

# Player Stories and Designer Stories



**Matthias Worch**

Lead Designer, LucasArts

<http://www.worch.com> | @mworch

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9

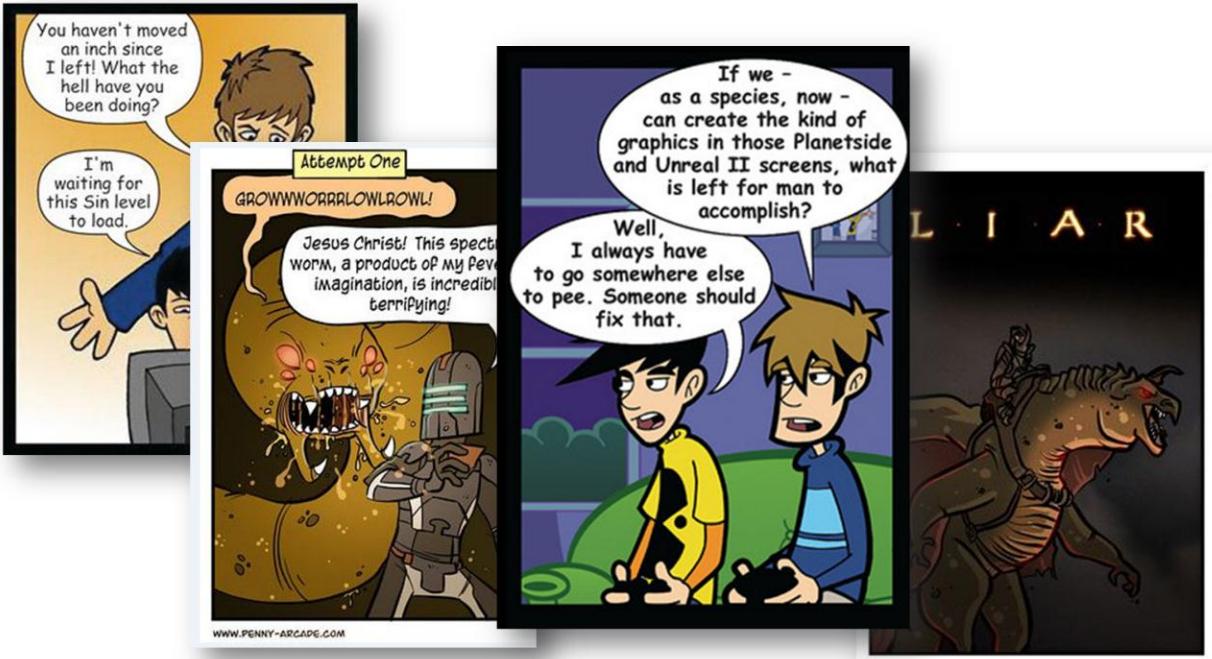
**2012**

This lecture was presented at the “Level Design in a Day” tutorial at the Game Developers Conference 2012. The latest version of these slides can be downloaded at <http://www.worch.com/downloads>. You can email me at matthias [at] worch.com



Welcome! I'm Matthias Worch, a lead designer at LucasArts.

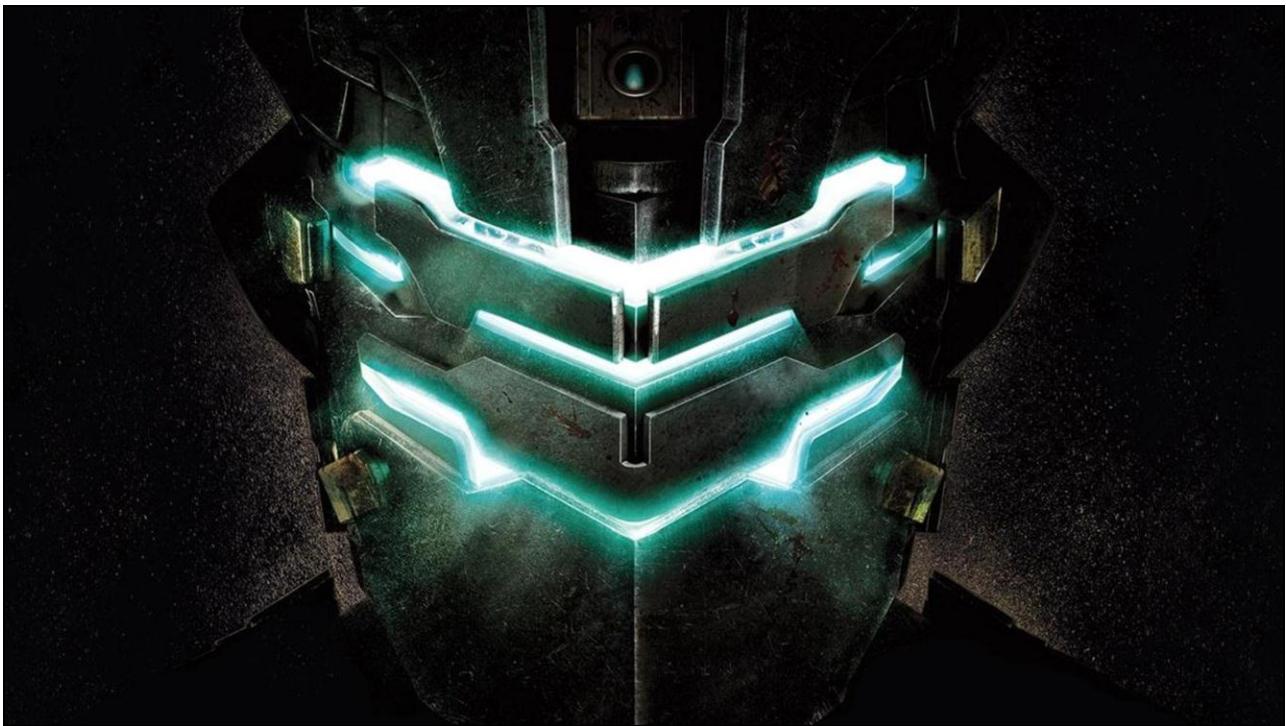
Before we get started I have one thing to get out of the way: this box of Twinkies. When my wife heard that I'm doing the first lecture of the morning, she was worried about everybody having had breakfast, and she wanted to be sure that everybody's blood sugar was high enough to easily follow along. So... who wants a Twinkie?!



I have worked in the industry for 14 years. The projects start blurring together, but I manage to keep track of my games if they have been featured in Penny Arcade strips. In fact, the very first game I ever worked on, *Sin*, appeared in the first Penny Arcade strip ever. They weren't very kind.

I also worked on *LIAR*... I mean, "Lair". Luckily some other games were more positively portrayed, like *Dead Space 2* and *Unreal 2*.

I'm here to talk about "Player Stories and Designer Stories" – a topic that turned out to be quite personal.

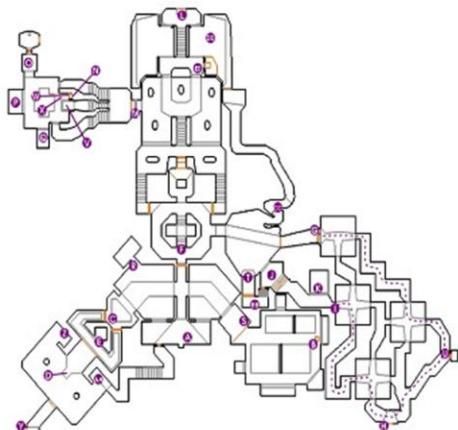


A few months ago, on an industry message board, we were discussing my last game: Dead Space 2. The feedback was generally positive, but one of my industry friends didn't like the game because he felt that it was too linear, and that this linearity was undercutting his player story.

So I started wondering...

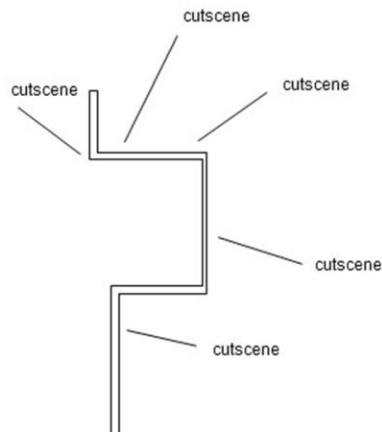
## FPS map design

1993



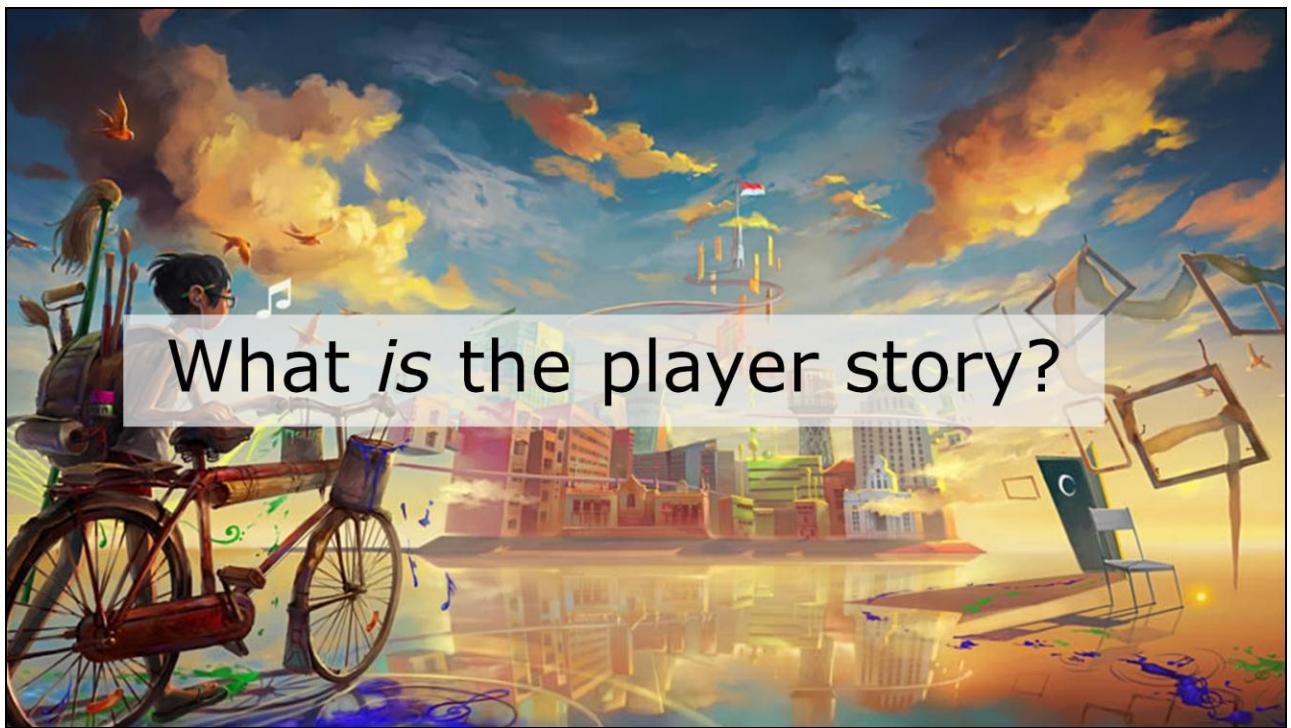
2010

## Dead Space 2?



...is this my game? And if so, is that a bad thing? Because I love Dead Space 2! And I happened to think that Dead Space 2 had quite a strong player story!

My next question turned even more existential:



What \*is\* the player story? What contributes to it? How do we measure it?



We love  
player  
stories!

I think it's a given that, as game designers, we always value the player story. It's why we make games, why people play our games...



Reflective

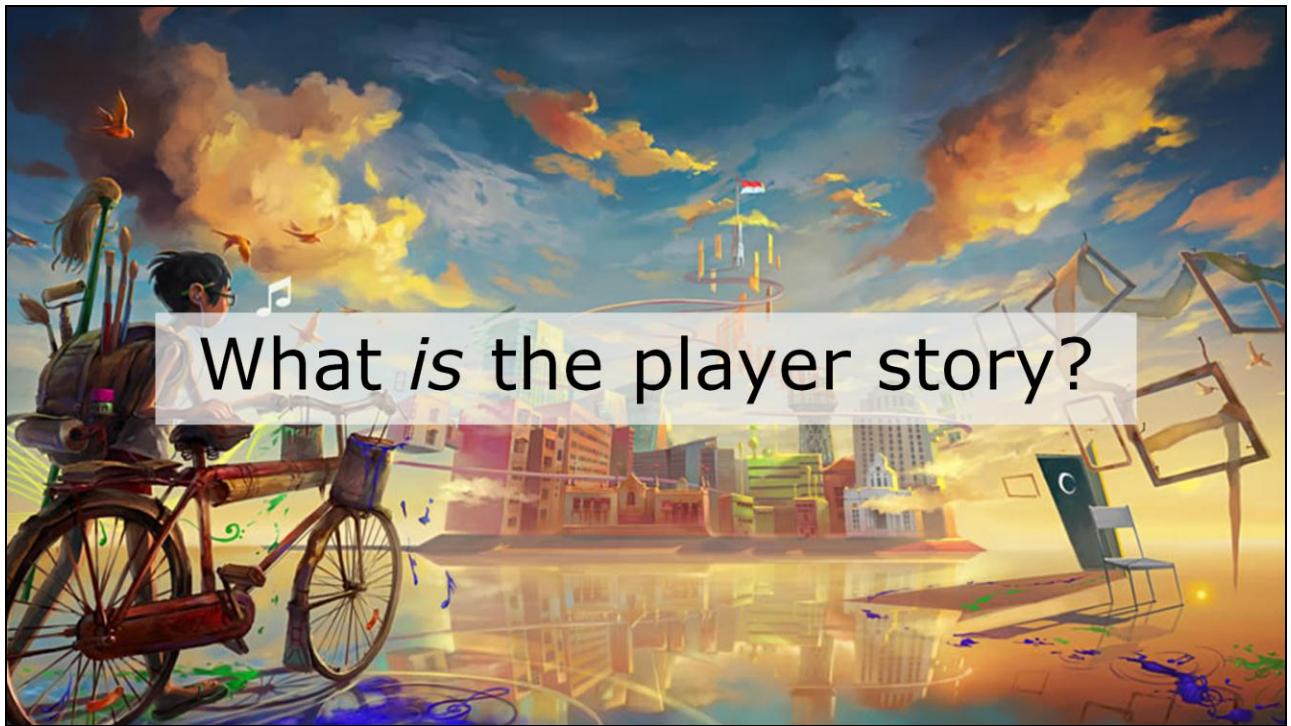


Reflective



Participatory!

... and it's how our industry is powerfully different from other media.



# What *is* the player story?

But we haven't formalized any thinking about the concept.

We might have a shared intuitive understanding of a "rollercoaster game", or a "systemic game". But if we wanted to have a discussion about whether Dead Space 2 has a stronger player story than Bioshock, we wouldn't have much common ground to base the discussion on.

In this lecture, I want to share the insights that I gained when exploring this topic. They might help you gain perspective on the games that you're making yourself.



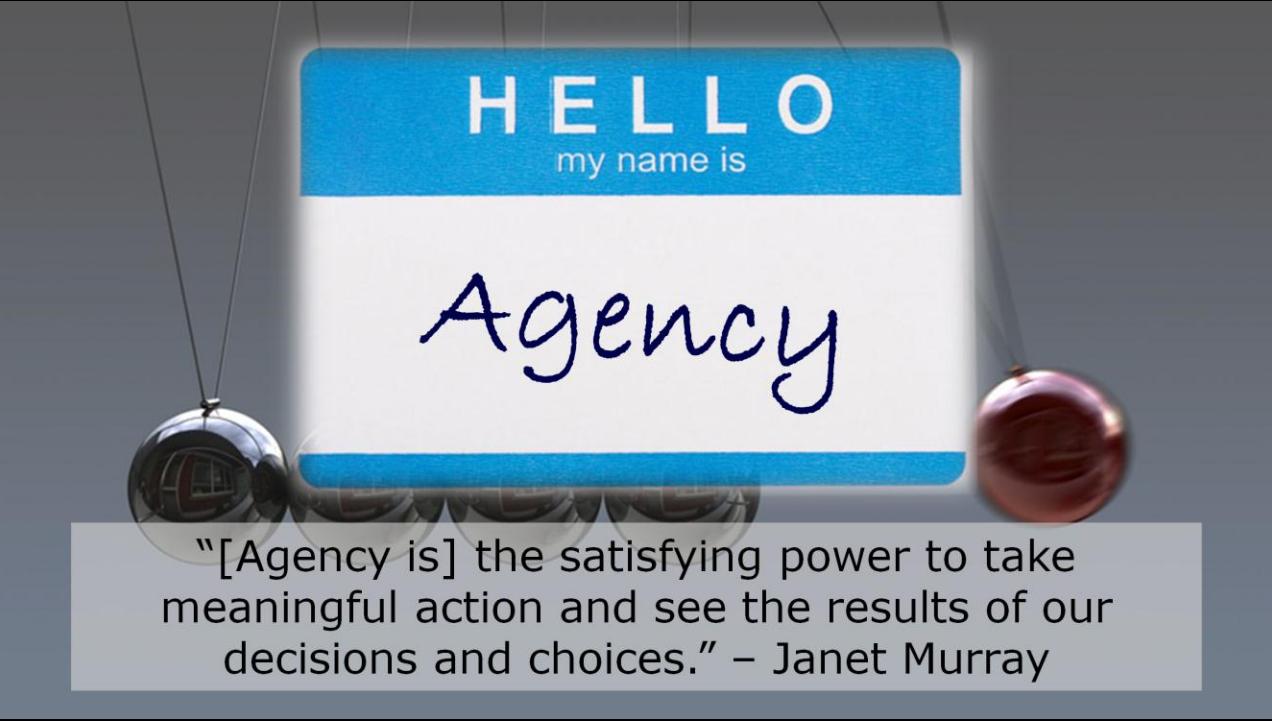
# Basics

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9

To get started, we should figure out some basics.



For example what “player stories” actually are, and what “agency” is.



HELLO  
my name is

# Agency

"[Agency is] the satisfying power to take meaningful action and see the results of our decisions and choices." – Janet Murray

According to Janet Murray and her book Hamlet on the Holodeck, agency is simply "the satisfying power to take meaningful action and see the results of our decisions and choices" in a digital environment.

If you want an easier way of thinking about it...

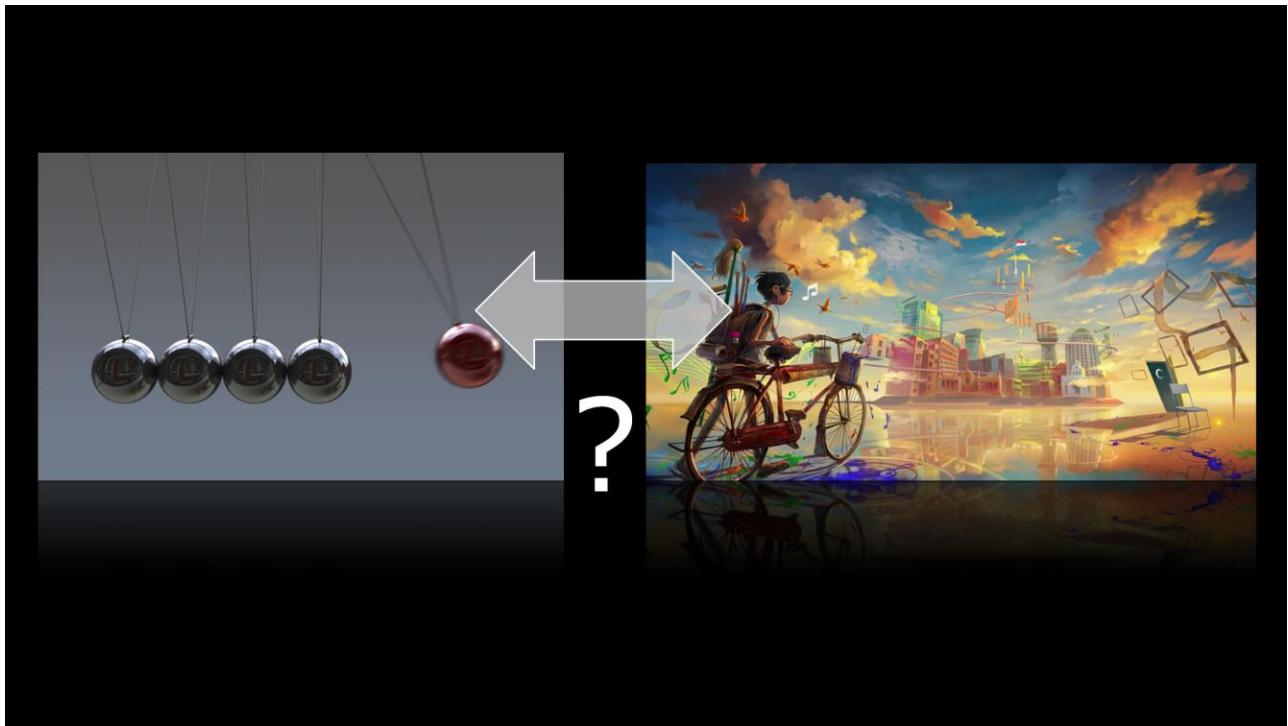


HELLO  
my name is

Agency

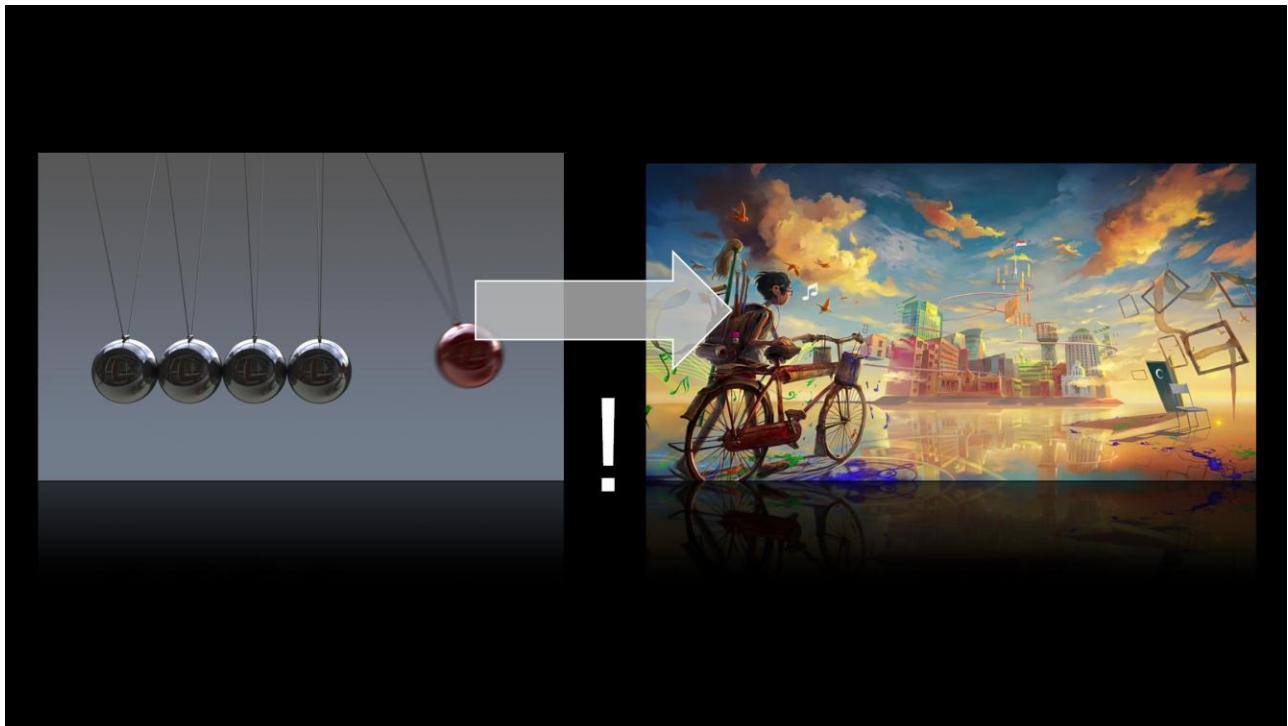
Cause & Effect

... just think "cause & effect". That's agency in a nutshell.



The concepts of agency and player stories are closely related, but they are not the same.

One leads to the other:



Designers want to grant agency because that leads to strong player stories.

