented as a boxed product may tell us something about the given structure of the artifact or its imagined player, understanding it as a lived object – as a playful artifact- comes via an attention to the assemblage that constructs our actual games and play. (Taylor 2009)

This describes the end-state, one which in this paper's view is entirely desirable. Taylor finds a pre-existing game in context and uses the concept of assemblage to tease it apart and better understand it by recognizing the relationships within. To take this further, a game design approach is needed to embrace this end-state fully and open it up to the full possibilities.

Taylor describes the world of the player and the vast complexity of the context and what the player brings to the table. Yet, the discussion of this paper wishes to fragment the "boxed product" itself as a design practice, so that Taylor's vision of player-created assemblage can be even more rich and diverse.

FRAGMENTS

The analysis of breaking down a game into pieces is a familiar path and one that sits at the heart of game studies. (Aarseth 2003) (Konzack 2002) It's accepted that games involve combining constituent parts on some level, but there are various theoretical knives that are used to perform the split. And apart from pure theory, game designers and creators are well aware of the logistics and work that goes into releasing a digital video game (and the pieces that go into such an endeavor)

While there is a general acknowledgement that digital games are made of "stuff", there is not a tendency to think of those "stuffs" as interoperable (and swappable) pieces with relations to each other, *in particular from the beginning design*. To clarify this point, a loose walkthrough of the elements of games will be presented (and, of course this is certainly not exhaustive, as there are many, many viewpoints and definitions within game theory). The following is a loose attempt to highlight the modularity, swappability and contextual personalization of what are considered major elements of games.

Generally, players are assumed to be human, almost by definition. When performing online matchmaking, it is assumed that the co-player who is found is a real life person. Co-players, for the most part are regarded as swappable components who serve the function of play. Artificial Intelligence (AI) agents are generally not referred to as "players", despite the fact that in many instances, if online matchmaking methods provided artificial co-players instead of anonymous human co-players, the human player may not even notice (depending on the sophistication of the AI substitute).

AI agents, opponents and NPCs are highly tuned to a specific game and once designed for a specific game, are generally unusable in other games (even if the underlying code is technically compatible). The computer opponent in *Street Fighter* (1987), for example, might be very good at *Street Fighter*, but the algorithm and encapsulation of the AI behavior is not designed up front to be transported to other game scenarios. AI's are usually programmed to satisfy rules and game conditions, not exhibit general behaviors or proficiencies, and as such, AI's do not easily transfer between game genres or even similar games in the same genre. They are not "remixable" or interchangeable.

A game context (or the game frame, to appropriate Goffman (1986)), is assumed to start and stop at the human player's will. Certain genres like pervasive or alternate reality games play with this notion, but for the vast majority of mixed or digital games, the human player is assumed to be in control. The human player generally expects that when they say they are not playing, then they are not. This is to say, that as a factor of an on-demand quality of an assembled game, the human player is assumed to have control of their own destiny within the game.

Generally, games are assumed to be singletons, meaning that the player is only participating in one game at a time within the same social, spatial and/or temporal context, or at least that if there *are* multiple games occurring, then the mechanics and actions available are clearly differentiated and distinct (for example, playing *Scrabble* (1938) on your iPhone while you are simultaneously playing in the outfield of a baseball game). The boundaries *between* games are generally discernable, in the cases where they are overlapping.

In an assemblage game context, it is very possible that a human player could combine ludic elements in a way that produces a multi-game experience, where actions taken

affect multiple games at once (for example, a player signing up for ten different pervasive games at once: some of the actions they take will be actionable and meaningful in several distinct game frames) (Eriksson 2005)

When playing a game, it is expected that the game artifacts (equipment, interfaces, UI, objects, etc.) will act in a specific, understood way. Within a football game, it is not expected that the ball may move erratically on its own or have unusual properties. The ball (and other players, and the field, etc.) all exhibit well known “protocols”, properties or even “APIs” of behavior that we understand. It would be possible, for example, to swap out a basketball into a football (soccer) game with a minimal impact to the play, since a basketball exhibits most of the same functionality required by the game process. A bowling ball could not easily be swapped into a football (soccer) game.

