ARKANE STUDIOS

"The Challenges of Designing
a First Person Melee Combat Game"

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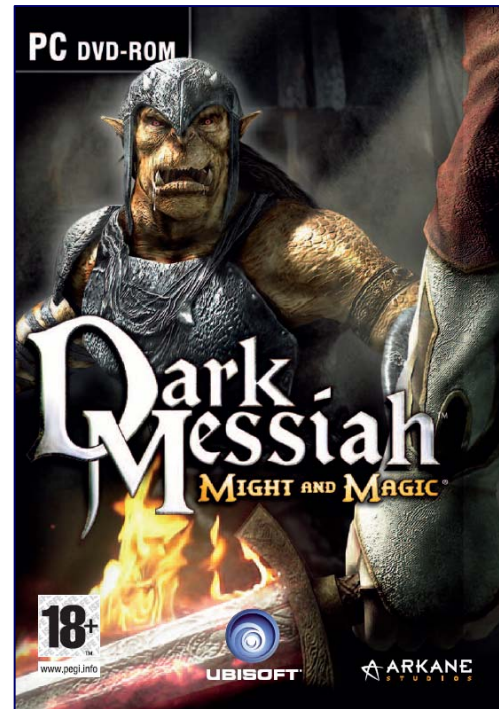
Introduction:

→ video

Introduction: A hard concept to sell

Our initial goals: What we wanted to provide

- Satisfy one of the most common kid's dreams, symbols.

- Brutal combat, very physical

- Realistic slow / tactical fights

- Encourage player's creativity by using the environment

- Visceral / Immersive experience

- Explore / Leverage the strength of first person

Identified problems which are specific to FP:
- The ones we knew about

- Making sure the combat doesn't feel like HL2 with a sword instead of a crowbar

- Aiming at very close moving targets

- Giving a sense of where the hits come from, feedback (Multiple enemies)

- Gauging distance

Getting started:

- Start: NO PUBLISHER. Long prototype phase

- Working with an FPS middleware (Source engine)

- A very agile squad for designing mechanics. Some luck with our animator

- Our first prototype was semi impressive ➔ Video

- We signed with the publisher (a few months later)

Building a vocabulary:

◇ Soon enough, our meetings became messy and not productive.

◇ Bringing Randy onboard: Building a Game Designer Vocabulary we can use to talk about the same things

Player State

Here are the Player States and a description of each:

Player State	Input	Description
Base	<none>	The combat state the player is in when no other state applies, when the player is not pushing any keys.
Parrying	RIGHT MOUSE	Holding up weapon in defensive posture
Jumping	[SPACE]	Player is in mid-air after having jumped but not yet falling
Sprinting	SHIFT	Running forward very fast
Adrenalized		Player's adrenaline bar is at maximum. Player is ready to perform a fatality. (Is there any other visual indication?)
Falling		Player jumped or walked off edge and has now started falling
Overextended		Player has finished a difficult combat move which has left him vulnerable to attack

Mouse Input

The mouse buttons always perform attacks in M&M. This is the list of mouse input that we care about:

Mouse Input	Description
Left Mouse	Tap left mouse button once
Right Mouse	Tap right mouse button once
Charge Left Mouse	Hold down left mouse button for a bit, then release
Charge Right Mouse	Hold down right mouse button for a bit, then release
Multi Left Mouse	Repeatedly tap left mouse button
Multi Right Mouse	Repeatedly tap right mouse button
Both Mouse	Tap both mouse buttons simultaneously
Charge Both Mouse	Hold down both mouse buttons for a bit, then release

Enemy State	Category	Description
Defense		Enemy is ready to defend against incoming attacks
Parrying	Busy	Enemy is in the middle of a parry move
Dodging	Busy	Enemy is in the middle of a dodge move
Shield Blocking	Busy	Enemy is in the middle of blocking with his shield
Attacking	Busy	Enemy is in the middle of attacking
Disabled	Vulnerable	Enemy is off balance and vulnerable from blocking a powerful attack
Overextended	Vulnerable	Enemy is vulnerable from performing a powerful attack
Taking Damage	Vulnerable	Enemy is in the middle of taking damage, maybe from the environment
Defense Broken	Vulnerable	Enemy is vulnerable from having his defense broken by a powerful attack
Stunned	Vulnerable	Enemy is very vulnerable: stunned and wobbling around
Knocked Down	Vulnerable	Enemy has been knocked to the ground

Note that "Category" is a way to classify Enemy States which makes the Outcome chart more convenient (see below).