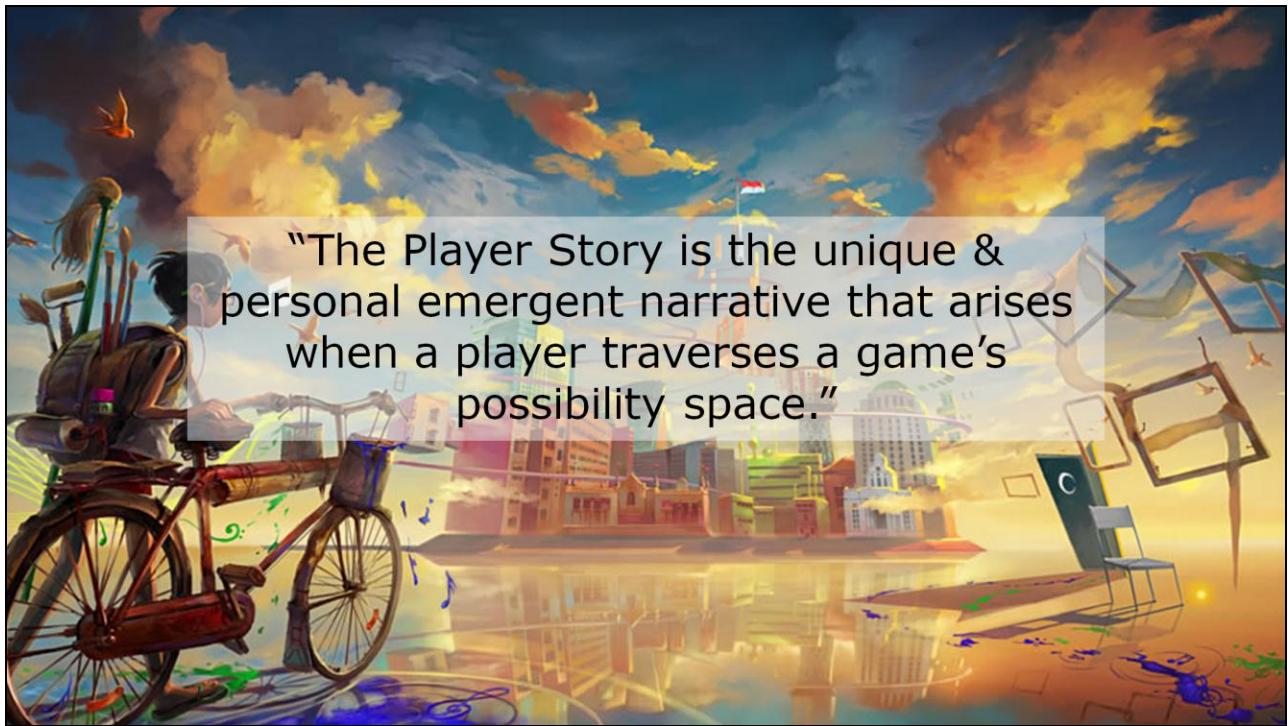
Let me just give you an example of a game that I consider to have strong player stories: Bioshock.



Bioshock has a rich weapon & plasmid system, as well as open level layouts. If any of us were to play a Big Daddy – with fully ramped up arsenal- we'd all have different ways of fighting him:

- Some of us would unload all weapons.
- Others would use plasmids.
- And a third group might set up lots of traps to lure the guy into.

We all experience powerfully different and personal player stories.



"The Player Story is the unique & personal emergent narrative that arises when a player traverses a game's possibility space."

My formal definition of "Player Story" is this:

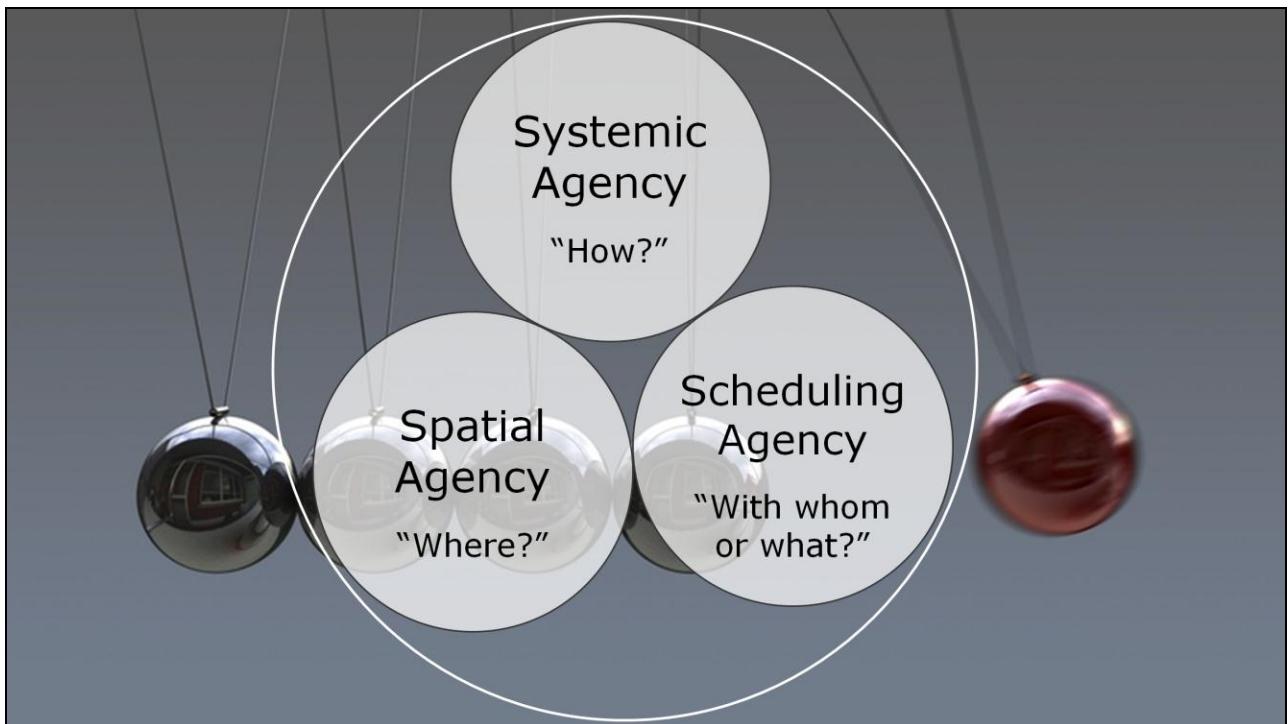
"The Player Story is the unique & personal emergent narrative that arises when a player traverses a game's possibility space."



If we want to evaluate the strength of a player story, we can compare notes on how we played a game and see if we all had divergent experiences. We can formalize that comparison through three questions, and ask all players:

- "How (did you do something)?"
- "Where (did you do something)?"
- "With whom/with what (did you do something)?"

If we want to be more designer-centric, we think the other way around, in terms of different kinds of agency:



- Systemic Agency answers “How?” – i.e. “Weapons or plasmids? Shotgun in the face or bullets spraying from far away?”
- Spatial Agency answers “Where?” – i.e. “Where did I choose to engage that enemy?”
- Scheduling Agency answers “With whom or what?” – i.e. “Which weapons did I buy and can now use? Which abilities did I choose to unlock?”

We will measure the strength of a player story by the amount of agency that a game affords the player in each area.

The terms used here are personal definitions - I'm not happy with “scheduling agency”, but have yet to think of a better descriptor. Traditional game design thinking hasn't made a distinction between different kinds of agency: usually when we have examined agency, we have only looked at the type that I am calling “systemic agency” here.



I think that we need to change that outlook to correctly talk about player stories. There isn't one monolithic Agency, just like there isn't one way to create a player story.

In this talk, we'll look at how games afford agency and how that leads to player stories. We're going to look at systemic agency first; then spatial agency and then scheduling agency.

Type 1  
**Systemic Agency**

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9

To talk about systemic agency, we have to go to the very core of what games are. We have to look at the possibility space.

Designer

Computer

Player



One of the most important – and humbling – concepts that you learn as a level designer is that you never directly design play. Game & level design are not an authorial one-way street where you create meaning to be consumed by the player. Game design is much more like diplomacy...

## Mediator

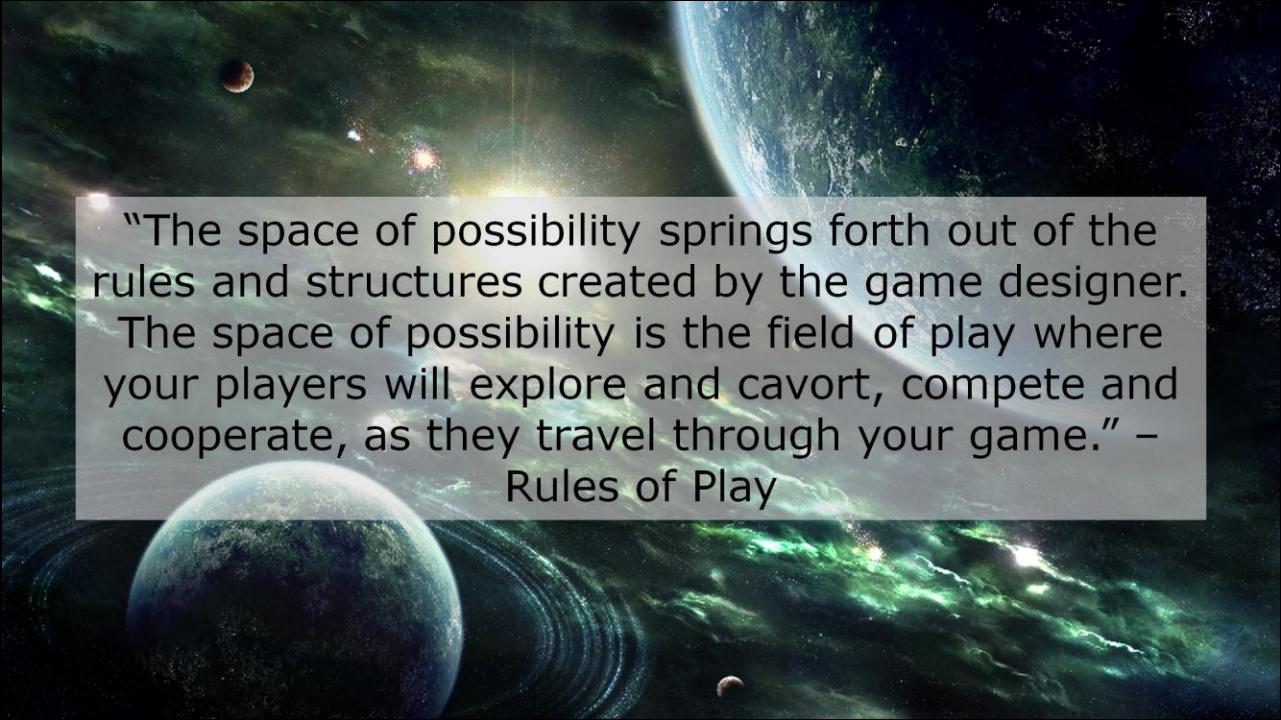
Designer



Player



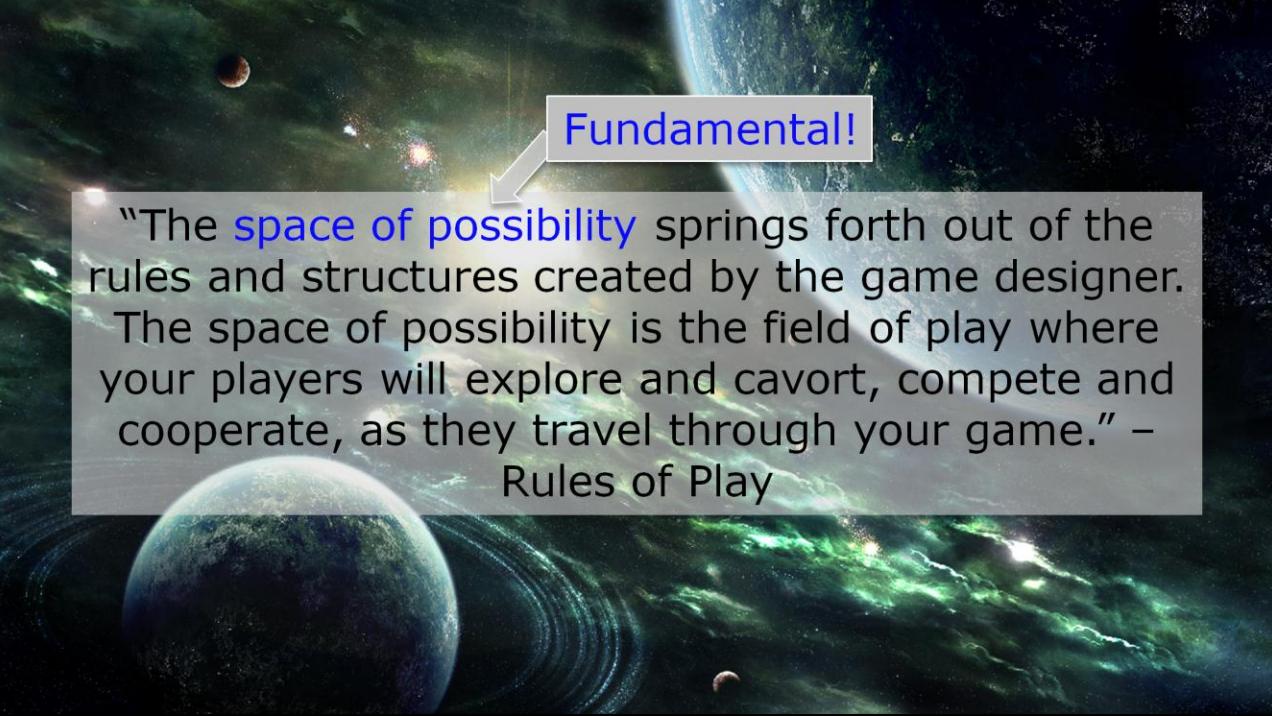
...using the computer as the mediator. Think of the game designer is a proponent for the player, enabling and suggesting experiences to have.



"The space of possibility springs forth out of the rules and structures created by the game designer. The space of possibility is the field of play where your players will explore and cavort, compete and cooperate, as they travel through your game." – Rules of Play

The conceptual space in which these experiences happen is the possibility space – a bridge between the designed mechanics of the game and the actions of the player.

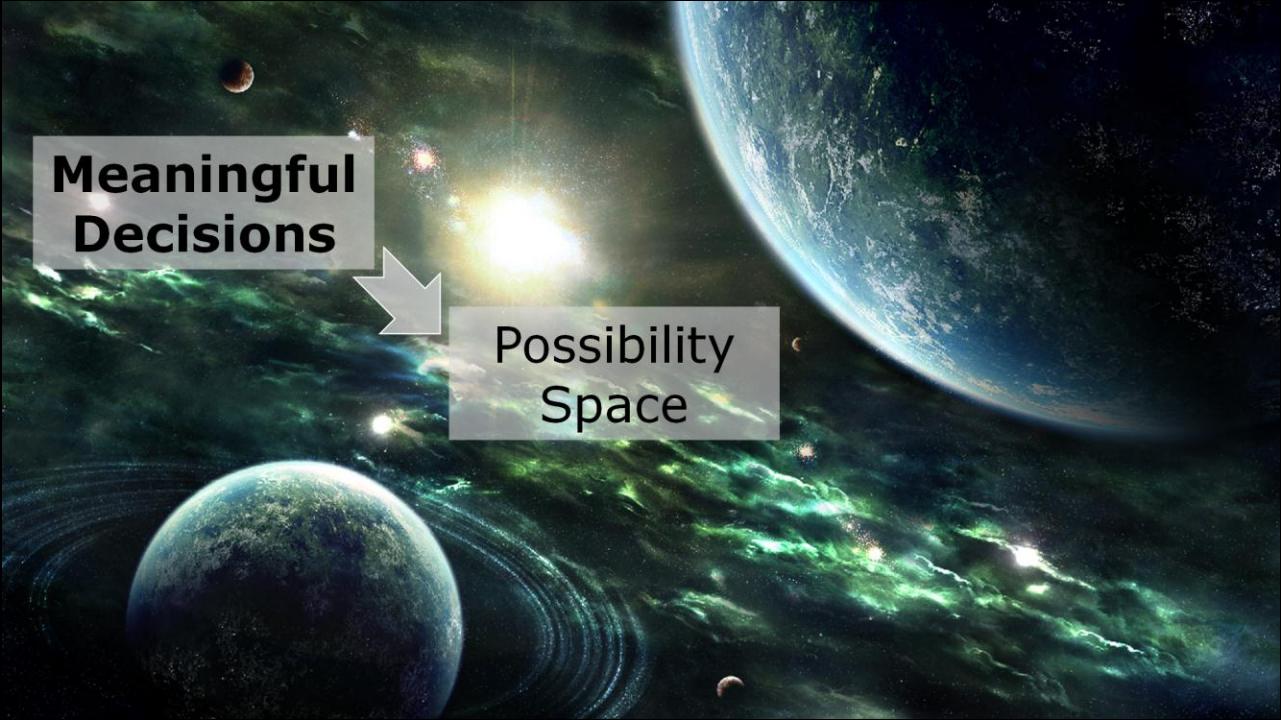
A formal way of saying this is that "The space of possibility springs forth out of the rules and structures created by the game designer. The space of possibility is the field of play where your players will explore [...] as they travel through your game." – Rules of Play



Fundamental!

"The **space of possibility** springs forth out of the rules and structures created by the game designer. The space of possibility is the field of play where your players will explore and cavort, compete and cooperate, as they travel through your game." – Rules of Play

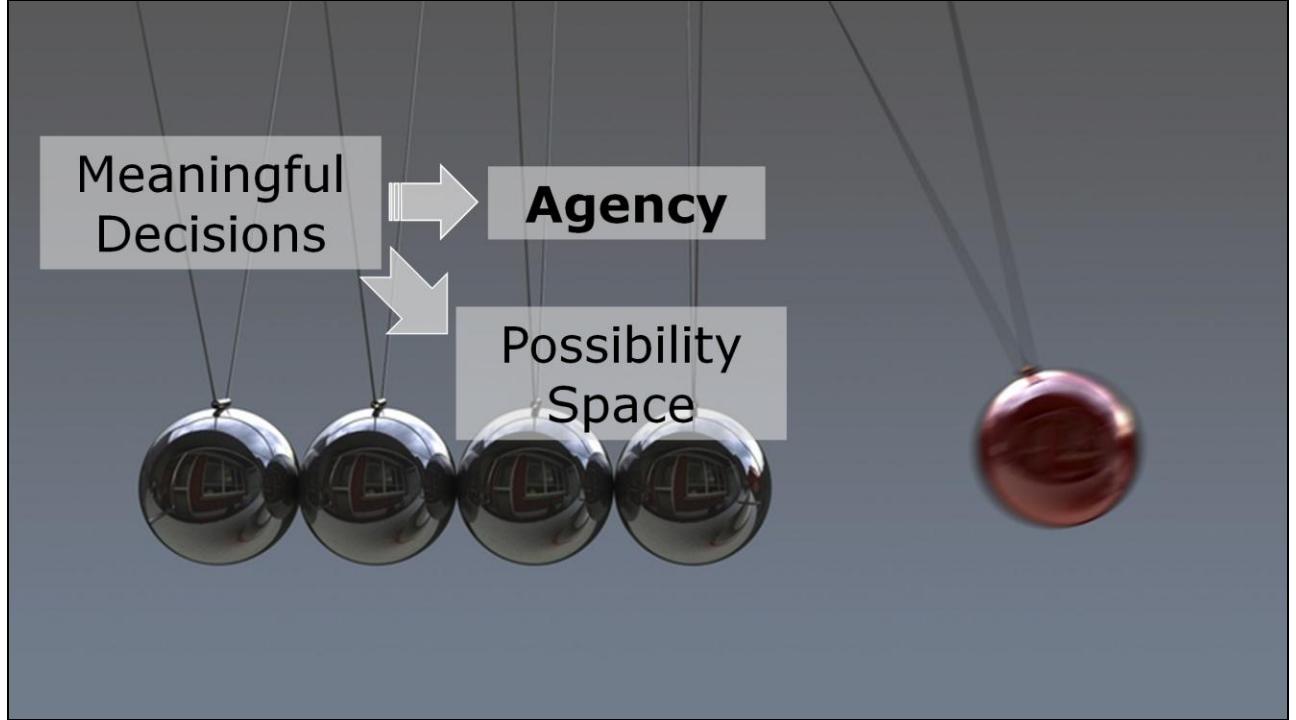
Exploration of a possibility space is the fundamental way in which games are games, and how they are powerfully different from other media.



**Meaningful  
Decisions**

Possibility  
Space

To reiterate how all this fits together: at the core of the game is the possibility space, where the game designer proposes experiences. Those proposals lead to meaningful decisions...



Meaningful  
Decisions

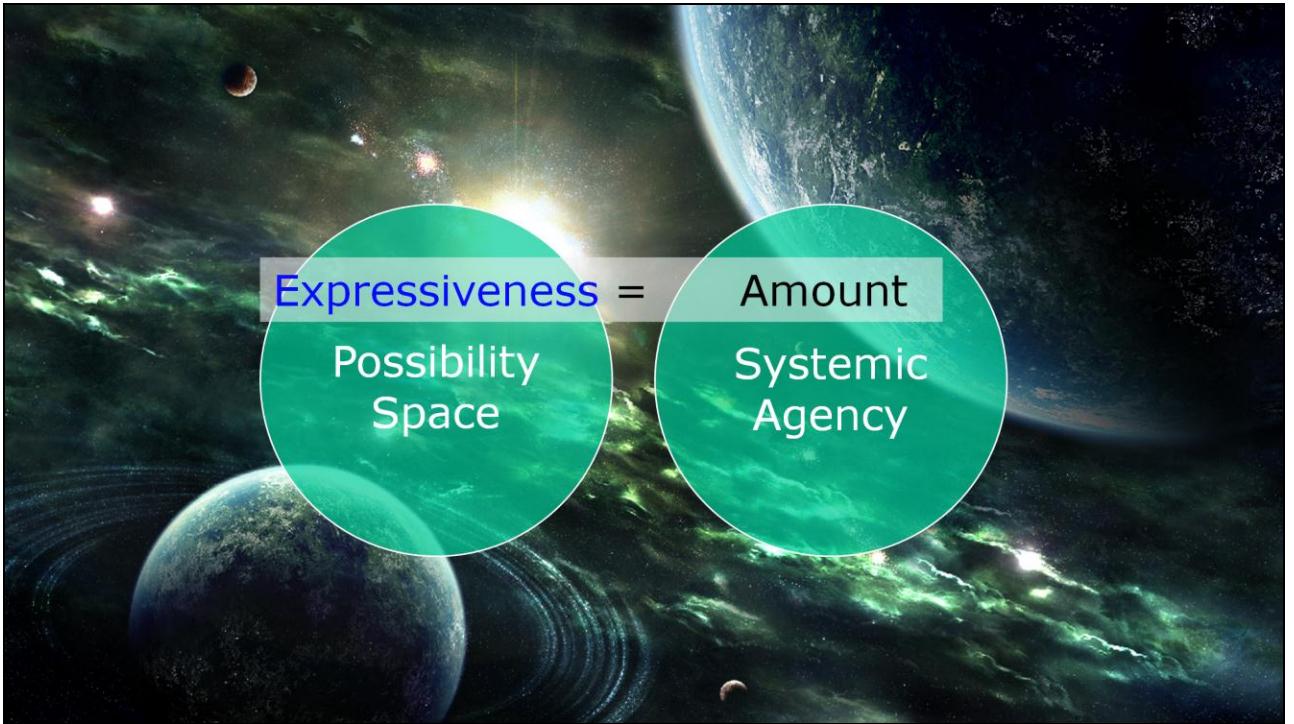
**Agency**

Possibility  
Space

The ability to act on these meaningful decisions is what we call systemic agency...

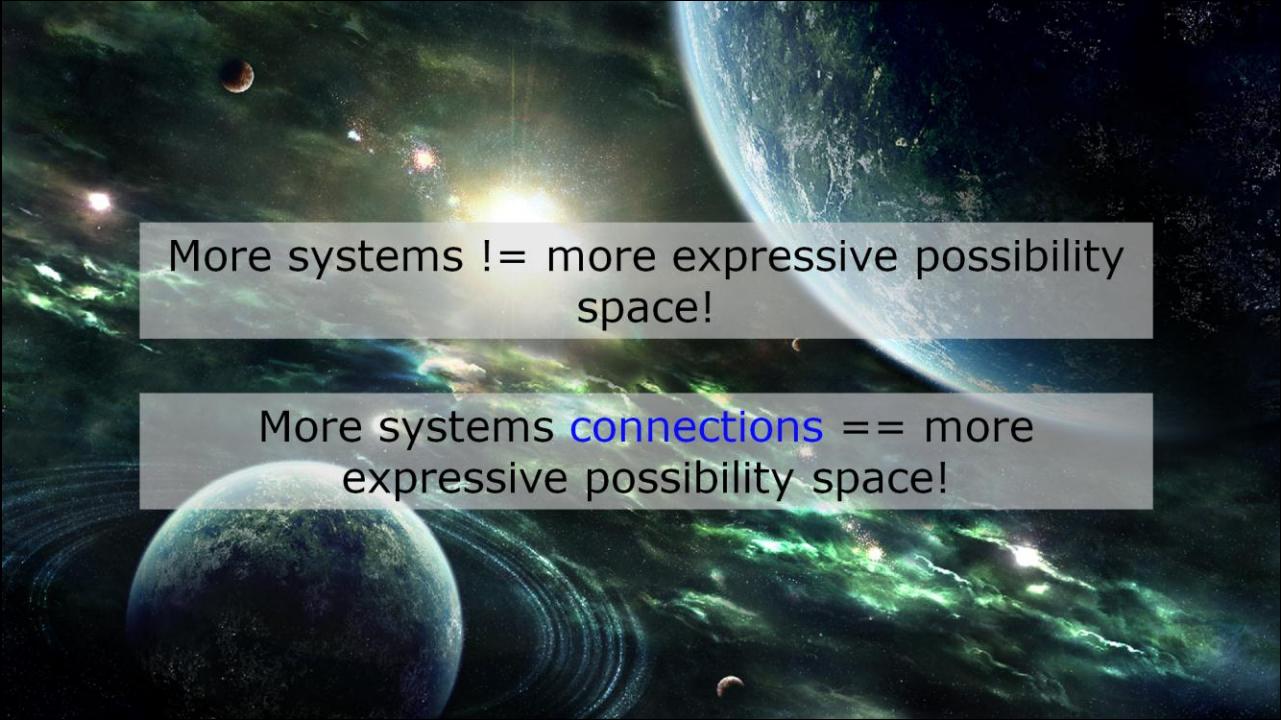


And actually acting on that agency creates an emergent player story.



The amount of systemic agency that a game affords is directly related to the expressiveness of the possibility space.

Let me be very clear on one term: expressiveness.



