



1
00:00:24,460 --> 00:00:16,080

[Music]

2
00:00:26,530 --> 00:00:24,470

as dean made pretty clear in his talk

3
00:00:26,769 --> 00:00:26,540

what he's looking for will be all we

4
00:00:29,080 --> 00:00:26,779

need

5
00:00:31,630 --> 00:00:29,090

today is a completely different crazy of

6
00:00:33,030 --> 00:00:31,640

view of reality and I have a crazy view

7
00:00:36,610 --> 00:00:33,040

of reality to present you this morning

8
00:00:38,680 --> 00:00:36,620

it's a rather provocative talk about a

9
00:00:41,650 --> 00:00:38,690

possible explanation of all of a reality

10
00:00:42,850 --> 00:00:41,660

and if I'm saying something this radical

11
00:00:44,590 --> 00:00:42,860

it's always good to have some backup

12
00:00:46,360 --> 00:00:44,600

from people that know what they're

13
00:00:47,980 --> 00:00:46,370

talking about and they're two

14

00:00:51,010 --> 00:00:47,990

astrophysicists in the last century that

15

00:00:52,270 --> 00:00:51,020

I admire greatly James Gene's and Sir

16

00:00:55,450 --> 00:00:52,280

Arthur Eddington and they had this to

17

00:00:56,830 --> 00:00:55,460

say Gene's wrote the stream of knowledge

18

00:01:00,130 --> 00:00:56,840

is heading towards a non-mechanical

19

00:01:01,569 --> 00:01:00,140

reality the universe begins to look more

20

00:01:05,170 --> 00:01:01,579

like a great thought than like a great

21

00:01:06,760 --> 00:01:05,180

machine mind no longer appears as an

22

00:01:09,580 --> 00:01:06,770

accidental intruder into the realm of

23

00:01:10,989 --> 00:01:09,590

matter we ought rather to hail it as the

24

00:01:12,999 --> 00:01:10,999

creator and governor of the realm of

25

00:01:14,139 --> 00:01:13,009

matter well that's pretty clear that

26

00:01:16,840 --> 00:01:14,149

he's looking for something different

27

00:01:19,660 --> 00:01:16,850

than a typical mechanical explanation of

28

00:01:21,340 --> 00:01:19,670

reality Sir Arthur Eddington was the one

29

00:01:22,719 --> 00:01:21,350

who I made Einstein famous he was the

30

00:01:24,910 --> 00:01:22,729

one who led the Eclipse expedition in

31

00:01:26,620 --> 00:01:24,920

1919 that measured the deflection of

32

00:01:27,849 --> 00:01:26,630

starlight that proved that I Syme was

33

00:01:29,230 --> 00:01:27,859

correct with respect to his theory of

34

00:01:32,349 --> 00:01:29,240

gravitation the general theory of

35

00:01:35,230 --> 00:01:32,359

relativity and it had this to say about

36

00:01:37,209 --> 00:01:35,240

cognition I think that those who would

37

00:01:38,440 --> 00:01:37,219

wish to take on mission of nothing but

38

00:01:41,139 --> 00:01:38,450

the measurements of the scientific world

39

00:01:42,429 --> 00:01:41,149

made by our sense organs are shirking

40

00:01:45,039 --> 00:01:42,439

one of the most immediate facts of

41

00:01:47,769 --> 00:01:45,049

experience namely that consciousness is

42

00:01:50,499 --> 00:01:47,779

not holy nor even primarily an advice

43

00:01:53,289 --> 00:01:50,509

for receiving sense impressions so he

44

00:01:54,699 --> 00:01:53,299

too believed that consciousness was

45

00:01:57,099 --> 00:01:54,709

something far greater than simply an

46

00:01:59,349 --> 00:01:57,109

epiphenomenon of the well of reality

47

00:02:00,849 --> 00:01:59,359

these are two books that he wrote the

48

00:02:02,499 --> 00:02:00,859

one on the right the mathematical theory

49

00:02:04,359 --> 00:02:02,509

of relativity is the one I used when I

50

00:02:06,370 --> 00:02:04,369

was in graduate school and it's the was

51
00:02:09,279 --> 00:02:06,380
the first textbook on relativity written

52
00:02:10,690 --> 00:02:09,289
in the 1920s full of tensor calculus the

53
00:02:13,630 --> 00:02:10,700
other one is the science and the unseen

54
00:02:15,699 --> 00:02:13,640
world and good talks about edingtons

55
00:02:19,660 --> 00:02:15,709
beliefs and other reality beyond the

56
00:02:20,620 --> 00:02:19,670
physical so one possible interpretation

57
00:02:22,330 --> 00:02:20,630
of real

58
00:02:24,580 --> 00:02:22,340
is that physical the physical world is

59
00:02:26,010 --> 00:02:24,590
real and all there is okay that's the so

60
00:02:28,570 --> 00:02:26,020
the typical scientific worldview that

61
00:02:32,320 --> 00:02:28,580
you see what you see here is what you

62
00:02:33,970 --> 00:02:32,330
what you get you get what you see in

63
00:02:35,140 --> 00:02:33,980

other explanations the physical world is

64

00:02:37,390 --> 00:02:35,150

real but other realities exist

65

00:02:38,920 --> 00:02:37,400

interestingly this could infer both the

66

00:02:41,740 --> 00:02:38,930

spiritual world view where you have

67

00:02:43,780 --> 00:02:41,750

other realms of who knows what could

68

00:02:45,580 --> 00:02:43,790

also refer to the modern theories of an

69

