



Logical Fallacies

21 - 40

With **Michelle Bijkersma**
and **Richard Saunders**



As heard on
The Skeptic Zone Podcast

Michelle Bijkersma

Richard Saunders

22 - Texas Sharpshooter

0:00:00	21 - Appeal to Consequences	0:36:22	31 - Ipse Dixit
0:04:35	22 - Texas Sharpshooter	0:39:05	32 - Slothful Induction
0:08:58	23 - Anecdotal Evidence	0:42:21	33 - Unfalsifiability
0:12:16	24 - Burden of Proof	0:45:35	34 - Affirming the Consequent
0:16:04	25 - Poisoning the Well	0:49:07	35 - Red Herring
0:19:56	26 - Weasel Words	0:51:56	36 - Perfect Solution Fallacy
0:23:39	27 - Hasty Generalisation	0:55:35	37 - Fallacy of Composition
0:27:00	28 - Appeal to the Stone	1:00:57	38 - Appeal to Common Sense
0:30:00	29 - The Fallacy Fallacy	1:06:24	39 - The Single Cause
0:33:08	30 - Appeal to Emotion	1:11:30	40 - Argument from Gibberish

1
00:00:23,100 --> 00:00:21,510

[Music]

2
00:00:26,550 --> 00:00:23,110

logical fallacies

3
00:00:29,349 --> 00:00:26,560

[Music]

4
00:00:31,189 --> 00:00:29,359
what are logical fallacies and why is it

5
00:00:33,830 --> 00:00:31,199
important that critical thinkers should

6
00:00:36,150 --> 00:00:33,840
know about them

7
00:00:37,830 --> 00:00:36,160
a logical fallacy is an error we can

8
00:00:39,830 --> 00:00:37,840
make in reasoning

9
00:00:44,150 --> 00:00:39,840
but it usually crops up when we are

10
00:00:46,310 --> 00:00:44,160
discussing or arguing our point of view

11
00:00:48,549 --> 00:00:46,320
some people might even knowingly use

12
00:00:49,430 --> 00:00:48,559
them to try and score cheap points in an

13
00:00:52,709 --> 00:00:49,440

argument

14

00:00:55,270 --> 00:00:52,719

due to intellectual laziness

15

00:00:57,110 --> 00:00:55,280

they are traps we can fall into but if

16

00:00:59,189 --> 00:00:57,120

we know what to look out for

17

00:01:03,910 --> 00:00:59,199

we can spot them when they occur and

18

00:01:08,469 --> 00:01:06,350

this time we'll look at the appeal to

19

00:01:11,990 --> 00:01:08,479

consequences

20

00:01:15,429 --> 00:01:12,000

this is when it's concluded that an idea

21

00:01:17,749 --> 00:01:15,439

or proposition is true or false because

22

00:01:21,590 --> 00:01:17,759

the consequences of it being true

23

00:01:24,469 --> 00:01:21,600

or false are desirable or undesirable

24

00:01:26,710 --> 00:01:24,479

to the one making the claim we are all

25

00:01:28,310 --> 00:01:26,720

guilty of using this fallacy from time

26

00:01:30,469 --> 00:01:28,320
to time

27

00:01:31,749 --> 00:01:30,479
it's normal to embellish ideas or

28

00:01:34,069 --> 00:01:31,759
beliefs we like

29

00:01:35,350 --> 00:01:34,079
and to denigrate ideas and beliefs we

30

00:01:38,230 --> 00:01:35,360
don't

31

00:01:38,870 --> 00:01:38,240
in this case it's using the expected or

32

00:01:41,990 --> 00:01:38,880
possible

33

00:01:43,590 --> 00:01:42,000
outcomes whether they happen or not to

34

00:01:46,789 --> 00:01:43,600
bolster our point of view

35

00:01:50,230 --> 00:01:46,799
this fallacy comes in two forms positive

36

00:01:51,670 --> 00:01:50,240
and negative skeptics complain about

37

00:01:54,310 --> 00:01:51,680
alternative medicine and

38

00:01:55,670 --> 00:01:54,320

things like ear candles being sold in my

39

00:01:58,310 --> 00:01:55,680

pharmacy

40

00:01:59,270 --> 00:01:58,320

but i can tell you many people say they

41

00:02:02,550 --> 00:01:59,280

really work

42

00:02:05,910 --> 00:02:02,560

and come here to buy them also

43

00:02:08,150 --> 00:02:05,920

my profits depend on it here we have an

44

00:02:10,469 --> 00:02:08,160

example of the positive form the

45

00:02:13,270 --> 00:02:10,479

pharmacist is using the perceived

46

00:02:14,390 --> 00:02:13,280

positive outcomes or consequences to his

47

00:02:16,550 --> 00:02:14,400

customers

48

00:02:17,510 --> 00:02:16,560

and the real financial outcome to his

49

00:02:20,710 --> 00:02:17,520

business

50

00:02:23,350 --> 00:02:20,720

to justify the products on sale in the

51
00:02:26,070 --> 00:02:23,360
case of something like ear candles

52
00:02:27,190 --> 00:02:26,080
where you stick a tube of wax in your

53
00:02:30,710 --> 00:02:27,200
ear canal

54
00:02:33,910 --> 00:02:30,720
and light the other end yes

55
00:02:36,150 --> 00:02:33,920
this really is a thing glowing

56
00:02:38,790 --> 00:02:36,160
testimonials and good sales have

57
00:02:40,070 --> 00:02:38,800
no bearing on the fact that these things

58
00:02:43,589 --> 00:02:40,080
are dangerous

59
00:02:47,509 --> 00:02:43,599
nonsense gmos are evil

60
00:02:49,270 --> 00:02:47,519
and must be stopped now who knows what

61
00:02:52,710 --> 00:02:49,280
awful things will happen to people

62
00:02:56,309 --> 00:02:52,720
eating genetically modified foods

63
00:02:59,190 --> 00:02:56,319

they might end up glowing in the dark or

64

00:03:00,550 --> 00:02:59,200

worse here we have an example of the

65

00:03:02,869 --> 00:03:00,560

negative form

66

00:03:04,070 --> 00:03:02,879

it is being argued that gmos are bad

67

00:03:07,430 --> 00:03:04,080

because of the negative

68

00:03:09,830 --> 00:03:07,440

consequences on humans however

69

00:03:13,030 --> 00:03:09,840

as no one has been able to read a book

70

00:03:15,990 --> 00:03:13,040

in the dark owing to glowing skin

71

00:03:17,110 --> 00:03:16,000

or indeed had any reported negative

72

00:03:20,630 --> 00:03:17,120

consequences at

73

00:03:21,990 --> 00:03:20,640

all from eating gmos the original

74

00:03:25,509 --> 00:03:22,000

premise of the argument

75

00:03:26,309 --> 00:03:25,519

does not hold up you see what happens

76

00:03:29,110 --> 00:03:26,319

when we stop

77

00:03:29,830 --> 00:03:29,120

accepting creationism and turn to the

78

00:03:33,430 --> 00:03:29,840

theory

79

00:03:34,390 --> 00:03:33,440

of evolution immoral conduct as society

80

00:03:37,430 --> 00:03:34,400

turns to

81

00:03:38,390 --> 00:03:37,440

survival of the fittest caring and

82

00:03:41,430 --> 00:03:38,400

compassion

83

00:03:44,070 --> 00:03:41,440

are left behind again the logical

84

00:03:46,869 --> 00:03:44,080

fallacy in its negative form

85

00:03:47,190 --> 00:03:46,879

it might come as a shock to creationists

86

00:03:50,309 --> 00:03:47,200

but

87

00:03:52,149 --> 00:03:50,319

caring and compassion just like every

88

00:03:54,789 --> 00:03:52,159

other emotion

89

00:03:55,589 --> 00:03:54,799

comes about in our species via the

90

00:03:59,509 --> 00:03:55,599

process of

91

00:04:00,070 --> 00:03:59,519

evolution scaremongering about feared

92

00:04:03,589 --> 00:04:00,080

negative

93

00:04:06,309 --> 00:04:03,599

outcomes of accepting evolution does not

94

00:04:08,440 --> 00:04:06,319

strengthen the case for creationism one

95

00:04:09,830 --> 00:04:08,450

little bit

96

00:04:11,830 --> 00:04:09,840

[Music]

97

00:04:13,990 --> 00:04:11,840

it's so easy to let ourselves think

98

00:04:18,229 --> 00:04:14,000

about the consequences or outcomes

99

00:04:21,830 --> 00:04:18,239

of ideas beliefs or practices

100

00:04:24,469 --> 00:04:21,840

and as we've seen it's also

101
00:04:26,710 --> 00:04:24,479
easy to use these perceived outcomes to

102
00:04:29,430 --> 00:04:26,720
color our reasoning

103
00:04:30,150 --> 00:04:29,440
or to give us faulty ammunition when

104
00:04:40,629 --> 00:04:30,160
arguing

105
00:04:45,510 --> 00:04:43,030
this time we'll look at the texas

106
00:04:48,950 --> 00:04:45,520
sharpshooter fallacy

107
00:04:51,670 --> 00:04:48,960
also known as the clustering illusion

108
00:04:52,950 --> 00:04:51,680
this is when you downplay or ignore

109
00:04:55,030 --> 00:04:52,960
information that

110
00:04:56,310 --> 00:04:55,040
doesn't support your argument or point

111
00:04:58,870 --> 00:04:56,320
of view and

112
00:04:59,990 --> 00:04:58,880
focus on information that seems to be

113
00:05:02,950 --> 00:05:00,000

more in line

114

00:05:04,629 --> 00:05:02,960

with what you want to be true it is also

115

00:05:08,150 --> 00:05:04,639

imposing meaning

116

00:05:08,790 --> 00:05:08,160

onto randomness this must surely be one

117

00:05:11,189 --> 00:05:08,800

of the more

118

00:05:12,710 --> 00:05:11,199

interesting names for any logical

119

00:05:15,510 --> 00:05:12,720

fallacy

120

00:05:16,790 --> 00:05:15,520

it comes about from the idea that

121

00:05:20,629 --> 00:05:16,800

someone would shoot

122

00:05:23,670 --> 00:05:20,639

at random at the side of a barn or fence

123

00:05:26,230 --> 00:05:23,680

then paint a target on later

124

00:05:28,230 --> 00:05:26,240

around the bullet holes that happen to

125

00:05:30,950 --> 00:05:28,240

be close together

126

00:05:32,629 --> 00:05:30,960

to make it appear as if the shots were

127

00:05:36,550 --> 00:05:32,639

on target

128

00:05:39,749 --> 00:05:36,560

in 1555 the prophet nostradamus

129

00:05:43,110 --> 00:05:39,759

foresaw the coronavirus plague of

130

00:05:46,150 --> 00:05:43,120

2020. he wrote in century 2

131

00:05:47,350 --> 00:05:46,160

quatrain 35 the great plague of the

132

00:05:50,390 --> 00:05:47,360

maritime city

133

00:05:51,110 --> 00:05:50,400

will not cease until there be avenged

134

00:05:53,830 --> 00:05:51,120

the death

135

00:05:55,430 --> 00:05:53,840

of the just blood condemned for the

136

00:05:59,189 --> 00:05:55,440

price without crime

137

00:06:01,070 --> 00:05:59,199

of the great lady unwronged by pretence

138

00:06:02,230 --> 00:06:01,080

finding meaning in the quatrains of

139

00:06:06,790 --> 00:06:02,240

nostradamus

140

00:06:07,909 --> 00:06:06,800

is an old game since he wrote 942 of

141

00:06:11,670 --> 00:06:07,919

them

142

00:06:14,469 --> 00:06:11,680

interpretation

143

00:06:17,270 --> 00:06:14,479

and even mistranslation from the french

144

00:06:19,830 --> 00:06:17,280

used in the 16th century

145

00:06:20,870 --> 00:06:19,840

it's really not that hard to find at

146

00:06:24,309 --> 00:06:20,880

least one

147

00:06:27,590 --> 00:06:24,319

or even more you can make fit events

148

00:06:30,230 --> 00:06:27,600

of more recent times or at any time

149

00:06:32,469 --> 00:06:30,240

since they were written

150

00:06:35,990 --> 00:06:32,479

just look for the lines that seem to fit

151

00:06:39,510 --> 00:06:36,000

and ignore the ones that don't

152

00:06:42,790 --> 00:06:39,520

much of this quatrain the maritime city

153

00:06:45,909 --> 00:06:42,800

the lady unwronged are ignored

154

00:06:46,590 --> 00:06:45,919

this same quatrain has also been used to

155

00:06:49,350 --> 00:06:46,600

claim

156

00:06:49,909 --> 00:06:49,360

nostradamus foresaw the great plague of

157

00:06:53,029 --> 00:06:49,919

london

158

00:06:55,510 --> 00:06:53,039

in 1665.