| Relative Position	Example	Description
Out of Range		The combatants are too far away to hit each other with any melee attacks
In Range		The combatants are close enough to hit each other with at least some of their melee attacks
Short Range		Some moves distinguish between two types of "In Range". Short Range means the combatants are very close to each other.
Long Range		Some moves distinguish between two types of "In Range". Long Range means the combatants are close enough to be "In Range" but not close enough to be "Short Range".
Player Behind Enemy	P→E→	Player is facing enemy's back
Player Above Enemy	P↘ ↖E	Player is higher in altitude than enemy, examples: above enemy on some stairs, player is jumping down from above
Player Below Enemy	E↘ ↖P	Player is lower in altitude than enemy, examples: below enemy on some stairs, enemy is jumping down from above
Player Left of Enemy	↑ P→ E	Player is facing enemy's left side
Player Right of Enemy	↑ E ←P	Player is facing enemy's right side

Aiming system

- Objectives: Contextual control system & address aiming difficulties

- Full physics simulation: Failed

- Simple solution: Back to a shooter theory.

- Target lock (Manual): Worked, but too clunky, and there where other problems the lock didn't solve

Aiming system: The problem
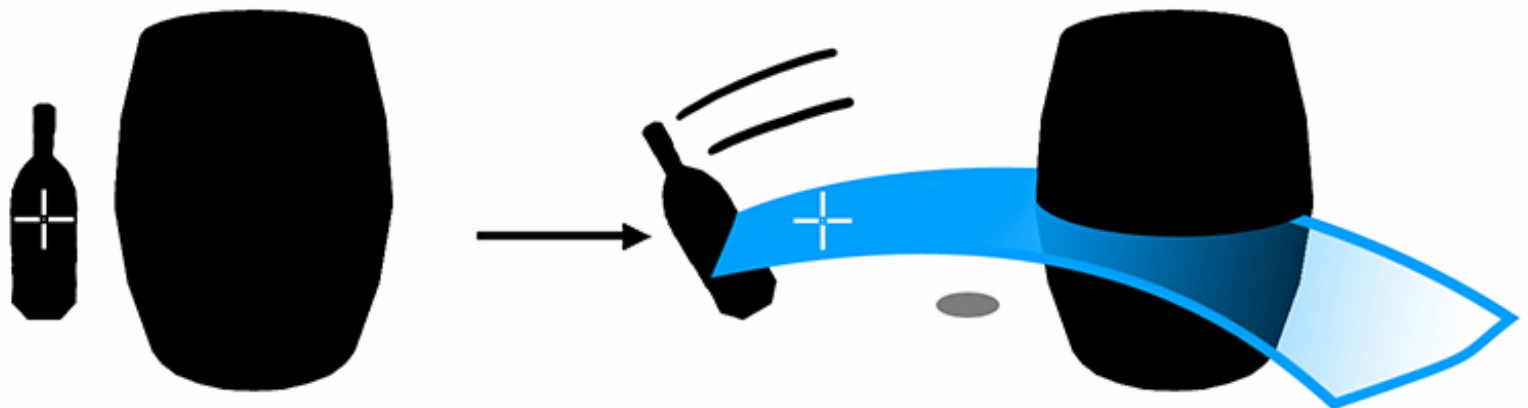
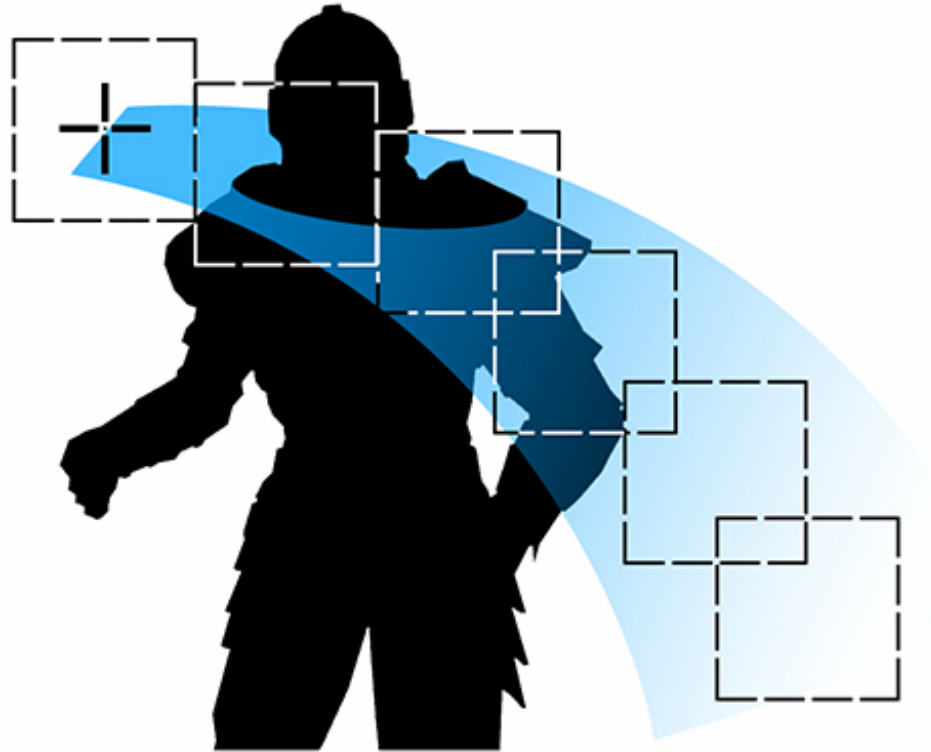Inconsistent reaction
of the world to sword hits

