

Level Design Workshop

Section Three: Pacing



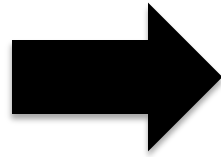
GAME DEVELOPERS CONFERENCE™ CHINA
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Matthew Scott

Independent Game Designer

DoSillyStuff.com

Worked
on these



What is Pacing?

Pacing goes by many names: flow, rhythm, tempo, groove, etc.

“It was a roller coaster ride.”



What is Pacing?

Pacing describes the relationship between an **activity**, the **intensity** of that activity, and the **duration** of the activity.

How can we use Pacing in Game Design?

Pacing can be a tool used for keeping the player interested in your game.

It can be used to convey certain emotions to players, and also helps control impact of events to the player.

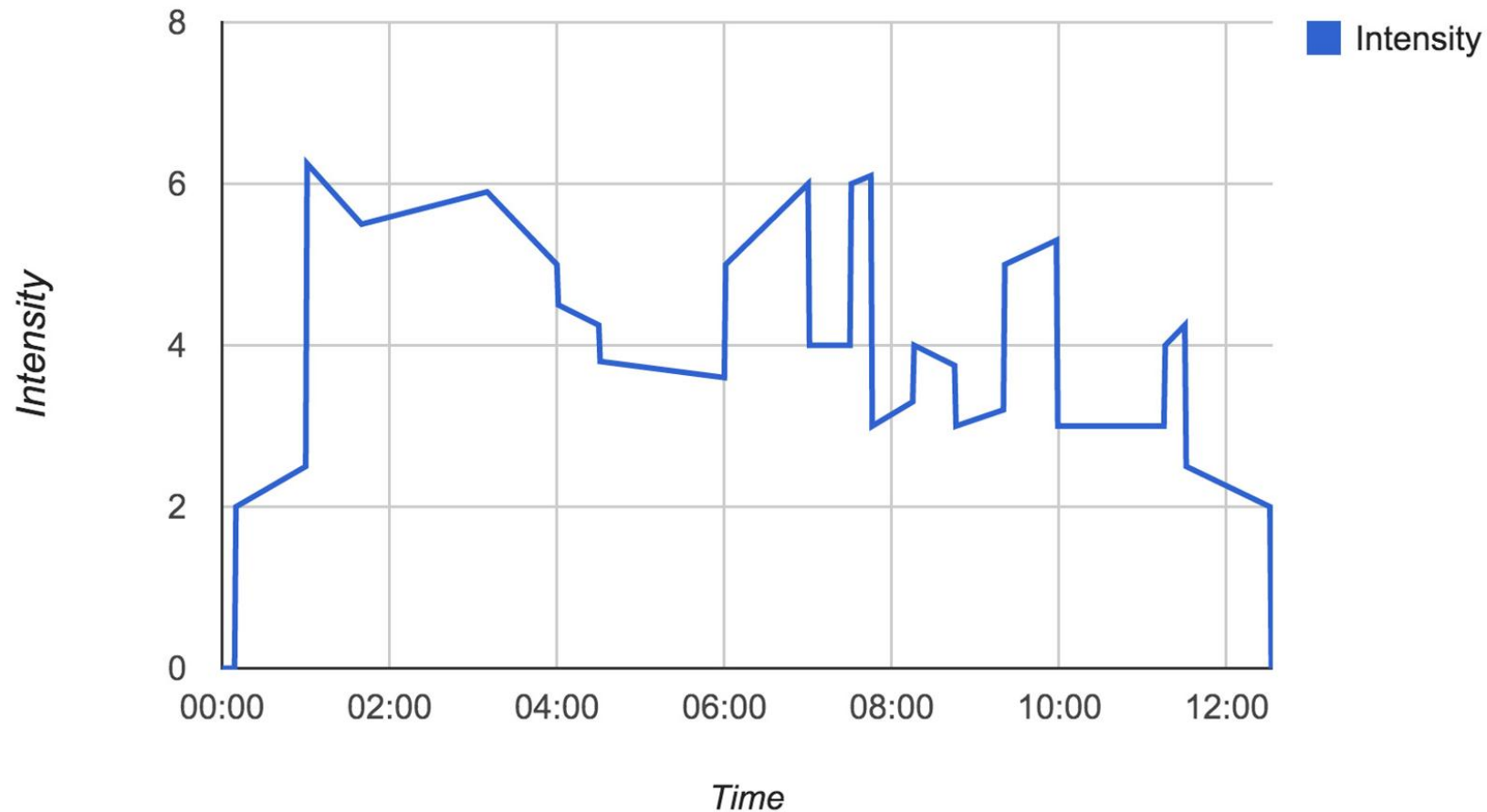
How can we use pacing in game development?

Useful to visualize pacing in graph form.

Activity in relation to time.