For a digital game, or even most mixed games, the aesthetics are either part of the natural environment (such as an ARG), or were placed there by the game designer (in the case of digital games). There are examples of player-created content, notably *Spore* (2008) or *Little Big Planet* (2008), and there are folk examples of players adding their own instances of taste to a sports event (custom music, local equipment, etc.), but the built-in assumption for many games is that the aesthetic qualities of the game are either left to chance or put there by the designer, and not particularly the players themselves. This is to say, for many games, digital or otherwise, there is not really a default expectation that the players can take the aesthetic experience and remix, explode or fragment it however they want.

A multi-player game also assumes that all players are more or less part of the same shared state or narrative; that regardless of the gameplay itself, there is a coherent understanding of the narrative of the game (assuming there even is one). This again harkens back to a Goffman-esque understanding of a social frame (Goffman 1986)

DEFRAGMENTED META-DESIGN

A digital games designer has committed to an assemblage view of game design. What does this mean?

To begin, a working definition of ludic assemblage:

A directed system of game design which explicitly involves the intentional creation of ludic entities at every level and allows for a dynamic, unpredictable and modular outcome. Whether the original presentation is of a unified whole or not, design effort is made to allow players to break down, remix and recombine the “found” elements of the game into temporary and personalized ludic assemblages.

This definition reflects a core value from the designer: modularity, or fragmentation. On the flip side, this requires a certain commitment from the players to embrace this and perform a defragmentation of the game entities to their own desires.

In this understanding, there may be two flavors of this ludic assemblage: strong and weak. In the strong formulation, a game is designed and presented as a unified whole, but is itself designed to be shattered along all axis by a player. In this formulation, the game is presented as coherent, but also distinctly recognizes the temporary and relational

structure that it consists of. This loosely corresponds to current games that are open to modding, such as *Team Fortress 2* (2007) or *Minecraft*.

In the weak formulation, a game designer's job is more one of creating ludic modules, and this slips perhaps into gamification territory. But more than just mechanics as modules as gamification might be said to be concerned with, this is concerned with all aspects of games: standalone ruleset packs, packaged AI personalities, narrative trees, texture packs, API, social group structures and protocol definitions that can be swapped in between games. In this weak formulation, the game designer becomes more of a meta-game designer, providing ludic fragments for the players to defragment on the fly.

This is obliquely talking about personalized gaming, and Bakkes gets at a certain division of these when he talks about personalized gaming and how a personalized game is constructed:

“The components, of which at least one needs to be implemented in a personalized game, are space adaptation, mission/task adaptation, character adaptation, game mechanics adaptation, narrative adaptation, music/sound adaptation and the player matching (multiplayer). Where desired by the game designer, the components may be informed by difficulty- scaling techniques for adjusting the challenge level to the individual.” (Bakkes et al. 2012)

This is coming from the aspects that would be personalized to the player, which also somewhat neatly map to the aspects that a game designer would value from an assemblage approach. And indeed, personalization is a major outcome of such a design approach.

To illustrate this more clearly, some examples of future game design practices and outcomes will now be discussed.

Coded Objects

In Object Oriented (OO) software design, there is a common concept of a discrete, encapsulated entity which has a set of properties and behaviors and thus can be pulled down and used easily. The key idea at play here is that the object exposes a known interface which can then be used reliably in a well-understood way. If this idea is extended to ludic objects, it might look something like *Second Life* (2005), an open sandbox environment which allows users to code and create virtual objects.

In *Second Life*, there are many examples of virtual objects which have a specific look and feel and have a simple, atomic, encapsulated set of behaviors. There almost certainly exists a simple coded object in *Second Life* that is a coin that can be flipped. It likely is represented on the screen as a coin, has certain animations that make it act like a coin, and it probably exposes an API which allows a user (or other code) to interact with it (specifically, flip() or something similar).

This might be applied to a digital game such as *Halo* (2001), which had an alien gun called the “Needler”. As that gun was fired in the game, the gun would shoot out small pink slivers of bullets (“needles”) which would hone in on an enemy and would explode. From a game design assemblage approach, then the gun and needles (and indeed, any “significant” part) of the gun, would be considered as a unique entity sitting in relation to

other parts of the game of *Halo*, and the designer would put an intentional emphasis on how it might be extracted out of *Halo*.