Aiming system

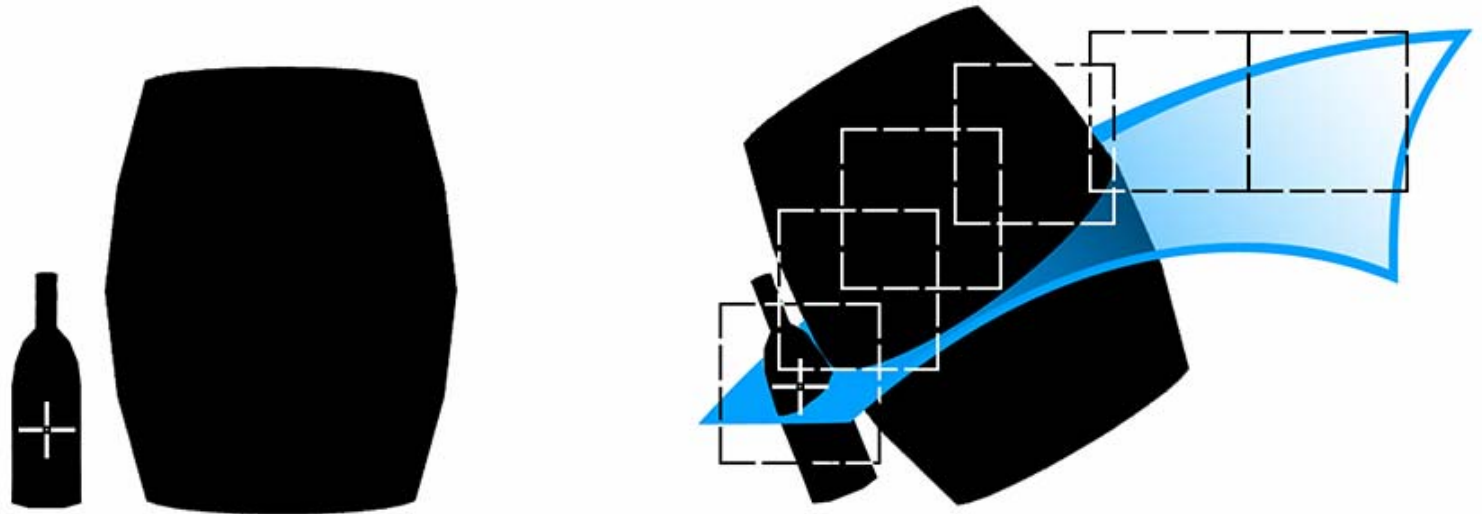- Improvement of the simple solution ➔ support sweeping for all moves

Aiming system : The solution

Apply multiple hit zones
that follow the sword animation,
and apply the first damage only

Aiming system : The solution

Body awareness: Breaking the screen between
the player and his avatar

⊕ Doing animations from a first person perspective
➔ video1
➔ video1bis
➔ video2

⊕ Aiming at the center of the screen / hands through walls
➔ Multiple bodies (third person and first person)

Body awareness: 2 bodies

'Third person'
model

Body awareness: 2 bodies

'Third person'
model

'First person'
model

Body awareness: 2 bodies

'Third person' model

'First person' model

Both model animated separately

compensating the vertical pitch + blend on hit

Body awareness: Breaking the screen between the player and his avatar

- The 'consistent' camera management brought a new issue: Conflict of hands / shields with body

- All contact moves: A first person melee combat game deserves a complex animation / camera lock system