159

00:06:56,629 --> 00:06:55,520

if you'd like to know more there is an

160

00:06:59,510 --> 00:06:56,639

excellent book

161

00:07:01,990 --> 00:06:59,520

called the mask of nostradamus written

162

00:07:04,790 --> 00:07:02,000

by james randy

163

00:07:05,350 --> 00:07:04,800

when tested the water diviner found

164

00:07:07,589 --> 00:07:05,360

three

165

00:07:08,390 --> 00:07:07,599

bottles of water that were hidden from

166

00:07:11,510 --> 00:07:08,400

view

167

00:07:12,070 --> 00:07:11,520

one after the other after the other now

168

00:07:14,469 --> 00:07:12,080

that's

169

00:07:15,270 --> 00:07:14,479

just amazing and points to water

170

00:07:19,510 --> 00:07:15,280

divining

171

00:07:22,790 --> 00:07:19,520

being real this can and does happen

172

00:07:25,189 --> 00:07:22,800

during tests of water divining

173

00:07:27,749 --> 00:07:25,199

but short runs of success are expected

174

00:07:30,710 --> 00:07:27,759

when conducting many tests

175

00:07:33,270 --> 00:07:30,720

it also happens in casinos when someone

176

00:07:38,469 --> 00:07:33,280

might get lucky on the roulette table

177

00:07:41,510 --> 00:07:38,479

two or three or even four times in a row

178

00:07:43,430 --> 00:07:41,520

but overall we all know the house wins

179

00:07:46,150 --> 00:07:43,440

in the end

180

00:07:47,749 --> 00:07:46,160

we need to take all the results into

181

00:07:51,110 --> 00:07:47,759

account before we can

182

00:07:54,230 --> 00:07:51,120

reach a real conclusion it's

183

00:07:57,350 --> 00:07:54,240

just so strange that bad things

184

00:08:01,430 --> 00:07:57,360

seem to happen to me in threes

185

00:08:04,629 --> 00:08:01,440

first i lost my job then my dog got sick

186

00:08:07,110 --> 00:08:04,639

and now the tv won't work

187

00:08:07,909 --> 00:08:07,120

good and bad things happen from time to

188

00:08:10,950 --> 00:08:07,919

time

189

00:08:13,189 --> 00:08:10,960

and both can be random

190

00:08:14,869 --> 00:08:13,199

since many people have already heard the

191

00:08:18,309 --> 00:08:14,879

saying bad things come in

192

00:08:21,510 --> 00:08:18,319

threes or even famous people die in

193

00:08:24,950 --> 00:08:21,520

threes and so on it's all

194

00:08:28,309 --> 00:08:24,960

too easy for us to see a pattern after

195

00:08:31,670 --> 00:08:28,319

three such events ah

196

00:08:35,430 --> 00:08:31,680

but what if bad things come in fours or

197

00:08:39,350 --> 00:08:37,589

looking for things that seem to line up

198

00:08:42,469 --> 00:08:39,360

is all very well

199

00:08:44,630 --> 00:08:42,479

but you need to also take into account

200

00:08:46,389 --> 00:08:44,640

all the related things or events that

201
00:08:49,110 --> 00:08:46,399
don't line up

202
00:08:51,910 --> 00:08:49,120
as they too must be considered in the

203
00:08:54,880 --> 00:08:51,920
overall pattern of events before you

204
00:09:02,710 --> 00:08:54,890
reach a conclusion

205
00:09:07,590 --> 00:09:05,350
this time we'll look at the anecdotal

206
00:09:09,990 --> 00:09:07,600
evidence fallacy

207
00:09:10,870 --> 00:09:10,000
this is when you are swayed into taking

208
00:09:13,910 --> 00:09:10,880
up a position

209
00:09:14,710 --> 00:09:13,920
or belief based on isolated examples of

210
00:09:21,110 --> 00:09:14,720
data

211
00:09:22,630 --> 00:09:21,120
rather than reliable evidence this

212
00:09:25,750 --> 00:09:22,640
logical fallacy

213
00:09:29,750 --> 00:09:25,760

is surely one of the most common and can

214

00:09:31,829 --> 00:09:29,760

be seen in many different circumstances

215

00:09:34,070 --> 00:09:31,839

it can come about from the intrinsic

216

00:09:35,190 --> 00:09:34,080

trust we have in the perceived wisdom of

217

00:09:38,710 --> 00:09:35,200

our friends

218

00:09:42,150 --> 00:09:38,720

and especially our family after all

219

00:09:44,949 --> 00:09:42,160

mother knows best i hear the

220

00:09:46,790 --> 00:09:44,959

vaxxed bus is touring the country they

221

00:09:49,590 --> 00:09:46,800

make videos of parents and others

222

00:09:52,230 --> 00:09:49,600

telling their stories of vaccine damage

223

00:09:53,269 --> 00:09:52,240

it seems then there must be something to

224

00:09:56,230 --> 00:09:53,279

the claims that

225

00:09:58,550 --> 00:09:56,240

vaccinations are unsafe here we have a

226

00:10:02,150 --> 00:09:58,560

classic case of people being swayed by

227

00:10:04,630 --> 00:10:02,160

the anecdotal evidence fallacy

228

00:10:07,350 --> 00:10:04,640

if vaccination was as dangerous as the

229

00:10:10,069 --> 00:10:07,360

anti-vaxxers would have us believe

230

00:10:12,389 --> 00:10:10,079

that fact would be reflected in ongoing

231

00:10:14,550 --> 00:10:12,399

studies worldwide

232

00:10:15,990 --> 00:10:14,560

but it can be compelling to see people

233

00:10:18,630 --> 00:10:16,000

pour their hearts out

234

00:10:20,630 --> 00:10:18,640

when they really do think vaccines have

235

00:10:23,829 --> 00:10:20,640

damaged their children

236

00:10:26,230 --> 00:10:23,839

people are so skeptical of acupuncture i

237

00:10:27,590 --> 00:10:26,240

bet they haven't tried it for themselves

238

00:10:30,389 --> 00:10:27,600

i was skeptical too

239

00:10:34,150 --> 00:10:30,399

until i tried it and i can tell you that

240

00:10:36,310 --> 00:10:34,160

i know it works because it worked for me

241

00:10:38,470 --> 00:10:36,320

skeptics have known for years that this

242

00:10:41,750 --> 00:10:38,480

sort of anecdotal evidence

243

00:10:42,790 --> 00:10:41,760

is almost impossible to counter when

244

00:10:45,910 --> 00:10:42,800

someone

245

00:10:47,750 --> 00:10:45,920

for whatever reason is convinced that a

246

00:10:51,350 --> 00:10:47,760

treatment has worked for them

247

00:10:54,870 --> 00:10:51,360

they will and understandably so

248

00:10:58,310 --> 00:10:54,880

stick to their guns no matter what

249

00:11:01,190 --> 00:10:58,320

alas in this case the scientific

250

00:11:04,470 --> 00:11:01,200

evidence for the claims of acupuncture

251
00:11:06,949 --> 00:11:04,480
are very much lacking they say

252
00:11:08,230 --> 00:11:06,959
the world is heating up and sea levels

253
00:11:10,790 --> 00:11:08,240
are rising

254
00:11:12,550 --> 00:11:10,800
but my family has been running the same

255
00:11:15,750 --> 00:11:12,560
oyster farm on the river

256
00:11:18,230 --> 00:11:15,760
for generations and you know what

257
00:11:19,269 --> 00:11:18,240
we haven't noticed any change in the

258
00:11:22,710 --> 00:11:19,279
water levels

259
00:11:24,949 --> 00:11:22,720
at all this example is based on a real

260
00:11:26,550 --> 00:11:24,959
interview with an oyster farmer in

261
00:11:29,590 --> 00:11:26,560
australia

262
00:11:33,110 --> 00:11:29,600
even though he might work on the river

263
00:11:33,430 --> 00:11:33,120

that doesn't mean he or his family going

264

00:11:36,550 --> 00:11:33,440

back

265

00:11:38,389 --> 00:11:36,560

years have kept accurate details of

266

00:11:41,590 --> 00:11:38,399

water levels

267

00:11:43,110 --> 00:11:41,600

however to him things seem more or less

268

00:11:45,670 --> 00:11:43,120

the same

269

00:11:50,150 --> 00:11:45,680

based on this he is ready to deny

270

00:11:54,310 --> 00:11:52,790

it is often very convenient to rely on

271

00:11:58,310 --> 00:11:54,320

anecdotal evidence

272

00:12:01,030 --> 00:11:58,320

and at some times it can seem intuitive

273

00:12:03,190 --> 00:12:01,040

no matter how sure we are we should

274

00:12:05,030 --> 00:12:03,200

never be afraid to check the basis of

275

00:12:20,069 --> 00:12:05,040

our opinions and beliefs

276

00:12:24,310 --> 00:12:22,710

this time we'll look at the burden of

277

00:12:26,790 --> 00:12:24,320

proof fallacy

278

00:12:28,710 --> 00:12:26,800

this is when instead of presenting

279

00:12:31,670 --> 00:12:28,720

evidence to support your claim

280

00:12:34,550 --> 00:12:31,680

you insist that the person doubting it

281

00:12:37,350 --> 00:12:34,560

prove your claim to be false

282

00:12:39,430 --> 00:12:37,360

this tactic which can seem reasonable to

283

00:12:42,350 --> 00:12:39,440

the one committing the fallacy

284

00:12:43,990 --> 00:12:42,360

is heard again and again in skeptical

285

00:12:48,069 --> 00:12:44,000

investigations

286

00:12:50,870 --> 00:12:48,079

it's a sort of get out of jail free card

287

00:12:51,990 --> 00:12:50,880

and gives the person making the claim a

288

00:12:55,350 --> 00:12:52,000

quick way to appear

289

00:12:57,829 --> 00:12:55,360
to stump the skeptics particularly

290

00:12:58,790 --> 00:12:57,839
by asking the skeptic to disprove

291

00:13:01,590 --> 00:12:58,800
something

292

00:13:03,910 --> 00:13:01,600
instead of providing evidence to support

293

00:13:05,910 --> 00:13:03,920
the claim being made

294

00:13:07,990 --> 00:13:05,920
i'll never forget the night i was

295

00:13:09,910 --> 00:13:08,000
abducted by aliens

296

00:13:11,269 --> 00:13:09,920
i was driving in the countryside when

297

00:13:14,470 --> 00:13:11,279
they beamed me

298

00:13:17,829 --> 00:13:14,480
up to their spaceship two hours later

299

00:13:21,350 --> 00:13:17,839
i was back in my car no one from

300

00:13:24,470 --> 00:13:21,360
police to skeptics have been

301
00:13:27,030 --> 00:13:24,480
able to prove it didn't happen

302
00:13:29,670 --> 00:13:27,040
this situation is very familiar to

303
00:13:32,310 --> 00:13:29,680
skeptical investigators

304
00:13:33,030 --> 00:13:32,320
if the person in question had more to

305
00:13:36,550 --> 00:13:33,040
the claim

306
00:13:39,670 --> 00:13:36,560
than just his story maybe a fragment of

307
00:13:40,389 --> 00:13:39,680
alien technology he wouldn't need to

308
00:13:43,910 --> 00:13:40,399
worry about

309
00:13:46,870 --> 00:13:43,920
others not being able to disprove it

310
00:13:48,710 --> 00:13:46,880
this new drug to fight coronavirus is

311
00:13:51,590 --> 00:13:48,720
just amazing

312
00:13:52,150 --> 00:13:51,600
it's all natural and made from a rare

313
00:13:55,590 --> 00:13:52,160

moss

314

00:13:56,710 --> 00:13:55,600

only found in the amazon i've seen it

315

00:13:59,110 --> 00:13:56,720

work for myself

316

00:14:00,069 --> 00:13:59,120

and unless the government can prove

317

00:14:02,310 --> 00:14:00,079

otherwise

318

00:14:03,509 --> 00:14:02,320

it must be rolled out as soon as

319

00:14:06,470 --> 00:14:03,519

possible

320

00:14:07,430 --> 00:14:06,480

no matter how appealing it is to think a

321

00:14:09,829 --> 00:14:07,440

new drug

322

00:14:10,550 --> 00:14:09,839

or even a modality of alternative

323

00:14:13,750 --> 00:14:10,560

medicine

324

00:14:16,310 --> 00:14:13,760

works it must first go through the

325

00:14:19,030 --> 00:14:16,320

rigorous scientific trials and tests

326

00:14:21,990 --> 00:14:19,040

to show it does in fact work that's

327

00:14:25,910 --> 00:14:22,000

where the burden of evidence lies

328

00:14:28,550 --> 00:14:25,920

and by the way any alternative medicine

329

00:14:29,430 --> 00:14:28,560

that does past scientific trials and

330

00:14:32,550 --> 00:14:29,440

tests

331

00:14:35,990 --> 00:14:32,560

that is is actually shown to work

332

00:14:39,189 --> 00:14:36,000

is no longer called alternative medicine

333

00:14:42,230 --> 00:14:39,199

it's called medicine i

334

00:14:43,990 --> 00:14:42,240

had an amazing reading with a medium who

335

00:14:47,350 --> 00:14:44,000

contacted the spirit of my

336

00:14:48,790 --> 00:14:47,360

dead grandmother and told me things only

337

00:14:51,189 --> 00:14:48,800

she would know

338

00:14:52,069 --> 00:14:51,199

how can you prove that it wasn't really

339

00:14:55,110 --> 00:14:52,079

her

340

00:14:56,230 --> 00:14:55,120

coming through ultimately no one can

341

00:14:58,949 --> 00:14:56,240

prove the medium

342

00:15:00,150 --> 00:14:58,959

didn't contact the dead grandmother but

343

00:15:02,150 --> 00:15:00,160

then again

344

00:15:04,949 --> 00:15:02,160

no one can prove it wasn't another

345

00:15:07,670 --> 00:15:04,959

spirit pretending to be the grandmother

346

00:15:09,590 --> 00:15:07,680

or a tricky alien from another dimension

347

00:15:14,150 --> 00:15:09,600

pretending to be the grandmother

348

00:15:16,949 --> 00:15:14,160

and on and on what we can do

349

00:15:18,550 --> 00:15:16,959

if the reading was recorded for example

350

00:15:21,269 --> 00:15:18,560

is to walk the person

351

00:15:23,350 --> 00:15:21,279

through what was said pointing out the

352

00:15:27,590 --> 00:15:23,360

cold and hot reading tricks that may

353

00:15:30,230 --> 00:15:27,600

have been used

354

00:15:32,710 --> 00:15:30,240

remember that the burden of proof always

355

00:15:35,189 --> 00:15:32,720

lies with the one making the claim

356

00:15:38,790 --> 00:15:35,199

and asking them for evidence is an

357

00:15:41,350 --> 00:15:38,800

entirely reasonable request

358

00:15:41,829 --> 00:15:41,360

while it is possible sometimes to indeed

359

00:15:44,949 --> 00:15:41,839

prove

360

00:15:46,470 --> 00:15:44,959

something didn't happen many times it is

361

00:15:50,790 --> 00:15:46,480

not

362

00:15:54,230 --> 00:15:50,800

is real

363

00:15:56,910 --> 00:15:54,240

as dr carl sagan famously said

364

00:16:07,670 --> 00:15:56,920

extraordinary claims require

365

00:16:11,749 --> 00:16:10,550

this time we'll look at poisoning the

366

00:16:14,949 --> 00:16:11,759

well

367

00:16:17,269 --> 00:16:14,959

also known as smear tactics this is when

368

00:16:19,990 --> 00:16:17,279

you try to discredit your opponent

369

00:16:21,269 --> 00:16:20,000

or an institution especially in the

370

00:16:24,310 --> 00:16:21,279

minds of others

371

00:16:25,749 --> 00:16:24,320

before even entering into a debate or

372

00:16:28,790 --> 00:16:25,759

conversation

373

00:16:31,670 --> 00:16:28,800

this can take many forms and can be used

374

00:16:34,790 --> 00:16:31,680

in many situations

375

00:16:35,990 --> 00:16:34,800

casting doubt on people or ideas you

376

00:16:39,350 --> 00:16:36,000

don't agree with

377

00:16:40,949 --> 00:16:39,360

is hard to avoid but you shouldn't use

378

00:16:44,389 --> 00:16:40,959

it in place of a sound

379

00:16:46,310 --> 00:16:44,399

argument based on the points they raise

380

00:16:48,550 --> 00:16:46,320

thank you ladies and gentlemen for

381

00:16:51,509 --> 00:16:48,560

hearing my opening arguments

382

00:16:52,949 --> 00:16:51,519

now it's time for my opponent to try and

