

# WELL, HERE WE ARE AGAIN

## RECONSTRUCTING THE SCIENCE OF WELL-PLAYED IN PORTAL 2

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### INTRODUCTION

When I shared the “For the Love of Games” call for paper with my best friend, she said that it made no sense. She argued that there is no point in discussing why certain people love certain games, as it would be identical to certain people liking the color red and not liking purple. And yet, common sense and personal experiences suggest that some games are just better and more likable than others. And some games become iconic, deeply influencing not only players, but other game creators and industry in general.

In this paper, I discuss one such game - Portal 2 (Valve, 2011). This game is one of profound personal value, as it opened the world of games, game design and internet fandom culture to me. Even though I will be touching upon the original Portal, my focus will be mostly on Portal 2 as I believe this game shaped the whole series and mass perception of it.

Building on previous research and journalist publications, and sharing my genuine love for the series, I will argue that Portal 2 is an exceptional game from all the three perspectives of well-played. Firstly,

its balanced approach to design and narrative creates the feeling of achievement and ‘well played!’ in players. Secondly, Portal 2 is connected not only to other games, media and art, but also to the fundamental story archetypes that promote players’ resonance with the game’s plot and characters. Thirdly, Portal 2 is an example of fair development politics, with developers caring deeply for both the product and the community, and community reciprocating this approach.

## DISCOVERING PORTAL

Before I begin my analysis, I should outline my own relation to the Portal game series to shed light on my position and on why the game is so significant to me. To do that, I need to start with a different game series, Half-Life.

I was born into a family of Half-Life fans. As a child I used to watch my father play Half-Life 2 (Valve, 2004) and both Episodes, witnessing the story of the franchise as it unfolded. The Half-Life series inspired many things in my life. My dad and I used to do occasional mini-larps set in City 17, as my hometown in Russia resembled it strikingly. I wrote fan-fiction and made fan movies with my school friends. I even made some online friends, thanks to the Half-Life content I posted on the Internet. I could elaborate more on the series, and maybe it would have been more relevant given the 20th anniversary recently celebrated by Half-Life 2. However, the focus of this work is on Portal.

In 2007, Valve released the Orange Box, which was a revolutionary format for the games industry. The edition contained *five* games. Half-Life 2 and HL2 Episode One (Valve, 2006), that have been released before, and then three new titles: Half-Life 2 Episode 2, Portal and Team Fortress 2 (Valve, 2007). Each of them was destined to become iconic in its own way. It took some time for the Orange Box to come to Russia. By the time we bought it in around 2009, my father had already played Episode 2. So Portal was of most interest to me in the bundle. It was likely my first experience of playing a ‘grown-up’ game all by myself. Before that, I only played simple puzzles and online flash games, or watched my dad play Half-Life 2, occasionally trying it

myself with godmode on. Symbolically enough, Portal introduced me to the world of PC gaming.

I have to admit, I did not like Portal at all. And I never beat it until years later. I was 9 years old, and the puzzles were too complicated for me. I was dead stuck on the companion cube level, until I quit the game. The localization left a lot to be desired, too. GLaDOS' voice was strikingly different from the original, it was so robotic and edgy that it made my ears bleed. Names, wordplay and puns were translated incorrectly, distorting the original meaning of things. And on top of that, everything in the game, not only GLaDOS, but turrets and personality cores, spoke with her terrible voice. It was confusing at best and unplayable at worst, so I quit and came back to the series only years later.

Portal 2 was strikingly different for me. The aesthetic upgrade was more than evident, the localization greatly improved, and the game received a professional Russian voiceover. As I was older, I was finally able to enjoy the puzzles myself. I remember how excited I was after the first few levels, rambling to my dad about how Wheatley is helping us fight GLaDOS, the malevolent AI.

Portal 2 quickly became my favorite game and a real obsession. If my calculations are correct, I replayed the whole game or a major part of it about thirteen times over the next few years. It also captivated the minds of my friend group – we were watching fan videos and making ours, writing fanfiction and role-playing as test subjects. We were extremely excited to learn that the Half-Life and Portal series happen in the same universe, as it gave so much more space for creativity. Once I spent next to all my teenage savings on a Miniature Replica Portal Gun and a plush Companion Cube from the official Valve store. It did not ship to Russia, so I had to also go extra lengths to get them to my hometown. They are still among my most prized possessions that I keep on display in my room, even after moving several times.

