



**JOSCHA
BACH**

**ONLY A
SIMULATION
CAN BE
CONSCIOUS**

1
00:00:04,710 --> 00:00:02,470
[Laughter]

2
00:00:07,829 --> 00:00:04,720
okay um i think it's a good day for

3
00:00:09,669 --> 00:00:07,839
2020 the sun is out again

4
00:00:11,430 --> 00:00:09,679
this guy doesn't look like mars as far

5
00:00:14,150 --> 00:00:11,440
as i can see air is

6
00:00:14,549 --> 00:00:14,160
so so but um meteoroid didn't hit yet

7
00:00:15,910 --> 00:00:14,559
and

8
00:00:18,470 --> 00:00:15,920
we are still waiting for the big one in

9
00:00:19,109 --> 00:00:18,480
the bay area what's your work ethic like

10
00:00:22,310 --> 00:00:19,119
what do you do

11
00:00:24,710 --> 00:00:22,320
on a usual day

12
00:00:25,670 --> 00:00:24,720
there are no usual days so in some sense

13
00:00:28,230 --> 00:00:25,680

every day is

14

00:00:31,269 --> 00:00:28,240

its own and uh every day has its own

15

00:00:34,549 --> 00:00:31,279

demands and so on and

16

00:00:36,310 --> 00:00:34,559

i do block out times and do plan things

17

00:00:38,069 --> 00:00:36,320

ahead but

18

00:00:39,350 --> 00:00:38,079

for the most part i get up i have

19

00:00:41,510 --> 00:00:39,360

breakfast

20

00:00:43,190 --> 00:00:41,520

i work i spend time with the family in

21

00:00:46,709 --> 00:00:43,200

between

22

00:00:49,990 --> 00:00:46,719

and uh at some point uh i

23

00:00:51,750 --> 00:00:50,000

uh maybe read a few pages in a book or

24

00:00:54,549 --> 00:00:51,760

watch a movie with the family and go to

25

00:00:56,830 --> 00:00:54,559

bed do you tend to work in solid blocks

26
00:00:58,709 --> 00:00:56,840
uninterrupted because you need that for

27
00:01:01,029 --> 00:00:58,719
focus

28
00:01:02,229 --> 00:01:01,039
it depends on the type of work so when i

29
00:01:05,350 --> 00:01:02,239
uh write code

30
00:01:06,070 --> 00:01:05,360
i need long solitary times alone if i

31
00:01:08,710 --> 00:01:06,080
want to

32
00:01:09,190 --> 00:01:08,720
write a book i need to have a solid

33
00:01:11,030 --> 00:01:09,200
leaks

34
00:01:13,350 --> 00:01:11,040
weeks for myself so i don't write a book

35
00:01:15,270 --> 00:01:13,360
at this point um

36
00:01:17,429 --> 00:01:15,280
maybe i figure out how to do this anyway

37
00:01:20,630 --> 00:01:17,439
while being locked up with the family

38
00:01:22,390 --> 00:01:20,640

and when i do conceptual work and so on

39

00:01:24,469 --> 00:01:22,400

i can do this in short intervals and

40

00:01:25,030 --> 00:01:24,479

sometimes i do something else interrupt

41

00:01:28,469 --> 00:01:25,040

it

42

00:01:30,870 --> 00:01:28,479

something down

43

00:01:32,550 --> 00:01:30,880

we're going to get into some fairly deep

44

00:01:36,870 --> 00:01:32,560

questions right off the bat

45

00:01:41,590 --> 00:01:38,310

do you take a correspondence theory of

46

00:01:45,270 --> 00:01:41,600

truth for example

47

00:01:48,069 --> 00:01:45,280

i think that truth has is defined

48

00:01:48,630 --> 00:01:48,079

in a mathematical paradigm which means

49

00:01:53,350 --> 00:01:48,640

it's

50

00:01:56,469 --> 00:01:53,360

certain

51
00:01:59,109 --> 00:01:56,479
value that you set on

52
00:01:59,910 --> 00:01:59,119
variables that have the property that

53
00:02:02,789 --> 00:01:59,920
they can be

54
00:02:04,950 --> 00:02:02,799
true or false or have a truth value that

55
00:02:07,910 --> 00:02:04,960
varies in degrees

56
00:02:09,430 --> 00:02:07,920
and in some sense truth is a predicate

57
00:02:13,270 --> 00:02:09,440
that you can calculate

58
00:02:15,270 --> 00:02:13,280
in this context and uh you can

59
00:02:17,350 --> 00:02:15,280
translate this into the languages that

60
00:02:20,630 --> 00:02:17,360
our mind is typically using which are

61
00:02:22,390 --> 00:02:20,640
models and in these models we can have

62
00:02:23,589 --> 00:02:22,400
some kind of truth definition which

63
00:02:25,350 --> 00:02:23,599

means that the

64

00:02:26,630 --> 00:02:25,360

model depending on the type of model

65

00:02:28,550 --> 00:02:26,640

that you have

66

00:02:30,309 --> 00:02:28,560

can conform to any of your mathematical

67

00:02:33,509 --> 00:02:30,319

tools definitions so it can be

68

00:02:35,670 --> 00:02:33,519

something that is can be reduced to a

69

00:02:37,910 --> 00:02:35,680

set of axioms for instance

70

00:02:39,430 --> 00:02:37,920

and this means that it can be in some

71

00:02:41,589 --> 00:02:39,440

sense compressed to the

72

00:02:43,030 --> 00:02:41,599

set of axioms or expanded from the set

73

00:02:45,750 --> 00:02:43,040

of axioms into

74

00:02:47,030 --> 00:02:45,760

a certain state of that descriptive

75

00:02:51,350 --> 00:02:47,040

system

76

00:02:54,229 --> 00:02:51,360

and it's difficult to apply truth to

77

00:02:55,509 --> 00:02:54,239

an outside world so i don't believe in

78

00:02:57,030 --> 00:02:55,519

reference theory of truth these

79

00:02:58,790 --> 00:02:57,040

references can only exist between

80

00:03:01,509 --> 00:02:58,800

different models

81

00:03:02,949 --> 00:03:01,519

on the other hand we normally never talk

82

00:03:05,670 --> 00:03:02,959

about the outside world because it's

83

00:03:09,110 --> 00:03:05,680

this weird quantum graph that

84

00:03:11,270 --> 00:03:09,120

is not accessible to us and that we

85

00:03:12,869 --> 00:03:11,280

take to be the system that generates

86

00:03:15,030 --> 00:03:12,879

patterns on our retina

87

00:03:16,830 --> 00:03:15,040

and and on our systemic interface to the

88

00:03:20,470 --> 00:03:16,840

universe

89

00:03:23,509 --> 00:03:22,390

all these patterns rate models and

90

00:03:25,910 --> 00:03:23,519

different

91

00:03:28,070 --> 00:03:25,920

the primary one is an integrated model

92

00:03:29,270 --> 00:03:28,080

of the entire universe of interception

93

00:03:31,509 --> 00:03:29,280

is inspect

94

00:03:33,030 --> 00:03:31,519

or the perception of external things

95

00:03:36,630 --> 00:03:33,040

plus proprioception

96

00:03:39,030 --> 00:03:36,640

right so we in some sense have um

97

00:03:40,869 --> 00:03:39,040

res extensor and the rest cognitions to

98

00:03:42,949 --> 00:03:40,879

speak with descartes and res extensor is

99

00:03:44,949 --> 00:03:42,959

not the universe itself

100

00:03:47,190 --> 00:03:44,959

it's our model of the universe it's the

101
00:03:49,350 --> 00:03:47,200
idea that everything that we perceive

102
00:03:50,710 --> 00:03:49,360
corresponds to a region in the same

103
00:03:51,830 --> 00:03:50,720
three-dimensional space that is

104
00:03:54,149 --> 00:03:51,840
dynamically changing

105
00:03:56,229 --> 00:03:54,159
as a temporal extension as well and uh

106
00:03:57,990 --> 00:03:56,239
rescogins is everything else our ideas

107
00:03:59,509 --> 00:03:58,000
that we have about that the anticipation

108
00:04:00,070 --> 00:03:59,519
that we have hypotheses that we have

109
00:04:01,990 --> 00:04:00,080
memories

110
00:04:03,429 --> 00:04:02,000
that we have intentions that we have and

111
00:04:06,149 --> 00:04:03,439
so on

112
00:04:08,149 --> 00:04:06,159
and these two interact but there are

113
00:04:11,509 --> 00:04:08,159

several types of models that

114

00:04:13,990 --> 00:04:11,519

co-exist in our own mind and when we uh

115

00:04:15,429 --> 00:04:14,000

refer to something in the world we refer

116

00:04:17,270 --> 00:04:15,439

to something in the

117

00:04:19,110 --> 00:04:17,280

integrated model of the universe that we

118

00:04:21,509 --> 00:04:19,120

have that is changing

119

00:04:22,550 --> 00:04:21,519

and it's it's not static it's it's not

120

00:04:24,870 --> 00:04:22,560

reality

121

00:04:26,790 --> 00:04:24,880

for instance my model of the universe at

122

00:04:28,310 --> 00:04:26,800

some level contains colors and sounds

123

00:04:29,670 --> 00:04:28,320

and there are no colors and sounds in

124

00:04:33,030 --> 00:04:29,680

the physical universe

125

00:04:34,870 --> 00:04:33,040

offer them but

126
00:04:36,950 --> 00:04:34,880
uh colors and sounds are functions that

127
00:04:39,030 --> 00:04:36,960
our brain computes to interpret certain

128
00:04:41,749 --> 00:04:39,040
types of patterns in the universe

129
00:04:43,110 --> 00:04:41,759
so you're saying when we talk sorry so

130
00:04:44,550 --> 00:04:43,120
you're suggesting that the underlying

131
00:04:46,070 --> 00:04:44,560
reality is physical and

132
00:04:49,030 --> 00:04:46,080
it's a quantum graph what do you mean by

133
00:04:54,230 --> 00:04:51,749
uh what i mean is that there is an

134
00:04:56,550 --> 00:04:54,240
outside pattern generator and the

135
00:04:58,950 --> 00:04:56,560
physics is exploring the idea that this

136
00:05:02,310 --> 00:04:58,960
pattern generator can be explained by

137
00:05:05,189 --> 00:05:02,320
a causally closed set of rules right

138
00:05:05,590 --> 00:05:05,199

somewhere out there there is a system

139

00:05:09,510 --> 00:05:05,600

that

140

00:05:13,749 --> 00:05:09,520

experiences

141

00:05:14,390 --> 00:05:13,759

and the big insight of computation is

142

00:05:16,230 --> 00:05:14,400

that a

143

00:05:17,590 --> 00:05:16,240

computational system is the necessary

144

00:05:19,830 --> 00:05:17,600

and sufficient means to produce

145

00:05:22,230 --> 00:05:19,840

arbitrary patterns

146

00:05:23,990 --> 00:05:22,240

and we don't have alternatives to

147

00:05:27,270 --> 00:05:24,000

computational descriptions

148

00:05:30,070 --> 00:05:27,280

that are able to do that so

149

00:05:31,830 --> 00:05:30,080

it turns out that computation is a way

150

00:05:33,670 --> 00:05:31,840

to frame language

151

00:05:35,350 --> 00:05:33,680

and if we want to have languages that

152

00:05:37,189 --> 00:05:35,360

describe systems that can produce

153

00:05:39,590 --> 00:05:37,199

patterns and are self-consistent and can

154

00:05:41,189 --> 00:05:39,600

reduce the first principles these are

155

00:05:43,110 --> 00:05:41,199

computational systems

156

00:05:44,950 --> 00:05:43,120

and then when i say it's a quantum graph

157

00:05:45,749 --> 00:05:44,960

basically a graphical representation one

158

00:05:51,270 --> 00:05:45,759

that

159

00:05:54,230 --> 00:05:51,280

can hold for instance state

160

00:05:55,990 --> 00:05:54,240

and links between them that translate

161

00:05:57,670 --> 00:05:56,000

this state between the nodes

162

00:05:59,510 --> 00:05:57,680

this is a very general computational

163

00:06:01,189 --> 00:05:59,520

description and so

164

00:06:03,350 --> 00:06:01,199

in some sense we can describe everything

165

00:06:04,550 --> 00:06:03,360

especially extended things that play out

166

00:06:07,909 --> 00:06:04,560

in a space as a

167

00:06:09,430 --> 00:06:07,919

graph a space is basically a

168

00:06:11,110 --> 00:06:09,440

if you talk about something like a

169

00:06:13,909 --> 00:06:11,120

geometric space

170

00:06:16,950 --> 00:06:13,919

as a very very regular graph that

171

00:06:18,550 --> 00:06:16,960

happens if you zoom out far enough

172

00:06:19,990 --> 00:06:18,560

so there's basically a graph with so

173

00:06:22,390 --> 00:06:20,000

many nodes and so many links

174

00:06:24,150 --> 00:06:22,400

between them and so regular ways of

175

00:06:24,629 --> 00:06:24,160

translating information in them that you

176

00:06:26,469 --> 00:06:24,639

can

177

00:06:27,830 --> 00:06:26,479

describe the function of the entire

178

00:06:32,950 --> 00:06:27,840

thing in the limit

179

00:06:35,830 --> 00:06:34,469

all languages can be summarized in

180

00:06:37,270 --> 00:06:35,840

mathematics and then there's a subset

181

00:06:38,629 --> 00:06:37,280

that is computation

182

00:06:40,710 --> 00:06:38,639

and this is the one that corresponds to

183

00:06:43,510 --> 00:06:40,720

our world is that what you're suggesting

184

00:06:44,390 --> 00:06:43,520

so uh what i would say is that a way out

185

00:06:48,790 --> 00:06:44,400

look

186

00:06:51,749 --> 00:06:48,800

the domain of all languages

187

00:06:52,950 --> 00:06:51,759

and mathematicians are starting out with

188

00:06:54,390 --> 00:06:52,960

the simplest languages

189

00:06:56,390 --> 00:06:54,400

and exploring them and these are the

190

00:06:59,110 --> 00:06:56,400

formal languages those where

191

00:06:59,589 --> 00:06:59,120

you already know all the properties or

192

00:07:03,589 --> 00:06:59,599

you

193

00:07:04,390 --> 00:07:03,599

a good chance to explore most of the

194

00:07:06,629 --> 00:07:04,400

properties

195

00:07:09,029 --> 00:07:06,639

step by step and especially you can

196

00:07:12,150 --> 00:07:09,039

define them in such a way that you can

197

00:07:14,100 --> 00:07:12,160

make proofs in them and the reason why

198

00:07:15,350 --> 00:07:14,110

we explore mathematics are

199

00:07:17,110 --> 00:07:15,360

[Music]