383

00:16:55,030 --> 00:16:52,959

give their side

384

00:16:57,590 --> 00:16:55,040

if nothing else let's hope they're at

385

00:17:01,189 --> 00:16:57,600

least entertaining

386

00:17:03,430 --> 00:17:01,199

not very polite or sporting here we have

387

00:17:04,870 --> 00:17:03,440

a case of someone trying to belittle

388

00:17:07,189 --> 00:17:04,880

their opponent

389

00:17:08,549 --> 00:17:07,199

and by extension the arguments they

390

00:17:10,949 --> 00:17:08,559

might use

391

00:17:12,470 --> 00:17:10,959

before even hearing what they have to

392

00:17:14,470 --> 00:17:12,480

say

393

00:17:15,590 --> 00:17:14,480

what you're thinking of applying for the

394

00:17:18,949 --> 00:17:15,600

skeptic's cash

395

00:17:19,750 --> 00:17:18,959

prize look i know your psychic powers

396

00:17:21,990 --> 00:17:19,760

are real

397

00:17:23,590 --> 00:17:22,000

but i wouldn't bother applying if i was

398

00:17:27,029 --> 00:17:23,600

you those skeptics

399

00:17:29,029 --> 00:17:27,039

are known to cheat as no one has ever

400

00:17:31,110 --> 00:17:29,039

claimed the prize

401
00:17:33,270 --> 00:17:31,120
the myth of the skeptics cheating when

402
00:17:34,870 --> 00:17:33,280
testing people for the cash prize is

403
00:17:37,350 --> 00:17:34,880
widespread

404
00:17:39,110 --> 00:17:37,360
it often comes about from disgruntled

405
00:17:43,270 --> 00:17:39,120
applicants

406
00:17:45,990 --> 00:17:43,280
who until now have always failed

407
00:17:47,590 --> 00:17:46,000
some honestly believe they were somehow

408
00:17:49,669 --> 00:17:47,600
cheated out of the money

409
00:17:51,909 --> 00:17:49,679
and will warn others who might want to

410
00:17:55,190 --> 00:17:51,919
apply

411
00:17:57,270 --> 00:17:55,200
in reality skeptical groups go to great

412
00:18:00,470 --> 00:17:57,280
lengths to make sure the tests are

413
00:18:02,789 --> 00:18:00,480

fair and honest for all concerned

414

00:18:03,909 --> 00:18:02,799

so to argue that skeptics are going to

415

00:18:06,150 --> 00:18:03,919

cheat you

416

00:18:06,950 --> 00:18:06,160

or set you up to fail if you are a

417

00:18:09,510 --> 00:18:06,960

psychic

418

00:18:11,510 --> 00:18:09,520

just poisons any possibility of

419

00:18:14,870 --> 00:18:11,520

constructive dialogue about

420

00:18:17,190 --> 00:18:14,880

testing extraordinary claims

421

00:18:17,990 --> 00:18:17,200

at the start of the pandemic those

422

00:18:21,270 --> 00:18:18,000

government

423

00:18:22,950 --> 00:18:21,280

so-called medical experts told us that

424

00:18:26,549 --> 00:18:22,960

we didn't need to wear

425

00:18:27,909 --> 00:18:26,559

masks now they're saying that we do

426

00:18:30,070 --> 00:18:27,919

they clearly don't know what they're

427

00:18:31,190 --> 00:18:30,080

talking about with their chopping and

428

00:18:33,270 --> 00:18:31,200

changing

429

00:18:34,390 --> 00:18:33,280

you're not going to get real information

430

00:18:37,750 --> 00:18:34,400

from them

431

00:18:39,590 --> 00:18:37,760

so if i were you i wouldn't even bother

432

00:18:40,870 --> 00:18:39,600

listening to their advice about getting

433

00:18:43,990 --> 00:18:40,880

vaccinated against

434

00:18:46,390 --> 00:18:44,000

covert 19 in the future

435

00:18:47,909 --> 00:18:46,400

here we have a case of casting doubt on

436

00:18:50,710 --> 00:18:47,919

a future vaccine

437

00:18:52,390 --> 00:18:50,720

based on actions taken early on in the

438

00:18:55,990 --> 00:18:52,400

pandemic

439

00:18:57,830 --> 00:18:56,000

in this scenario the medical authorities

440

00:18:59,590 --> 00:18:57,840

who are the proponents of a future

441

00:19:03,110 --> 00:18:59,600

vaccine are being

442

00:19:06,150 --> 00:19:03,120

preemptively attacked the science

443

00:19:08,630 --> 00:19:06,160

and our understanding of covert 19 is

444

00:19:11,669 --> 00:19:08,640

unfolding before our eyes

445

00:19:13,190 --> 00:19:11,679

and medical advice is given on the basis

446

00:19:16,630 --> 00:19:13,200

of the latest known

447

00:19:19,590 --> 00:19:16,640

information at any given time

448

00:19:20,390 --> 00:19:19,600

this is how science works it is not a

449

00:19:26,470 --> 00:19:20,400

linear

450

00:19:31,430 --> 00:19:28,630

poisoning the well is something that can

451
00:19:33,750 --> 00:19:31,440
happen before we even know it

452
00:19:36,310 --> 00:19:33,760
if you have a low opinion of your

453
00:19:38,870 --> 00:19:36,320
opponent or their point of view

454
00:19:39,830 --> 00:19:38,880
or maybe even you are ignorant of the

455
00:19:42,710 --> 00:19:39,840
issue

456
00:19:44,950 --> 00:19:42,720
it's all too easy for your emotions to

457
00:19:50,830 --> 00:19:44,960
get the better of you

458
00:19:50,840 --> 00:20:00,710
hand

459
00:20:07,110 --> 00:20:04,470
this time we'll look at weasel words

460
00:20:08,470 --> 00:20:07,120
these are words or phrases that seem to

461
00:20:10,710 --> 00:20:08,480
point in one direction

462
00:20:12,950 --> 00:20:10,720
or give a certain impression but in

463
00:20:16,390 --> 00:20:12,960

reality are often meaningless

464

00:20:19,669 --> 00:20:16,400

or even misleading it can be

465

00:20:20,070 --> 00:20:19,679

hard bordering on impossible to get some

466

00:20:23,110 --> 00:20:20,080

people

467

00:20:24,870 --> 00:20:23,120

to use straightforward no-nonsense

468

00:20:26,470 --> 00:20:24,880

language when putting forward their

469

00:20:28,789 --> 00:20:26,480

point of view

470

00:20:30,870 --> 00:20:28,799

we see this so many times in the world

471

00:20:33,510 --> 00:20:30,880

of politics for example

472

00:20:34,710 --> 00:20:33,520

when so-called spin doctors advise

473

00:20:37,750 --> 00:20:34,720

politicians

474

00:20:40,630 --> 00:20:37,760

on how to not answer questions

475

00:20:43,029 --> 00:20:40,640

but weasel words also pop up in many

476
00:20:45,909 --> 00:20:43,039
other situations

477
00:20:48,149 --> 00:20:45,919
this amazing and all-natural supplement

478
00:20:50,149 --> 00:20:48,159
has been used traditionally by

479
00:20:51,510 --> 00:20:50,159
thousands of people all over the world

480
00:20:54,710 --> 00:20:51,520
for years

481
00:20:56,470 --> 00:20:54,720
it may assist in reducing the length and

482
00:21:00,230 --> 00:20:56,480
severity of a cold

483
00:21:03,669 --> 00:21:00,240
or the flu here the word traditionally

484
00:21:05,669 --> 00:21:03,679
and the word may are the weasel words

485
00:21:07,110 --> 00:21:05,679
it doesn't matter if something has a

486
00:21:10,390 --> 00:21:07,120
long tradition

487
00:21:13,430 --> 00:21:10,400
it still might not work as claimed

488
00:21:16,710 --> 00:21:13,440

but using the word traditionally does

489

00:21:18,630 --> 00:21:16,720

seem to give the claim merit we've

490

00:21:21,909 --> 00:21:18,640

looked at the logical fallacy of

491

00:21:24,950 --> 00:21:21,919

the appeal to tradition before

492

00:21:27,029 --> 00:21:24,960

also using the word may

493

00:21:28,870 --> 00:21:27,039

gives the impression that the claim is

494

00:21:32,230 --> 00:21:28,880

true or at least

495

00:21:35,830 --> 00:21:32,240

could be true but we could also say

496

00:21:36,870 --> 00:21:35,840

may not if the claim is ever proven to

497

00:21:41,430 --> 00:21:36,880

be true

498

00:21:44,950 --> 00:21:41,440

then the words will assist could be used

499

00:21:46,310 --> 00:21:44,960

you think the earth is really billions

500

00:21:49,909 --> 00:21:46,320

of years old and

501
00:21:52,470 --> 00:21:49,919
evolution is real not so fast

502
00:21:53,510 --> 00:21:52,480
there is a growing body of evidence that

503
00:21:56,870 --> 00:21:53,520
creationism

504
00:22:00,070 --> 00:21:56,880
is true as more and more scientists

505
00:22:03,029 --> 00:22:00,080
accept the account given in the bible

506
00:22:03,909 --> 00:22:03,039
in this example the terms are growing

507
00:22:07,830 --> 00:22:03,919
body

508
00:22:10,789 --> 00:22:07,840
and more and more are the weasel words

509
00:22:12,789 --> 00:22:10,799
they sound grand enough but where is the

510
00:22:14,789 --> 00:22:12,799
raw data from

511
00:22:16,870 --> 00:22:14,799
has there been a proper survey of the

512
00:22:19,830 --> 00:22:16,880
relevant scientists

513
00:22:22,470 --> 00:22:19,840

are these results published without

514

00:22:26,310 --> 00:22:22,480

providing this extra information

515

00:22:28,710 --> 00:22:26,320

the veracity of the claim is in doubt

516

00:22:31,029 --> 00:22:28,720

i know i can get passionate from time to

517

00:22:34,070 --> 00:22:31,039

time when expressing my point of view

518

00:22:37,270 --> 00:22:34,080

i would like to say i'm sorry if

519

00:22:41,270 --> 00:22:37,280

anyone took offense to what i said

520

00:22:43,830 --> 00:22:41,280

this is known as the non-apology apology

521

00:22:45,750 --> 00:22:43,840

it gives the impression that someone is

522

00:22:49,430 --> 00:22:45,760

acknowledging a wrongdoing

523

00:22:52,070 --> 00:22:49,440

and trying to make amends but in reality

524

00:22:55,430 --> 00:22:52,080

it's putting the focus on others and

525

00:22:58,470 --> 00:22:55,440

somehow making them at fault

526

00:23:00,870 --> 00:22:58,480

if a real apology was offered it would

527

00:23:03,669 --> 00:23:00,880

sound something like

528

00:23:08,630 --> 00:23:03,679

i would like to say i'm sorry that i

529

00:23:11,750 --> 00:23:08,640

caused a fence

530

00:23:13,029 --> 00:23:11,760

from advertising to answers given by

531

00:23:16,630 --> 00:23:13,039

politicians

532

00:23:19,430 --> 00:23:16,640

to even everyday conversations

533

00:23:20,149 --> 00:23:19,440

weasel words are a way to use language

534

00:23:23,510 --> 00:23:20,159

itself

535

00:23:25,190 --> 00:23:23,520

as a distraction if you are unsure about

536

00:23:28,549 --> 00:23:25,200

what someone is saying

537

00:23:29,990 --> 00:23:28,559

you have the right to ask them to put it

538

00:23:44,789 --> 00:23:30,000

another way

539

00:23:49,190 --> 00:23:46,950

this time we'll look at the hasty

540

00:23:51,909 --> 00:23:49,200

generalization fallacy

541

00:23:52,630 --> 00:23:51,919

also known as the argument from small

542

00:23:55,909 --> 00:23:52,640

numbers

543

00:23:58,789 --> 00:23:55,919

and the lonely fact fallacy

544

00:23:59,590 --> 00:23:58,799

this is when you base your conclusion on

545

00:24:03,350 --> 00:23:59,600

limited

546

00:24:05,830 --> 00:24:03,360

or inconclusive information

547

00:24:08,070 --> 00:24:05,840

it's very easy for us to accept limited

548

00:24:11,110 --> 00:24:08,080

information or examples when we

549

00:24:12,870 --> 00:24:11,120

already believe in the premise claim or

550

00:24:15,350 --> 00:24:12,880

point of view

551
00:24:16,149 --> 00:24:15,360
but getting to the truth of the matter

552
00:24:18,390 --> 00:24:16,159
often means

553
00:24:20,070 --> 00:24:18,400
wading through a great deal of examples

554
00:24:23,110 --> 00:24:20,080
and results

555
00:24:24,070 --> 00:24:23,120
did you see that psychic on live tv the

556
00:24:27,029 --> 00:24:24,080
other night

557
00:24:30,230 --> 00:24:27,039
a skeptic held up a sealed envelope with

558
00:24:32,070 --> 00:24:30,240
a number from 1 to 10 written inside

559
00:24:33,510 --> 00:24:32,080
the psychic predicted the number would

560
00:24:37,269 --> 00:24:33,520
be four

561
00:24:40,549 --> 00:24:37,279
and she was right she truly has

562
00:24:43,029 --> 00:24:40,559
amazing powers in this case

563
00:24:44,950 --> 00:24:43,039

the so-called psychic had a one in ten

564

00:24:46,470 --> 00:24:44,960

chance of simply guessing the right

565

00:24:49,029 --> 00:24:46,480

number

566

00:24:50,789 --> 00:24:49,039

in order to draw any real conclusions

567

00:24:53,669 --> 00:24:50,799

about her alleged powers

568

00:24:54,630 --> 00:24:53,679

this test would need to be repeated many

569

00:24:57,990 --> 00:24:54,640

times and

570

00:25:00,630 --> 00:24:58,000

under proper scientific conditions

571

00:25:01,830 --> 00:25:00,640

these sorts of tests can take up quite a

572

00:25:06,070 --> 00:25:01,840

lot of time

573

00:25:09,110 --> 00:25:06,080

especially on live tv in a recent survey

574

00:25:09,669 --> 00:25:09,120

80 of people questioned said that they

575

00:25:12,070 --> 00:25:09,679

did not

576
00:25:13,110 --> 00:25:12,080
trust that vaccinations were safe and

577
00:25:16,390 --> 00:25:13,120
effective

578
00:25:19,990 --> 00:25:16,400
eighty percent is a strong result

579
00:25:22,630 --> 00:25:20,000
or is it the question we must ask

580
00:25:24,230 --> 00:25:22,640
is how many people took part in the

581
00:25:27,190 --> 00:25:24,240
survey

582
00:25:30,070 --> 00:25:27,200
if only five people took part then it

583
00:25:33,190 --> 00:25:30,080
only took four of them to give the 80

584
00:25:35,990 --> 00:25:33,200
result a survey with

585
00:25:36,470 --> 00:25:36,000
only five people is hardly enough to

586
00:25:39,269 --> 00:25:36,480
draw

587
00:25:40,789 --> 00:25:39,279
any real conclusions about society in

588
00:25:44,070 --> 00:25:40,799

general

589

00:25:44,710 --> 00:25:44,080

in order to test a water diviner we set

590

00:25:48,070 --> 00:25:44,720

up

591

00:25:50,149 --> 00:25:48,080

ten sealed buckets some with water

592

00:25:53,669 --> 00:25:50,159

inside some with sand

593

00:25:55,430 --> 00:25:53,679

we planned to run ten rounds giving us a

594

00:25:58,310 --> 00:25:55,440

score out of a hundred

595

00:26:00,870 --> 00:25:58,320

but after failing the very first round

596

00:26:03,750 --> 00:26:00,880

the water diviner stormed off

597

00:26:04,789 --> 00:26:03,760

in a huff once again we can see that

598

00:26:08,230 --> 00:26:04,799

water divining

599

00:26:11,510 --> 00:26:08,240

does not work this example is based on

600

00:26:14,390 --> 00:26:11,520

real events while it's fair to say

601
00:26:17,510 --> 00:26:14,400
that as of yet no water diviner has

602
00:26:19,990 --> 00:26:17,520
passed a test of their claimed powers

603
00:26:20,950 --> 00:26:20,000
in this case the result would be null

604
00:26:24,070 --> 00:26:20,960
and void

605
00:26:26,549 --> 00:26:24,080
as the test was not completed

606
00:26:29,430 --> 00:26:26,559
so it would be incorrect to conclude

607
00:26:31,269 --> 00:26:29,440
that this diviner is necessarily lacking

608
00:26:34,940 --> 00:26:31,279
in claimed ability

609
00:26:37,110 --> 00:26:34,950
based on an incomplete test

610
00:26:39,269 --> 00:26:37,120
[Music]