Pacing for the scope of this talk

Pacing Analysis: White Forest Inn



PACING & MOTIVATION

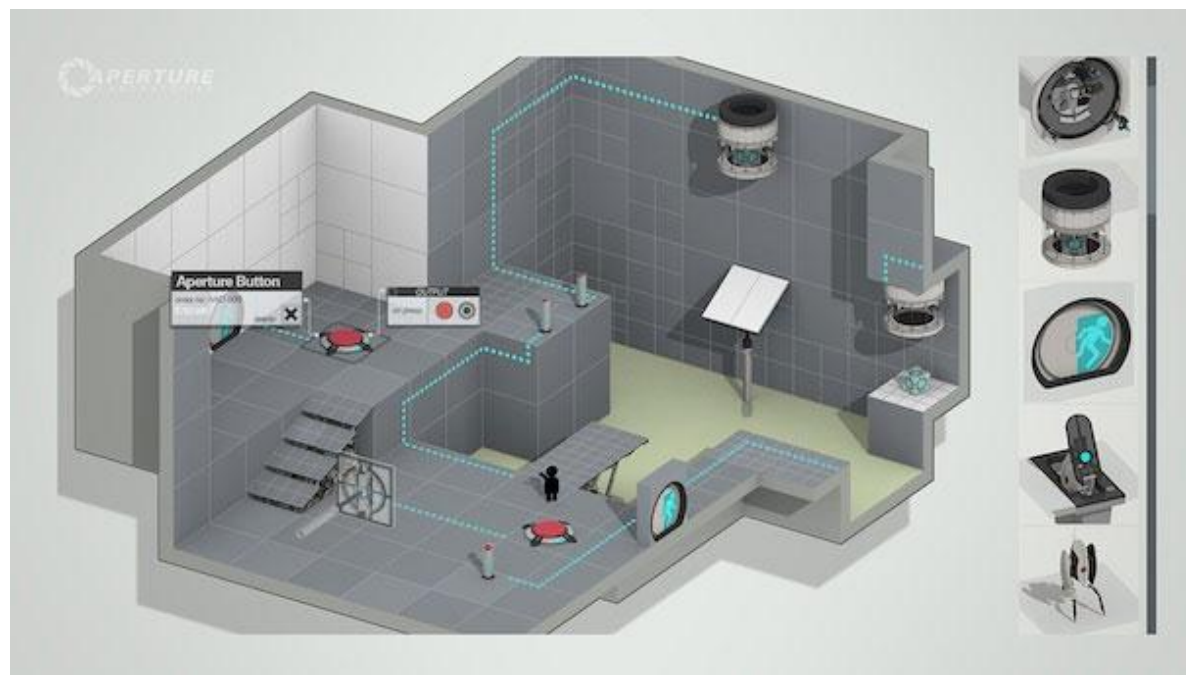
Pacing and Player Motivation

To entice players to continue playing, they need certain incentives. These can be items, story elements, shiny stuff, some little nugget to keep them going.

Pacing and Player Motivation



Pacing and Player Motivation



WHERE TO BEGIN: Measuring Pacing

Where do we start?

Breaking down pacing into its component pieces.

Breaking down the problem

In animation, shots and story moments are broken down into smaller units called "beats". These beats are useful in timing out important story or character development points.

Breaking down the problem

Should the beats happen too frequently, viewers can get overwhelmed and lose track of whats going on. Too infrequently and they get bored.

Breaking down the problem

You can draw in the viewers by changing the type and frequency of these beats.

Breaking down the problem

In games we can use this methodology to design interesting gameplay experiences. For us, these beats can range from things as simple as a small health boost to something as big as a boss fight.



LOOKING AT IT DIFFERENTLY:
Where else is pacing used?

Another way of approaching the problem

Pacing in music.

Another way of approaching the problem

The ***Jaws*** theme is a great example of the power of pacing.

JAWS



Another way of approaching the problem

It is conceptually simple, a pattern of notes that repeats.



Another way of approaching the problem

What makes piece so powerful is the way that pattern repeats. The increased tempo, added flourishes, these all add to increase tension in the listener.

Another way of approaching the problem

The image displays two musical scores for piano, comparing two different approaches to a problem. The top score is written in bass clef and consists of two systems. The first system has a melodic line in the right hand with a slur over a quarter note and a half note, and a bass line with eighth notes. The second system has a melodic line with a slur over a quarter note and a half note, and a bass line with eighth notes. The bottom score is written in treble clef and consists of a single system. It is labeled "More flowing" and "R.H." for the right hand. The right hand has a melodic line with a slur over a quarter note and a half note. The left hand has a bass line with eighth notes and is labeled "L.H." and "sfz".

(8vb)

More flowing

R.H.

L.H.

sfz

UNCHARTED TERRITORY:

Unique projects have unique needs

The importance of developing a shared vocabulary:

When working with a team, it can be difficult to communicate clearly to each other.



The importance of developing a shared vocabulary:

To unify the group's vision, develop a shared language for elements of your level/game.