00:02:48,970 --> 00:02:45,590

M theory of physics where you have other

70

00:02:50,920 --> 00:02:48,980

universes other brains other dimensions

71

00:02:52,360 --> 00:02:50,930

so it could actually apply to very

72

00:02:54,010 --> 00:02:52,370

different things but it implies that

73

00:02:57,250 --> 00:02:54,020

there are two at least two kinds of

74

00:03:02,320 --> 00:02:57,260

reality the the room of consciousness

75

00:03:03,970 --> 00:03:02,330

and some other who knows what a third

76
00:03:05,530 --> 00:03:03,980
one that's being talked about more and

77
00:03:07,300 --> 00:03:05,540
more today is that the physical world is

78
00:03:07,780 --> 00:03:07,310
a technologically based simulation and

79
00:03:09,820 --> 00:03:07,790
so are we

80
00:03:11,680 --> 00:03:09,830
now in this view the simulation is is

81
00:03:14,200 --> 00:03:11,690
run on some kind of a supercomputer in

82
00:03:15,550 --> 00:03:14,210
the far future by by beings maybe not

83
00:03:17,550 --> 00:03:15,560
much different than you and I but simply

84
00:03:19,870 --> 00:03:17,560
I'll have more technology available

85
00:03:21,820 --> 00:03:19,880
creating the the realm of their

86
00:03:24,820 --> 00:03:21,830
ancestors which are us and seeing how we

87
00:03:27,070 --> 00:03:24,830
would survive in a world that's created

88
00:03:28,240 --> 00:03:27,080

by them in this view unfortunately we

89

00:03:29,740 --> 00:03:28,250

are nothing special we were we were

90

00:03:31,540 --> 00:03:29,750

simply part of the calculations part of

91

00:03:33,220 --> 00:03:31,550

the computations we think where we were

92

00:03:35,530 --> 00:03:33,230

live physical beings but in fact were

93

00:03:37,720 --> 00:03:35,540

total simulations were nothing but bits

94

00:03:40,750 --> 00:03:37,730

of bits and bytes in this computer a

95

00:03:41,920 --> 00:03:40,760

rather depressing view of things when

96

00:03:43,540 --> 00:03:41,930

I'm going to present as a view that's

97

00:03:45,580 --> 00:03:43,550

this sort of parallel to this but it's

98

00:03:48,010 --> 00:03:45,590

very optimistic that makes us basically

99

00:03:49,960 --> 00:03:48,020

that makes us the real McCoy and the

100

00:03:53,920 --> 00:03:49,970

world the the virtual reality that we

101
00:03:56,080 --> 00:03:53,930
operate within so if we have a virtual

102
00:03:57,430 --> 00:03:56,090
reality that we create nowadays we might

103
00:03:59,199 --> 00:03:57,440
have something like this where we create

104
00:04:00,310 --> 00:03:59,209
an avatar and the avatar is about to go

105
00:04:02,830 --> 00:04:00,320
out and fight or do whatever he does

106
00:04:04,510 --> 00:04:02,840
along this plane and this is the the

107
00:04:07,120 --> 00:04:04,520
world of virtual reality that you can

108
00:04:09,760 --> 00:04:07,130
buy off the shelf today well assume that

109
00:04:11,199 --> 00:04:09,770
instead of there being us creating a

110
00:04:13,540 --> 00:04:11,209
virtual reality it's some great

111
00:04:14,890 --> 00:04:13,550
consciousness and unfortunately I can't

112
00:04:16,599 --> 00:04:14,900
cut your great consciousness in any way

113
00:04:17,949 --> 00:04:16,609

other than you know this old man up here

114

00:04:18,670 --> 00:04:17,959

with a beard in the clouds so don't take

115

00:04:21,190 --> 00:04:18,680

that too seriously

116

00:04:23,050 --> 00:04:21,200

this is consciousness up there the

117

00:04:24,640 --> 00:04:23,060

conscience creates a reality and then

118

00:04:26,740 --> 00:04:24,650

enters into the physical reality that's

119

00:04:30,850 --> 00:04:26,750

been created to play the game become the

120

00:04:32,710 --> 00:04:30,860

avatar are you living in a computer

121

00:04:34,870 --> 00:04:32,720

simulation well this idea of the

122

00:04:36,400 --> 00:04:34,880

computer simulation is gaining ground

123

00:04:39,460 --> 00:04:36,410

and one of the leading leaders leading

124

00:04:41,920 --> 00:04:39,470

leaders one of the many gentleman in

125

00:04:43,840 --> 00:04:41,930

this field is Nick Bostrom at Oxford

126

00:04:47,020 --> 00:04:43,850

University who published a very full a

127

00:04:50,830 --> 00:04:47,030

very thought-provoking paper in the

128

00:04:52,030 --> 00:04:50,840

physical philosophical quarterly and

129

00:04:54,550 --> 00:04:52,040

this has gotten quite a bit of attention

130

00:04:56,410 --> 00:04:54,560

to the idea of simulations of virtual

131

00:04:58,960 --> 00:04:56,420

realities that apply on the grandest

132

00:05:01,060 --> 00:04:58,970

scale John Turney writing the in the New

133

00:05:03,820 --> 00:05:01,070

York Times had this to say about the

134

00:05:05,980 --> 00:05:03,830

bostrom journey writes until I talked to

135

00:05:07,960 --> 00:05:05,990

Nick Bostrom a philosopher Docs word

136