611
00:26:40,310 --> 00:26:39,279
limited results that appear to support

612
00:26:43,669 --> 00:26:40,320
our point of view

613
00:26:45,990 --> 00:26:43,679

are very easy to accept although it can

614

00:26:49,029 --> 00:26:46,000

require more time and effort

615

00:26:50,070 --> 00:26:49,039

generally speaking the more data points

616

00:26:52,149 --> 00:26:50,080

you have

617

00:27:04,950 --> 00:26:52,159

the better it is for getting to the

618

00:27:09,190 --> 00:27:07,510

this time we'll look at appeal to the

619

00:27:11,990 --> 00:27:09,200

stone

620

00:27:13,590 --> 00:27:12,000

this is when you dismiss an idea or

621

00:27:16,470 --> 00:27:13,600

statement as absurd

622

00:27:18,310 --> 00:27:16,480

invalid or incorrect without giving a

623

00:27:22,230 --> 00:27:18,320

satisfactory reason

624

00:27:23,990 --> 00:27:22,240

as to why many armchair skeptics can be

625

00:27:27,430 --> 00:27:24,000

guilty of this fallacy

626

00:27:30,789 --> 00:27:27,440

as it is all too easy to reject an idea

627

00:27:33,430 --> 00:27:30,799

without really understanding the topic

628

00:27:33,990 --> 00:27:33,440

but then again those who believe in

629

00:27:37,029 --> 00:27:34,000

talking to

630

00:27:37,669 --> 00:27:37,039

the dead for example can be too quick to

631

00:27:41,510 --> 00:27:37,679

write off

632

00:27:42,389 --> 00:27:41,520

more mundane explanations of course i

633

00:27:44,870 --> 00:27:42,399

don't believe in

634

00:27:45,830 --> 00:27:44,880

little green men coming here and flying

635

00:27:47,990 --> 00:27:45,840

sources

636

00:27:49,430 --> 00:27:48,000

i don't know much about space travel but

637

00:27:52,470 --> 00:27:49,440

the whole idea is

638

00:27:55,110 --> 00:27:52,480

just ridiculous so far

639

00:27:58,070 --> 00:27:55,120

there is no good evidence to suggest

640

00:27:59,990 --> 00:27:58,080

aliens or robotic ships have visited the

641

00:28:03,190 --> 00:28:00,000

earth from other planets

642

00:28:04,389 --> 00:28:03,200

however it would be naive to write the

643

00:28:07,190 --> 00:28:04,399

whole idea of

644

00:28:09,830 --> 00:28:07,200

as being ridiculous without some

645

00:28:13,590 --> 00:28:09,840

understanding of the topic

646

00:28:15,789 --> 00:28:13,600

as carl sagan said for all i know

647

00:28:18,310 --> 00:28:15,799

we may be visited by a different

648

00:28:21,269 --> 00:28:18,320

extraterrestrial civilization

649

00:28:23,990 --> 00:28:21,279

every second tuesday but there's no

650

00:28:26,389 --> 00:28:24,000

support for this appealing idea

651
00:28:27,669 --> 00:28:26,399
i hear that thousands of scientists have

652
00:28:30,149 --> 00:28:27,679
signed a paper

653
00:28:31,190 --> 00:28:30,159
calling for action on climate change but

654
00:28:34,149 --> 00:28:31,200
i don't care

655
00:28:36,470 --> 00:28:34,159
climate change is just made up and silly

656
00:28:37,590 --> 00:28:36,480
not understanding a topic like climate

657
00:28:40,950 --> 00:28:37,600
change and calling it

658
00:28:43,750 --> 00:28:40,960
silly is a very poor way of reasoning

659
00:28:45,669 --> 00:28:43,760
we owe it to ourselves to do at least

660
00:28:49,029 --> 00:28:45,679
some research on a topic

661
00:28:49,990 --> 00:28:49,039
before taking a strong stand one way or

662
00:28:53,350 --> 00:28:50,000
the other

663
00:28:56,470 --> 00:28:53,360

the earth is flat i tell you i mean

664

00:28:58,070 --> 00:28:56,480

just look at the horizon it's flat the

665

00:29:01,190 --> 00:28:58,080

idea that the earth is round

666

00:29:04,389 --> 00:29:01,200

is absurd it's funny to think that

667

00:29:07,110 --> 00:29:04,399

once upon a time thousands of years ago

668

00:29:08,070 --> 00:29:07,120

people thought the same thing we can

669

00:29:10,310 --> 00:29:08,080

forgive those

670

00:29:11,669 --> 00:29:10,320

ancient people as they didn't know

671

00:29:15,110 --> 00:29:11,679

better

672

00:29:17,830 --> 00:29:15,120

but for the last 2 000 years it has been

673

00:29:19,669 --> 00:29:17,840

widely accepted and understood that we

674

00:29:22,549 --> 00:29:19,679

live on a globe

675

00:29:26,389 --> 00:29:22,559

no matter how absurd some people think

676
00:29:28,870 --> 00:29:26,399
that is

677
00:29:29,590 --> 00:29:28,880
even if you think an idea or claim is

678
00:29:32,310 --> 00:29:29,600
just too

679
00:29:34,870 --> 00:29:32,320
silly for you to entertain it is worth

680
00:29:38,230 --> 00:29:34,880
the time to come to an understanding as

681
00:29:40,149 --> 00:29:38,240
to why you made that determination

682
00:29:42,070 --> 00:29:40,159
does the claim violate the laws of

683
00:29:46,310 --> 00:29:42,080
physics for example

684
00:29:48,470 --> 00:29:46,320
if so which laws and why

685
00:29:50,149 --> 00:29:48,480
what other reasons do you have to reject

686
00:29:52,230 --> 00:29:50,159
the claim

687
00:29:54,149 --> 00:29:52,240
then at least you'll have a better

688
00:30:04,549 --> 00:29:54,159

answer than simply calling it

689

00:30:08,549 --> 00:30:06,950

this time we'll look at the fallacy

690

00:30:14,789 --> 00:30:08,559

fallacy

691

00:30:16,070 --> 00:30:14,799

this is when because your opponent uses

692

00:30:19,269 --> 00:30:16,080

logical fallacies

693

00:30:23,510 --> 00:30:19,279

you assume their main argument or point

694

00:30:25,830 --> 00:30:23,520

must therefore also be wrong

695

00:30:27,510 --> 00:30:25,840

winning your argument due to the errors

696

00:30:29,510 --> 00:30:27,520

made by your opponent

697

00:30:32,230 --> 00:30:29,520

might be a little like winning the

698

00:30:34,310 --> 00:30:32,240

battle but losing the war

699

00:30:35,269 --> 00:30:34,320

not everyone is good at putting their

700

00:30:38,710 --> 00:30:35,279

case

701
00:30:40,710 --> 00:30:38,720
even if their main point is true

702
00:30:42,870 --> 00:30:40,720
my friend was trying to convince me that

703
00:30:45,110 --> 00:30:42,880
nasa really did send astronauts to the

704
00:30:48,950 --> 00:30:45,120
moon in 1969

705
00:30:50,950 --> 00:30:48,960
but her arguments really didn't stack up

706
00:30:53,830 --> 00:30:50,960
telling me it's true because everybody

707
00:30:56,070 --> 00:30:53,840
knows it's true is like a cop-out to me

708
00:30:57,830 --> 00:30:56,080
no reason then for me to change my mind

709
00:31:00,470 --> 00:30:57,840
i think it was all faked

710
00:31:02,389 --> 00:31:00,480
that nasa sent astronauts to the moon in

711
00:31:05,190 --> 00:31:02,399
the 60s and 70s

712
00:31:06,070 --> 00:31:05,200
is an historical fact but it can be

713
00:31:08,310 --> 00:31:06,080

difficult to

714

00:31:09,269 --> 00:31:08,320

argue the case if you don't know the

715

00:31:12,870 --> 00:31:09,279

many many

716

00:31:14,630 --> 00:31:12,880

details of the subject it's very easy to

717

00:31:17,669 --> 00:31:14,640

get flustered and make bad

718

00:31:21,110 --> 00:31:17,679

arguments even though in the end

719

00:31:21,909 --> 00:31:21,120

your main point is correct i had a

720

00:31:24,549 --> 00:31:21,919

choice

721

00:31:25,830 --> 00:31:24,559

between two treatments one was

722

00:31:28,630 --> 00:31:25,840

considered natural

723

00:31:31,029 --> 00:31:28,640

and the other was considered artificial

724

00:31:33,830 --> 00:31:31,039

i went for the artificial treatment

725

00:31:35,350 --> 00:31:33,840

as i know about the appeal to nature

726
00:31:37,350 --> 00:31:35,360
fallacy

727
00:31:38,549 --> 00:31:37,360
while much that is found in nature is

728
00:31:41,269 --> 00:31:38,559
toxic

729
00:31:42,630 --> 00:31:41,279
that alone is no reason to reject a

730
00:31:45,029 --> 00:31:42,640
treatment

731
00:31:46,149 --> 00:31:45,039
you need to look at the evidence behind

732
00:31:49,029 --> 00:31:46,159
any treatment

733
00:31:51,430 --> 00:31:49,039
whether from nature or from a lab to

734
00:31:54,549 --> 00:31:51,440
support your choices

735
00:31:54,950 --> 00:31:54,559
my friend who believes in evolution told

736
00:31:57,909 --> 00:31:54,960
me

737
00:31:59,509 --> 00:31:57,919
that it was all the scientists who also

738
00:32:02,549 --> 00:31:59,519

believe in evolution that

739

00:32:04,549 --> 00:32:02,559

finally convinced him but as i listen to

740

00:32:06,470 --> 00:32:04,559

the logical fallacy segment on the

741

00:32:09,509 --> 00:32:06,480

skeptic zone podcast

742

00:32:10,470 --> 00:32:09,519

i know that this is just the appeal to

743

00:32:12,630 --> 00:32:10,480

authority

744

00:32:14,630 --> 00:32:12,640

fallacy he'll have to do better than

745

00:32:16,310 --> 00:32:14,640

that to convince me

746

00:32:18,950 --> 00:32:16,320

while it's great that this person is

747

00:32:21,430 --> 00:32:18,960

learning about logical fallacies

748

00:32:23,830 --> 00:32:21,440

maybe they'll also come to understand

749

00:32:25,509 --> 00:32:23,840

that arguments and ideas can be quite

750

00:32:28,070 --> 00:32:25,519

involved and complex

751
00:32:30,310 --> 00:32:28,080
and need much more engagement than just

752
00:32:31,750 --> 00:32:30,320
pointing out logical fallacies along the

753
00:32:34,710 --> 00:32:31,760
way

754
00:32:35,430 --> 00:32:34,720
in this case the consensus of scientific

755
00:32:37,590 --> 00:32:35,440
opinion

756
00:32:41,509 --> 00:32:37,600
is being confused with an appeal to

757
00:32:46,310 --> 00:32:43,509
while it might be easy to score points

758
00:32:49,669 --> 00:32:46,320
based on your opponent's poor arguments

759
00:32:52,070 --> 00:32:49,679
try to bear in mind that in the end

760
00:32:53,509 --> 00:32:52,080
you are both hopefully trying to get to

761
00:32:56,710 --> 00:32:53,519
the truth

762
00:33:00,149 --> 00:32:56,720
if something is true and real it is

763
00:33:03,430 --> 00:33:00,159

true and real regardless of how well

764

00:33:12,230 --> 00:33:03,440

or how badly someone can argue the case

765

00:33:16,389 --> 00:33:14,710

this time we'll look at appeal to

766

00:33:19,750 --> 00:33:16,399

emotion

767

00:33:22,230 --> 00:33:19,760

also known as argument from passion

768

00:33:24,149 --> 00:33:22,240

this is when you manipulate emotions in

769

00:33:26,070 --> 00:33:24,159

order to try and win an argument

770

00:33:27,590 --> 00:33:26,080

especially in the absence of good

771

00:33:31,269 --> 00:33:27,600

evidence it is also

772

00:33:32,470 --> 00:33:31,279

a red herring that is a way of diverting

773

00:33:35,350 --> 00:33:32,480

attention away

774

00:33:36,070 --> 00:33:35,360

from the key point emotions colour our

775

00:33:38,950 --> 00:33:36,080

thinking

776

00:33:40,710 --> 00:33:38,960

it's just part of life we can keep them

777

00:33:43,190 --> 00:33:40,720

in check at times but they

778

00:33:44,230 --> 00:33:43,200

do have a habit of getting the better of

779

00:33:47,110 --> 00:33:44,240

us

780

00:33:49,029 --> 00:33:47,120

strong emotions do not always mean a

781

00:33:51,509 --> 00:33:49,039

strong argument

782

00:33:52,230 --> 00:33:51,519

i didn't know what to think when i went

783

00:33:55,190 --> 00:33:52,240

to see that

784

00:33:57,190 --> 00:33:55,200

psychic but soon she told me that my

785

00:33:58,230 --> 00:33:57,200

late mother was looking down on me and

786

00:34:01,669 --> 00:33:58,240

loved me

787

00:34:02,389 --> 00:34:01,679

i was in tears you cannot tell me it was

788

00:34:05,590 --> 00:34:02,399

fake

789

00:34:06,070 --> 00:34:05,600

i know it was my mother this situation

790

00:34:09,109 --> 00:34:06,080

is not

791

00:34:11,510 --> 00:34:09,119

uncommon when people go to see a psychic

792

00:34:13,190 --> 00:34:11,520

even wondering a stage routine in front

793

00:34:15,750 --> 00:34:13,200

of an audience

794

00:34:18,629 --> 00:34:15,760

any doubts may be suppressed as people

795

00:34:21,510 --> 00:34:18,639

experience the weight of their grief

796

00:34:24,149 --> 00:34:21,520

for many people thinking critically

797

00:34:25,510 --> 00:34:24,159

during an emotional reading is the last

798

00:34:27,909 --> 00:34:25,520

thing on their mind

799

00:34:29,349 --> 00:34:27,919

and as skeptics we should acknowledge

800

00:34:31,349 --> 00:34:29,359

this

801
00:34:33,030 --> 00:34:31,359
did you see that tv commercial for

802
00:34:36,629 --> 00:34:33,040
homeopathic treatment for

803
00:34:38,149 --> 00:34:36,639
teething the mother told of how much her

804
00:34:40,950 --> 00:34:38,159
son was suffering

805
00:34:42,629 --> 00:34:40,960
i hope everything worked out okay the

806
00:34:46,069 --> 00:34:42,639
appeal to emotion has been

807
00:34:48,629 --> 00:34:46,079
used in advertising for years and years

808
00:34:50,710 --> 00:34:48,639
diet products can play on our emotional

809
00:34:53,510 --> 00:34:50,720
insecurity of body image

810
00:34:54,149 --> 00:34:53,520
and political campaigns can play on our

811
00:34:57,270 --> 00:34:54,159
fears

812
00:34:59,589 --> 00:34:57,280
of what might happen if the other party

813
00:35:02,550 --> 00:34:59,599

wins an election

814

00:35:04,950 --> 00:35:02,560

in our example based on a real tv

815

00:35:08,150 --> 00:35:04,960

commercial shown in australia

816

00:35:09,910 --> 00:35:08,160

the story of a suffering baby pulls at

817

00:35:12,950 --> 00:35:09,920

our heartstrings

818

00:35:15,030 --> 00:35:12,960

even though the product on sale does not

819

00:35:17,510 --> 00:35:15,040

work as claimed

820

00:35:18,950 --> 00:35:17,520

i was watching all these videos online

821

00:35:21,589 --> 00:35:18,960

of parents who told

822

00:35:23,430 --> 00:35:21,599

sad and frightening stories of what

823

00:35:24,630 --> 00:35:23,440

happened to their children after getting

824

00:35:26,870 --> 00:35:24,640

vaccinated

825

00:35:29,030 --> 00:35:26,880

they really made me think whether i

826
00:35:30,630 --> 00:35:29,040
should risk taking my own baby in to get

827
00:35:32,950 --> 00:35:30,640
the jab

828
00:35:34,550 --> 00:35:32,960
like so many unsupported beliefs or