The importance of developing a shared vocabulary:

During HL2's development, the team had a way of talking about pacing where they were able to generalize the entire game into a few basic components: Combat, Puzzle, Exploration, Choreography, and Vista.

The importance of developing a shared vocabulary:

Developing this shared vocabulary meant they were able to describe fairly abstract gameplay scenarios in very concrete ways.

The importance of developing a shared vocabulary:

This has become common practice at Valve and has allowed us to have more grounded discussions on how to design and iterate our levels as well discuss the game at large.

CASE STUDY:

Half-Life 2 Pacing Elements

Defining HL2's pacing elements.

Here are the elements the Half Life 2 team used to describe their game:

Combat

Puzzle

Exploration

Choreography

Vista



Defining HL2's pacing elements.

Combat - describes any time a player is engaged in a fight.



Defining HL2's pacing elements.

Exploration - a term for the player traversing the environment, not actively engaged in solving a puzzle and not in combat.

Defining HL2's pacing elements.

Puzzle - player is faced with a challenge they must overcome before they can progress.

Defining HL2's pacing elements.

Puzzles are a great way to introduce new gameplay mechanics because they allow the player to learn in a pressure-free environment.

Defining HL2's pacing elements.

In Half-Life 2, the teeter-totter teaches players to think of physics as a game mechanic, not just a visual flourish.



HEALTH 95
SHIT 11

Defining HL2's pacing elements.

Choreo - short for choreography. These encompass animated scenes ranging from the interactive scenes in Eli's lab to completely animated scenes like Dog v Strider. We mainly use Choreo for story exposition.

Defining HL2's pacing elements.

Vista - a Vista is an area of visual interest to the player. We expect players to stop and check this area out.



HEALTH 100 SUIT 25

Defining HL2's pacing elements.

I really like these generalizations because you can simplify almost any game using these elements.

Its all about thinking of these elements in context.

ANATOMY OF A LEVEL:

HL2: Episode 2

Anatomy of a level- HL2: Ep2: White Forest Inn

HL2: Ep2: White Forest Inn

Anatomy of a level- HL2: Ep2: White Forest Inn

When planning a new level, one of the first questions we try to answer is:
Where does this fit in relation to the previous and prior maps?

Anatomy of a level- HL2: Ep2: White Forest Inn

The White Forest Inn map serves to give the player a break from driving.

Anatomy of a level- HL2: Ep2: White Forest Inn

We could have solved "driving-fatigue" by shortening the trip to the White Forest base, but that would have reduced the anticipation and importance of the dangerous journey to the Base.

Anatomy of a level- HL2: Ep2: White Forest Inn

Pacing your level is a balancing act.

Anatomy of a level- HL2: Ep2: White Forest Inn

If a combat section is too long it can become stagnant and boring.

Anatomy of a level- HL2: Ep2: White Forest Inn

We observed new players going through our content every week and began to see patterns as to what keeps the player engaged and motivated to progress through the game.

Anatomy of a level- HL2: Ep2: White Forest Inn

Since we had so much data we were able to tightly iterate on the game's pacing.

Level Deconstruction

To analyze levels that you think “work”, break them down into smaller pieces. Try to find the unique components and identify why and when they are used.

Level Deconstruction

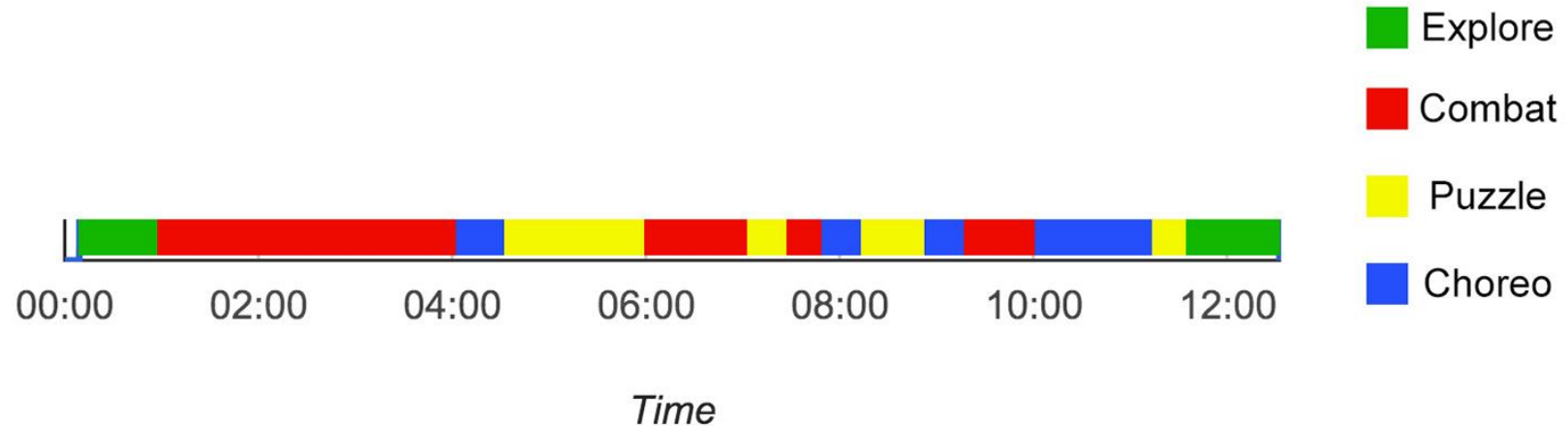
In this example we will analyze this level's pacing by breaking down the level into the individual elements I mentioned earlier.