For all the impact that Portal 2 had on me and my life, I never thought why I liked it that much. I did not really care, as long as I enjoyed it. Therefore I do my current analysis not as a player, but as a game designer and researcher, and it brings a lot of excitement and a second breath to my love of Portal 2. Having played the game many

times, I did not conduct a separate playthrough for this analysis. Instead, I engaged myself with the academic, game journalist and fan works on Portal 2, hoping that my close reading will build bridges between different analysis aspects that have been highlighted previously by other authors and content makers. In the next sections, I look at Portal 2 from the three ‘well-played’ perspectives, that align with different parts of the game experience: game mechanics, story and characters, and developer and community practices.

## WELL PLAYED! HOW PORTAL 2 CREATES THE FEELING OF ACCOMPLISHMENT

Portal 2 is, no doubt, a great game and hence it is very hard to analyze. Academic discussion often revolves around criticism and suggestions for improvement, but in the case of Portal 2 there is not much to improve. Therefore, this part of the analysis might look like stating the obvious, but sometimes obvious things must be said to foster a profound understanding of the matter.

In Portal 2, the only tool players have permanently is a portal gun. It can create two portals connected to each other, regardless of the distance. But the level design makes the game rather complex. New mechanics are introduced every now and then to provide diverse challenges to the player. Levels’ aesthetics also change as players explore different parts of the Aperture Science laboratories. A significant part of the game happens outside of test chambers as players roam around abandoned facilities that can be traversed only through solving more portal puzzles. Level intermissions are story-heavy and introduce game plot, most of the character dialogue and backstory. This structure perfectly maintains player agency and engagement, creating the state of flow. But to understand it better, some individual features need to be discussed.

The first solution is common for both Half-Life and Portal series, and it concerns difficulty progression. Both series offer new mechanics after certain periods of time, while also deepening the interactions with the old ones, which can be seen as a hybrid model of difficulty progression (Adams, Dormans, 2012). In Portal 2, this is reflected in

increasing complexity of spatial puzzles throughout the game, accompanied by introducing new features. The first game levels only feature buttons and cubes, then lasers are introduced with special reflective cubes, then turrets, then each of the gels etc. The final levels of the game can contain all the elements from previous levels, intertwined into complex spatial puzzles. This way of introducing mechanics ensures two things. Firstly, it is an efficient formula of creating and maintaining player flow : introducing new challenges that build on previous ones allows to create the balance of difficulty and player skill that is essential for stimulating this state (Jin, S. A. A. 2012). Secondly, not leaving old mechanics out creates a feeling of progress in players, reminding them of their past accomplishments.

I argue that the level-intermission-level structure also contributes to player flow. On one hand, story intermissions serve as a space for relaxing, as puzzles in-between levels are rather simple. On the other hand, it still provides a mental challenge of a different kind, i.e. listening to characters and understanding the story. So, if a formula of a successful level is 80% puzzles and 20% listening to a 'narrator's' comments, in the level intermissions it is vice versa. This shifting of player's attention while still maintaining a mechanically consistent experience is optimal for giving the feeling of agency while also providing players with a space for mental rest.

Another feature of level intermissions in *Portal* is that they are humorous in nature. As Grewell, McAllister, and Ruggill (2015) argued in their paper, narrative ridicule is an essential mechanic in the *Portal* game series. The comments of the 'narrators', such as GLaDOS jokingly insult the player, aiming at their abilities, personality or even self-worth. On one hand, they set the tone for the challenge and increase player engagement; on the other hand, they make puzzle completion more rewarding through a humorous release: you've beat the challenge, you've proved your worth! Therefore the comments in the game intermissions are not only fun, but also serve a crucial game design purpose.

