So, I thought I’d start off my talk this evening with a little background information about me.

My name is Richard Bartle, I’m professor of computer game design at the University of Essex, and I’m a god.

That’s literally a god, not metaphorically a god.

I’ve been a god for over 30 years – yes, scary, I know...
**Definition**

- **A GOD IS SOMEONE WHO CAN** (IF THEY WISH) **CHANGE THE PHYSICS OF A REALITY**

- **IMPORTANT:** THEY CAN'T CHANGE THE PHYSICS OF THEIR **OWN REALITY**
  - BECAUSE THAT WOULD MEAN THAT THE ABILITY TO CHANGE THEIR REALITY'S PHYSICS WAS **PART** OF THEIR REALITY'S PHYSICS
  - THEY WOULD THEREFORE **STILL** BE OPERATING **WITHIN** THAT REALITY'S PHYSICAL LAWS
    - ALBEIT LAWS SOMEWHAT **DIFFERENT** TO OURS, WHICH ADMIT NO WEIRD GÖDEL SELF-MODIFICATION STUFF...
• We **exist** in a reality we call “reality”
  - I’ll write this **reality** on the remaining slides
• We are **subject** to the **physics** (“laws of nature”) of **reality**
• From our **definition**, people who are subject to the physics of a reality are **not gods** for that reality
• Therefore I am **not** a god of **reality**
  - I’m a god of a **different** reality
  - Actually, I’m a god of **several** of them...
• Rift, Trion, 2011:
• *WORLD OF WARCRAFT*, BLIZZARD, 2004:
EVERQUEST, SONY ONLINE ENTERTAINMENT, 1999

You give 1 silver 3 copper to Pam Gywyn.
You give 1 silver 3 copper to Pam Gywyn.
Pam Gywyn tells you, 'That'll be 3 silver 3 copper per Ration'.
You give 3 silver 3 copper to Pam Gywyn.
Chrysta shouts, 'GOOOO FINALLY' one to the deck!
Darthen says:
Talmauge says, thanks ... we'll be back soon!
Talmauge says, 'Nowdy troll ... lookin' good!
Talmauge rolls on the floor laughing at Kylum.
Talmauge waves before Kyllum.
Talmauge waves at Kyllum.
A barrel has been left here.
An angry-looking statue of Hoturi is standing here.
An angry-looking statue of Priapus is standing here.
A statue of Odin is standing behind the altar.
A Sign for Newbies is here.
You are a guest here until you save yourself.

If you need to get to your guild, use the guild medallion in your inventory. If you lose it, pray to the statue of Odin for another.

105m/202e/38h
look
Temple of Udgaard
You are inside the small and humble village temple in Udgaard. A simple stone altar, with strange stone carvings, is placed against the north wall. A small humble donation room is to the east. The temple exit is south to the Village Square.
A barrel has been left here.
An angry-looking statue of Hoturi is standing here.
An angry-looking statue of Priapus is standing here.
A statue of Odin is standing behind the altar.
A Sign for Newbies is here.

105m/202e/38h
Your wimpy value is set to 15. See 'help change' to see what that means.

The Temple Of Paradise

You stand in the Temple of Paradise, a huge sandstone structure whose walls are decorated with ancient carvings and runes, some so old that even the priests no longer know their meanings.

A single set of steps lead south, descending the huge mound upon which the temple is built and ending in the forests below.

A roaring fire burns here. Its flames make the temple sparkle and glitter.

At your feet a huge sacrificial pit allows you to give valuables to the gods in the hope of being rewarded.

A furled umbrella lies here.

Obvious exits are:
North : Welcome Center
South : Forest Track
Down : Forest Track

Last login: Wed Sep  7 17:43:26 2005

>
Narrow road between lands.
You are stood on a narrow road between The Land and whence you came. To the north and south are the small foothills of a pair of majestic mountains, with a large wall running round. To the west the road continues, where in the distance you can see a thatched cottage opposite an ancient cemetery. The way out is to the east, where a shroud of mist covers the secret pass by which you entered The Land. It is raining.

Narrow road.
You are on a narrow east-west road with a forest to the north and Gorse scrub to the south. It is raining. A splendid necklace lies on the ground.