829
00:35:37,510 --> 00:35:34,560
conspiracy theories

830
00:35:40,790 --> 00:35:37,520
the anti-vaccination movement is full of

831
00:35:43,109 --> 00:35:40,800
sincere people who tell their stories

832
00:35:44,630 --> 00:35:43,119
skeptics should take into account the

833
00:35:47,190 --> 00:35:44,640
fact that people feel

834
00:35:48,150 --> 00:35:47,200
very strongly when their own children

835
00:35:50,710 --> 00:35:48,160
are involved

836
00:35:51,670 --> 00:35:50,720
and appreciate how they appeal to

837
00:36:00,870 --> 00:35:51,680
emotion

838
00:36:03,270 --> 00:36:00,880

way or the other

839

00:36:04,550 --> 00:36:03,280

ever since the first humans roamed the

840

00:36:07,589 --> 00:36:04,560

plains

841

00:36:09,589 --> 00:36:07,599

at times they add a valid and necessary

842

00:36:12,790 --> 00:36:09,599

component to an argument

843

00:36:24,630 --> 00:36:12,800

but watch out as at other times

844

00:36:32,390 --> 00:36:28,630

this time we'll look at ipsei dixit

845

00:36:35,030 --> 00:36:32,400

also known as it simply is

846

00:36:35,829 --> 00:36:35,040

this is when an opinion is given as if

847

00:36:39,109 --> 00:36:35,839

it were

848

00:36:40,870 --> 00:36:39,119

an undisputed fact without any need for

849

00:36:43,670 --> 00:36:40,880

supporting evidence

850

00:36:44,310 --> 00:36:43,680

this fallacy occurs when someone just

851
00:36:48,150 --> 00:36:44,320
assumes

852
00:36:51,030 --> 00:36:48,160
something is true or real and therefore

853
00:36:53,589 --> 00:36:51,040
cannot see the need to offer any proof

854
00:36:56,390 --> 00:36:53,599
to back up their point

855
00:36:57,270 --> 00:36:56,400
i went to see the doctor about my sore

856
00:37:00,310 --> 00:36:57,280
neck

857
00:37:01,910 --> 00:37:00,320
but a week later i'm still in pain i

858
00:37:03,510 --> 00:37:01,920
should have known better

859
00:37:05,430 --> 00:37:03,520
doctors don't know what they're doing

860
00:37:08,710 --> 00:37:05,440
and are only paid chills for big

861
00:37:11,829 --> 00:37:08,720
farmer everyone knows that

862
00:37:14,710 --> 00:37:11,839
this unsupported point of view is all

863
00:37:16,230 --> 00:37:14,720

too common among certain alternative

864

00:37:19,270 --> 00:37:16,240

medicine devotees

865

00:37:21,750 --> 00:37:19,280

and conspiracy theorists alike

866

00:37:23,750 --> 00:37:21,760

to them it's true because it conforms

867

00:37:26,870 --> 00:37:23,760

with their worldview

868

00:37:30,390 --> 00:37:26,880

the term everyone knows

869

00:37:34,150 --> 00:37:30,400

is a red flag that can indicate a poor

870

00:37:36,069 --> 00:37:34,160

argument it's true that the stars in the

871

00:37:40,150 --> 00:37:36,079

heavens can foretell the future

872

00:37:43,589 --> 00:37:40,160

and control our destiny why is it true

873

00:37:45,829 --> 00:37:43,599

it's true because it just is true

874

00:37:47,109 --> 00:37:45,839

i mean it seems obvious to me and people

875

00:37:50,150 --> 00:37:47,119

have known about this

876

00:37:53,430 --> 00:37:50,160

for thousands of years saying

877

00:37:56,790 --> 00:37:53,440

something is true because it's true

878

00:37:59,910 --> 00:37:56,800

is a classic ipsei dixit

879

00:38:03,310 --> 00:37:59,920

in this case the appeal to tradition is

880

00:38:05,190 --> 00:38:03,320

also used to seem to add weight to the

881

00:38:08,390 --> 00:38:05,200

non-argument

882

00:38:11,190 --> 00:38:08,400

i asked my medical professional why i

883

00:38:13,109 --> 00:38:11,200

should take the remedy she recommended

884

00:38:14,470 --> 00:38:13,119

she told me it was because she

885

00:38:17,589 --> 00:38:14,480

recommends it

886

00:38:20,870 --> 00:38:17,599

okay then i better take it

887

00:38:21,430 --> 00:38:20,880

as you can see in this example no real

888

00:38:24,069 --> 00:38:21,440

reason

889

00:38:25,750 --> 00:38:24,079

is given as to why the remedy should be

890

00:38:28,710 --> 00:38:25,760

taken

891

00:38:30,069 --> 00:38:28,720

oh and there's another red flag in there

892

00:38:32,550 --> 00:38:30,079

too

893

00:38:34,310 --> 00:38:32,560

watch out for the term medical

894

00:38:38,630 --> 00:38:34,320

professional

895

00:38:41,829 --> 00:38:38,640

sadly these days that term can include

896

00:38:48,630 --> 00:38:41,839

homeopaths naturopaths and

897

00:38:52,069 --> 00:38:51,750

even if an argument seems to make sense

898

00:38:58,870 --> 00:38:52,079

or

899

00:39:08,150 --> 00:38:58,880

to be

900

00:39:13,430 --> 00:39:11,109

this time we'll look at the slothful

901
00:39:16,310 --> 00:39:13,440
induction fallacy

902
00:39:19,190 --> 00:39:16,320
this is when even though there is enough

903
00:39:21,829 --> 00:39:19,200
good evidence to support a conclusion

904
00:39:22,630 --> 00:39:21,839
this evidence is rejected and replaced

905
00:39:25,589 --> 00:39:22,640
by something

906
00:39:26,829 --> 00:39:25,599
possibly unrelated but more in line with

907
00:39:30,550 --> 00:39:26,839
a particular

908
00:39:31,990 --> 00:39:30,560
worldview it can be hard even when faced

909
00:39:34,710 --> 00:39:32,000
with reality

910
00:39:37,109 --> 00:39:34,720
to reject something you sincerely

911
00:39:40,230 --> 00:39:37,119
believe to be true

912
00:39:43,510 --> 00:39:40,240
if the outcome is positive then all the

913
00:39:45,750 --> 00:39:43,520

more reason to hold on to that belief

914

00:39:47,750 --> 00:39:45,760

the water diviner we hired was able to

915

00:39:50,630 --> 00:39:47,760

find water on our farm

916

00:39:51,589 --> 00:39:50,640

now i know underground water is not

917

00:39:54,630 --> 00:39:51,599

uncommon

918

00:39:57,109 --> 00:39:54,640

but i saw him in action and i'm

919

00:40:00,230 --> 00:39:57,119

convinced of his abilities

920

00:40:02,069 --> 00:40:00,240

yes underground water in the farming

921

00:40:06,309 --> 00:40:02,079

regions of australia

922

00:40:08,710 --> 00:40:06,319

and many other countries is not uncommon

923

00:40:11,349 --> 00:40:08,720

yet some people will still credit

924

00:40:12,790 --> 00:40:11,359

something like the mythical powers of a

925

00:40:16,390 --> 00:40:12,800

water diviner

926
00:40:16,870 --> 00:40:16,400
when water is found maybe they believe

927
00:40:19,990 --> 00:40:16,880
in it

928
00:40:21,510 --> 00:40:20,000
to begin with maybe they are impressed

929
00:40:24,309 --> 00:40:21,520
by the theatrics

930
00:40:26,150 --> 00:40:24,319
or maybe they happen to be unlucky when

931
00:40:29,510 --> 00:40:26,160
sinking a well in the past

932
00:40:29,910 --> 00:40:29,520
when not using a diviner i'm pleased to

933
00:40:32,309 --> 00:40:29,920
say

934
00:40:34,550 --> 00:40:32,319
that my cancer is in remission and the

935
00:40:36,950 --> 00:40:34,560
prognosis is looking good

936
00:40:37,990 --> 00:40:36,960
thank goodness i followed the natural

937
00:40:40,550 --> 00:40:38,000
healer's advice

938
00:40:42,950 --> 00:40:40,560

and stopped eating red colored food

939

00:40:44,870 --> 00:40:42,960

while undergoing chemotherapy

940

00:40:46,230 --> 00:40:44,880

stories like this are well known to

941

00:40:48,950 --> 00:40:46,240

skeptics

942

00:40:50,230 --> 00:40:48,960

even though people sometimes very

943

00:40:52,870 --> 00:40:50,240

reluctantly

944

00:40:55,190 --> 00:40:52,880

will submit to chemotherapy and other

945

00:40:58,069 --> 00:40:55,200

science-based interventions

946

00:40:59,589 --> 00:40:58,079

they will still credit any improvement

947

00:41:02,069 --> 00:40:59,599

to whatever

948

00:41:04,390 --> 00:41:02,079

unproven alternative treatment they are

949

00:41:06,710 --> 00:41:04,400

taking at the same time

950

00:41:08,470 --> 00:41:06,720

we should not expect people who are in

951
00:41:12,550 --> 00:41:08,480
fear of their lives

952
00:41:13,270 --> 00:41:12,560
to always think rationally i saw a ufo

953
00:41:15,510 --> 00:41:13,280
last week

954
00:41:17,990 --> 00:41:15,520
i'm i'm sure it was an alien spaceship

955
00:41:18,390 --> 00:41:18,000
it was very bright in the evening sky

956
00:41:20,710 --> 00:41:18,400
and

957
00:41:22,309 --> 00:41:20,720
seemed to hover for some time even

958
00:41:24,150 --> 00:41:22,319
though my skeptical friend

959
00:41:26,069 --> 00:41:24,160
said it was in the same location in the

960
00:41:28,309 --> 00:41:26,079
sky as the planet venus

961
00:41:30,150 --> 00:41:28,319
it makes more sense to me that it was a

962
00:41:32,230 --> 00:41:30,160
real ufo

963
00:41:33,190 --> 00:41:32,240

here we have a case of an object in the

964

00:41:36,390 --> 00:41:33,200

sky with

965

00:41:39,430 --> 00:41:36,400

two differing explanations

966

00:41:43,109 --> 00:41:39,440

venus is often mistaken for aircraft

967

00:41:44,230 --> 00:41:43,119

even ufos and we know its location

968

00:41:47,349 --> 00:41:44,240

exactly at

969

00:41:50,309 --> 00:41:47,359

any given time yet

970

00:41:51,349 --> 00:41:50,319

for some it's far more exciting to

971

00:41:54,069 --> 00:41:51,359

conclude that

972

00:41:58,390 --> 00:41:54,079

aliens are the real cause of the strange

973

00:42:04,550 --> 00:42:01,349

the slothful induction fallacy is a way

974

00:42:06,950 --> 00:42:04,560

for people to preserve their beliefs

975

00:42:09,430 --> 00:42:06,960

even though there is better evidence for

976

00:42:12,390 --> 00:42:09,440

them to reject those beliefs

977

00:42:13,750 --> 00:42:12,400

it's far easier hence the use of the

978

00:42:16,790 --> 00:42:13,760

word slothful

979

00:42:23,990 --> 00:42:16,800

to just hold on to what you think is

980

00:42:32,309 --> 00:42:28,790

this time we'll look at unfalsifiability

981

00:42:34,150 --> 00:42:32,319

also known as untestability this is when

982

00:42:37,430 --> 00:42:34,160

you make a claim that cannot

983

00:42:41,190 --> 00:42:37,440

be shown or proved to be incorrect

984

00:42:43,910 --> 00:42:41,200

or even correct via testing

985

00:42:44,870 --> 00:42:43,920

skeptics have seen this fallacy many

986

00:42:47,990 --> 00:42:44,880

times

987

00:42:50,150 --> 00:42:48,000

and for many differing claims believers

988

00:42:53,430 --> 00:42:50,160

like to think that if skeptics or

989

00:42:56,710 --> 00:42:53,440

even science cannot disprove a claim

990

00:42:57,750 --> 00:42:56,720

it therefore must be true i know that

991

00:43:00,790 --> 00:42:57,760

water dividing

992

00:43:03,990 --> 00:43:00,800

always works out on the farm but only

993

00:43:06,550 --> 00:43:04,000

if skeptics are kept away as they have

994

00:43:07,910 --> 00:43:06,560

negative energy that interferes with

995

00:43:11,109 --> 00:43:07,920

divining

996

00:43:13,030 --> 00:43:11,119

here we have a situation based on what

997

00:43:15,270 --> 00:43:13,040

some water diviners have said to

998

00:43:17,670 --> 00:43:15,280

skeptics over the years

999

00:43:20,230 --> 00:43:17,680

the diviner in this case has made it

1000

00:43:21,910 --> 00:43:20,240

impossible for a real investigation of

1001
00:43:24,470 --> 00:43:21,920
his claims

1002
00:43:27,349 --> 00:43:24,480
those claims therefore can never be

1003
00:43:30,390 --> 00:43:27,359
shown to fail in a test

1004
00:43:31,430 --> 00:43:30,400
even when diviners are tested they will

1005
00:43:34,390 --> 00:43:31,440
come up with

1006
00:43:37,030 --> 00:43:34,400
what is to them a reasonable excuse to

1007
00:43:40,710 --> 00:43:37,040
justify their failure

1008
00:43:41,670 --> 00:43:40,720
that excuse is never that divining

1009
00:43:45,589 --> 00:43:41,680
itself

1010
00:43:48,870 --> 00:43:45,599
does not work i tried to test

1011
00:43:49,750 --> 00:43:48,880
a tarot card reader she chose a card at

1012
00:43:52,150 --> 00:43:49,760
random

1013
00:43:54,390 --> 00:43:52,160

and told me a story about it and asked

1014

00:43:57,829 --> 00:43:54,400

me if i could relate to it

1015

00:43:59,190 --> 00:43:57,839

when i said no she turned the card

1016

00:44:01,270 --> 00:43:59,200

upside down

1017

00:44:02,790 --> 00:44:01,280

and told me the opposite of what she

1018

00:44:06,390 --> 00:44:02,800

said before

1019

00:44:08,550 --> 00:44:06,400

well what do you know some of it fit me

1020

00:44:10,550 --> 00:44:08,560

this example is based on a real

1021

00:44:13,670 --> 00:44:10,560

conversation between a skeptic

1022

00:44:16,470 --> 00:44:13,680

and tarot card reader

1023

00:44:17,910 --> 00:44:16,480

here we see that no matter what was said

1024

00:44:21,750 --> 00:44:17,920

in the reading

1025

00:44:24,710 --> 00:44:21,760

with a bit of post hoc rationalization

1026

00:44:26,870 --> 00:44:24,720

it can be claimed that the tarot cards

1027

00:44:30,550 --> 00:44:26,880

are never wrong

1028

00:44:33,270 --> 00:44:30,560

i have a dragon living in my garage

1029

00:44:33,910 --> 00:44:33,280

it's invisible so you cannot see it it

1030

00:44:36,950 --> 00:44:33,920

breathes

1031

00:44:38,870 --> 00:44:36,960

fire but the fire is also heatless so

1032

00:44:41,589 --> 00:44:38,880

you cannot detect it

1033

00:44:42,550 --> 00:44:41,599

a dragon floats in the air so you cannot

1034

00:44:45,829 --> 00:44:42,560

weigh it

1035

00:44:49,030 --> 00:44:45,839

but take my word for it the dragon

1036

00:44:49,349 --> 00:44:49,040

is real here we have a classic example

1037

00:44:53,030 --> 00:44:49,359

from

1038

00:44:54,710 --> 00:44:53,040

carl sagan in his book the demon haunted

1039

00:44:57,670 --> 00:44:54,720

world

1040

00:45:01,109 --> 00:44:57,680

no matter what test you come up with to

1041

00:45:04,069 --> 00:45:01,119

find out if the dragon is real or not

1042

00:45:07,190 --> 00:45:04,079

there will always be some reason as to

1043

00:45:10,630 --> 00:45:07,200

why the test is impossible

1044

00:45:10,950 --> 00:45:10,640

therefore you can never show the dragon

1045

00:45:13,560 --> 00:45:10,960

is

1046

00:45:15,069 --> 00:45:13,570

not there

1047

00:45:17,670 --> 00:45:15,079

[Music]