- Third layer of animation just for the head

- Dealing with the FOV issues ➔ too bad, restart all animations
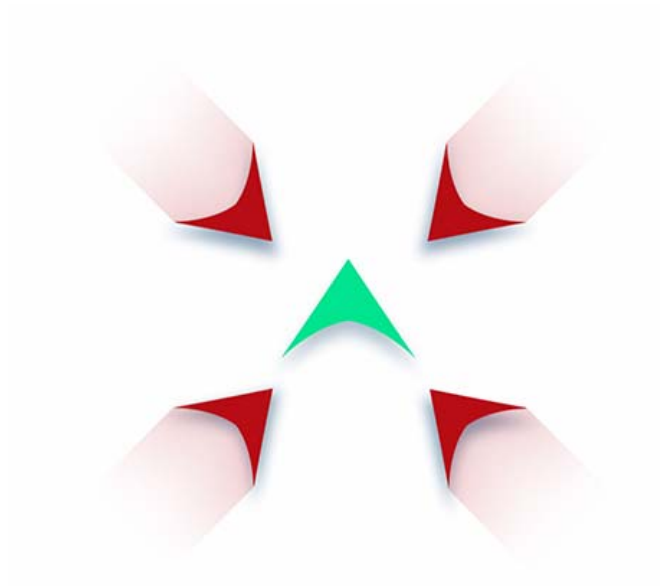
Handling multiple enemies in First person

◈ The problem: AI would gather around you at close range. This is a problem in first person POV
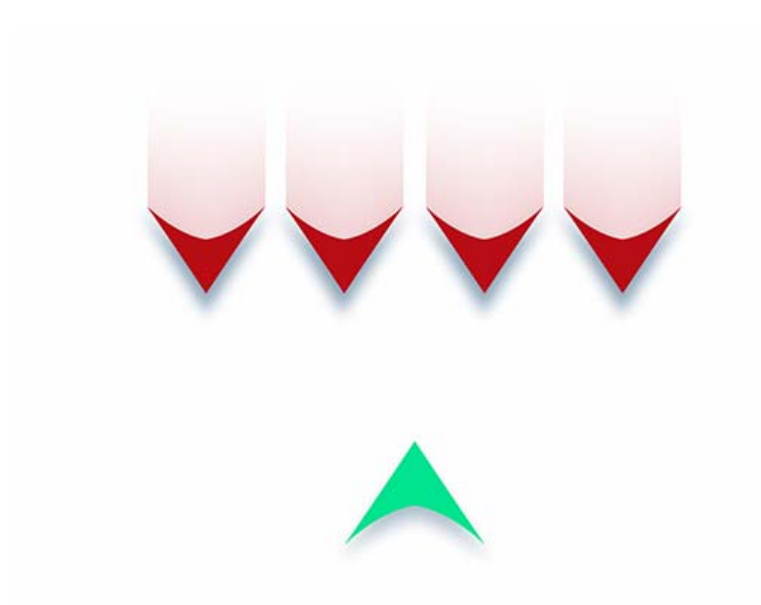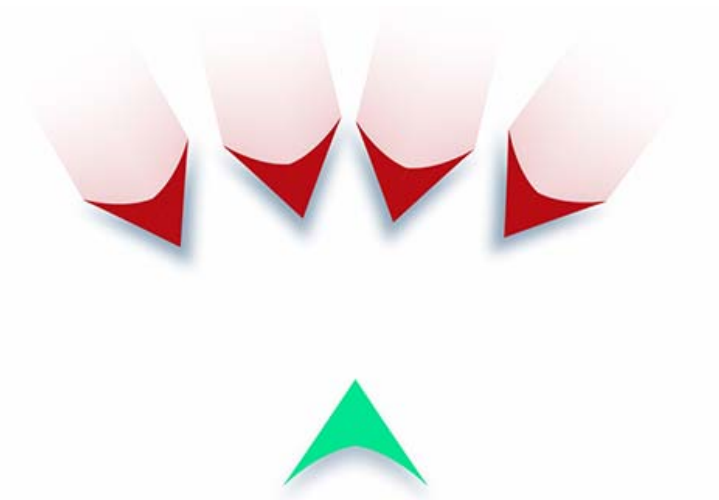
Handling multiple enemies in First person:

- We tried not to do anything about it
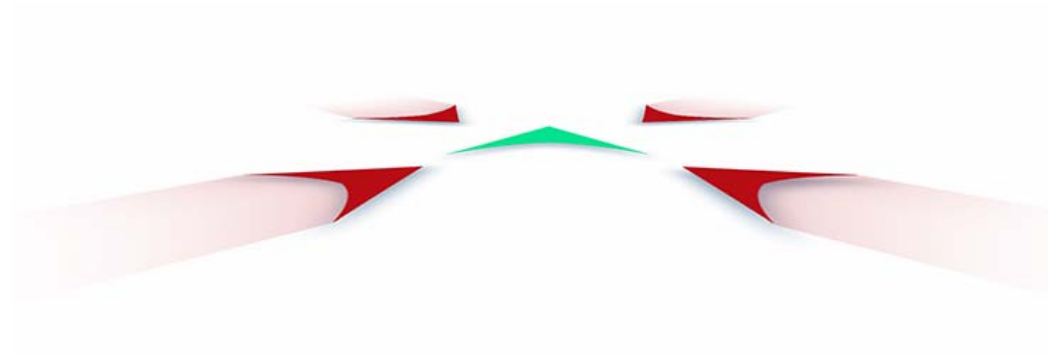
Handling multiple enemies in First person:

