Making Moves
Designing Spartan Abilities For Halo 5: Guardians

Ryan Darcey
Senior Systems Designer, 343 Industries
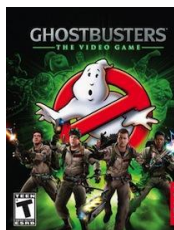
Who Am I?

Jack Of All Trades

RYAN DARCEY
SYSTEMS DESIGNER
OSIRIS
SPARTAN #1205

...esigner
...lay Engineer
... Weapon
...er
...esigner (Again)
...s Designer

TERMINAL REALITY

LUCASARTS™

343 INDUSTRIES™

What Are You Doing Here?

?

"30 Seconds Of Fun"

i

"Golden Triangle"

etup: Ch   here To

   Ac   ols

tion: T   balance

Standing on the Shoulders of Giants

EVOLUTION OF THE MASTER CHIEF

HALO: CE
2001

HALO 2
2004

HALO 3
2007

HALO 4
2012

Hindsight Is 20/20

Do You Even Halo?!

What's Batman Got To Do With It?

Before Batman   After Batman

Before Batman   After Batman

Before Batman   After Batman

Before Batman   After Batman

Before Batman   After Batman

Before Batman   After Batman

The Batman Effect

A Hero Reborn

- Reimagine the "Spartan Experience"...
- ...not really gameplay gone, though
- At risk of overcomp

HALO 5: GUARD

A HERO

Don't Fuck It Up.

- Jamie Griesemer's
  - "Balance is a ba   ber of choices"
  - Consider "Mental System Requirements"
- Make sure Halo remains Halo

Reimagining The Batman

- Approach Spartan like Batman in the Dark Knight Trilogy

- Still has same gadgets, packaging makes them feel fresh again

- Dark Knight Trilogy is most visceral version of Batman fantasy

Questioning The Fantasy

What's it like to wear the Mjolnir armor?

Questioning The Fantasy

Does it really feel like you're a super-soldier-space-marine-tank?

I MISS MY ARMOR

THAT DIDN'T TAKE FALL DAMAGE

Questioning The Fantasy

What about all those old cinematics that showed Spartans flying around with thrusters?

Why couldn't you use them in normal gameplay?

Questioning The Fantasy

Is there a way to ground this fantasy more strongly in the core gameplay loop?

Questioning The Fantasy

What should we leverage from previous Halo iterations?

Questioning The Fantasy

Why weren't they as awesome
as they could have been?

BUNGIE | REACH MULTIPLAYER BETA

The Spartan: What Is It?

"*A run-and-gun pitbull with a high-tech, thruster-powered combat suit that can give and take a beating.*"
- *What A Spartan Is To Me*

- What does this mean for gameplay?
- Spartan Abilities!!!
     1. Mobility Upgrades
     2. Melee Upgrades

JOHN-117

HALO 5
GUARDIANS

10.27.15 XBOX.COM/HALO5

Mobility Upgrades

OSIRIS Spartan Mobility & Thrusters

The Halo "Joust"

- Short time to kill
- Hide & seek gameplay
- Shoot first to win
- Best Defense = Good Offense

- Long time to kill
- Speed chess gameplay
- Juke & bait to win
- Best Offense = Good Defense

Mobility Upgrades: Non-Thruster Powered

Increased Run Acceleration & Run Speed
- Focus on competitive play
- Nuance in the Halo joust
- More responsive, but hard to handle
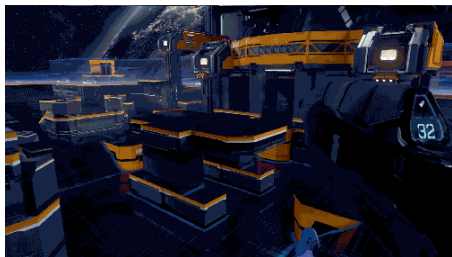
Clamber
- Most drastic mobility improvement
- Increased verticality of the arena
- Platforming less frustrating

Slide
- Most inconsequential mobility upgrade
- Can't turn everything up to 11
- Conservation of momentum feels fluid