Anatomy of a level: HL2: Ep2: White Forest Inn

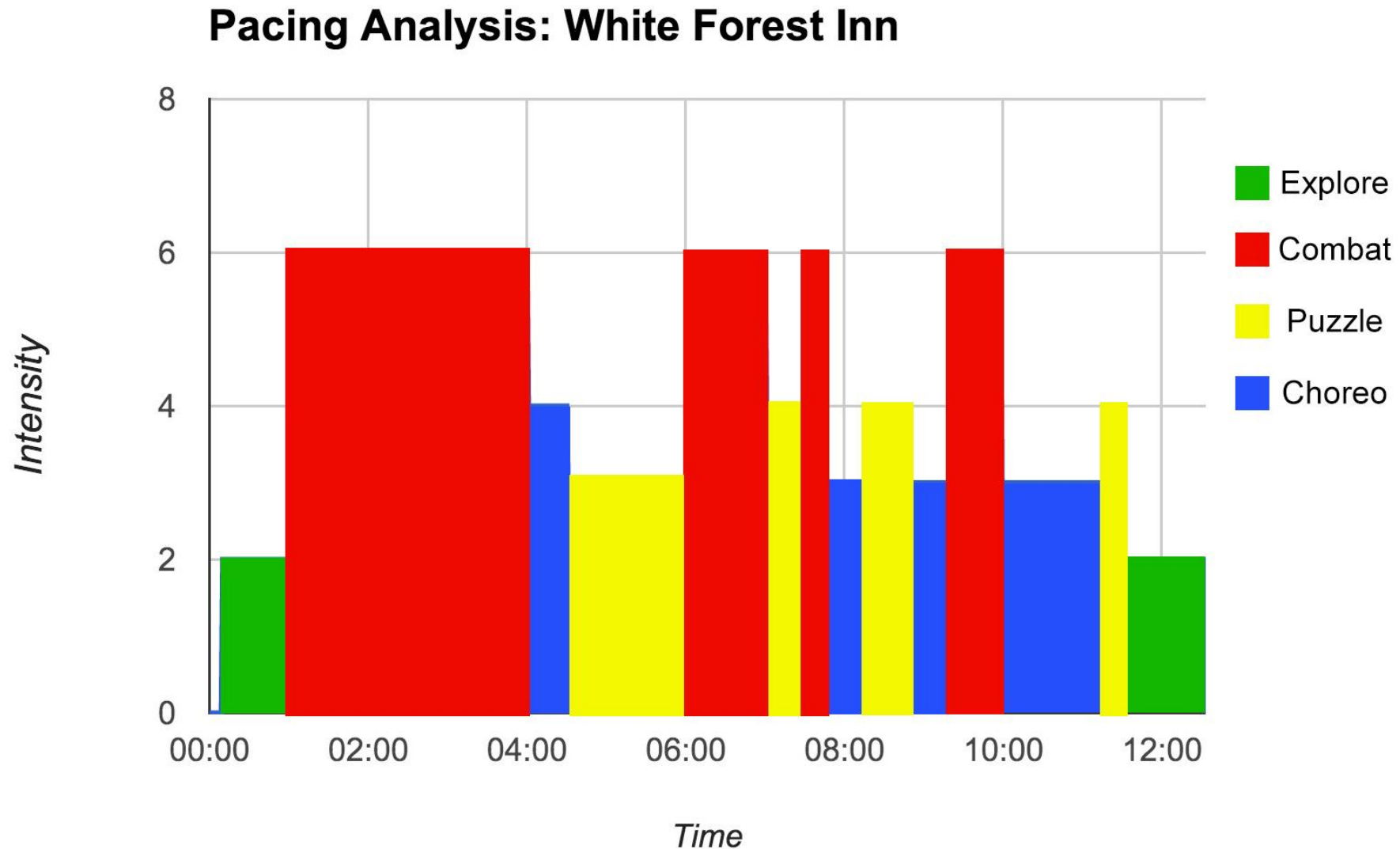
Now let's look at it a different way, breaking the level into its individual elements on a timeline representing % of level makeup or % of time spent in level.

