VIRTUAL WHAT?
WHAT CAN WE LEARN IN A VIRTUAL WORLD?

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WHAT IS REALITY?
WHAT IS REALITY?

HERACLITUS

“No man ever steps in the same river twice, for it's not the same river and he's not the same man."

— Heraclitus

Heraclitus by Johannes Moreelse. The image depicts him as "the weeping philosopher" wringing his hands over the world.
WHAT IS REALITY?

UNITY OF OPPOSITES

The Greek philosophical pioneer Heraclitus of Ephesus can be credited for being the first person in the West to develop a sound philosophical system.

His philosophy is the paradoxical notion that the nature of reality is a “unity of opposites”.

Heraclitus; who sought to expose this contradictory nature of reality through his paradoxical texts.
Plato’s “Theory of Forms” can be seen as a direct response to Heraclitus’ philosophical system.

Plato’s Forms were needed to provide stable objects for knowledge as well as to answer the question of what is ultimately real. Plato views the body as the prison of the soul/mind.

The dualistic ontology inherent in Plato’s philosophy becomes even more explicit in his in his allegory of the Cave in the Republic and its “Two Worlds Doctrine”.

WHAT IS REALITY?
PLATO
WHAT IS REALITY?

ALLEGORY OF THE CAVE

IMAGINE...

IN A CAVE, SO DEEP THAT SUNLIGHT DOES NOT ENTER, PRISONERS ARE HELD, CHAINED BY THE NECK, FEET AND HANDS SO THEY CAN ONLY SEE WHAT’S RIGHT IN FRONT OF THEM.

HIGH UP BEHIND THEM THERE’S A FIRE BURNING.

OBJECTS ARE CARRIED ALONG IN FRONT OF THE FIRE.

THE OBJECTS CAST SHADOWS ON THE WALL FACING THE PRISONERS.

WOULDN’T YOU THINK THAT TO THESE PRISONERS, REALITY CONSISTS OF THE SHADOWS THEY SEE AND THE ECHOES THEY HEAR?

O YES!
WHAT IS VIRTUAL REALITY?

PLATO’S CAVE
Descartes proposes a philosophical methodology which aims to structure knowledge much like an architect structures a strong physical structure, i.e. beginning with strong foundations.

Finding inspiration from Euclidian geometry, used in architecture, Descartes proposes to develop the first principles for a foundationalism epistemological system.

“to reach certainty, to cast aside the loose earth and sand so as to come upon rock or clay”
WHAT IS REALITY?

DESCARTES

HOLY CRAP! HE'S TOTALLY BUYING IT.

GOD, GOD! GET OVER HERE.

YOU HAVE TO SEE THIS!

NO, SERIOUSLY, HURRY, IT'S SO FUNNY.

UGH, WHAT IS IT.

JUST TELL ME WHAT IT IS.

HE'S WALKING DOWN THE STREET. THERE IS NO STREET! HE HAS NO IDEA!

ARE YOU DECEIVING THE HUMANS INTO THINKING THERE IS AN EXTERNAL WORLD AGAIN? I THOUGHT I TOLD YOU TO STOP THAT.
WHAT IS REALITY?

DESCARTES
WHAT IS REALITY?

DESCARTES

LATER:

I shall then suppose, not that God who is supremely good, but some evil demon not less powerful than deceitful, has employed his whole energies in deceiving me: I shall consider that the earth, colors, figures, sound, and all other external things are nought but the illusions of which this demon has availed himself in order to lay traps for my credulity.

HOW DOES HE KNOW?
Descartes through his methodological doubt believed himself to have discovered the kernel of absolute truth, which would form the foundation of his rationalist epistemology, namely “Cogito ergo sum” (I think therefore I am).

Whether we are dreaming or being deceived by a malicious demon, the one thing that we cannot draw into doubt, is that we are thinking and consequently that we exist.
“Have you ever had a dream, Neo, that you were so sure was real? What if you were unable to wake from that dream? How would you know the difference between the dream world and the real world?”
WHAT IS VIRTUAL REALITY?
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PRESENCE

Presence, the feeling of “being there” is considered central to teleoperation and VR endeavors, and has been since its conception.

Film critic André Bazin used the term presence, in his landmark book “Qu’est-ce que le Cinéma” (What is Cinema?) to describe the film viewer’s sense that he is within the spatial/temporal continuum as the screen.

Presence, the “perceptual illusion of nonmediation” has become a important criterion whereby many researchers define VR.
WHAT IS VIRTUAL REALITY?

RATIONALISTIC PRESENCE

Current VR environments are developed using the “language” of geometry and kinematics. Space is defined in terms of Euclidean geometry and the Cartesian coordinate system.

VR is a literal enactment of Cartesian ontology, cocooning a person as an isolated subject within a field of sensations and claiming that everything is there, presented to the subject.

VR is not only utilized to give form to our understandings of the real world outside of ourselves, but also to represent and share imagined worlds.
WHAT IS VIRTUAL REALITY?

ONTIOLOGICAL TEST-BED

Ephémère and Osmose (Davies, 2003) whose aim is to communicate subjective experiences of intermingling: interior self and external world, of body and nature; purposefully blurring the Cartesian distinction between subject and object, mind, world and body.
WHAT IS VIRTUAL REALITY?

ONTOLOGICAL TEST-BED
WHAT IS VIRTUAL REALITY?

DIALECTICAL PRESENCE

The (natural) environment provides all the information necessary for the organism’s ordinary activities. The environment is central, it affords to guide or prevent action through various levels and dimensions of information. The interaction is represented by a bipolar model incorporating the active organism and the environment.

Gibson suggested “... the so-called feeling of reality that accompanies a percept is actually a result of the tests for reality that go along with active perception. Actually, they are tests for the existence of an external source of stimulation”.

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Manovich argues that as the production and distribution of all forms of culture become computer based, people increasingly have to “interface” with culturally encoded data (photographs, films, virtual worlds, etc.) and not simply the computer. Cultural interfaces enable the representation and manipulation of cultural data and they are fundamentally fused components of older, already familiar cultural forms.
WHAT IS VIRTUAL REALITY?

CAVES
WHAT IS VIRTUAL REALITY?

DESKTOP VR
MSC

URBAN DESIGN THROUGH A MULTI-USER VIRTUAL WORLD
CAVES

• The Collaborative African Virtual Environment Systems (CAVES) research project was set up as a joint venture between the University of Cape Town, National Research Foundation, Council for Scientific and Industrial Research, Contemporary African Music & Arts Archive, Visual Information Systems and Video Labs to overcome the problems with creating Virtual Environment (VE) systems for the South African context.
PHD

LEARNING IN A VIRTUAL WORLD
POSTDOC

SERIOUS GAMES AND GAMIFICATION
WHAT CAN WE LEARN?

IN VR

• Complex processes and systems
• Hazardous activities
• Collaborative activities and social practices
• Phenomenon and dimensions beyond our perceptual abilities
• History
• Empathy?
WHAT CAN WE LEARN?

FROM VR

• How beautifully detailed and complex reality is
• How the perceptual system works
• Technical and natural transformation
• Epistemological and ontological testbed
• How much reality is constructed
• Empathy?
• What is Reality!
NOW AND THEN
NOW AND THEN