Mobility Upgrades: Thruster Powered

Stabilizer
- Originally weapon attachment
- Integrated into core Spartan

Thruster Pack
- Replaced Armor Ab   t"
- Heartbeat underne
- Escapability proble

Infinite Sprint
- Staple for modern
- Didn't want another resource to manage
- Complimented giant battlegrounds in Warzone
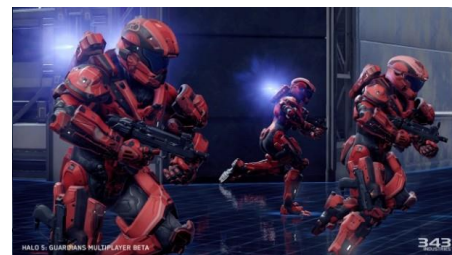
Mobility Upgrades: Cutting Room Floor
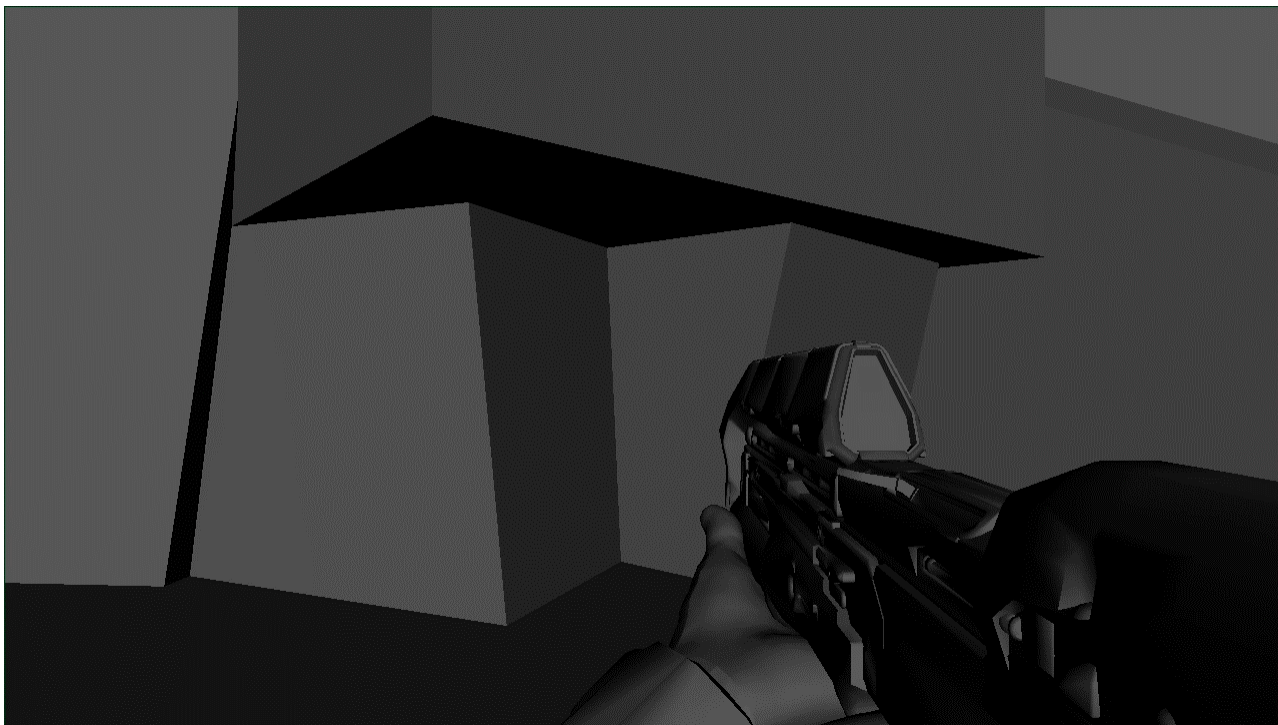
Mobility Upgrades: Cutting Room Floor

~~Boost Jump~~

- Clamber fulfilled gameplay role
- Clamber using same button
- Level metrics already locked
- Cut to reduce complexity/redundancy