• **MUD, ROY TRUBSHAW & RICHARD BARTLE, 1978**

• **MUD DIDN'T COME FROM ANYTHING**

• **THIS IS WHY I GET TO GIVE THIS TALK AND YOU DON'T**
A PONY

• HERE'S A PICTURE OF A PONY

• (THE PONY IS THE ONE UNDERNEATH)
• **SO, 33 YEARS AGO I CO-WROTE THE VERY FIRST VIRTUAL WORLD**
  
  – FROM WHICH ALMOST ALL MODERN VIRTUAL WORLDS ARE **DIRECTLY DESCENDED**

• **WE DECIDED WHAT PHYSICS TO IMPLEMENT FOR THAT WORLD, AND WE IMPLEMENTED IT**

• **THIS MADE US GODS FOR THAT REALITY**

• **WE BASED THE PHYSICS (AND CULTURE AND EVERYTHING ELSE) OF THIS REALITY ON **REALITY**
• The **reason** we did this was because we wanted people from Reality to visit ("play") our virtual world, Mud.

• The idea was that people would **will** themselves to believe the virtual was **real**, so that they could feel they were "in" it.
  - A concept known as **immersion**

• To present fewer **obstacles**, we aimed to make the world **persuasive**
Persuasiveness

• To trick players into thinking that something is real when it isn’t, make it function like it would if it were real

• Players can then trust it and concentrate on the actual differences
  – Eg. Magic, which isn’t a feature of Reality...

• Physics implements causality
  – If some action doesn’t default to how Reality works, players look for a fictional cover
  – If there isn’t one, they give up in disgust
• **It may be that something appears to be beyond a reality but isn’t**
  - If you don’t have the **full picture**

• **Example: our theories rule out faster-than-light travel in Reality, so if we discovered evidence of it then either:**
  - The **evidence** is wrong and it didn’t happen
  - Our **theories** are wrong and it is possible
  - We were right, it is impossible in **reality**, but **reality was changed** — “**supernatural**”
• **SUPERNATURAL** powers are laws of nature that only apply **SELECTIVELY**
  - gods can **GRANT** these powers to **OTHERS**
• **SUPERNATURAL BEINGS, OBJECTS, PLACES OR WHATEVER ARE NOT GODS THEMSELVES**
  - they can’t **REPROGRAM** reality – only **GODS** can do that
• **SUPERNATURAL BEINGS ARE STILL** governed by the reality’s physics, it’s just that some rules do (or don’t) **APPLY** to them
• In Mud, Roy and I did give some players additional administrative super powers
  - Wizards/Witches - “Wizzes”
• However, those powers were still part of the physics
  - Because they were part of the code
  - Just they were a part most people didn’t have access to...
• Only Roy and I could change the physics, so only Roy and I were Gods
• Not all designers want to be gods

• Attempts have been made in the past to give control to players (note: not to NPCs)
  – Most notably in Lambdamoo in the mid-90s
  – The second life of its day

• Law and social science scholars have also suggested that control of a virtual world should be vested in its players
  – Players form a government that orders what the designers and developers implement
WHAT'S NOT TO LOVE?

**UNFORTUNATELY, SOONER OR LATER, THE GOVERNMENT [WARNING! TECHNICAL TERM!] WILL ASK FOR A PONY**

- They ask for something to be implemented that the developers **POINT BLANK** won't implement

- **WHENEVER** you promise someone “you can have whatever you want”, **EVENTUALLY** you’ll have to **BREAK** that promise

**DEVELOPERS WHO TRY TO ABROGATE THEIR GODLINESS TO THE PLAYER BASE CAN'T**

- They are **GODS** whether they like it or not
• Here's a picture of an angel investor
HALF-REAL

• Now you **MAY** be wondering how I can justify calling a **GAME** world a “reality”
  – **NOT ENTIRELY** a straw man argument
  – Social scientists in particular have suggested that virtual worlds are **ADJUNCTS** of **REALITY**, rather than realities in their own **RIGHT**

• For a reality to **QUALIFY** as a reality, someone **HAS TO PERCEIVE** it as a reality

• Players from **REALITY** are capable of doing that

• However, it would be **BETTER** if there were people for whom the **CREATED** reality is **THEIR** reality
  – People who know **NO OTHER** reality
Roy and I populated mud with non-player characters I called "mobiles"—whence the MMO term "mobs".