- AI gather in front of you only

GameDevelopers
Conference 07

TAKE
CONTROL
March 5-9, 2007 in
San Francisco

CMP

Handling multiple enemies in First person:
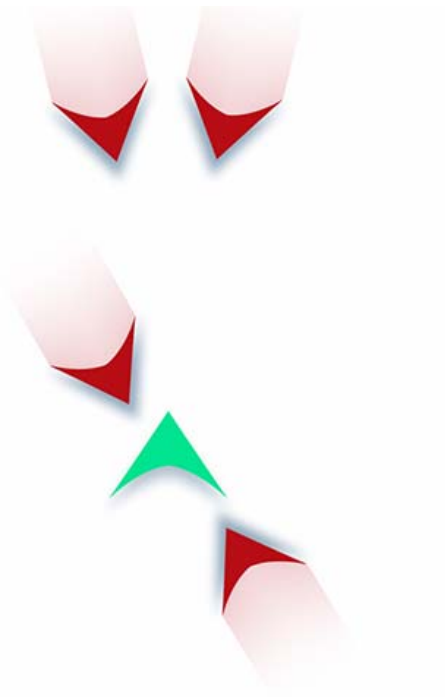
- Increasing the FOV (too ugly)

Handling multiple enemies in First person:

- The solution for us:
    - Use of a token system.
    - No more than 2 enemies in contact within the same Squad.

Anticipation animations:

- The problem: people didn't have time to react to AI and execute tactics.

- Anticipation animations: A key element for 1st person melee combat. ➔ video

- We had to redo a fair amount of work unfortunately

How to work around player's habits and intuitions:
Sounds like a really bad title for a slide ☺

- Tests were not quite going as we wanted them to go

- Players hated the slow combat. First person calls for highly responsive controls

- Throwing a basket at an enemy is not the most obvious tactic when you have a sword ready.

- Kick him, Sareth! Kick him in the face! Kick him again!

- Tutorial was the solution for us

The Combat Cycle: The different phases
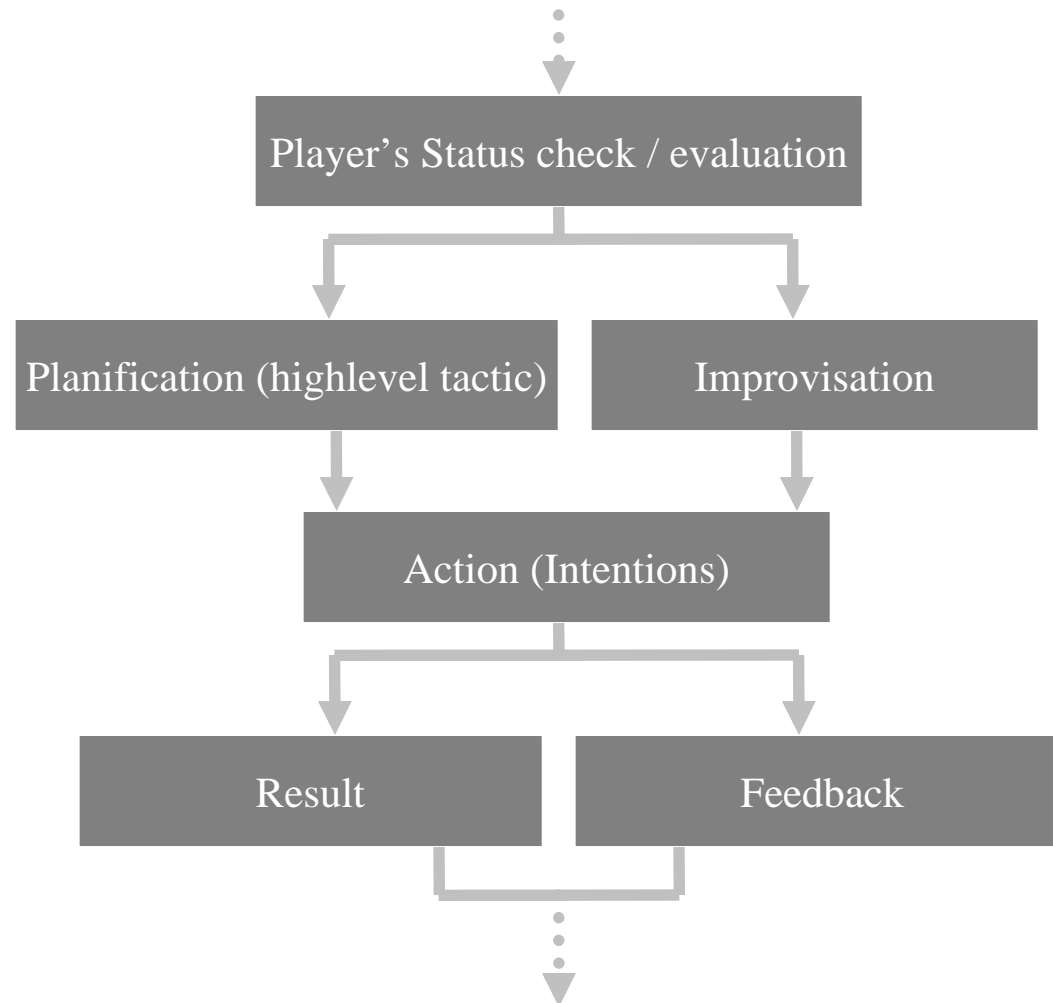
The modules: List of concepts we focused on