Melee Upgrades

The Golden Triangle
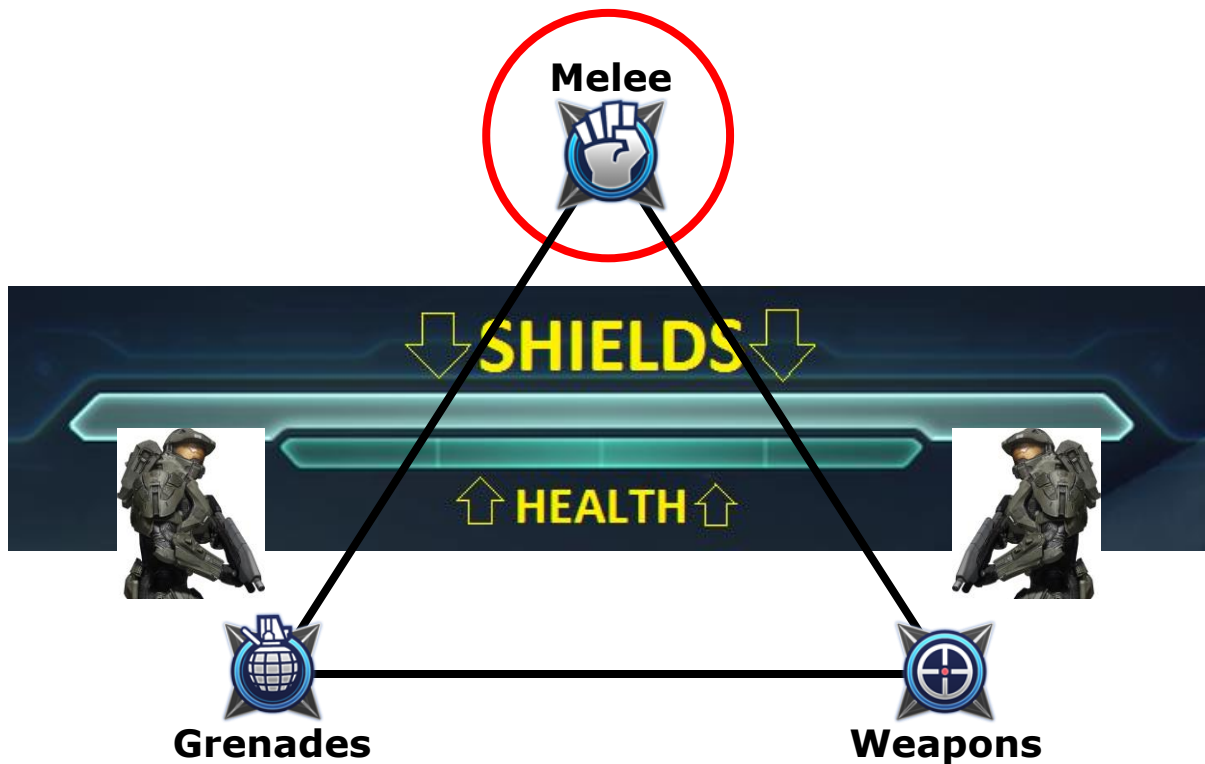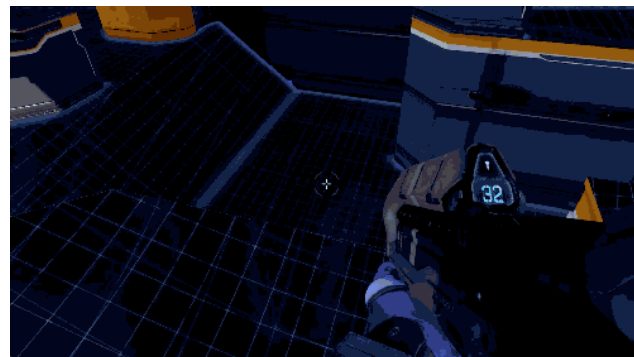
Spartan Charge & Ground Pound

Sprint
Must be at full sprint

Thruster Pack
What powers the action

Clamber
Increased verticality

Stabilizer
Used while charging

Spartan Ability Summary

Mobility Upgrades ➡️ Melee Upgrades

1. Run Acceleration & Speed
2. Clamber
3. Slide
4. Stabilizer
5. Thruster
6. Infinite Sprint

1. Spartan Charge
2. Ground Pound

Act II: Confrontation
Mapping Actions To Controls

HOLD ON TO YOUR BUTTS

A Button Shortage

- Every button already used for something

- Required us to get creative when mapping new actions

- Focused on 3 key areas to determine schemes viability

Evaluating A Control Scheme: Balance

How does the control scheme affect risk/reward?

- Controls changed up action sequence
- Will risk ever match reward?
- Is there good opportunity for a tell?
  - Make audio a priority!

Evaluating A Control Scheme: User Experience

UXD

Is it easy to execute the action reliably?

- Thumb on sticks?
- Triggered by accident?
- Buttons intuitive?
- Difficult to execute?
- Alternate control schemes ok?

Evaluating A Control Scheme: Player Intent

Is there ambiguity when interpreting the button press(es)?

- Required overriding buttons
- Involves mind reading O_o
- Make sure player is executing intended action

Melee!

No, Charge!

Spartan Charge: Design Doc

Activation:
Melee at top sprint speed

Primary Role:
High melee damage w/ knockback

Frequency:
Medium

Other Uses:
- Break weakened structures

Spartan Charge: Previs

Spartan Charge: Thruster + Melee

Balance
+ Throttled by Thruster Pack energy
- No opportunity for a tell

User Experience
+ Thumbs on sticks
+ No accidental activations
+ Intuitive button combo
- Only works w/ Melee & Thruster on shoulder buttons

Player Intent
+ Button combo ensured player intent

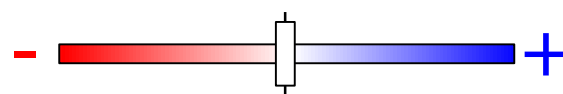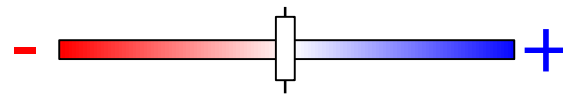**Phase 1**

