

Popular (but wrong) view

Natural scientists Explain The World.



1

Popular (but wrong) view

But they are not completely sure —

*Unsure what
to do next?*
Call us on:
0114 262 0777
for help and advice.

2

Popular (but wrong) view

→ “It’s still a theory”

3

Popular (but wrong) view

→ “It’s **still** a theory”

4

Popular (but wrong) view

→ “It’s **still** a theory”

In a few more years, we’ll know for sure.



5

Popular (but wrong) view

Dude:

“Why do we have two hands?”

Professor of biology:

“Because we inherited this property from the apes.”



6

Popular (but wrong) view

Dude:

“**Why** do we have two hands?”

Professor of biology:

“**Because** we inherited this property from the apes.”

7

Wrong!

8

Wrong!

9

Natural sciences do not ask “why?”.

10

Natural sciences do not ask “why?”.
They ask “how?”!

11

Theory \neq residual uncertainty
Theory = “good” *model!*

12

Dude:
“Why do we have two hands?”
Professor of biology:
“Don’t know.”

13

Dude:
“Why do we have two hands?”
Professor of biology:
“**Can’t** know.”

14

Dude:

“Why do we have two hands?”

Professor of biology:

“Ask a philosopher or a theologian.”



15

Model \neq scaled down image of reality
Model = “imagination aid”

16

Correctness vs. Suitability

A theory is neither right nor wrong.

For a special purpose, it's suited or not suited.

17

Suitability

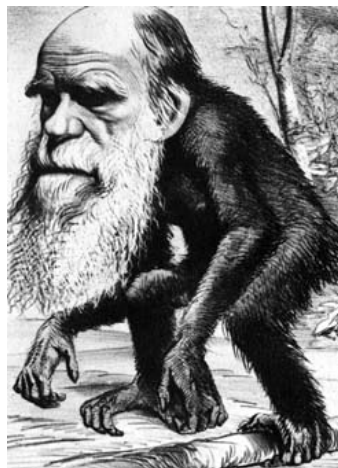
The Theory of Evolution can't be used to calculate gravitational forces.



18

Suitability

NEWTONian Mechanics can't be used to account for the similarities between apes and humans.



19

Scientificness

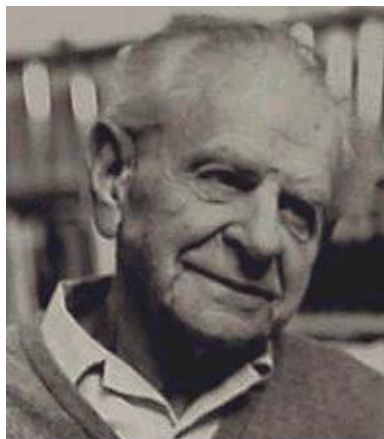
A theory can be scientific or unscientific.



20

Scientificness

Unscientific = not falsifiable (Popper)



21

Falsifiability

=

experiment, which could show a
theory's non-suitability

22

Falsifiability

“All people know π to 501 digits.”

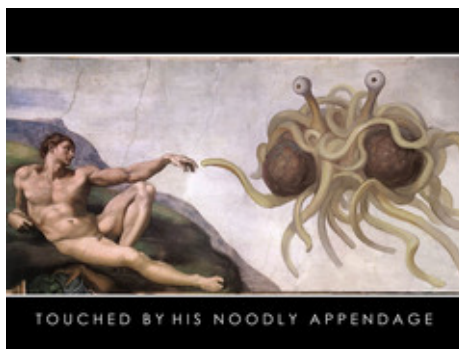
– falsifiable $\rightarrow \checkmark$

23

Falsifiability

“Egon just thought of the Flying Spaghetti Monster.”

– not falsifiable \rightarrow unscientific



24

Usefulness

A theory can be useful or not-so-useful.

25

Usefulness

NEWTONian mechanics is useful, because . . .
. . . it can be used to calculate the speed of falling
bricks.



26

Usefulness

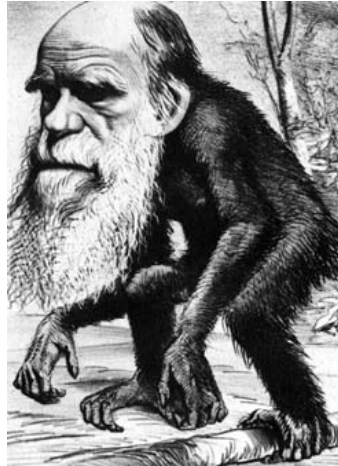
Quantum mechanics is useful, because . . .
. . . it can be used to build DVD readers.



27

Usefulness

The Theory of Evolution is useful, because. . .
. . . it can be used to account for the similarities
found in nature.



28

Intelligent Design

Intelligent Design is **not** useful,
because it **can not**. . .

29

Intelligent Design

Intelligent Design is **not** falsifiable!
→ Intelligent Design is unscientific!

30

<http://www.peterhuth.de/bilder/peter.jpg>
<http://www.peakcottages.com/images/unsure-1.gif>
http://upload.wikimedia.org/wikipedia/en/6/6f/Time_machine.jpg
<http://www.simpsonstrivia.com.ar/simpsons-photos/wallpapers/professor-frink.gif>
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http://www.case.edu/finadmin/planop/insurance_clip_image002.gif
<http://www.cds.com/DVD/DVR-A08B.jpg>

Questions?