

## Philosophy of Science

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## What is Philosophy of Science?

- Medicine studies the body to know how it works
  - Does not study logical fallacies, how observations are dependent on theory/prejudice, or what knowledge is
  - It takes such things for granted

- They want to know how to stay healthy or to heal the sick

- Philosophers of science study science

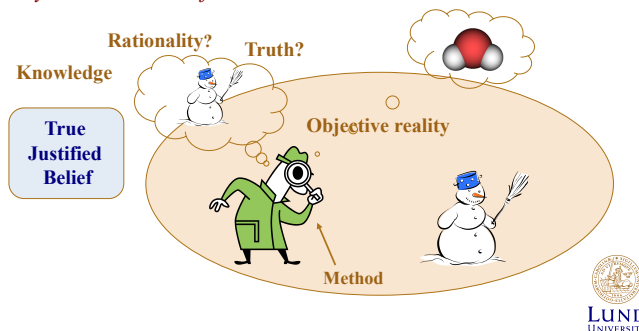
- Fallacies in argument
- Sources of bias
- What is knowledge, objectivity, truth, validity, reliability?

- They want to know the best way to conduct science



## What is Science?

*To find out what the world is really like, in a systematic and self-critical manner*



## Rival Theories of Truth

Consensus theory:  
"Truth is what we have agreed is true!"

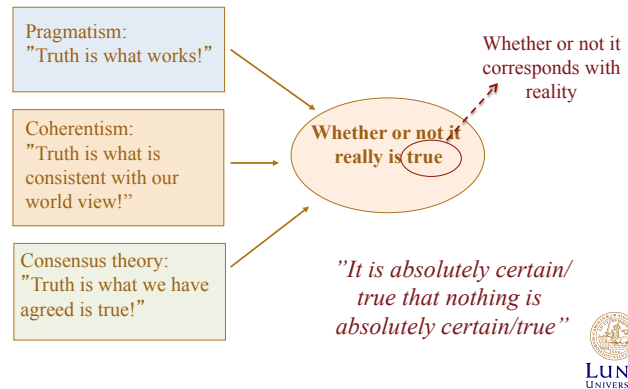
Pragmatism:  
Ideas are true if they work  
(give correct predictions)

Coherence Theory:  
An idea is true if it is consistent  
with our established world view

*Relativism:  
There is no truth*



## Problem



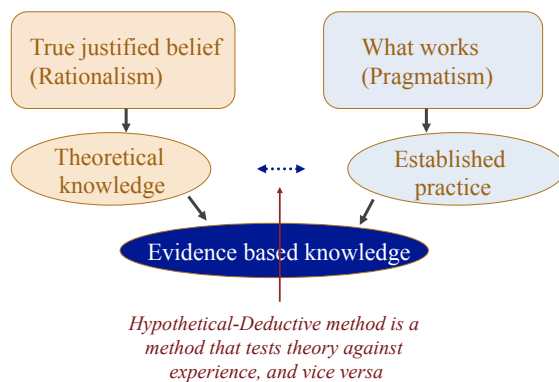
## True vs. Believed to be True

- *True<sup>1</sup>* in the sense "corresponds to reality"
  - An ontological status (what kind of phenomenon it is)
- *True<sup>2</sup>* in the sense "something we know corresponds to reality"
  - Epistemic status (How do we know something is true<sup>1</sup>)

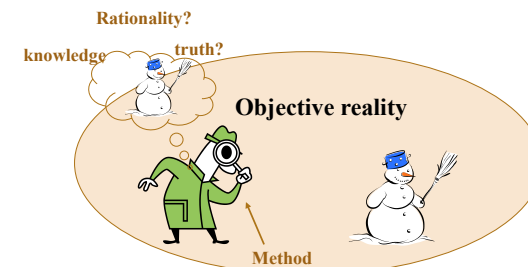
- Truths<sup>1</sup>: Beliefs that correspond to reality
- Truths<sup>2</sup>: Beliefs known/proven to be True<sup>1</sup>
  - Because they give correct predictions (they work)
  - Because they are coherent with our world view



## Theories of Knowledge



## What are we trying to figure out?



## Objective Reality?

- Physical matter + properties
- Organisms + functions
- Consciousness and their contents
- Social interactions and behaviour
- Language and concepts
- Societies
- Intelligence

Natural  
Sciences

Human  
Sciences



## “Objective Reality”

Basic idea ≈ the world as it is in itself

1. That which exists independently of minds
2. That which exists independently of what we believe exists

Only includes the physical objects around us

Also includes minds and their contents, therefore also social phenomena



## Two meanings of “objective”

- Objectively real (real existence)
  - The world as it is in itself independently of our attempts to conceive of it and measure it.
    - » NOT: “the world as we objectively think of it”
- Objective knowledge/truth (ideas about reality)
  - See things as they really are
  - Unaffected by prejudice/bias
    - » Only rely on measurements?