Instead of being a “Halo gun”, it would be the “gun from Halo”, and, importantly, might be *easily imported and re-used within other games*, or made available during a spontaneous physical pervasive mixed game being played on the streets, with players wearing augmented gear. In this example, value has been put on the gun itself as being modular and remixable, available on demand to players who want to recontextualize it.

This is a conceptual leap, as it treats the “gun from Halo” as being useful within the entire genre of games. Assuming the coded object exposes certain known standard interfaces that were intentionally designed to be available elsewhere, this opens up huge new avenues for understanding other games and creating new player-initiated experiences.

Behaviors and Rulesets

Even beyond a coded object, which might have a specific visible or auditory feel to it, ludic assemblage can be used in the weak sense to create “rule packs” that loosely define the interactions between abstract entities. As a quick example, a game designer might release a modular “swarming behavior pack”, which does not concretely depend on a specific kind of game object, but rather provides a swappable set of behaviors.

This is essentially a kind of abstract library that says, “In the situation where there are a number of related game entities, this is a library that informs the swarming behavior of those entities”. Such a library might have been designed originally to be used within a specific game, such as *Halo*’s flying enemies, but if this abstract ruleset is designed to be swappable and interchangeable, it might be remixed in with a completely different game.

A player might assemble their own personalized game using this behavior. Even aside from a pure digital game, they may have a physical set of tiny motorized physical cars and when they apply this game-originating behavior pack, the cars follow the behaviors as a kind of mixed reality game. Or perhaps the same player enters a game of *The Sims* (2008) and swaps in the swarming behavior instead of the default movement behavior of some of the *Sims* characters, resulting in a completely different experience.

Synthetic Co-Players

Over time, the game series *Chessmaster* (1986) has come to define many personalities available to play against the human player. Some of the AI personalities have a more aggressive style, others are not as expert and there are other qualities. Despite the differences in their playing style, one thing that unites the AI personalities is that they all “play chess”, loosely speaking. From a modular perspective, they all act well in a “playing chess” role.

This highlights the aspect of a player as simply being an entity that exhibits behaviors consistent with the game at hand. The *Chessmaster* AI behavior, for example, could be open-sourced, where individual software engineers create their own pluggable “new” *Chessmaster* personalities available for download. Even grander in scale, a scenario exists where there is a library of general use personalities “out in the cloud”, available for download. Some of these AI personalities would be aimed at specific games (*Scrabble* players, *Monopoly* players, etc.) and some are more general purpose (role-playing, running/racing, basic NPC behaviors, etc.).

A player who is assembling their own game on the fly may look up, on demand, from a library of publically available personalities and put together a virtual environment of co-players and NPC personalities to fill out their own custom game experiences. These personalities might be recombined with other personalities from other games, and put into game situations that are entirely unique. Imagine the coded personality of Ryu (of *Street Fighter*) dropped into a *Chessmaster* game: it would be almost completely unworkable, but would be fascinating if only for the unpredictable outcome. This boundary case is a very interesting and intriguing view into the meaning of games, both for designers and players.

DLC's For Reality

Very soon, the technology to augment all of our visual and auditory perceptions will be widespread, be it via Google Glass or something similar. Assuming a sufficiently powerful processor, it is a short leap to an ability to “skin” our surroundings in real-time (as is possible on a desktop computer “theme”). Taking a simple game of physical tennis on a court, a player with this ability to “skin” could easily remix the environment such that they appear to be playing “at Wimbledon”.

For visual and auditory artists, there would be a quick buck to be made in releasing “skins” to the public, via micro transactions, or even as free open source library packs. There are popular games which are murder mystery games played at parties or even in public, a kind of role-playing. These could easily be enhanced with on-demand “skins” downloaded into the player’s augmented physical devices. Each player can slightly personalize or swap out different textures to their own choosing, or might re-use certain textures in other kinds of role-playing scenarios. Or even, import them into other digital games that are only played on their own desktop.