These characters operated entirely within the mud world—they couldn't tell player characters from NPCs.

They could do anything they wanted to do within mud's physics.

Ok, so they weren't sophisticated enough to do much, because artificial intelligence isn't all that powerful now and certainly wasn't then.

But what about the virtual worlds of the future?
• MUD'S DENIZENS COULDN'T REALLY "THINK" AS WE UNDERSTAND THE TERM

• HOWEVER, MAYBE 500 YEARS FROM NOW WE'LL HAVE TRUE AI?
  – OR 5,000? OR 50,000? WE HAVE ALL OF ETERNITY!
  – TAKE AS LONG AS YOU WANT!

• SOONER OR LATER WE WILL HAVE A VIRTUAL WORLD POPULATED BY INTELLIGENT-AS-US BEINGS

• THOSE BEINGS WILL REGARD THAT VIRTUAL WORLD AS REALITY, AND WILL HAVE NO CONCEPTION OF REALITY
  – EVEN THOUGH IT'S THE PHYSICS OF REALITY WHICH IS SUSTAINING THE EXISTENCE OF THE REALITY THEY PERCEIVE
• To an **NPC** **with AI in a virtual world**, the virtual world appears **self-contained**

• There is no reason to suppose that **our world exists**

• Of course, we can **enter their world using our player characters and tell them about Reality**
  
  – Why would they ever **believe us**, though?
  
  – And why would we ever **do** that anyway?

  • Or, alternatively, why wouldn’t we do it **the whole time**?

• They could also **look** at the world around them and deduce that it was created by some **higher being**
  
  – They’d be **correct** too – we are those higher beings

• They could **further** reason that they themselves were **modelled on that higher being**

  – **Also correct** – for reasons of **persuasiveness** and **immersion**
MISCONCEPTIONS

• HOWEVER, THEY WOULD BE COMPLETELY **WRONG** AS TO:
  
  - THE **NATURE** OF THAT HIGHER BEING
  - WHAT THE HIGHER BEING’S **WORLD** IS LIKE
  - **WHY** THE HIGHER BEING **CREATED** THEIR REALITY
  - PRETTY MUCH EVERYTHING ELSE, TOO

• “YOU MEAN, THE **CREATOR** CREATED **OUR** WORLD TO MAKE MONEY IN **THEIR** WORLD?!”

• THE **SMARTEST** NPCs MIGHT FIGURE THAT WITH NO **EVIDENCE** TO SUGGEST THERE IS A HIGHER BEING, THEN RATIONALLY THERE PROBABLY **ISN’T** ONE

  - **ATHEIST** NPCs!

  • WHO ARE **WRONG**!
• BUT HEY, DON’T WORRY, ATHEIST NPCS!

• YOUR REALITY’S GOD WILL BE REALLY PLEASED AT YOUR SOPHISTICATED LINE OF REASONING
  – EVERY DESIGNER I’VE EVER ASKED ABOUT THIS HAS SAID THEY’D BE HIGHLY IMPRESSED WITH ANY NPCS THAT THOUGHT THAT WAY, AND WOULDN’T HOLD IT AGAINST THEM AT ALL

• YOU WON’T BE GOING TO HELL WHEN YOU DIE
  – THEN AGAIN, NO-ONE WILL BE GOING ANYWHERE – YOU’RE JUST BITS IN COMPUTER MEMORY

• ALTERNATIVE: SOME DEITY OF REALITY MIGHT TAKE YOU TO THEIR AFTERLIFE INSTEAD!
  – AFTER ALL, IT’S NOT YOUR FAULT YOU WERE WORSHIPPING A DESIGNER INSTEAD OF THAT DESIGNER’S DESIGNER
  – HOW COULD YOU KNOW HOW MANY LEVELS THERE ARE ABOVE YOU?
• Here's a picture of a robot