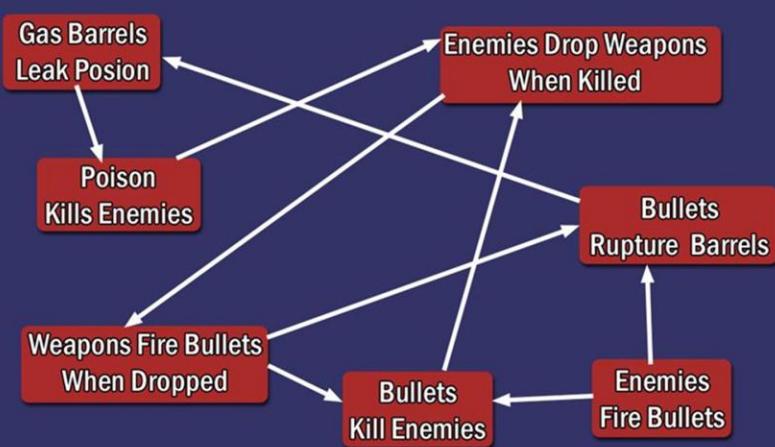
More systems != more expressive possibility space!

More systems **connections** == more expressive possibility space!

We're not interested in the size of the possibility space. More game systems do not equate a better possibility space.

We're interested in the gameplay potential created by the number of meaningful \*connections\* between the systems.

# Visualizing All Mechanics



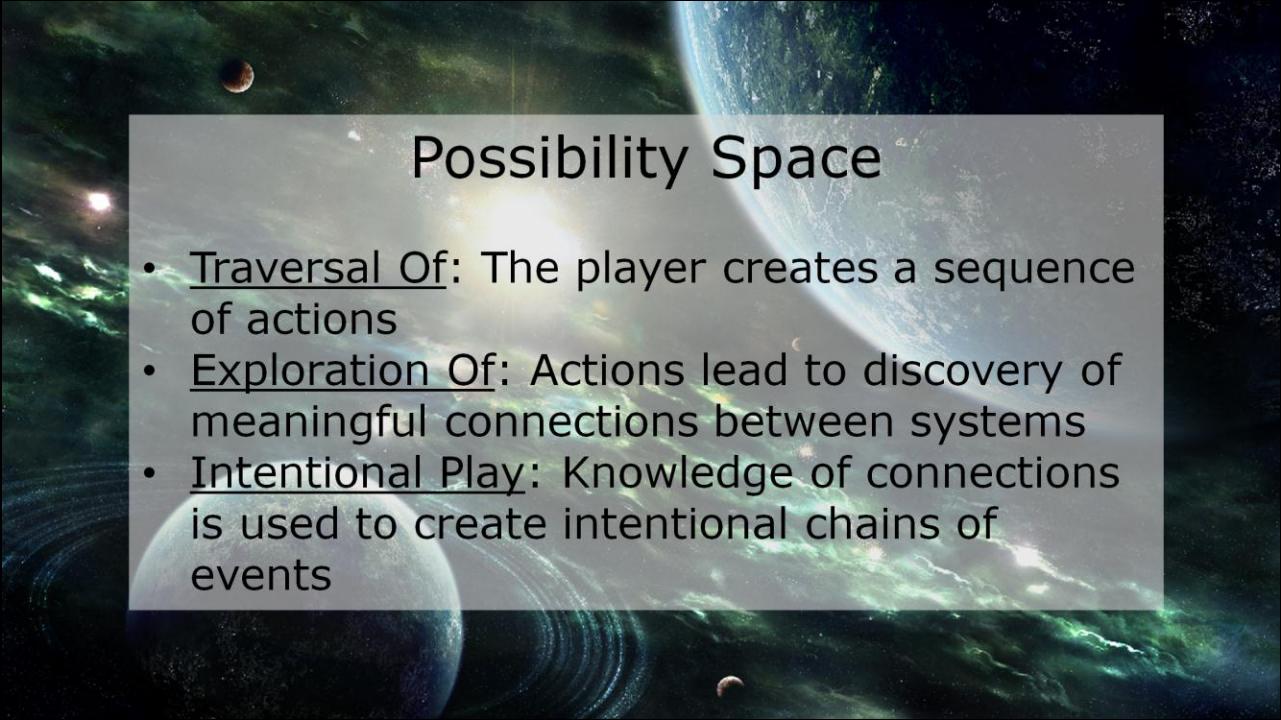
Practical Techniques for Implementing Emergent Gameplay  
(Would the Real Emergent Gameplay Please Stand Up?)

rsmith@ionstorm.com  
hsmith@ionstorm.com



The concept behind this is called Emergence. It's the idea that few interconnected systems create gameplay where the whole is greater than the sum of its parts. If you want to brush up on this topic, check out Randy and Harvey Smith's talk:

[http://www.witchboy.net/wp-content/uploads/2009/03/randysmithandharveymsmith\\_gdc\\_2004.ppt](http://www.witchboy.net/wp-content/uploads/2009/03/randysmithandharveymsmith_gdc_2004.ppt)



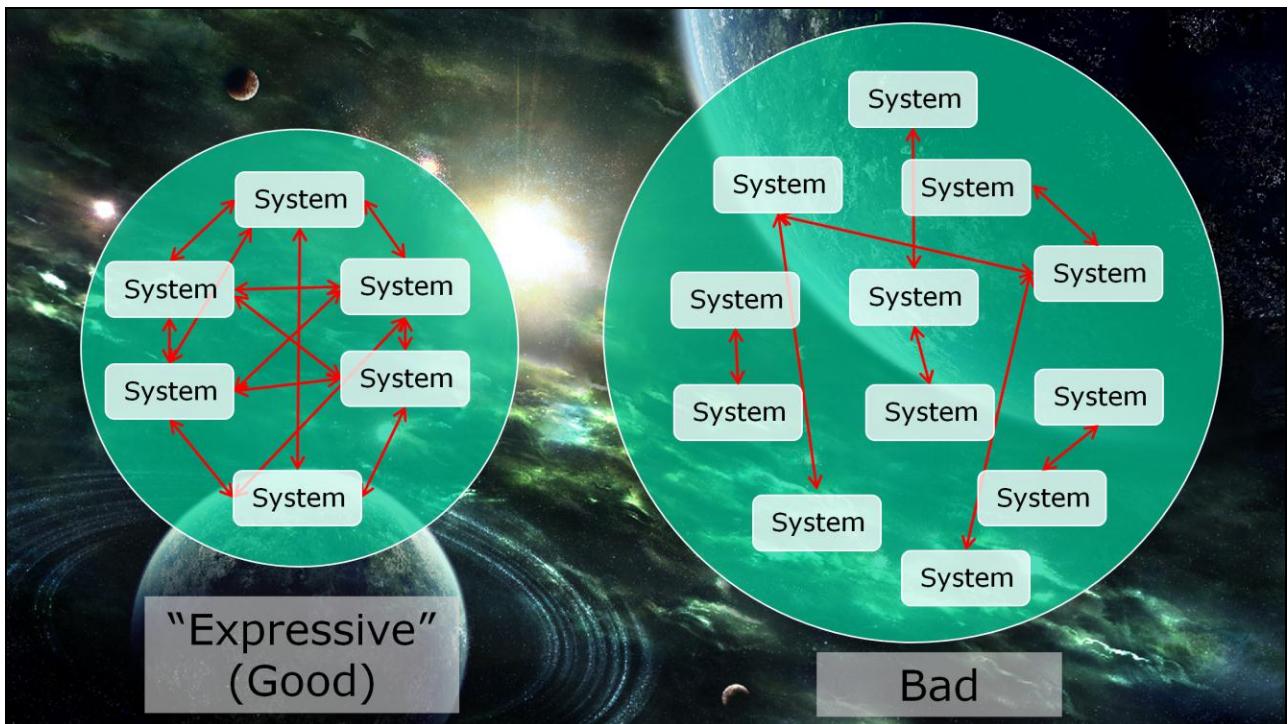
# Possibility Space

- Traversal Of: The player creates a sequence of actions
- Exploration Of: Actions lead to discovery of meaningful connections between systems
- Intentional Play: Knowledge of connections is used to create intentional chains of events

“Traversal” of the possibility space refers to the order of gameplay actions the player chooses to execute. We’ll see an example of this in a few slides.

The player is said to “explore the possibility space” when his actions lead to the discovery of meaningful connections between systems.

He is described as “playing intentionally” when he uses that acquired knowledge to create meaningful chains of gameplay events.



Generally, I consider games to be expressive when they offer multiple, equally valid choices to approaching a problem.

(Also check out sources on orthogonal unit differentiation, i.e.  
this talk:  
[http://www.planetdeusex.com/witchboy/gdc03\\_OUD.ppt](http://www.planetdeusex.com/witchboy/gdc03_OUD.ppt))



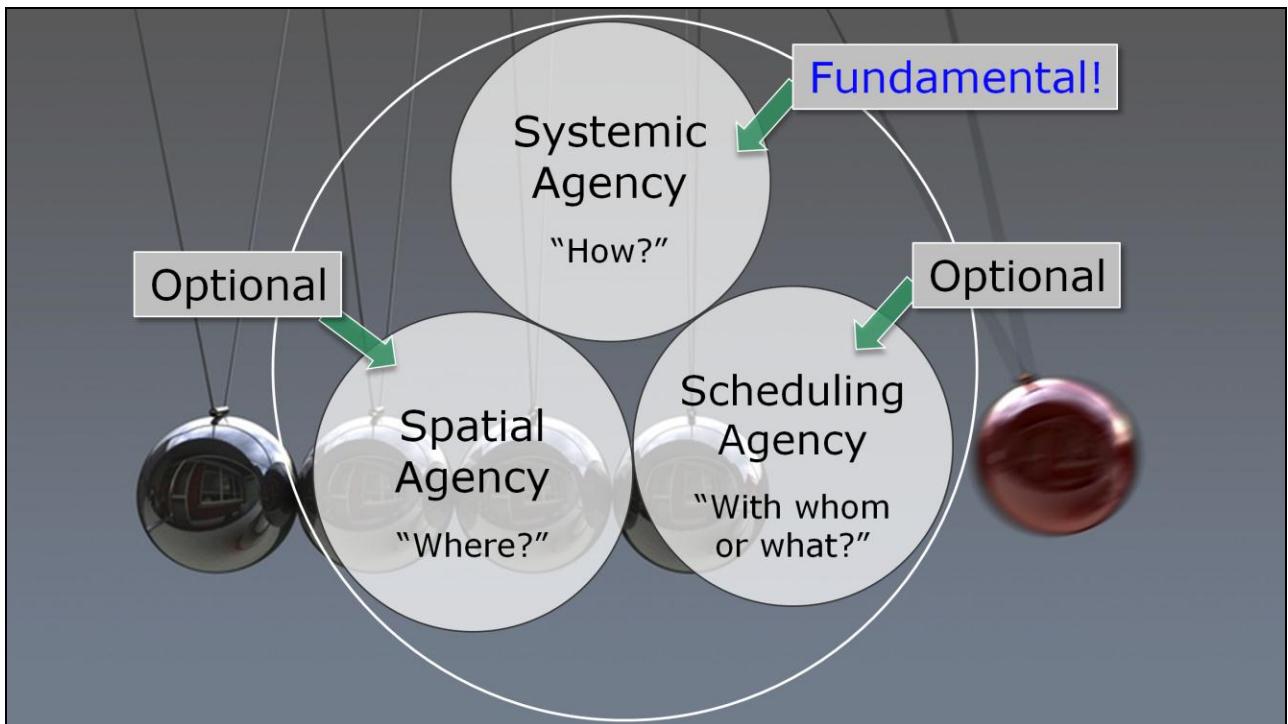
You need to  
create an  
expressive  
possibility  
space!

Creating a well thought-out possibility space is the most fundamental thing you can do for your game. And it's hard. You have to be clever! And put a lot of work into it!



I think Tetris is about as clever as they come. Tetris only affords the player systemic agency. There are no levels, there's no narrative, there's no unlock schedule of game systems. We simply have a clearly defined possibility space in which the player can move and drop the game pieces in ever-new combinations.

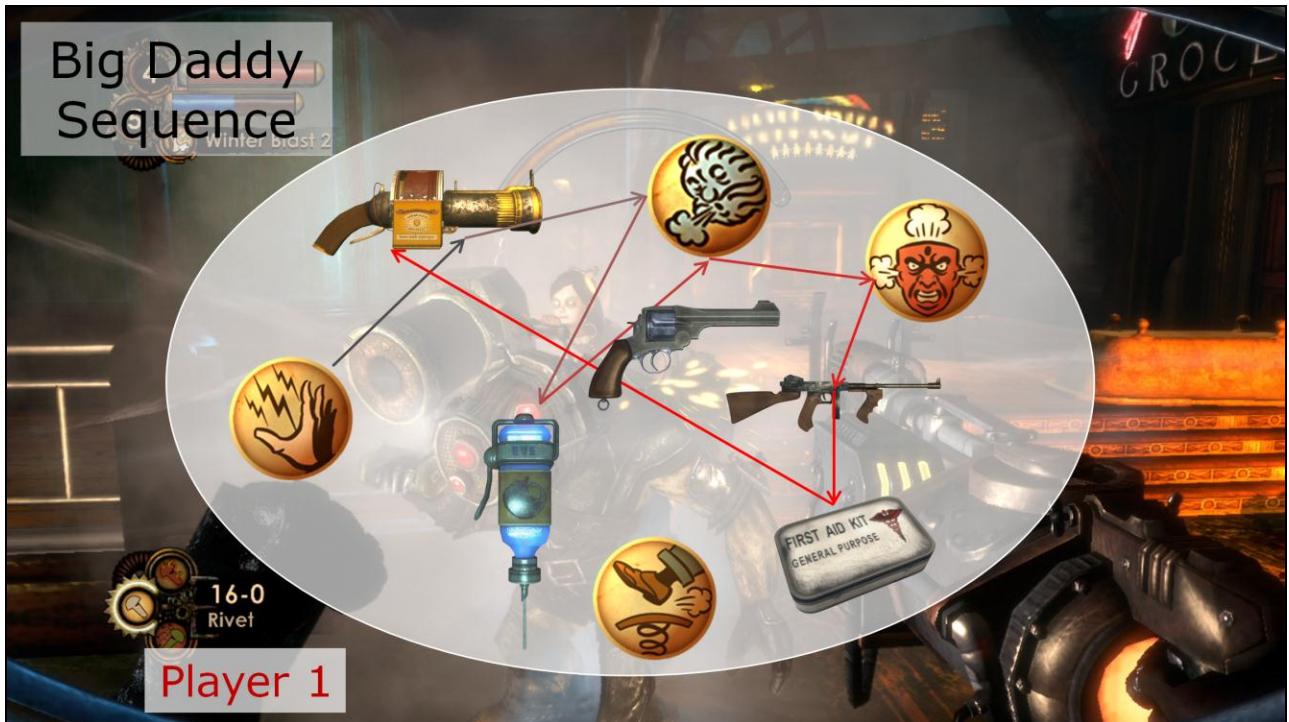
The sequence of how I arrange those game systems and react to the increasing time pressure is Tetris' player story.



Systemic agency is the only fundamental type of agency we have – we can make great games like Tetris with nothing else.

## Big Daddy Sequence

Winter Blast 2

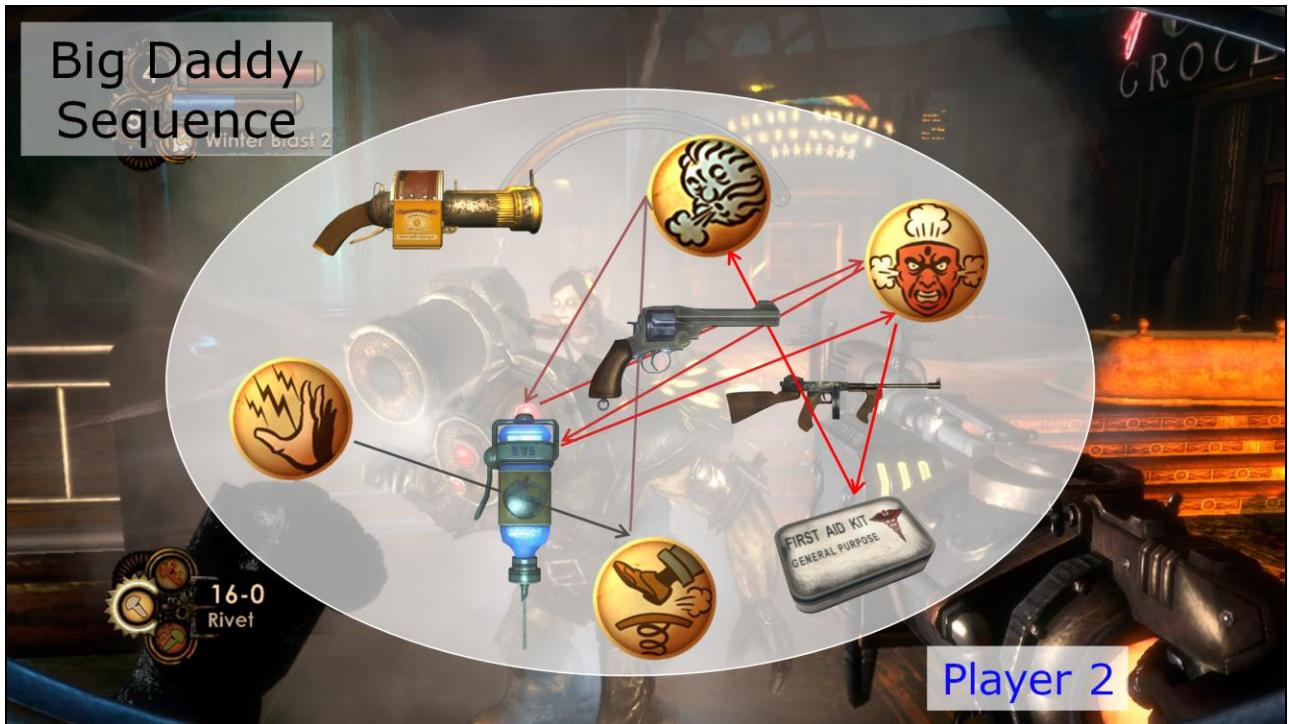


Chances are that you're not working on Tetris, though. For a more complex example, we should go back to Bioshock. Imagine that these are some of the game systems inside the possibility space, and that their interactions are all richly connected (\*not\* illustrated here).

To determine the player story, we look at how a player traversed the possibility space (we look at the sequence of actions that he chose when fighting the Big Daddy). Player 1 started by using a plasmid, then shot the grenade launcher, then used another plasmid, then chose refilled Eve supply... etc. pp.

## Big Daddy Sequence

Winter Blast 2



That sequence of actions is very different from the path that player 2 took: this player only uses plasmids.

Now consider emergence – the fact that the player slowly discovers new, more optimized (or personal) ways of using this interconnected web of game systems, and you understand why the traversal and the exploration of the possibility space are closely related - and how intentional play leads to individual player stories.

Keep in mind that I'm still grossly simplifying in this example - I'm not sure if it makes game sense to go through \*this\* progression of systems. I'm only trying to illustrate the idea.

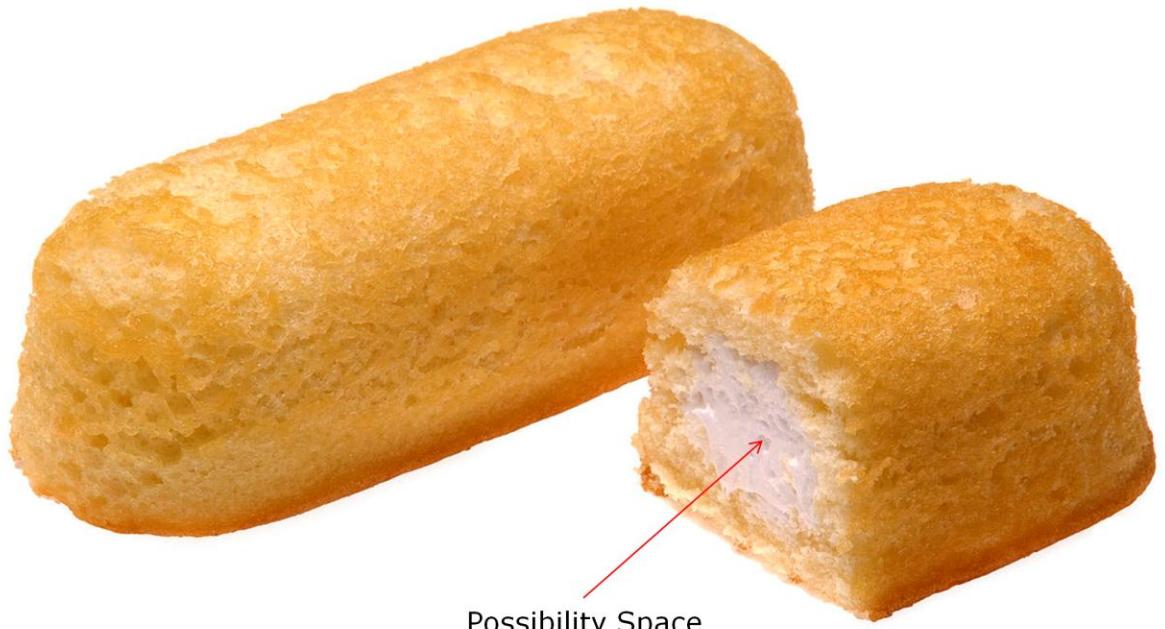
# Systemic Agency

- Fundamental
- Amount of systemic agency == expressiveness of possibility space



Systemic agency is fundamental to games. You have to have it. If you make a game without a good amount of systemic agency you probably have a crappy game. We can measure the potential strength of the player story by the amount of systemic agency.

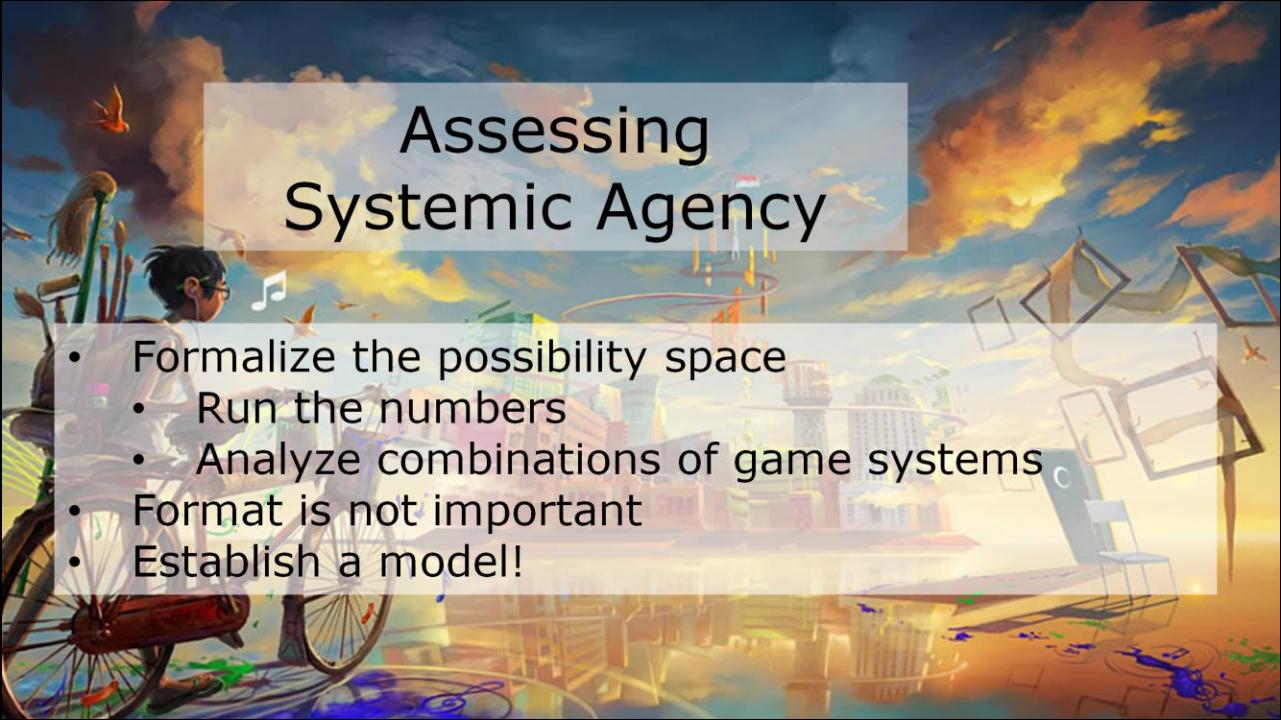
An expressive possibility space is the best thing you can do to your game. If you want a metaphor...



...it's like filling your game with cream.

The pretty, appetizing surface attracts people, but whenever we talk about why people fall in love with a game, why they keep coming back to it and play all the way to the end, they talk about that creamy center.

A hollow Twinkie would look just as good from the outside as a filled one - but once bitten into, it would be strangely unsatisfying.