FAIL
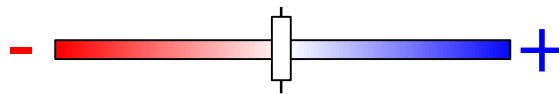
Spartan Charge: Full Sprint -> Melee

Balance
+ Time to full sprint provides great balancing mechanism.
+ Great tell

User Experience
+ Thumbs on sticks
+ No accidental activations
+ Easy button press
+ Intuitive button press

Player Intent
+ Difficult to **_not_** execute Spartan Charge instead of Melee

Phase 1

Phase 2

PASS
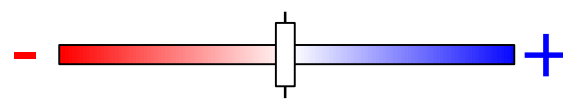
Ground Pound: Design Doc

Activation:
Melee at fall speed threshold

Primary Role:
Deal AOE damage from above

Frequency:
Low

Other Uses:
- Knockback grenades w/ AOE
- Break weakened structures
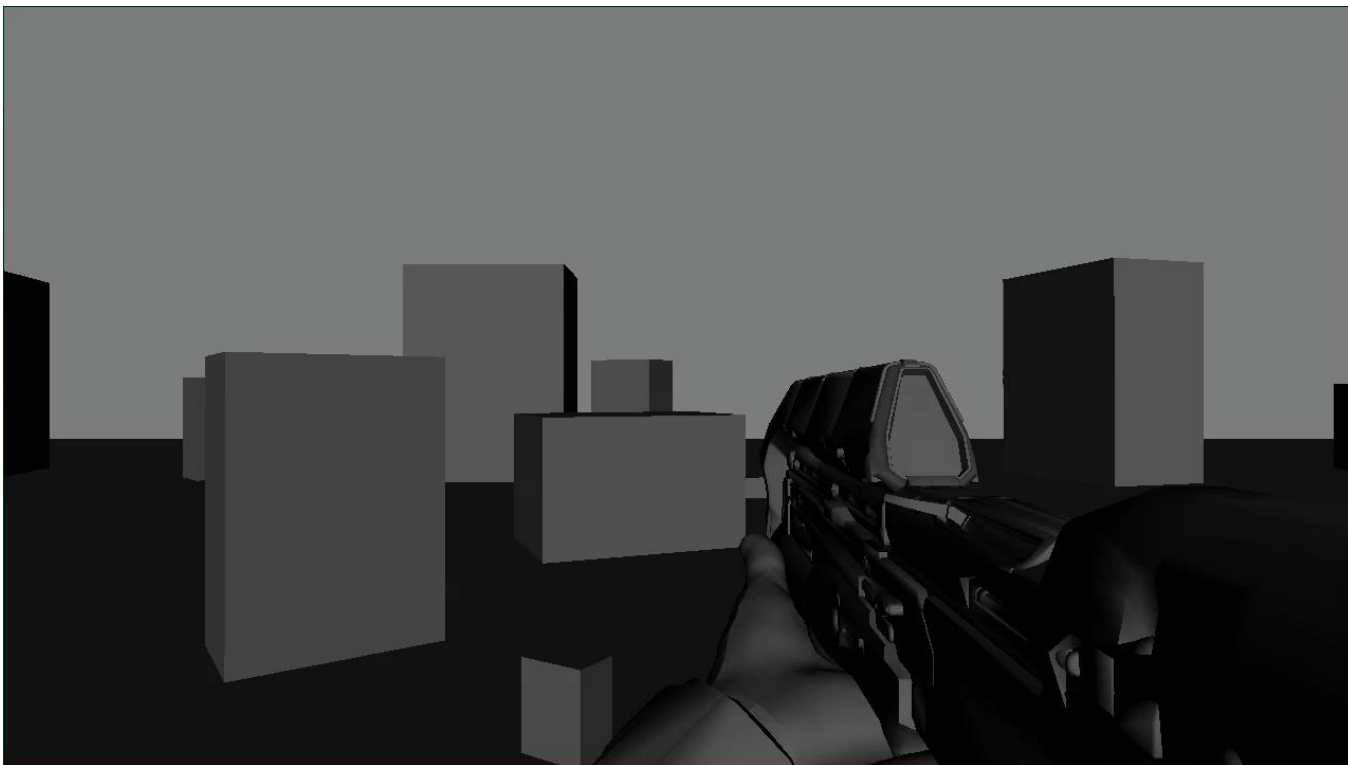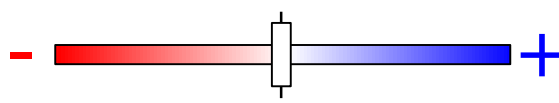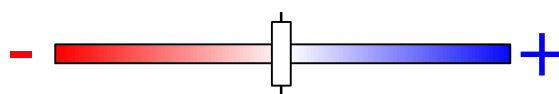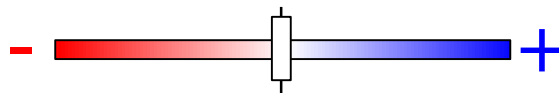
Ground Pound: Fall Speed Threshold -> Melee