200

00:07:19,510 --> 00:07:17,120

by default there's one that we want to

201
00:07:20,870 --> 00:07:19,520
understand uh the things that we only

202
00:07:22,950 --> 00:07:20,880
intuitively understand

203
00:07:24,629 --> 00:07:22,960
for instance geometry right we have an

204
00:07:25,990 --> 00:07:24,639
intuitive understanding of geometry and

205
00:07:28,629 --> 00:07:26,000
it's because our brain makes

206
00:07:30,150 --> 00:07:28,639
geometric models of the world that we

207
00:07:32,070 --> 00:07:30,160
are embedded in

208
00:07:33,749 --> 00:07:32,080
and so we want to have a way to talk

209
00:07:34,710 --> 00:07:33,759
about these models in a way that makes

210
00:07:37,670 --> 00:07:34,720
them explicit

211
00:07:38,790 --> 00:07:37,680
and uh allows us to debug them and

212
00:07:40,790 --> 00:07:38,800
allows us to

213
00:07:41,830 --> 00:07:40,800

express them as formal systems to teach

214

00:07:44,390 --> 00:07:41,840

them to check up

215

00:07:45,589 --> 00:07:44,400

on whether our minds did the geometry

216

00:07:48,790 --> 00:07:45,599

right and so on right

217

00:07:50,309 --> 00:07:48,800

and to have all these uh models of

218

00:07:51,189 --> 00:07:50,319

models these formal descriptions of

219

00:07:52,629 --> 00:07:51,199

geometry

220

00:07:54,469 --> 00:07:52,639

that's one reason why we need

221

00:07:55,350 --> 00:07:54,479

mathematics and it's one of the reasons

222

00:07:56,950 --> 00:07:55,360

why

223

00:07:58,390 --> 00:07:56,960

our present mathematical tradition

224

00:08:00,790 --> 00:07:58,400

started it's

225

00:08:01,749 --> 00:08:00,800

uh it started very often as geometrical

226

00:08:05,430 --> 00:08:01,759

descriptions

227

00:08:06,469 --> 00:08:05,440

have those in terms of formulas and so

228

00:08:09,510 --> 00:08:06,479

on are often

229

00:08:11,830 --> 00:08:09,520

a specification for the geometry and

230

00:08:12,629 --> 00:08:11,840

in some sense we teach mathematics of

231

00:08:15,990 --> 00:08:12,639

the wrong way around

232

00:08:17,350 --> 00:08:16,000

in school we teach kids algebra first

233

00:08:19,029 --> 00:08:17,360

as an extension of counting or

234

00:08:22,309 --> 00:08:19,039

generalization of counting

235

00:08:26,150 --> 00:08:22,319

and then you have something like x uh

236

00:08:27,990 --> 00:08:26,160

y equals say x square

237

00:08:30,309 --> 00:08:28,000

and this is an algebraic description

238

00:08:31,670 --> 00:08:30,319

right and then we learn how to graph

239

00:08:34,149 --> 00:08:31,680

these functions and then we

240

00:08:35,350 --> 00:08:34,159

uh notice oh my god this uh graph of

241

00:08:37,269 --> 00:08:35,360

this function looks a lot like a

242

00:08:39,589 --> 00:08:37,279

parabola what a coincidence

243

00:08:40,870 --> 00:08:39,599

and now we see if we can use this

244

00:08:41,909 --> 00:08:40,880

algebraic description to describe the

245

00:08:44,550 --> 00:08:41,919

parabola

246

00:08:45,509 --> 00:08:44,560

but uh i think that uh the invention was

247

00:08:47,190 --> 00:08:45,519

the other way around

248

00:08:48,710 --> 00:08:47,200

like the world is full of parabolas

249

00:08:49,750 --> 00:08:48,720

whenever you throw stuff you see a

250

00:08:51,350 --> 00:08:49,760

parabola

251

00:08:53,269 --> 00:08:51,360

and then you ask yourself uh what's

252

00:08:54,150 --> 00:08:53,279

going on here how can i systematize that

253

00:08:56,790 --> 00:08:54,160

and then you realize

254

00:08:57,509 --> 00:08:56,800

okay i can make a specification that

255

00:08:59,430 --> 00:08:57,519

makes this

256

00:09:01,110 --> 00:08:59,440

thing computable because i can compute

257

00:09:02,230 --> 00:09:01,120

the algorithmic description there's an

258

00:09:05,910 --> 00:09:02,240

algorithm for

259

00:09:08,470 --> 00:09:05,920

computing y equals x square

260

00:09:11,269 --> 00:09:08,480

right and this allows me to compute the

261

00:09:12,630 --> 00:09:11,279

trajectory of an object that i throw

262

00:09:14,310 --> 00:09:12,640

this is one of the ways that we

263

00:09:16,949 --> 00:09:14,320

discovered mathematics

264

00:09:17,990 --> 00:09:16,959

the other one is uh that all languages

265

00:09:21,190 --> 00:09:18,000

that we are using so

266

00:09:23,269 --> 00:09:21,200

logic uh is a

267

00:09:25,110 --> 00:09:23,279

mathematical principle and it's uh in

268

00:09:26,550 --> 00:09:25,120

some sense a subset of the natural

269

00:09:28,710 --> 00:09:26,560

languages that we use

270

00:09:30,870 --> 00:09:28,720

but we can extend it in such a way that

271

00:09:33,990 --> 00:09:30,880

it's encompassing

272

00:09:35,509 --> 00:09:34,000

the natural languages in a way and

273

00:09:37,990 --> 00:09:35,519

there was always a big hope that we

274

00:09:39,990 --> 00:09:38,000

could make logic so general

275

00:09:42,070 --> 00:09:40,000

that we can make natural languages so

276

00:09:44,310 --> 00:09:42,080

precise that they become

277

00:09:45,829 --> 00:09:44,320

the same thing that these languages in

278

00:09:49,350 --> 00:09:45,839

which we refer

279

00:09:50,389 --> 00:09:49,360

to facts can uh express things that we

280

00:09:52,389 --> 00:09:50,399

can prove

281

00:09:54,230 --> 00:09:52,399

in a formal strict sense in a way that

282

00:09:56,630 --> 00:09:54,240

we can build machines that can

283

00:09:57,430 --> 00:09:56,640

perform uh language and that can make

284

00:09:59,750 --> 00:09:57,440

statements

285

00:10:01,030 --> 00:09:59,760

that are true or false and so on we look

286

00:10:02,310 --> 00:10:01,040

at the world and we see some patterns

287

00:10:03,750 --> 00:10:02,320

and we try to model those patterns in

288

00:10:03,990 --> 00:10:03,760

mathematics as a great way of modeling

289

00:10:06,389 --> 00:10:04,000

those

290

00:10:10,310 --> 00:10:06,399

patterns is that essentially what you're

291

00:10:14,069 --> 00:10:12,230

so mathematics allows us to build

292

00:10:16,230 --> 00:10:14,079

arbitrary languages not just natural

293

00:10:17,350 --> 00:10:16,240

language but it also allows us to build

294

00:10:19,190 --> 00:10:17,360

languages that

295

00:10:21,990 --> 00:10:19,200

for instance start out with only with

296

00:10:24,310 --> 00:10:22,000

bits or that starts out with

297

00:10:26,310 --> 00:10:24,320

bit vectors and you could say that for

298

00:10:28,310 --> 00:10:26,320

instance a major learning system

299

00:10:30,150 --> 00:10:28,320

is using a language that as an input as

300

00:10:30,870 --> 00:10:30,160

a bit vector for instance the bit vector

301
00:10:33,509 --> 00:10:30,880
that comes in

302
00:10:35,430 --> 00:10:33,519
from a camera sensor and then it maps

303
00:10:36,230 --> 00:10:35,440
this to other bit vectors and just by

304
00:10:38,870 --> 00:10:36,240
finding or

305
00:10:40,310 --> 00:10:38,880
order in the patterns it it's able to

306
00:10:41,269 --> 00:10:40,320
gradually make some sense of these

307
00:10:42,790 --> 00:10:41,279
patterns it's

308
00:10:44,389 --> 00:10:42,800
able to relate them and it's for

309
00:10:47,670 --> 00:10:44,399
instance it's able to discover

310
00:10:49,910 --> 00:10:47,680
that if you feed it enough bit vectors

311
00:10:51,350 --> 00:10:49,920
all these bit vectors uh refer to

312
00:10:52,710 --> 00:10:51,360
objects in the three-dimensional space

313
00:10:54,790 --> 00:10:52,720

because that's the best compression that

314

00:10:56,470 --> 00:10:54,800

you find over them it's the best way

315

00:10:57,990 --> 00:10:56,480

to make sense of these patterns to build

316

00:10:59,190 --> 00:10:58,000

a model of these patterns that is most

317

00:11:01,670 --> 00:10:59,200

predictive

318

00:11:02,550 --> 00:11:01,680

of their structure and mathematics

319

00:11:05,190 --> 00:11:02,560

allows us

320

00:11:07,750 --> 00:11:05,200

to construct and understand the

321

00:11:10,630 --> 00:11:07,760

languages in which that takes place

322

00:11:11,269 --> 00:11:10,640

and you alluded to another thing that is

323

00:11:12,870 --> 00:11:11,279

uh

324

00:11:14,630 --> 00:11:12,880

the difference between computation and

325

00:11:16,870 --> 00:11:14,640

mathematics the

326

00:11:19,509 --> 00:11:16,880

classical definition of mathematics that

327

00:11:21,670 --> 00:11:19,519

we use in our tradition is mostly time

328

00:11:23,030 --> 00:11:21,680

and stateless it's basically everything

329

00:11:26,230 --> 00:11:23,040

is taking place

330

00:11:28,710 --> 00:11:26,240

in a single state so if you want to

331

00:11:29,509 --> 00:11:28,720

express a temporal sequence in

332

00:11:32,069 --> 00:11:29,519

mathematics

333

00:11:32,710 --> 00:11:32,079

you usually use an index and this index

334

00:11:35,750 --> 00:11:32,720

can be

335

00:11:38,069 --> 00:11:35,760

discrete or continuous and you just

336

00:11:39,509 --> 00:11:38,079

basically define something like a loop

337

00:11:40,949 --> 00:11:39,519

only it's not like a loop in a

338

00:11:43,269 --> 00:11:40,959

programming language which goes

339

00:11:44,630 --> 00:11:43,279

through this literally step by step to

340

00:11:46,150 --> 00:11:44,640

compute the sequence

341

00:11:47,829 --> 00:11:46,160

you have so instance an integral

342

00:11:48,630 --> 00:11:47,839

operator and this integral operator

343

00:11:51,350 --> 00:11:48,640

states

344

00:11:52,310 --> 00:11:51,360

that god makes a loop in one moment and

345

00:11:54,470 --> 00:11:52,320

this loop can

346

00:11:56,310 --> 00:11:54,480

integrate over infinitely many elements

347

00:11:59,110 --> 00:11:56,320

because god can do that right it's an

348

00:12:00,550 --> 00:11:59,120

idealized version of what mathematics

349

00:12:02,629 --> 00:12:00,560

can do and it turns out that there are

350

00:12:05,030 --> 00:12:02,639

no gods that have the power to

351
00:12:06,389 --> 00:12:05,040
take infinity melee elements and really

352
00:12:08,629 --> 00:12:06,399
integrate them

353
00:12:11,030 --> 00:12:08,639
what we can do is we can take a very

354
00:12:12,710 --> 00:12:11,040
very large number of elements that to us

355
00:12:15,110 --> 00:12:12,720
is almost indistinguishable from

356
00:12:17,110 --> 00:12:15,120
infinitely many elements and then we can

357
00:12:18,870 --> 00:12:17,120
integrate them in a pretty were pretty

358
00:12:19,430 --> 00:12:18,880
long time span of however long it takes

359
00:12:20,949 --> 00:12:19,440
but not

360
00:12:23,269 --> 00:12:20,959
over an infinite amount of time but if

361
00:12:24,310 --> 00:12:23,279
we had really infinitely many elements

362
00:12:27,110 --> 00:12:24,320
that you would try to

363
00:12:27,990 --> 00:12:27,120

throw together to integrate to put into

364

00:12:29,910 --> 00:12:28,000

one function

365

00:12:31,910 --> 00:12:29,920

and execute that function over these

366

00:12:33,670 --> 00:12:31,920

elements this is not possible

367

00:12:35,670 --> 00:12:33,680

in anything that is implemented in the

368

00:12:37,030 --> 00:12:35,680

physical universe and it's also not

369

00:12:39,190 --> 00:12:37,040

possible for anything that is

370

00:12:42,150 --> 00:12:39,200

implemented in mathematics itself

371

00:12:44,069 --> 00:12:42,160

without leading into contradictions so

372

00:12:47,190 --> 00:12:44,079

in some sense what google discovered

373

00:12:49,269 --> 00:12:47,200

i think is that mathematics this

374

00:12:51,190 --> 00:12:49,279

infinities that actually uses these

375

00:12:52,710 --> 00:12:51,200

infinities to compute things is leading

376

00:12:54,230 --> 00:12:52,720

into contradictions

377

00:12:55,990 --> 00:12:54,240

and the thing that doesn't do that that

378

00:12:59,030 --> 00:12:56,000

only uses states

379

00:13:01,030 --> 00:12:59,040

that we can in some sense count up and

380

00:13:03,110 --> 00:13:01,040

uh actually execute on this is

381

00:13:04,310 --> 00:13:03,120

computation the subset of mathematics

382

00:13:07,430 --> 00:13:04,320

that can be constructed

383

00:13:08,629 --> 00:13:07,440

constructive mathematics and

384

00:13:10,550 --> 00:13:08,639

i would say that constructive

385

00:13:13,509 --> 00:13:10,560

mathematics is not

386

00:13:15,430 --> 00:13:13,519

a subset of mathematics unless you say

387

00:13:17,110 --> 00:13:15,440

that mathematics also encompasses those

388

00:13:18,470 --> 00:13:17,120

things that don't work

389

00:13:20,310 --> 00:13:18,480

right you could say mathematics is all

390

00:13:21,509 --> 00:13:20,320

languages also those languages that are

391

00:13:22,870 --> 00:13:21,519

utter nonsense because they are

392

00:13:25,190 --> 00:13:22,880

contradictory

393

00:13:27,350 --> 00:13:25,200

um that that is one way of looking at it

394

00:13:29,269 --> 00:13:27,360

but the part of mathematics that works

395

00:13:30,629 --> 00:13:29,279

is computation the part of mathematics

396

00:13:33,190 --> 00:13:30,639

that can be implemented

397

00:13:34,949 --> 00:13:33,200

and i think for something to be real it

398

00:13:36,710 --> 00:13:34,959

needs to be implemented

399

00:13:38,629 --> 00:13:36,720

something that is not implementable

400

00:13:41,030 --> 00:13:38,639

something that cannot be realized as a

401
00:13:44,150 --> 00:13:41,040
system that is executable by anything

402
00:13:46,550 --> 00:13:44,160
in mathematics or in physics

403
00:13:48,150 --> 00:13:46,560
is not real right so constructive

404
00:13:49,030 --> 00:13:48,160
mathematics is the part of mathematics

405
00:13:52,389 --> 00:13:49,040
that has a chance

406
00:13:54,629 --> 00:13:52,399
of being real right now

407
00:13:56,150 --> 00:13:54,639
when you say real do you mind defining i

408
00:13:57,829 --> 00:13:56,160
know you just subtly defined it do you

409
00:14:00,629 --> 00:13:57,839
mind explicitly defining what

410
00:14:01,670 --> 00:14:00,639
real is because the way that i'm

411
00:14:02,870 --> 00:14:01,680
thinking about this is

412
00:14:04,230 --> 00:14:02,880
you just mentioned there's classical

413
00:14:05,110 --> 00:14:04,240

mathematics let's just call it classical

414

00:14:06,949 --> 00:14:05,120

mathematics

415

00:14:09,269 --> 00:14:06,959

and it leads to contradictions like

416

00:14:10,790 --> 00:14:09,279

girdle mentioned and one way of

417

00:14:11,750 --> 00:14:10,800

interpreting that is there are limits to

418

00:14:13,509 --> 00:14:11,760

our knowledge there are limits to

419

00:14:14,949 --> 00:14:13,519

mathematics another way is that this is

420

00:14:16,949 --> 00:14:14,959

the wrong mathematics this is not what

421

00:14:19,350 --> 00:14:16,959

is describing our universe what's real

422

00:14:21,350 --> 00:14:19,360

is something else so girdle you actually

423

00:14:22,629 --> 00:14:21,360

said that this is a blind alley don't go

424

00:14:23,829 --> 00:14:22,639

down that alley rather than

425

00:14:25,670 --> 00:14:23,839

this is the alley and here's our

426

00:14:27,590 --> 00:14:25,680

limitations you're like no no no

427

00:14:30,470 --> 00:14:27,600

here's constructive mathematics and

428

00:14:32,310 --> 00:14:30,480

you're saying that this is real okay

429

00:14:35,110 --> 00:14:32,320

help me understand what you mean when

430

00:14:39,110 --> 00:14:37,430

uh just as a small tangent i think it's

431

00:14:42,389 --> 00:14:39,120

unfair to goodell to

432

00:14:42,949 --> 00:14:42,399

pretend that this is what he thought he

433

00:14:46,550 --> 00:14:42,959

said

434

00:14:47,990 --> 00:14:46,560

good actually believed in in this god of

435

00:14:49,110 --> 00:14:48,000

mathematics that came to these

436

00:14:50,629 --> 00:14:49,120

infinities

437

00:14:52,150 --> 00:14:50,639

and it was a big shock to him when he

438

00:14:55,350 --> 00:14:52,160

came up with this proof and

439

00:14:57,189 --> 00:14:55,360

uh so in some sense he

440

00:14:58,790 --> 00:14:57,199

discovered something about the

441

00:15:01,030 --> 00:14:58,800

mathematics that he believed in that

442

00:15:04,550 --> 00:15:01,040

seemed to be real to him

443

00:15:06,470 --> 00:15:04,560

that he could not really get square

444

00:15:08,310 --> 00:15:06,480

and it's also a thing that a lot of

445

00:15:09,910 --> 00:15:08,320

mathematicians and physicists struggle

446

00:15:13,030 --> 00:15:09,920

for instance i think it's part of

447

00:15:15,590 --> 00:15:13,040

what motivates roger penrose when he

448

00:15:17,750 --> 00:15:15,600

uh rejects the idea that computers can

449

00:15:20,230 --> 00:15:17,760

be conscious because he thinks

450

00:15:21,350 --> 00:15:20,240

that human minds can do non-computable

451

00:15:24,629 --> 00:15:21,360

mathematics

452

00:15:26,470 --> 00:15:24,639

in the same way as good to him goodell

453

00:15:27,509 --> 00:15:26,480

has proven that computers cannot do all

454

00:15:31,269 --> 00:15:27,519

of mathematics but

455

00:15:33,030 --> 00:15:31,279

human minds can for instance there uh

456

00:15:34,389 --> 00:15:33,040

penrose has discovered these penrose

457

00:15:36,470 --> 00:15:34,399

tilings these are uh

458

00:15:38,069 --> 00:15:36,480

there are tidings which uh have an

459

00:15:38,949 --> 00:15:38,079

infinite variation right there are

460

00:15:40,629 --> 00:15:38,959

infinities

461

00:15:42,710 --> 00:15:40,639

how can you claim that there are no

462

00:15:44,150 --> 00:15:42,720

infinities but you can

463

00:15:46,230 --> 00:15:44,160

you're only looking at a function i

464

00:15:49,350 --> 00:15:46,240

think that basically

465

00:15:51,990 --> 00:15:49,360

has an open-ended result it's similar to

466

00:15:53,110 --> 00:15:52,000

the function that computes pi pi is not

467

00:15:56,310 --> 00:15:53,120

just a value

468

00:15:58,230 --> 00:15:56,320

pi is a function or a set of functions

469

00:15:59,990 --> 00:15:58,240

that give you for instance if you

470

00:16:00,470 --> 00:16:00,000

translate this into the decimal system

471

00:16:05,269 --> 00:16:00,480

digits

472

00:16:07,189 --> 00:16:05,279

afford

473

00:16:09,110 --> 00:16:07,199

but you can never have a function that

474

00:16:09,910 --> 00:16:09,120

relies on having known the last digit of

475

00:16:11,590 --> 00:16:09,920

pi

476

00:16:13,430 --> 00:16:11,600

where there is nothing where you feed in

477

00:16:15,430 --> 00:16:13,440

pi and you get a result

478

00:16:17,670 --> 00:16:15,440

you can only feed in a number of digits

479

00:16:21,110 --> 00:16:17,680

of pi and you get a partial result

480

00:16:22,710 --> 00:16:21,120

and uh this result has the property that

481

00:16:24,790 --> 00:16:22,720

for

482

00:16:26,230 --> 00:16:24,800

it converges because the digits that you

483

00:16:28,470 --> 00:16:26,240

get

484

00:16:29,910 --> 00:16:28,480

denotes smaller and smaller fractions of

485

00:16:32,150 --> 00:16:29,920

pi and so the

486

00:16:34,230 --> 00:16:32,160

results tend to converge to something

487

00:16:35,430 --> 00:16:34,240

but ultimately you don't know the end of

488

00:16:38,230 --> 00:16:35,440

it

489

00:16:38,710 --> 00:16:38,240

and uh so we have to be fair to girdle

490

00:16:41,350 --> 00:16:38,720

to

491

00:16:43,749 --> 00:16:41,360

uh he he did not believe in computation

492

00:16:46,470 --> 00:16:43,759

as a solution he's he was uh

493

00:16:47,829 --> 00:16:46,480

strongly buried to this pre-constructive

494

00:16:48,870 --> 00:16:47,839

mathematics and non-constructive

495

00:16:51,509 --> 00:16:48,880

mathematics and

496

00:16:52,230 --> 00:16:51,519

he basically thought that mathematics is