• (The robot is the metal thing)
EXISTENCE

• NPC ATHEISTS **DO HAVE A POINT HERE**
  - EXISTENCE IS **RELATIVE**
• I **EXIST IN MY REALITY BY DEFINITION**
• **DO I EXIST IN ANY REALITY I CREATE?**
  - WHEN I **VISIT** THAT REALITY, SURE, I **EXIST THERE THEN**
  - **DO I EXIST IN IT WHEN I'M NOT VISITING IT, THOUGH?**
• **DO I EXIST WHEN I DON'T VISIT, BUT MAKE CHANGES TO THE WORLD THAT ITS INHABITANTS CAN DETECT AS BEING (IN THEIR VIEW) SUPERNATURAL?**
  - THEY CAN **DEDUCE I EXIST IN MY REALITY, IF NOT THEIRS**
  - THEY **COULD ALSO BUILD UP AN HYPOTHETICAL PICTURE OF ME BASED ON MY SUPERNATURAL INTERVENTIONS**
  • WHICH I **MAY OR MAY NOT ACTUALLY HAVE DONE**
• **What if I can change a world’s physics, but never do?**

• **Do I exist in that reality then?**

• **Well, for all intents and purposes, no: I don’t exist in that reality**

• **Do you, who have never played Mud and would take time to learn how to alter its physics, exist relative to its denizens?**
  - **Well no, you don’t — even though in reality you plainly do exist!**

• **If a god doesn’t visit a reality and doesn’t change it, that god doesn’t exist in that reality**
MORAL MESS

- Sentient NPCs raise some interesting moral problems for the reality hosting theirs.

- Example: can you switch it off?
  - To do so would be to obliterate countless millions of free-thinking beings!

- Would you be fine causing the painless death of millions of soulless animals in reality?
  - So you probably wouldn’t switch it off then?

- But you’d have to keep it running forever!

- Could you maybe just take a snapshot of the database and save it somewhere?
  - Years later it could in theory be reloaded...
ADRIAHMIC RELIGIONS HAVE A SPECIAL ISSUE HERE:
IS THE CREATION OF A VIRTUAL WORLD SACRED OR BLASPHEMOUS?

GOD CREATED THE WORLD (REALITY), AND CREATED ADAM (IE. MANKIND) IN HIS (GOD’S) OWN IMAGE
– SO ADAM HAS FREE WILL AND CREATIVITY, JUST LIKE GOD

ADAM CAN’T CREATE HIS OWN WORLD, BECAUSE ALTHOUGH HE’S IN THE IMAGE OF GOD, HE ISN’T ACTUALLY GOD
– HE HAS NO POWERS OVER REALITY

SCOOT FORWARD TO NOW, AND VIRTUAL WORLDS

ADAM STILL DOESN’T HAVE POWERS OVER REALITY

ADAM DOES HAVE POWERS OVER NEW REALITIES OF HIS OWN MAKING
QUESTION

• Should Adam (well, Roy and I) have taken that final step and created new realities?

• Some people would say no:
  - God created the universe
  - If we create virtual worlds, we are “playing god”
  - This is a mocking act of arrogance, false pride and hubris
  - Blasphemy!

• Some people would say yes:
  - God created Adam in God’s own image
  - Of course Adam is eventually going to create worlds!
  - It’s the final step of Genesis!
  - It makes us the true copies of God we were always intended to be
  - Sacrament!

• From a religious perspective, it has to be one or the other - it can’t be both or neither

• Either virtual worlds mock God’s creation, or they fulfil it
• Earlier, I said that although we can visit the virtual worlds we create, NPCs in those realities can’t visit reality.
  – They’re contained in their own reality and can’t escape it.
• That’s true, but we can give them the means to experience our world.
• Suppose we created human-looking robots.
  – Again, take as many years as you want for this…
• Instead of implementing “robot brains”, we could pass control to the AI of an NPC in a virtual world.
• That NPC could then experience our world through the senses of the robot.
CONSEQUENCES

• The NPC could also interact with our world using the physical body we built for them.
• We could teach them to program their own reality from Reality!
  – Probably not a good idea in case they crashed it.
• They could even suicidally throw the switch that turned their world off.
• People in a reality that’s consequent on a higher reality can escape to it if they have the co-operation of that reality.
• Cool! We can give our favourite NPCs a heaven.
  – Or, if they don’t like it, a hell.
ANALOGIES

- It's very **Easy** to draw **Analogies** between **Reality's** relationship to virtual worlds and some presumed **Meta-Reality's** relationship to **Reality**

- **Some** of these are stretching symmetry too **far**
  - "Prayers are like bug reports!"