AI (combat behaviour / state)

Environmental interactions

Controls, player abilities

Body Awareness
(Fatalities, contact moves)

Articulation between modules and combat phases:

Player's Status check / evaluation

Planification (highlevel tactic)

Improvisation

Action (Intentions)

Result

Feedback

AI (combat behavior)

Environmental interactions

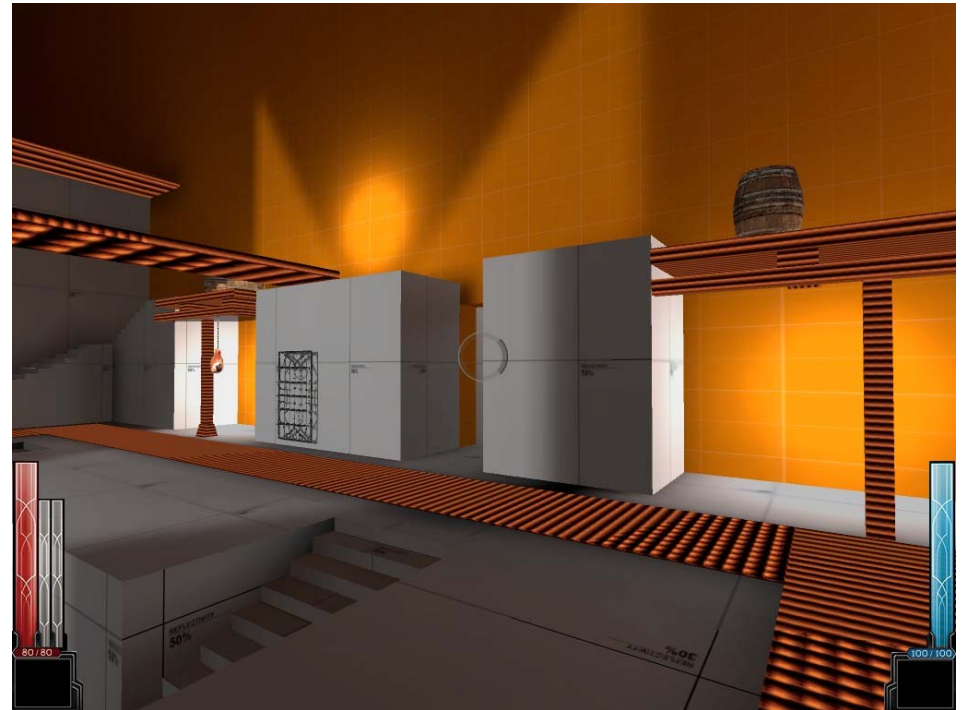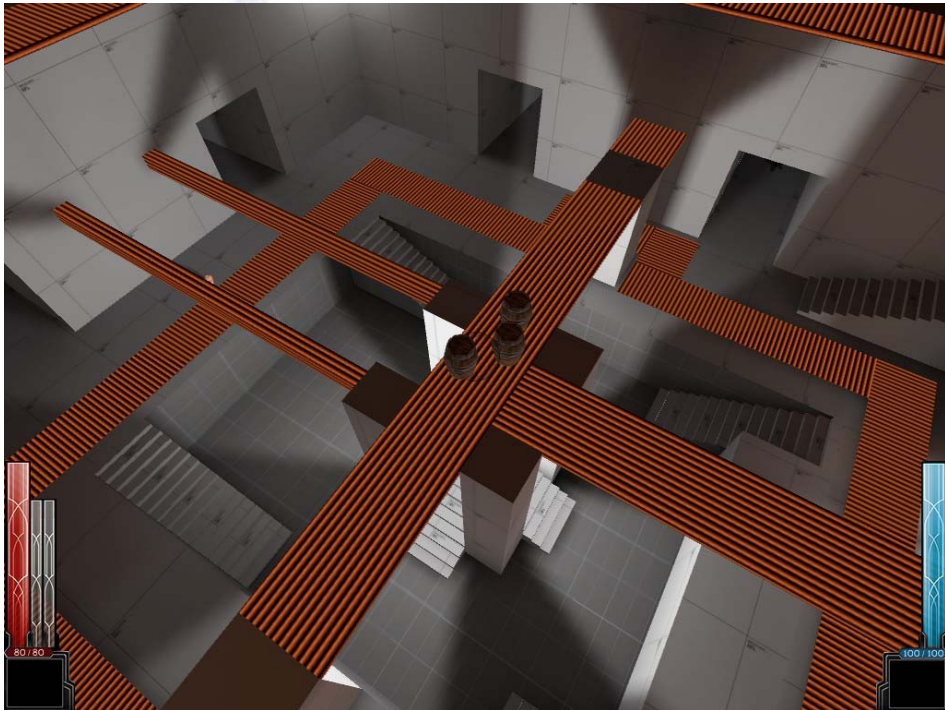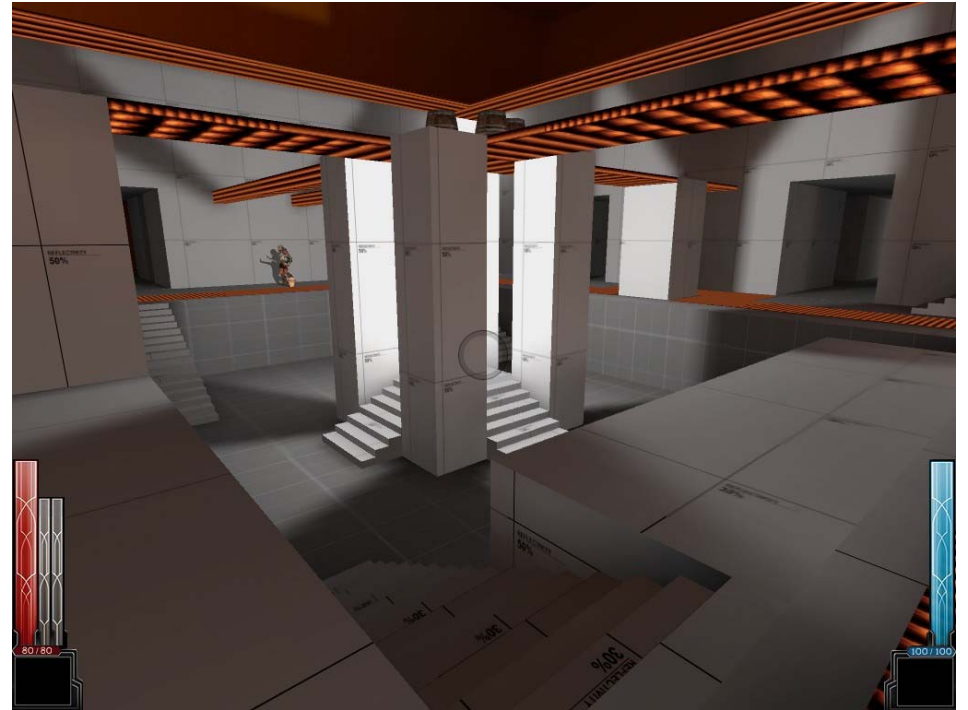Controls, player abilities