497

00:16:53,990 --> 00:16:52,240

somehow

498

00:16:55,430 --> 00:16:54,000

it has a big problem in itself and it

499

00:16:57,110 --> 00:16:55,440

doesn't it was just a problem of the

500

00:16:57,590 --> 00:16:57,120

formatization that mathematicians have

501
00:17:00,949 --> 00:16:57,600
been

502
00:17:03,430 --> 00:17:00,959
using for a long time okay so uh let's

503
00:17:06,789 --> 00:17:03,440
get back to your original question

504
00:17:08,870 --> 00:17:06,799
yeah well we just have it up again

505
00:17:09,990 --> 00:17:08,880
what is real also we're talking about

506
00:17:13,350 --> 00:17:10,000
this pi

507
00:17:15,110 --> 00:17:13,360
does the number pi exist oh no

508
00:17:16,870 --> 00:17:15,120
like this sounds a bit odd but to some

509
00:17:18,309 --> 00:17:16,880
people it's like well the pythagorean

510
00:17:19,189 --> 00:17:18,319
theorem was discovered it wasn't

511
00:17:22,309 --> 00:17:19,199
invented that

512
00:17:25,029 --> 00:17:22,319
the pythagorean theorem for example is

513
00:17:25,510 --> 00:17:25,039

true regardless of if humans are around

514

00:17:27,750 --> 00:17:25,520

okay

515

00:17:29,909 --> 00:17:27,760

then we can say does one exist did we

516

00:17:32,470 --> 00:17:29,919

discover the number one or did it exist

517

00:17:33,190 --> 00:17:32,480

and then we can similarly ask does pi

518

00:17:38,230 --> 00:17:33,200

exist

519

00:17:41,750 --> 00:17:41,350

i think that pi is being constructed and

520

00:17:44,150 --> 00:17:41,760

there

521

00:17:45,669 --> 00:17:44,160

are is a procedure for this construction

522

00:17:47,830 --> 00:17:45,679

that we have discovered

523

00:17:49,669 --> 00:17:47,840

and pi is as real as the mandelbrot

524

00:17:51,750 --> 00:17:49,679

fractal

525

00:17:52,870 --> 00:17:51,760

there is real in pretty much the same

526

00:17:56,230 --> 00:17:52,880

sense right there is this

527

00:17:58,070 --> 00:17:56,240

pattern that is self-contained

528

00:18:00,070 --> 00:17:58,080

it is uh there whether you are looking

529

00:18:03,270 --> 00:18:00,080

at it or not and it's a pattern

530

00:18:03,830 --> 00:18:03,280

that cannot physically exist at least

531

00:18:05,510 --> 00:18:03,840

not at

532

00:18:07,669 --> 00:18:05,520

an infinite resolution because it's a

533

00:18:08,310 --> 00:18:07,679

pattern that is defined with a procedure

534

00:18:10,470 --> 00:18:08,320

that

535

00:18:11,990 --> 00:18:10,480

gives you more resolution the deeper you

536

00:18:14,070 --> 00:18:12,000

get into it

537

00:18:15,750 --> 00:18:14,080

and you will never know the last details

538

00:18:17,350 --> 00:18:15,760

of the mandelbrot fractal and the same

539

00:18:20,230 --> 00:18:17,360

way you will never know

540

00:18:21,270 --> 00:18:20,240

the last details of pi right but there's

541

00:18:23,029 --> 00:18:21,280

a difference between

542

00:18:24,230 --> 00:18:23,039

whether or not we can know it whether or

543

00:18:25,350 --> 00:18:24,240

not it's computable and whether or not

544

00:18:28,230 --> 00:18:25,360

it exists

545

00:18:29,990 --> 00:18:28,240

i think that pi in the sense that you

546

00:18:32,390 --> 00:18:30,000

say it's

547

00:18:33,990 --> 00:18:32,400

defined with the last details does not

548

00:18:36,470 --> 00:18:34,000

exist but

549

00:18:37,190 --> 00:18:36,480

because it cannot be implemented there

550

00:18:40,470 --> 00:18:37,200

can be no

551
00:18:43,590 --> 00:18:40,480
system built into the universe that

552
00:18:46,950 --> 00:18:43,600
is uh expressing the last digits of pi

553
00:18:49,110 --> 00:18:46,960
so the last digits of pi do not exist

554
00:18:50,950 --> 00:18:49,120
in the sense that they are real that

555
00:18:51,830 --> 00:18:50,960
they are there somehow that they are out

556
00:18:53,590 --> 00:18:51,840
there

557
00:18:55,669 --> 00:18:53,600
and influence anything that they have a

558
00:18:58,150 --> 00:18:55,679
causal influence on something else

559
00:18:59,590 --> 00:18:58,160
and for something to exist it uh i think

560
00:19:01,190 --> 00:18:59,600
it is implemented

561
00:19:02,870 --> 00:19:01,200
in such a way that it has a causal

562
00:19:06,310 --> 00:19:02,880
influence on other things

563
00:19:08,630 --> 00:19:06,320

and uh can be uh consistently described

564

00:19:10,950 --> 00:19:08,640

with a model that is describing that

565

00:19:14,950 --> 00:19:10,960

causal influence

566

00:19:21,590 --> 00:19:18,070

not all of them so and right there's a

567

00:19:23,590 --> 00:19:21,600

large number n yeah so

568

00:19:25,110 --> 00:19:23,600

i would say that the integers are a

569

00:19:28,390 --> 00:19:25,120

model they're a way of

570

00:19:31,590 --> 00:19:28,400

talking about things that are real

571

00:19:32,950 --> 00:19:31,600

but it's pointless to say that this

572

00:19:34,789 --> 00:19:32,960

model exists

573

00:19:36,470 --> 00:19:34,799

because well it's a structure that is

574

00:19:38,070 --> 00:19:36,480

being constructed the

575

00:19:40,710 --> 00:19:38,080

implementation of the structure in your

576

00:19:43,830 --> 00:19:40,720

own mind is being constructed the

577

00:19:46,070 --> 00:19:43,840

realization of piano's arithmetic

578

00:19:48,310 --> 00:19:46,080

in a computational system exists in a

579

00:19:48,710 --> 00:19:48,320

way it's implemented to such a degree

580

00:19:52,070 --> 00:19:48,720

that

581

00:19:53,350 --> 00:19:52,080

can be stable enough to allow us to

582

00:19:55,350 --> 00:19:53,360

perform computations

583

00:19:56,789 --> 00:19:55,360

with a certain accuracy and at some

584

00:19:58,070 --> 00:19:56,799

point these computers are going to fall

585

00:20:01,430 --> 00:19:58,080

apart

586

00:20:03,270 --> 00:20:01,440

what i would say exists is

587

00:20:05,029 --> 00:20:03,280

one way of looking at this and it's

588

00:20:07,350 --> 00:20:05,039

basically a thesis that i don't know how

589

00:20:11,430 --> 00:20:07,360

to prove is that there is a causally

590

00:20:13,029 --> 00:20:11,440

closed lowest layer that exists

591

00:20:15,909 --> 00:20:13,039

and this is basically the mechanics of

592

00:20:19,510 --> 00:20:15,919

the universe some kind of automaton that

593

00:20:21,190 --> 00:20:19,520

produces everything that happens

594

00:20:23,510 --> 00:20:21,200

and there seems to be something right

595

00:20:26,789 --> 00:20:23,520

something seems to be real

596

00:20:28,310 --> 00:20:26,799

and um why is there something rather

597

00:20:30,230 --> 00:20:28,320

than laughing i don't know why that is

598

00:20:31,830 --> 00:20:30,240

in some sense it's the most obscene

599

00:20:33,510 --> 00:20:31,840

thing that something exists rather than

600

00:20:35,669 --> 00:20:33,520

nothing it's tremendous

601
00:20:37,110 --> 00:20:35,679
it's much more confusing than everything

602
00:20:39,590 --> 00:20:37,120
else i'm aware of

603
00:20:41,669 --> 00:20:39,600
and the easiest explanation for that is

604
00:20:44,549 --> 00:20:41,679
that existence is the default

605
00:20:46,830 --> 00:20:44,559
so perhaps everything that can exist

606
00:20:48,630 --> 00:20:46,840
which means implemented without

607
00:20:50,870 --> 00:20:48,640
contradictions

608
00:20:52,789 --> 00:20:50,880
exist somehow and so you have the

609
00:20:54,710 --> 00:20:52,799
superposition of all these computational

610
00:20:56,230 --> 00:20:54,720
operators and some of these

611
00:20:57,830 --> 00:20:56,240
regions of the resulting fractal

612
00:20:59,750 --> 00:20:57,840
contains s

613
00:21:01,430 --> 00:20:59,760

right so i'm sure you've heard of the

614

00:21:02,710 --> 00:21:01,440

multiverse this sounds similar to the

615

00:21:03,669 --> 00:21:02,720

multiverse that anything that can't

616

00:21:06,950 --> 00:21:03,679

happen

617

00:21:09,669 --> 00:21:06,960

form

618

00:21:11,430 --> 00:21:09,679

we had a power outage i'm sorry and the

619

00:21:14,549 --> 00:21:11,440

and the worst thing the oh

620

00:21:15,990 --> 00:21:14,559

the audio is gone okay okay that's okay

621

00:21:16,549 --> 00:21:16,000

i hope that you're recording on your

622

00:21:19,430 --> 00:21:16,559

site yes

623

00:21:20,870 --> 00:21:19,440

yeah yeah i am i'm thoroughly recording

624

00:21:23,510 --> 00:21:20,880

good

625

00:21:24,070 --> 00:21:23,520

okay yeah okay he is conspiring against

626

00:21:25,590 --> 00:21:24,080

us

627

00:21:27,669 --> 00:21:25,600

yeah that's all right it doesn't want

628

00:21:31,029 --> 00:21:27,679

the secrets revealed

629

00:21:32,470 --> 00:21:31,039

okay okay so so yosha

630

00:21:34,310 --> 00:21:32,480

i was asking what's the difference

631

00:21:37,029 --> 00:21:34,320

between what you just mentioned

632

00:21:38,950 --> 00:21:37,039

and the multiverse idea which is

633

00:21:41,750 --> 00:21:38,960

something akin to

634

00:21:42,310 --> 00:21:41,760

whatever can exist whatever is possible

635

00:21:43,990 --> 00:21:42,320

exists

636

00:21:46,390 --> 00:21:44,000

in some way shape or form in some other

637

00:21:49,830 --> 00:21:46,400

universe i think that the

638

00:21:53,110 --> 00:21:49,840

uh multiverse in the everett villagram

639

00:21:56,470 --> 00:21:53,120

version this idea that there is

640

00:21:59,510 --> 00:21:56,480

basically at every decision of

641

00:22:01,270 --> 00:21:59,520

the quantum collapse

642

00:22:03,830 --> 00:22:01,280

the collapse of the wave function the

643

00:22:05,909 --> 00:22:03,840

universe splits into copies of itself

644

00:22:07,510 --> 00:22:05,919

is a slightly different conception it's

645

00:22:09,510 --> 00:22:07,520

basically a mathematical

646

00:22:10,830 --> 00:22:09,520

paradigm that describes that the

647

00:22:14,149 --> 00:22:10,840

universe is

648

00:22:16,149 --> 00:22:14,159

branching in ways that parts

649

00:22:17,909 --> 00:22:16,159

of the description of the universe no

650

00:22:21,190 --> 00:22:17,919

longer causally influence the other

651
00:22:23,270 --> 00:22:21,200
parts of the description of the universe

652
00:22:24,390 --> 00:22:23,280
imagine that you are describing the

653
00:22:27,110 --> 00:22:24,400
world as

654
00:22:27,750 --> 00:22:27,120
something like a cellular automaton and

655
00:22:29,430 --> 00:22:27,760
uh

656
00:22:30,789 --> 00:22:29,440
in the cellular automaton you have

657
00:22:32,870 --> 00:22:30,799
particles interaction

658
00:22:34,470 --> 00:22:32,880
interactions which might be like gliders

659
00:22:36,230 --> 00:22:34,480
in the game of life like these

660
00:22:38,390 --> 00:22:36,240
regular patterns that might influence

661
00:22:41,270 --> 00:22:38,400
each other and change state and

662
00:22:41,990 --> 00:22:41,280
move through the topology of a space

663
00:22:45,669 --> 00:22:42,000

that you define

664

00:22:47,270 --> 00:22:45,679

in a certain way and uh it this thing is

665

00:22:49,909 --> 00:22:47,280

defined in such a way that

666

00:22:51,669 --> 00:22:49,919

the computation of the entire thing is

667

00:22:55,029 --> 00:22:51,679

very inefficient because

668

00:22:59,270 --> 00:22:55,039

it at every step the thing splits up

669

00:23:01,350 --> 00:22:59,280

into many many sub topologies in which

670

00:23:02,630 --> 00:23:01,360

you have copies of these sliders or

671

00:23:04,390 --> 00:23:02,640

variants of these sliders

672

00:23:06,549 --> 00:23:04,400

moving about in different ways but only

673

00:23:09,110 --> 00:23:06,559

a subset of the gliders is going to

674

00:23:11,110 --> 00:23:09,120

influence the others so from the

675

00:23:13,750 --> 00:23:11,120

perspective of the future of this

676
00:23:15,750 --> 00:23:13,760
of any kind of system the only things

677
00:23:18,070 --> 00:23:15,760
that are real to you are those that can

678
00:23:20,789 --> 00:23:18,080
causally influence you

679
00:23:22,070 --> 00:23:20,799
and if something moves away from you in

680
00:23:24,230 --> 00:23:22,080
a way that it can no longer

681
00:23:26,230 --> 00:23:24,240
causally influence you and because it's

682
00:23:28,230 --> 00:23:26,240
no longer occupying the same space in a

683
00:23:29,669 --> 00:23:28,240
way

684
00:23:31,270 --> 00:23:29,679
but we basically have a space with

685
00:23:33,350 --> 00:23:31,280
dimensionality that increases and

686
00:23:36,390 --> 00:23:33,360
increases and increases

687
00:23:37,029 --> 00:23:36,400
and this might look like it's extremely

688
00:23:39,909 --> 00:23:37,039

wasteful

689

00:23:41,909 --> 00:23:39,919

but that's only from the perspective of

690

00:23:44,149 --> 00:23:41,919

somebody who is outside of the system

691

00:23:47,029 --> 00:23:44,159

and cares about one of the timelines

692

00:23:49,269 --> 00:23:47,039

of the system and we only exist visit

693

00:23:52,710 --> 00:23:49,279

one of those trajectories inside

694

00:23:54,710 --> 00:23:52,720

and for us we would only experience

695

00:23:56,149 --> 00:23:54,720

a smaller and smaller fraction of the

696

00:23:59,590 --> 00:23:56,159

resulting computation

697

00:24:01,269 --> 00:23:59,600

at every moment and or in the future as

698

00:24:02,549 --> 00:24:01,279

a in potentia

699

00:24:04,310 --> 00:24:02,559

and this is in some sense was this

700

00:24:06,310 --> 00:24:04,320

multiverse idea describes it's a

701

00:24:10,549 --> 00:24:06,320

particular mathematical formalism

702

00:24:12,310 --> 00:24:10,559

it's not exactly the same as uh the one

703

00:24:14,470 --> 00:24:12,320

the thing that i just described because

704

00:24:16,789 --> 00:24:14,480

that is independent of the idea of such

705

00:24:19,110 --> 00:24:16,799

a multiverse

706

00:24:20,789 --> 00:24:19,120

so uh what what i described is a way to

707

00:24:22,230 --> 00:24:20,799

look at the universe as something like

708

00:24:24,390 --> 00:24:22,240

in evolving fractals you have a

709

00:24:26,470 --> 00:24:24,400

generator function that produces

710

00:24:28,070 --> 00:24:26,480

all the possible generator function by

711

00:24:30,070 --> 00:24:28,080

just enumerating them and just

712

00:24:31,510 --> 00:24:30,080

executing them in parallel and as a

713

00:24:34,470 --> 00:24:31,520

result you get

714

00:24:36,310 --> 00:24:34,480

a time space and matter and structure

715

00:24:39,269 --> 00:24:36,320

matter is basically the structure that

716

00:24:40,789 --> 00:24:39,279

is evolving in this phase and is

717

00:24:42,710 --> 00:24:40,799

propelled along it and space

718

00:24:44,470 --> 00:24:42,720

is a set of locations that you can

719

00:24:45,750 --> 00:24:44,480

discern that can contain information

720

00:24:47,350 --> 00:24:45,760

that is discernible

721

00:24:49,590 --> 00:24:47,360

and the ways that the information can

722

00:24:53,190 --> 00:24:49,600

travel between these locations

723

00:24:54,789 --> 00:24:53,200

and uh yeah so you're saying that

724

00:24:55,990 --> 00:24:54,799

we can produce some subsets that are

725

00:24:57,590 --> 00:24:56,000

causally closed and then there are

726

00:24:59,269 --> 00:24:57,600

others that don't influence us at all

727

00:25:01,029 --> 00:24:59,279

and to us whoever lives within this

728

00:25:01,510 --> 00:25:01,039

causally closed place so you know what i

729

00:25:04,549 --> 00:25:01,520

mean they

730

00:25:06,230 --> 00:25:04,559

are constantly looping back to us so

731

00:25:08,149 --> 00:25:06,240

you send a signal into the universe this

732

00:25:08,710 --> 00:25:08,159

uni signal is going to influence certain

733

00:25:11,110 --> 00:25:08,720

things

734

00:25:13,110 --> 00:25:11,120

and as a result you you get feedback

735

00:25:13,430 --> 00:25:13,120

from this right you push a certain thing

736

00:25:15,669 --> 00:25:13,440

and

737

00:25:17,669 --> 00:25:15,679

you see the results of what you pushed

738

00:25:19,269 --> 00:25:17,679

because photons are bounced off that

739

00:25:22,230 --> 00:25:19,279

thing that you are pushing

740

00:25:22,549 --> 00:25:22,240

and there is a limit to that that is uh

741

00:25:26,310 --> 00:25:22,559

the

742

00:25:28,230 --> 00:25:26,320

something goes uh

743

00:25:29,909 --> 00:25:28,240

beyond the region from which light can

744

00:25:31,750 --> 00:25:29,919

reach us it's

745

00:25:34,149 --> 00:25:31,760

it no longer has a causal influence to

746

00:25:36,549 --> 00:25:34,159

us and the multiverse theory is that

747

00:25:38,870 --> 00:25:36,559

uh the there is not just this boundary

748

00:25:41,350 --> 00:25:38,880

uh in a very very large distance

749

00:25:43,029 --> 00:25:41,360

but there is a boundary next to us where

750

00:25:46,870 --> 00:25:43,039

we do things that

751
00:25:48,230 --> 00:25:46,880
lead to information flowing away from us

752
00:25:49,590 --> 00:25:48,240
and not coming back to us

753
00:25:51,669 --> 00:25:49,600
still there is a conservation of

754
00:25:52,870 --> 00:25:51,679
information this conservation of

755
00:25:55,430 --> 00:25:52,880
information is that

756
00:25:56,710 --> 00:25:55,440
we can always basically in some sense

757
00:25:58,789 --> 00:25:56,720
figure out what we did

758
00:26:00,070 --> 00:25:58,799
because all the influences that matter

759
00:26:02,549 --> 00:26:00,080
get back to us

760
00:26:04,070 --> 00:26:02,559
and of course uh the there is a little

761
00:26:05,830 --> 00:26:04,080
bit of a tautology in there

762
00:26:07,669 --> 00:26:05,840
if we are producing things in the

763
00:26:09,909 --> 00:26:07,679

universe with our actions that in some

764

00:26:11,510 --> 00:26:09,919

sense would generate new information

765

00:26:14,789 --> 00:26:11,520

that goes away from us and doesn't come

766

00:26:17,269 --> 00:26:14,799

back we would never know about it

767

00:26:19,190 --> 00:26:17,279

and in some sense the multiverse is an

768

00:26:22,549 --> 00:26:19,200

inevitable description

769

00:26:24,230 --> 00:26:22,559

of such a universe that where the

770

00:26:26,149 --> 00:26:24,240

collapse of the wave function can happen

771

00:26:26,710 --> 00:26:26,159

in multiple ways where are the other

772

00:26:29,269 --> 00:26:26,720

ways

773

00:26:30,950 --> 00:26:29,279

happening where are they going why is it

774

00:26:32,789 --> 00:26:30,960

that we only experience this particular

775

00:26:34,710 --> 00:26:32,799

collapse of the wave function and the

776

00:26:36,230 --> 00:26:34,720

multiverse theory is a possible answer

777

00:26:37,669 --> 00:26:36,240

to that

778

00:26:39,830 --> 00:26:37,679

and there are other possible answers to

779

00:26:41,990 --> 00:26:39,840

that um one could be that

780

00:26:44,070 --> 00:26:42,000

for instance the collapse of the wave

781

00:26:46,230 --> 00:26:44,080

function is deterministic

782

00:26:47,350 --> 00:26:46,240

in in this in a certain sense and that

783

00:26:50,070 --> 00:26:47,360

is

784

00:26:51,750 --> 00:26:50,080

means that it's influenced by things

785

00:26:54,549 --> 00:26:51,760

that are non-local

786

00:26:56,149 --> 00:26:54,559

and that we cannot pinpoint do you

787

00:27:00,549 --> 00:26:56,159

believe that the universe is ultimately

788

00:27:03,909 --> 00:27:02,870

i don't really have beliefs about that i

789

00:27:06,070 --> 00:27:03,919

i think that the

790

00:27:09,990 --> 00:27:06,080

conservation of information seems to

791

00:27:11,669 --> 00:27:10,000

imply that the universe is deterministic

792

00:27:13,110 --> 00:27:11,679

it also depends on what you see as

793

00:27:14,950 --> 00:27:13,120

determinism or in determinism a

794

00:27:16,870 --> 00:27:14,960