00:05:09,880 --> 00:05:07,970

University it never occurred to me that

137

00:05:12,160 --> 00:05:09,890

our universe might be somebody else's

138

00:05:13,660 --> 00:05:12,170

hobby I hadn't imagined that the

139

00:05:15,640 --> 00:05:13,670

omniscient omnipotent creator of the

140

00:05:17,830 --> 00:05:15,650

heavens and earth could be an advanced

141

00:05:19,810 --> 00:05:17,840

version of a guy who spends his weekends

142

00:05:23,860 --> 00:05:19,820

building model railroads or overseeing

143

00:05:25,330 --> 00:05:23,870

videogame worlds like the Sims but it

144

00:05:26,770 --> 00:05:25,340

now seems quite possible in fact if you

145

00:05:29,500 --> 00:05:26,780

accept a pretty reasonable assumption of

146

00:05:31,060 --> 00:05:29,510

dr. Bostrom's it's almost a mathematical

147

00:05:36,370 --> 00:05:31,070

certainty that we're living at someone

148

00:05:37,930 --> 00:05:36,380

else's computer simulation so what is

149

00:05:40,710 --> 00:05:37,940

another possibility that we ought to

150

00:05:42,820 --> 00:05:40,720

consider in terms of a model of reality

151
00:05:44,440 --> 00:05:42,830
it's the last one that the physical

152
00:05:46,420 --> 00:05:44,450
world is a conscience based simulation

153
00:05:48,400 --> 00:05:46,430
and consciousness is all there is and

154
00:05:50,710 --> 00:05:48,410
includes us so in this view there's only

155
00:05:52,150 --> 00:05:50,720
one thing there's not many things during

156
00:05:54,220 --> 00:05:52,160
kinds of things to try to explain like

157
00:05:56,110 --> 00:05:54,230
consciousness physical realities other

158
00:05:57,490 --> 00:05:56,120
realities beyond that there's only one

159
00:05:58,840 --> 00:05:57,500
thing and that's consciousness and

160
00:06:01,810 --> 00:05:58,850
that's responsible for everything in

161
00:06:04,300 --> 00:06:01,820
terms of both creating a world that it

162
00:06:06,940 --> 00:06:04,310
resides in that it it lives in and

163
00:06:09,130 --> 00:06:06,950

experiences and in terms of their gut

164

00:06:10,300 --> 00:06:09,140

being all that there is that that's and

165

00:06:11,470 --> 00:06:10,310

we in fact we know what it is it

166

00:06:14,080 --> 00:06:11,480

constants something we experience

167

00:06:15,970 --> 00:06:14,090

ourselves therefore and we can't explain

168

00:06:17,440 --> 00:06:15,980

it in terms of anything other than then

169

00:06:18,670 --> 00:06:17,450

what it is we can't explain in terms of

170

00:06:19,930 --> 00:06:18,680

anything simpler because to do that

171

00:06:21,970 --> 00:06:19,940

would be to back away from the problem

172

00:06:25,720 --> 00:06:21,980

so in this sense conscience is already

173

00:06:27,310 --> 00:06:25,730

resolved as as a something that we're

174

00:06:29,560 --> 00:06:27,320

trying to understand we know what it is

175

00:06:33,190 --> 00:06:29,570

we have it it's our it's our thoughts in

176

00:06:34,120 --> 00:06:33,200

our minds now what kind of evidence

177

00:06:36,280 --> 00:06:34,130

might that be for this sort of thing

178

00:06:39,760 --> 00:06:36,290

well let's take a measurement

179

00:06:42,070 --> 00:06:39,770

this shows the reflection of a mountain

180

00:06:43,659 --> 00:06:42,080

in Lake and shows it about some small

181

00:06:44,620 --> 00:06:43,669

percentage of the light is reflected off

182

00:06:48,580 --> 00:06:44,630

the surface of the lake

183

00:06:51,580 --> 00:06:48,590

in fact it's for about 4% well

184

00:06:54,400 --> 00:06:51,590

this is a view a diagram from the book

185

00:06:57,310 --> 00:06:54,410

by Fineman on QED it talks about a light

186

00:06:58,900 --> 00:06:57,320

source and pinching a glass surface as

187

00:07:01,530 --> 00:06:58,910

the light hitting the lake would be an

188

00:07:03,340 --> 00:07:01,540

analogy of and there are about 4 photons

189

00:07:05,080 --> 00:07:03,350

reflected off the front surface for

190

00:07:08,200 --> 00:07:05,090

every 100 that pass into the into the

191

00:07:10,240 --> 00:07:08,210

medium for photons on average are the

192

00:07:12,910 --> 00:07:10,250

ones that reflect from the surface

193

00:07:14,950 --> 00:07:12,920

well the question is how does every 25th

194

00:07:17,770 --> 00:07:14,960

photon that is one out of every four of

195

00:07:19,540 --> 00:07:17,780

125 photons on average know it is

196

00:07:21,660 --> 00:07:19,550

supposed to be reflected instead of

197

00:07:24,970 --> 00:07:21,670

being transmitted how does it know that

198

00:07:27,850 --> 00:07:24,980

after all all photons are identical the

199

00:07:30,070 --> 00:07:27,860

125 reflection is true even for a one at

200

00:07:32,080 --> 00:07:30,080

a time flux you have one photon coming

201
00:07:33,640 --> 00:07:32,090
through and then you wait maybe I grow

202