1048

00:45:19,829 --> 00:45:17,680

falsifiability is a cornerstone of the

1049

00:45:22,950 --> 00:45:19,839

scientific method

1050

00:45:25,829 --> 00:45:22,960

any claim put forward that cannot be

1051
00:45:27,190 --> 00:45:25,839
at least in theory be shown to be

1052
00:45:30,829 --> 00:45:27,200
incorrect

1053
00:45:38,630 --> 00:45:30,839
is unscientific and deserves your

1054
00:45:43,109 --> 00:45:41,349
this time we'll look at affirming the

1055
00:45:45,430 --> 00:45:43,119
consequent

1056
00:45:46,309 --> 00:45:45,440
this is when you assume or conclude a

1057
00:45:48,710 --> 00:45:46,319
cause

1058
00:45:49,589 --> 00:45:48,720
for a phenomenon is based on the

1059
00:45:51,990 --> 00:45:49,599
phenomenon

1060
00:45:53,109 --> 00:45:52,000
itself without taking other

1061
00:45:55,670 --> 00:45:53,119
possibilities

1062
00:45:56,390 --> 00:45:55,680
into account you can think of this

1063
00:45:59,990 --> 00:45:56,400

fallacy

1064

00:46:03,670 --> 00:46:00,000

along these lines if x happens

1065

00:46:08,309 --> 00:46:03,680

then y is the result since y

1066

00:46:10,630 --> 00:46:08,319

has happened then the cause must be x

1067

00:46:12,230 --> 00:46:10,640

maybe our example will make this a

1068

00:46:15,349 --> 00:46:12,240

little more clear

1069

00:46:17,270 --> 00:46:15,359

i went to see a natural healer as my

1070

00:46:19,670 --> 00:46:17,280

cold was not getting better

1071

00:46:20,950 --> 00:46:19,680

she told me she'd seen this sort of

1072

00:46:22,790 --> 00:46:20,960

thing before

1073

00:46:24,710 --> 00:46:22,800

when another one of her patients had

1074

00:46:26,630 --> 00:46:24,720

side effects from prescription

1075

00:46:29,030 --> 00:46:26,640

medication

1076

00:46:29,829 --> 00:46:29,040

so now i know to steer clear of that

1077

00:46:32,950 --> 00:46:29,839

medication

1078

00:46:33,670 --> 00:46:32,960

in the future a stubborn cold may be

1079

00:46:36,870 --> 00:46:33,680

caused by

1080

00:46:37,430 --> 00:46:36,880

many things ranging from picking up a

1081

00:46:40,150 --> 00:46:37,440

second

1082

00:46:41,349 --> 00:46:40,160

cold even as you are recovering from the

1083

00:46:44,230 --> 00:46:41,359

first

1084

00:46:44,470 --> 00:46:44,240

confusing the cold symptoms with that of

1085

00:46:47,829 --> 00:46:44,480

an

1086

00:46:49,430 --> 00:46:47,839

allergy possible side effects from

1087

00:46:52,630 --> 00:46:49,440

medication

1088

00:46:55,190 --> 00:46:52,640

or even the cold virus itself

1089

00:46:55,829 --> 00:46:55,200

being more resistant than normal to your

1090

00:46:59,910 --> 00:46:55,839

body's

1091

00:47:02,870 --> 00:46:59,920

natural defenses in our example

1092

00:47:05,030 --> 00:47:02,880

there is no good reason to conclude that

1093

00:47:08,870 --> 00:47:05,040

the prescription medication

1094

00:47:09,430 --> 00:47:08,880

must be the cause my natural healer told

1095

00:47:15,670 --> 00:47:09,440

me

1096

00:47:16,710 --> 00:47:15,680

cold would get better well my cold did

1097

00:47:20,150 --> 00:47:16,720

get better

1098

00:47:23,910 --> 00:47:20,160

therefore the homeopathic remedy worked

1099

00:47:25,030 --> 00:47:23,920

another example for our man with a cold

1100

00:47:28,150 --> 00:47:25,040

this time

1101
00:47:29,670 --> 00:47:28,160
he beat the cold but does that mean the

1102
00:47:32,790 --> 00:47:29,680
homeopathic remedy

1103
00:47:36,950 --> 00:47:32,800
really did work we can say

1104
00:47:39,750 --> 00:47:36,960
that almost certainly it did not

1105
00:47:42,790 --> 00:47:39,760
so therefore there must be another

1106
00:47:45,910 --> 00:47:42,800
reason the cold went away

1107
00:47:47,670 --> 00:47:45,920
but maybe we can see why he mistakenly

1108
00:47:50,549 --> 00:47:47,680
credits homeopathy

1109
00:47:52,150 --> 00:47:50,559
as he trusts what the natural healer

1110
00:47:54,390 --> 00:47:52,160
tells him

1111
00:47:55,990 --> 00:47:54,400
we've covered the appeal to authority

1112
00:47:59,109 --> 00:47:56,000
before

1113
00:48:02,230 --> 00:47:59,119

it's well known that sasquatch leaves

1114

00:48:05,030 --> 00:48:02,240

giant footprints behind on a recent

1115

00:48:08,230 --> 00:48:05,040

expedition i found some giant footprints

1116

00:48:11,030 --> 00:48:08,240

therefore i know sasquatch is real as

1117

00:48:11,829 --> 00:48:11,040

intriguing as the idea of sasquatch or

1118

00:48:15,990 --> 00:48:11,839

bigfoot

1119

00:48:16,470 --> 00:48:16,000

is and despite many giant footprints

1120

00:48:20,069 --> 00:48:16,480

being

1121

00:48:23,109 --> 00:48:20,079

found over the years the reality of such

1122

00:48:27,829 --> 00:48:23,119

a creature is still in great doubt

1123

00:48:30,790 --> 00:48:27,839

and that is after decades of searching

1124

00:48:31,109 --> 00:48:30,800

it seems then that those plaster casts

1125

00:48:34,309 --> 00:48:31,119

of

1126

00:48:37,270 --> 00:48:34,319

giant footprints we've seen mostly from

1127

00:48:39,750 --> 00:48:37,280

the 1970s and 80s

1128

00:48:41,589 --> 00:48:39,760

could well have been produced by another

1129

00:48:44,790 --> 00:48:41,599

and very clever

1130

00:48:49,349 --> 00:48:44,800

bipedal animal who likes falling people

1131

00:48:51,670 --> 00:48:49,359

with pranks

1132

00:48:52,630 --> 00:48:51,680

sometimes it just seems logical to

1133

00:48:56,150 --> 00:48:52,640

conclude

1134

00:48:57,270 --> 00:48:56,160

one thing leads to another sometimes it

1135

00:49:00,390 --> 00:48:57,280

does

1136

00:49:02,870 --> 00:49:00,400

but sometimes the original cause

1137

00:49:04,120 --> 00:49:02,880

of an event maybe something else

1138

00:49:10,069 --> 00:49:04,130

entirely

1139

00:49:15,910 --> 00:49:14,230
this time we'll look at red herring

1140

00:49:17,829 --> 00:49:15,920
this is when someone gives you

1141

00:49:21,030 --> 00:49:17,839
irrelevant information

1142

00:49:22,549 --> 00:49:21,040
in an attempt to distract you from the

1143

00:49:25,990 --> 00:49:22,559
topic at hand

1144

00:49:27,109 --> 00:49:26,000
often to avoid a question or shift the

1145

00:49:30,150 --> 00:49:27,119
discussion

1146

00:49:31,109 --> 00:49:30,160
in a new direction red herrings are used

1147

00:49:34,309 --> 00:49:31,119
to avoid

1148

00:49:37,589 --> 00:49:34,319
talking about a subject especially if

1149

00:49:39,750 --> 00:49:37,599
you think you might lose an argument

1150

00:49:41,270 --> 00:49:39,760
they might seem to be related to the

1151

00:49:44,309 --> 00:49:41,280

topic at hand

1152

00:49:46,790 --> 00:49:44,319

but can end up taking you far

1153

00:49:48,710 --> 00:49:46,800

from where you wanted to be three

1154

00:49:50,549 --> 00:49:48,720

skeptics tested a

1155

00:49:51,910 --> 00:49:50,559

psychic who claimed to be able to talk

1156

00:49:54,390 --> 00:49:51,920

to the dead

1157

00:49:55,190 --> 00:49:54,400

when it seemed apparent she could not do

1158

00:49:58,069 --> 00:49:55,200

so

1159

00:50:00,150 --> 00:49:58,079

she complained that scientific testing

1160

00:50:03,030 --> 00:50:00,160

was just another belief system

1161

00:50:04,470 --> 00:50:03,040

and was not able to test what she does

1162

00:50:06,230 --> 00:50:04,480

the test was stopped

1163

00:50:08,150 --> 00:50:06,240

and the rest of the time was spent

1164

00:50:11,510 --> 00:50:08,160

trying to explain to her

1165

00:50:11,750 --> 00:50:11,520

how the scientific method works this is

1166

00:50:14,230 --> 00:50:11,760

an

1167

00:50:15,230 --> 00:50:14,240

example of something that is well known

1168

00:50:18,710 --> 00:50:15,240

to skeptical

1169

00:50:21,829 --> 00:50:18,720

investigators when someone claiming

1170

00:50:22,870 --> 00:50:21,839

psychic powers seems to be failing in a

1171

00:50:25,750 --> 00:50:22,880

test

1172

00:50:27,109 --> 00:50:25,760

they may well stop and go off on a

1173

00:50:29,990 --> 00:50:27,119

tangent

1174

00:50:32,390 --> 00:50:30,000

in this case the red herring was to

1175

00:50:35,589 --> 00:50:32,400

engage the skeptics in a talk about

1176

00:50:38,710 --> 00:50:35,599

how science works so

1177

00:50:40,710 --> 00:50:38,720

you think homeopathy doesn't work what

1178

00:50:42,790 --> 00:50:40,720

about all the western medicine that is

1179

00:50:45,270 --> 00:50:42,800

recalled every year

1180

00:50:46,309 --> 00:50:45,280

whatever the case is with science-based

1181

00:50:51,430 --> 00:50:46,319

medicine

1182

00:50:54,790 --> 00:50:51,440

alternative medical proponents

1183

00:50:56,710 --> 00:50:54,800

it really has no bearing on the validity

1184

00:50:59,109 --> 00:50:56,720

of homeopathy

1185

00:51:00,870 --> 00:50:59,119

but before you know it you are talking

1186

00:51:04,710 --> 00:51:00,880

about other things

1187

00:51:06,790 --> 00:51:04,720

rather than homeopathy the astrologist

1188

00:51:08,549 --> 00:51:06,800

said he could predict the outcome of the

1189

00:51:11,030 --> 00:51:08,559

next election

1190

00:51:11,990 --> 00:51:11,040

when that didn't come to pass he

1191

00:51:14,069 --> 00:51:12,000

explained how

1192

00:51:16,549 --> 00:51:14,079

hard he'd been working on a new form of

1193

00:51:19,589 --> 00:51:16,559

astrology that took more stars

1194

00:51:21,829 --> 00:51:19,599

into consideration maybe this new

1195

00:51:25,030 --> 00:51:21,839

astrology is very interesting and

1196

00:51:27,510 --> 00:51:25,040

something to talk about but whether that

1197

00:51:30,790 --> 00:51:27,520

is the new astrology itself

1198

00:51:34,069 --> 00:51:30,800

or the hard work put into it neither

1199

00:51:39,190 --> 00:51:34,079

has anything to do with the past failure

1200

00:51:44,710 --> 00:51:41,270

chasing a red herring means you have

1201
00:51:47,190 --> 00:51:44,720
been taken away from the point in hand

1202
00:51:48,390 --> 00:51:47,200
before you know it the original topic

1203
00:51:51,030 --> 00:51:48,400
has been lost

1204
00:51:52,460 --> 00:51:51,040
and you might not be able to return to

1205
00:51:58,870 --> 00:51:52,470
it

1206
00:52:02,829 --> 00:52:01,190
this time we'll look at the perfect

1207
00:52:09,750 --> 00:52:02,839
solution

1208
00:52:12,790 --> 00:52:09,760
is an all or nothing way of thinking

1209
00:52:15,190 --> 00:52:12,800
unless the outcome is 100 perfect

1210
00:52:16,630 --> 00:52:15,200
the baby may will end up being thrown

1211
00:52:19,030 --> 00:52:16,640
out with the bathwater

1212
00:52:21,589 --> 00:52:19,040
in other words the idea is being

1213
00:52:23,589 --> 00:52:21,599

rejected altogether

1214

00:52:24,790 --> 00:52:23,599

this can be a pitfall when making

1215

00:52:27,190 --> 00:52:24,800

decisions

1216

00:52:29,990 --> 00:52:27,200

especially if the right thing to do

1217

00:52:32,790 --> 00:52:30,000

doesn't particularly appeal to us

1218

00:52:33,829 --> 00:52:32,800

and we are looking for ways to justify

1219

00:52:37,190 --> 00:52:33,839

our inaction

1220

00:52:39,589 --> 00:52:37,200

to ourselves and others i'm not going to

1221

00:52:42,790 --> 00:52:39,599

get vaccinated for covert 19

1222

00:52:44,390 --> 00:52:42,800

the vaccination is only 95 effective and

1223

00:52:46,230 --> 00:52:44,400

you need two doses

1224

00:52:47,829 --> 00:52:46,240

look at all those health care workers

1225

00:52:51,030 --> 00:52:47,839

who still caught it

1226
00:52:53,910 --> 00:52:51,040
the 95 efficacy rate of

1227
00:52:54,950 --> 00:52:53,920
some of the covert 19 vaccines is

1228
00:52:57,990 --> 00:52:54,960
actually very

1229
00:52:59,190 --> 00:52:58,000
high the fact that a person may fall

1230
00:53:02,150 --> 00:52:59,200
into the 5

1231
00:53:03,190 --> 00:53:02,160
category and not achieve adequate

1232
00:53:06,390 --> 00:53:03,200
protection

1233
00:53:08,309 --> 00:53:06,400
is no reason to deem the vaccine not

1234
00:53:10,230 --> 00:53:08,319
worth having

1235
00:53:11,430 --> 00:53:10,240
the health care workers who caught

1236
00:53:14,390 --> 00:53:11,440
covert 19

1237
00:53:16,630 --> 00:53:14,400
after their first inoculation had yet to

1238
00:53:19,190 --> 00:53:16,640

receive their second dose

1239

00:53:21,270 --> 00:53:19,200

and it may also be possible that they

1240

00:53:24,549 --> 00:53:21,280

were already infected

1241

00:53:27,190 --> 00:53:24,559

that small number of cases is also

1242

00:53:29,270 --> 00:53:27,200

no reason to dismiss the vaccine

1243

00:53:32,390 --> 00:53:29,280

outright

1244

00:53:35,190 --> 00:53:32,400

also protesting that a vaccine is

1245

00:53:35,990 --> 00:53:35,200

not a hundred percent effective is a

1246

00:53:38,710 --> 00:53:36,000

classic

1247

00:53:40,470 --> 00:53:38,720

argument of the anti-vaccination

1248

00:53:43,990 --> 00:53:40,480

movement

1249

00:53:44,870 --> 00:53:44,000

this mask is uncomfortable and not 100

1250

00:53:47,829 --> 00:53:44,880

effective in

1251
00:53:50,230 --> 00:53:47,839
reducing the spread of covert 19. i'm

1252
00:53:53,270 --> 00:53:50,240
not going to bother wearing it

1253
00:53:55,430 --> 00:53:53,280
despite not being 100 effective ma

1254
00:53:56,470 --> 00:53:55,440
squaring is advised by medical

1255
00:53:59,589 --> 00:53:56,480
specialists

1256
00:54:02,069 --> 00:53:59,599
to inhibit the aerosol spray responsible

1257
00:54:05,829 --> 00:54:02,079
for the spread of the virus

1258
00:54:08,549 --> 00:54:05,839
it isn't an all or nothing scenario

1259
00:54:12,870 --> 00:54:08,559
all reduction in transmission helps to

1260
00:54:16,549 --> 00:54:15,270
how am i going to find an hour a day to

1261
00:54:19,589 --> 00:54:16,559
exercise

1262
00:54:21,030 --> 00:54:19,599
i'm just too busy and tired there's no

1263
00:54:24,549 --> 00:54:21,040

point in bothering for just

1264

00:54:27,190 --> 00:54:24,559

15 to 20 minutes the recommended amount

1265

00:54:28,710 --> 00:54:27,200

of exercise is approximately one hour

1266

00:54:31,750 --> 00:54:28,720

per day

1267

00:54:34,870 --> 00:54:31,760

however when that isn't possible

1268

00:54:35,430 --> 00:54:34,880

it's easy to convince ourselves not to

1269

00:54:39,750 --> 00:54:35,440

make an

1270

00:54:42,150 --> 00:54:39,760

effort and give up on exercising

1271

00:54:44,069 --> 00:54:42,160

while we may not be able to achieve the

1272

00:54:46,870 --> 00:54:44,079

maximum benefits

1273

00:54:49,270 --> 00:54:46,880

exercising for a shorter time will still

1274

00:54:52,309 --> 00:54:49,280

be of benefit to our health

1275

00:54:58,230 --> 00:54:52,319

especially in contrast to the scenario

1276
00:55:02,230 --> 00:55:00,630
while we often want to make excuses to

1277
00:55:05,430 --> 00:55:02,240
ourselves to avoid

1278
00:55:06,630 --> 00:55:05,440
doing something we don't like or if we

1279
00:55:08,870 --> 00:55:06,640
want to bolster an

1280
00:55:11,910 --> 00:55:08,880
argument that really doesn't have the

1281
00:55:15,270 --> 00:55:11,920
weight of evidence on our side

1282
00:55:16,470 --> 00:55:15,280
it can be tempting to succumb to wanting

1283
00:55:20,630 --> 00:55:16,480
a solution

1284
00:55:24,150 --> 00:55:20,640
or situation to be perfect in every way

1285
00:55:25,670 --> 00:55:24,160
however in reality we should weigh up

1286
00:55:28,069 --> 00:55:25,680
the pros and cons

1287
00:55:38,230 --> 00:55:28,079
and make better judgments that are not

1288
00:55:42,549 --> 00:55:40,870

this time we'll look at the fallacy of

1289

00:55:45,430 --> 00:55:42,559

composition

1290

00:55:47,750 --> 00:55:45,440

this fallacy is about transferring or

1291

00:55:49,829 --> 00:55:47,760

projecting the properties shared by a

1292

00:55:53,270 --> 00:55:49,839

set of individual components

1293

00:55:53,670 --> 00:55:53,280

to the whole group or product as if they

1294

00:55:56,230 --> 00:55:53,680

were

1295

00:55:57,349 --> 00:55:56,240

one and the same the fallacy of

1296

00:55:59,750 --> 00:55:57,359

composition

1297

00:56:03,030 --> 00:55:59,760

can appear to be quite similar to the

1298

00:56:05,950 --> 00:56:03,040

fallacy of hasty generalization

1299

00:56:07,349 --> 00:56:05,960

however the latter usually means

1300

00:56:10,789 --> 00:56:07,359

extrapolating from

1301

00:56:13,349 --> 00:56:10,799

only a small or anomalous sample

1302

00:56:14,789 --> 00:56:13,359

to a larger one and drawing the wrong

1303

00:56:17,910 --> 00:56:14,799

conclusion

1304

00:56:20,390 --> 00:56:17,920

based on insufficient evidence it's

1305

00:56:21,190 --> 00:56:20,400

also the opposite of the fallacy of

1306

00:56:23,829 --> 00:56:21,200

division

1307

00:56:24,549 --> 00:56:23,839

which assumes that what is true for the

1308

00:56:27,670 --> 00:56:24,559

whole

1309

00:56:28,950 --> 00:56:27,680

is also true for some or all of its

1310

00:56:31,270 --> 00:56:28,960

parts

1311

00:56:32,870 --> 00:56:31,280

i don't believe humans have caused

1312

00:56:35,829 --> 00:56:32,880

global warming

1313

00:56:36,870 --> 00:56:35,839

those so-called climate scientists

1314

00:56:39,670 --> 00:56:36,880

commit the

1315

00:56:40,549 --> 00:56:39,680

composition fallacy in their research

1316

00:56:43,270 --> 00:56:40,559

they

1317

00:56:43,990 --> 00:56:43,280

aggregate temperature anomalies from

1318

00:56:46,309 --> 00:56:44,000

specific

1319

00:56:47,829 --> 00:56:46,319

regions then apply that to the whole

1320

00:56:49,910 --> 00:56:47,839

planet to say

1321

00:56:51,750 --> 00:56:49,920

that it's warming you have to look at

1322

00:56:55,270 --> 00:56:51,760

each individual region

1323

00:56:58,069 --> 00:56:55,280

separately if climate change scientists

1324

00:56:59,109 --> 00:56:58,079

simply aggregated regional temperature

1325

00:57:02,230 --> 00:56:59,119

anomalies and

1326

00:57:04,789 --> 00:57:02,240

called it global warming it might be

1327

00:57:06,950 --> 00:57:04,799

arguable that they are committing the

1328

00:57:10,390 --> 00:57:06,960

composition fallacy

1329

00:57:12,470 --> 00:57:10,400

however it is valid to extrapolate in

1330

00:57:16,710 --> 00:57:12,480

this way in some cases

1331

00:57:17,349 --> 00:57:16,720

and not in others the difficulty lies in

1332

00:57:20,470 --> 00:57:17,359

knowing

1333

00:57:22,309 --> 00:57:20,480

which side is correct in any given

1334

00:57:24,789 --> 00:57:22,319

scenario

1335

00:57:25,510 --> 00:57:24,799

in this case aside from charting

1336

00:57:28,150 --> 00:57:25,520

averages

1337

00:57:30,630 --> 00:57:28,160

and highlighting general trends

1338

00:57:32,630 --> 00:57:30,640

additional supporting evidence for the

1339

00:57:35,829 --> 00:57:32,640

theory of global warming

1340

00:57:36,870 --> 00:57:35,839

comes into play and temperature data is

1341

00:57:39,349 --> 00:57:36,880

consistent

1342

00:57:40,710 --> 00:57:39,359

with the data from multiple lines of

1343

00:57:43,990 --> 00:57:40,720

inquiry

1344

00:57:44,870 --> 00:57:44,000

including the warming oceans melting ice

1345

00:57:47,910 --> 00:57:44,880

sheets

1346

00:57:49,349 --> 00:57:47,920

and retreating glaciers just to name a

1347

00:57:51,910 --> 00:57:49,359

few

1348

00:57:52,549 --> 00:57:51,920

one of the reasons i believe that a

1349

00:57:55,910 --> 00:57:52,559

higher

1350

00:57:56,710 --> 00:57:55,920

power exists is because like many other

1351
00:58:00,309 --> 00:57:56,720

people

1352
00:58:03,190 --> 00:58:00,319

i feel a sense of purpose for being here

1353
00:58:05,190 --> 00:58:03,200

this must also mean that human beings

1354
00:58:08,470 --> 00:58:05,200

are placed here on earth

1355
00:58:11,589 --> 00:58:08,480

for a purpose this is a fallacy that we

1356
00:58:14,230 --> 00:58:11,599

sometimes see coming from theists

1357
00:58:15,349 --> 00:58:14,240

it's true that people often feel a sense

1358
00:58:19,190 --> 00:58:15,359

of purpose

1359
00:58:22,309 --> 00:58:19,200

or have pet causes however

1360
00:58:25,910 --> 00:58:22,319

just because any number of individuals

1361
00:58:28,630 --> 00:58:25,920

may feel a sense of purpose this notion

1362
00:58:29,349 --> 00:58:28,640

cannot be transferred to humanity as a

1363
00:58:32,069 --> 00:58:29,359

whole

1364

00:58:35,109 --> 00:58:32,079

to argue that we have some kind of

1365

00:58:37,510 --> 00:58:35,119

collective purpose for being here

1366

00:58:39,190 --> 00:58:37,520

i've been doing some research online and

1367

00:58:41,670 --> 00:58:39,200

have decided to give up

1368

00:58:42,710 --> 00:58:41,680

eating foods that have names i can't

1369

00:58:46,549 --> 00:58:42,720

pronounce

1370

00:58:49,589 --> 00:58:46,559

and i'm also going to avoid chemicals

1371

00:58:51,349 --> 00:58:49,599

first to go is salt did you know it

1372

00:58:54,630 --> 00:58:51,359

contains chlorine

1373

00:58:55,190 --> 00:58:54,640

that's toxic to humans it's certainly

1374

00:58:58,309 --> 00:58:55,200

true

1375

00:58:58,950 --> 00:58:58,319

that sodium and chlorine are harmful to

1376
00:59:01,030 --> 00:58:58,960
humans

1377
00:59:02,710 --> 00:59:01,040
at certain levels when ingested

1378
00:59:05,430 --> 00:59:02,720
separately

1379
00:59:07,430 --> 00:59:05,440
however the chemical reaction that

1380
00:59:10,710 --> 00:59:07,440
occurs when they are combined

1381
00:59:13,750 --> 00:59:10,720
creates table salt which is not toxic

1382
00:59:15,750 --> 00:59:13,760
and something we eat every day

1383
00:59:17,990 --> 00:59:15,760
simply considering the properties of

1384
00:59:20,950 --> 00:59:18,000
individual chemical components

1385
00:59:23,510 --> 00:59:20,960
does not mean that identical properties

1386
00:59:25,910 --> 00:59:23,520
apply to the whole product

1387
00:59:26,870 --> 00:59:25,920
western medical practitioners are so

1388
00:59:29,349 --> 00:59:26,880

reductionist

1389

00:59:30,150 --> 00:59:29,359

i'm going to see a naturopath who will

1390

00:59:33,510 --> 00:59:30,160

treat me

1391

00:59:34,710 --> 00:59:33,520

as a whole person not just focus on my

1392

00:59:36,549 --> 00:59:34,720

liver disease

1393

00:59:39,030 --> 00:59:36,559

organs in the body don't function in

1394

00:59:40,789 --> 00:59:39,040

isolation they are part of a system that

1395

00:59:44,470 --> 00:59:40,799

includes the mind

1396

00:59:47,589 --> 00:59:44,480

body and spirit diseases do

1397

00:59:49,990 --> 00:59:47,599

not necessarily occur in isolation

1398

00:59:51,270 --> 00:59:50,000

and the majority of doctors are going to

1399

00:59:54,230 --> 00:59:51,280

look at lifestyle

1400

00:59:56,140 --> 00:59:54,240

and other factors that may contribute to

1401

00:59:57,270 --> 00:59:56,150

an illness or chronic condition

1402

01:00:00,069 --> 00:59:57,280

[Music]