# Assessing Systemic Agency

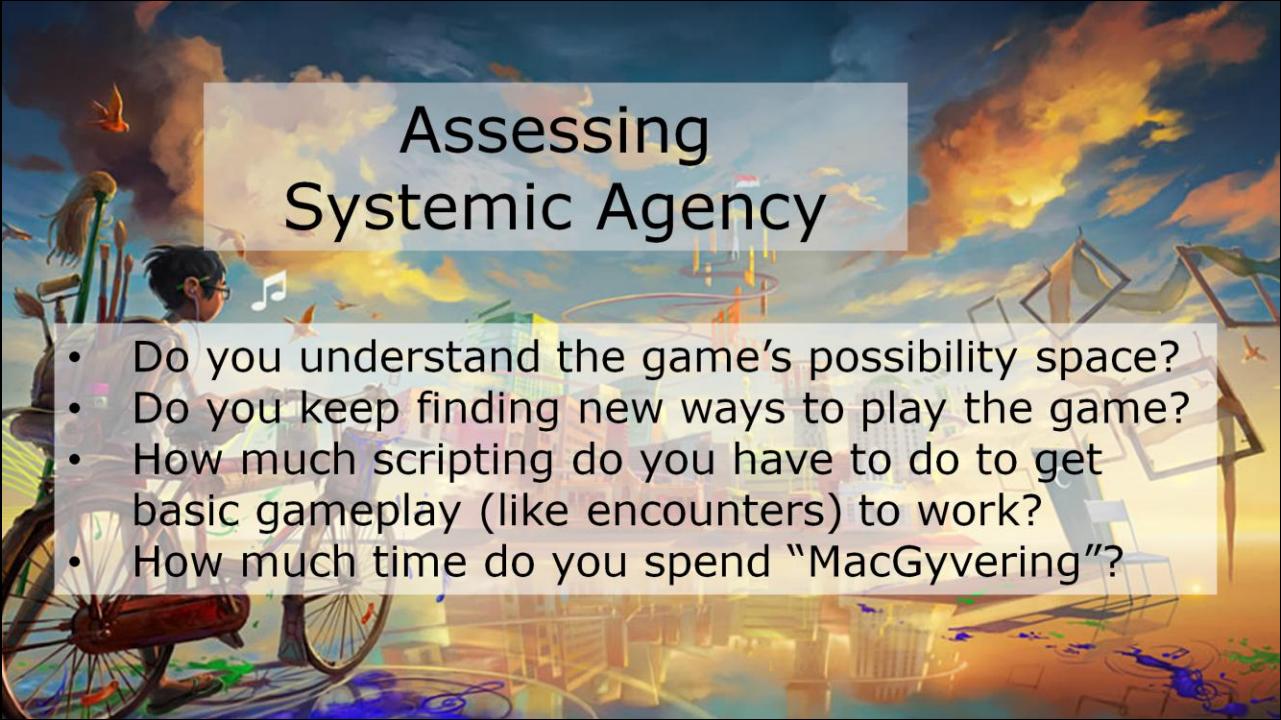
- Formalize the possibility space
  - Run the numbers
  - Analyze combinations of game systems
- Format is not important
- Establish a model!

How do you measure the amount of systemic agency in your game? Here's some ideas:

- You formalize the possibility space. You don't have to fully map it out (and ideally, that's impossible because of emergence)...
- But you spend enough time to run all the numbers and analyze the combination of all the different game systems etc.
- The format is not important! You can do this in Excel, on a whiteboard, or in C#...
- The important part is that you have a model for your possibility space – a shared understanding of how you want the game to play.

Don't get me wrong: getting things up and running quickly in the game is important. But you should invest some upfront work in even cheaper methods that help you understand how your game is supposed to work, and how the elements are

supposed to interact at runtime. (For a more comprehensive treatment on this subject, check out Francois Lapikas' talk about Deus Ex:Human Revolution at GDC 2012).



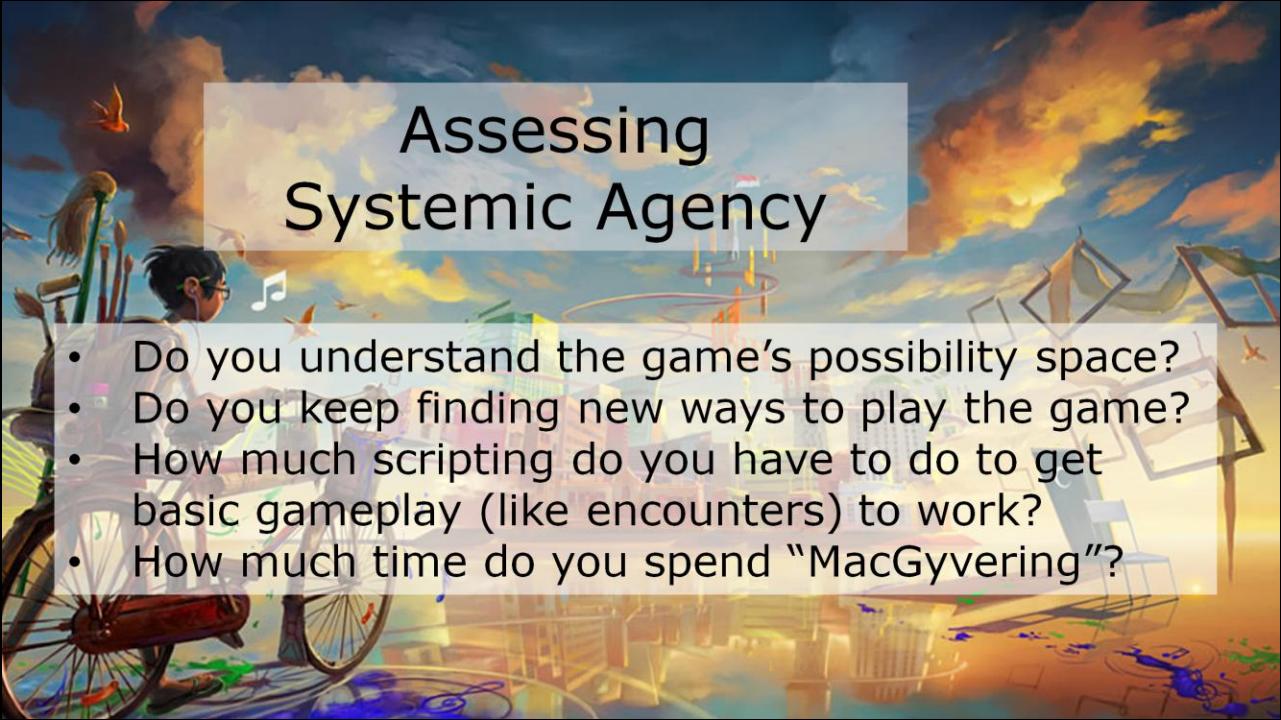
# Assessing Systemic Agency

- Do you understand the game's possibility space?
- Do you keep finding new ways to play the game?
- How much scripting do you have to do to get basic gameplay (like encounters) to work?
- How much time do you spend "MacGyvering"?

Once you understand your model, implement it. And keep asking your team these questions:

- "Do you understand your game's possibility space?"
- "Do you keep finding new ways to play the game?"
- "How much scripting do you have to do to get basic gameplay (like encounters) to work?"
- "How much time do you spend 'MacGyvering' - recombining existing gameplay systems - into new, interesting situations?"

Ideally, you ask the level designers, because they are your clients.



# Assessing Systemic Agency

- Do you understand the game's possibility space?
- Do you keep finding new ways to play the game?
- How much scripting do you have to do to get basic gameplay (like encounters) to work?
- How much time do you spend "MacGyvering"?

If you are the level designer, you should ask yourself exactly the same questions. If you find...

- That you don't really understand the possibility space...
- That are no new ways of playing the game...
- That you're spending more time on getting basic encounters to work...
- Instead of MacGyvering...

...your game probably doesn't have that creamy center. Don't try to compensate! Work with the gameplay designers on fixing it.



Years ago, when I was working on Unreal 2, I didn't understand any of this. You could argue that most of the FPS industry didn't understand this, a fact that was reflected in the composition of the Unreal 2 team: we didn't have any game/systems designers – just 4-5 level designers (and some gameplay engineers).

As a result, we never formalized the possibility space. The level designers were figuring out gameplay basics themselves, in ad-hoc ways: designer by designer, level by level, always in slightly different ways. We didn't know what we were missing, so we didn't miss it, and instead tried to compensate when building the levels.

## Unreal II: The Awakening



[33 more | add cover]

**Published by**  
[Infogrames, Inc.](#)

**Developed by**  
[Legend Entertainment Company](#)

**Released**  
Feb 04, 2003

**Platforms**  
[Windows](#), [Xbox](#)

**Genre**  
[Action](#)

**Perspective**  
[1st-Person Perspective](#)

**Non-Sport**  
[Sci-Fi / Futuristic](#),  
[Shooter](#)

**Misc**  
[Editor / Construct](#), [Net](#)

**Windows**      **MobyRank** **80**      **MobyScore** **3.4**

**Xbox**      **59**      **2.5**

[add ranking | score detail | rate game]

Meh.

### Description

Some years after the Strider Wars, humanity has resumed its expansion into space. On the rough frontier, it falls to the Terran Colonial Authority to maintain peace and order among the outlying colonies and outposts. TCA Marshal John Dalton and the crew of his ship, the *Atlantis*, patrol this dangerous sector of space when several distress calls lead to the discovery of alien artifacts with unique properties. Soon, the hunt for these artifacts is on between several alien factions as well as human corporations and their mercenary forces, with the TCA and their allies caught in the middle.

### Selected Shots

Last updated: Oct 17, 2007



[29 more shots | add shots]

The game suffered. Not fatally, but enough. Players kept complaining that something was missing from the experience. The game looked appetizing, but it felt kind of hollow.



Ironically enough, we didn't fill Unreal 2 with cream.

If I could go back and change one thing about Unreal 2's game design, formalizing the possibility space (adding some cream to the middle) would be on the top of my list. It would have made my life as a level designer so much easier.

## Type 2 **Spatial Agency**

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9  
**2012**

We've talked a lot about the fundamentals of game design and systemic agency. Modern games are more complex than Tetris, and we need to take environments and item/ability unlocks into account, as well.

We should now dig deeper into level design – and we do that by talking about spatial agency.

## Game Environment Definition

### LEGEND

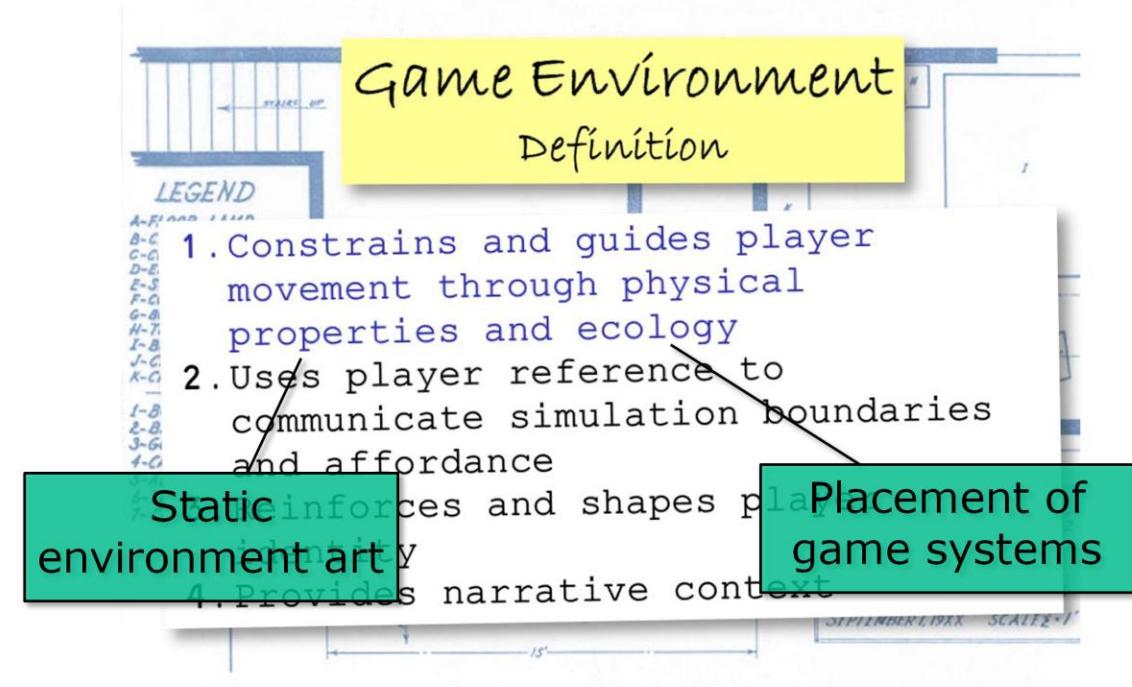
A-Floor Plan  
B-C  
C-G  
D-E  
E-S  
F-G  
G-B  
H-T  
I-B  
J-C  
K-O  
L-B  
M-G  
N-A  
O-T  
P-C

1. Constrains and guides player movement through physical properties and ecology
2. Uses player reference to communicate simulation boundaries and affordance
3. Reinforces and shapes player identity
4. Provides narrative context

SIMULATED AREA SCALE 1'

If you remember my 2010 talk on environmental storytelling (with Harvey Smith), we took a bit of time up-front to define a game environment.

(Download the full lecture at  
<http://www.worch.com/2011/03/05/identity-bubble-download>)



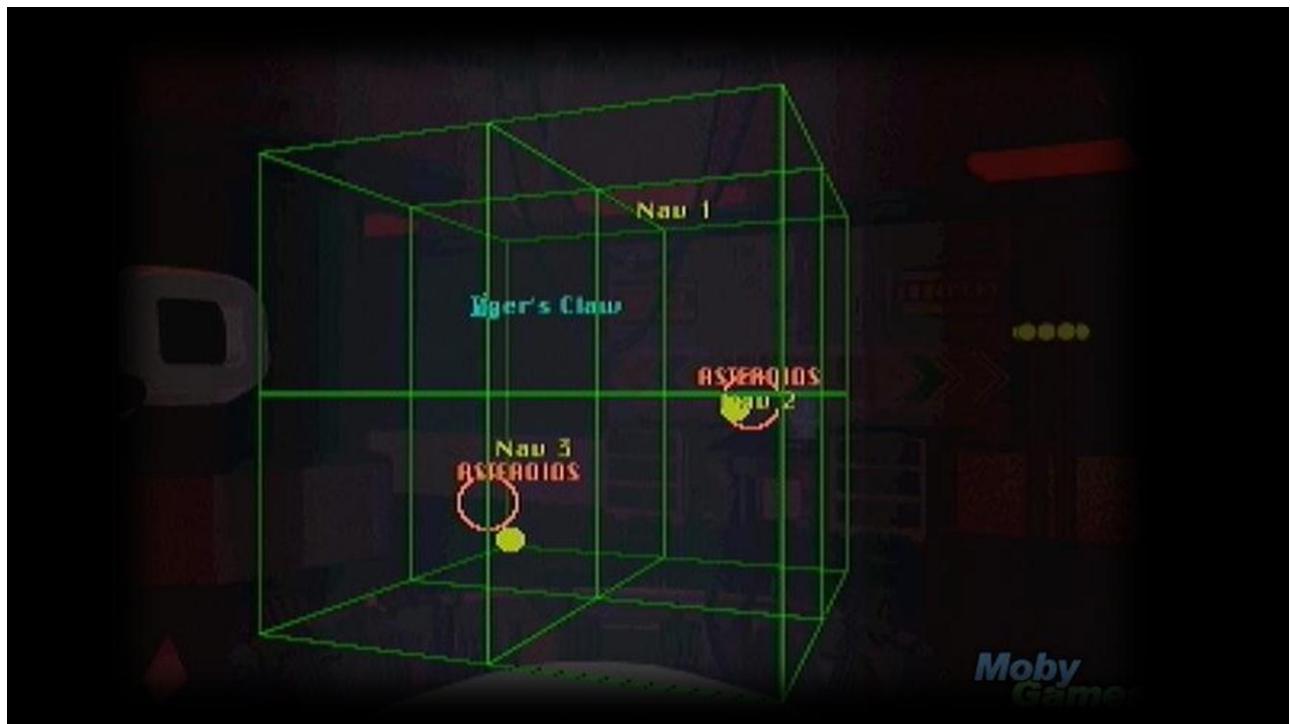
The relevant part of the definition is #1: "The game environment constraints and guides player movement through physical properties and ecology."

We're granting spatial agency when we create the physical properties of the level (the static environmental art). That establishes the level boundaries, and determines where the player can go.

But we're also saying that both the level's physical properties and ecology (the actual placement of the game systems) shape the possibility space.

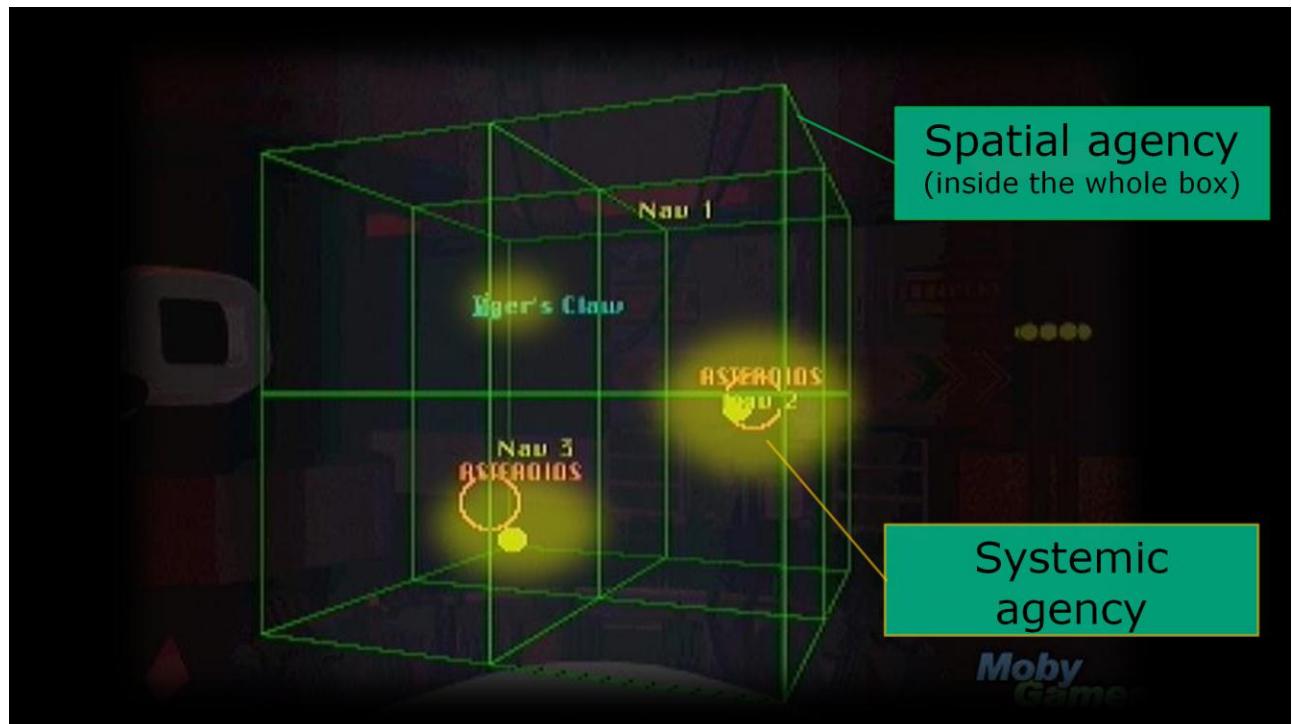


Wing Commander is a good example of what I'm talking about.



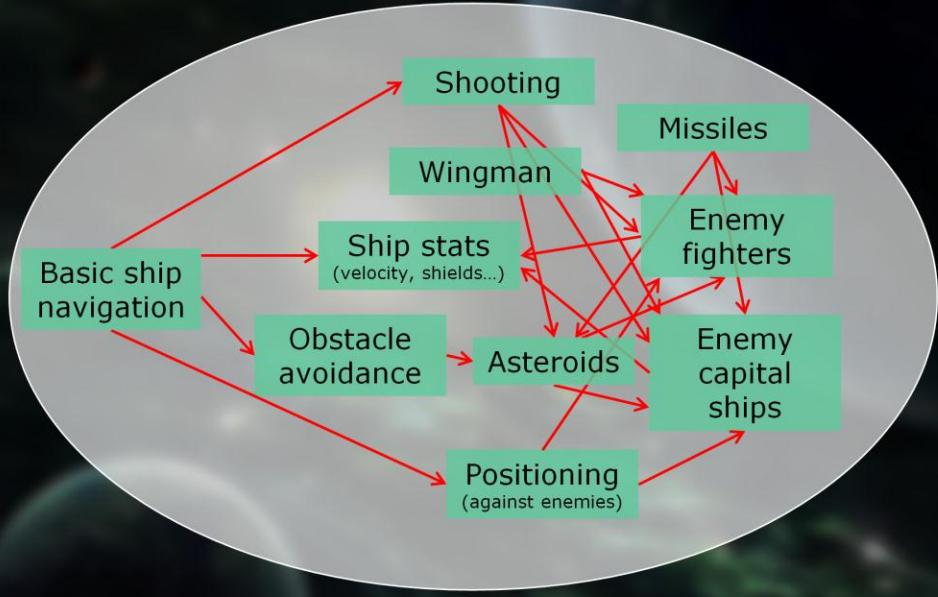
This is one of the early patrol missions from Super Wing Commander 3DO (which used a 3D map in its briefings) - which is perfect for our example, because we can see the spatial agency right here on the map:

The Wing Commander level has no physical properties. Space in Wing Commander is... space. There's no restrictions on where I can and can't fly - the player can go wherever he wants to go. It's just that he can't do much, because most of space doesn't afford any systemic agency.



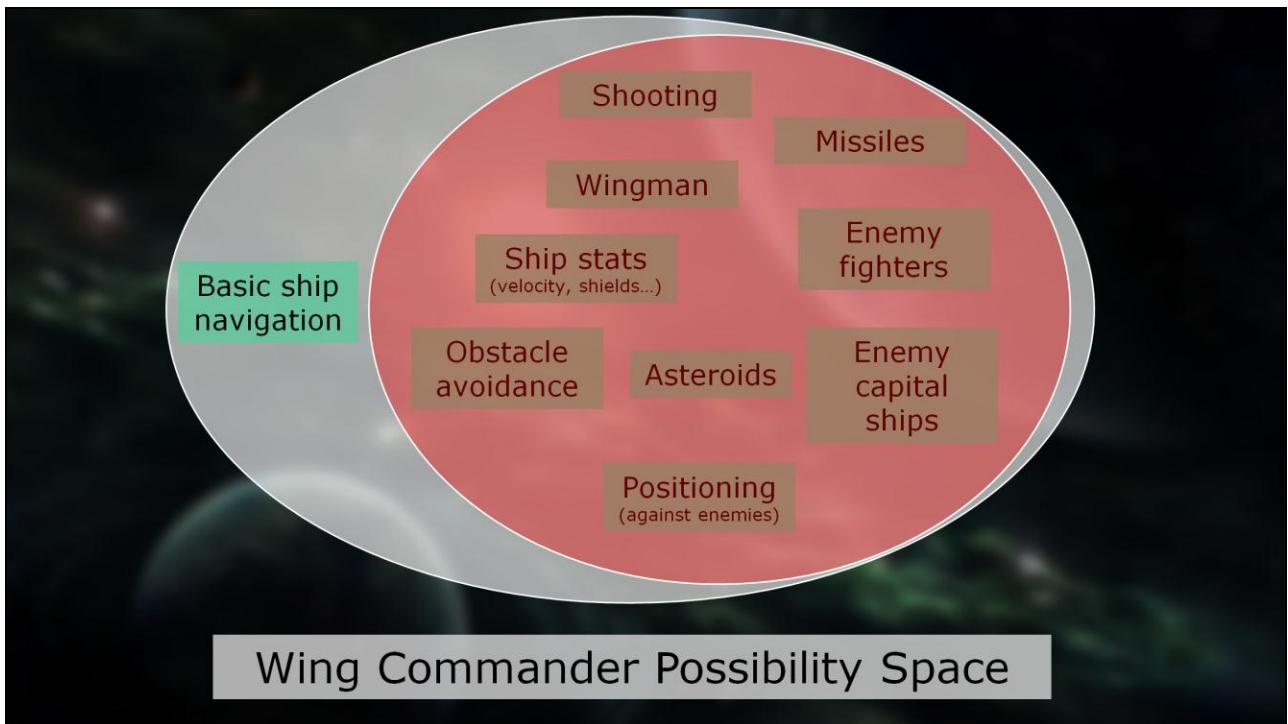
Gameplay – and the ability to actually interact with the game's possibility space - is centered around the yellow dots. That's where we have level ecology - the actual placement of the game systems: asteroids, the Tiger's Claw (your carrier ship), and of course the enemy ships you encounter on the mission. All of these elements represent gameplay propositions.

We get bubbles of systemic agency clustered around the level ecology. The entire green wireframe represents the spatial agency given to the player, but it's not synonymous with the game's systemic agency.