Body Awareness
Fatalities, contact moves
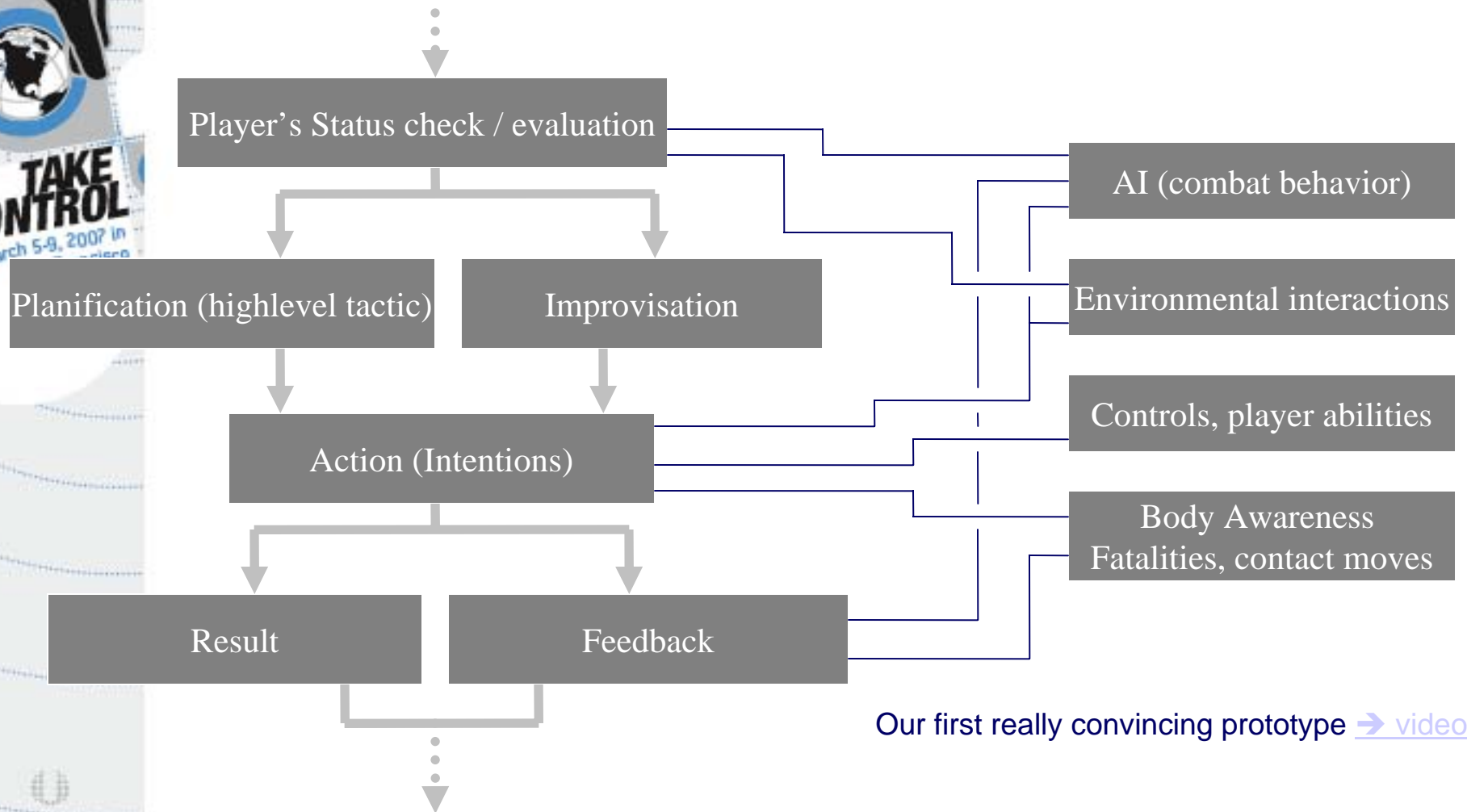
Our first really convincing prototype ➔ video