1403

01:00:00,950 --> 01:00:00,079

however practitioners of western

1404

01:00:03,270 --> 01:00:00,960

medicine

1405

01:00:04,789 --> 01:00:03,280

do not transfer the properties of a

1406

01:00:07,910 --> 01:00:04,799

disease in a specific

1407

01:00:10,230 --> 01:00:07,920

organ to the body as a whole as if they

1408

01:00:12,549 --> 01:00:10,240

were essentially the same thing

1409

01:00:14,150 --> 01:00:12,559

as in the case of the systems approach

1410

01:00:16,260 --> 01:00:14,160

of the holistic health

1411

01:00:19,430 --> 01:00:16,270

practitioners

1412

01:00:23,109 --> 01:00:21,990

the fallacy of composition occurs when

1413

01:00:25,750 --> 01:00:23,119

we believe

1414

01:00:28,150 --> 01:00:25,760

that what is true for individual parts

1415

01:00:31,349 --> 01:00:28,160

is true for the whole

1416

01:00:33,510 --> 01:00:31,359

think of it this way sometimes

1417

01:00:34,870 --> 01:00:33,520

what is good for the individual is good

1418

01:00:38,630 --> 01:00:34,880

for the group

1419

01:00:41,430 --> 01:00:38,640

but at other times it is not

1420

01:00:42,549 --> 01:00:41,440

therefore we have to be careful about

1421

01:00:45,990 --> 01:00:42,559

determining

1422

01:00:46,950 --> 01:00:46,000

when this is fallacious thinking or when

1423

01:00:49,270 --> 01:00:46,960

it is true

1424

01:00:59,349 --> 01:00:49,280

and may need to seek other kinds of

1425

01:01:04,470 --> 01:01:02,390

this time we'll look at the appeal to

1426
01:01:08,069 --> 01:01:04,480
common sense

1427
01:01:11,589 --> 01:01:08,079
version

1428
01:01:14,710 --> 01:01:11,599
of the alleged certainty

1429
01:01:15,109 --> 01:01:14,720
it occurs when somebody simply asserts

1430
01:01:18,230 --> 01:01:15,119
their

1431
01:01:21,349 --> 01:01:18,240
conclusion as an obvious fact however

1432
01:01:23,829 --> 01:01:21,359
it may not necessarily be so

1433
01:01:24,870 --> 01:01:23,839
when a person appeals to our common

1434
01:01:27,349 --> 01:01:24,880
sense

1435
01:01:28,789 --> 01:01:27,359
they are making the assumption that it's

1436
01:01:31,589 --> 01:01:28,799
knowledge we all share

1437
01:01:33,190 --> 01:01:31,599
and can be taken for granted as correct

1438
01:01:37,270 --> 01:01:33,200

due to our perceived

1439

01:01:39,750 --> 01:01:37,280

universal human experience however

1440

01:01:40,309 --> 01:01:39,760

there are times when we can be caught

1441

01:01:43,030 --> 01:01:40,319

out

1442

01:01:43,990 --> 01:01:43,040

and what is really happening is that we

1443

01:01:47,829 --> 01:01:44,000

are relying on

1444

01:01:48,470 --> 01:01:47,839

intuition folklore or beliefs for which

1445

01:01:52,390 --> 01:01:48,480

we have

1446

01:01:54,630 --> 01:01:52,400

never truly examined the evidence

1447

01:01:56,309 --> 01:01:54,640

i heard someone say they are not going

1448

01:01:58,789 --> 01:01:56,319

to wait for a vaccine

1449

01:02:00,069 --> 01:01:58,799

that might take years to develop they're

1450

01:02:02,870 --> 01:02:00,079

going to drink

1451
01:02:04,829 --> 01:02:02,880
whiskey and might even investigate

1452
01:02:07,190 --> 01:02:04,839
injecting a type of

1453
01:02:08,630 --> 01:02:07,200
disinfectant if they think they may have

1454
01:02:10,390 --> 01:02:08,640
come into contact with the person who

1455
01:02:13,190 --> 01:02:10,400
has covert 19

1456
01:02:15,109 --> 01:02:13,200
it's just common sense you don't need to

1457
01:02:18,230 --> 01:02:15,119
be a medical expert to know that

1458
01:02:21,670 --> 01:02:18,240
alcohol kills viruses it's true that

1459
01:02:24,390 --> 01:02:21,680
alcohol will kill viruses and therefore

1460
01:02:26,470 --> 01:02:24,400
it is safe to assume that using wipes or

1461
01:02:27,349 --> 01:02:26,480
sprays with sufficient quantities of

1462
01:02:29,510 --> 01:02:27,359
alcohol

1463
01:02:32,309 --> 01:02:29,520

are going to be effective in killing

1464

01:02:34,789 --> 01:02:32,319

pathogens in our homes

1465

01:02:36,230 --> 01:02:34,799

this is common knowledge and correct

1466

01:02:38,390 --> 01:02:36,240

hygiene practices

1467

01:02:39,750 --> 01:02:38,400

have become common sense to a great

1468

01:02:42,870 --> 01:02:39,760

extent

1469

01:02:43,990 --> 01:02:42,880

however it does not follow that once

1470

01:02:45,710 --> 01:02:44,000

ingested

1471

01:02:49,349 --> 01:02:45,720

that the same will occur with

1472

01:02:52,069 --> 01:02:49,359

disinfectants inside our bodies

1473

01:02:52,789 --> 01:02:52,079

not only will it be ineffective there is

1474

01:02:56,309 --> 01:02:52,799

a risk of

1475

01:02:58,150 --> 01:02:56,319

poisoning or even death depending on the

1476

01:03:01,109 --> 01:02:58,160

substance

1477

01:03:02,069 --> 01:03:01,119

if you really think about it it kind of

1478

01:03:04,390 --> 01:03:02,079

makes sense that

1479

01:03:05,190 --> 01:03:04,400

some people think the earth is flat and

1480

01:03:07,750 --> 01:03:05,200

think that

1481

01:03:08,230 --> 01:03:07,760

people on the bottom of the globe would

1482

01:03:11,190 --> 01:03:08,240

simply

1483

01:03:12,950 --> 01:03:11,200

fall off if it was a sphere have you

1484

01:03:15,990 --> 01:03:12,960

ever tipped something upside down

1485

01:03:17,829 --> 01:03:16,000

and seen what happens all of us have

1486

01:03:20,309 --> 01:03:17,839

witnessed what happens when we tip

1487

01:03:22,789 --> 01:03:20,319

something out and it appears to fall in

1488

01:03:25,910 --> 01:03:22,799

a downwards direction

1489

01:03:28,230 --> 01:03:25,920

most of us are also aware of the story

1490

01:03:29,430 --> 01:03:28,240

of isaac newton and the apple falling

1491

01:03:32,150 --> 01:03:29,440

from the tree

1492

01:03:33,829 --> 01:03:32,160

and know that it's due to gravity

1493

01:03:36,230 --> 01:03:33,839

however

1494

01:03:38,470 --> 01:03:36,240

whilst we may think it is common sense

1495

01:03:41,270 --> 01:03:38,480

that things fall downwards

1496

01:03:43,109 --> 01:03:41,280

gravity actually pulls us towards the

1497

01:03:45,430 --> 01:03:43,119

center of the globe

1498

01:03:46,230 --> 01:03:45,440

making it appear that the ground is at

1499

01:03:49,270 --> 01:03:46,240

the bottom

1500

01:03:51,270 --> 01:03:49,280

and the sky is at the top wherever we

1501

01:03:54,069 --> 01:03:51,280

may be standing

1502

01:03:56,069 --> 01:03:54,079

my teacher friend asked her students to

1503

01:03:59,190 --> 01:03:56,079

take a quiz to see what their

1504

01:04:00,789 --> 01:03:59,200

preferred learning styles are as they

1505

01:04:03,349 --> 01:04:00,799

say in education

1506

01:04:05,829 --> 01:04:03,359

students learn best when teaching styles

1507

01:04:08,789 --> 01:04:05,839

are matched to their learning styles

1508

01:04:09,670 --> 01:04:08,799

it's highly intuitive to believe that

1509

01:04:11,910 --> 01:04:09,680

students learn

1510

01:04:13,270 --> 01:04:11,920

best when the way information is

1511

01:04:15,430 --> 01:04:13,280

presented to them

1512

01:04:17,430 --> 01:04:15,440

is in a form that suits the way they

1513

01:04:20,069 --> 01:04:17,440

prefer to learn

1514

01:04:22,630 --> 01:04:20,079

for example this assumes that the

1515

01:04:23,349 --> 01:04:22,640

student who favors a visual style of

1516

01:04:26,069 --> 01:04:23,359

learning

1517

01:04:28,549 --> 01:04:26,079

will then perform best when information

1518

01:04:32,710 --> 01:04:28,559

is presented in a visual format

1519

01:04:36,470 --> 01:04:32,720

such as pictures graphs video etc

1520

01:04:39,109 --> 01:04:36,480

apparently 97 of educators

1521

01:04:42,150 --> 01:04:39,119

believe this to be true and it appears

1522

01:04:45,349 --> 01:04:42,160

to be plain common sense

1523

01:04:45,750 --> 01:04:45,359

however under scientific conditions this

1524

01:04:49,270 --> 01:04:45,760

has

1525

01:04:50,150 --> 01:04:49,280

not proved to be correct research shows

1526

01:04:53,670 --> 01:04:50,160

that around

1527

01:04:54,230 --> 01:04:53,680

70 percent of students do not choose to

1528

01:04:56,870 --> 01:04:54,240

learn

1529

01:04:57,430 --> 01:04:56,880

according to their preferences but

1530

01:05:01,029 --> 01:04:57,440

choose

1531

01:05:04,470 --> 01:05:01,039

multiple styles of learning instead

1532

01:05:07,109 --> 01:05:04,480

furthermore they perform no better

1533

01:05:09,990 --> 01:05:07,119

when given information in a way that

1534

01:05:12,230 --> 01:05:10,000

matches their preferred learning styles

1535

01:05:13,990 --> 01:05:12,240

than when that information is presented

1536

01:05:16,789 --> 01:05:14,000

in another style

1537

01:05:19,109 --> 01:05:16,799

it has proven to be important that the

1538

01:05:22,230 --> 01:05:19,119

focus should be on the quality

1539

01:05:25,430 --> 01:05:22,240

and suitability of the delivery

1540

01:05:28,910 --> 01:05:25,440

of the information not on the learning

1541

01:05:34,789 --> 01:05:31,510

[Music]

1542

01:05:35,510 --> 01:05:34,799

according to voltaire common sense is

1543

01:05:39,829 --> 01:05:35,520

not so

1544

01:05:42,630 --> 01:05:39,839

common although this is a slur

1545

01:05:44,069 --> 01:05:42,640

it is really quite a subjective form of

1546

01:05:47,670 --> 01:05:44,079

knowledge

1547

01:05:50,950 --> 01:05:47,680

it can very much depend on our geography

1548

01:05:54,230 --> 01:05:50,960

culture historicity

1549

01:05:56,549 --> 01:05:54,240

personal experiences etc

1550

01:05:57,510 --> 01:05:56,559

as it is not derived from objective

1551

01:06:00,309 --> 01:05:57,520

facts

1552

01:06:01,349 --> 01:06:00,319

as skeptics it is important to keep this

1553

01:06:04,630 --> 01:06:01,359

in mind

1554

01:06:05,510 --> 01:06:04,640

and always seek the evidence rather than

1555

01:06:08,710 --> 01:06:05,520

succumb to

1556

01:06:09,270 --> 01:06:08,720

intellectual laziness and take common

1557

01:06:12,470 --> 01:06:09,280

sense

1558

01:06:13,670 --> 01:06:12,480

for granted as it is not necessarily

1559

01:06:17,029 --> 01:06:13,680

reliable

1560

01:06:28,789 --> 01:06:17,039

and can't necessarily be asserted

1561

01:06:33,829 --> 01:06:31,910

this time we'll look at a fallacy of the

1562

01:06:35,789 --> 01:06:33,839

single cause

1563

01:06:37,270 --> 01:06:35,799

also known as the causal

1564

01:06:40,470 --> 01:06:37,280

oversimplification

1565

01:06:43,510 --> 01:06:40,480

this fallacy occurs when it is assumed

1566

01:06:46,789 --> 01:06:43,520

that there is a single simple cause

1567

01:06:48,390 --> 01:06:46,799

of an outcome when in fact there may be

1568

01:06:51,029 --> 01:06:48,400

a number of causes

1569

01:06:53,510 --> 01:06:51,039

reducing the causes of a complicated

1570

01:06:56,390 --> 01:06:53,520

issue to a single factor

1571

01:06:57,750 --> 01:06:56,400

may be satisfying in our desire to keep

1572

01:07:01,029 --> 01:06:57,760

things simple

1573

01:07:01,829 --> 01:07:01,039

and sometimes it is helpful to identify

1574

01:07:05,430 --> 01:07:01,839

the most

1575

01:07:07,270 --> 01:07:05,440

significant reasons as to why something

1576

01:07:11,029 --> 01:07:07,280

has happened

1577

01:07:13,029 --> 01:07:11,039

however we also need to keep in mind

1578

01:07:14,470 --> 01:07:13,039

that there are many complicated

1579

01:07:16,630 --> 01:07:14,480

situations

1580

01:07:17,829 --> 01:07:16,640

where multiple factors have to be

1581

01:07:21,109 --> 01:07:17,839

considered

1582

01:07:22,710 --> 01:07:21,119

and the situation is not entirely

1583

01:07:25,190 --> 01:07:22,720

reducible to just

1584

01:07:27,510 --> 01:07:25,200

one i just watched this amazing

1585

01:07:30,870 --> 01:07:27,520

documentary by a celebrity chef

1586

01:07:31,750 --> 01:07:30,880

who said that white flour and white rice

1587

01:07:35,270 --> 01:07:31,760

are causing

1588

01:07:39,430 --> 01:07:35,280

westerners to become obese it's called

1589

01:07:40,069 --> 01:07:39,440

the no pale diet not just because of the

1590

01:07:43,109 --> 01:07:40,079

color

1591

01:07:46,150 --> 01:07:43,119

but because they put the pale

1592

01:07:46,630 --> 01:07:46,160

in paleo all i need do is permanently

1593

01:07:49,990 --> 01:07:46,640

cut

1594

01:07:53,270 --> 01:07:50,000

them out of my diet and i'll be trim

1595

01:07:56,390 --> 01:07:53,280

aside from the appeal to tradition

1596

01:07:57,430 --> 01:07:56,400

and naturalistic fallacies coming into

1597

01:08:00,630 --> 01:07:57,440

play when we

1598

01:08:03,910 --> 01:08:00,640

try and base our diet on what our

1599

01:08:07,109 --> 01:08:03,920

ancestors supposedly ate this

1600

01:08:10,230 --> 01:08:07,119

focus on white grains or even just

1601
01:08:13,510 --> 01:08:10,240
food as the single cause of obesity

1602
01:08:15,029 --> 01:08:13,520
is an oversimplification of what the

1603
01:08:18,149 --> 01:08:15,039
multiple causes

1604
01:08:21,749 --> 01:08:18,159
really are we need to consider

1605
01:08:22,870 --> 01:08:21,759
many factors such as overall caloric

1606
01:08:27,430 --> 01:08:22,880
intake

1607
01:08:32,309 --> 01:08:27,440
genetics mental health education

1608
01:08:35,510 --> 01:08:32,319
resources physical activity and so on

1609
01:08:37,110 --> 01:08:35,520
the president as a secret savior doing

1610
01:08:40,070 --> 01:08:37,120
god's work

1611
01:08:41,590 --> 01:08:40,080
children being trafficked by democrats

1612
01:08:44,789 --> 01:08:41,600
and celebrities in

1613
01:08:46,550 --> 01:08:44,799

underground tunnels there's no

1614

01:08:49,229 --> 01:08:46,560

explanation for believing this

1615

01:08:51,269 --> 01:08:49,239

q a non nonsense other than that

1616

01:08:54,149 --> 01:08:51,279

conspiracy theorists

1617

01:08:55,269 --> 01:08:54,159

must be plain gullible it's hard to

1618

01:08:57,749 --> 01:08:55,279

understand how

1619

01:08:59,990 --> 01:08:57,759

anyone could believe in this kind of

1620

01:09:03,349 --> 01:09:00,000

conspiracy theory

1621

01:09:05,590 --> 01:09:03,359

however believers are not initially

1622

01:09:06,149 --> 01:09:05,600

presented with the information in a way

1623

01:09:10,470 --> 01:09:06,159

that is

1624

01:09:10,870 --> 01:09:10,480

obviously ludicrous gullibility may be

1625

01:09:14,789 --> 01:09:10,880

one

1626
01:09:17,910 --> 01:09:14,799
factor but the beliefs happen gradually

1627
01:09:20,870 --> 01:09:17,920
based on grains of truth and occur

1628
01:09:22,789 --> 01:09:20,880
when there is vulnerability and feelings

1629
01:09:27,510 --> 01:09:22,799
of powerlessness

1630
01:09:30,309 --> 01:09:27,520
mistrust disinformation political bias

1631
01:09:31,749 --> 01:09:30,319
sense of community and a range of other

1632
01:09:34,630 --> 01:09:31,759
factors

1633
01:09:35,349 --> 01:09:34,640
today i talked to my friend about her

1634
01:09:38,789 --> 01:09:35,359
neighbor

1635
01:09:41,189 --> 01:09:38,799
who refuses to vaccinate her children

1636
01:09:43,829 --> 01:09:41,199
we're going to gather some facts and

1637
01:09:46,870 --> 01:09:43,839
once she has the right information

1638
01:09:49,990 --> 01:09:46,880

i'm sure she'll change her mind

1639

01:09:53,590 --> 01:09:50,000

if only human beings were so easily

1640

01:09:56,709 --> 01:09:53,600

influenced by the facts however

1641

01:09:58,709 --> 01:09:56,719

we are all primarily motivated by our

1642

01:10:02,470 --> 01:09:58,719

emotions and biases

1643

01:10:05,070 --> 01:10:02,480

no matter how rational we think we are

1644

01:10:06,870 --> 01:10:05,080

it's a mistake to assume that the

1645

01:10:09,510 --> 01:10:06,880

anti-vaccination crowd are

1646

01:10:10,229 --> 01:10:09,520

simply watching youtube and busy

1647

01:10:14,310 --> 01:10:10,239

obtaining

1648

01:10:16,709 --> 01:10:14,320

false information about vaccines online

1649

01:10:17,590 --> 01:10:16,719

their information is also coming from

1650

01:10:21,030 --> 01:10:17,600

some

1651

01:10:24,229 --> 01:10:21,040

alternative health practitioners

1652

01:10:27,350 --> 01:10:24,239

television the local health food store

1653

01:10:31,669 --> 01:10:27,360

trusted peers family members and

1654

01:10:34,149 --> 01:10:31,679

even maverick doctors and researchers

1655

01:10:37,110 --> 01:10:34,159

members of the anti-vaccination movement

1656

01:10:40,310 --> 01:10:37,120

have all been exposed to the facts

1657

01:10:41,990 --> 01:10:40,320

yet the beliefs persist for various

1658

01:10:45,110 --> 01:10:42,000

other reasons that include

1659

01:10:46,990 --> 01:10:45,120

fear government or pharmaceutical

1660

01:10:50,470 --> 01:10:47,000

company mistrust

1661

01:10:53,910 --> 01:10:50,480

disinformation campaigns grief

1662

01:10:57,270 --> 01:10:53,920

vaccine court payouts religious beliefs

1663

01:10:58,110 --> 01:10:57,280

conspiracy theories and the list goes

1664

01:11:00,790 --> 01:10:58,120

on

1665

01:11:03,270 --> 01:11:00,800

[Music]