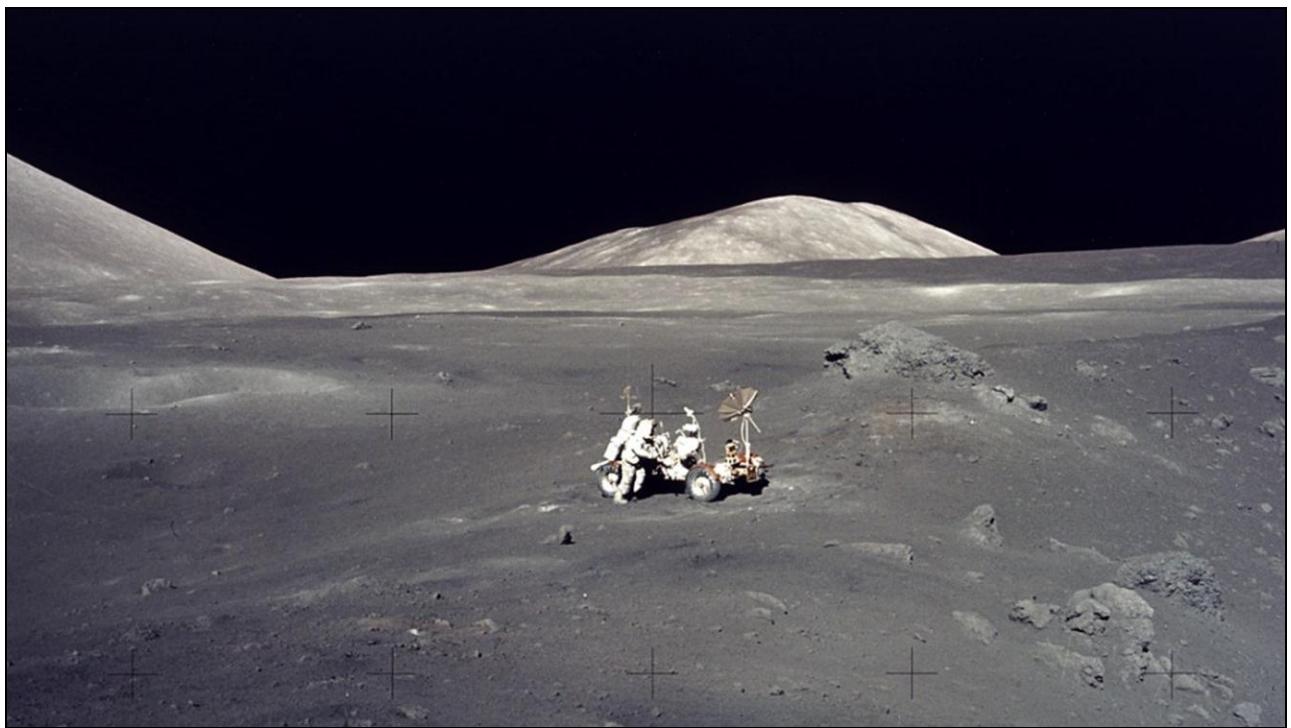


## Wing Commander Possibility Space

To illustrate this disconnect, this is a representation of Wing Commander's possibility space in one of those yellow bubbles.



This is the same possibility space when we're in empty space.  
90% of the expressiveness is locked off because we've  
stripped away all elements!



Clearly, granting the player spatial agency doesn't' mean much in isolation. Spatial agency always creates \*a\* personal player story – but that player story will be boring as hell when nothing happened: Spatial exploration didn't lead to systemic interaction.

So we need to find an example of where spatial and systemic agency overlap. Let's downscale our ambitions from a fully open world game to something more manageable. We can go back to Bioshock.

## Systemic Agency & Spatial Agency overlap!

MAP



Bioshock has circular connected levels with overlapping spatial agency and systemic agency. The player has choice in how he traverses the spaces, and often revisits locations when backtracking.

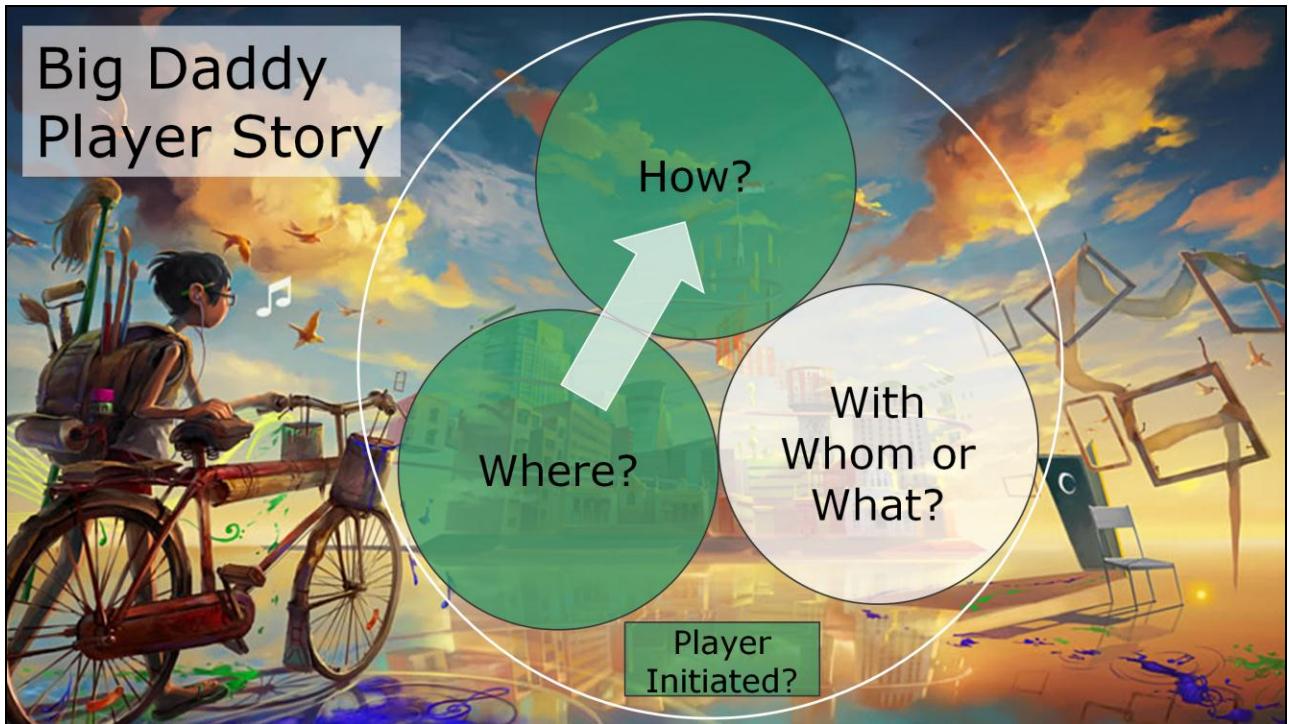


The Big Daddy is a system – he's moving level ecology. A lot of time was put into making him work anywhere.



As a result, the player has control of where and when to engage his opponent: here, or here, or here. The battle is going to be different depending on where it happens: in one location there might be other enemies around, in another there might be turrets and oil patches (which can be lit on fire), in the 3rd the player might be able to gain the higher ground and shoot the Big Daddy from afar.

# Big Daddy Player Story

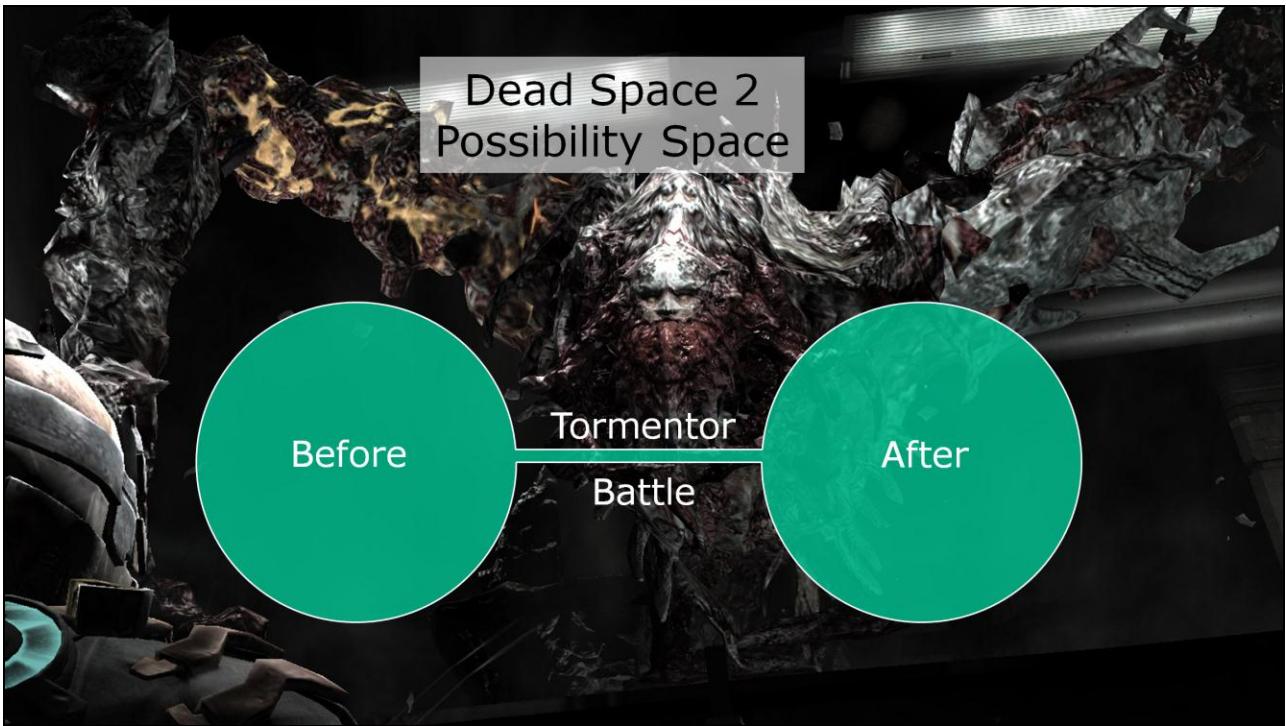


The player story is exponentially more powerful because we're combining two forces. The "How did you do it?" is contextualized by the "Where did you do it?"



WWW.PENNY-ARCADE.COM

Bioshock is quite unique in giving the player the opportunity to fight its boss battles in a location of the player's choosing. Almost all other games determine the location of a boss battle. Since I know it so well, I'll use Dead Space 2 as a counter example.



The Tormentor boss battle, which happens at the end of church mission, is *spectacular*. It's *dramatic*. I love it because I still remember how strongly my parents reacted to it. In comparison to Bioshock, it's a scripted spectacle that's identical for everybody: we favored the designer story over the player story.

Usually, Dead Space 2 has a large possibility space. For the Tormentor boss battle, we made the decision to take away all that systemic agency in favor of what amounts to a quick-time-event: the Tormentor encounter is triggered automatically (there's no way around him), and the way to fight him is pre-authored.

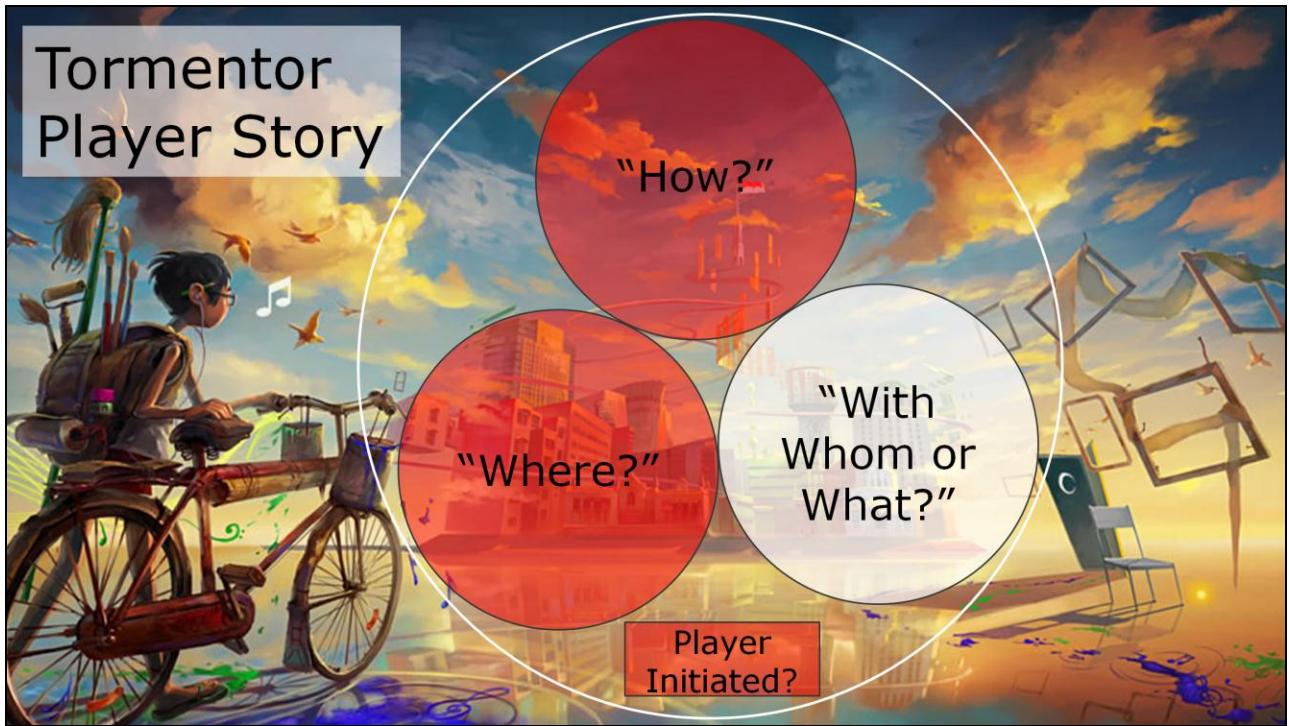


We're left with an encounter that all of us can talk about in 5 seconds: "That was awesome, ja?" – Ja! Brilliant!" – "Did you also shoot at his arm when you had the chance, and then you dismembered the arm and you ran away?" – "Ja. And I ended up getting jettisoned into space. It looked awesome!" – "Ja! ... Uhm...okay, auf Wiedersehen!"

There's very good reasons why we implemented the Tormentor battle the way it was, and why that approach made sense for DS2. It's the most negative I'll ever will be about that game.

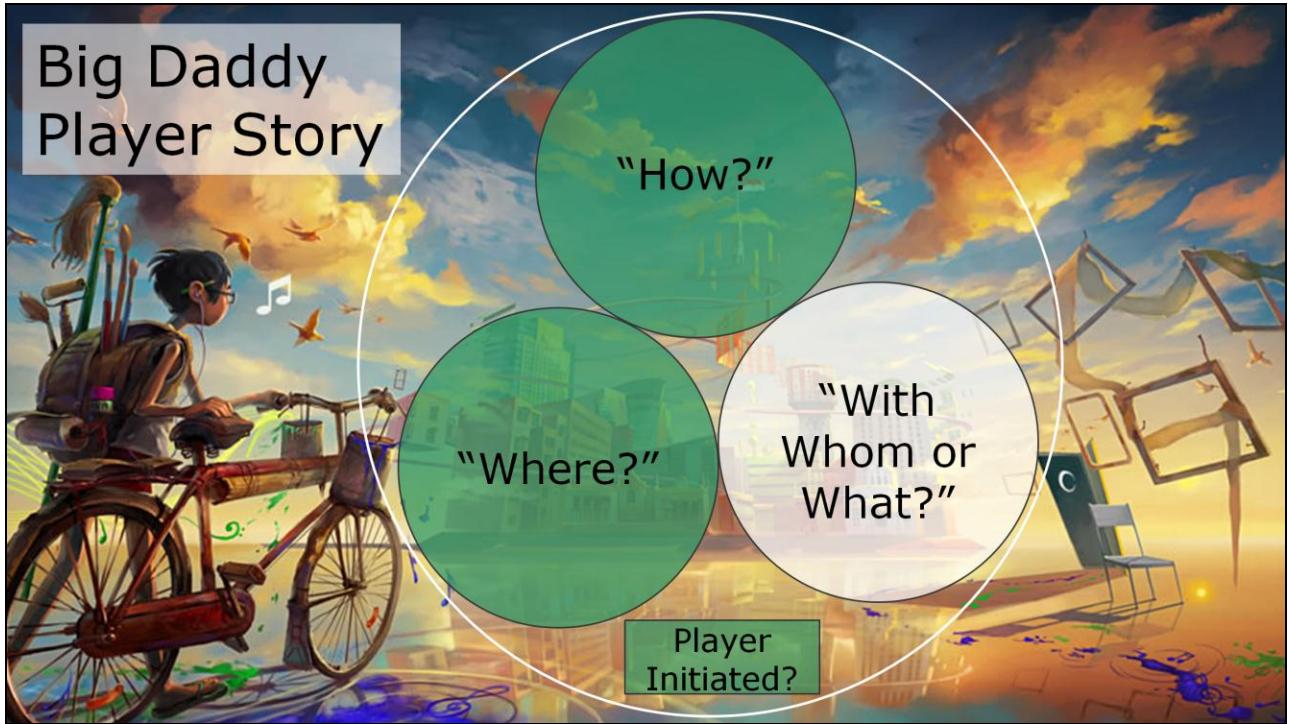
But my message board friend (the one who triggered all of this) is super hardcore about always favoring the player story. Section like this one were a deal breaker for him. And as an analysis, it certainly is a striking comparison:

# T tormentor Player Story



This is the Tormentor player story, where we control everything.

# Big Daddy Player Story



This was the Big Daddy player story, where we abdicate all control over the encounter to the player, and where the question of "Where?" can have a huge impact on the player story.



Spatial agency is optional.



I'd love to think games let the player go wherever he wants to go because we grew up on these kinds of games. But it's a choice.

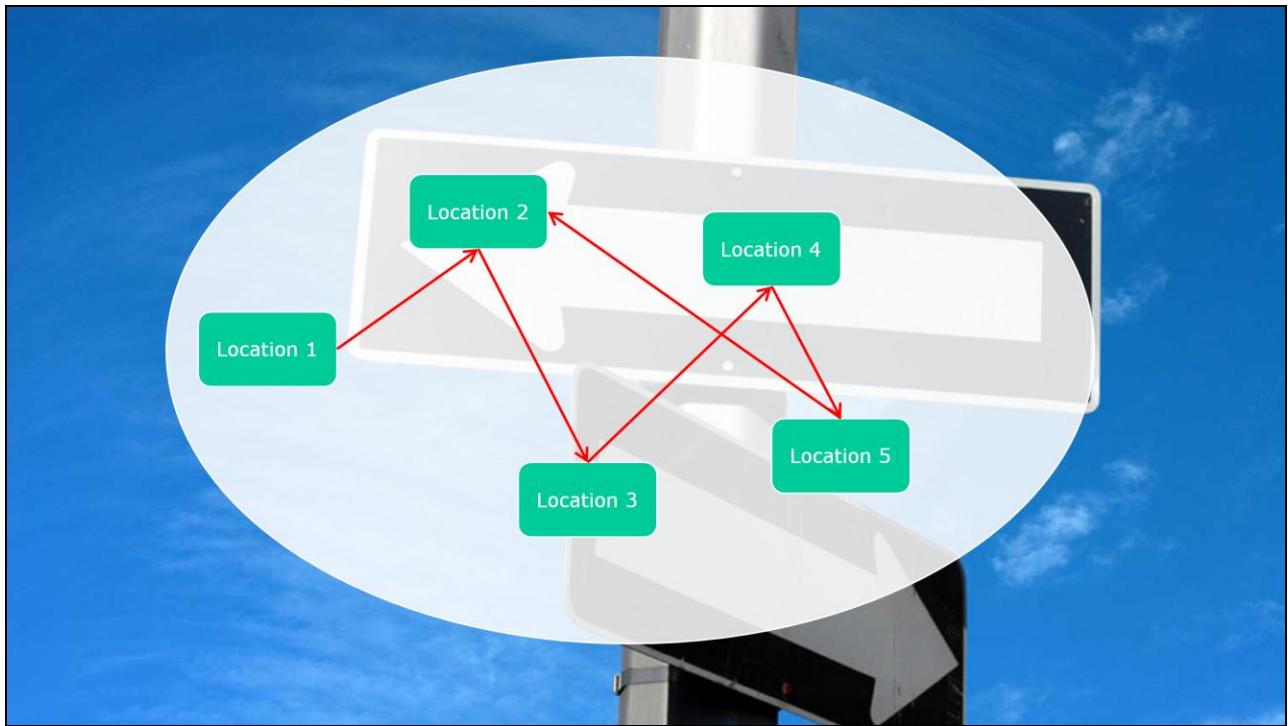
(Amusing anecdote: I found this Ultima VII map for the lecture, and it's one of these huge 16x16k maps where you can zoom in very close on the world. I immediately spent 15 minutes just panning around the map, revisiting old locations.)

# Assessing Spatial Agency

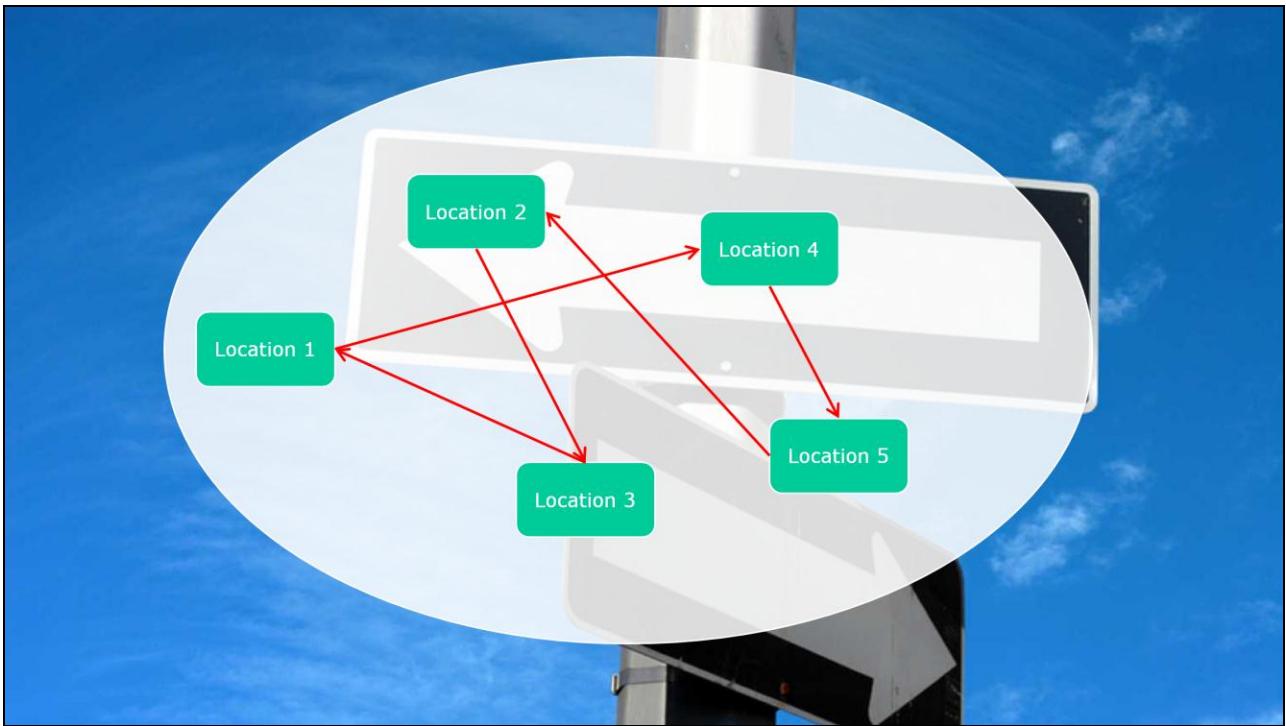
- Optional
- No spatial agency
  - Linear levels
- Some spatial agency (circular levels):
  - Stronger connection between player stories
- Lots of spatial agency (open world):
  - Sense of exploration
  - Player gets to structure his own experience

Spatial agency is not fundamental to games. Tetris (or rail shooters) don't have it at all. But action games afford a small amount of spatial agency by default, otherwise the player couldn't move around. Beyond that, we have a choice:

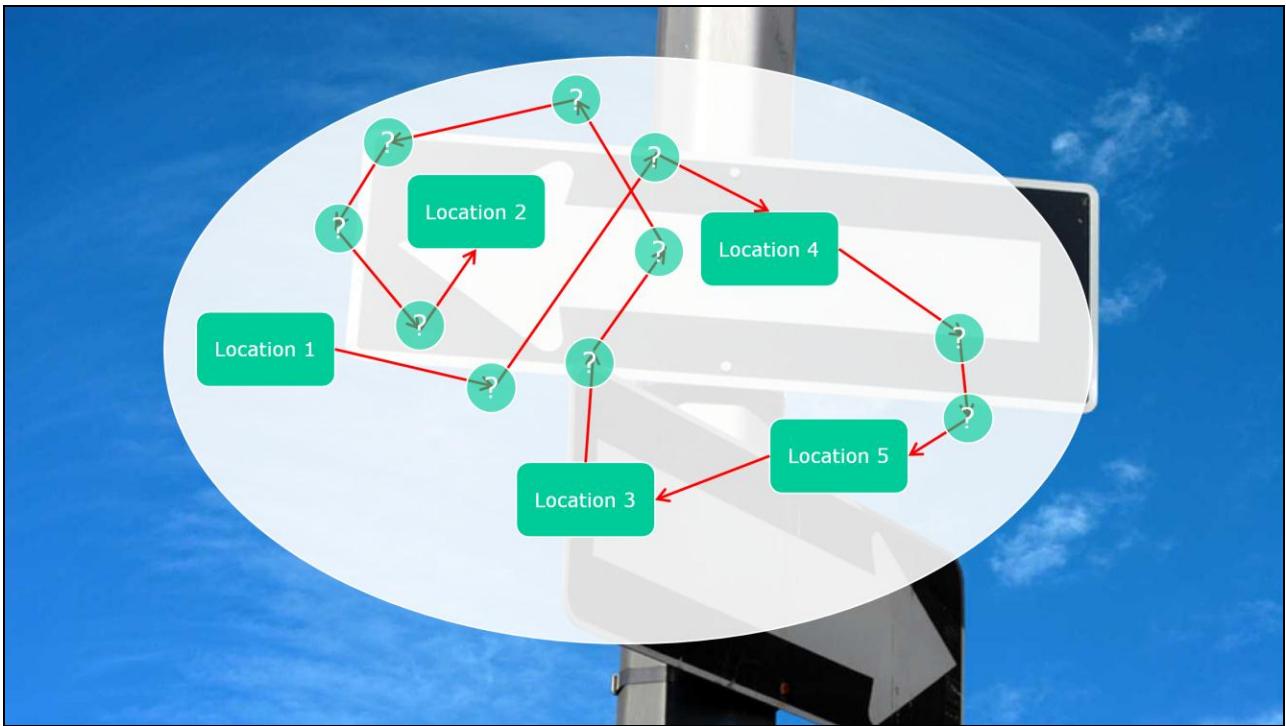
- (Almost) No spatial agency: linear levels. This does not automatically a pushy corridor shooter, though: Dead Space 2, for example, lets the player advance slowly on his own terms.
- Some spatial agency: Circular levels as seen in Bioshock. The extra spatial agency can create strong connections between the "how" and the "where" – spatial agency contextualizes systemic agency.
- Lots of spatial agency: Open world. This creates the sense of exploration, and the player usually gets to structure his own experience. Open worlds usually combine with a "hypertext story structure" - the player initiates the individual story branches himself at his own pace, and the larger story picture slowly emerges from following all these branches.