Anatomy of a level: HL2: Ep2: White Forest Inn

Pacing Analysis: White Forest Inn

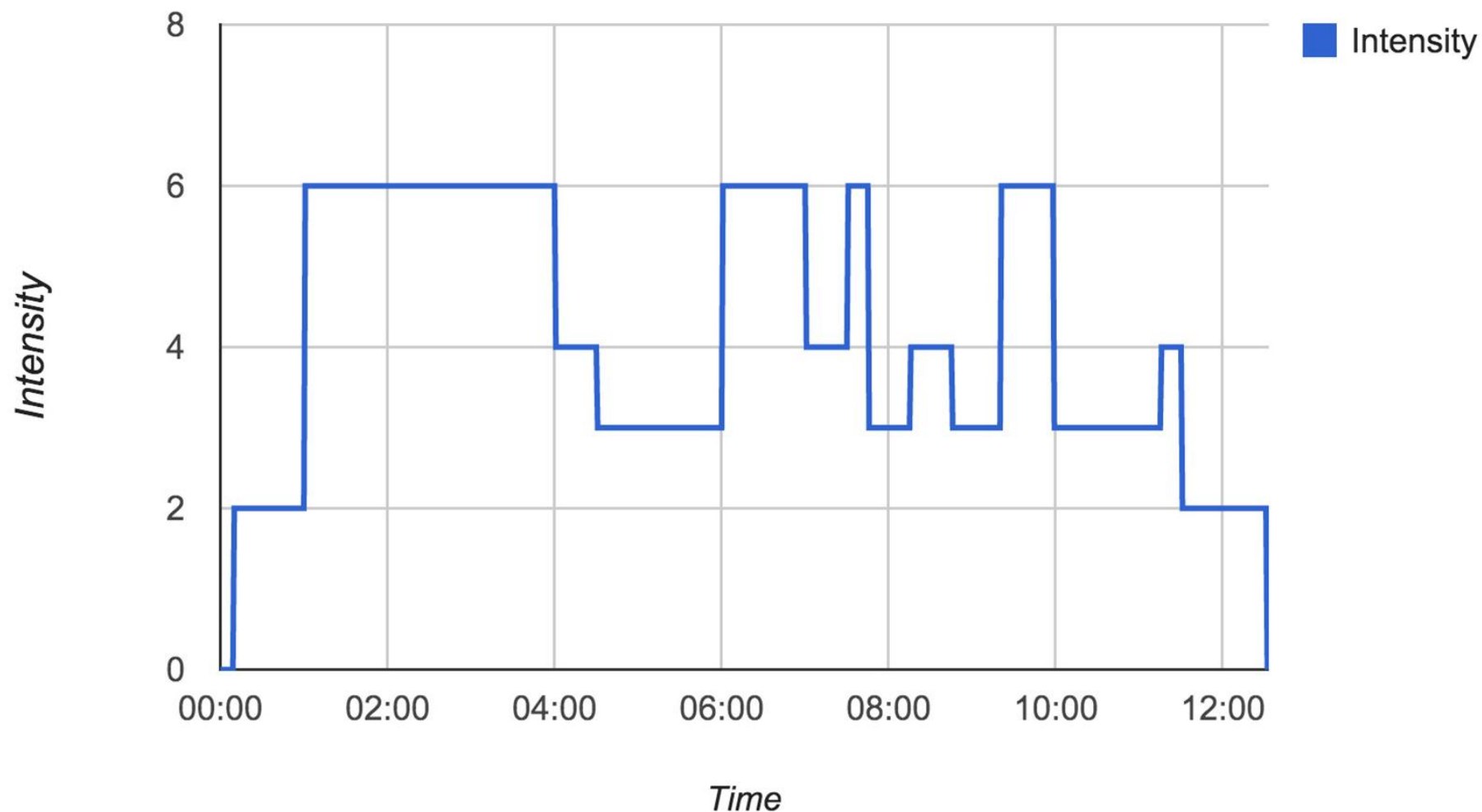


Anatomy of a level: HL2: Ep2: White Forest Inn



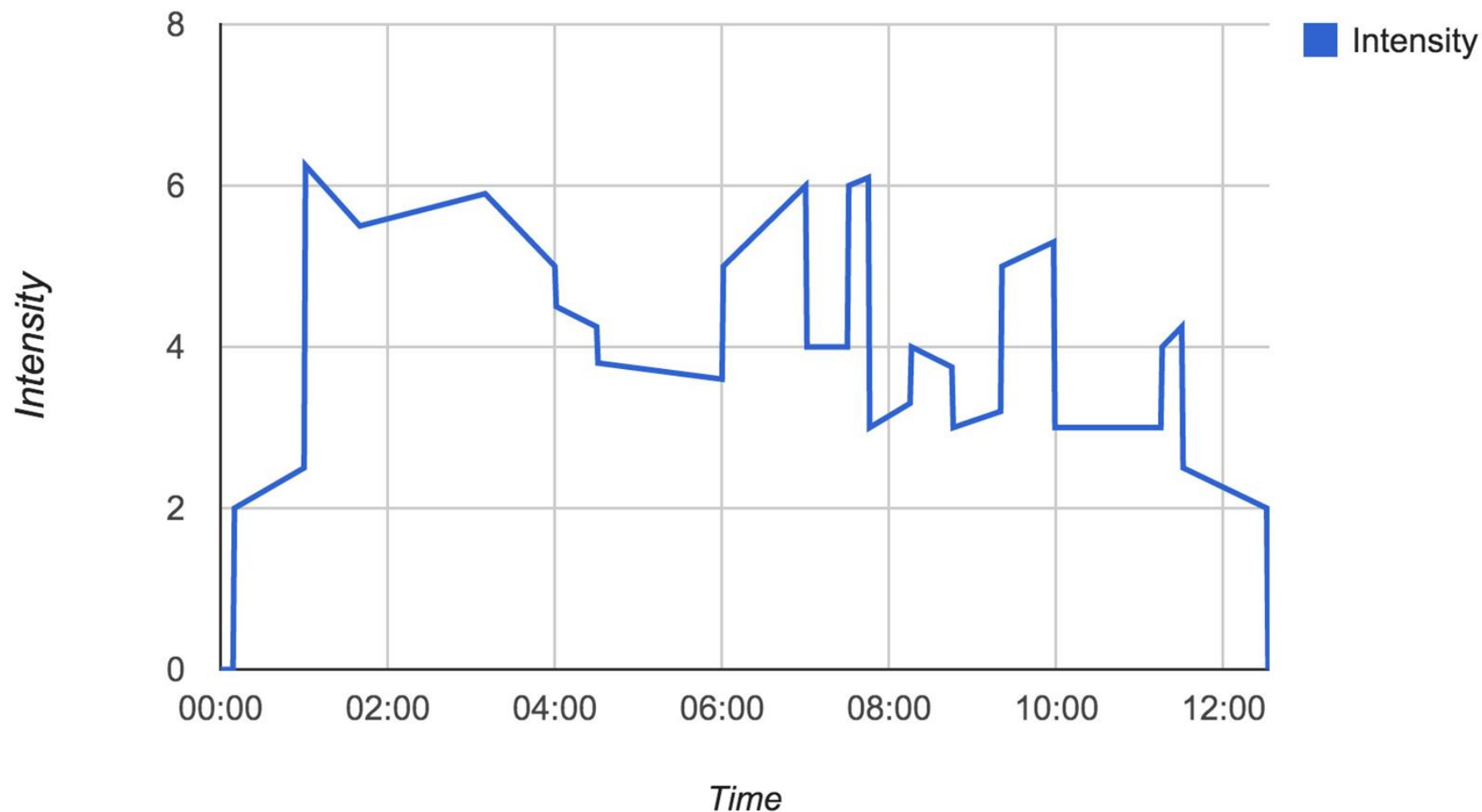
Anatomy of a level: HL2: Ep2: White Forest Inn

Pacing Analysis: White Forest Inn



Anatomy of a level: HL2: Ep2: White Forest Inn

Pacing Analysis: White Forest Inn



TRANSITIONING BETWEEN ELEMENTS

Transitioning between elements

Combat

Choreo/cinematic

Exploration

Puzzles

Transitioning between elements

Combat is one of the most intense in regards to player engagement.

Transitioning between elements

Choreographed scenes/cinematics - depending on their placement, they're a good bridge between other types.

Transitioning between elements

Exploration - usually more less intense than combat scenarios

Transitioning between elements

Puzzles - mentally taxing.

TUNING THE PACE OF YOUR LEVEL: Moment-to-Moment

Using Item placement as "beats"

Items can be used as "beats" in your level.

Item importance can be influenced by pacing.

Control Pacing with Time

Adding time as a gameplay element and giving players a limited amount of it is a great way to increase tension.

TROUBLESHOOTING

Battling player fatigue

Combat sequences

Introduce a new method of fighting: new enemy type, new weapon type, traps, remove weapons, change enemy composition, change AI behavior, interrupt the fight with a beat of a different type (puzzle, choreo, vista, etc)

Battling player fatigue

Exploration

Introduce small combat segment! (hl2 would use manhacks, spy cameras, etc.)

Introduce a new method of traversing through previously traversed levels (dishonored, shadow complex)

Battling player fatigue

Puzzle

Give the player a break, transition to another element.

Introduce time pressure (stop the bomb!)

Battling player fatigue

Combat - use sparingly. Introducing combat is adding another layer of complexity for the player. Sometimes it becomes too frustrating, and the player quits.

Battling player fatigue

Choreo & Combat - this is a powerful combination due to the players expectations to let their guard down during choreo/cutscenes.

Break up your story points and place in shorter sequences.

PLAYTESTING!

Verify your assumptions

A note on playtesting:

During Episode 2's development, every week we brought in a random volunteer from outside the company to play the game while we observed.

A note on playtesting:

Observing a playtest is a very direct way to collect data on player engagement within each part of your level. We'd observe player behavior, take notes, and interview the player afterward.