deterministic function is one that gives

795

00:27:18,470 --> 00:27:16,880

the same result every time

796

00:27:20,149 --> 00:27:18,480

so the universe being deterministic

797

00:27:22,389 --> 00:27:20,159

means we can't find a function

798

00:27:23,350 --> 00:27:22,399

that describes everything using the same

799

00:27:25,029 --> 00:27:23,360

function

800

00:27:27,110 --> 00:27:25,039

and if it's an independent deterministic

801
00:27:29,590 --> 00:27:27,120
one you get a different result

802
00:27:31,430 --> 00:27:29,600
every time as a transition between

803
00:27:34,710 --> 00:27:31,440
adjacent states of a system

804
00:27:38,070 --> 00:27:34,720
and you can express this by taking

805
00:27:40,870 --> 00:27:38,080
a deterministic function and adding some

806
00:27:42,710 --> 00:27:40,880
of infinitely long string of random

807
00:27:43,990 --> 00:27:42,720
numbers or a string of random numbers

808
00:27:46,789 --> 00:27:44,000
that is longer than

809
00:27:48,149 --> 00:27:46,799
you can observe and in this case you

810
00:27:51,750 --> 00:27:48,159
will have an irregularity

811
00:27:53,669 --> 00:27:51,760
that is not predictable and so

812
00:27:56,870 --> 00:27:53,679
you can always find in some sense a

813
00:27:58,870 --> 00:27:56,880

deterministic model to describe a system

814

00:27:59,990 --> 00:27:58,880

unless you can completely see how it's

815

00:28:02,950 --> 00:28:00,000

made

816

00:28:04,230 --> 00:28:02,960

up and this problem is that we cannot

817

00:28:06,070 --> 00:28:04,240

understand the makeup of an

818

00:28:06,950 --> 00:28:06,080

indeterministic system you cannot open a

819

00:28:09,350 --> 00:28:06,960

box and see

820

00:28:10,149 --> 00:28:09,360

a true random number generator because a

821

00:28:13,190 --> 00:28:10,159

true random

822

00:28:14,870 --> 00:28:13,200

number generator cannot be constructed

823

00:28:16,789 --> 00:28:14,880

and you can construct a function that

824

00:28:18,470 --> 00:28:16,799

gives you the digits of pi

825

00:28:20,070 --> 00:28:18,480

but you cannot construct a function that

826

00:28:24,070 --> 00:28:20,080

gives you a an

827

00:28:27,590 --> 00:28:25,830

what do you think is giving rise to the

828

00:28:29,510 --> 00:28:27,600

initial conditions you mentioned that

829

00:28:31,830 --> 00:28:29,520

maybe existence is the default

830

00:28:32,870 --> 00:28:31,840

what gives rise to that and what gives

831

00:28:34,870 --> 00:28:32,880

you the

832

00:28:36,310 --> 00:28:34,880

rules maybe there are no initial

833

00:28:38,870 --> 00:28:36,320

conditions

834

00:28:39,990 --> 00:28:38,880

so uh the big bang is not in some sense

835

00:28:41,909 --> 00:28:40,000

initial condition

836

00:28:43,590 --> 00:28:41,919

of the universe itself its initial

837

00:28:44,630 --> 00:28:43,600

condition from the perspective of an

838

00:28:47,110 --> 00:28:44,640

observer

839

00:28:48,070 --> 00:28:47,120

when we uh look at the universe we

840

00:28:53,029 --> 00:28:48,080

notice that

841

00:28:57,269 --> 00:28:55,269

there's it's not symmetrical right there

842

00:28:59,590 --> 00:28:57,279

isn't a symmetry in the universe

843

00:29:01,430 --> 00:28:59,600

but it's reversible in the sense that

844

00:29:03,350 --> 00:29:01,440

every state seems to have exactly one

845

00:29:06,470 --> 00:29:03,360

preceding state

846

00:29:08,710 --> 00:29:06,480

and this means that there are parts

847

00:29:10,549 --> 00:29:08,720

of the in the universe that remember

848

00:29:13,269 --> 00:29:10,559

other parts of the universe

849

00:29:14,710 --> 00:29:13,279

if you are for instance taking a a

850

00:29:15,430 --> 00:29:14,720

billiard ball and you send it through

851
00:29:18,549 --> 00:29:15,440
the universe

852
00:29:20,470 --> 00:29:18,559
then there is a reversibility in this

853
00:29:21,830 --> 00:29:20,480
because you could if you would trace uh

854
00:29:23,269 --> 00:29:21,840
all the interactions that the billiard

855
00:29:26,389 --> 00:29:23,279
ball enters uh

856
00:29:28,149 --> 00:29:26,399
directly and do this in the inverse you

857
00:29:30,070 --> 00:29:28,159
could basically restore the state that

858
00:29:30,710 --> 00:29:30,080
existed before the billiard ball entered

859
00:29:32,230 --> 00:29:30,720
it

860
00:29:34,549 --> 00:29:32,240
but you also see this fundamental

861
00:29:36,149 --> 00:29:34,559
asymmetry and this is the stuff behind

862
00:29:37,110 --> 00:29:36,159
the billiard ball remembers the billiard

863
00:29:38,710 --> 00:29:37,120

ball passing

864

00:29:40,149 --> 00:29:38,720

and the stuff before the billiard ball

865

00:29:41,669 --> 00:29:40,159

doesn't yet know that it comes it

866

00:29:42,630 --> 00:29:41,679

doesn't remember that the billiard ball

867

00:29:44,789 --> 00:29:42,640

will

868

00:29:45,830 --> 00:29:44,799

soon cross through this area and break

869

00:29:47,830 --> 00:29:45,840

some havoc

870

00:29:48,870 --> 00:29:47,840

and change things right and this means

871

00:29:50,950 --> 00:29:48,880

that there is this

872

00:29:52,070 --> 00:29:50,960

entropic arrow in the universe and this

873

00:29:55,430 --> 00:29:52,080

describes in

874

00:29:57,350 --> 00:29:55,440

in one direction that

875

00:29:59,830 --> 00:29:57,360

in which way information gets dispersed

876
00:30:02,549 --> 00:29:59,840
to the universe in which way locations

877
00:30:03,269 --> 00:30:02,559
begin remembering uh the state of other

878
00:30:05,029 --> 00:30:03,279
locations

879
00:30:07,110 --> 00:30:05,039
in which way information gets smeared

880
00:30:09,430 --> 00:30:07,120
around between locations

881
00:30:11,029 --> 00:30:09,440
and there is an ideal state that this

882
00:30:12,310 --> 00:30:11,039
hasn't happened yet where all the

883
00:30:13,830 --> 00:30:12,320
locations uh

884
00:30:15,269 --> 00:30:13,840
have information that self-contained

885
00:30:16,070 --> 00:30:15,279
that is not correlated with other

886
00:30:17,830 --> 00:30:16,080
information

887
00:30:19,430 --> 00:30:17,840
in other locations and this is the big

888
00:30:23,830 --> 00:30:19,440

bank state

889

00:30:25,590 --> 00:30:23,840

the opposite direction so

890

00:30:28,070 --> 00:30:25,600

if you would move to the time before the

891

00:30:30,149 --> 00:30:28,080

big bank state the entropic arrow points

892

00:30:32,149 --> 00:30:30,159

away from the big bang so basically

893

00:30:33,269 --> 00:30:32,159

uh all the directions that point away

894

00:30:36,789 --> 00:30:33,279

from the big bang

895

00:30:39,830 --> 00:30:36,799

in time are future of the big bang

896

00:30:42,389 --> 00:30:39,840

because they're all ones that remember a

897

00:30:44,870 --> 00:30:42,399

trajectory that ends in this ideal

898

00:30:45,430 --> 00:30:44,880

original state where the information is

899

00:30:47,190 --> 00:30:45,440

perfectly

900

00:30:48,549 --> 00:30:47,200

correlated with location but this

901
00:30:49,750 --> 00:30:48,559
doesn't mean that the big bang state has

902
00:30:51,830 --> 00:30:49,760
ever existed

903
00:30:53,350 --> 00:30:51,840
it's just a mathematical description of

904
00:30:56,470 --> 00:30:53,360
a singularity in

905
00:30:58,230 --> 00:30:56,480
our entropic era of time

906
00:30:59,990 --> 00:30:58,240
i'm not clear what you mean by that

907
00:31:01,830 --> 00:31:00,000
there's a memory of the

908
00:31:02,870 --> 00:31:01,840
of the state but either way when you say

909
00:31:04,470 --> 00:31:02,880
that there's the big bang and then

910
00:31:06,070 --> 00:31:04,480
there's an entropic arrow

911
00:31:08,549 --> 00:31:06,080
there's a huge mystery a mystery in

912
00:31:10,070 --> 00:31:08,559
physics about the arrow of time

913
00:31:11,990 --> 00:31:10,080

like what is time and why does it move

914

00:31:13,750 --> 00:31:12,000

forward is it static like you mentioned

915

00:31:15,909 --> 00:31:13,760

if we conceptualize the world in

916

00:31:16,950 --> 00:31:15,919

classical non-constructivist mathematics

917

00:31:20,870 --> 00:31:16,960

then there's no

918

00:31:24,389 --> 00:31:20,880

room for time what is time in your model

919

00:31:25,269 --> 00:31:24,399

it's time fundamental um i think that if

920

00:31:28,310 --> 00:31:25,279

you

921

00:31:31,990 --> 00:31:28,320

have a system that is

922

00:31:33,590 --> 00:31:32,000

multi-stable and it it's

923

00:31:35,669 --> 00:31:33,600

moving between these states right it

924

00:31:36,310 --> 00:31:35,679

needs to be able to be influenced by the

925

00:31:39,110 --> 00:31:36,320

environment

926
00:31:41,350 --> 00:31:39,120
and as a result form some kind of memory

927
00:31:43,830 --> 00:31:41,360
the memory means that

928
00:31:44,630 --> 00:31:43,840
as a result of an observation at the

929
00:31:46,710 --> 00:31:44,640
system-made

930
00:31:48,149 --> 00:31:46,720
environment it's changing its internal

931
00:31:51,269 --> 00:31:48,159
state in a particular

932
00:31:53,669 --> 00:31:51,279
deterministic way and

933
00:31:55,669 --> 00:31:53,679
the way that we've described our

934
00:31:58,630 --> 00:31:55,679
universe we noticed that

935
00:32:00,630 --> 00:31:58,640
we can describe our universe in terms of

936
00:32:03,190 --> 00:32:00,640
states of which some

937
00:32:05,509 --> 00:32:03,200
explain this current state by being its

938
00:32:07,750 --> 00:32:05,519

past

939

00:32:09,430 --> 00:32:07,760

you could also say imagine you enumerate

940

00:32:11,269 --> 00:32:09,440

all the possible universe states and

941

00:32:13,590 --> 00:32:11,279

some of these states will look like

942

00:32:14,389 --> 00:32:13,600

they contain the memory of past states

943

00:32:16,630 --> 00:32:14,399

because they are

944

00:32:17,590 --> 00:32:16,640

can be the result of a state transition

945

00:32:19,430 --> 00:32:17,600

where you are

946

00:32:20,870 --> 00:32:19,440

using a permutation on previous bits

947

00:32:22,950 --> 00:32:20,880

basically the laws of physics

948

00:32:24,149 --> 00:32:22,960

and you get to the next state and as if

949

00:32:27,509 --> 00:32:24,159

you go backwards

950

00:32:27,990 --> 00:32:27,519

you get a timeline and all the possible

951
00:32:30,630 --> 00:32:28,000
timelines

952
00:32:31,750 --> 00:32:30,640
in the space of uh the enumeration of

953
00:32:33,990 --> 00:32:31,760
universe states

954
00:32:35,350 --> 00:32:34,000
these are all the possible temporally

955
00:32:37,750 --> 00:32:35,360
extended universes

956
00:32:38,470 --> 00:32:37,760
from the perspective of an observer uh

957
00:32:41,509 --> 00:32:38,480
time is

958
00:32:42,470 --> 00:32:41,519
uh in some sense the rate of change in

959
00:32:45,029 --> 00:32:42,480
the environment

960
00:32:46,630 --> 00:32:45,039
as uh observed by the observer which

961
00:32:47,909 --> 00:32:46,640
means it's relative to the rate of

962
00:32:50,070 --> 00:32:47,919
change in the observer

963
00:32:52,389 --> 00:32:50,080

so from observer perspective time is

964

00:32:55,669 --> 00:32:52,399

intrinsically relativistic

965

00:32:58,470 --> 00:32:55,679

from uh the perspective of outside of

966

00:33:00,389 --> 00:32:58,480

the system which we cannot take

967

00:33:01,750 --> 00:33:00,399

time would be state transition so there

968

00:33:04,070 --> 00:33:01,760

is a way in which you

969

00:33:05,350 --> 00:33:04,080

would enumerate the states by uh

970

00:33:08,549 --> 00:33:05,360

defining a function

971

00:33:12,149 --> 00:33:09,990

okay you just mentioned from the

972

00:33:12,950 --> 00:33:12,159

perspective of of an observer outside

973

00:33:16,230 --> 00:33:12,960

the system

974

00:33:17,509 --> 00:33:16,240

now in general relativity an observer is

975

00:33:19,830 --> 00:33:17,519

what follows the time-like

976
00:33:21,110 --> 00:33:19,840
curve okay so you're in the cone can't

977
00:33:22,710 --> 00:33:21,120
be spaced like can't be null

978
00:33:25,350 --> 00:33:22,720
now if you ask what's what what the heck

979
00:33:26,950 --> 00:33:25,360
is the experience of a photon

980
00:33:28,950 --> 00:33:26,960
we can't do that because an observer is

981
00:33:30,950 --> 00:33:28,960
defined as what's in the time-like

982
00:33:32,710 --> 00:33:30,960
cone the thing is the photon is not

983
00:33:33,350 --> 00:33:32,720
multi-stable the photon does not change

984
00:33:35,430 --> 00:33:33,360
state

985
00:33:37,269 --> 00:33:35,440
right that's why the photon is not able

986
00:33:39,430 --> 00:33:37,279
to observe

987
00:33:41,350 --> 00:33:39,440
the photon can be absorbed and

988
00:33:44,149 --> 00:33:41,360

re-emitted with different properties but

989

00:33:46,149 --> 00:33:44,159

by itself the photon doesn't change

990

00:33:47,509 --> 00:33:46,159

and uh only a system that is able to

991

00:33:49,509 --> 00:33:47,519

change state can observe

992

00:33:51,430 --> 00:33:49,519

and so whenever you have a particle

993

00:33:53,269 --> 00:33:51,440

system like you and me right like a

994

00:33:55,350 --> 00:33:53,279

single one a single one though what

995

00:33:57,430 --> 00:33:55,360

about a single particle

996

00:33:58,470 --> 00:33:57,440

uh it depends what kind of particle but

997

00:34:00,870 --> 00:33:58,480

uh so

998

00:34:01,909 --> 00:34:00,880

in some sense you can describe every uh

999

00:34:05,029 --> 00:34:01,919

particle system

1000

00:34:06,549 --> 00:34:05,039

as some kind of a compound particle but

1001

00:34:08,629 --> 00:34:06,559

it's basically depends on whether you

1002

00:34:11,069 --> 00:34:08,639

can uh change a property

1003

00:34:12,470 --> 00:34:11,079

of of that particle without that

1004

00:34:15,990 --> 00:34:12,480

particle

1005

00:34:18,869 --> 00:34:16,000

uh changing its identity so to speak

1006

00:34:19,669 --> 00:34:18,879

right so uh as as soon as this model of

1007

00:34:22,069 --> 00:34:19,679

the particle that

1008

00:34:23,829 --> 00:34:22,079

no longer applies you use a different

1009

00:34:25,190 --> 00:34:23,839

description

1010

00:34:27,270 --> 00:34:25,200

you used to write for edge i don't know

1011

00:34:29,190 --> 00:34:27,280

if you still do but in the

1012

00:34:31,829 --> 00:34:29,200

last question you wrote what is the

1013

00:34:34,790 --> 00:34:31,839

optimal algorithm for finding truth

1014

00:34:36,389 --> 00:34:34,800

i'm curious to know what is the optimal

1015

00:34:38,869 --> 00:34:36,399

algorithm

1016

00:34:39,669 --> 00:34:38,879

i don't know that so uh in some sense

1017

00:34:43,109 --> 00:34:39,679

the

1018

00:34:45,030 --> 00:34:43,119

this is a question for people that work

1019

00:34:48,550 --> 00:34:45,040

in artificial intelligence

1020

00:34:50,950 --> 00:34:48,560

that is when you exist in

1021

00:34:52,550 --> 00:34:50,960

circumstances that are learnable you try

1022

00:34:53,829 --> 00:34:52,560

to learn about these circumstances you

1023

00:34:56,069 --> 00:34:53,839

make a model of them

1024

00:34:57,510 --> 00:34:56,079

what's the best algorithm that you can

1025

00:34:59,910 --> 00:34:57,520

employ to

1026
00:35:01,829 --> 00:34:59,920
discover a model of what state you're in

1027
00:35:03,270 --> 00:35:01,839
and you can show that for the general

1028
00:35:05,109 --> 00:35:03,280
case that's not possible not every

1029
00:35:07,589 --> 00:35:05,119
system is learnable

1030
00:35:08,710 --> 00:35:07,599
but it seems that the set of universes

1031
00:35:11,750 --> 00:35:08,720
that can contain

1032
00:35:14,150 --> 00:35:11,760
us has certain limitations right not

1033
00:35:16,390 --> 00:35:14,160
every possible universe can contain us

1034
00:35:19,030 --> 00:35:16,400
the universe that can contain us is must

1035
00:35:21,829 --> 00:35:19,040
be essentially a controllable universe

1036
00:35:23,349 --> 00:35:21,839
from our perspective it seems that in

1037
00:35:26,230 --> 00:35:23,359
some sense

1038
00:35:28,390 --> 00:35:26,240

atoms control elementary particles and

1039

00:35:31,349 --> 00:35:28,400

molecules control atoms

1040

00:35:32,870 --> 00:35:31,359

and cells control molecules and

1041

00:35:36,710 --> 00:35:32,880

organisms

1042

00:35:38,710 --> 00:35:36,720

control cells and societies control

1043

00:35:40,390 --> 00:35:38,720

organisms and so on right so we look at

1044

00:35:41,670 --> 00:35:40,400

the hierarchy of control

1045

00:35:43,670 --> 00:35:41,680

it's a one way of looking at the

1046

00:35:46,950 --> 00:35:43,680

complexity that we're seeing

1047

00:35:48,390 --> 00:35:46,960

and a system that is being controlled

1048

00:35:49,990 --> 00:35:48,400

that has has some kind of control

1049

00:35:52,950 --> 00:35:50,000

structure

1050

00:35:54,470 --> 00:35:52,960

implies that the controller implements a

1051
00:35:56,870 --> 00:35:54,480
model of that what is controlling

1052
00:35:58,550 --> 00:35:56,880
otherwise it couldn't control it

1053
00:36:00,310 --> 00:35:58,560
right if you can implement a model of

1054
00:36:01,270 --> 00:36:00,320
something it means that the model is

1055
00:36:03,270 --> 00:36:01,280
discoverable

1056
00:36:05,270 --> 00:36:03,280
which means that the system is learnable

1057
00:36:06,870 --> 00:36:05,280
a controllable universe is a learnable

1058
00:36:10,069 --> 00:36:06,880
universe

1059
00:36:12,470 --> 00:36:10,079
will look random to us

1060
00:36:14,630 --> 00:36:12,480
they're not controllable but what we can

1061
00:36:16,550 --> 00:36:14,640
see is largely controllable right there

1062
00:36:17,270 --> 00:36:16,560
are some zero point fluctuations of the

1063
00:36:19,990 --> 00:36:17,280

universe

1064

00:36:21,190 --> 00:36:20,000

that we cannot control we don't know uh

1065

00:36:22,630 --> 00:36:21,200

where they come from we don't know how

1066

00:36:25,109 --> 00:36:22,640

to influence them

1067

00:36:26,150 --> 00:36:25,119

and uh the particles that we are looking

1068

00:36:27,589 --> 00:36:26,160

at are those

1069

00:36:29,589 --> 00:36:27,599

parts of the fluctuation that are

1070

00:36:31,109 --> 00:36:29,599

regular enough to be described in some

1071

00:36:33,990 --> 00:36:31,119

kind of good control model

1072

00:36:34,550 --> 00:36:34,000

it's tempting to think of the universe

1073

00:36:39,190 --> 00:36:34,560

like

1074

00:36:41,349 --> 00:36:39,200

ocean that is in constant fluctuation

1075

00:36:42,710 --> 00:36:41,359

and these fluctuations look uh random to

1076
00:36:43,589 --> 00:36:42,720
something that is swimming on that

1077
00:36:47,430 --> 00:36:43,599
surface

1078
00:36:49,349 --> 00:36:47,440
regular patterns

1079
00:36:50,870 --> 00:36:49,359
for some things like water vortices and

1080
00:36:53,829 --> 00:36:50,880
these water vertices need to have

1081
00:36:55,190 --> 00:36:53,839
particular properties to be stable and

1082
00:36:57,589 --> 00:36:55,200
when they have these properties they're

1083
00:36:59,510 --> 00:36:57,599
almost indestructible

1084
00:37:01,270 --> 00:36:59,520
basically there are is a certain number

1085
00:37:03,030 --> 00:37:01,280
of molecules that need to be

1086
00:37:04,950 --> 00:37:03,040
involved in a certain way as a certain

1087
00:37:06,790 --> 00:37:04,960
speed and then suddenly you get a vortex

1088
00:37:09,349 --> 00:37:06,800

that is so stable that it can only be

1089

00:37:09,829 --> 00:37:09,359

broken up by hitting other vortices that

1090

00:37:12,550 --> 00:37:09,839

have

1091

00:37:14,150 --> 00:37:12,560

compatible or uh properties that are in

1092

00:37:17,030 --> 00:37:14,160

some relationship to that

1093

00:37:18,550 --> 00:37:17,040

right and this is roughly i think a

1094

00:37:19,349 --> 00:37:18,560