Balance
+ Good opportunity for a tell
- Very difficult to pull off

User Experience
+ Thumbs on sticks
+ Easy button press
+ No accidental activations
- Not intuitive at all

Player Intent
- No great way to tell if the player wants to Melee or Ground Pound
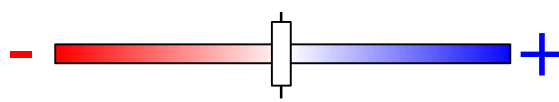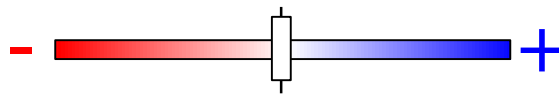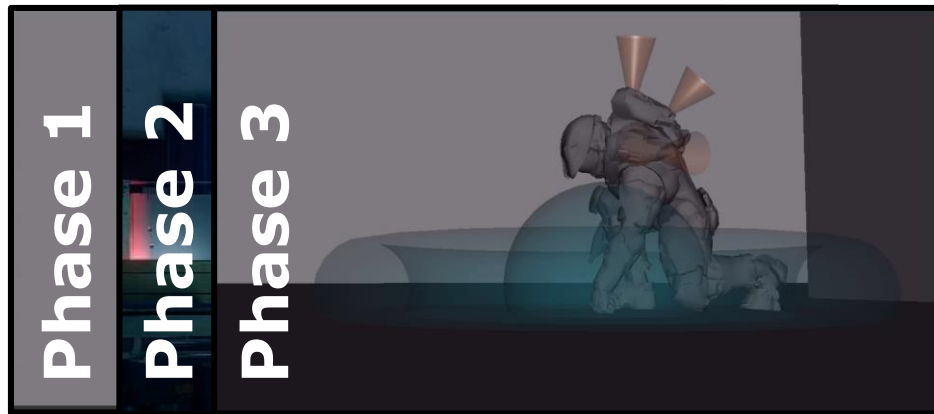
Ground Pound: Hold Melee

Balance
+ Charge time great balancing tool
+ Great opportunity for a tell

User Experience
+ Thumbs on sticks
+ No accidental activations
+ Easy button press
+ Intuitive button press

Player Intent
+ Able to anticipate player's intent with enough accuracy, but not perfect…