A note on playtesting:

Playtesting isn't just a useful for finding bugs, it is critical to tuning the pacing of your game.

A note on playtesting:

When self-testing, play as a new player.

We tend to naturally get bored and either screw around or shift our attention to other things.

Record play sessions!

CASE STUDY: Left 4 Dead

Pacing Left 4 Dead

Since the Left 4 Dead franchise is largely devoid of puzzles, choreo, and it's designed to be infinitely re-playable, trying to pace the game became a challenge.

The elements Left 4 Dead succeeds at are **Exploration** and **Combat**.



LEFT 4 DICTIONARY:

Developing a shared vocabulary

Develop a common vocabulary

In the early days of Left 4 Dead 2, a group of us played the original L4D, logging our "awesome" or "fun" moments during playtests.

We made notes of both the level's geometry and the Director's behavior.

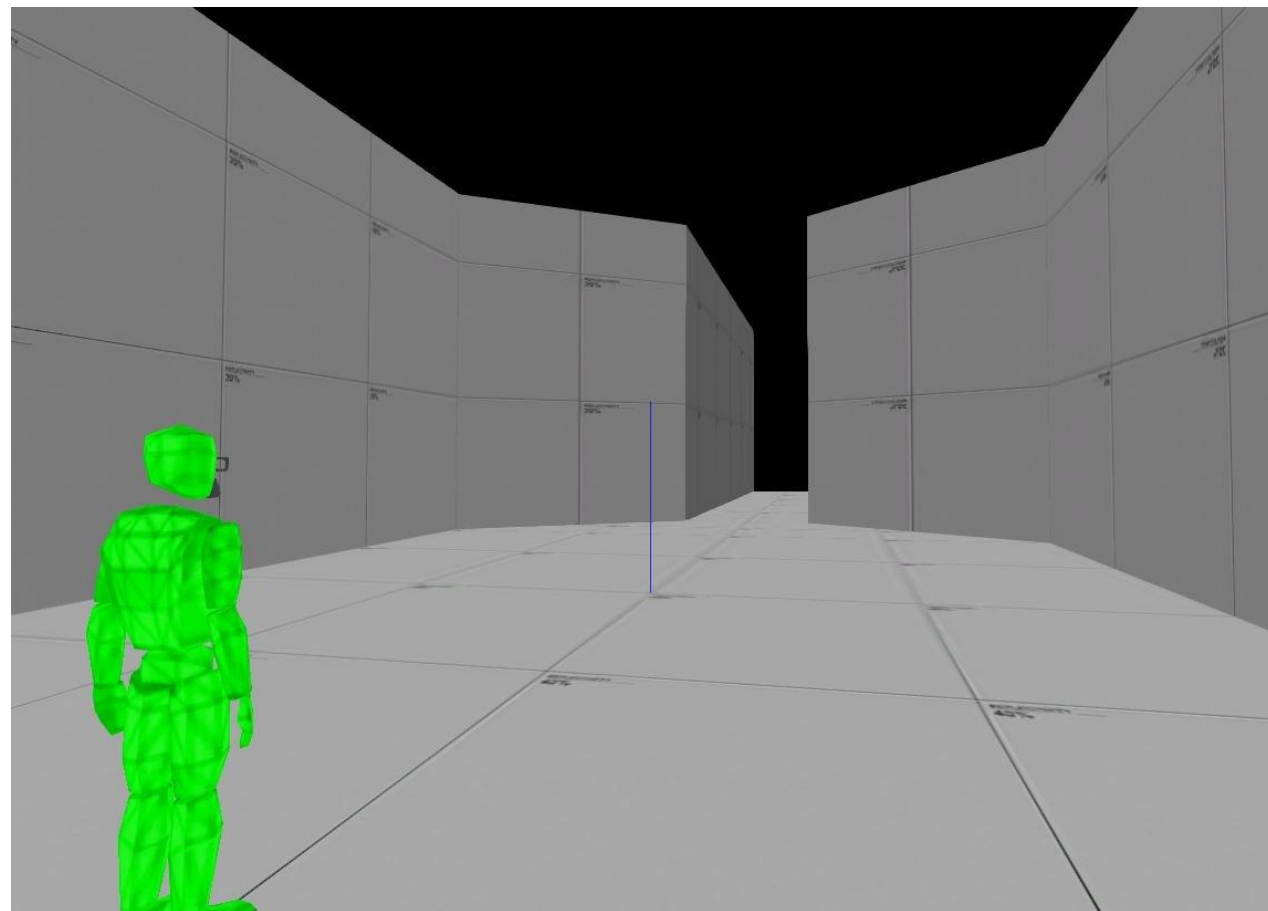
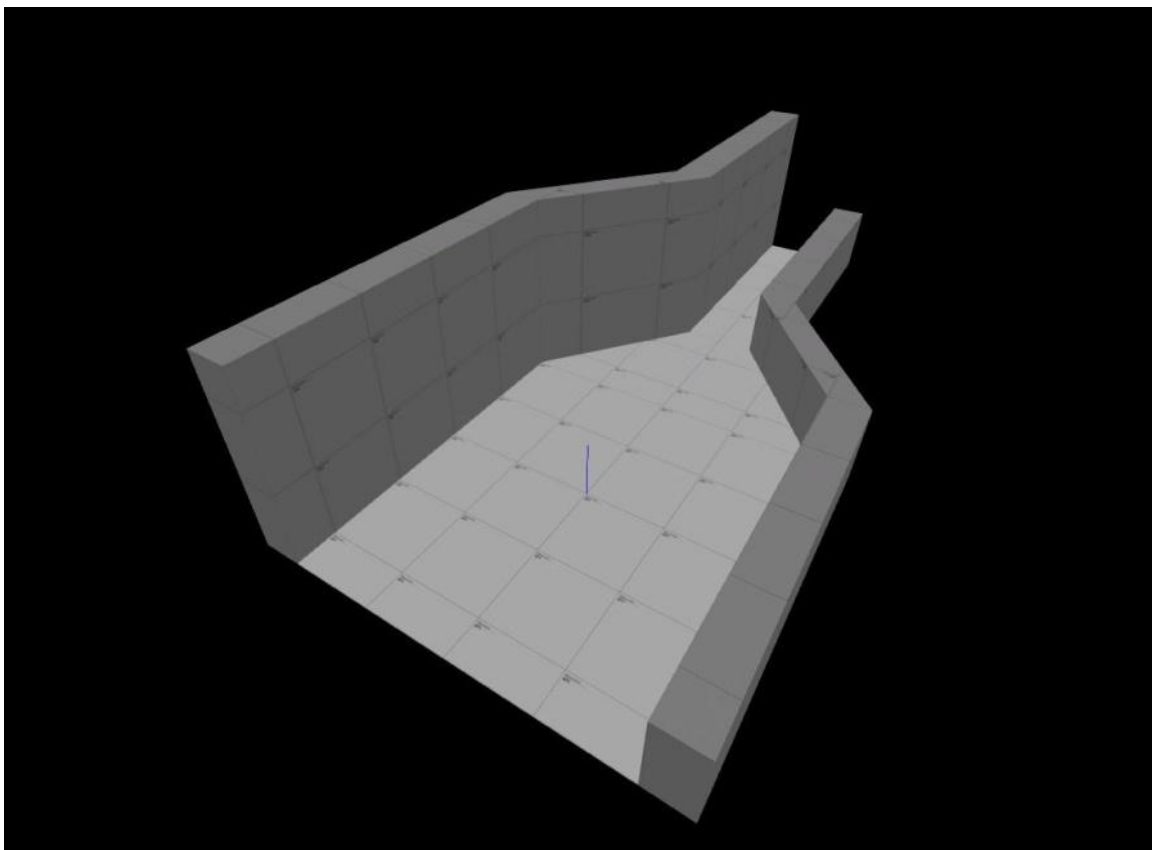
The Left 4 Dictionary