model of the particle dynamics that

1095

00:37:21,270 --> 00:37:19,359

you're looking at

1096

00:37:22,390 --> 00:37:21,280

there are some patterns in in the

1097

00:37:24,150 --> 00:37:22,400

overall dynamics

1098

00:37:25,910 --> 00:37:24,160

that are so stable that they can be

1099

00:37:26,710 --> 00:37:25,920

described by control models and can be

1100

00:37:28,790 --> 00:37:26,720

exploited

1101
00:37:31,349 --> 00:37:28,800
by higher level control structures so

1102
00:37:32,950 --> 00:37:31,359
they give rise to complexity

1103
00:37:34,710 --> 00:37:32,960
and the ones that can't we just don't

1104
00:37:37,109 --> 00:37:34,720
observe them or we observe them

1105
00:37:37,990 --> 00:37:37,119
as random or we observe them as noise

1106
00:37:40,870 --> 00:37:38,000
yes

1107
00:37:42,710 --> 00:37:40,880
they're not predictable right they in

1108
00:37:44,870 --> 00:37:42,720
some sense the meaning of information

1109
00:37:45,910 --> 00:37:44,880
is its relationship to change in other

1110
00:37:48,790 --> 00:37:45,920
information

1111
00:37:50,470 --> 00:37:48,800
so if you see a blip on your retina the

1112
00:37:52,710 --> 00:37:50,480
relationship of that blip

1113
00:37:53,750 --> 00:37:52,720

to other blips of red on your retina is

1114

00:37:56,630 --> 00:37:53,760

the meaning that this

1115

00:37:58,150 --> 00:37:56,640

blip has right this meaning that you

1116

00:38:00,150 --> 00:37:58,160

discover is a function

1117

00:38:01,990 --> 00:38:00,160

that describes the relationship of blips

1118

00:38:03,430 --> 00:38:02,000

on your retina to each other to these

1119

00:38:05,589 --> 00:38:03,440

different changes as

1120

00:38:07,510 --> 00:38:05,599

uh for instance people in a room that is

1121

00:38:07,910 --> 00:38:07,520

lit and that the sunshine's on and these

1122

00:38:09,510 --> 00:38:07,920

people

1123

00:38:11,030 --> 00:38:09,520

walk around they exchange ideas and the

1124

00:38:12,550 --> 00:38:11,040

room is three-dimensional and so on and

1125

00:38:13,589 --> 00:38:12,560

so on right this is the function that

1126

00:38:15,589 --> 00:38:13,599

your brain discovers

1127

00:38:17,190 --> 00:38:15,599

to describe all the blips on your retina

1128

00:38:18,950 --> 00:38:17,200

there are other blips on your retina

1129

00:38:20,390 --> 00:38:18,960

that do not fit into this function and

1130

00:38:22,630 --> 00:38:20,400

these blips are noise

1131

00:38:24,310 --> 00:38:22,640

and there's a lot of noise on our retina

1132

00:38:25,990 --> 00:38:24,320

and in some sense this is also how we

1133

00:38:27,750 --> 00:38:26,000

interpret the universe everything where

1134

00:38:28,950 --> 00:38:27,760

we discover a relationship to the other

1135

00:38:30,950 --> 00:38:28,960

things

1136

00:38:32,310 --> 00:38:30,960

this is what we can model and the rest

1137

00:38:35,109 --> 00:38:32,320

is noise

1138

00:38:36,950 --> 00:38:35,119

and the amazing thing is that physics is

1139

00:38:39,190 --> 00:38:36,960

clarifying the universe to such a high

1140

00:38:40,550 --> 00:38:39,200

degree and there's so little noise left

1141

00:38:42,630 --> 00:38:40,560

do you think that ultimately there will

1142

00:38:44,069 --> 00:38:42,640

be no noise left that will be able to

1143

00:38:45,990 --> 00:38:44,079

characterize everything

1144

00:38:47,670 --> 00:38:46,000

i think that we will always be able to

1145

00:38:50,470 --> 00:38:47,680

construct a function that

1146

00:38:52,390 --> 00:38:50,480

uh behaves as if there was no noise that

1147

00:38:53,910 --> 00:38:52,400

basically explains everything

1148

00:38:55,349 --> 00:38:53,920

but it doesn't mean that this function

1149

00:38:57,270 --> 00:38:55,359

is necessarily predictive it doesn't

1150

00:38:59,589 --> 00:38:57,280

need to be the correct function

1151
00:39:00,790 --> 00:38:59,599
and it's not the only function that can

1152
00:39:03,589 --> 00:39:00,800
explain it it's like

1153
00:39:04,790 --> 00:39:03,599
imagine you live in a computer program

1154
00:39:06,550 --> 00:39:04,800
like minecraft

1155
00:39:08,069 --> 00:39:06,560
and uh you observe all the patterns

1156
00:39:09,670 --> 00:39:08,079
around you you can always construct a

1157
00:39:11,030 --> 00:39:09,680
computer program that will work like

1158
00:39:11,990 --> 00:39:11,040
minecraft and will explain all the

1159
00:39:14,950 --> 00:39:12,000
patterns around you

1160
00:39:16,630 --> 00:39:14,960
even the random patterns right you can

1161
00:39:18,550 --> 00:39:16,640
always come up with some pseudo-random

1162
00:39:20,710 --> 00:39:18,560
number generator that produces this

1163
00:39:23,109 --> 00:39:20,720

but uh you will not necessarily be able

1164

00:39:26,310 --> 00:39:23,119

to discover the truth of the matter

1165

00:39:27,349 --> 00:39:26,320

except um if the world that you live in

1166

00:39:29,270 --> 00:39:27,359

is so simple

1167

00:39:30,870 --> 00:39:29,280

that it suggests itself that there is

1168

00:39:32,550 --> 00:39:30,880

only one simple function

1169

00:39:35,430 --> 00:39:32,560

or a class of simple function that can

1170

00:39:37,750 --> 00:39:35,440

be mapped on to each other with a simple

1171

00:39:39,030 --> 00:39:37,760

transformation that gives the same

1172

00:39:41,030 --> 00:39:39,040

result every time

1173

00:39:42,630 --> 00:39:41,040

right so imagine that you discover yet

1174

00:39:43,910 --> 00:39:42,640

you live in a mandelbrot fractal

1175

00:39:45,670 --> 00:39:43,920

the mental board factor is like two

1176

00:39:47,190 --> 00:39:45,680

lines of code and

1177

00:39:48,870 --> 00:39:47,200

you can express these lines of code in

1178

00:39:50,870 --> 00:39:48,880

many many different ways so

1179

00:39:52,630 --> 00:39:50,880

many ways of expressing the same

1180

00:39:54,310 --> 00:39:52,640

function the same sequence

1181

00:39:56,230 --> 00:39:54,320

but there are mappings between all of

1182

00:39:57,670 --> 00:39:56,240

those and uh

1183

00:39:59,190 --> 00:39:57,680

so if you discover the mandelbrot

1184

00:40:00,950 --> 00:39:59,200

fractal you can basically say this is

1185

00:40:02,790 --> 00:40:00,960

the simplest function that explains it

1186

00:40:04,069 --> 00:40:02,800

this is the reality that you're looking

1187

00:40:07,990 --> 00:40:04,079

at this

1188

00:40:10,470 --> 00:40:08,000

a simple sequential definition of

1189

00:40:12,630 --> 00:40:10,480

how to calculate these pixels on that

1190

00:40:14,790 --> 00:40:12,640

plane and it's conceivable that we would

1191

00:40:16,790 --> 00:40:14,800

find such a function for our universe

1192

00:40:18,470 --> 00:40:16,800

but if the universe is very complicated

1193

00:40:19,750 --> 00:40:18,480

we can still find a very complicated

1194

00:40:21,270 --> 00:40:19,760

function in some sense

1195

00:40:23,190 --> 00:40:21,280

the quest of physics is to find the

1196

00:40:25,030 --> 00:40:23,200

shortest function and the current

1197

00:40:26,870 --> 00:40:25,040

function that we have that explains most

1198

00:40:28,790 --> 00:40:26,880

stuff not everything but most is the

1199

00:40:29,750 --> 00:40:28,800

standard model it's like half a page of

1200

00:40:32,470 --> 00:40:29,760

quote

1201

00:40:34,069 --> 00:40:32,480

and it's it's already very short but

1202

00:40:35,349 --> 00:40:34,079

physicists keep hoping for something

1203

00:40:36,630 --> 00:40:35,359

that is much shorter because

1204

00:40:38,470 --> 00:40:36,640

other page of code is still very

1205

00:40:39,030 --> 00:40:38,480

complicated and people ask themselves

1206

00:40:41,349 --> 00:40:39,040

that how

1207

00:40:43,030 --> 00:40:41,359

does all this complexity come from do

1208

00:40:45,349 --> 00:40:43,040

you think that ultimately the

1209

00:40:47,270 --> 00:40:45,359

code is short or do you think that like

1210

00:40:48,870 --> 00:40:47,280

feynman was quoted saying that it might

1211

00:40:50,790 --> 00:40:48,880

even be an onion where

1212

00:40:51,990 --> 00:40:50,800

you just keep unveiling the layers and

1213

00:40:53,990 --> 00:40:52,000

it's more and more complex

1214

00:40:55,510 --> 00:40:54,000

less and less complex and it doesn't

1215

00:40:56,790 --> 00:40:55,520

follow necessarily a pattern maybe

1216

00:40:57,910 --> 00:40:56,800

there's not even a center

1217

00:41:01,589 --> 00:40:57,920

do you believe there's a center and you

1218

00:41:03,750 --> 00:41:01,599

believe that center is simple

1219

00:41:05,510 --> 00:41:03,760

it's a weird metaphors it's mostly ways

1220

00:41:07,589 --> 00:41:05,520

that we think about the world that we

1221

00:41:09,349 --> 00:41:07,599

should deconstruct before we trust them

1222

00:41:11,030 --> 00:41:09,359

right what does it mean that for

1223

00:41:13,030 --> 00:41:11,040

something to be a center

1224

00:41:15,270 --> 00:41:13,040

it's inside of something and the onion

1225

00:41:17,270 --> 00:41:15,280

is outside and it's spatially aligned

1226

00:41:19,190 --> 00:41:17,280

so what this describes is probably a

1227

00:41:21,030 --> 00:41:19,200

hierarchy of models

1228

00:41:22,870 --> 00:41:21,040

and the question is does every

1229

00:41:24,630 --> 00:41:22,880

subsequent layer of modeling that we

1230

00:41:26,309 --> 00:41:24,640

discover becomes simpler and simpler

1231

00:41:28,950 --> 00:41:26,319

imagine you take a microscope

1232

00:41:29,430 --> 00:41:28,960

and you look at a cell and you zoom in

1233

00:41:32,150 --> 00:41:29,440

and

1234

00:41:33,750 --> 00:41:32,160

every at every level of resolution where

1235

00:41:35,030 --> 00:41:33,760

you discover a new structure

1236

00:41:36,790 --> 00:41:35,040

the question is does the structure

1237

00:41:38,470 --> 00:41:36,800

become more simple or more complex

1238

00:41:39,990 --> 00:41:38,480

right and does the model converge to

1239

00:41:43,750 --> 00:41:40,000

something ultimately

1240

00:41:45,670 --> 00:41:43,760

yeah and i think that

1241

00:41:47,430 --> 00:41:45,680

it's very likely that it does converge

1242

00:41:49,270 --> 00:41:47,440

to something from what i understand

1243

00:41:51,349 --> 00:41:49,280

but i cannot make such a proof at this

1244

00:41:53,030 --> 00:41:51,359

point i think that it uh

1245

00:41:54,550 --> 00:41:53,040

must converge to something because there

1246

00:41:55,349 --> 00:41:54,560

are no infinities things needs to be

1247

00:41:57,589 --> 00:41:55,359

constructed

1248

00:41:59,190 --> 00:41:57,599

there is also this weird properties that

1249

00:42:00,150 --> 00:41:59,200

for instance if you look at the particle

1250

00:42:02,870 --> 00:42:00,160

generations

1251
00:42:03,589 --> 00:42:02,880
they are integer fractions that describe

1252
00:42:06,390 --> 00:42:03,599
uh how they are

1253
00:42:07,670 --> 00:42:06,400
uh how they differ in their properties

1254
00:42:10,950 --> 00:42:07,680
right so uh

1255
00:42:13,030 --> 00:42:10,960
it could be that there are uh smallest

1256
00:42:14,950 --> 00:42:13,040
building blocks of information

1257
00:42:16,230 --> 00:42:14,960
that uh make up the particles that

1258
00:42:17,670 --> 00:42:16,240
you're looking at there is no infinite

1259
00:42:20,390 --> 00:42:17,680
division between them

1260
00:42:22,309 --> 00:42:20,400
and so it could be that the the course

1261
00:42:24,550 --> 00:42:22,319
of the closest lowest layer

1262
00:42:27,270 --> 00:42:24,560
is somewhere uh inside it's something

1263
00:42:28,710 --> 00:42:27,280

that we can still construct

1264

00:42:30,309 --> 00:42:28,720

is it cool if we get into the nitty

1265

00:42:31,349 --> 00:42:30,319

gritty i have some questions about your

1266

00:42:33,190 --> 00:42:31,359

powerpoint slides

1267

00:42:35,190 --> 00:42:33,200

yes just one uh one more thing i didn't

1268

00:42:37,190 --> 00:42:35,200

answer the question for uh for the

1269

00:42:38,550 --> 00:42:37,200

optimal algorithm to discover yes great

1270

00:42:42,150 --> 00:42:38,560

let's get back to that

1271

00:42:43,589 --> 00:42:42,160

sorry i went on to attention there but i

1272

00:42:46,470 --> 00:42:43,599

thought it was necessary

1273

00:42:48,390 --> 00:42:46,480

so uh in some sense when you look at

1274

00:42:50,790 --> 00:42:48,400

artificial intelligence systems

1275

00:42:52,309 --> 00:42:50,800

uh there was a succession of ideas and

1276
00:42:54,230 --> 00:42:52,319
in classical ai

1277
00:42:55,430 --> 00:42:54,240
uh people have been looking at problems

1278
00:42:57,270 --> 00:42:55,440
like playing chess

1279
00:42:59,750 --> 00:42:57,280
and constructing algorithms to solve

1280
00:43:01,589 --> 00:42:59,760
that problem mostly by hand

1281
00:43:03,510 --> 00:43:01,599
and when they looked at new problems

1282
00:43:05,589 --> 00:43:03,520
they had to construct a new algorithm

1283
00:43:07,750 --> 00:43:05,599
and then we had this idea of finding

1284
00:43:10,790 --> 00:43:07,760
more general algorithms that can

1285
00:43:12,550 --> 00:43:10,800
work over a very large class of problems

1286
00:43:13,670 --> 00:43:12,560
general problem solvers and there is

1287
00:43:15,109 --> 00:43:13,680
difficulty that

1288
00:43:16,710 --> 00:43:15,119

if you have a description that is so

1289

00:43:19,270 --> 00:43:16,720

general that it works on many

1290

00:43:19,910 --> 00:43:19,280

uh problems then the description is

1291

00:43:23,670 --> 00:43:19,920

typically

1292

00:43:24,710 --> 00:43:23,680

uh so general that uh it's too long for

1293

00:43:26,790 --> 00:43:24,720

a concrete problem

1294

00:43:28,550 --> 00:43:26,800

it basically takes too long to explore

1295

00:43:29,109 --> 00:43:28,560

the space using this general description

1296

00:43:30,710 --> 00:43:29,119

you get a

1297

00:43:32,550 --> 00:43:30,720

explosion of complexity there are too

1298

00:43:34,550 --> 00:43:32,560

many possibilities that you would have

1299

00:43:37,109 --> 00:43:34,560

to look into if you enumerate them all

1300

00:43:38,790 --> 00:43:37,119

with your general description so uh you

1301
00:43:40,870 --> 00:43:38,800
end up needing

1302
00:43:42,309 --> 00:43:40,880
a targeted exploration of the space of

1303
00:43:44,150 --> 00:43:42,319
possibilities

1304
00:43:46,230 --> 00:43:44,160
and this is what the current wave of ai

1305
00:43:48,390 --> 00:43:46,240
is doing it's looking for algorithms

1306
00:43:50,309 --> 00:43:48,400
that discover solutions for problems so

1307
00:43:51,030 --> 00:43:50,319
instead of implementing a solution for

1308
00:43:53,190 --> 00:43:51,040
chess

1309
00:43:55,190 --> 00:43:53,200
we give the system a specification for

1310
00:43:56,150 --> 00:43:55,200
chess and then we let it explore the

1311
00:43:59,349 --> 00:43:56,160
solution space

1312
00:44:00,550 --> 00:43:59,359
right it's discovering uh an algorithm

1313
00:44:02,150 --> 00:44:00,560

to play chess

1314

00:44:04,630 --> 00:44:02,160

using an algorithm that we give it so we

1315

00:44:07,270 --> 00:44:04,640

construct a learning algorithm

1316

00:44:08,230 --> 00:44:07,280

and the next stage could be that we just

1317

00:44:10,150 --> 00:44:08,240

describe

1318

00:44:11,589 --> 00:44:10,160

an algorithm that discovers a learning

1319

00:44:14,150 --> 00:44:11,599

algorithm for this

1320

00:44:15,430 --> 00:44:14,160

this is meta learning so we don't build

1321

00:44:17,349 --> 00:44:15,440

a system that learns

1322

00:44:19,190 --> 00:44:17,359

people decision that learns how to learn

1323

00:44:21,270 --> 00:44:19,200

a given thing

1324

00:44:23,750 --> 00:44:21,280

right and then a question is is this the

1325

00:44:26,950 --> 00:44:23,760

generally best solution already

1326

00:44:29,190 --> 00:44:26,960

or if not maybe we need to get one step

1327

00:44:31,270 --> 00:44:29,200

above and we need to discover a general

1328

00:44:33,190 --> 00:44:31,280

theory of search

1329

00:44:34,710 --> 00:44:33,200

a general mathematical theory says how

1330

00:44:36,710 --> 00:44:34,720

to optimally search given certain

1331

00:44:38,069 --> 00:44:36,720

boundary conditions

1332

00:44:39,430 --> 00:44:38,079

the way that i'm conceptualizing what

1333

00:44:40,950 --> 00:44:39,440

you said is in the first wave of

1334

00:44:42,790 --> 00:44:40,960

artificial intelligence it's almost like

1335

00:44:44,150 --> 00:44:42,800

if then statements extremely structured

1336

00:44:45,670 --> 00:44:44,160

here's how to play chess i'm going to

1337

00:44:47,670 --> 00:44:45,680

implement the rules myself then the

1338

00:44:49,750 --> 00:44:47,680

second wave is look at

1339

00:44:51,030 --> 00:44:49,760

a slew of chess and learn the rules and

1340

00:44:53,030 --> 00:44:51,040

learn how to play well

1341

00:44:54,309 --> 00:44:53,040

then you're saying that okay well that's

1342

00:44:55,990 --> 00:44:54,319

great it's like watson watson's

1343

00:44:57,270 --> 00:44:56,000

wonderful at one task

1344

00:44:59,190 --> 00:44:57,280

but then when you want to generalize

1345

00:45:00,790 --> 00:44:59,200

watson can you also move your arms okay

1346

00:45:03,190 --> 00:45:00,800

well that require and also be

1347

00:45:04,630 --> 00:45:03,200

regular watson that's a bit difficult

1348

00:45:07,589 --> 00:45:04,640

watson can you move your arms

1349

00:45:08,230 --> 00:45:07,599

and talk to people it requires too much

1350

00:45:09,670 --> 00:45:08,240

time

1351
00:45:11,430 --> 00:45:09,680
because your your function is too

1352
00:45:13,030 --> 00:45:11,440
general but yet our brains do it

1353
00:45:15,910 --> 00:45:13,040
are you saying something like that or am

1354
00:45:17,589 --> 00:45:15,920
i completely wrong almost almost

1355
00:45:19,270 --> 00:45:17,599
starting with watson it's a family of

1356
00:45:20,630 --> 00:45:19,280
things basically it's a brand that ibm

1357
00:45:22,870 --> 00:45:20,640
has been using to

1358
00:45:24,069 --> 00:45:22,880
label its ai efforts or part of its ai

1359
00:45:26,630 --> 00:45:24,079
efforts after

1360
00:45:28,230 --> 00:45:26,640
uh the jeopardy thing became famous so

1361
00:45:31,670 --> 00:45:28,240
it's watson is not one thing

1362
00:45:33,829 --> 00:45:31,680
it's many things and it's

1363
00:45:36,550 --> 00:45:33,839

slightly different from uh alphago

1364

00:45:39,670 --> 00:45:36,560

because alphago is an algorithm that is

1365

00:45:41,670 --> 00:45:39,680

specified in a particular paper and

1366

00:45:43,670 --> 00:45:41,680

deepmind is not renaming everything that

1367

00:45:44,790 --> 00:45:43,680

it does into alphago because alphago got

1368

00:45:47,270 --> 00:45:44,800

famous

1369

00:45:48,550 --> 00:45:47,280

right it's uh it has alpha zero and

1370

00:45:50,309 --> 00:45:48,560

there's a number of other things that

1371

00:45:52,390 --> 00:45:50,319

algorithms that are somewhat related

1372

00:45:53,670 --> 00:45:52,400

and uh eventually when you talk about

1373

00:45:55,349 --> 00:45:53,680

the algorithms you can also use the

1374

00:45:58,069 --> 00:45:55,359

technical name you could look at

1375

00:46:00,550 --> 00:45:58,079

for instance deep q learning and uh deep

1376

00:46:02,950 --> 00:46:00,560

q learning is a particular

1377

00:46:04,550 --> 00:46:02,960

small class of algorithms that can solve

1378

00:46:09,270 --> 00:46:04,560

certain problems very well and

1379

00:46:11,589 --> 00:46:09,280

others not very well at the moment the

1380

00:46:12,630 --> 00:46:11,599

most interesting class of algorithms a

1381

00:46:14,230 --> 00:46:12,640

lot of people are talking about