00:07:35,260 --> 00:07:33,650
an Abbe lunch send the second photon

203
00:07:37,420 --> 00:07:35,270
through it's still going to be one out

204
00:07:39,130 --> 00:07:37,430
of 25 that does the the trick of

205
00:07:40,870 --> 00:07:39,140
bouncing back and being the one that's

206
00:07:42,970 --> 00:07:40,880
reflected how does it know what to do

207
00:07:44,830 --> 00:07:42,980
how to do this who tells photons what to

208
00:07:46,210 --> 00:07:44,840
do and similarly in a two-slit

209
00:07:48,220 --> 00:07:46,220
experiment I don't need to talk too much

210
00:07:51,430 --> 00:07:48,230
about the details of this because it was

211
00:07:52,960 --> 00:07:51,440
covered quite well in Beanstalk Fineman

212
00:07:56,860 --> 00:07:52,970
had this to say about explaining maybe

213
00:07:58,870 --> 00:07:56,870

the double slit experiment in terms of a

214

00:08:01,270 --> 00:07:58,880

what happens when single photons and pin

215

00:08:04,240 --> 00:08:01,280

John the slits electrons like bullets

216

00:08:06,190 --> 00:08:04,250

strike the target one at a time yet like

217

00:08:08,140 --> 00:08:06,200

waves they create an interference

218

00:08:10,420 --> 00:08:08,150

pattern if each electron passes

219

00:08:12,400 --> 00:08:10,430

individually through one slit with what

220

00:08:13,870 --> 00:08:12,410

does it interfere while the reaching

221

00:08:16,060 --> 00:08:13,880

electron arrives at the target at a

222

00:08:17,500 --> 00:08:16,070

single place in time it seems that each

223

00:08:19,510 --> 00:08:17,510

s passed through or somehow felt the

224

00:08:24,010 --> 00:08:19,520

presence of both slits at once so how is

225

00:08:25,360 --> 00:08:24,020

this how does this happen in the book by

226

00:08:27,610 --> 00:08:25,370

Hawking him load enough called the grand

227

00:08:29,140 --> 00:08:27,620

design they talk about this and I'm

228

00:08:31,210 --> 00:08:29,150

gonna read this it's a bit long but it's

229

00:08:33,700 --> 00:08:31,220

worth hearing this explanation of things

230

00:08:36,010 --> 00:08:33,710

the kind of judge what's amount of sense

231

00:08:37,690 --> 00:08:36,020

it makes in terms of explaining reality

232

00:08:39,910 --> 00:08:37,700

in a way that is consistent with the

233

00:08:42,580 --> 00:08:39,920

current materialistic suit physical

234

00:08:44,140 --> 00:08:42,590

istic materialist science Fineman

235

00:08:45,970 --> 00:08:44,150

realized one does not have to interpret

236

00:08:47,410 --> 00:08:45,980

that to mean that particles stick no

237

00:08:49,240 --> 00:08:47,420

path as they travel between source and

238

00:08:51,010 --> 00:08:49,250

screen it could mean instead that

239

00:08:53,860 --> 00:08:51,020

particles take every possible path

240

00:08:55,930 --> 00:08:53,870

connecting these points a situation at

241

00:08:57,640 --> 00:08:55,940

both slits matters because rather than

242

00:08:59,620 --> 00:08:57,650

following a single definite path

243

00:09:00,800 --> 00:08:59,630

particles take every path and they take

244

00:09:03,170 --> 00:09:00,810

them all simultaneously

245

00:09:05,120 --> 00:09:03,180

that sounds like science fiction but it

246

00:09:07,190 --> 00:09:05,130

isn't fact in my opinion it is but they

247

00:09:09,530 --> 00:09:07,200

say it isn't in a double slit experiment

248

00:09:10,970 --> 00:09:09,540

fineman's ideas mean the particles take

249

00:09:13,400 --> 00:09:10,980

paths it thread through the first slit

250

00:09:15,410 --> 00:09:13,410

back out through the second slit and

251
00:09:16,760 --> 00:09:15,420
then through the first thing pass that

252
00:09:18,829 --> 00:09:16,770
visit the restaurant that serves a great

253
00:09:21,260 --> 00:09:18,839
curried shrimp and then circle Jupiter a

254
00:09:23,870 --> 00:09:21,270
few times before heading home even past

255
00:09:25,610 --> 00:09:23,880
ago across the universe and back this in

256
00:09:27,019 --> 00:09:25,620
fineman's view explains how the particle

257
00:09:30,230 --> 00:09:27,029
acquires information about which slits

258
00:09:32,150 --> 00:09:30,240
are open now if there's anything crazier

259
00:09:34,400 --> 00:09:32,160
than that I you know I don't know what

260
00:09:37,730 --> 00:09:34,410
it would be if we came up with some

261
00:09:39,470 --> 00:09:37,740
theory of something that mainstream

262
00:09:41,420 --> 00:09:39,480
science found to be ludicrous and our

263
00:09:43,070 --> 00:09:41,430

explanation we're at this level we would

264

00:09:44,960 --> 00:09:43,080

be very sharply criticized in fact we'd

265

00:09:46,490 --> 00:09:44,970

be laughed out of the room but this is

266

00:09:50,110 --> 00:09:46,500

in fact the explanation that phiman

267

00:09:55,660 --> 00:09:52,910

for both the 4% reflection and the

268

00:09:57,530 --> 00:09:55,670