Digital games can be an important source of these “skins” if the digital games are intentionally designed with this mashup design focus. The designers of *Mass Effect* (2007), instead of simply releasing textures that are only applicable within their game, can instead choose to think in terms of “themes”. A theme or skin that is used within *Mass Effect* would be purposefully designed to be appropriated and re-used not only in other games but in other extra-ludic situations.

Ludic Channels

And finally, to extend the direction of pervasive and ubiquitous games, there is a scenario where typical users/players are going about their business all day long, from work to home, constantly assembling and skinning their environment to their own perceptions and desires. As they drive home, they download the skin from a car in *Forza Motorsport* (2011) and apply it to their own car. They might then download a “driving mechanics and ruleset” from a remote service location, obtain via micro transaction the car textures and animations from the game *Pole Position* (1982) and download the AI driving personality of Luigi: all to create an on-demand racing opponent next to them on the freeway who is informed and constrained by the GPS and other sensors on the player’s actual car.

This is at the heart of this assemblage, the power to remix and mashup game elements to create a new and personalized experience. And while this is exciting and interesting, it is also dangerous (and not just from the risk of car accidents).

This way of approaching games implies an extremely personalized way of viewing the world, such that each player is assembling a completely different set of ludic experiences. Everyone is potentially participating in a game at all times, and in fact, may be participating in multiple games constantly: a shifting set of ludic lenses that obscure and fragment the perception of reality.

As a side effect, this offers even a second level of remixing. As a player moves through the world, it may be possible to “tune in” to other player’s current state of assemblage. Upon entering a room, a player might choose to experience and see the same artifacts as others (for example, a themed party where the host broadcasts a shared experience to all viewers). This concept is somewhat akin to the *dramatis personae* illustrated in Neil Stephenson’s *The Diamond Age* (2003).

A Practical Breather

At the risk of being too breathless and hyperbolic, it should be stressed that this is easily said and very much less easily done. There is a mountain of technical, informational, and interoperational problems that these scenarios imply at this point in history. From a technical viewpoint, the sheer amount of implementation work that would need to exist for this to even be minimally practical is out of reach, much less the amount of agreement on protocols and APIs that would make this a reality.

This also does not address the issues of copyright, ownership and what it means to remix, but this is not a problem limited to digital games specifically, but one in which all of society is grappling with for all kinds of new media in all its forms.

Aside from the practical considerations of “now”, this paper is describing a future trend and what it means for digital game designers, following the logical direction of new media and software interoperability, combined with the march of technology and the direction of certain game genres like pervasive, personalized and ubiquitous games.

Even if these kinds of technologies are not feasible in the near future, if the trend continues, this posits assemblage as a core value for game designers, for designers to think of games media as not being a monolithic distributed “product”, but as a temporary and conditioned arrangement of game entities provided as a set *during the design process*.

PERVASIVE, UBIQUITOUS AND GAMIFICATION

This approach seems to question even what a game designer is. In this scenario, a game is potentially not even predictable in advance, interoperable pieces are scattered into the environment and then assembled ad-hoc into functional systems that likely are games by some definition, but might be partial or not at all, depending on the pieces applied.

This is somewhat akin to gamification, in the sense that a player or user could take a “ludic unit” and perhaps plug it into a system that was not explicitly a game, slightly altering it. But this may not be an important difference. The bright line of “is a game” and “is not a game” is still a tricky and well-worn topic, and in a fully assemblage view, the distinction of “gamified” versus not does not seem to be useful.

Perhaps of more use is Jane McGonagall’s use of “gamefulness”, described by Deterding:

“Gamefulness circumscribes a coherent set of phenomena that is both distinct and has received little focused attention so far, which provides a meaningful extensional ground for defining gamification. To systemize the terminology, one may distinguish -gamefulness (the experiential and behavioral quality) – gameful interaction (artifacts affording that quality) and –gameful design (designing for gamefulness, typically by using game design elements). (Deterding et al. 2011) (McGonigal 2011)

Gamefulness, in this construction, is really about an experiential and behavior quality, rather than a structural (“if you add such-and-such mechanic, it is gamified”). A player, as an entity within the assembled ludic system, adds intentionality and meaning to the assemblage itself and the criteria by which the assemblage succeeds is entirely up to the formulation of the player. Gamification assumes a kind of pre-existing non-game system, to which a ludic element is added. Assemblage on the other hand, looks at the entire system in terms of the relationships between the entities, including the attitude of the player. Gamification, in a way, becomes a moot distinction.