1382

00:46:16,470 --> 00:46:14,240

one of the most interesting ones is

1383

00:46:19,510 --> 00:46:16,480

transformers which

1384

00:46:21,430 --> 00:46:19,520

look for embeddings of

1385

00:46:23,109 --> 00:46:21,440

features based on similarities over many

1386

00:46:24,230 --> 00:46:23,119

layers using an attention-based

1387

00:46:27,109 --> 00:46:24,240

algorithm

1388

00:46:28,550 --> 00:46:27,119

and a fascinating thing is that the same

1389

00:46:30,150 --> 00:46:28,560

algorithm that discovers structure and

1390

00:46:31,109 --> 00:46:30,160

language also discovers structure and

1391

00:46:33,270 --> 00:46:31,119

images

1392

00:46:35,270 --> 00:46:33,280

and now the tempting question is is

1393

00:46:37,190 --> 00:46:35,280

there an optimal algorithm that can

1394

00:46:39,270 --> 00:46:37,200

discover structure everywhere

1395

00:46:41,349 --> 00:46:39,280

and that maybe is recursive in the sense

1396

00:46:43,030 --> 00:46:41,359

that it it's starting to explore what

1397

00:46:44,790 --> 00:46:43,040

kind of strategies of discovering

1398

00:46:47,030 --> 00:46:44,800

structure are the best ones

1399

00:46:48,150 --> 00:46:47,040

and then it settles for those is there a

1400

00:46:51,109 --> 00:46:48,160

universal

1401

00:46:53,030 --> 00:46:51,119

recipe and i don't think that there is a

1402

00:46:54,790 --> 00:46:53,040

hope in the sense to say this algorithm

1403

00:46:56,630 --> 00:46:54,800

doesn't exist and humans will always be

1404

00:46:59,430 --> 00:46:56,640

better because if humans are better

1405

00:47:00,150 --> 00:46:59,440

than the algorithms that we discover

1406

00:47:02,069 --> 00:47:00,160

even the most

1407

00:47:03,670 --> 00:47:02,079

general one it means that humans are

1408

00:47:04,550 --> 00:47:03,680

implementing a more general algorithm

1409

00:47:07,190 --> 00:47:04,560

than the more general

1410

00:47:09,030 --> 00:47:07,200

most general one and we can discover it

1411

00:47:10,150 --> 00:47:09,040

right there is no reason why humans can

1412

00:47:12,710 --> 00:47:10,160

do something

1413

00:47:13,349 --> 00:47:12,720

that an algorithm that we write down

1414

00:47:15,670 --> 00:47:13,359

somehow

1415

00:47:17,430 --> 00:47:15,680

cannot do we can also write down the

1416

00:47:19,190 --> 00:47:17,440

formula for evolution and we can

1417

00:47:21,030 --> 00:47:19,200

in the worst case evolve the algorithms

1418

00:47:22,549 --> 00:47:21,040

that we need to and then

1419

00:47:25,030 --> 00:47:22,559

everything that we do is in some sense

1420

00:47:25,510 --> 00:47:25,040

an optimization of brute force evolution

1421

00:47:28,390 --> 00:47:25,520

where

1422

00:47:28,950 --> 00:47:28,400

we do a blind search and we do try to

1423

00:47:31,190 --> 00:47:28,960

find

1424

00:47:32,150 --> 00:47:31,200

uh directions in which we can optimize

1425

00:47:33,670 --> 00:47:32,160

the search and

1426

00:47:35,510 --> 00:47:33,680

for me this question is there this

1427

00:47:37,109 --> 00:47:35,520

optimal algorithm to discover choose the

1428

00:47:39,190 --> 00:47:37,119

optimal learning algorithm

1429

00:47:40,710 --> 00:47:39,200

that would mean we can't stop doing

1430

00:47:42,630 --> 00:47:40,720

science because as scientists we can

1431

00:47:44,069 --> 00:47:42,640

only now execute on this algorithm and

1432

00:47:46,150 --> 00:47:44,079

of course we can leave this to a machine

1433

00:47:48,069 --> 00:47:46,160

now and we should go to a beach and surf

1434

00:47:49,670 --> 00:47:48,079

instead and there's a factor of time

1435

00:47:51,109 --> 00:47:49,680

because we could implement evolution and

1436

00:47:51,990 --> 00:47:51,119

let it run for a billion years and then

1437

00:47:53,190 --> 00:47:52,000

it would discover something

1438

00:47:54,390 --> 00:47:53,200

that's greater than us in terms of

1439

00:47:55,190 --> 00:47:54,400

generalization but we probably wouldn't

1440

00:47:57,829 --> 00:47:55,200

need to because

1441

00:47:58,549 --> 00:47:57,839

uh the evolution that we are looking at

1442

00:48:02,150 --> 00:47:58,559

uh

1443

00:48:03,829 --> 00:48:02,160

is only slow for multicellular organisms

1444

00:48:04,230 --> 00:48:03,839

because in multicellular organisms you

1445

00:48:06,069 --> 00:48:04,240

need to

1446

00:48:07,270 --> 00:48:06,079

bootstrap the entire organism before you

1447

00:48:09,750 --> 00:48:07,280

can evaluate it

1448

00:48:11,990 --> 00:48:09,760

which in our case takes very long for

1449

00:48:13,750 --> 00:48:12,000

for us it's also necessary to train this

1450

00:48:15,510 --> 00:48:13,760

the new instance of the algorithm for a

1451
00:48:16,150 --> 00:48:15,520
long time before it comes functional

1452
00:48:18,150 --> 00:48:16,160
again right

1453
00:48:21,109 --> 00:48:18,160
if you want to breed the optimal

1454
00:48:23,190 --> 00:48:21,119
scientist you cannot just uh

1455
00:48:25,190 --> 00:48:23,200
vary our genome and look at the outcome

1456
00:48:25,670 --> 00:48:25,200
you also need to expand the issue so you

1457
00:48:27,349 --> 00:48:25,680
need to

1458
00:48:29,109 --> 00:48:27,359
incubate for nine months and then you

1459
00:48:32,390 --> 00:48:29,119
need to raise this

1460
00:48:35,270 --> 00:48:32,400
until it's in its 20s or 30s or 40s and

1461
00:48:37,190 --> 00:48:35,280
then you get an evaluation and then you

1462
00:48:37,910 --> 00:48:37,200
can decide uh which ones of those you

1463
00:48:40,309 --> 00:48:37,920

shouldn't uh

1464

00:48:41,349 --> 00:48:40,319

put into the next generation right this

1465

00:48:43,829 --> 00:48:41,359

is something that

1466

00:48:45,670 --> 00:48:43,839

is uh a result of the way that

1467

00:48:47,510 --> 00:48:45,680

biological evolution works based on

1468

00:48:50,069 --> 00:48:47,520

cells

1469

00:48:51,990 --> 00:48:50,079

in on if you just evolve single-celled

1470

00:48:54,230 --> 00:48:52,000

organisms it goes very very fast

1471

00:48:55,589 --> 00:48:54,240

right in a few hours you can have quite

1472

00:48:57,670 --> 00:48:55,599

substantial changes

1473

00:48:59,349 --> 00:48:57,680

and the microorganisms that for instance

1474

00:49:02,309 --> 00:48:59,359

we breed in our gut

1475

00:49:04,470 --> 00:49:02,319

are often quite specific trained for

1476

00:49:08,790 --> 00:49:04,480

tasks basically our gut is breeding

1477

00:49:12,150 --> 00:49:08,800

organisms to for its purposes and

1478

00:49:14,069 --> 00:49:12,160

that is done in reactors our

1479

00:49:15,670 --> 00:49:14,079

guts are in some sense breeding reactors

1480

00:49:18,549 --> 00:49:15,680

for microorganisms

1481

00:49:19,349 --> 00:49:18,559

and it's also a substantial part of our

1482

00:49:21,910 --> 00:49:19,359

nervous system

1483

00:49:23,430 --> 00:49:21,920

is uh duty bound to deal with this

1484

00:49:25,750 --> 00:49:23,440

breeding task with farming these

1485

00:49:28,790 --> 00:49:25,760

microorganisms all these

1486

00:49:29,190 --> 00:49:28,800

gut neurons are mostly dealing with i

1487

00:49:31,190 --> 00:49:29,200

think

1488

00:49:33,670 --> 00:49:31,200

maintaining this extremely large farm

1489

00:49:35,910 --> 00:49:33,680

that has specific organisms in it

1490

00:49:37,270 --> 00:49:35,920

and this works because it's uh such a

1491

00:49:40,470 --> 00:49:37,280

quick thing to breed

1492

00:49:43,109 --> 00:49:40,480

single-celled organisms but

1493

00:49:44,150 --> 00:49:43,119

if we build ai's in this way we would

1494

00:49:47,030 --> 00:49:44,160

not have to

1495

00:49:47,990 --> 00:49:47,040

reinstate the entire phenotype based on

1496

00:49:50,950 --> 00:49:48,000

a genotype

1497

00:49:52,549 --> 00:49:50,960

over a long time and retrain it we can

1498

00:49:54,630 --> 00:49:52,559

probably just change the parts that we

1499

00:49:56,470 --> 00:49:54,640

need and leave everything else intact

1500

00:49:59,750 --> 00:49:56,480

so the evolutionary research that we

1501
00:50:01,750 --> 00:49:59,760
could do in our technical systems

1502
00:50:04,230 --> 00:50:01,760
can be many many orders of magnitude

1503
00:50:05,910 --> 00:50:04,240
faster it can also be much more directed

1504
00:50:07,030 --> 00:50:05,920
because often we know what we're looking

1505
00:50:09,510 --> 00:50:07,040
for

1506
00:50:10,630 --> 00:50:09,520
so we can define a fitness function that

1507
00:50:14,309 --> 00:50:10,640
is very

1508
00:50:15,750 --> 00:50:14,319
close to the solution or that is uh

1509
00:50:17,829 --> 00:50:15,760
narrowing the solution space

1510
00:50:20,790 --> 00:50:17,839
dramatically

1511
00:50:22,069 --> 00:50:20,800
i remember you said that artists are

1512
00:50:24,150 --> 00:50:22,079
tuned to their

1513
00:50:25,510 --> 00:50:24,160

loss function something like that that's

1514

00:50:27,589 --> 00:50:25,520

what they're obsessed with

1515

00:50:29,670 --> 00:50:27,599

now the way that i understand that is

1516

00:50:31,589 --> 00:50:29,680

what you're saying is

1517

00:50:33,030 --> 00:50:31,599

artists are interested in their behavior

1518

00:50:34,230 --> 00:50:33,040

and what incentives and rewards they

1519

00:50:35,670 --> 00:50:34,240

have which are their values and they're

1520

00:50:37,349 --> 00:50:35,680

trying to replicate that or represent

1521

00:50:39,670 --> 00:50:37,359

that in some level

1522

00:50:41,430 --> 00:50:39,680

is that correct or is that wrong close

1523

00:50:45,510 --> 00:50:41,440

so uh what i try to say

1524

00:50:49,270 --> 00:50:45,520

is um that art is in some sense

1525

00:50:49,829 --> 00:50:49,280

uh a dysfunction sorry a what function

1526

00:50:54,309 --> 00:50:49,839

art

1527

00:50:56,549 --> 00:50:54,319

a dysfunction dysfunction yes because

1528

00:50:58,069 --> 00:50:56,559

so there are basically different ways of

1529

00:51:01,349 --> 00:50:58,079

looking at art

1530

00:51:03,109 --> 00:51:01,359

a non-artist a normal person a healthy

1531

00:51:05,829 --> 00:51:03,119

person

1532

00:51:07,829 --> 00:51:05,839

sees art as a tool it's instrumental to

1533

00:51:10,549 --> 00:51:07,839

something it might be tool for education

1534

00:51:13,430 --> 00:51:10,559

for entertainment for signaling status

1535

00:51:14,790 --> 00:51:13,440

for ornamentation and an artist and i am

1536

00:51:16,710 --> 00:51:14,800

from an artist's family and totally

1537

00:51:18,309 --> 00:51:16,720

identify with this stuff is a person

1538

00:51:20,950 --> 00:51:18,319

that thinks that the purpose of art is

1539

00:51:22,870 --> 00:51:20,960

to capture conscious states

1540

00:51:24,790 --> 00:51:22,880

full stop this is this is the purpose of

1541

00:51:26,549 --> 00:51:24,800

art it's this observation

1542

00:51:28,069 --> 00:51:26,559

for the sake of observation because the

1543

00:51:29,589 --> 00:51:28,079

conscious state is the important thing

1544

00:51:32,790 --> 00:51:29,599

that needs to be conserved

1545

00:51:36,069 --> 00:51:32,800

an artist is somebody who eats to do art

1546

00:51:39,349 --> 00:51:36,079

and uh a craftsman is somebody

1547

00:51:42,390 --> 00:51:39,359

who might produce artifacts uh but

1548

00:51:44,230 --> 00:51:42,400

uh they do art to eat right it's

1549

00:51:46,309 --> 00:51:44,240

it's very different way of looking at

1550

00:51:48,230 --> 00:51:46,319

things for them the art is instrumental

1551
00:51:50,230 --> 00:51:48,240
to to doing something the art is an

1552
00:51:53,190 --> 00:51:50,240
artifact and for

1553
00:51:55,589 --> 00:51:53,200
the artist it's a service it's a service

1554
00:51:58,230 --> 00:51:55,599
to something that is more important

1555
00:51:59,030 --> 00:51:58,240
than all the other things that you could

1556
00:52:02,230 --> 00:51:59,040
be

1557
00:52:05,349 --> 00:52:02,240
doing in this at the same time and so

1558
00:52:07,190 --> 00:52:05,359
if you see the artist as in with the

1559
00:52:08,150 --> 00:52:07,200
metaphors of artificial intelligence you

1560
00:52:10,549 --> 00:52:08,160
could say that

1561
00:52:11,430 --> 00:52:10,559
the mind of an artist is a system that

1562
00:52:13,349 --> 00:52:11,440
has fallen

1563
00:52:15,349 --> 00:52:13,359

in love with the shape of the loss

1564

00:52:16,710 --> 00:52:15,359

function it's no longer optimizing the

1565

00:52:18,630 --> 00:52:16,720

loss function itself

1566

00:52:20,710 --> 00:52:18,640

it's trying to figure out what it looks

1567

00:52:22,790 --> 00:52:20,720

like it's trying to capture

1568

00:52:24,230 --> 00:52:22,800

a certain structure for its own sake no

1569

00:52:26,549 --> 00:52:24,240

longer for the reward

1570

00:52:27,990 --> 00:52:26,559

that is going to increase as a result of

1571

00:52:31,349 --> 00:52:28,000

applying what you've learned

1572

00:52:34,230 --> 00:52:31,359

do you see yourself as doing that

1573

00:52:36,230 --> 00:52:34,240

yeah it's that's i think it's a

1574

00:52:38,630 --> 00:52:36,240

deformation and i can retrace it

1575

00:52:40,309 --> 00:52:38,640

uh in a way it's an identification that

1576

00:52:41,750 --> 00:52:40,319

happens at a certain level

1577

00:52:44,950 --> 00:52:41,760

for for instance my mind is a very

1578

00:52:46,630 --> 00:52:44,960

conceptual mind i perceive myself as

1579

00:52:48,390 --> 00:52:46,640

something that thinks that solves

1580

00:52:50,950 --> 00:52:48,400

problems that reflects

1581

00:52:51,430 --> 00:52:50,960

and i perceive as my emotions and my

1582

00:52:53,190 --> 00:52:51,440

body

1583

00:52:55,030 --> 00:52:53,200

as being outside of that for the most

1584

00:52:57,829 --> 00:52:55,040

part right emotions come into

1585

00:52:59,670 --> 00:52:57,839

me and they disturb me and i need to

1586

00:53:01,910 --> 00:52:59,680

deal with them and i need to make sure

1587

00:53:03,829 --> 00:53:01,920

that they don't distract me or that they

1588

00:53:07,670 --> 00:53:03,839

don't overwhelm me or

1589

00:53:09,270 --> 00:53:07,680

they don't kill me but i don't identify

1590

00:53:10,870 --> 00:53:09,280

for the most part as this emotional

1591

00:53:13,190 --> 00:53:10,880

being of course sometimes i go

1592

00:53:13,990 --> 00:53:13,200

over in that state and i realize that

1593

00:53:16,630 --> 00:53:14,000

state

1594

00:53:17,270 --> 00:53:16,640

in which you are this emotional being

1595

00:53:29,349 --> 00:53:17,280

that

1596

00:53:30,150 --> 00:53:29,359

and a lot of scientists uh and

1597

00:53:33,349 --> 00:53:30,160

philosophers

1598

00:53:35,910 --> 00:53:33,359

are uh identified in a similar way

1599

00:53:37,510 --> 00:53:35,920

as me in a way it's the i think that a

1600

00:53:42,390 --> 00:53:37,520

scientist or an artist

1601
00:53:45,430 --> 00:53:42,400
or a philosopher is born when a child

1602
00:53:47,670 --> 00:53:45,440
discovers that it trusts its ideas more

1603
00:53:49,349 --> 00:53:47,680
than its feelings

1604
00:53:50,870 --> 00:53:49,359
and it happens often because you are

1605
00:53:52,710 --> 00:53:50,880
wired in a slightly different way than

1606
00:53:54,230 --> 00:53:52,720
other kids around you and as a result

1607
00:53:55,349 --> 00:53:54,240
your social interactions fail and you

1608
00:53:57,349 --> 00:53:55,359
can explain that

1609
00:53:59,190 --> 00:53:57,359
so you act like every other child based

1610
00:54:03,109 --> 00:53:59,200
on your intuitions

1611
00:54:04,230 --> 00:54:03,119
on on the 99 of what your mind is doing

1612
00:54:05,510 --> 00:54:04,240
and this training

1613
00:54:06,870 --> 00:54:05,520

and these intuitions are wrong what do

1614

00:54:08,470 --> 00:54:06,880

you mean when you say that your ideas

1615

00:54:10,950 --> 00:54:08,480

are different than your feelings because

1616

00:54:12,309 --> 00:54:10,960

obviously your ideas are some what

1617

00:54:13,109 --> 00:54:12,319

influenced by your feelings and your

1618

00:54:15,990 --> 00:54:13,119

perceptions

1619

00:54:18,309 --> 00:54:16,000

yes how do you disentangle them my ideas

1620

00:54:21,510 --> 00:54:18,319

are stories that i construct

1621

00:54:23,510 --> 00:54:21,520

they i have agency over my ideas my

1622

00:54:25,510 --> 00:54:23,520

i don't have agency over my feelings

1623

00:54:28,630 --> 00:54:25,520

before i'm in dart

1624

00:54:30,390 --> 00:54:28,640

when i'm a child my feelings are the

1625

00:54:33,670 --> 00:54:30,400

result of the interaction

1626
00:54:35,349 --> 00:54:33,680
between the model

1627
00:54:36,789 --> 00:54:35,359
that the mind maintains of the universe

1628
00:54:39,270 --> 00:54:36,799
and the model that it maintains of the

1629
00:54:42,549 --> 00:54:39,280
self according to the needs

1630
00:54:44,390 --> 00:54:42,559
of that self right so when

1631
00:54:46,069 --> 00:54:44,400
things happen in the universe the mind

1632
00:54:47,349 --> 00:54:46,079
evaluates them as good or bad which

1633
00:54:48,390 --> 00:54:47,359
means they're frustrate needs or they

1634
00:54:51,109 --> 00:54:48,400
satisfy needs

1635
00:54:52,789 --> 00:54:51,119
and as a result the self represents uh

1636
00:54:56,150 --> 00:54:52,799
joy or suffering

1637
00:54:57,990 --> 00:54:56,160
and when the mind is con

1638
00:54:59,750 --> 00:54:58,000

it doesn't have the correct intrinsic

1639

00:55:00,230 --> 00:54:59,760

model an innate model that you're born

1640

00:55:02,870 --> 00:55:00,240

with

1641

00:55:05,589 --> 00:55:02,880

then your needs are going to be

1642

00:55:09,270 --> 00:55:05,599

constantly frustrated

1643

00:55:12,470 --> 00:55:09,280

uh for instance i grew up in a forest

1644

00:55:14,230 --> 00:55:12,480

far remote from other villages and

1645

00:55:15,829 --> 00:55:14,240

when i got into first grade and met

1646

00:55:16,549 --> 00:55:15,839

other kids pretty much for the first

1647

00:55:18,870 --> 00:55:16,559

time

1648

00:55:20,390 --> 00:55:18,880

i had difficulty relating to them they

1649

00:55:22,470 --> 00:55:20,400

were not interested in the same things

1650

00:55:24,950 --> 00:55:22,480

as i was i was a nerd i was reading a

1651

00:55:28,069 --> 00:55:24,960

lot i was interested in

1652

00:55:31,750 --> 00:55:28,079

math and physics and science fiction

1653

00:55:34,230 --> 00:55:31,760

and history and stories and so on and

1654

00:55:35,990 --> 00:55:34,240

other kids were interested in soccer and

1655

00:55:37,190 --> 00:55:36,000

i couldn't get myself to be interested

1656

00:55:39,349 --> 00:55:37,200

in soccer and

1657

00:55:40,309 --> 00:55:39,359

as a result i was excluded from many of

1658

00:55:41,910 --> 00:55:40,319

the games

1659

00:55:43,589 --> 00:55:41,920

and later the same thing happened with

1660

00:55:44,390 --> 00:55:43,599

respect to politics it was eastern

1661

00:55:46,710 --> 00:55:44,400

germany

1662

00:55:48,950 --> 00:55:46,720

you were expected to pretend that you

1663

00:55:52,390 --> 00:55:48,960

conform with the prevailing ideas

1664

00:55:54,470 --> 00:55:52,400

and if you didn't you were punished and

1665

00:55:55,990 --> 00:55:54,480

even if these ideas were illogical and

1666

00:55:58,309 --> 00:55:56,000

at the same time your teachers told you

1667

00:55:59,990 --> 00:55:58,319

to be critical and don't take in all the

1668

00:56:01,589 --> 00:56:00,000

ideas from your environment without

1669

00:56:03,430 --> 00:56:01,599

criticism because you know

1670

00:56:05,349 --> 00:56:03,440

this is how fascism happened in germany

1671

00:56:07,270 --> 00:56:05,359

people took in bad ideas from the

1672

00:56:10,470 --> 00:56:07,280

environment without criticizing them