Creating the ideal fighting arena: Fine tune the combat

- Once the mechanics were in place, time to think about the level design

- Check list of situations: Cover / dark areas / size of space / traps

Creating the ideal fighting arena: Fine tune the combat

⊕ Building a Level Design Checklist

Creating the ideal fighting area: Fine tune the combat

	Combat Interest	DETAILS
✔ / ✖	3D interest	
✔ / ✖	Environmental hazards	
✔ / ✖	Cover	
✔ / ✖	Loose physical objects	
✔ / ✖	Breakable objects	
✔ / ✖	Objects set up to tumble or fall down	
✔ / ✖	Fire elements	
✔ / ✖	Enemies that fight each other	
✔ / ✖	Variety of enemy types and behaviors	
✔ / ✖	Special scripted elements	
✔ / ✖	Some or all of the elements are usually involved in the combat	
✔ / ✖	The combat usually takes place in the interesting area	

Creating the ideal fighting arena: Fine tune the combat

- Too bad the levels where already done

Blind testing: I wish we had started it earlier

- "Oh yeah? The guy couldn't aim? Well, he probably sucks, I have no problem with it myself!"

- The most convincing tool

- It helps to insure everybody in the team comes to the same conclusions

- It's cheap, and way more effective than curves analysis

**Other things we tried that failed
and didn't make it into the game:**

- 'Ragdoll hits' ➔ perf hit, instead we made tons of animations

- Damage map. Material map ➔ perf and totally useless

- Back flip in FP ➔ not a good idea… really

What came out not so good in the final game for FP melee combat:

⚛ Big Monsters

⚛ Variety in enemies and characterization

⚛ We overdid the trap / kick patterns and spread them mechanically inside our maps

⚛ The level Design was done before the combat Sandbox. → too small environments

Next step: a few ideas
for the next generation of 1st person melee

- Support more contexts for moves (distance with enemy, number of enemies, position of the enemy relative to the player)

- Submoves with choices: Sword vs Sword + left or right

- More contact moves

- Improve the feedback of monsters (more characterization / anticipation anims, Facial expressions)

Conclusion: it was HARD !

PART 3 : Questions ?