- However, on the whole the connection is a **Good** one

- This is because at heart the relationship **isn't** an analogy at all

- We really **are** gods for the virtual worlds we create!
This gives us a lens that is useful for both the spiritual and the non-spiritual alike.

Spiritual:
- If we look at how we treat virtual worlds, at the very least this illuminates some of the decisions that the higher-order being who implemented reality would have had to face with regards to us.

Non-spiritual
- How do we want our creations to be, and why?
Wrapping Up

• This is all great for late night first-year student get-to-know-you philosophical debate, but so what?

• Basically, all I’ve said is:
  – We can create realities
  – The people in those realities don’t know about reality except what we choose to tell them
  – We can apply the same realities-within-realities arguments up and down indefinitely
• **SOME REALITY WILL BE AT THE BOTTOM**
  - Reality probably was until Roy and I created mud, but who knows what people on other planets have been doing?

• **SOME REALITY WILL BE AT THE TOP**
  - As far as **atheists** are concerned, it's *reality*
  - As far as **religious people** are concerned, it's their deity's (or deities') reality

• **NOTHING THERE FAVOURS EITHER THEISM OR ATHEISM** though
  - It's just a **tool** to help us think about *reality*

• **EXCEPT...**
CRITIQUE

• THE THING IS, AFTER 30 YEARS OF WORK NOT ONLY DO WE KNOW HOW TO PROGRAM NEW REALITIES, WE ALSO KNOW SOMETHING ABOUT HOW TO DESIGN THEM

• SPEAKING AS A DESIGNER, I HAVE TO SAY THAT REALITY SUCKS

• I COULD DESIGN A BETTER WORLD THAN REALITY!

• IT WOULD TAKE A WHILE TO IMPLEMENT, BUT THE DESIGN WOULD BE A MANAGEABLE SIZE
  – MOST OF THE CONTENT WOULD BE GENERATED PROCEDURALLY, RATHER THAN HAND-CODED
Suckiness

• If we actually implemented a simulation style virtual world that worked exactly like Reality, no way would people play it
  – It has permadeath!
  – It has no telepathy!
  – It has no teleportation!
  – What’s the deal with pain?!
  – How come only half the population can have babies? That’s unfair!

• What designers do is base their world on Reality for reasons of immersion, then they throw out the sucky bits

• Why has no-one thrown out our sucky bits?
OBJECTIVELY

• DON'T GET ME WRONG, OBJECTIVELY SPEAKING REALITY IS SUPERBLY ENGINEERED
  – A SMALL NUMBER OF TYPES OF PHYSICAL ENTITY WITH A SET OF FINELY-BALANCED RELATIONSHIPS BETWEEN THEM
• IT'S JUST, IT COULD BE SO MUCH BETTER!
• SOME POSSIBLE EXPLANATIONS:
• REALITY IS A FAILED EXPERIMENT THAT WILL PROBABLY BE SWITCHED OFF SOMETIME SOON
• DITTO, EXCEPT REALITY IS KEPT RUNNING BECAUSE ITS DEVELOPERS ARE MORAL BEINGS AND BELIEVE THAT SWITCHING IT OFF WOULD AMOUNT TO MURDER
• (CONTINUED...)
• **Reality** is some kind of “serious games” world that **earnest** beings from **Meta-Reality** occasionally visit, but it’s basically **moribund**

• **Reality** is a **work-in-progress** and the bugs will be ironed out in the next **patch**

• **Meta-Reality** is such a **ghastly** place that in comparison, **Reality** is a **fun** improvement

• **There is no Meta-Reality; Reality** is at the **top** of the stack, and the **reason** its design sucks is because **no-one designed it**
**CONCLUSION**

- **Of these, the last one makes the most sense**
- **Anyone capable of creating something as well-engineered as Reality would have to be capable of taking a far better shot at the content**
- **We’ve only spent ~30 years on this to date**
  - What will we know after 300 years? Or 300,000?
- **This is ultimately why I personally don’t buy the idea that there is some deity out there who implemented Reality**
- **Some deity that would be if I could do a better job of it myself!**