single photon double slit experiment

269

00:09:58,700 --> 00:09:57,540

hardwiring the physics is seemingly

270

00:10:01,160 --> 00:09:58,710

impossible I wouldn't know how to

271

00:10:02,960 --> 00:10:01,170

hardwire something to make the photons

272

00:10:05,720 --> 00:10:02,970

know that it's their turn to do this

273

00:10:08,420 --> 00:10:05,730

versus that or to create an interference

274

00:10:09,950 --> 00:10:08,430

pattern or not to but a software

275

00:10:11,150 --> 00:10:09,960

algorithm would have no problem

276

00:10:12,290 --> 00:10:11,160

generating this behavior I mean it's

277

00:10:15,910 --> 00:10:12,300

really simple to write a little bit of

278

00:10:19,100 --> 00:10:15,920

software to have these phenomena happen

279

00:10:21,380 --> 00:10:19,110

so the duality conundrum that we face is

280

00:10:23,150 --> 00:10:21,390

this it's matter and energy is the

281

00:10:25,730 --> 00:10:23,160

fundamental stuff how does consciousness

282

00:10:27,470 --> 00:10:25,740

arise on the other hand if consciousness

283

00:10:30,590 --> 00:10:27,480

consciousness is the fundamental stuff

284

00:10:31,610 --> 00:10:30,600

and it is non-physical how did the

285

00:10:33,560 --> 00:10:31,620

physical universe arise from

286

00:10:36,430 --> 00:10:33,570

consciousness so this is a question we

287

00:10:38,300 --> 00:10:36,440

have to answer when we think about the

288

00:10:41,750 --> 00:10:38,310

situation we're in today in terms of

289

00:10:42,740 --> 00:10:41,760

trying to understand consciousness let's

290

00:10:44,420 --> 00:10:42,750

pursue the idea that everything is

291

00:10:47,240 --> 00:10:44,430

consciousness everything that's really

292

00:10:48,440 --> 00:10:47,250

all there is is consciousness this would

293

00:10:50,870 --> 00:10:48,450

be called monism more specifically

294

00:10:52,070 --> 00:10:50,880

idealism the modern twist on this is to

295

00:10:56,390 --> 00:10:52,080

view consciousness as a digital

296

00:10:58,310 --> 00:10:56,400

simulator Brian Wentworth wrote about

297

00:11:00,050 --> 00:10:58,320

this he said one of the mysteries of our

298

00:11:03,199 --> 00:11:00,060

world is that every photon of light

299

00:11:05,240 --> 00:11:03,209

every electron in quark and indeed every

300

00:11:07,510 --> 00:11:05,250

point of space itself seemed to just

301
00:11:09,740 --> 00:11:07,520
quote know what to do at each moment the

302
00:11:11,480 --> 00:11:09,750
mystery is at these tiniest parts of the

303
00:11:12,590 --> 00:11:11,490
universe have no mechanisms or

304
00:11:13,759 --> 00:11:12,600
structures by which to make such

305
00:11:14,989 --> 00:11:13,769
decisions

306
00:11:17,809 --> 00:11:14,999
and if the world is a virtual reality

307
00:11:19,759 --> 00:11:17,819
this problem disappears so again it's

308
00:11:23,509 --> 00:11:19,769
very easy to make up a law of physics

309
00:11:24,829 --> 00:11:23,519
that's run by a computer it follows a

310
00:11:26,989 --> 00:11:24,839
few simple principles that you program

311
00:11:29,239 --> 00:11:26,999
into it and while you can explain these

312
00:11:30,979 --> 00:11:29,249
things but try to hardwire this behavior

313
00:11:32,689 --> 00:11:30,989

into nature I don't know how to do it

314

00:11:34,400 --> 00:11:32,699

and if you do try to do it you come up

315

00:11:36,410 --> 00:11:34,410

with something as crazy as fine ones

316

00:11:38,389 --> 00:11:36,420

ideas on the photo counter following

317

00:11:40,429 --> 00:11:38,399

every possible path the entire universe

318

00:11:43,429 --> 00:11:40,439

before it decides to come and hit the

319

00:11:47,090 --> 00:11:43,439

screen and manufactures it it's aware of

320

00:11:48,650 --> 00:11:47,100

the other student go through how can

321

00:11:50,269 --> 00:11:48,660

space-time in the Big Bang be caused

322

00:11:52,249 --> 00:11:50,279

when there is no space or time for

323

00:11:53,960 --> 00:11:52,259

causation how can there be quarter

324

00:11:56,749 --> 00:11:53,970

fluctuations with no quantum laws exist

325

00:11:59,150 --> 00:11:56,759

well least they're questions that are

326

00:12:00,319 --> 00:11:59,160

very serious questions in science but

327

00:12:01,669 --> 00:12:00,329

you could say that the start up of the

328

00:12:04,759 --> 00:12:01,679

simulation provides a very natural

329

00:12:07,759 --> 00:12:04,769

explanation why is there a maximum speed

330

00:12:11,150 --> 00:12:07,769

the speed of light well this may reflect

331

00:12:13,549 --> 00:12:11,160

a maximum processing rate why are things

332

00:12:14,780 --> 00:12:13,559

quantized well it's natural for a

333

00:12:16,100 --> 00:12:14,790

digitally computed reality to be

334

00:12:19,939 --> 00:12:16,110

quantized that sort of space science