Apart from the general structure of the game and its balance, the content of the levels is also of interest. Firstly, the puzzles themselves were intentionally created to stimulate player insight, the 'aha!'-expe-

rience. From the earliest developer comments, we know that this was a consistent design policy (Stuart, 2010). I believe it effectively mirrors the general attitude of the game itself that values player fun more than abstract intellectual puzzle complexity. The ‘aha!’-moment, when you are able to put the puzzle pieces together and beat the level in no time, is precisely when the game tells you: “Well-played!”.

Secondly, the selection of mechanics deserves a closer look. There were supposed to be more mechanics in the final game, for example reflective and adhesive gels (Valve Cut Content Wiki, n.d.). However they were removed, and each removal had good reasoning. Adhesive gel, for example, gave players motion sickness, and reflective gel was too similar to reflective cubes. Some mechanics were re-worked: the High Energy Pellet from Portal was changed to lasers in Portal 2. The pellets were a time-based mechanic requiring both patience and agility from players - something I, for example, did not have when I first played the game. Removing them alleviated such skill pressure. And how delighted I was to see the hated pellet dispenser be replaced by a laser!

So far, I have been putting emphasis on the structured part of the game experience, the challenges that players overcome. However it is not the only way to see the game. According to Caillois (1961), we can distinguish between *Ludus*, the structured, rule-based and goal-oriented gameplay, and *Paidia* - the fun, spontaneous, creative play. One might expect that Portal 2, as a puzzle game, would focus exclusively on *Ludus*, occasionally flavoring it with some playful narrative lines. However it has plenty of space for *Paidia* as well.

Puzzle levels in the game are not only spaces with linear progression. They provide vast sandbox opportunities, limited only by the game’s physics. Can I create an infinite laser if I adjust two portals just right? How long can I fall down in a portal loop? What happens if I throw myself into a screen broadcasting Wheatley? The game encourages playful exploration. Early levels are filled with irrelevant puzzle pieces, secret passages and just garbage lying around, all at their players’ disposal. And smashing Wheatley’s screens will be rewarded with always new sarcastic voice lines. Those small things ignite the explo-

ration drive and playfulness, bringing a whole other way of enjoyment.

Summarizing, from the game design point of view, Portal 2 is a very carefully balanced game in all ways: Ludus and Paidia, challenging puzzles and relaxing intermissions, intellectual complexity and ridicule. Those smaller balances all contribute to the optimal player experiences of agency, competency and flow, creating a sense of accomplishment and 'well-played!'.

## WELL PLAYED! HOW PORTAL 2 CONNECTS TO A BROADER CULTURAL CONTEXT

In the second part of this reading, I will look at Portal 2 through another 'well-played' lens to see how it connects to a broader cultural context. Game mechanics were quite innovative for the time, so I will focus mostly on the narrative aspect.

The first and the most obvious connection of Portal 2 to the Half-Life series, as the games build explicit bridges to each other. In the end of HL2 Episode 2, we see the recordings of Borealis, with the logo of Aperture Science on it. In Portal, GLaDOS makes comments about the world outside, most probably talking about the Combine alien invasion from Half-Life. *"Things have changed since the last time you left the building. What's going on out there will make you wish you were back in here"*, she says. *"All I know is I'm the only thing standing between us and them. Well, I was."* Portal 2 deepens the connections between the two games by introducing us to the history of Aperture Science. From Cave Johnson we learn about his competition with Black Mesa for influence and funding. But more importantly - and I remember being excited beyond limit by that - in Portal 2, players can find an abandoned dock for the legendary Borealis, thus physically linking the game universes.

As for references to other contemporary culture pieces, most of them were cut out from Portal 2 during the development. For example, game script writers hated Garfield comics, so they created a comic where a cat named Dorfeldt eats his owner's lasagna and dies of neurotoxin poisoning (DidYouKnowGaming, 2022). The only hint to that in the game

is the 'I hate Mondays' mug found in one of the Aperture Science offices. The famous Space Core was originally an Aquarium Core, referencing the Oregon Coast Aquarium commercial (ibid; DIYMaxim, 2008). Except for these few, Portal games do not incorporate pop-culture elements. Instead, they are famous for making their own: cake is a lie, the Space Core, 'when life gives you lemons, make lemon grenades!' All these received much appreciation and became an integral part of mass culture.