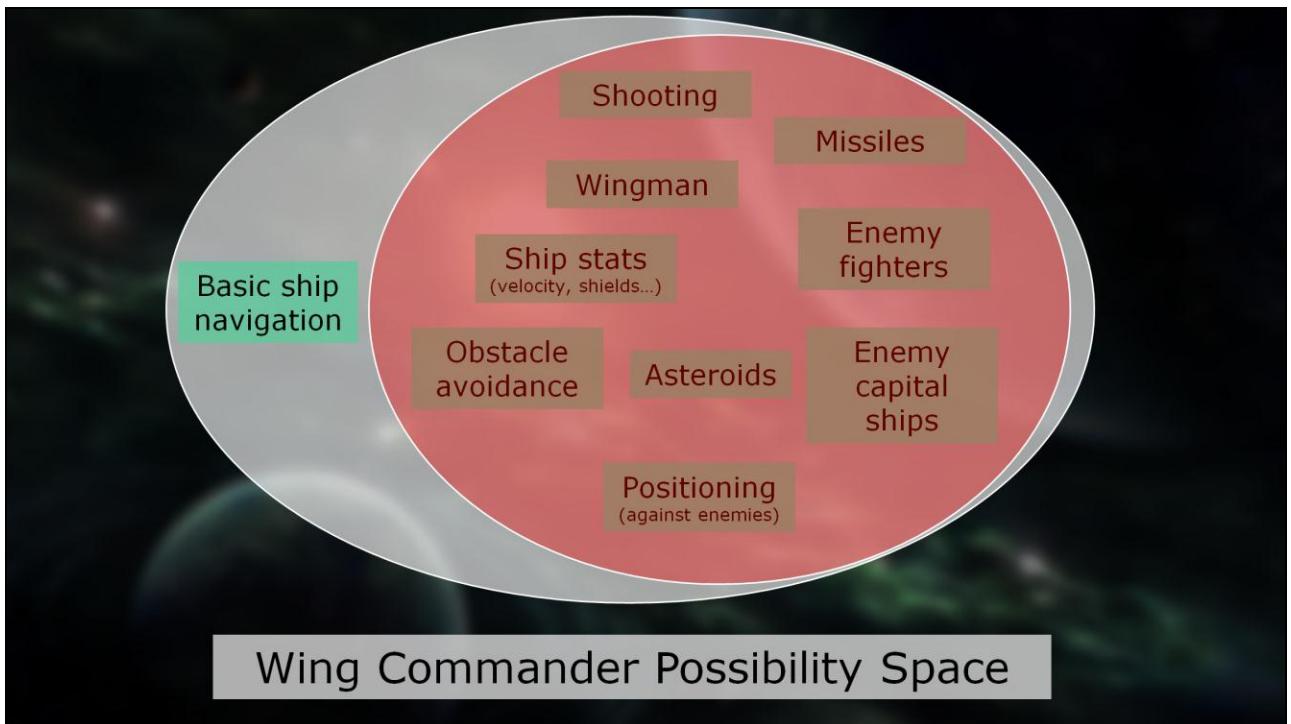
Granting the player some spatial agency always enhances the player story. Clearly, being able to play a game in this sequence, as opposed to...



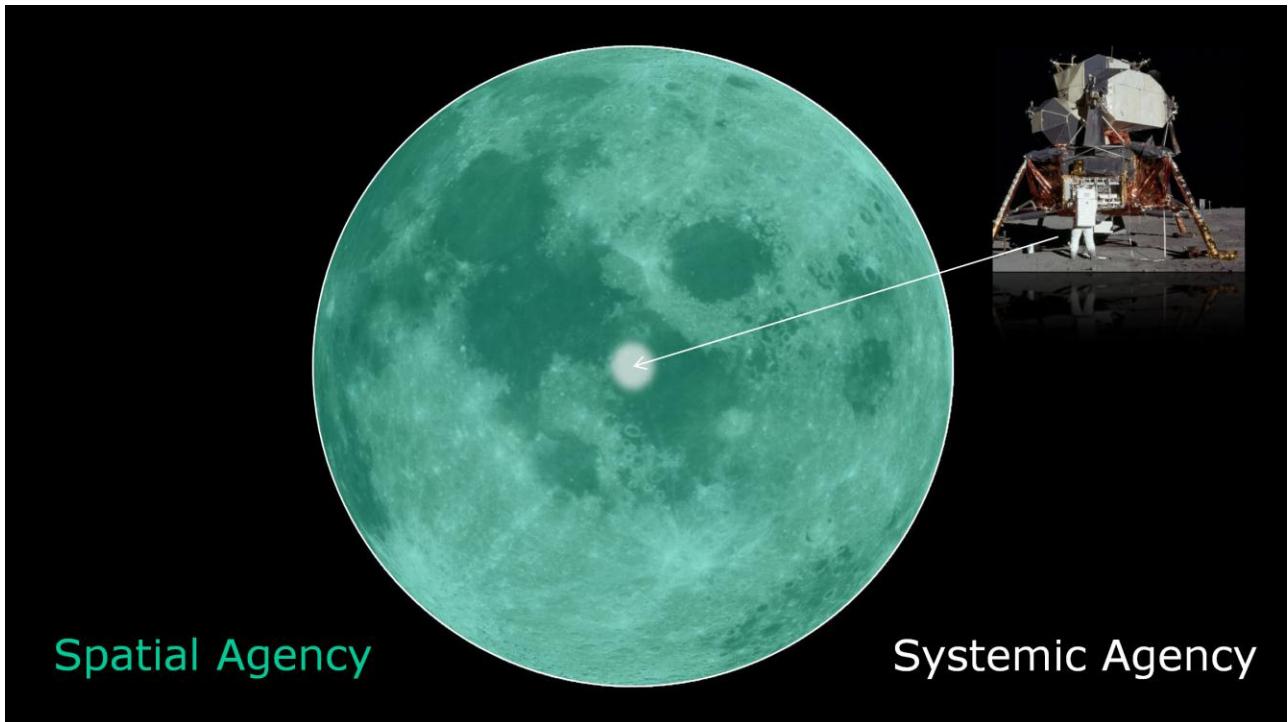
...this sequence, will be more personal to the player. But remember that this is just an illustration. In the game, the player will never actually go through an open world the way I am illustrating here.



He'll go like this. And when he does, you need to make sure that your systemic and spatial agency overlap, or those ad-hoc locations in-between (the "?" bubbles) will have the same problem as Wing Commander...



...where this happened.

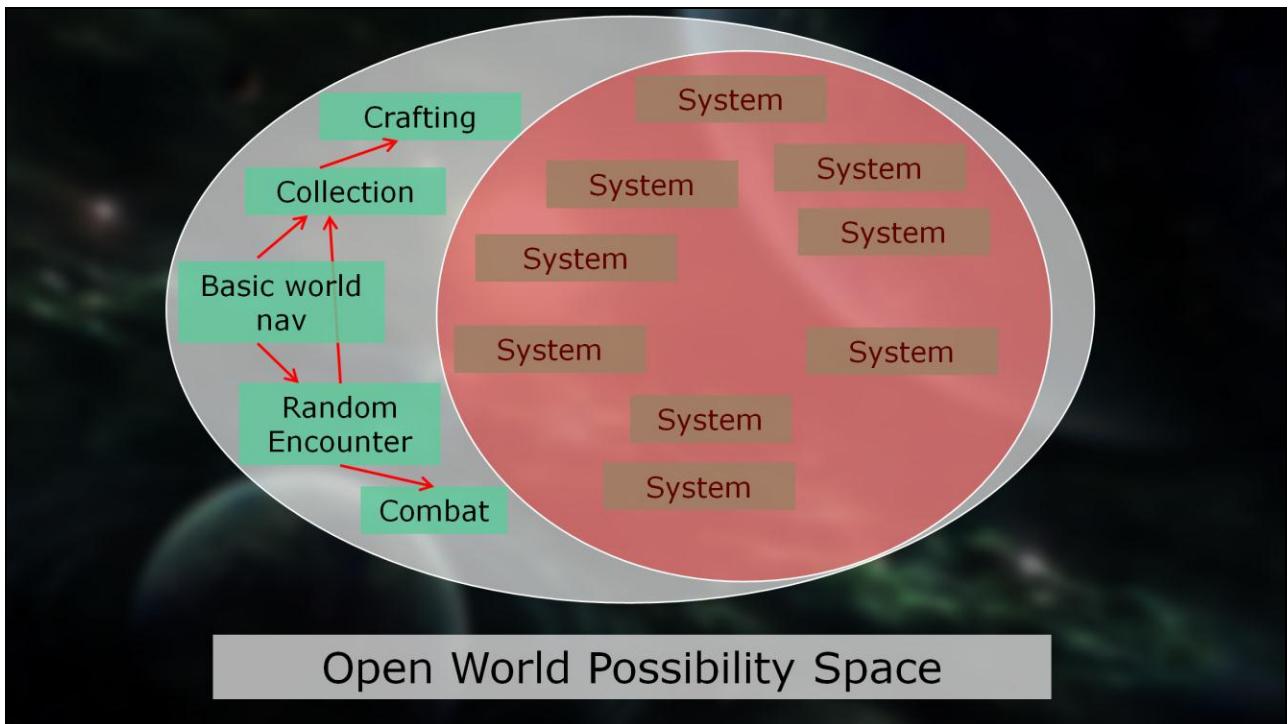


The spatial and systemic agency given to the player did not overlap.

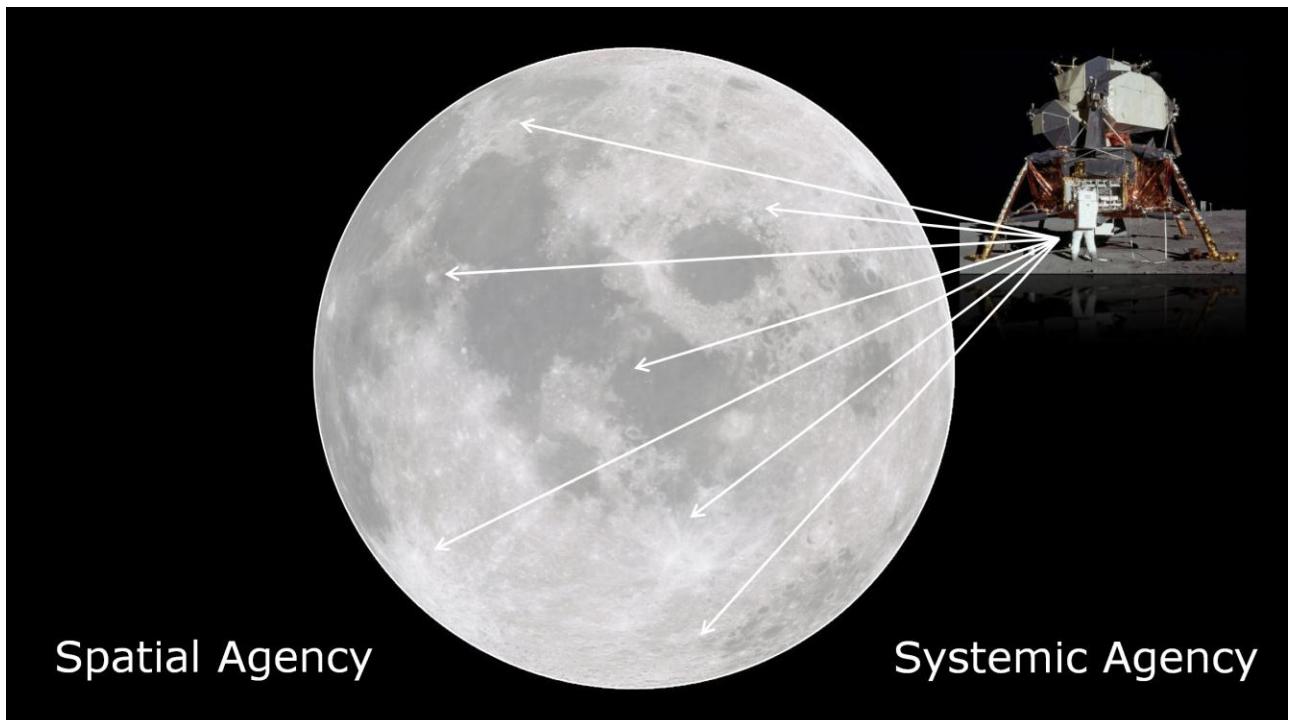
The question is how to prevent it. I'll leave the details for other people to explain (Joel Burgess, for example, who will talk about Skyrim design philosophy at the tutorial). I'll just say that filling a large, open world with gameplay is not going to be producible if you rely on designers who manually create all that interaction.



You should rely on the game's creamy center. If you created enough automatic interaction between the creamy center and level ecology, you create "automatic" gameplay.



Instead of Wing Commander, you get something like this - even in supposedly empty sections that didn't receive any level design attention.

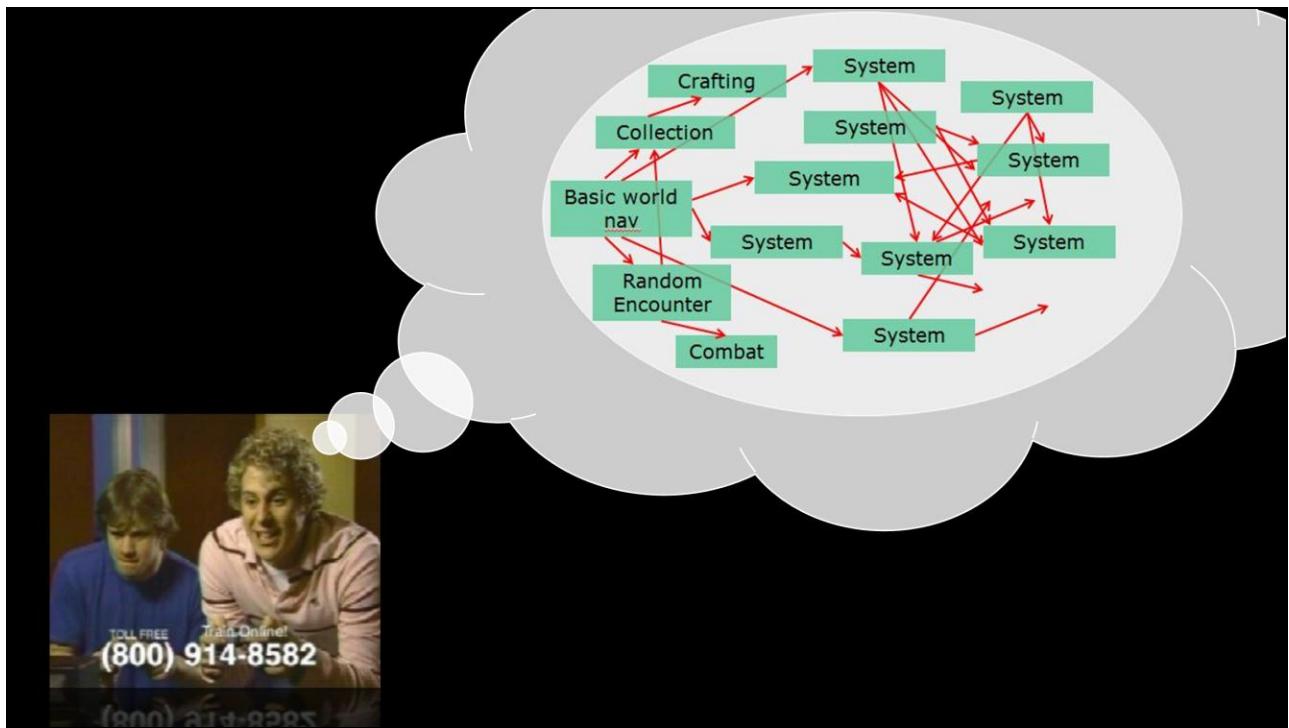


In a way, the creamy center get's evenly distributed across the entire play space, and spatial and systemic agency overlap.



I can hear some people thinking "What the hell, Matt?! You're from a level design background, this is a level design tutorial, and all you keep telling us is how procedural level design is the way to go!"

That's not really what I'm saying. I'm saying that level design is a very specific job. And that job is not to \*create\* gameplay. The job is to distribute and arrange gameplay – and to be a tour guide to that creamy center.



The level designer is a master of understanding the possibility space. (Often, he'll even be the *\*game designer\** who is tweaking the systems that govern it.) But as the LD, we need to remember that we never directly design play! We're a tour guide to the possibility space.



## The Level Designer:

- Highlights options
- Proposes experiences
- Adds twists

It's the level designer's job...

- To highlight options inside that creamy center to the player.
- Arrange systemic elements into interesting gameplay proposals.
- Constantly twists on the possibility space (as to sustain the game for 8-12 hours).

When you're making a game with low spatial agency you'll probably be able place all of the level ecology by hand. In a cover shooter, for example, you'll spend a lot of time placing cover! But when you're creating a larger world, that'll be difficult. So you create procedural rules for the placement of basic level ecology, lean on the possibility space to provide basic gameplay, and have more time to concentrate on the areas of the game that matter the most and deserve manual attention!

### Type 3

## Scheduling Agency

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9  
**2012**

This should give you a good understanding how spatial agency works, and when/how it is important.

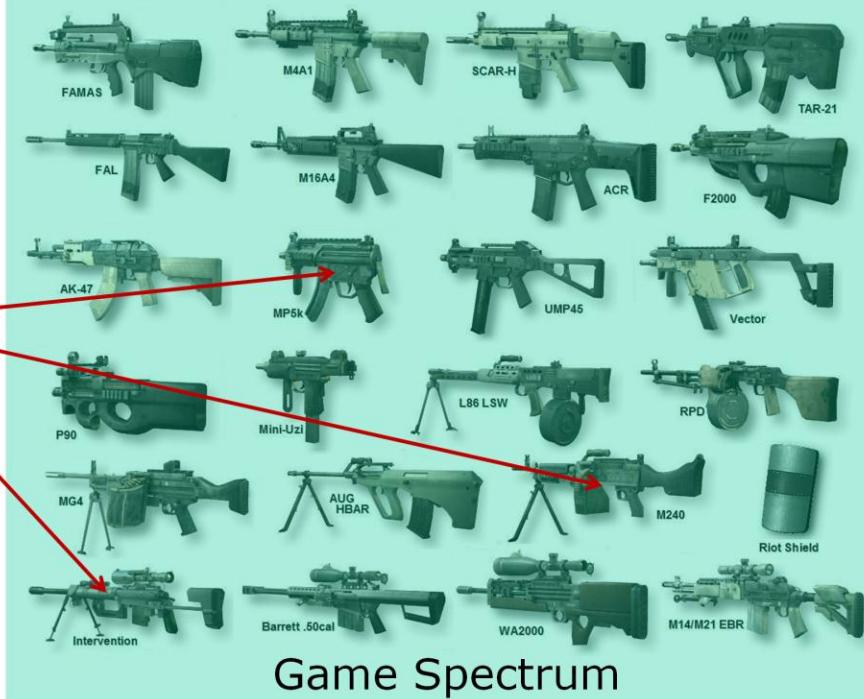
The last outstanding concept is Scheduling Agency. We can go through this type quickly because we've just extensively looked at another type of optional agency.



Scheduling Agency is where we ask “with whom or what?”

This is not the same as systemic agency! We’re not looking at player choice as it relates to what the player has in his current inventory.

Actually  
owned by  
player



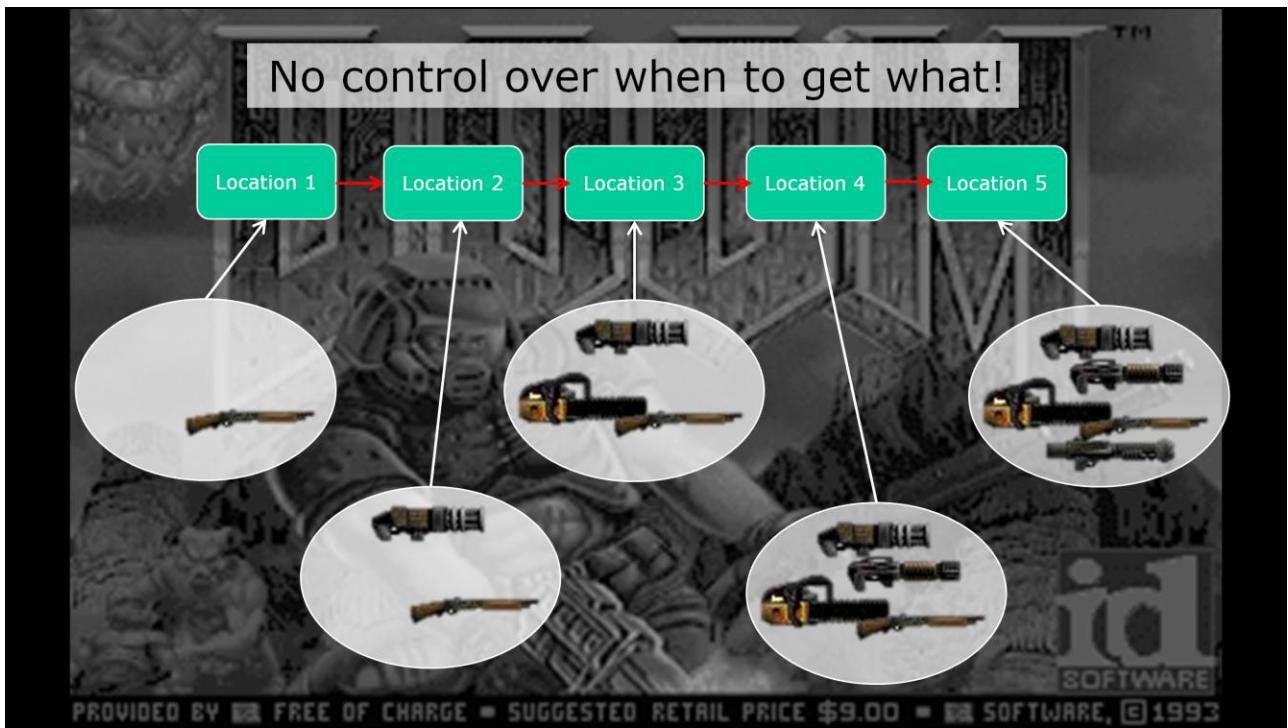
I'm talking about the game's entire spectrum of weapons, armor, buddy characters, abilities etc. Which part of that spectrum does the player have (and when?), which part doesn't he have? How much is the possibility space unlocked as a result? And who determines which items the player gets when?

Scheduling Agency is not fundamental. You can make an awesome game without it.



PROVIDED BY id FREE OF CHARGE • SUGGESTED RETAIL PRICE \$9.00 • id SOFTWARE, ©1993

Doom is authoritative in this area. It unlocks its weapons via pre-authored placement in the levels.

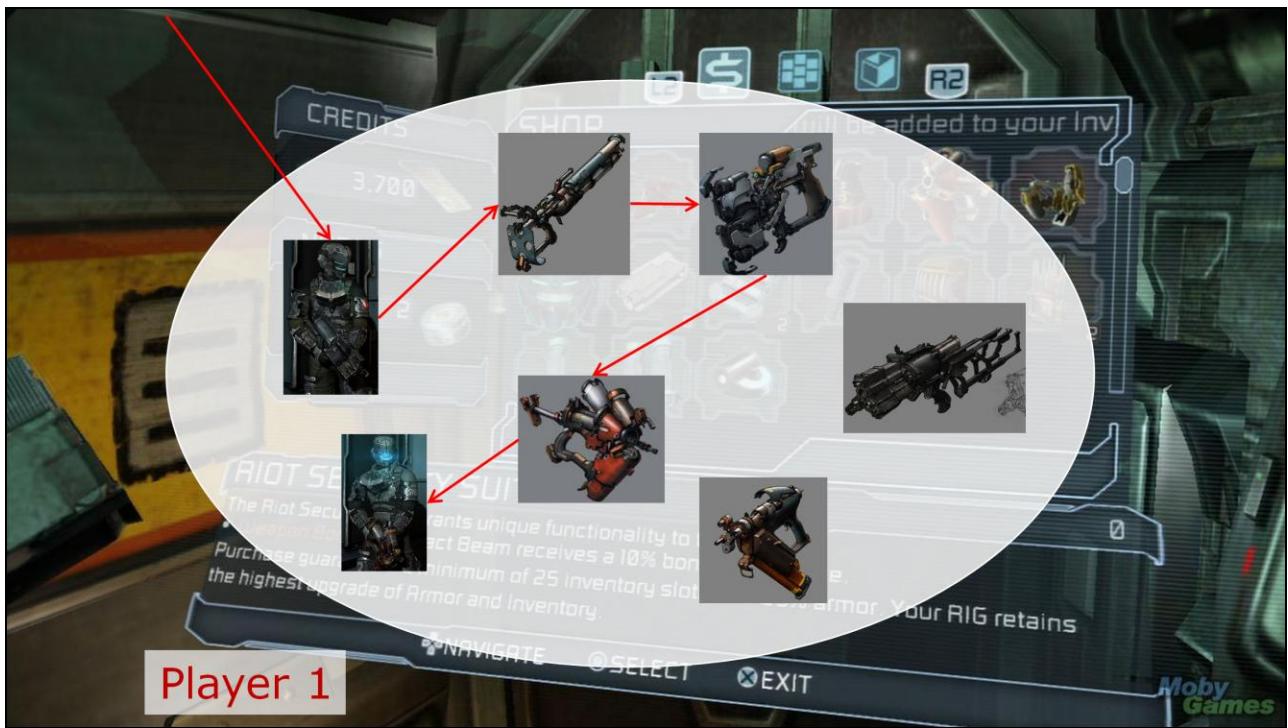


As we go through the level, we all have the same weapon selection at the same time. The game doesn't grant any scheduling agency, it's pushing the weapon progression (from a small pool of weapons – 8 in total) onto the player. This makes for a weaker player story.