335

00:12:21,410 --> 00:12:19,949

quiz digitization how are non-local

336

00:12:24,439 --> 00:12:21,420

instantaneously transmitted effects

337

00:12:26,509 --> 00:12:24,449

possible for entangled particles well in

338

00:12:28,489 --> 00:12:26,519

the view of this being a virtual reality

339

00:12:31,389 --> 00:12:28,499

separations are calculated but not real

340

00:12:33,949 --> 00:12:31,399

there are no true separations so if the

341

00:12:35,780 --> 00:12:33,959

virtual world that is the universe says

342

00:12:37,999 --> 00:12:35,790

that this photon them which is entangled

343

00:12:38,600 --> 00:12:38,009

with the other one is separated by ten

344

00:12:40,129 --> 00:12:38,610

light years

345

00:12:41,030 --> 00:12:40,139

they're both supplemented by ten lakh

346

00:12:42,410 --> 00:12:41,040

years from each other how can you

347

00:12:44,449 --> 00:12:42,420

possibly interact because they're

348

00:12:46,039 --> 00:12:44,459

entangled well it's because the

349

00:12:47,660 --> 00:12:46,049

simulation is being run somewhere where

350

00:12:48,619 --> 00:12:47,670

that distance has no meaning the

351

00:12:51,199 --> 00:12:48,629

distance is simply something it's

352

00:12:52,369 --> 00:12:51,209

computed why are the basic laws

353

00:12:54,259 --> 00:12:52,379

mathematically simple

354

00:12:57,949 --> 00:12:54,269

well again virtual reality based laws

355

00:12:59,119 --> 00:12:57,959

must be easily calculable why are

356

00:13:01,340 --> 00:12:59,129

fundamental particles of a kind

357

00:13:03,829 --> 00:13:01,350

perfectly identical well each is created

358

00:13:05,090 --> 00:13:03,839

by the same digital calculation why are

359

00:13:06,859 --> 00:13:05,100

there discrete state transitions in

360

00:13:08,989 --> 00:13:06,869

quantum mechanics again this is natural

361

00:13:10,309 --> 00:13:08,999

for a digital simulation and so the

362

00:13:12,079 --> 00:13:10,319

proposal I'm making is that there really

363

00:13:13,609 --> 00:13:12,089

is only one thing in reality to covered

364

00:13:15,049 --> 00:13:13,619

it explains everything everything that

365

00:13:18,229 --> 00:13:15,059

we're know of and things that we don't

366

00:13:19,789 --> 00:13:18,239

know yet and that is consciousness and

367

00:13:23,239 --> 00:13:19,799

the conscience creates a virtual reality

368

00:13:25,189 --> 00:13:23,249

with laws that that govern it and then

369

00:13:26,900 --> 00:13:25,199

enters into it to experience what it's

370

00:13:28,900 --> 00:13:26,910

like to live in that kind of universe

371

00:13:32,150 --> 00:13:28,910

and the people are experiencing that are

372

00:13:33,830 --> 00:13:32,160

us people in this room are experiencing

373

00:13:36,560 --> 00:13:33,840

what it's like living this consciously

374

00:13:38,360 --> 00:13:36,570

created virtual reality and I think this

375

00:13:40,250 --> 00:13:38,370

explanation you know though it sounds

376

00:13:42,140 --> 00:13:40,260

crazy at the moment in fact it would

377

00:13:44,180 --> 00:13:42,150

have sounded really incomprehensible

378

00:13:45,920 --> 00:13:44,190

even fifty years ago

379

00:13:47,750 --> 00:13:45,930

is a way to look at things that might

380

00:13:49,550 --> 00:13:47,760

take us in a wholly new direction and

381

00:13:50,570 --> 00:13:49,560

but even as recently as 1960 if we went

382

00:13:51,980 --> 00:13:50,580

back to that era

383

00:13:53,930 --> 00:13:51,990

you wouldn't understand what I meant by

384

00:13:55,220 --> 00:13:53,940

virtual reality because but now you know

385

00:13:58,490 --> 00:13:55,230

you can go down to the store and even

386

00:14:00,830 --> 00:13:58,500

buy games that just show how we're kind

387

00:14:03,170 --> 00:14:00,840

of complicated and complex virtual

388

00:14:04,370 --> 00:14:03,180

reality we can create ourselves I think

389

00:14:07,760 --> 00:14:04,380

this is a way of looking at things that

390

00:14:09,560 --> 00:14:07,770

has a future here's an example of a

391

00:14:11,360 --> 00:14:09,570

virtual reality this is a shutdown of

392

00:14:13,610 --> 00:14:11,370

the virtual reality holodeck more than

393

00:14:16,370 --> 00:14:13,620

the Starship Enterprise in the year 20

394

00:14:18,980 --> 00:14:16,380

365 and you can see that the reality

395

00:14:22,010 --> 00:14:18,990

shows that the fading out of the virtual

396

00:14:26,090 --> 00:14:22,020

world and going back from the stadium to

397

00:14:27,200 --> 00:14:26,100

the holodeck of the USS Enterprise so

398

00:14:30,170 --> 00:14:27,210

he's the universe of ask conscious

399

00:14:34,300 --> 00:14:30,180

created virtual reality I think it may

400

00:14:41,900 --> 00:14:34,310

well be and I think I'll end it there

401
00:14:44,850 --> 00:14:41,910

[Applause]