1666

01:11:05,830 --> 01:11:03,280

as critical thinkers we know it can be

1667

01:11:09,430 --> 01:11:05,840

necessary to cut through the fluff

1668

01:11:12,229 --> 01:11:09,440

by applying occam's razor and recognize

1669

01:11:13,590 --> 01:11:12,239

that the simplest explanation is often

1670

01:11:17,189 --> 01:11:13,600

the right one

1671

01:11:19,669 --> 01:11:17,199

however our reasoning may be faulty

1672

01:11:20,709 --> 01:11:19,679

if we take an overly reductionist

1673

01:11:23,750 --> 01:11:20,719

approach

1674

01:11:27,220 --> 01:11:23,760

and attribute single causes to

1675

01:11:35,510 --> 01:11:27,230

complicated situations

1676
01:11:40,229 --> 01:11:38,830
this time we'll look at argument from

1677
01:11:42,550 --> 01:11:40,239
gibberish

1678
01:11:44,550 --> 01:11:42,560
this occurs when a person makes a claim

1679
01:11:46,550 --> 01:11:44,560
that something is true

1680
01:11:48,630 --> 01:11:46,560
then supports that claim with an

1681
01:11:51,270 --> 01:11:48,640
explanation that includes highly

1682
01:11:54,390 --> 01:11:51,280
technical jargon from a field that is

1683
01:11:55,910 --> 01:11:54,400
difficult to comprehend it also occurs

1684
01:11:59,189 --> 01:11:55,920
when a claim is based on

1685
01:12:01,669 --> 01:11:59,199
pure gibberish in lieu of a strong

1686
01:12:02,470 --> 01:12:01,679
argument both of these types of

1687
01:12:05,510 --> 01:12:02,480
arguments

1688
01:12:06,390 --> 01:12:05,520

are deliberately obtuse and designed to

1689

01:12:09,189 --> 01:12:06,400

shut down

1690

01:12:10,709 --> 01:12:09,199

or confuse the person questioning the

1691

01:12:13,149 --> 01:12:10,719

claim

1692

01:12:15,830 --> 01:12:13,159

it relies on a person's lack of

1693

01:12:19,110 --> 01:12:15,840

familiarity with the jargon

1694

01:12:22,310 --> 01:12:19,120

or their scientific illiteracy and

1695

01:12:25,510 --> 01:12:22,320

commonly appears in the pseudosciences

1696

01:12:28,950 --> 01:12:25,520

that make reference to such notions as

1697

01:12:32,790 --> 01:12:28,960

energy fields my neighbor was

1698

01:12:34,790 --> 01:12:32,800

researching transcendental meditation

1699

01:12:36,390 --> 01:12:34,800

and came across some information about

1700

01:12:39,350 --> 01:12:36,400

how to achieve

1701

01:12:40,149 --> 01:12:39,360

humankind's ascension into higher

1702

01:12:43,350 --> 01:12:40,159

creational

1703

01:12:46,149 --> 01:12:43,360

forms he said the information could be

1704

01:12:47,270 --> 01:12:46,159

difficult to follow for people not well

1705

01:12:50,630 --> 01:12:47,280

versed in

1706

01:12:53,669 --> 01:12:50,640

spiritual science but the claims were

1707

01:12:54,790 --> 01:12:53,679

all backed by solid arguments rather

1708

01:12:58,070 --> 01:12:54,800

than providing

1709

01:13:00,550 --> 01:12:58,080

solid arguments it is more common to see

1710

01:13:03,510 --> 01:13:00,560

gibberish being used to create such

1711

01:13:06,709 --> 01:13:03,520

arguments to back up the claim

1712

01:13:07,990 --> 01:13:06,719

for example you may see something like a

1713

01:13:11,110 --> 01:13:08,000

claim that

1714

01:13:13,030 --> 01:13:11,120

sentient beings can collectively raise

1715

01:13:14,149 --> 01:13:13,040

the level of the matrix of their

1716

01:13:16,390 --> 01:13:14,159

creation

1717

01:13:19,270 --> 01:13:16,400

through the synchronized raising of

1718

01:13:22,310 --> 01:13:19,280

their vibrational energy

1719

01:13:22,709 --> 01:13:22,320

the role of the earth matrix integrates

1720

01:13:25,790 --> 01:13:22,719

the

1721

01:13:27,750 --> 01:13:25,800

individual realities into that of

1722

01:13:30,709 --> 01:13:27,760

space-time fields

1723

01:13:31,990 --> 01:13:30,719

and awareness systematically flows back

1724

01:13:35,189 --> 01:13:32,000

from the cosmos

1725

01:13:39,110 --> 01:13:35,199

to the consciousness of the human mind

1726

01:13:41,990 --> 01:13:39,120

achieving higher states of evolution

1727

01:13:43,669 --> 01:13:42,000

this kind of word salad is intended to

1728

01:13:46,229 --> 01:13:43,679

sound as though it was actually

1729

01:13:49,189 --> 01:13:46,239

based in science and is deliberately

1730

01:13:51,350 --> 01:13:49,199

phrased in a way to intimidate

1731

01:13:52,950 --> 01:13:51,360

it uses big words and relies on

1732

01:13:56,709 --> 01:13:52,960

scientific illiteracy

1733

01:13:58,709 --> 01:13:56,719

in order to sound convincing it is hoped

1734

01:13:59,669 --> 01:13:58,719

that the reader or listener will simply

1735

01:14:02,950 --> 01:13:59,679

defer

1736

01:14:04,470 --> 01:14:02,960

and accept the argument in an i'll take

1737

01:14:07,669 --> 01:14:04,480

your word for that

1738

01:14:09,590 --> 01:14:07,679

kind of way i saw this ad on my social

1739

01:14:12,110 --> 01:14:09,600

media news feed today

1740

01:14:13,510 --> 01:14:12,120

it claims that the biocharger

1741

01:14:16,790 --> 01:14:13,520

revitalizer

1742

01:14:18,070 --> 01:14:16,800

is a simple and inexpensive device

1743

01:14:20,550 --> 01:14:18,080

designed as an

1744

01:14:21,669 --> 01:14:20,560

integrated energy system that subtly

1745

01:14:25,030 --> 01:14:21,679

stimulates and

1746

01:14:28,550 --> 01:14:25,040

energizes the body's own energy

1747

01:14:30,950 --> 01:14:28,560

in a safe and therapeutic way it has the

1748

01:14:33,990 --> 01:14:30,960

potential to cure fatigue

1749

01:14:36,630 --> 01:14:34,000

generate vitality and enhance

1750

01:14:37,669 --> 01:14:36,640

athletic performance depending on the

1751

01:14:41,030 --> 01:14:37,679

potential of the

1752

01:14:44,550 --> 01:14:41,040

individual user the device produces

1753

01:14:48,390 --> 01:14:44,560

digitally pulsed electromagnetic

1754

01:14:50,790 --> 01:14:48,400

fields p-e-m-p through a range of

1755

01:14:51,350 --> 01:14:50,800

frequencies that the cell can vibrate

1756

01:14:55,030 --> 01:14:51,360

and

1757

01:14:57,350 --> 01:14:55,040

resonate with in a customized way

1758

01:14:59,750 --> 01:14:57,360

such claims often go into technical

1759

01:15:00,790 --> 01:14:59,760

detail in the hope that the jargon and

1760

01:15:03,669 --> 01:15:00,800

references to

1761

01:15:04,790 --> 01:15:03,679

actual physics and biology will be taken

1762

01:15:07,990 --> 01:15:04,800

for granted as

1763

01:15:11,350 --> 01:15:08,000

accurate so-called

1764

01:15:13,830 --> 01:15:11,360

energy medicine relies on debunked ideas

1765

01:15:15,510 --> 01:15:13,840

such as that the body can be charged by

1766

01:15:18,790 --> 01:15:15,520

a biocompatible

1767

01:15:21,910 --> 01:15:18,800

energy field the belief is that the

1768

01:15:24,229 --> 01:15:21,920

individual cells in the body selectively

1769

01:15:27,189 --> 01:15:24,239

resonate with the vibrations and

1770

01:15:30,310 --> 01:15:27,199

frequencies surrounding them

1771

01:15:33,510 --> 01:15:30,320

unhealthy cells supposedly absorb

1772

01:15:36,310 --> 01:15:33,520

more energy as the voltage they generate

1773

01:15:37,990 --> 01:15:36,320

is lower than healthy cells capable of

1774

01:15:41,270 --> 01:15:38,000

producing more of their own

1775

01:15:43,590 --> 01:15:41,280

energy requirements apparently

1776

01:15:46,310 --> 01:15:43,600

all that is required is to provide a

1777

01:15:49,030 --> 01:15:46,320

broad enough range of pulsed harmonics

1778

01:15:52,070 --> 01:15:49,040

and a bandwidth of frequencies in which

1779

01:15:55,430 --> 01:15:52,080

the cells can find their match

1780

01:15:56,950 --> 01:15:55,440

however in the words of skeptoc harriet

1781

01:15:59,910 --> 01:15:56,960

hall

1782

01:16:01,270 --> 01:15:59,920

never mind that cells don't vibrate

1783

01:16:04,950 --> 01:16:01,280

don't resonate

1784

01:16:06,070 --> 01:16:04,960

and don't have frequencies a tuning fork

1785

01:16:09,270 --> 01:16:06,080

can vibrate

1786

01:16:13,430 --> 01:16:09,280

and a radio station can have a frequency

1787

01:16:14,870 --> 01:16:13,440

but a pancreas can't i read a newspaper

1788

01:16:18,070 --> 01:16:14,880

article that said when

1789

01:16:19,669 --> 01:16:18,080

dismissing astrology skeptics

1790

01:16:22,310 --> 01:16:19,679

claim that there is no connection

1791

01:16:25,590 --> 01:16:22,320

between the stars and the human mind

1792

01:16:27,510 --> 01:16:25,600

yet science tells us this is not so

1793

01:16:29,950 --> 01:16:27,520

and we can make connections between the

1794

01:16:32,790 --> 01:16:29,960

two based on an understanding of

1795

01:16:35,350 --> 01:16:32,800

electromagnetism some astrologers draw

1796

01:16:37,430 --> 01:16:35,360

on astrophysics and neuroscience when

1797

01:16:39,510 --> 01:16:37,440

making claims that astrology is

1798

01:16:42,709 --> 01:16:39,520

scientifically proven

1799

01:16:43,430 --> 01:16:42,719

and they concoct explanations that

1800

01:16:46,229 --> 01:16:43,440

combine

1801

01:16:47,030 --> 01:16:46,239

facts from both fields to produce a

1802

01:16:50,950 --> 01:16:47,040

whole new

1803

01:16:53,590 --> 01:16:50,960

false concept for example

1804

01:16:55,910 --> 01:16:53,600

you may see an explanation that states

1805

01:16:59,350 --> 01:16:55,920

the effect of multiple neurons

1806

01:17:02,470 --> 01:16:59,360

firing together in an area of the brain

1807

01:17:06,149 --> 01:17:02,480

generates a measurable magnetic field

1808

01:17:08,470 --> 01:17:06,159

outside the head these neuromagnetic

1809

01:17:11,030 --> 01:17:08,480

signals generated by the brain

1810

01:17:14,550 --> 01:17:11,040

are only around a billionth of the

1811

01:17:17,270 --> 01:17:14,560

strength of the earth's magnetic field

1812

01:17:18,310 --> 01:17:17,280

so it is no great leap to conclude that

1813

01:17:22,149 --> 01:17:18,320

the sun

1814

01:17:24,310 --> 01:17:22,159

moon and planets all which create tidal

1815

01:17:24,830 --> 01:17:24,320

effects in the earth's magnetosphere and

1816

01:17:27,990 --> 01:17:24,840

cause

1817

01:17:29,270 --> 01:17:28,000

fluctuations in the geomagnetic surface

1818

01:17:31,110 --> 01:17:29,280

of the earth

1819

01:17:33,030 --> 01:17:31,120

must have an influence on the human

1820

01:17:35,430 --> 01:17:33,040

brain

1821

01:17:38,630 --> 01:17:35,440

not only is this a false claim that we

1822

01:17:41,990 --> 01:17:38,640

can easily detect by the weasel words

1823

01:17:44,709 --> 01:17:42,000

no great leap to conclude

1824

01:17:46,310 --> 01:17:44,719

the astrologers are hoping to bamboozle

1825

01:17:48,470 --> 01:17:46,320

their target audience with the

1826

01:17:51,750 --> 01:17:48,480

scientific vocabulary

1827

01:17:58,390 --> 01:17:51,760

and try to capitalize on the scientific

1828

01:17:59,910 --> 01:17:58,400

illiteracy of their followers you may

1829

01:18:02,390 --> 01:17:59,920

have heard the expression

1830

01:18:04,870 --> 01:18:02,400

if you can't dazzle them with brilliance

1831

01:18:07,270 --> 01:18:04,880

baffle them with bs

1832

01:18:09,830 --> 01:18:07,280

this is definitely applicable to all

1833

01:18:12,390 --> 01:18:09,840

arguments from gibberish

1834

01:18:14,630 --> 01:18:12,400

whenever we lack the scientific literacy

1835

01:18:15,990 --> 01:18:14,640

to counter these types of arguments

1836

01:18:18,550 --> 01:18:16,000

specifically

1837

01:18:19,430 --> 01:18:18,560

we can still be quite suspicious of

1838

01:18:23,430 --> 01:18:19,440

slabs of

1839

01:18:25,910 --> 01:18:23,440

texts plucked from scientific papers etc

1840

01:18:26,790 --> 01:18:25,920

to create gibberish in support of

1841

01:18:30,870 --> 01:18:26,800

dubious

1842

01:18:33,430 --> 01:18:30,880

claims we can look for weasel words

1843

01:18:35,510 --> 01:18:33,440

and do some research that debunks the

1844

01:18:38,709 --> 01:18:35,520

nonsense

1845

01:18:41,830 --> 01:18:38,719

we can also ask those making the claim

1846

01:18:44,550 --> 01:18:41,840

to explain the science further and

1847

01:18:46,790 --> 01:18:44,560

are likely to discover that their

1848

01:18:54,300 --> 01:18:46,800

ability to do so can be

1849

01:18:57,110 --> 01:18:54,310

extremely limited throwing up a red flag

1850

01:18:59,189 --> 01:18:57,120

[Music]

1851

01:19:00,149 --> 01:18:59,199

knowing a logical fallacy when you hear

1852

01:19:02,950 --> 01:19:00,159

one and

1853

01:19:05,430 --> 01:19:02,960

even knowing its name is important when

1854

01:19:08,870 --> 01:19:05,440

arguing your point of view

1855

01:19:11,270 --> 01:19:08,880

however you may come across as arrogant

1856

01:19:12,070 --> 01:19:11,280

and not get very far if you call it out

1857

01:19:14,390 --> 01:19:12,080

by name

1858

01:19:16,470 --> 01:19:14,400

to your opponent when you hear it being

1859

01:19:19,030 --> 01:19:16,480

used

1860

01:19:19,830 --> 01:19:19,040

if your opponent calls you out for using

1861

01:19:22,070 --> 01:19:19,840

one

1862

01:19:25,110 --> 01:19:22,080

it's time to stop and think about how

1863

01:19:27,270 --> 01:19:25,120

you are making your case

1864

01:19:28,470 --> 01:19:27,280

use your knowledge of logical fallacies

1865

01:19:31,189 --> 01:19:28,480

wisely

1866

01:19:32,470 --> 01:19:31,199

and remember that even if your point of

1867

01:19:34,790 --> 01:19:32,480

view is right

1868

01:19:36,070 --> 01:19:34,800

and you know all the pitfalls in arguing

1869

01:19:38,550 --> 01:19:36,080

your case

1870

01:19:39,750 --> 01:19:38,560

it doesn't always mean you'll win on the

1871

01:19:43,030 --> 01:19:39,760

day

1872

01:19:48,630 --> 01:19:43,040

and as skeptics we must also remember

1873

01:20:05,900 --> 01:19:50,390

i'm michelle bickersma from the vic

1874

01:20:05,910 --> 01:20:16,830

[Music]

1875

01:20:46,470 --> 01:20:19,240

do

1876

01:21:12,830 --> 01:20:57,370

[Music]

1877

01:21:12,840 --> 01:21:16,080

do