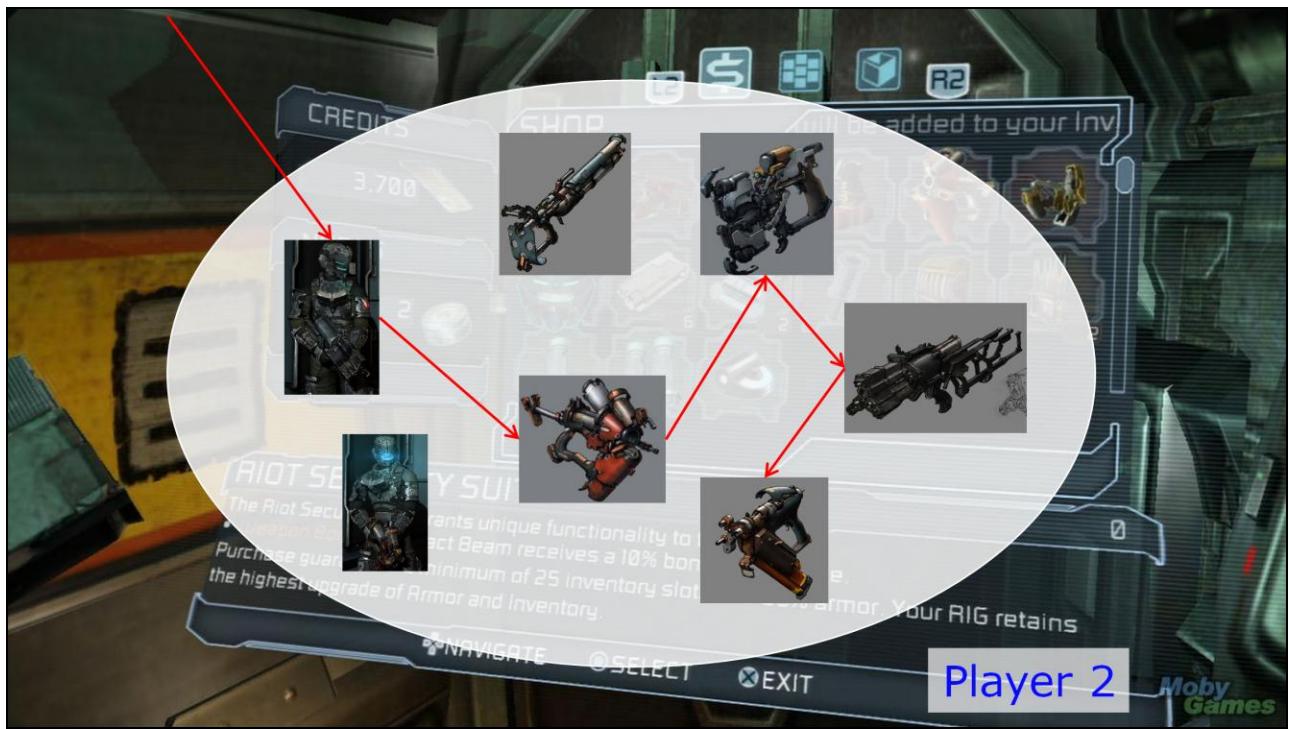


Dead Space 2 is the opposite. We give the player all the choice in the world, and get a very personal player story because of that.

Dead Space 2 has stores: the player chooses from a selection of weapons, player suits etc. Items are generally exclusive – the player has to choose which one to buy. By doing so, he's diversifying the player story. And he is aware of that fact – for every purchase decision he knows which purchase he didn't make, and wonders how that might have affected his journey through the game.



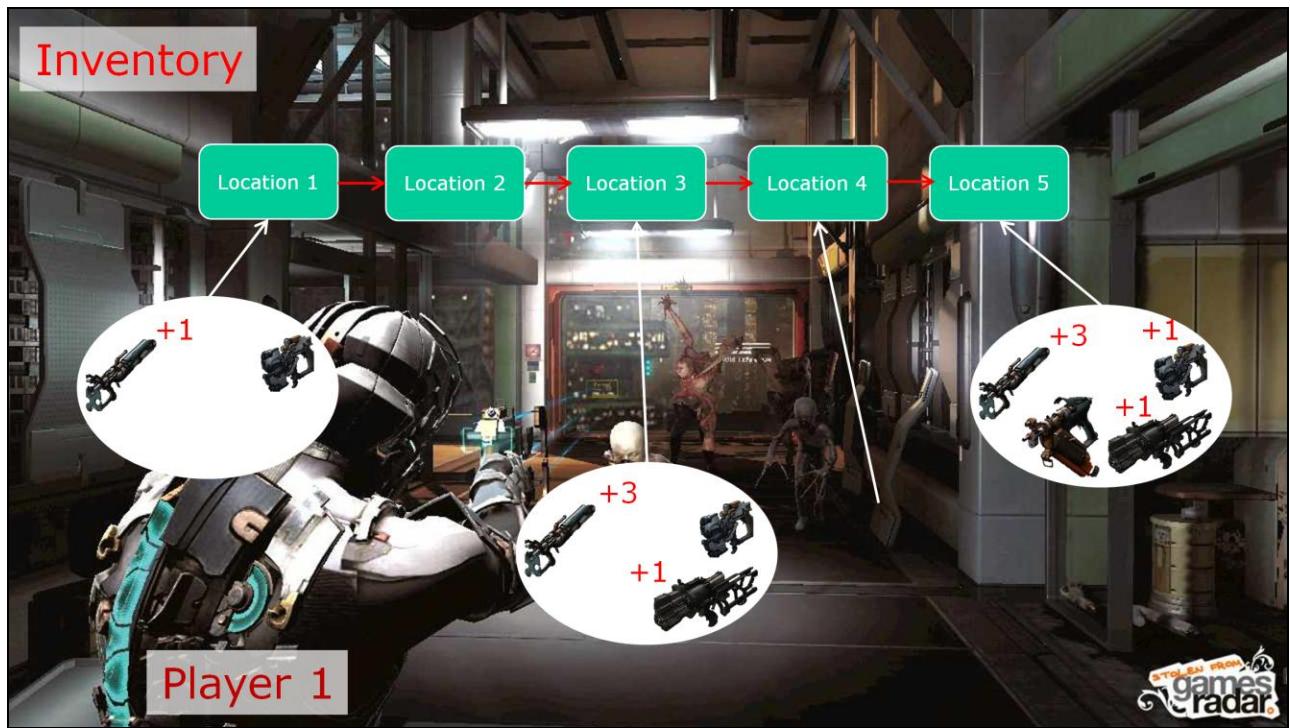
Mapping scheduling agency creates a familiar chart: In Dead Space 2, Player 1 might go through the game unlocking weapons and suits like this...



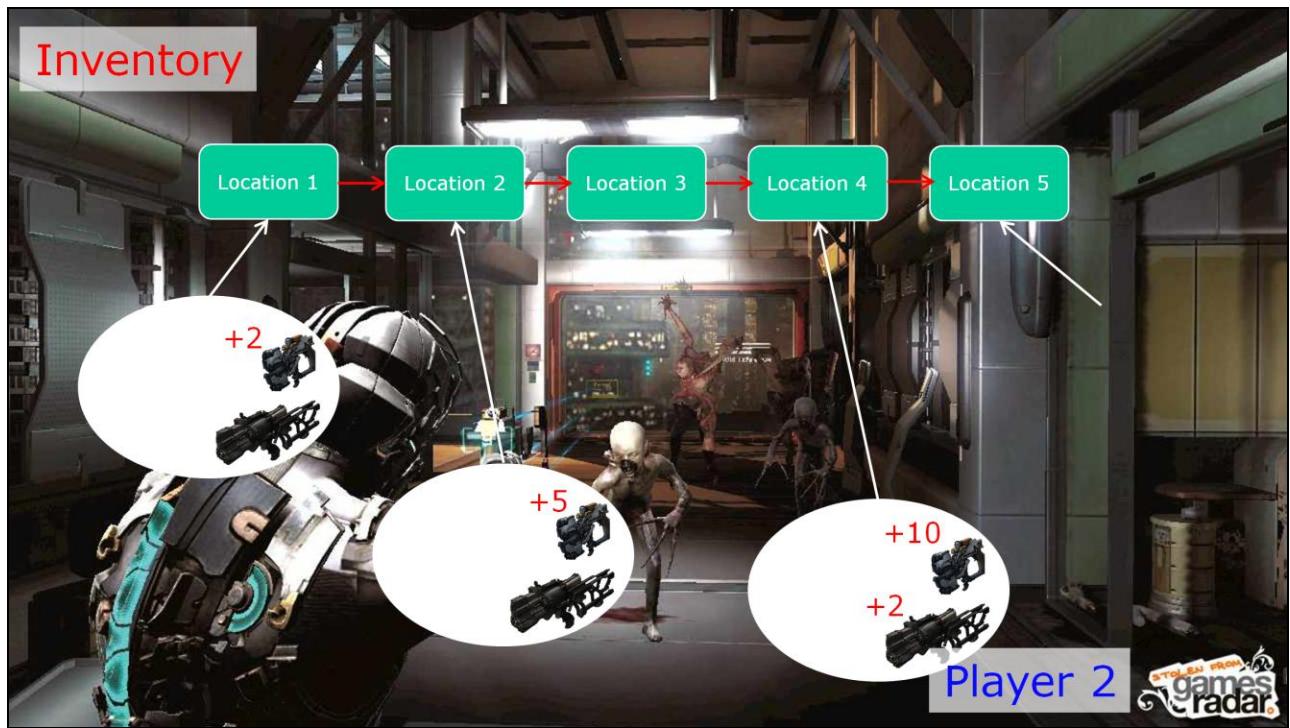
...while Player 2 does this.



On top of this, in DS2 we also allow the player to customize each item with power nodes. This further diversifies the weapon loadout from player to player.

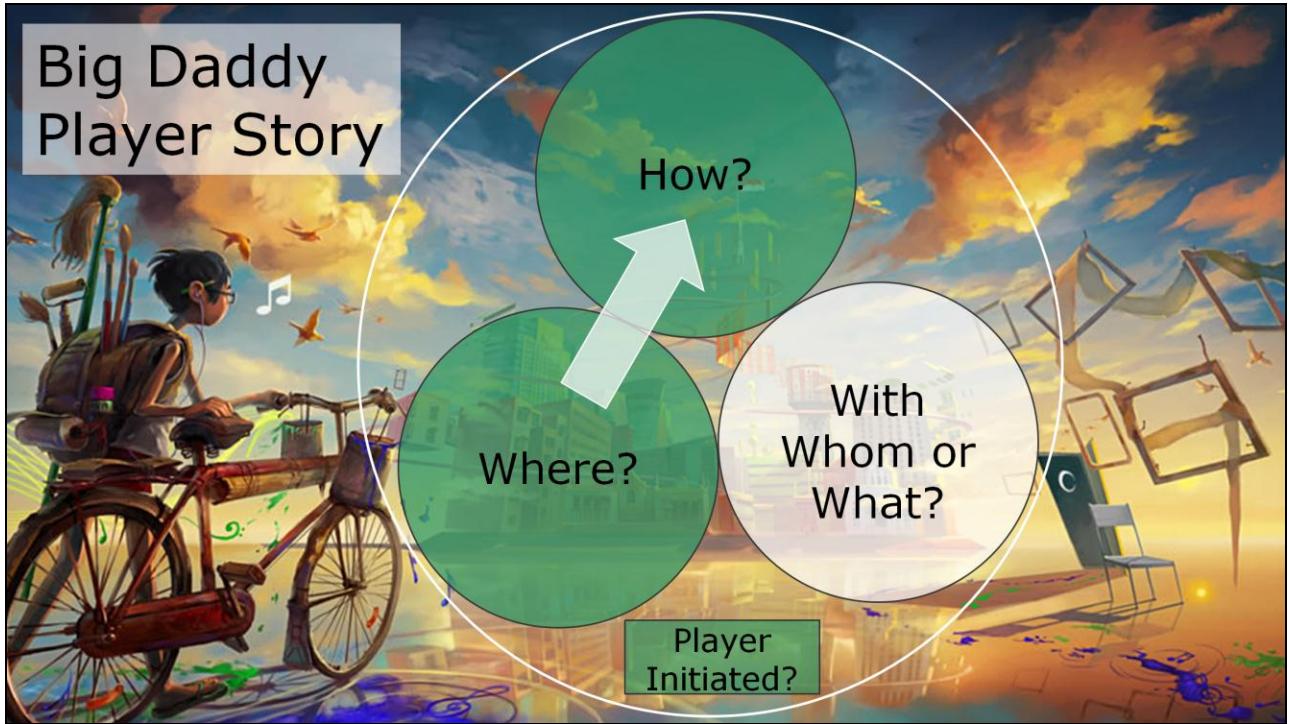


We quickly get an unpredictable range of weapon inventories for each player, all tailored to that player's personal preferences and play style. The differences might be as profound as this...



...and this.

## Big Daddy Player Story

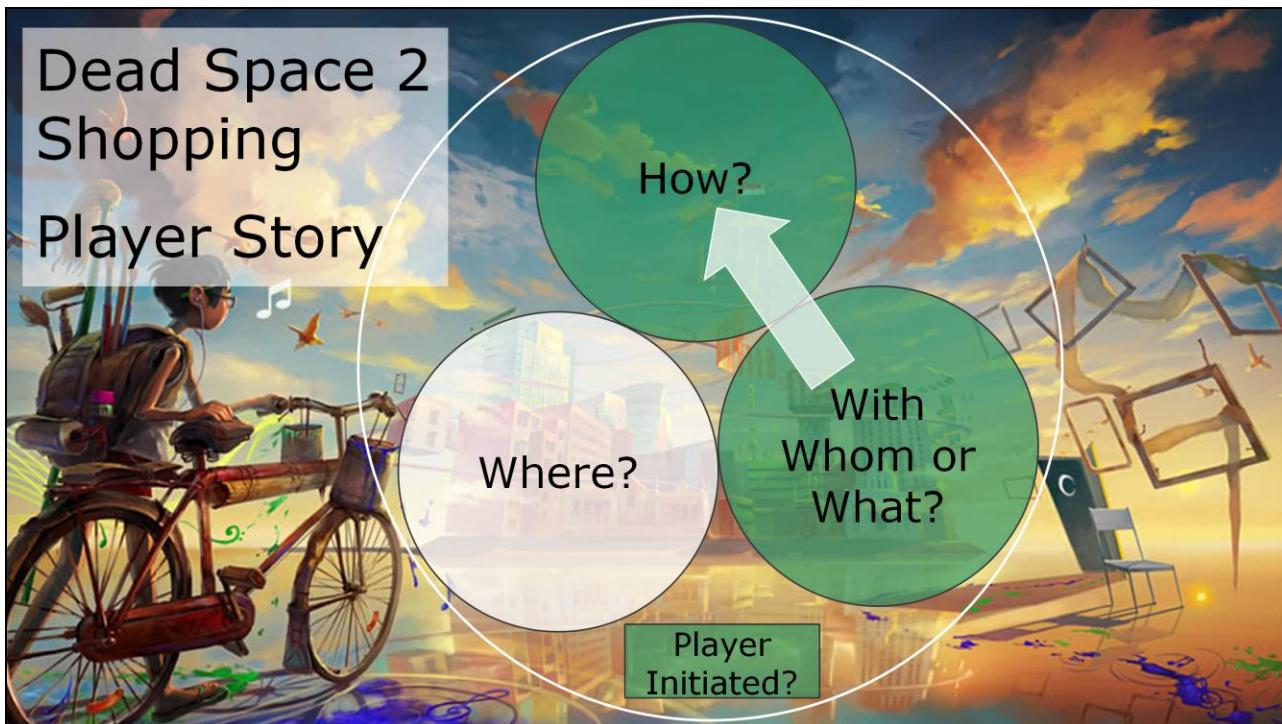


With high scheduling agency, we get a very similar effect to the Big Daddy example, where spatial agency and systemic agency interacted.

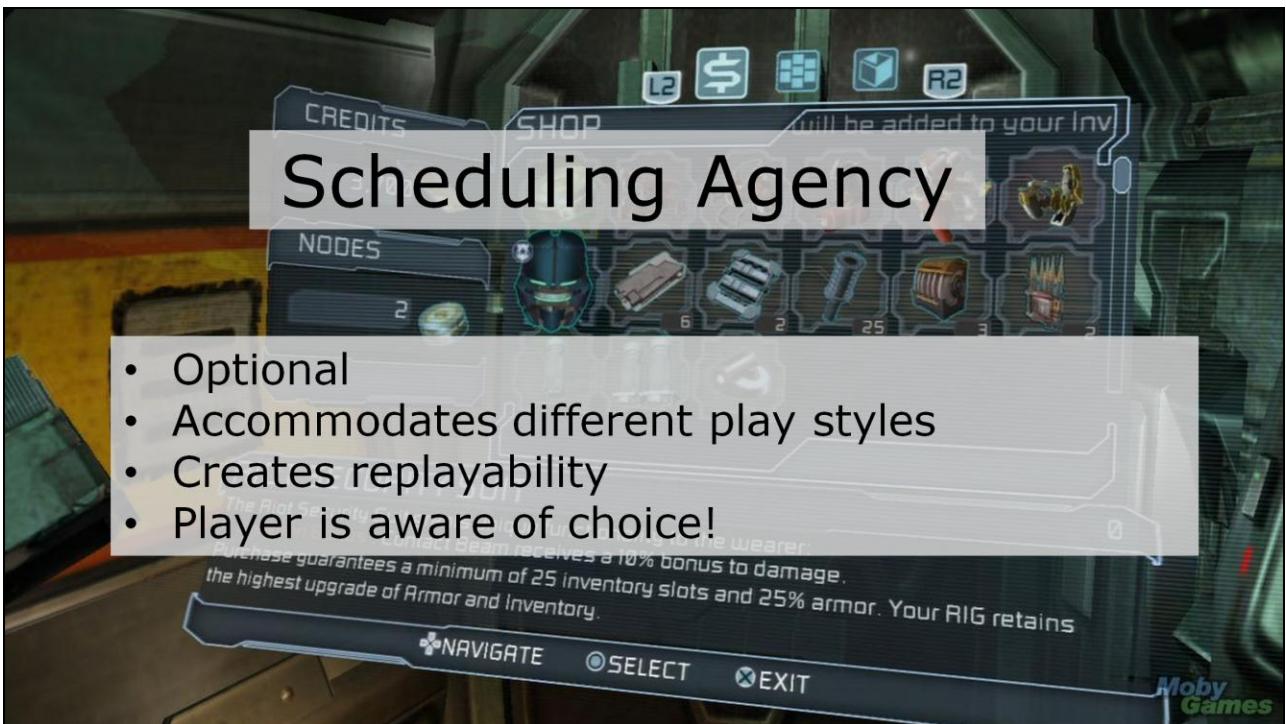


In that example, the location of engagement that the player got to choose contextualized the possibility space.

# Dead Space 2 Shopping Player Story



The same happens here, except that in this case, the "How" is contextualized by the "with what?" The "with what" is different for everybody because everybody has a different inventory! Consequently, the way each encounter plays out for each player is different.



- Scheduling agency is not fundamental – great games like Doom don't have it.
- High amounts of scheduling agency, combined with a large variety of weapons and abilities, are very powerful because it accommodates different play styles.
- High scheduling agency also creates replayability – often times, the player does not obtain the entire arsenal (or range of abilities) during a single playthrough, and wants to go back to figure out what he missed. This is why NGame+ was popular in Dead Space 2.
- The player is aware of the choices that he makes. Because of that he understands that he's crafting his own player story.

# Scheduling Agency & Level Design

- Can never predict what the player will have
- Don't want any special case scripting to handle it!
- Levels still need to be balanced!

As the level designer, large amounts of scheduling agency create challenges:

- We can never predict the inventory that the player will have.
- We don't want to have to create any special case scripting to handle the differences!
- But of course, the levels still need to be balanced!

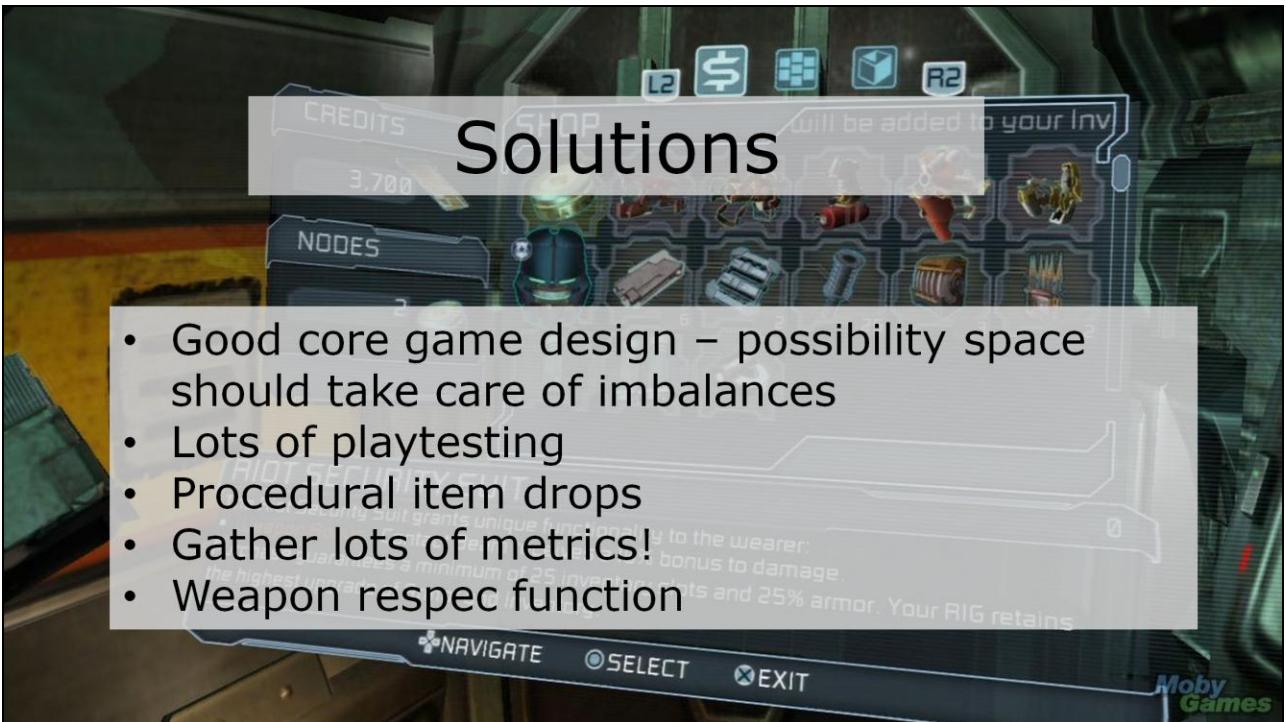
As a the level designer, we don't deal with that.



Again, we have to rely on the possibility space to address the problem. That is where we deal with the challenges - not in the level design.

# Solutions

- Good core game design – possibility space should take care of imbalances
- Lots of playtesting
- Procedural item drops
- Gather lots of metrics!
- Weapon respec function



On Dead Space 2, for example, we had...

- Great core game design from the systems designers. A lot of time and care was put into creating a possibility space that accounted for all combinations and imbalances.
- Lots of playtesting. Systems designers need as much real-world data as possible to make informed decisions.
- Procedural item drops. LDs never placed a specific item or ammo drop, they only placed a generic pickup. The system figures out at runtime what the player might need.
- Lots of metrics! Each playtest gathered data on how much health, ammo etc. the player had at which point in the game, how much money had spent in stores, etc. These metrics helped with the balancing passes.
- The weapon respec ability. Upgrade paths can be daunting, and the player might be afraid of upgrading himself into a corner. To take the sting out of those decisions, respec allows him to get back all power nodes that had been already committed and redistribute them in different configurations.