Phase 1 Phase 2 Phase 3

Ground Pound: Hold Melee

Balance
+ Charge time great balancing tool
+ Great opportunity for a tell

User Experience
+ Thumbs on sticks
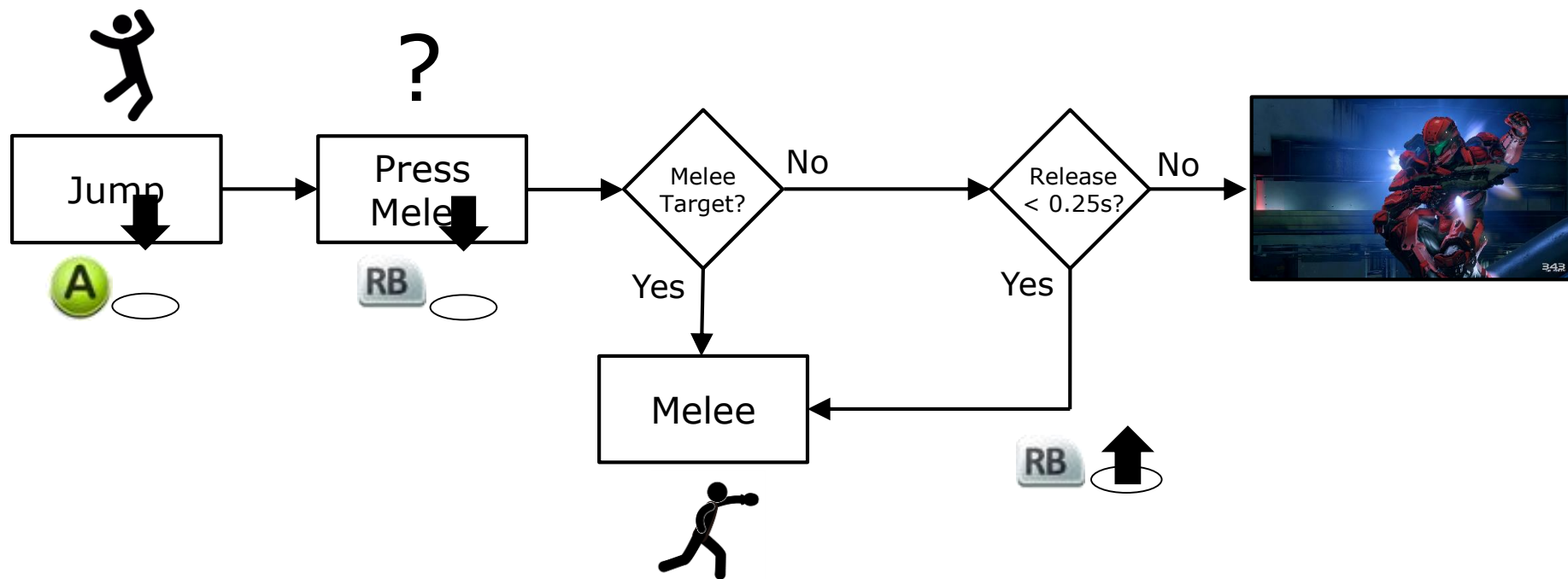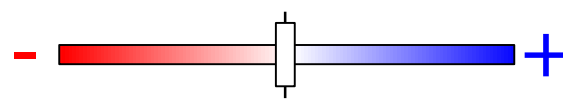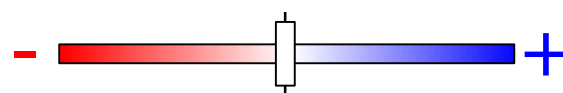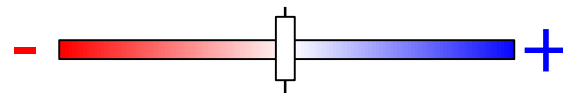+ No accidental activations
+ Easy button press
+ Intuitive button press

Player Intent
+ Able to anticipate player's intent with enough accuracy, but not perfect...

Phase 1 Phase 2 Phase 3

PASS

R.I.P. Failed Control Schemes

Spartan Charge Controls: Thruster + Melee

Balance
+ Throttled by Thruster Pack energy.
- No opportunity for a tell.

User Experience
+ Thumbs on sticks.
+ Little chance for accidental activation.
+ Intuitive button combo.
- Only felt good if Melee & Thruster Pack were on shoulder buttons.

Player Intent
+ Button combo ensured player intent.

Spartan Charge Controls: Hold Melee

Balance
+ An *alright* tell on the charge time.
- Not many variables available to balance.

User Experience
+ Thumbs on sticks for most configs.
+ Little to no chance for accidental activation.
+ Intuitive button press.
+ Easy to execute button press.

Player Intent
- Conflicts with normal Melee attack.

Spartan Charge Controls: Full Sprint + Thrust

Balance
+ Good tell with player at full sprint
- Throttled by full Sprint **AND** Thruster Pack energy.

User Experience
+ Thumbs on sticks for most configs.
+ Little to no chance for accidental activation.
+ Easy to execute button press.
- Players associate action with **Melee** more than **Thruster Pack**.

Player Intent
+ Difficult to *not* execute **Spartan Charge** instead of **Thrust**, but not impossible.

Ground Pound Controls: Fall Threshold + Melee

Balance
+ Good opportunity for a tell.
- Was EXTREMELY difficult to hit the fall speed and line up your target.

User Experience
+ Thumbs on sticks.
+ Easy button press.
+ Little chance for accidental activation.
- Not intuitive at all.

Player Intent
- No great way to tell if the player wants to **Melee** or **Ground Pound**.

Ground Pound Controls: Hold Crouch [BETA]

Balance
+ Charge time provided a great balancing tool.
+ Good opportunity for a tell.

User Experience
+ It was intuitive enough.
- Thumbs not on sticks for many configs.
- Holding R-Stick while aiming is very difficult to control.
- Very easy to trigger by accident.

Player Intent
- Tap vs Hold not enough differentiation between Crouch vs. Charge.

Ground Pound Controls: Sprint + Melee

Balance
+ Charge time provided a great balancing tool.
+ Good opportunity for a tell.

User Experience
+ Thumbs on sticks for most configs.
- Not intuitive.
- Not easy to execute.
- **EXTREMELY** easy to trigger by accident.

Player Intent
+ Lose the ability to queue up **Sprint** in the air, but not a terrible compromise

Sometimes, good enough is the best you're going to get

Act III: Resolution
Tuning For Balance

⚖ Everything Zen

- "Balance is a state, not a process"
- "Balance is Longevity"
- "Balance has nothing to do with fun"

Conversely....

- "Tuning has nothing to do with balance"
- "Tuning is crafting fun"

Is there fun in your balance?