402
00:14:55,170 --> 00:14:44,860

thank you very much we have ample time

403
00:14:58,460 --> 00:14:55,180

for questions I'm not sure there's a

404
00:15:01,410 --> 00:14:58,470

meaningful distinction between a a

405
00:15:04,530 --> 00:15:01,420

technological virtual reality and a

406
00:15:09,900 --> 00:15:04,540

consciousness created virtual reality

407
00:15:11,790 --> 00:15:09,910

but I find myself wondering how what

408
00:15:13,770 --> 00:15:11,800

what what's your reaction to the problem

409
00:15:17,580 --> 00:15:13,780

that the simulation hypothesis and

410
00:15:19,650 --> 00:15:17,590

whichever variant is is too powerful and

411
00:15:22,620 --> 00:15:19,660

therefore irrefutable I mean absolutely

412
00:15:24,560 --> 00:15:22,630

anything can be explained by well those

413
00:15:26,250 --> 00:15:24,570

are the parameters of the simulation

414

00:15:27,660 --> 00:15:26,260

first of all I think there's a huge

415

00:15:30,810 --> 00:15:27,670

difference between the simulation

416

00:15:32,780 --> 00:15:30,820

created by programming some kind of

417

00:15:35,370 --> 00:15:32,790

computer that in the far future is

418

00:15:36,480 --> 00:15:35,380

complex enough has it has the capacity

419

00:15:38,370 --> 00:15:36,490

to generate

420

00:15:39,780 --> 00:15:38,380

many many many orders of magnitude more

421

00:15:41,730 --> 00:15:39,790

data than than we have now

422

00:15:43,680 --> 00:15:41,740

versus what I'm suggesting which is that

423

00:15:45,810 --> 00:15:43,690

there is no mechanical or pseudo

424

00:15:47,250 --> 00:15:45,820

mechanical computer there is

425

00:15:48,570 --> 00:15:47,260

consciousness and some obvious some

426

00:15:51,060 --> 00:15:48,580

great consciousness is able to do

427

00:15:54,540 --> 00:15:51,070

computations maybe within its own mind

428

00:15:55,470 --> 00:15:54,550

it can generate hundreds of billions of

429

00:15:57,600 --> 00:15:55,480

billions of particles

430

00:15:59,700 --> 00:15:57,610

maybe the representation of these

431

00:16:00,510 --> 00:15:59,710

particles to make up a universe and keep

432

00:16:04,410 --> 00:16:00,520

track of these things

433

00:16:08,670 --> 00:16:04,420

the for you know billions of years it's

434

00:16:10,110 --> 00:16:08,680

it's the the substrate that holds the

435

00:16:12,540 --> 00:16:10,120

computation or does the computation

436

00:16:13,950 --> 00:16:12,550

would be consciousness and the the

437

00:16:16,770 --> 00:16:13,960

thoughts that this consciousness puts

438

00:16:18,570 --> 00:16:16,780

into it would be the the data that it's

439

00:16:20,790 --> 00:16:18,580

worked with and so it's a very different

440

00:16:22,310 --> 00:16:20,800

kind of explanation for what what the

441

00:16:24,720 --> 00:16:22,320

origin of the consciousness or the

442

00:16:32,370 --> 00:16:24,730

simulation is and as to the other

443

00:16:35,670 --> 00:16:32,380

question which was you recall now refute

444

00:16:37,140 --> 00:16:35,680

ability there actually may be because if

445

00:16:39,240 --> 00:16:37,150

this is quiet this quantization is

446

00:16:42,830 --> 00:16:39,250

correct then there are certain things

447

00:16:45,870 --> 00:16:42,840

that might be observable such as the

448

00:16:47,850 --> 00:16:45,880

maximum possible energy of a cosmic ray

449

00:16:51,050 --> 00:16:47,860

we're clicking we're detecting cosmic

450

00:16:54,210 --> 00:16:51,060

rays that are about at the limit of

451

00:16:57,390 --> 00:16:54,220

there's a phenomenal the gkz

452

00:16:58,710 --> 00:16:57,400

of cosmic rays and I can't go into that

453

00:17:00,630 --> 00:16:58,720

right now because I'm not an expert in

454

00:17:02,610 --> 00:17:00,640

that but this is something was sighted

455

00:17:05,730 --> 00:17:02,620

in one of these papers as being a

456

00:17:09,600 --> 00:17:05,740

possible test for the discretization and

457

00:17:10,920 --> 00:17:09,610

extreme energies of reality so there

458

00:17:12,180 --> 00:17:10,930

there could be some tests to this and I

459

00:17:13,230 --> 00:17:12,190

agree with you that it's probably not

460

00:17:15,330 --> 00:17:13,240

something that certain be taken

461

00:17:17,370 --> 00:17:15,340

seriously unless they come up with some

462

00:17:19,800 --> 00:17:17,380

real tests that can be done and maybe

463

00:17:21,360 --> 00:17:19,810

this gkz limit observation is one that

464

00:17:28,260 --> 00:17:21,370

you know the first step in that

465

00:17:30,900 --> 00:17:28,270

direction in this model where reality is

466

00:17:33,180 --> 00:17:30,910

created by consciousness where I imagine

467

00:17:36,960 --> 00:17:33,190

you're speaking specifically about human

468

00:17:39,300 --> 00:17:36,970

consciousness so where do non-human

469

00:17:41,880 --> 00:17:39,310

animal consciousnesses come into play

470

00:17:45,240 --> 00:17:41,890

especially animals that existed on this

471

00:17:47,160 --> 00:17:45,250

planet before humans well what I

472

00:17:48,630 --> 00:17:47,170

envision is some great consciousness I

473

00:17:49,950 --> 00:17:48,640

mean some universal consciousness and

474

00:17:51,960 --> 00:17:49,960

some people like to call that God I

475

00:17:55,500 --> 00:17:51,970

wouldn't but I don't think you have to

476

00:17:57,540 --> 00:17:55,510

just view this as a consciousness is

477

00:17:59,280 --> 00:17:57,550

beyond anything we can understand but

478

00:18:01,260 --> 00:17:59,290

that has the ability if it wants to to

479

00:18:04,560 --> 00:18:01,270