Aside from contemporary culture, Portal 2 has a lot of connections to mythological stories. The game makes explicit references to the myth of Prometheus, which have been actively discussed in the community (Joe\_McNeilly, 2011). For example, the defective Oracle Turret says "*Prometheus was punished by the gods for giving the gift of knowledge to man. He was cast to the bowels of the Earth and pecked by birds*", foreshadowing players' descent in the old Aperture facilities. Then GLaDOS, like Prometheus himself, gets pecked by a bird after being turned into a potato and thrown to the bowels of Aperture Science. There has been a lot of speculation about what that could mean: how GLaDOS, like Prometheus, brought the gift of knowledge, i.e. science, to mankind, and was punished after that (nobody25864, 2011). However this comparison has always been far-fetched to my taste.

Joe\_McNeilly (2011), in the article '*Gender, myth, and capitalism: An academic view of Portal 2*' elaborates deeper on the game's mythological symbolism. They suggest that the bird as a symbol can also refer to Norse mythology and Odin's ravens Hugin and Munin (whose names mean thought and will), symbolizing the duality of GLaDOS herself. And the moon, in its connection to portals, symbolizes the feminine in its transitional qualities and its struggle against masculine - as moon rocks deadly poison Cave Johnson.

This proves Portal 2's profound embeddedness in modern culture, mythology and archetypes. Together with amazing humor, that I have to leave behind the scope of the analysis, this already makes the game story iconic. However, I would like to go further and argue that the story in Portal 2 has a deeper potential to resonate with other cultural pieces through universal story archetypes. But before that, a funda-



mental question needs to be answered. Who is the true protagonist of Portal 2?

Portal has quite a straightforward plot. It is a story of a test subject trying to escape the laboratory operated by a murderous and charismatic AI. Portal 2, however, tricks players, creating an elaborate illusion of narrative agency. The story develops by the means of the player's actions, but neither the protagonist, nor the player, make decisions or change the story. The plot of Portal is set in motion by Chell trying to escape death in a test chamber. The plot of Portal 2 is moved by Wheatley, first as a guide, then as a villain. Chell is the only human in the lab, thus her help is needed to manually interfere with the facility. But the course of the story is determined by other characters and their dynamics. So even though Chell is the *game* protagonist, she is not a *story* protagonist.

I argue that changing the perspective on the protagonist unravels the story's true potential. And the perspective needs to be changed to GLaDOS. One could surely call this view arbitrary, but the criterion I use to make such a claim is that the story makes most sense from this perspective.

Let's look at the plot summary from Chell's point of view. She awakes from slumber and tries to escape Aperture Science with a really stupid companion, Wheatley, who accidentally revives GLaDOS, her nemesis. Chell confronts GLaDOS, and puts Wheatley in charge only to be betrayed by him and thrown down to the old facilities. There she tries to escape, eventually finding GLaDOS turned into a potato, and takes her back up. Confronting Wheatley and saving the laboratory from destruction under his poor management, she restores GLaDOS back in charge and is finally let go by her. This story presentation reveals several flaws, the main being that Chell does not grow throughout the story. In Portal, she makes her way from a nameless test subject to a free spirit fighting for her life. But in Portal 2, she stays pretty much the same. The reason for such a dynamic is that Chell's role is secondary.

Instead, Portal 2 is the story of GLaDOS, and it is her journey and transformation that resonate with players. To prove that, I shall refer to the Hero's Journey framework (Campbell, 2008). Even though it has

been relegated to a check-list for creating a coherent story, Campbell's original argument was that monomyth is a fundamental and universal way of structuring a story of human transformation. Therefore, proving that a story follows the structure of a monomyth is not only a way to say that it is a good story. Being structured as a monomyth is a way to directly connect to millions of other narratives deeply rooted in many cultures.