Walking Contradiction

- Spartan Charge & Ground Pound need to be balanced ***and*** fun

- **Competitive** games are fun b/c they're balanced

- **Non-competitive** games are fun b/c of fantasy fulfillment

- Being fun and balanced are not mutually exclusive in the right context

Balance Knobs

- Identified "Balance Knobs" for each feature

- Most sensitive to the balancing process

- TONS of other variables required tuning for polish

Tuning For Balance With A Process

The Goal
Defines what balance means for this variable

Achievement unlocked
500 G - I did something!

Tuning For Balance With A Process

Existing Metric(s)

Find similar values that are already balanced and/or locked as points of reference
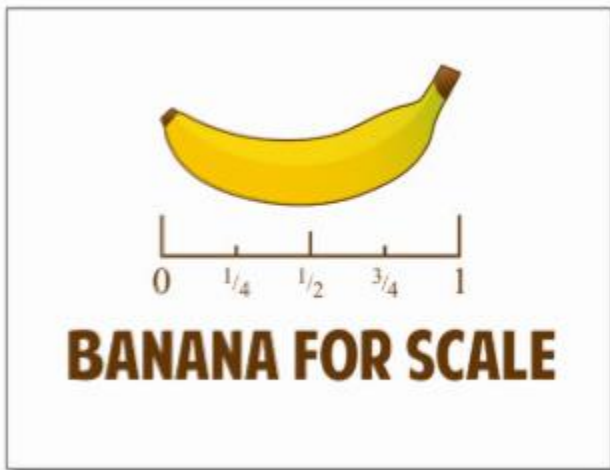
Tuning For Balance With A Process

Tuning At Your Desk
Define quantifiable test you can perform at your desk

Tuning For Balance With A Process

Stress Test Refinement
Test tuning under the most stress you can simulate

⚖ **Spartan Charge Tuning:** Balance Knobs

Time To Full Sprint

Launch Speed

Launch Distance

Damage

Knockback Distance

Recovery Time

⚖️ Spartan Charge Tuning: Time To Full Sprint

🏆 **The Goal**
Afford player opportunities to use mid-joust, but don't make escapability worse

📏 **Existing Metric(s)**
Average hallway length in Arena maps

🖥️ **Tuning At Your Desk**
Ensure average hallway length gives player enough "runway" to reach top sprint speed

🔗 **Stress Test Refinement**
- Upgrade Stopping Power
- Shields don't recharge during Sprint
- ~~Player shows up on Motion Tracker when shields are down~~
- Compress Sprint speed towards Run speed

HALO 5: GUARDIANS MULTIPLAYER BETA

0.8 Seconds

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Crouch   **Run**   **Sprint**
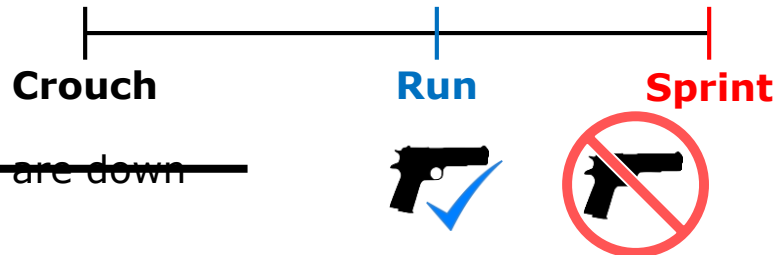
Spartan Charge Tuning: Time To Full Sprint

Spartan Charge Tuning: Knockback Distance

🏆 The Goal

Sell power of the Spartan Charge and increase its effectiveness without making target too frustrated

📏 Existing Metric(s)

Assault Rifle effective range

🛎 Tuning At Your Desk

Hit a target with Spartan Charge and follow up with the Assault Rifle without adjusting aim

🔗 Stress Test Refinement

- Physics is inherently unpredictable
- Use it wisely!
- ***Emergent Gameplay*** is <u>awesome</u>, but ***Predictability*** is <u>king</u>
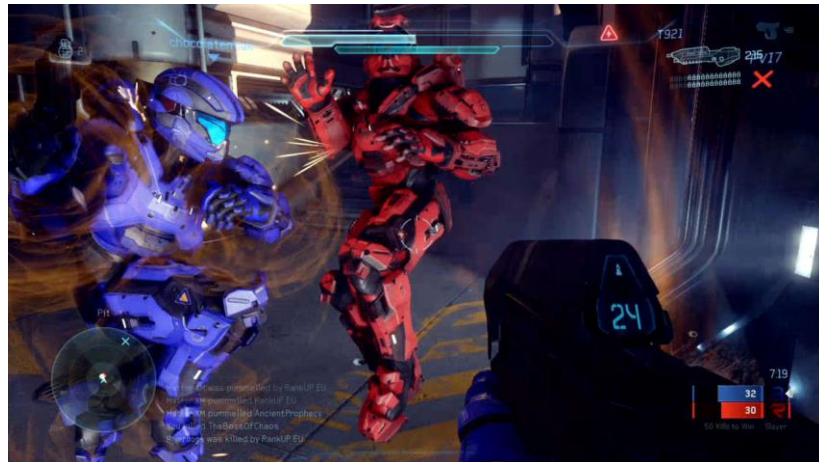
Spartan Charge Tuning: Knockback Distance