do computations survey digital reality

480

00:18:06,930 --> 00:18:04,570

create a super super simulation because

481

00:18:08,700 --> 00:18:06,940

if it does so then it can enter into

482

00:18:10,470 --> 00:18:08,710

those that virtual world and experience

483

00:18:13,290 --> 00:18:10,480

what it's like to live in that world it

484

00:18:15,270 --> 00:18:13,300

can be both a rippling of recreation or

485

00:18:17,910 --> 00:18:15,280

a thing of evolution I mean maybe this

486

00:18:20,190 --> 00:18:17,920

conscious can evolves itself by creating

487

00:18:22,170 --> 00:18:20,200

worlds in which it enters as individual

488

00:18:25,380 --> 00:18:22,180

beings not just us people but animals

489

00:18:28,350 --> 00:18:25,390

aliens somewhere else and experiences

490

00:18:30,870 --> 00:18:28,360

what it's like to to become ethical in

491

00:18:33,090 --> 00:18:30,880

that kind of world or be unethical or

492

00:18:35,550 --> 00:18:33,100

could be good or bad and that's that

493

00:18:36,990 --> 00:18:35,560

would be the purpose of it so this is

494

00:18:39,810 --> 00:18:37,000

what I see is the great difference

495

00:18:41,910 --> 00:18:39,820

between a virtual reality is created on

496

00:18:43,320 --> 00:18:41,920

some supercomputer in the future versus

497

00:18:46,170 --> 00:18:43,330

one that's created by conscious itself

498

00:18:48,360 --> 00:18:46,180

which makes universes ours being one and

499

00:18:50,910 --> 00:18:48,370

it's kind of interesting that it was

500

00:18:53,460 --> 00:18:50,920

said fifty hundred years ago by st.

501

00:18:55,080 --> 00:18:53,470

Agustin that the universe in his view

502

00:18:56,580 --> 00:18:55,090

was something that is not something

503

00:18:57,930 --> 00:18:56,590

that's fixed forever it's something

504

00:18:59,340 --> 00:18:57,940

that's constantly held quote in the mind

505

00:19:02,160 --> 00:18:59,350

of God and if God were to look away for

506

00:19:03,840 --> 00:19:02,170

one moment the University disappear kind

507

00:19:06,580 --> 00:19:03,850

of interesting thing that can be said

508

00:19:08,860 --> 00:19:06,590

from such a long time passed and

509

00:19:45,360 --> 00:19:08,870

I think a good point that is

510

00:19:51,940 --> 00:19:48,810

are you familiar with Mac's tick marks

511

00:19:54,159 --> 00:19:51,950

mathematical universe hypothesis and if

512

00:19:57,190 --> 00:19:54,169

so where would that fit or maybe not fit

513

00:19:58,450 --> 00:19:57,200

into your concept here I've heard about

514

00:20:00,580 --> 00:19:58,460

I'm not ready to say I really can't

515

00:20:02,139 --> 00:20:00,590

comment on it but I think it's probably

516

00:20:04,470 --> 00:20:02,149

he's talking about the the purely

517

00:20:07,180 --> 00:20:04,480

physical esteem ik Ana chol

518

00:20:08,620 --> 00:20:07,190

interpretation of computation and

519

00:20:17,530 --> 00:20:08,630

nothing like nothing like consciousness

520

00:20:22,090 --> 00:20:19,690

he says his theory is the universe the

521

00:20:24,460 --> 00:20:22,100

universe is nothing but math okay I

522

00:20:26,260 --> 00:20:24,470

guess it's I guess you could recast that

523

00:20:28,750 --> 00:20:26,270

semantically into mean by the same thing

524

00:20:30,670 --> 00:20:28,760

that I'm saying because the the point

525

00:20:31,990 --> 00:20:30,680

here is that I don't want envision some

526

00:20:33,370 --> 00:20:32,000

kind of a creator that goes boom boom

527

00:20:34,600 --> 00:20:33,380

boom boom boom makes things happen you

528

00:20:36,880 --> 00:20:34,610

know like when you're outside of a hat

529

00:20:39,490 --> 00:20:36,890

rather we were learning that the the

530

00:20:41,650 --> 00:20:39,500

digital copy computation can create for

531

00:20:43,600 --> 00:20:41,660

us something like a virtual reality that

532

00:20:46,210 --> 00:20:43,610

is extremely powerful and so maybe this

533

00:20:48,580 --> 00:20:46,220

consciousness you know creates within

534

00:20:51,670 --> 00:20:48,590

itself the ability to be like a computer

535

00:20:53,950 --> 00:20:51,680

and it to create digital worlds so in

536

00:20:55,510 --> 00:20:53,960

terms of that being a mathematical

537

00:21:03,400 --> 00:20:55,520

universe I guess you could you could

538

00:21:06,070 --> 00:21:03,410

call it that yes if if consciousness is

539

00:21:08,920 --> 00:21:06,080

being created by a computer simulation

540

00:21:12,610 --> 00:21:08,930

or consciousness is creating the

541

00:21:14,380 --> 00:21:12,620

universe that we experience we do we

542

00:21:19,180 --> 00:21:14,390

understand what consciousness is though

543

00:21:20,710 --> 00:21:19,190

and how it can be created I don't know

544

00:21:23,170 --> 00:21:20,720

what I mean this is the this is the one

545

00:21:25,450 --> 00:21:23,180

thing we all know in this room we are

546

00:21:26,500 --> 00:21:25,460

conscious and I don't think they're

547

00:21:28,300 --> 00:21:26,510

trying to explain in terms of anything

548

00:21:29,770 --> 00:21:28,310

simpler is gonna get us anywhere we know

549

00:21:32,500 --> 00:21:29,780

exactly what consciousness is because

550

00:21:34,960 --> 00:21:32,510

we're we're living it and we're thinking

551

00:21:36,340 --> 00:21:34,970

we are conscious you don't ask for

552

00:21:37,960 --> 00:21:36,350

anything more than that you've got the

553

00:21:44,660 --> 00:21:37,970

basic experience of it right there drive

554

00:21:48,140 --> 00:21:44,670

you thank you very much thank you

555

00:21:49,300 --> 00:21:48,150

[Applause]