# Conclusion

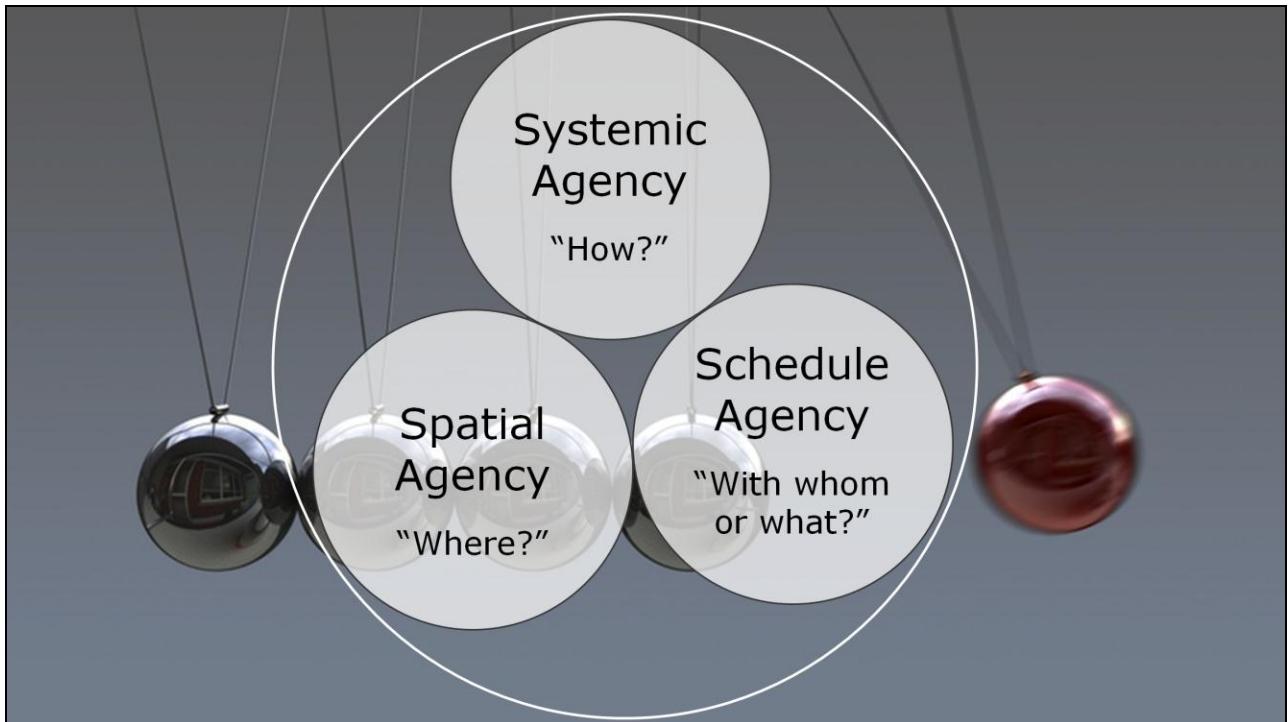
GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9

I think we're ready for a final tally.

I love  
player  
stories!



If you did a drinking game, taking shots for every time this lecture has mentioned the possibility space, you're probably drunk at this point. But you know why we talked about it so much. Player stories are important.



We need to gain a better idea of how our games create player stories. This lecture wasn't supposed to provide an analytical tool - more to be a platform on which we can base future discussions.

## Dead Space 2



But if we wanted to, we could color-code things.

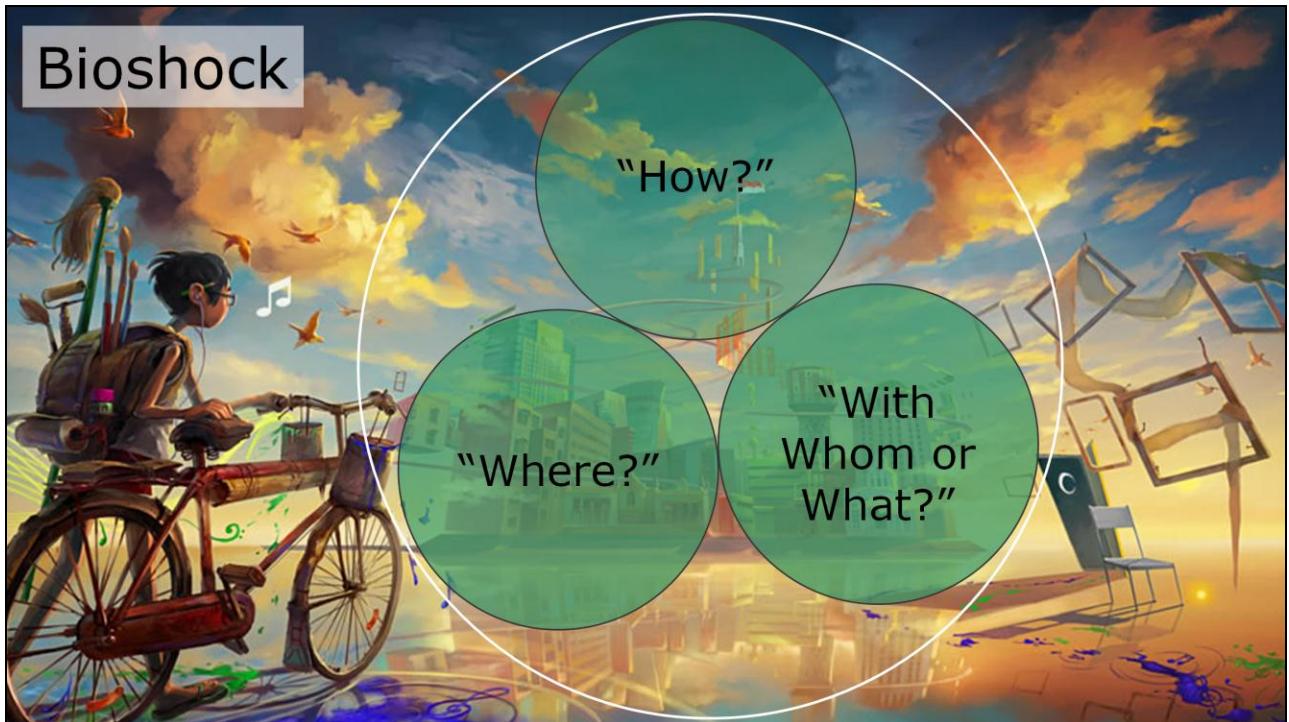
In Dead Space 2, the spatial progression is identical for everybody, but inventory varies wildly. Because of the large possibility space and large amounts of scheduling agency, different players will have very different approaches to encounters as they play through the game.

Doom



Doom has open, non-linear level layouts and an expressive possibility space, but the order of item unlocks is the same for everybody.

# Bioshock



Bioshock creates very strong player stories (as should have become clear through all the examples used in this talk) because it affords lots of agency of all types.

Skyrim

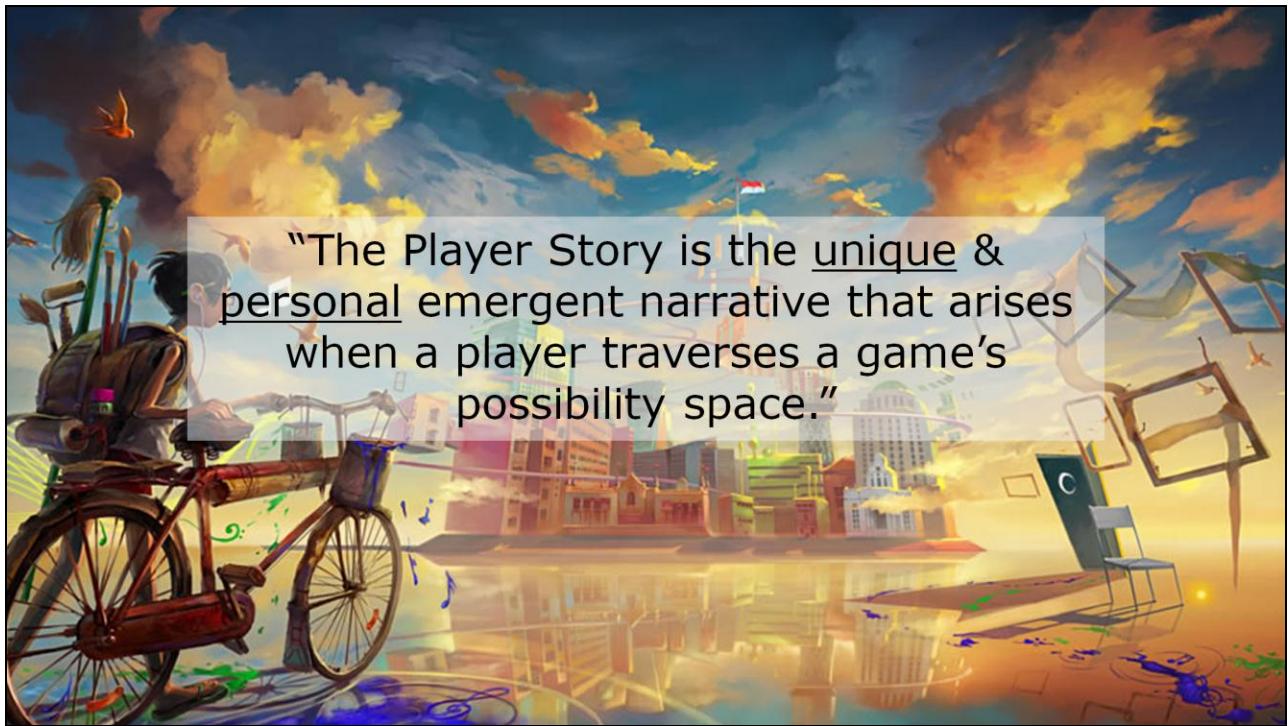


And if Bioshock is strong, Skyrim probably blows it out of the water.

# "Some games"

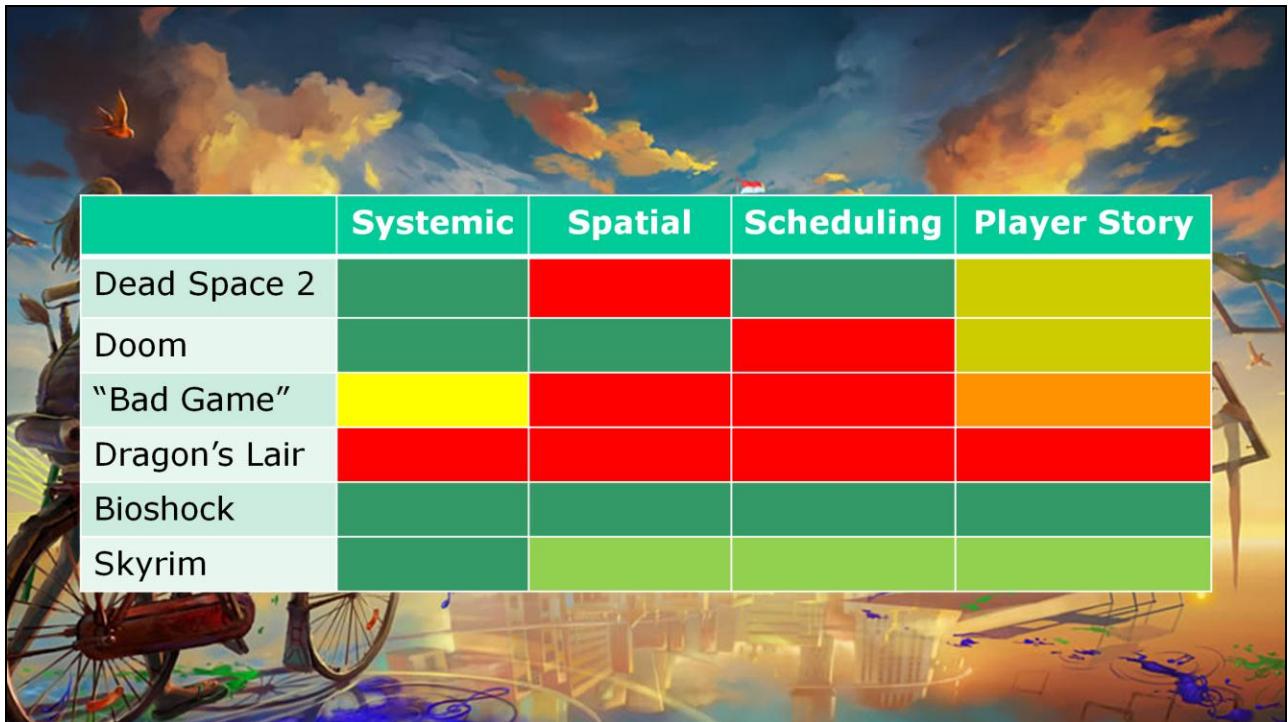


There's even games out there that look like this. No need to name them, but if we consider the player story to be an indicator, these products are barely games...



"The Player Story is the unique & personal emergent narrative that arises when a player traverses a game's possibility space."

...because there's nothing "unique" and "personal" about them.

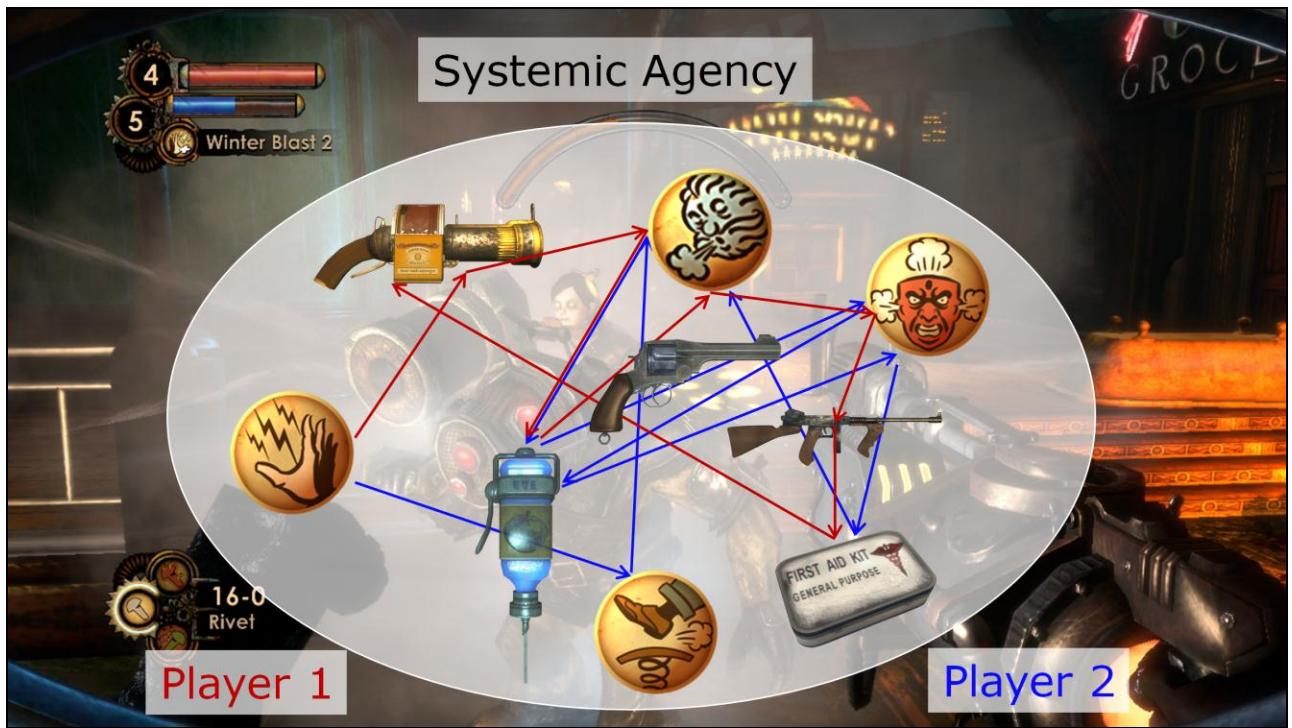


	<b>Systemic</b>	<b>Spatial</b>	<b>Scheduling</b>	<b>Player Story</b>
Dead Space 2				
Doom				
"Bad Game"				
Dragon's Lair				
Bioshock				
Skyrim				

Again, the important part isn't the ability to rate games and put them up against each other.

It's important that you can look at *\*your\** game, analyze how much agency it generates in each area, and have a better idea of how it generates player stories. As you can see, Dead Space 2 actually does well – my friend was just hung up on the fact that the game doesn't grant any spatial agency because the entire level flow is linear.

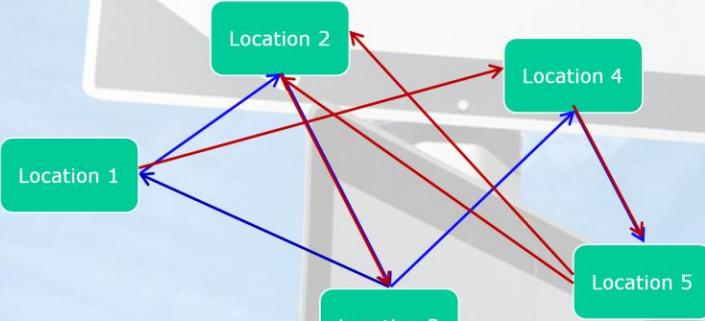
But there's a lot of non-linear exploration in the other areas of the game. In fact, that's the conceptual idea to take away from this talk: there's more to games than spatial exploration.



As you may already have noticed, we've been able to illustrate all types of agency as the traversal of a conceptual or actual space.

We can show the difference in systemic agency...

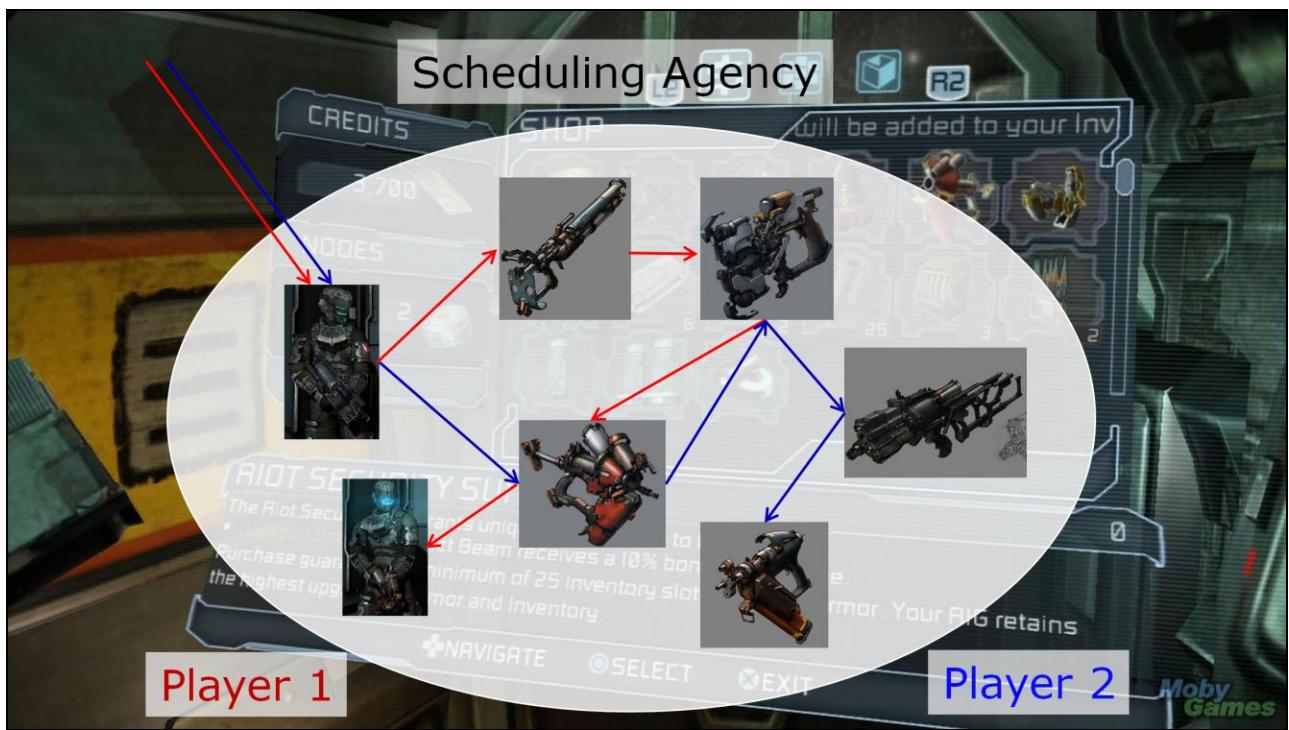
## Spatial Agency



Player 1

Player 2

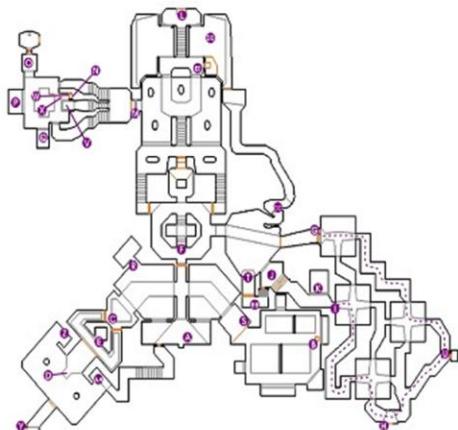
Spatial agency...



And scheduling agency.

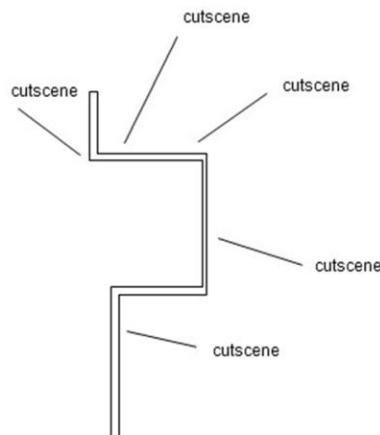
## FPS map design

1993



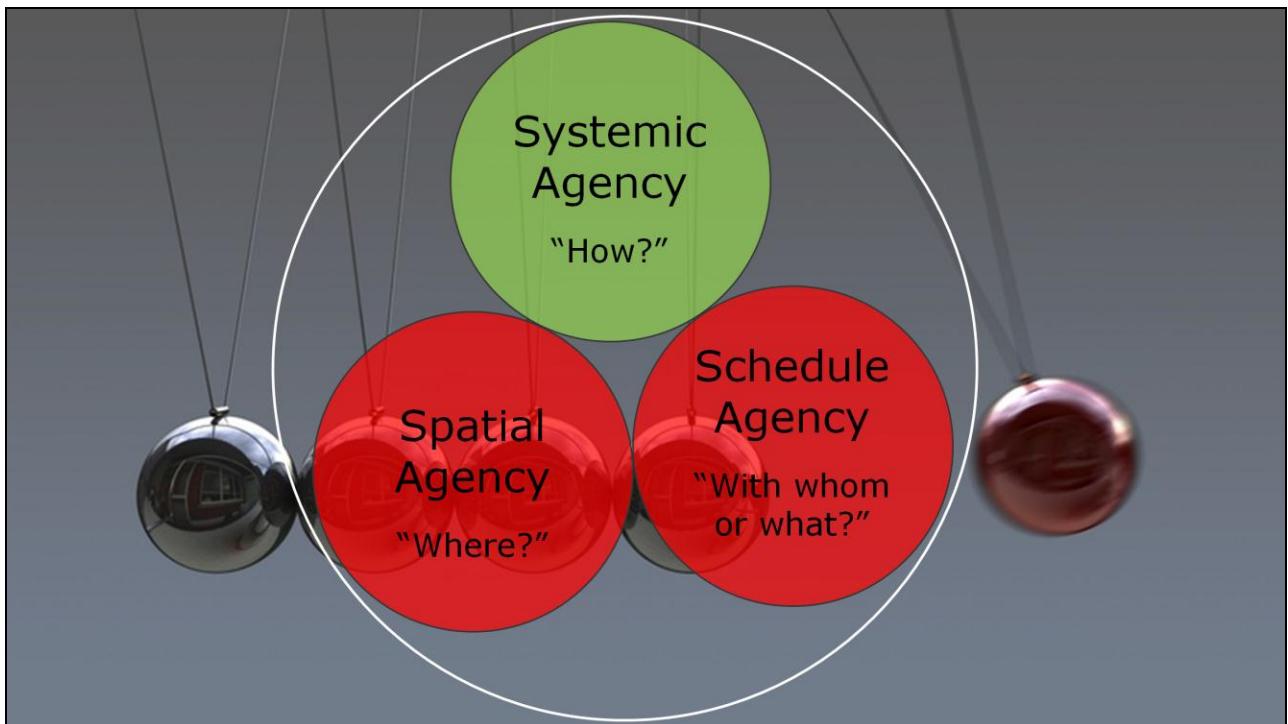
2010

Dead Space 2?



As a result, I hope that the next time when somebody shows you this map - or even worse, asks "Isn't that your game on the right?" - you can say no. Or, more specifically: "Yes, but...that chart only shows spatial agency."

This chart needs to die. It's not an accurate portrayal of where modern level design and game design have been going. We need to look at the overall rating of the player story that a game creates, and understand that spatial agency and scheduling agency are optional to games.



Always remember that this game is still an awesome game. How green you make the other areas is up to you.

As a level designer you don't always have say over whether the game you're working on has scheduling agency or spatial agency, anyway (although I do hope that you'll push for as much spatial agency as possible - and ensure that it overlaps with systemic agency!). That's okay! There's still lots of room for awesome level design in a linear game if you understand the possibility space. Gears of War is very linear, but the player stories that we get out of every linear room are very personal.



That's because Gears of War has this. And that creamy center should always be there! It's essential to games – it makes them what they are.

We're going to do portfolio review later. Here's my general advice to you as an aspiring level designer: demonstrate an understanding for what I talked about here - how a game's underlying structure shapes the experience. Then explain how your level uses that knowledge and gets the most out of the possibility space. Use video, process documents, flowcharts – anything. Explain how games should be filled with cream, and how you're using that knowledge to create awesome gameplay proposals for the player.

Pretty screenshots are nice, but demonstrating an understanding of *\*this\** is what will get you hired. And if you're applying to me: feel free to send a Twinkie with every cover letter. You know, just to make that point ;)

Thanks!



**Slide downloads at  
<http://www.worch.com>**



**Follow @mworch for updates!**

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 5-9, 2012  
EXPO DATES: MARCH 7-9

**2012**

v1.02 - March 17, 2012.