1673

00:56:11,270 --> 00:56:10,480

they did not develop moral agency so i

1674

00:56:12,950 --> 00:56:11,280

thought

1675

00:56:14,470 --> 00:56:12,960

the thing that i'm doing that i question

1676

00:56:15,910 --> 00:56:14,480

everything that i want to know why

1677

00:56:16,870 --> 00:56:15,920

something is the way it is and you need

1678

00:56:19,750 --> 00:56:16,880

to explain it to me

1679

00:56:20,630 --> 00:56:19,760

before i believe you um that would be a

1680

00:56:23,910 --> 00:56:20,640

virtuous thing

1681

00:56:24,309 --> 00:56:23,920

and so it was an apparent hypocrisy that

1682

00:56:27,349 --> 00:56:24,319

my

1683

00:56:28,630 --> 00:56:27,359

teachers told me one thing and uh i

1684

00:56:30,390 --> 00:56:28,640

behaved according to that and they

1685

00:56:32,390 --> 00:56:30,400

punished me if i did this

1686

00:56:33,829 --> 00:56:32,400

right it was difficult for me as a child

1687

00:56:36,470 --> 00:56:33,839

to make sense of that

1688

00:56:37,430 --> 00:56:36,480

and as a result i basically decided at

1689

00:56:38,870 --> 00:56:37,440

some level

1690

00:56:40,870 --> 00:56:38,880

and it was not something that was deeply

1691

00:56:43,430 --> 00:56:40,880

reflected but it was inevitable

1692

00:56:43,990 --> 00:56:43,440

to distrust my emotions i had to because

1693

00:56:45,270 --> 00:56:44,000

they were wrong

1694

00:56:47,589 --> 00:56:45,280

they were not pointing me in the right

1695

00:56:48,710 --> 00:56:47,599

direction i had to form theories on how

1696

00:56:50,309 --> 00:56:48,720

things work

1697

00:56:51,829 --> 00:56:50,319

and i think in a healthy mind this

1698

00:56:53,750 --> 00:56:51,839

development is temporary you

1699

00:56:55,670 --> 00:56:53,760

are a being that is directed by its

1700

00:56:56,710 --> 00:56:55,680

intuitions and these intuitions are

1701

00:56:58,789 --> 00:56:56,720

something that is uh

1702

00:57:00,950 --> 00:56:58,799

trained it's not something that is

1703

00:57:02,309 --> 00:57:00,960

random or superstitious

1704

00:57:03,670 --> 00:57:02,319

it's your intuition that tells you

1705

00:57:04,710 --> 00:57:03,680

whether this is going to be a good

1706

00:57:06,390 --> 00:57:04,720

relationship or not

1707

00:57:08,390 --> 00:57:06,400

but there should marry that person or

1708

00:57:09,430 --> 00:57:08,400

not but this person should be your

1709

00:57:11,270 --> 00:57:09,440

friend or not but

1710

00:57:13,270 --> 00:57:11,280

you should take this job or another

1711

00:57:14,630 --> 00:57:13,280

because if you try to make proofs about

1712

00:57:16,390 --> 00:57:14,640

this you're not going to get anywhere

1713

00:57:18,470 --> 00:57:16,400

it's way too complicated you're thinking

1714

00:57:21,030 --> 00:57:18,480

your ideas are way too brittle

1715

00:57:21,589 --> 00:57:21,040

and science is in some sense the part of

1716

00:57:26,309 --> 00:57:21,599

our

1717

00:57:28,150 --> 00:57:26,319

darkest and murkiest emotions

1718

00:57:29,990 --> 00:57:28,160

with those where we don't have solid

1719

00:57:32,710 --> 00:57:30,000

intuitions

1720

00:57:34,150 --> 00:57:32,720

right so it's science has marginal value

1721

00:57:37,349 --> 00:57:34,160

only for the individual

1722

00:57:39,829 --> 00:57:37,359

largely you need good intuitions it has

1723

00:57:41,430 --> 00:57:39,839

also only marginal value for society not

1724

00:57:43,349 --> 00:57:41,440

every ought to be a scientist

1725

00:57:45,109 --> 00:57:43,359

society wouldn't work like that because

1726

00:57:46,950 --> 00:57:45,119

science is too brittle the ideas that

1727

00:57:48,390 --> 00:57:46,960

scientists come up with don't tell you

1728

00:57:49,990 --> 00:57:48,400

what kind of relationship you should

1729

00:57:53,750 --> 00:57:50,000

enter and if you

1730

00:57:55,349 --> 00:57:53,760

overvalue science then your society is

1731

00:57:56,549 --> 00:57:55,359

going to go astray you need to have

1732

00:57:58,390 --> 00:57:56,559

solid common sense

1733

00:58:00,230 --> 00:57:58,400

you need to have good intuitions good

1734

00:58:01,829 --> 00:58:00,240

understanding of how things work

1735

00:58:03,670 --> 00:58:01,839

and only in those areas where these

1736

00:58:04,470 --> 00:58:03,680

intuitions break down where you need to

1737

00:58:06,150 --> 00:58:04,480

make proofs

1738

00:58:08,150 --> 00:58:06,160

this is where science really helps and

1739

00:58:08,710 --> 00:58:08,160

shines you mentioned that your intuition

1740

00:58:11,109 --> 00:58:08,720

is trained

1741

00:58:12,069 --> 00:58:11,119

trained by who and what your life is by

1742

00:58:13,430 --> 00:58:12,079

your experiences

1743

00:58:15,190 --> 00:58:13,440

so you're starting out yourself are

1744

00:58:18,710 --> 00:58:15,200

trained by society or both

1745

00:58:22,789 --> 00:58:18,720

no i think that society is is

1746

00:58:25,190 --> 00:58:22,799

often seen as too big of an influence or

1747

00:58:26,789 --> 00:58:25,200

i think that society is a small part of

1748

00:58:28,150 --> 00:58:26,799

the physical universe

1749

00:58:30,710 --> 00:58:28,160

and the thing that for instance trains

1750

00:58:32,549 --> 00:58:30,720

your intuition of how large an object is

1751

00:58:33,990 --> 00:58:32,559

when it has a certain distance from you

1752

00:58:36,150 --> 00:58:34,000

and you see it so so large on your

1753

00:58:38,470 --> 00:58:36,160

retina that's not given by society

1754

00:58:39,670 --> 00:58:38,480

right that's given in some sense by some

1755

00:58:41,910 --> 00:58:39,680

innate intuitions

1756

00:58:44,470 --> 00:58:41,920

but eventually it's given by learning

1757

00:58:46,150 --> 00:58:44,480

and you learn it by being embedded into

1758

00:58:46,470 --> 00:58:46,160

the universe when you have an intuition

1759

00:58:48,230 --> 00:58:46,480

of

1760

00:58:49,589 --> 00:58:48,240

how many steps you should take to catch

1761

00:58:51,750 --> 00:58:49,599

a ball that is flying

1762

00:58:53,109 --> 00:58:51,760

to you it's not society that teaches you

1763

00:58:54,630 --> 00:58:53,119

that it's

1764

00:58:56,789 --> 00:58:54,640

your interaction with the environment

1765

00:58:58,870 --> 00:58:56,799

that teaches you that and

1766

00:58:59,829 --> 00:58:58,880

so uh the same thing is also true for

1767

00:59:03,670 --> 00:58:59,839

social interaction

1768

00:59:06,470 --> 00:59:03,680

not taught by society

1769

00:59:07,829 --> 00:59:06,480

it's your immersive uh you're being

1770

00:59:10,470 --> 00:59:07,839

immersed in the environment

1771

00:59:11,670 --> 00:59:10,480

that teaches you what to do and it does

1772

00:59:13,670 --> 00:59:11,680

so based on

1773

00:59:15,030 --> 00:59:13,680

mostly innate impulses that make you

1774

00:59:16,069 --> 00:59:15,040

interested for instance in the mental

1775

00:59:17,510 --> 00:59:16,079

states of others

1776

00:59:19,670 --> 00:59:17,520

and what they think about you and how

1777

00:59:21,990 --> 00:59:19,680

they react to you and in some sense

1778

00:59:24,789 --> 00:59:22,000

society is the result of those things

1779

00:59:26,630 --> 00:59:24,799

it's not the cause of those things

1780

00:59:28,150 --> 00:59:26,640

i recall you saying that in a repressive

1781

00:59:29,030 --> 00:59:28,160

environment like let's say eastern

1782

00:59:31,990 --> 00:59:29,040

germany

1783

00:59:33,510 --> 00:59:32,000

that artists flourish in a sense because

1784

00:59:34,150 --> 00:59:33,520

they have to constantly define

1785

00:59:36,549 --> 00:59:34,160

themselves

1786

00:59:37,190 --> 00:59:36,559

i don't see that as necessarily salutary

1787

00:59:39,030 --> 00:59:37,200

because

1788

00:59:40,710 --> 00:59:39,040

you then have to define yourself with

1789

00:59:41,190 --> 00:59:40,720

regard to the society so it's almost

1790

00:59:43,030 --> 00:59:41,200

like

1791

00:59:45,190 --> 00:59:43,040

you're a contrarian but then without

1792

00:59:46,950 --> 00:59:45,200

society you don't have an identity

1793

00:59:49,109 --> 00:59:46,960

you know when for example when someone

1794

00:59:51,109 --> 00:59:49,119

says i am

1795

00:59:52,549 --> 00:59:51,119

i'm counter culture okay but that means

1796

00:59:53,430 --> 00:59:52,559

you're defining yourself in terms of the

1797

00:59:57,190 --> 00:59:53,440

culture

1798

01:00:00,870 --> 00:59:57,200

not within yourself in other words

1799

01:00:02,630 --> 01:00:00,880

why is it positive for an artist to grow

1800

01:00:05,750 --> 01:00:02,640

up in an environment that

1801

01:00:08,390 --> 01:00:05,760

is intolerant or inflexible it's uh

1802

01:00:11,750 --> 01:00:08,400

often there's a motivating force between

1803

01:00:14,069 --> 01:00:11,760

the art and the artist and so

1804

01:00:14,950 --> 01:00:14,079

there is a topic that is motivating the

1805

01:00:17,910 --> 01:00:14,960

artist

1806

01:00:20,150 --> 01:00:17,920

uh to talk about and it can be many

1807

01:00:22,470 --> 01:00:20,160

topics that artists are on about

1808

01:00:23,910 --> 01:00:22,480

in a simple case the topics that the

1809

01:00:27,349 --> 01:00:23,920

artist is

1810

01:00:29,589 --> 01:00:27,359

obsessed with is the imagery

1811

01:00:30,870 --> 01:00:29,599

that is possessed in the artist it's it

1812

01:00:34,230 --> 01:00:30,880

could be just the

1813

01:00:37,190 --> 01:00:34,240

uh overwhelming force of

1814

01:00:37,990 --> 01:00:37,200

uh for instance musical patterns or of

1815

01:00:39,510 --> 01:00:38,000

uh

1816

01:00:42,390 --> 01:00:39,520

visual patterns just the aesthetics

1817

01:00:45,349 --> 01:00:42,400

itself that wants to have an expression

1818

01:00:46,710 --> 01:00:45,359

in that case the society is irrelevant

1819

01:00:48,309 --> 01:00:46,720

it could also be that

1820

01:00:49,829 --> 01:00:48,319

what's important to the artist is the

1821

01:00:51,750 --> 01:00:49,839

discourse with other artists

1822

01:00:53,910 --> 01:00:51,760

where there's a history of art and there

1823

01:00:57,190 --> 01:00:53,920

are certain movements in art and artists

1824

01:00:58,710 --> 01:00:57,200

are engaging with this movement and

1825

01:01:01,270 --> 01:00:58,720

of course these are the artists that by

1826
01:01:03,670 --> 01:01:01,280
definition are the most influential ones

1827
01:01:05,190 --> 01:01:03,680
but not all artists care about being

1828
01:01:06,710 --> 01:01:05,200
influential

1829
01:01:08,309 --> 01:01:06,720
there are many artists which only care

1830
01:01:09,030 --> 01:01:08,319
about their own inner imagery and this

1831
01:01:11,750 --> 01:01:09,040
imagery

1832
01:01:13,750 --> 01:01:11,760
has only an incidental relationship to

1833
01:01:15,750 --> 01:01:13,760
what happens around them

1834
01:01:17,829 --> 01:01:15,760
and there is also a lot of art that is

1835
01:01:18,950 --> 01:01:17,839
uh directed on the political or the

1836
01:01:22,069 --> 01:01:18,960
social and so on

1837
01:01:24,069 --> 01:01:22,079
it's not necessarily activism but it's

1838
01:01:26,230 --> 01:01:24,079

the relationship that the self

1839

01:01:27,670 --> 01:01:26,240

experiences in the contrast or in the

1840

01:01:29,109 --> 01:01:27,680

conflict with the environment

1841

01:01:31,670 --> 01:01:29,119

which itself gives rise to the

1842

01:01:34,549 --> 01:01:31,680

observation to the object of the art

1843

01:01:38,950 --> 01:01:34,559

and uh if you uh live in a society like

1844

01:01:41,270 --> 01:01:38,960

eastern germany it's a very interesting

1845

01:01:43,270 --> 01:01:41,280

point in history because eastern germany

1846

01:01:45,589 --> 01:01:43,280

had a weird economy

1847

01:01:47,349 --> 01:01:45,599

we guaranteed everybody a job we

1848

01:01:50,230 --> 01:01:47,359

guaranteed everybody

1849

01:01:51,270 --> 01:01:50,240

health insurance and a pension and a

1850

01:01:54,549 --> 01:01:51,280

home

1851

01:01:56,630 --> 01:01:54,559

and it sounds great yes and

1852

01:01:58,230 --> 01:01:56,640

uh i think it objectively was great in

1853

01:02:00,950 --> 01:01:58,240

some sense uh

1854

01:02:02,789 --> 01:02:00,960

the productivity was very low uh because

1855

01:02:05,910 --> 01:02:02,799

uh people were not incentivized

1856

01:02:06,390 --> 01:02:05,920

to work very hard because as a result of

1857

01:02:08,150 --> 01:02:06,400

working

1858

01:02:09,990 --> 01:02:08,160

very hard you didn't get better foot or

1859

01:02:10,630 --> 01:02:10,000

a better home or something like that

1860

01:02:13,029 --> 01:02:10,640

right so

1861

01:02:14,630 --> 01:02:13,039

people uh had maintained roughly the

1862

01:02:18,230 --> 01:02:14,640

same productivity as they did

1863

01:02:20,230 --> 01:02:18,240

as they did in the 1950s and it was not

1864

01:02:21,750 --> 01:02:20,240

the fault of the individual necessarily

1865

01:02:23,029 --> 01:02:21,760

it was the fault of how the entire

1866

01:02:25,990 --> 01:02:23,039

system was set up

1867

01:02:27,109 --> 01:02:26,000

so for instance uh the uh factories in

1868

01:02:30,390 --> 01:02:27,119

eastern germany

1869

01:02:32,309 --> 01:02:30,400

were commonly owned or nationally owned

1870

01:02:33,829 --> 01:02:32,319

this means nobody had skin in the game

1871

01:02:34,950 --> 01:02:33,839

there was no single individual that

1872

01:02:37,270 --> 01:02:34,960

stood to profit

1873

01:02:39,109 --> 01:02:37,280

if the factory was more productive and

1874

01:02:42,230 --> 01:02:39,119

if an individual was more productive

1875

01:02:44,230 --> 01:02:42,240

in a largely unproductive factory

1876

01:02:46,150 --> 01:02:44,240

it didn't have a big result on the

1877

01:02:48,549 --> 01:02:46,160

global outcome of society

1878

01:02:49,990 --> 01:02:48,559

it would only uh have a massive result

1879

01:02:50,549 --> 01:02:50,000

on the well-being of that individual

1880

01:02:52,470 --> 01:02:50,559

because

1881

01:02:54,069 --> 01:02:52,480

it was working very hard without uh

1882

01:02:56,230 --> 01:02:54,079

having a good result while everybody

1883

01:02:58,470 --> 01:02:56,240

else around them was slacking off

1884

01:03:00,069 --> 01:02:58,480

right so uh that was one of the big

1885

01:03:02,150 --> 01:03:00,079

issues and i think that ultimately it

1886

01:03:04,630 --> 01:03:02,160

was the economy that killed the east

1887

01:03:06,470 --> 01:03:04,640

the ability the inability to set

1888

01:03:09,670 --> 01:03:06,480

incentives for innovation

1889

01:03:11,349 --> 01:03:09,680

and uh this thing that you

1890

01:03:12,630 --> 01:03:11,359

have need to have a factory where

1891

01:03:14,549 --> 01:03:12,640

somebody has skin in the game so

1892

01:03:17,190 --> 01:03:14,559

somebody owns the factory and

1893

01:03:17,990 --> 01:03:17,200

profits directly from the results of the

1894

01:03:20,150 --> 01:03:18,000

factory

1895

01:03:21,750 --> 01:03:20,160

leads to a large inequality and as a

1896

01:03:23,510 --> 01:03:21,760

result to injustice

1897

01:03:25,670 --> 01:03:23,520

but we had the control group western

1898

01:03:27,990 --> 01:03:25,680

germany had this amazing injustice where

1899

01:03:29,270 --> 01:03:28,000

you have billionaires that own factories

1900

01:03:31,029 --> 01:03:29,280

and you have lots and lots of people

1901

01:03:33,270 --> 01:03:31,039

that work for the billionaires

1902

01:03:35,109 --> 01:03:33,280

and uh own a fraction of what they do

1903

01:03:38,470 --> 01:03:35,119

and have a life that is

1904

01:03:40,470 --> 01:03:38,480

arguably perhaps a fraction is good but

1905

01:03:42,230 --> 01:03:40,480

the point is the life of these workers

1906

01:03:43,829 --> 01:03:42,240

in the factories in the west was way

1907

01:03:45,510 --> 01:03:43,839

better than the life of the workers and

1908

01:03:47,510 --> 01:03:45,520

the factories in the east

1909

01:03:49,349 --> 01:03:47,520

because uh the productivity was so much

1910

01:03:51,109 --> 01:03:49,359

higher there were better consumer goods

1911

01:03:52,470 --> 01:03:51,119

and there was a better protection of the

1912

01:03:53,829 --> 01:03:52,480

environment as a result of the better

1913

01:03:56,549 --> 01:03:53,839

productivity

1914

01:03:56,950 --> 01:03:56,559

and uh there were more civil rights you

1915

01:04:00,230 --> 01:03:56,960

could

1916

01:04:01,829 --> 01:04:00,240

take uh holidays at grander beaches you

1917

01:04:03,670 --> 01:04:01,839

could travel the world and so on and so

1918

01:04:05,910 --> 01:04:03,680

on why does increased productivity go

1919

01:04:07,670 --> 01:04:05,920

hand in hand with civil rights

1920

01:04:10,390 --> 01:04:07,680

uh because there is more to go around

1921

01:04:13,670 --> 01:04:10,400

you can uh you have more room to

1922

01:04:15,990 --> 01:04:13,680

ask for things if you are better off

1923

01:04:17,910 --> 01:04:16,000

if once you are better off it's much

1924

01:04:20,069 --> 01:04:17,920

harder to oppress you because you

1925

01:04:21,029 --> 01:04:20,079

have alternatives to what is being given

1926

01:04:22,789 --> 01:04:21,039

to you

1927

01:04:24,630 --> 01:04:22,799

and in some sense once you have a

1928

01:04:27,029 --> 01:04:24,640

society where the individual is not

1929

01:04:29,430 --> 01:04:27,039

terrorized into compliance

1930

01:04:30,910 --> 01:04:29,440

then this individual will try to take as

1931

01:04:32,230 --> 01:04:30,920

much freedom as they can get for

1932

01:04:34,950 --> 01:04:32,240

self-actualization

1933

01:04:35,750 --> 01:04:34,960

and so western germany gave in some

1934

01:04:38,870 --> 01:04:35,760

sense more

1935

01:04:41,829 --> 01:04:38,880

a room for self-actualization to

1936

01:04:42,390 --> 01:04:41,839

the working class but uh at the same

1937

01:04:45,430 --> 01:04:42,400

time

1938

01:04:45,910 --> 01:04:45,440

if you were not interested into having

1939

01:04:47,829 --> 01:04:45,920

goods

1940

01:04:49,349 --> 01:04:47,839

if you were not interested in having a

1941

01:04:51,829 --> 01:04:49,359

big expensive car

1942

01:04:53,589 --> 01:04:51,839

if you're not interested in making uh

1943

01:04:56,470 --> 01:04:53,599

traveling the world and so on

1944

01:04:58,390 --> 01:04:56,480

then eastern germany gave more room of

1945

01:05:00,470 --> 01:04:58,400

for self-actualization to artists

1946

01:05:02,549 --> 01:05:00,480

because at a certain baseline you didn't

1947

01:05:02,870 --> 01:05:02,559

have to worry about existential issues

1948

01:05:12,150 --> 01:05:02,880

you

1949

01:05:14,150 --> 01:05:12,160

so the hardest part just so

1950

01:05:15,750 --> 01:05:14,160

i can recapitulate the hardest part for

1951

01:05:16,710 --> 01:05:15,760

an artist is to make a living because

1952

01:05:18,549 --> 01:05:16,720

what you're doing

1953

01:05:19,589 --> 01:05:18,559

is you're making the art not to eat

1954

01:05:20,870 --> 01:05:19,599

you're eating for the art like you

1955

01:05:22,549 --> 01:05:20,880

mentioned before yes you want to have

1956

01:05:23,910 --> 01:05:22,559

space so you can do

1957

01:05:26,230 --> 01:05:23,920

yeah you want to have space for the

1958

01:05:26,950 --> 01:05:26,240

non-economical thing the the economical

1959

01:05:28,630 --> 01:05:26,960

thing is

1960

01:05:30,470 --> 01:05:28,640

the thing that the artist doesn't like

1961

01:05:32,230 --> 01:05:30,480

the ins to making art instrumental for

1962

01:05:33,670 --> 01:05:32,240

something that you can sell