This even seems to apply to ubiquitous and pervasive games to some extent, both of which assume a kind of pre-existing game system to which the player is either a part of or not. In those, the game (to the extent it is fully understood) is complete and relatively static in relation to the player. Though it may be composed of pieces, those pieces are not available for indiscriminate reuse or remix. The modules of those games are more available and universally present, but the player is not assembling in the sense meant here

GIVING UP THE GAME

In the assemblage view, a game designer loses a sense of control to some extent, perhaps much like a movie director does when they release a film, which can be edited, recast, remixed and mashed up in different ways. Currently, the technology of games is still nascent, with games being released as unified products that cannot be split up, but this will not always be the case.

This also is a call out to the mangle of play where the production and consumption of games are always in a dialog: the players and designers trying out constraints and affordances. (Steinkuehler 2006) It greatly calls into question where the line is between games and not games. As Mia Consalvo describes in *There is no Magic Circle*, if we drop the idea of a magic circle and look at Goffman type frames, we can better understand how players understand reality and the game experience (Consalvo, 2009) (Goffman 1986). If players move through frames to begin with, what further choices are provided when players can create their own frames and share them with each other?

“With such rich, evocative, potential experiences, the concept of the magic circle seems static and overly formalist by comparison. Structures may be necessary to begin gameplay, but we cannot stop at structures as a way of understanding the gameplay experience.” (Goffman 1986).

To the extent that a ludic assemblage is coherently put together by a potential player, the understanding of it as a game must take into consideration the temporary relationships between the entities that comprise it, including all concerned players and their attitudes. A mashed-up or remixed collection of ludic modules may be considered a game, or it may be a commentary on a game, or it may be entirely comprised of modules that originated in games, yet not itself be a game.

The momentum of new media and software trends is pushing games in this direction. Practically speaking, game designers following an assemblage approach become meta-game designers:

- Design games that are complete, but are designed to be modular pieces that stand in relation to each other, intended to be shattered and split apart if so desired
- Design standalone ludic modules that exhibit “gameful” qualities, with the intent that they might be combined for any number of possible game or non-game uses

To some extent, this points at the death of the author, as presaged by Barthes (1977). A game design is not forever set in stone with a specific vision, but is aimed also at giving all the potential players a say in what the game means, just as remix culture would suggest.

As an aside on the topics of fragmentation and defragmentation specifically, the concept of ludic assemblage is slightly ironic and full of tension. On the one hand, the player is exercising a vast defragmentation, a pulling together of disparate parts to create a unified whole of their own choosing. But oddly, as the player constructs their unique vision, they are fragmenting themselves away from a shared experience with others. “My game of life” becomes different than “your game of life”, due to an extreme possibility of personalization.

This danger is alluded to in Bennett’s *The Politics of Illusion*:

“The fragmentation of information begins by emphasizing individual actors over the political contexts in which they operate. Fragmentation is then heightened by the use of dramatic formats that turn events into self-contained, isolated happenings.” (Bennett 1996)

As we continue to drive towards personalized game contexts, this observation becomes more and more relevant and something game designers should be wary of.

CONCLUSION

This paper is not an argument to abandon current game design practices. Not at all. Rather, it is a look at the future trends in technology and new media towards a more multi-faceted experience and a push towards giving the player more options. This trend towards combination and open-endedness seems to have momentum and it would be very useful for game designers to start thinking of the structure and design of games from an assemblage viewpoint.

Rather than thinking of just creating and designing a game as a contained unit, to recognize that it is a sum of the relations of the entities, temporary and chaotic. This way of thinking looks to be forward compatible and is necessary for the proper thinking of how games will fit into future technologies.

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