The story starts when GLaDOS gets awakened by Wheatley, calling her to adventure and change. She refuses the call and goes back to her regular life of conducting tests and rebuilding the lab. She then tries to kill Chell, but discovers that she has been deprived of her murder instruments: neurotoxin and turrets. Quite unusual, but I consider it another call to adventure, the world-changer that cannot be ignored. She loses the fight and gets turned into a potato, losing her powers. This symbolizes her rebirth and the start of the journey. She ventures down to the old Aperture facilities and meets Chell, who is now the only person who can help her, the Goddess providing guidance (consider the aforementioned portal-moon-feminine symbolism). GLaDOS then discovers Caroline, her old self filling her with doubts, and confronts the Father figure - Cave Johnson, by whose will she literally came to life.

This aspect of the story is particularly dramatic. GLaDOS not only confronts her 'Father', but she learns that her existence was something she did not volunteer for. *"Now she'll argue. She'll say she can't. She's modest like that. But you make her. Hell, put her in my computer. I don't care."* says Cave Johnson. Surprisingly, this has not been spoken much about, but GLaDOS's story is one of violence perpetrated against her. Caroline was sacrificed against her will to become GLaDOS. Therefore, GLaDOS making this discovery means confronting her past and her trauma, but also her true, untraumatized self in Caroline.

Having accepted this boon of knowledge, she then comes back to her ordinary world of upper Aperture Science levels. She defeats Wheatley with the help of Chell, gets restored in power, crossing the symbolic threshold and ending her adventure. The final scene of the game also deserves attention. From the perspective of Hero's Journey, GLaDOS should have accepted the boon, i.e. Caroline, and changed

her ways. However she chooses to permanently delete Caroline, as if nullifying her journey. This certainly subverts player's expectations. But it can also be seen as a powerful metaphor of letting go of the past, killing a part of yourself to achieve freedom. We, as humans, cannot just delete traumatized parts of us, but GLaDOS can, and it is certainly a way to deal with it. Releasing her trauma, she then releases Chell, letting go of hatred for her as she let go of hatred for herself.

This way to read the narrative of *Portal 2* evokes emotions, resonating with players through the universal structure of a monomyth. It also fits quite accurately in the fundamental story archetypes of rebirth and 'voyage and return' (Booker, 2004). They both capture the essence of the story, proving again its potential to be deeply resonating and even culturally universal.

Before moving to the next section, I need to discuss the role of localization in shaping my view of the plot. Unlike *Portal*, *Portal 2* got an excellent Russian voice-over. Wheatley's localization perfectly delivered the character. GLaDOS's lines, on the other hand, saved brand sarcasm and irony, but sounded differently. While the original GLaDOS by Ellen McLain savors her own mockery, Russian GLaDOS by Elena Kharitonova sounds like a robot who is trying to do so, but can never quite succeed, as she is incapable of emotions (StopGameRu, 2018). In my opinion, this detail is crucial for a shift in perception: the original GLaDOS is a human in a robot body, discovering her own past. The GLaDOS I always knew is a robot who discovers her humanness and trauma that created her, making it so much harder to deal with, and ultimately explaining her final choice to stay a robot.

So *Portal 2* is not just a ridiculous story of two AIs fighting for power with the help of a mute (and allegedly lunatic) woman. It is also a story of trauma, discovering yourself and letting go of the hatred that binds you. It is a story rich with rich mythological references, aligned with universal archetypes. And that makes the plot so 'well-read', and the game so 'well-played'.

## WELL-PLAYED! ETHICS OF DEVELOPMENT, COMMUNITY AND PLAY IN PORTAL 2

The last of the analytical lenses I use for this analysis concerns ethical aspects of the game. There is not much to say about the single-player mode in this regard. The multiplayer in *Portal 2*, on the other hand, was designed to promote players tricking each other for fun (Keighley, 2011), even if having your friend smashed by a spike plate might not be the most ethical thing to do.

However, the ethical dimension is still important for *Portal 2*, though its essence lies not in the game, but in the developer and community practices. To elaborate on this, I will rely on the Ethics of Care framework, which suggests that ethical decisions are those of care towards other people (Murphy, Zagal, 2013).