## Views about reality

### Realism

Our ideas relate to entities that exist independently of those ideas

### Scepticism

We cannot know if there is anything independently of our ideas

### Idealism

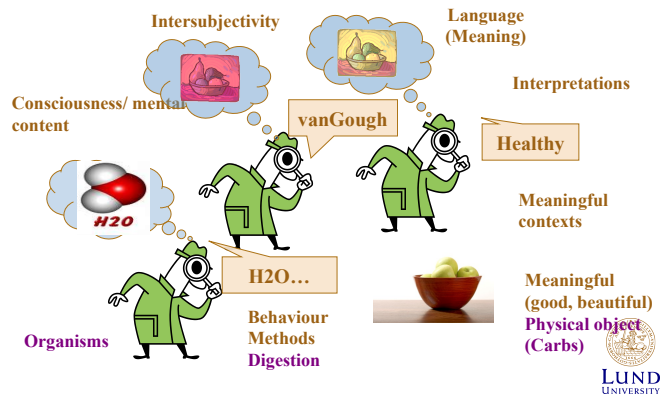
Our ideas are the only reality there is

### Relativism

Nothing is absolutely true or certain—all views are equally valid



## The Complicated Reality

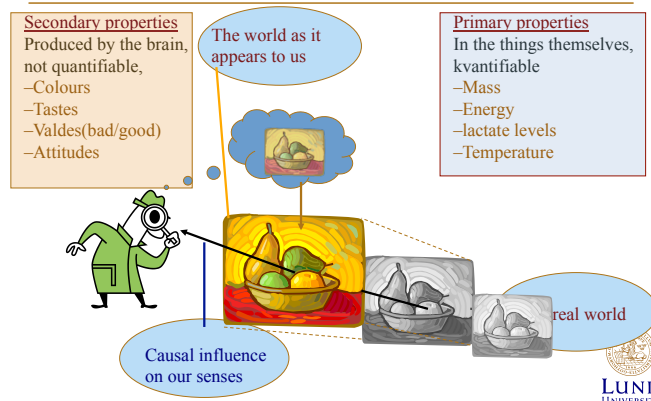


## Hidden Mechanisms

- Bacteria causing diseases
- Why different materials have different properties depending on their chemical composition
- Biological urges that govern behaviour
- Conscious processes (thinking, feeling)
- Unconscious processes (phobias, compulsions, memory)
- Social processes (conformism, hierarchies of power)



## Appearance and Reality



## Natural vs. Human Science

- Natural science studies non-conscious nature; it abides by laws of nature and therefore is fully predictable

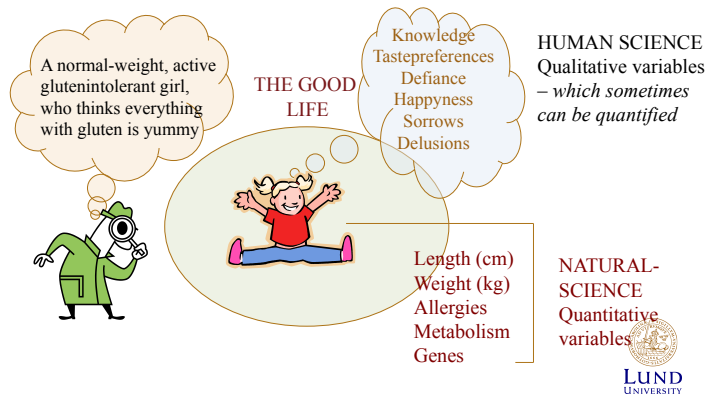
The study of a single grain of salt can be generalised to all salt in the universe

- Human science studies conscious nature; it does not obviously abide by laws of nature and therefore isn't predictable

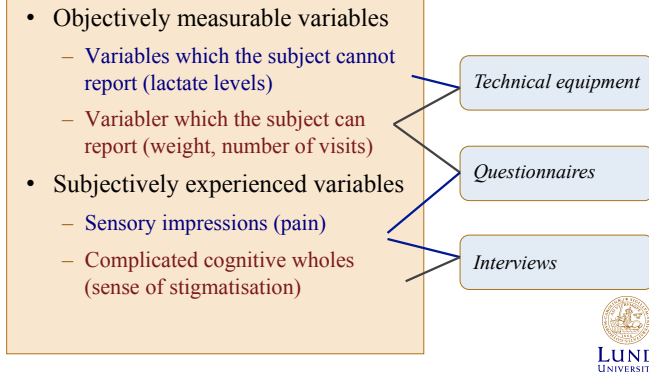
Study of a single human cannot be generalised to all humans



## Medical Science



## Choosing a Method



## Methods