Through our notes, we saw patterns of fun environmental segments and Director behaviors. We developed terms like *Zombie Rain*, *Funnel-In*, *Finales*, *Crescendo Event*, *Death Closet*.

The Left 4 Dictionary

We would find interesting combinations and use a sentence like "Wide Open Top to Funnel-In to Single-File with Open Top" to describe something as conceptually simple as a parking lot leading to an alley that is between tall buildings.

The Left 4 Dictionary



The Left 4 Dictionary



Additional Level Terminology

"The Flow" - main route from starting safe room to the exit.

Additional Level Terminology

Capillaries - side paths off the main flow.

Useful for item placement

Additional Level Terminology

Crescendo Event - high intensity combat challenge.

Highest impact event in level.

Additional Level Terminology

Finale - highest intensity combat challenge in the entire campaign.

LEFT 4 DEAD: Pacing for Replayability

Pacing Left 4 Dead

Replayability - why should we design games to be replayable?

“Static” games vs “Dynamic” games.

Pacing Left 4 Dead

What should we change per play session?

What did we change?

Enemy spawning - variable positions,
variable types

Item spawning - fixed positions, variable
type

What we didn't change

Map layout

Basic campaign events like crescendo events and finales

LEFT 4 DEAD: The Director

The Director



The Director

Dynamically influences the pace of the game by analyzing and responding to player behavior

The Director

Micromanages enemy and item spawning to tailor this specific play experience for this specific group of players.

Impact of The Director

The Director has been personified by players.

A main "character" in the franchise.

IN CONCLUSION: Pacing

Pacing in Game Design

Pacing can influence players motivation and engagement.

Fine tune with pacing with gameplay elements like weapons, upgrades, UI, AI, the sky is the limit.

QUESTIONS?

Contact:

matt@dosilystuff.com

[@ELMattScott](#)