Starting with the developers' attitude towards players, the most evident example of care is how much playtesting mattered in shaping the game. If the development followed exclusively the creative vision, the game would have never become the one we know today - from the point that it was not supposed to feature portals at all. In the early stages, the core mechanic of *Portal 2* was 'F-stop', comprising taking pictures of objects. The story was supposed to be set in the 1980s and featured Cave Johnson as the main antagonist. However, based on the input of early playesters, portals, Chell and GLaDOS were all returned to the game (Leigh, 2011).

Many smaller examples of design decisions in *Portal 2* were shaped by player feedback: replacing the Adhesive gel with Conversion gel, making robot characters for the cooperative campaign, etc. But the most important role of player feedback was ensuring the balance of difficulty and fun in each test chamber (Reeves, 2010) - an essential feature of *Portal 2*, as argued above. So *Portal 2* from the very start was a player-oriented game, with developers approaching each feature with great care.

Another example of developer care towards players is that we have not seen *Portal 3*, *Portal 4* and all other possible *Portal* games that could have been released if Valve adapted the annualization business strategy. After *Portal 2*, they consciously redirected their efforts to their

multiplayer games, rejecting making new single-player games every year (Keighley, 2011). This might be a controversial point of view, as some players value consistent releases, but I believe that prioritizing innovation and quality over consistency is a way to care for players and their experiences.

Developer approaches are not the only example of ethical behaviors, as community practices are equally important. It is hard for me to judge Portal 2 community dynamics back in the early 2010s, as I was rather small at the time. However the fandom always seemed huge to me, and I believe it truly was. The community gave birth to amazing fan creations, not limited to art and fan fiction. The Portal and Half-Life series promoted the fandom wiki movement, as they were one of the first fandom wikis after the Elder Scrolls and the World of Warcraft (Combine OverWiki, n.d.). Apart from that, Portal 2 inspired the creation of likely the first game-based music animations, setting the trend later adapted by many creators we know now. Harry101UK's Portal-themed covers of songs from Nightmare Before Christmas, such as 'This is Aperture' and 'Making Science' (Harry101UK, 2012, 2013) got millions of views and are deeply rooted in the memories of game series fans. Up to date, Portal-inspired creations appear, including the latest song 'Valve Song: Count to Three' by The Chalkeaters that featured GLaDOS voice actor Ellen McLain herself (The Chalkeaters, 2021). This collaboration is an amazing example of community dedication to the game, and game creators' dedication to the community.

However, the ultimate form of players caring for each other and the game is the variety of fan mods created for Portal 2 over the years. They explore various facets of the game both narratively and ludically. *Aperture Tag: The Paint Gun Testing Initiative* (Aperture Tag Team, 2014) brings back the paint gun mechanic. It was first introduced in a smaller project that initially inspired the gel mechanic in Portal 2. *Portal Stories: Mel* (Prism Studios, 2015) explores the events preceding the game and re-introduces Mel, the original protagonist of Portal 2 (Keighley, 2011). *Portal: Revolution* (Second Face Software, 2024), features the mechanics originally not included in Portal 2, such as Pneumatic Diversity Vents and connected laser cubes. Despite the differences, most of the mods 'play by the rules' of a good Valve game: they build up progression,

introduce new mechanics, allow for playfulness and balance gameplay with narrative, often ridiculous. Through those mods, the legacy of Portal games lives on, providing players with new quality content made with consideration and care. So that even after many years fans of the series can return to their favourite 'well-played' game experience.

## THE FINAL WORDS

Analyzing Portal 2 through this essay taught me a valuable lesson. I thought it was just a good game I played as a child, but all along it was the game that meant much more to me. The surge of emotion that shot through me as I reminisced about it, delving into fan creations, academic and game journalist sources and finally my own memories, taught me an even more valuable lesson – that Portal 2 is an integral part of both my personality and my professional self. And I would never want to delete it.

Acknowledging it just now taught me a valuable lesson. The best solution to a problem is usually the easiest one. And I'll be honest – making good games is hard. You know what my days are like? I just design. Nobody tells me how to better manage my project, or what features to add, or where to find good developers. It's a pretty tough life. And then I think about Portal 2. This inspiring masterpiece of a game. So you know what? I should use it as a standard for creating an outstanding game of my own.

It's been fun. Maybe I should come back to this essay every now and then.

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