- Drive attacking player backwards upon landing a hit

- Zero out target velocity in direction of bash
- Vehicle knockbacks tuned separately

~35 Feet

Don't be afraid to cheat!

Standing (6.98wu)

Ground Pound Tuning: Balance Knobs

Charge Duration

Minimum Height

Launch Speed

Damage

AOE Radius

Knockback Distance

Recovery Time

⚖️ **Ground Pound Tuning:** Charge Duration

🏆 **The Goal**
Find value long enough for target to see/hear, but not so long that attacker can't track the target

📏 **Existing Metric(s)**
Plasma Pistol charge time

🛎️ **Tuning At Your Desk**
Launch 2 clients, see if target can:
1. Take you out when attack is visible
2. Run to safety when attack heard offscreen

🔗 **Stress Test Refinement**
- Theoretically 0.5s enough time to react, too abusive in real life
- Post Beta, overcorrected to 1.0s

0.75 Seconds

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Ground Pound Tuning: Charge Duration

⚖ **Ground Pound Tuning:** Minimum Height

🏆 **The Goal**

Avoid Ground Pound abuse by creating a min height requirement, but not so unattainable that it disappears from the joust
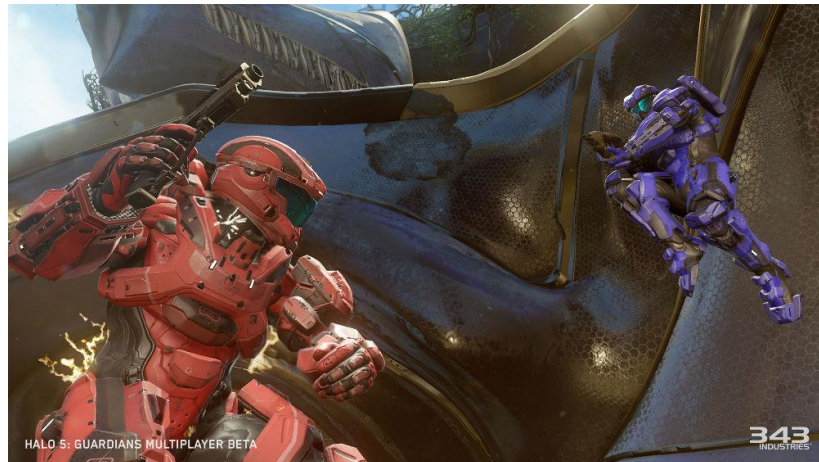
📏 **Existing Metric(s)**

- Half Cover = 3.7ft
- Full Cover = 7ft
- Jump Height = 9.5ft

Full Cover + Jump Height - Slop = 15ft

🛒 **Tuning At Your Desk**

Run around arena maps and make sure there are ample opportunities to reach this minimum height requirement

HALO 5: GUARDIANS MULTIPLAYER BETA

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Ground Pound Tuning: Minimum Height

Stress Test Refinement
- What happens when the player isn't high enough?
- For the beta, we shipped a fail state
- Post beta, we implemented a "weak" version of the Ground Pound

15 Feet

HALO 5: GUARDIANS MULTIPLAYER BETA

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Ground Pound Tuning: Minimum Height

In Conclusion...

Key Takeaways: Choosing Where to Innovate

- Stay on top of trends

- Find a theme

- Don't be afraid to cut bait

Key Takeaways: Mapping Actions To Controls

- Buttons are a precious commodity

- Not all buttons are created equal

- Balance & User Experience are the King & Queen

Key Takeaways: Tuning For Balance

- Use existing metrics as relative forms of measurement

- Find a quantifiable test for baseline tuning at your desk

- Refine your baseline tuning by playtesting under as much stress as you're able to simulate

Special Thanks!

Tim Longo
Creative Director

Chris King
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David Pashute
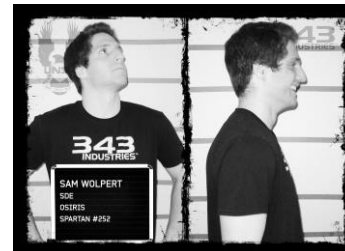Senior Sandbox Engineer

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Senior FX Artist

Sam Wolpert
Sandbox Engineer

@Ryan_Darcey