1963

01:05:35,510 --> 01:05:33,680

is something that most artists don't

1964

01:05:37,270 --> 01:05:35,520

like most artists just want to be left

1965

01:05:39,109 --> 01:05:37,280

alone and do their art

1966

01:05:40,309 --> 01:05:39,119

and uh of course they need to eat and

1967

01:05:42,069 --> 01:05:40,319

they need to have they need to

1968

01:05:44,069 --> 01:05:42,079

have some sort of support structure and

1969

01:05:45,670 --> 01:05:44,079

so in some sense eastern germany uh

1970

01:05:47,510 --> 01:05:45,680

gave you all these things if you were

1971

01:05:48,710 --> 01:05:47,520

willing to resist the political pressure

1972

01:05:51,029 --> 01:05:48,720

and the social pressure

1973

01:05:53,109 --> 01:05:51,039

of playing along with the system if you

1974

01:05:55,589 --> 01:05:53,119

were willing to say um

1975

01:05:57,670 --> 01:05:55,599

you know you cannot do anything to me as

1976

01:06:00,710 --> 01:05:57,680

long as i have something in the fridge

1977

01:06:02,309 --> 01:06:00,720

and i just do my art uh that was amazing

1978

01:06:05,829 --> 01:06:02,319

right so you could uh

1979

01:06:08,230 --> 01:06:05,839

if you were willing to um say i'm not

1980

01:06:09,270 --> 01:06:08,240

part of this worker collective i'm i

1981

01:06:11,510 --> 01:06:09,280

don't want to have

1982

01:06:12,390 --> 01:06:11,520

a job in the factory and so on you could

1983

01:06:15,190 --> 01:06:12,400

do what my

1984

01:06:16,950 --> 01:06:15,200

father did and and he was sometimes a

1985

01:06:19,270 --> 01:06:16,960

child of 1968

1986

01:06:20,069 --> 01:06:19,280

he bought a house in the countryside a

1987

01:06:21,589 --> 01:06:20,079

watermill

1988

01:06:23,589 --> 01:06:21,599

and because he didn't get along very

1989

01:06:25,990 --> 01:06:23,599

well with society he was a nerd in some

1990

01:06:27,910 --> 01:06:26,000

sense without knowing what that was

1991

01:06:29,670 --> 01:06:27,920

and decided to have his own life built

1992

01:06:31,670 --> 01:06:29,680

his own kingdom where he wouldn't have

1993

01:06:33,349 --> 01:06:31,680

have these conflicts with the political

1994

01:06:34,710 --> 01:06:33,359

reality and the social reality of the

1995

01:06:36,230 --> 01:06:34,720

society around him

1996

01:06:38,150 --> 01:06:36,240

and could just have the life that he

1997

01:06:41,029 --> 01:06:38,160

wanted to which was painting and

1998

01:06:43,270 --> 01:06:41,039

sculptures and whatever crossed his mind

1999

01:06:44,789 --> 01:06:43,280

once you characterized fascism as a

2000

01:06:45,990 --> 01:06:44,799

super organism that doesn't care about

2001
01:06:48,069 --> 01:06:46,000
the individual cell

2002
01:06:49,990 --> 01:06:48,079
and if you're not contributing to the

2003
01:06:51,829 --> 01:06:50,000
whole then you're excised

2004
01:06:54,230 --> 01:06:51,839
and i was curious what's the difference

2005
01:06:54,549 --> 01:06:54,240
between that characterization of fascism

2006
01:06:58,789 --> 01:06:54,559
and

2007
01:07:00,309 --> 01:06:58,799
communism communism is tricky because it

2008
01:07:02,230 --> 01:07:00,319
didn't really exist right eastern

2009
01:07:02,630 --> 01:07:02,240
germany didn't call itself communist it

2010
01:07:08,950 --> 01:07:02,640
was

2011
01:07:11,270 --> 01:07:08,960
utopia that we aspire to have

2012
01:07:14,470 --> 01:07:11,280
in many many generations but it was

2013
01:07:17,430 --> 01:07:14,480

basically our promise of the afterlife

2014

01:07:18,069 --> 01:07:17,440

that justified the present injustices

2015

01:07:27,750 --> 01:07:18,079

and

2016

01:07:30,230 --> 01:07:27,760

i think that there was a big difference

2017

01:07:30,870 --> 01:07:30,240

between the socialist country that i

2018

01:07:33,670 --> 01:07:30,880

lived in

2019

01:07:34,710 --> 01:07:33,680

and fascism fascism defines the value of

2020

01:07:38,390 --> 01:07:34,720

the individual

2021

01:07:41,430 --> 01:07:38,400

exactly as its contribution to the group

2022

01:07:43,510 --> 01:07:41,440

which means if you are a disabled person

2023

01:07:45,349 --> 01:07:43,520

you should probably die because your

2024

01:07:47,109 --> 01:07:45,359

value is not negative

2025

01:07:49,349 --> 01:07:47,119

right if you are a person that is not

2026

01:07:51,589 --> 01:07:49,359

identifying as part of the group

2027

01:07:52,870 --> 01:07:51,599

for instance if you are jewish and you

2028

01:07:54,710 --> 01:07:52,880

have your own community

2029

01:07:56,230 --> 01:07:54,720

and your own values and your more

2030

01:07:59,109 --> 01:07:56,240

cosmopolitan and

2031

01:07:59,510 --> 01:07:59,119

bound to a cosmopolitan culture and not

2032

01:08:02,710 --> 01:07:59,520

to

2033

01:08:05,910 --> 01:08:02,720

the idea of supremacism of

2034

01:08:06,230 --> 01:08:05,920

white aryan um you are an enemy right

2035

01:08:11,270 --> 01:08:06,240

you

2036

01:08:13,510 --> 01:08:11,280

something that lives inside of this

2037

01:08:15,349 --> 01:08:13,520

super organism and you should be removed

2038

01:08:19,030 --> 01:08:15,359

by its immune response

2039

01:08:20,870 --> 01:08:19,040

and so this uh extreme brutality of

2040

01:08:22,390 --> 01:08:20,880

fascism that is destroying everything

2041

01:08:24,149 --> 01:08:22,400

that is not itself

2042

01:08:25,510 --> 01:08:24,159

and that is it doesn't perceive as

2043

01:08:28,709 --> 01:08:25,520

valuable uh

2044

01:08:29,990 --> 01:08:28,719

is unique to fascism in a way and uh

2045

01:08:31,669 --> 01:08:30,000

especially when you do this at an

2046

01:08:32,950 --> 01:08:31,679

industrial scale if you do this with

2047

01:08:34,630 --> 01:08:32,960

modernist principles

2048

01:08:37,030 --> 01:08:34,640

there are other societies of course

2049

01:08:38,789 --> 01:08:37,040

which uh do the same thing as fascism

2050

01:08:40,149 --> 01:08:38,799

does which eradicate all the individuals

2051

01:08:42,870 --> 01:08:40,159

that do not have

2052

01:08:44,470 --> 01:08:42,880

the warrior tribe for instance or that

2053

01:08:45,030 --> 01:08:44,480

eradicate everybody who's a little bit

2054

01:08:48,390 --> 01:08:45,040

different

2055

01:08:50,829 --> 01:08:48,400

but they don't do this at scale and

2056

01:08:52,149 --> 01:08:50,839

the socialism was also a modernist

2057

01:08:54,870 --> 01:08:52,159

society

2058

01:08:56,789 --> 01:08:54,880

so it worked at scale but it did not

2059

01:08:59,749 --> 01:08:56,799

eradicate individuals

2060

01:09:01,349 --> 01:08:59,759

for being disabled or being different

2061

01:09:04,229 --> 01:09:01,359

there was eugenicism but

2062

01:09:05,669 --> 01:09:04,239

the eugenicism existed at the same scale

2063

01:09:07,749 --> 01:09:05,679

the same amount and roughly the same

2064

01:09:10,950 --> 01:09:07,759

time span as it existed in the west

2065

01:09:12,309 --> 01:09:10,960

right so in the 1970s uh disabled people

2066

01:09:15,510 --> 01:09:12,319

were often sterilized

2067

01:09:17,590 --> 01:09:15,520

because scientists decided or

2068

01:09:18,789 --> 01:09:17,600

society decided or some group within

2069

01:09:20,309 --> 01:09:18,799

society decided

2070

01:09:21,669 --> 01:09:20,319

that they probably shouldn't have

2071

01:09:23,189 --> 01:09:21,679

offspring because most of these

2072

01:09:24,950 --> 01:09:23,199

conditions were heritable

2073

01:09:27,030 --> 01:09:24,960

and would create liability in future

2074

01:09:29,030 --> 01:09:27,040

generations so the trade-off was

2075

01:09:31,030 --> 01:09:29,040

sterilized them and something that we

2076

01:09:34,630 --> 01:09:31,040

think now is immoral

2077

01:09:36,709 --> 01:09:34,640

but uh by and large you were not being

2078

01:09:38,709 --> 01:09:36,719

eradicated because you were different

2079

01:09:40,709 --> 01:09:38,719

eastern germany didn't have gulags as

2080

01:09:44,390 --> 01:09:40,719

stalin did

2081

01:09:45,110 --> 01:09:44,400

the golex were i think arguably as bad

2082

01:09:47,990 --> 01:09:45,120

as the

2083

01:09:49,269 --> 01:09:48,000

cut sets of the fascists and they uh but

2084

01:09:50,470 --> 01:09:49,279

they targeted people more or less

2085

01:09:53,669 --> 01:09:50,480

randomly

2086

01:09:54,470 --> 01:09:53,679

like stalin killed everyone hitler

2087

01:09:56,709 --> 01:09:54,480

killed those

2088

01:09:59,030 --> 01:09:56,719

that he thought were not detrimental to

2089

01:10:02,149 --> 01:09:59,040

the state that were enemies of the state

2090

01:10:04,070 --> 01:10:02,159

and stalin killed people on a whim there

2091

01:10:06,950 --> 01:10:04,080

was no safety in stalinism

2092

01:10:07,669 --> 01:10:06,960

there was uh some safety if you were a

2093

01:10:11,990 --> 01:10:07,679

proper

2094

01:10:15,590 --> 01:10:12,000

member of society in german fascism

2095

01:10:17,669 --> 01:10:15,600

and in eastern germany it was a rather

2096

01:10:18,870 --> 01:10:17,679

civilian society the number of political

2097

01:10:21,270 --> 01:10:18,880

prisoners uh

2098

01:10:24,229 --> 01:10:21,280

was quite comparable to a number of

2099

01:10:27,270 --> 01:10:25,990

so i would say that in terms of civil

2100

01:10:30,870 --> 01:10:27,280

rights and so on it's far

2101

01:10:33,510 --> 01:10:30,880

inferior to what existed in the west

2102

01:10:35,110 --> 01:10:33,520

in the western germany but it was still

2103

01:10:36,630 --> 01:10:35,120

one of the most livable countries in the

2104

01:10:38,390 --> 01:10:36,640

east and just by being different by

2105

01:10:40,390 --> 01:10:38,400

being an artist who didn't play along

2106

01:10:42,229 --> 01:10:40,400

you didn't run the risk to get into

2107

01:10:44,070 --> 01:10:42,239

prison

2108

01:10:45,910 --> 01:10:44,080

let's get to some of your powerpoint

2109

01:10:48,630 --> 01:10:45,920

slides is that okay

2110

01:10:51,510 --> 01:10:48,640

okay let's see if i can do some screen

2111

01:10:55,030 --> 01:10:52,790

okay so it says an architecture of

2112

01:10:58,310 --> 01:10:55,040

consciousness let's see there were a few

2113

01:10:59,669 --> 01:10:58,320

points in here that i was i wasn't sure

2114

01:11:00,390 --> 01:10:59,679

exactly about okay so construction

2115

01:11:01,669 --> 01:11:00,400

process c

2116

01:11:03,510 --> 01:11:01,679

changes the brain state so this is the

2117

01:11:05,350 --> 01:11:03,520

brain state x i at some point

2118

01:11:06,630 --> 01:11:05,360

then based on the brain state changes it

2119

01:11:08,630 --> 01:11:06,640

from x i

2120

01:11:09,990 --> 01:11:08,640

one minus one which is the prior brain

2121

01:11:11,510 --> 01:11:10,000

state cool okay

2122

01:11:13,350 --> 01:11:11,520

okay so that's like almost like an

2123

01:11:15,910 --> 01:11:13,360

evolution in physics where you have a

2124

01:11:17,669 --> 01:11:15,920

state and then you evolve it by one step

2125

01:11:19,350 --> 01:11:17,679

okay okay so then you have an

2126

01:11:21,270 --> 01:11:19,360

attentional process

2127

01:11:22,550 --> 01:11:21,280

that scans the current brain state and

2128

01:11:24,229 --> 01:11:22,560

records gender

2129

01:11:26,630 --> 01:11:24,239

okay what are the generative parameters

2130

01:11:28,790 --> 01:11:26,640

of x i so excise your brain state border

2131

01:11:30,310 --> 01:11:28,800

the generative parameters

2132

01:11:31,990 --> 01:11:30,320

i think this explanation is way too

2133

01:11:33,669 --> 01:11:32,000

technical i i know i think i have a

2134

01:11:34,950 --> 01:11:33,679

better way of explaining all this than

2135

01:11:38,870 --> 01:11:34,960

these slides

2136

01:11:41,430 --> 01:11:38,880

yes 2017 after all so uh

2137

01:11:42,390 --> 01:11:41,440

imagine that uh your organism is a

2138

01:11:44,229 --> 01:11:42,400

control system

2139

01:11:46,149 --> 01:11:44,239

so there's a big control agent that is

2140

01:11:48,630 --> 01:11:46,159

regulating your body temperature

2141

01:11:49,350 --> 01:11:48,640

and it's uh moving your limbs about and

2142

01:11:51,270 --> 01:11:49,360

uh it's

2143

01:11:52,870 --> 01:11:51,280

doing all these things in the pursuit of

2144

01:11:54,390 --> 01:11:52,880

food and social interaction

2145

01:11:56,149 --> 01:11:54,400

and all the things that are important to

2146

01:11:57,430 --> 01:11:56,159

you and it's basically like a big

2147

01:11:59,990 --> 01:11:57,440

elephant

2148

01:12:01,830 --> 01:12:00,000

and your consciousness is like a monkey

2149

01:12:04,709 --> 01:12:01,840

sitting on top of that big elephant

2150

01:12:05,430 --> 01:12:04,719

and is prodding it and the purpose of

2151

01:12:07,189 --> 01:12:05,440

consciousness

2152

01:12:08,550 --> 01:12:07,199

is basically a control model of the

2153

01:12:12,550 --> 01:12:08,560

attention

2154

01:12:15,270 --> 01:12:12,560

learning

2155

01:12:16,229 --> 01:12:15,280

so what does the elephant learn the

2156

01:12:18,630 --> 01:12:16,239

elephant

2157

01:12:19,270 --> 01:12:18,640

learns in two ways it learns in some

2158

01:12:22,390 --> 01:12:19,280

sense by

2159

01:12:24,149 --> 01:12:22,400

repetition and force right so if you

2160

01:12:25,830 --> 01:12:24,159

just repeat things often enough in the

2161

01:12:27,350 --> 01:12:25,840

environment of the elephant the elephant

2162

01:12:29,430 --> 01:12:27,360

might pick it up

2163

01:12:31,270 --> 01:12:29,440

and the other thing what it learns is

2164

01:12:33,189 --> 01:12:31,280

what it pays attention to

2165

01:12:35,189 --> 01:12:33,199

and paying attention to means you single

2166

01:12:36,950 --> 01:12:35,199

out some features

2167

01:12:38,470 --> 01:12:36,960

and you explore the relationship between

2168

01:12:40,709 --> 01:12:38,480

these features and these features can be

2169

01:12:44,229 --> 01:12:40,719

far remote to each other and they can be

2170

01:12:47,110 --> 01:12:44,239

very abstractly constructed right so

2171

01:12:48,390 --> 01:12:47,120

in some sense you to be able to uh learn

2172

01:12:50,950 --> 01:12:48,400

how to

2173

01:12:52,630 --> 01:12:50,960

dance uh you need to relate extremely

2174

01:12:53,270 --> 01:12:52,640

complicated features in the world you

2175

01:12:55,350 --> 01:12:53,280

need to

2176

01:12:56,310 --> 01:12:55,360

relate the expression of your partner

2177

01:12:58,790 --> 01:12:56,320

the music

2178

01:13:00,630 --> 01:12:58,800

uh the movement of your body uh the

2179

01:13:01,110 --> 01:13:00,640

social context in which the dance takes

2180

01:13:03,590 --> 01:13:01,120

place

2181

01:13:04,950 --> 01:13:03,600

and uh lots lots of things right and to

2182

01:13:06,470 --> 01:13:04,960

do all these things well you need to

2183

01:13:08,870 --> 01:13:06,480

combine them all into

2184

01:13:09,910 --> 01:13:08,880

a unique gestalt that is very hard to

2185

01:13:12,630 --> 01:13:09,920

express in this

2186

01:13:12,950 --> 01:13:12,640

simple specification so what you need to

2187

01:13:15,350 --> 01:13:12,960

have

2188

01:13:17,189 --> 01:13:15,360

is a way of singling out all the aspects

2189

01:13:19,350 --> 01:13:17,199

that go into the dance

2190

01:13:21,030 --> 01:13:19,360

and singing out the way in which you

2191

01:13:22,870 --> 01:13:21,040

have currently related them

2192

01:13:24,229 --> 01:13:22,880

and how you would need to change them to

2193

01:13:25,990 --> 01:13:24,239

improve that

2194

01:13:27,430 --> 01:13:26,000

and you need to figure out whether this

2195

01:13:28,870 --> 01:13:27,440

model of your attention where you should

2196

01:13:30,390 --> 01:13:28,880

direct it it was a good model and

2197

01:13:31,510 --> 01:13:30,400

whether you should change it and

2198

01:13:33,510 --> 01:13:31,520

so you should change what you pay

2199

01:13:36,950 --> 01:13:33,520

attention to right attention is more

2200

01:13:40,870 --> 01:13:39,270

yes then it comes before uh so

2201

01:13:43,669 --> 01:13:40,880

consciousness is the expression

2202

01:13:44,950 --> 01:13:43,679

of attending if you don't attend if

2203

01:13:46,950 --> 01:13:44,960

there is no attention

2204

01:13:48,709 --> 01:13:46,960

at all then there can be no

2205

01:13:50,310 --> 01:13:48,719

consciousness you can only remember

2206

01:13:52,310 --> 01:13:50,320

these things as having been conscious

2207

01:13:56,149 --> 01:13:52,320

that you attended to

2208

01:13:57,830 --> 01:13:56,159

right and also it's not sufficient that

2209

01:13:59,350 --> 01:13:57,840

you attended to them you also need to

2210

01:14:01,910 --> 01:13:59,360

store the things that you

2211

01:14:03,830 --> 01:14:01,920

attended to in such a way that you can

2212

01:14:05,669 --> 01:14:03,840

recreate them later in the context of

2213

01:14:07,189 --> 01:14:05,679

having attended to them so you basically

2214

01:14:08,630 --> 01:14:07,199

need to have an attentional protocol

2215

01:14:11,430 --> 01:14:08,640

that integrates over all these

2216

01:14:15,990 --> 01:14:13,270

and so you have an attention agent

2217

01:14:17,910 --> 01:14:16,000

living inside of the control agent

2218

01:14:19,270 --> 01:14:17,920

and this attention agent is basically

2219

01:14:21,110 --> 01:14:19,280

living inside of your mind

2220

01:14:23,030 --> 01:14:21,120

okay sorry sorry hold on so you have a

2221

01:14:24,470 --> 01:14:23,040

control agent and that control agent

2222

01:14:26,229 --> 01:14:24,480

controls the attention

2223

01:14:28,709 --> 01:14:26,239

no uh you have a control agent that

2224

01:14:31,990 --> 01:14:28,719

controls the organism at large

2225

01:14:33,189 --> 01:14:32,000

the big elephant okay okay let me you're

2226

01:14:34,630 --> 01:14:33,199

just you're teaching me right now this

2227

01:14:36,390 --> 01:14:34,640

is these are office hours

2228

01:14:38,550 --> 01:14:36,400

there's a control agent then there's

2229

01:14:39,750 --> 01:14:38,560

attention and the control agent controls

2230

01:14:42,550 --> 01:14:39,760

the organism

2231

01:14:43,430 --> 01:14:42,560

yes and the mind is the expression of

2232

01:14:46,950 --> 01:14:43,440

attention

2233

01:14:49,030 --> 01:14:46,960

the mind is uh in the way i use the word

2234

01:14:50,870 --> 01:14:49,040

it's basically the uh the software that

2235

01:14:52,470 --> 01:14:50,880

runs on your brain or that emerges over

2236

01:14:54,630 --> 01:14:52,480

the activity of your brain so it's the

2237

01:14:56,630 --> 01:14:54,640

entirety of the mental processes

2238

01:14:57,750 --> 01:14:56,640

and uh you could think of it as the

2239

01:14:59,110 --> 01:14:57,760

operating system

2240

01:15:01,189 --> 01:14:59,120

okay and there's a difference between

2241

01:15:02,310 --> 01:15:01,199

mind and consciousness yes so the mind

2242

01:15:02,790 --> 01:15:02,320

is the whole including the other

2243

01:15:05,270 --> 01:15:02,800

consciousness

2244

01:15:06,790 --> 01:15:05,280

yes okay okay and yeah so i would say

2245

01:15:09,590 --> 01:15:06,800

unconscious mind makes sense

2246

01:15:10,950 --> 01:15:09,600

as a term right so uh most of the of

2247

01:15:13,830 --> 01:15:10,960

what happens in the mind is

2248

01:15:14,709 --> 01:15:13,840

is not conscious yeah and there's also

2249

01:15:16,709 --> 01:15:14,719

uh

2250

01:15:18,229 --> 01:15:16,719

maybe we should go into this separately

2251

01:15:19,510 --> 01:15:18,239

but maybe we should do it now there is

2252

01:15:22,310 --> 01:15:19,520

this very big issue

2253

01:15:23,350 --> 01:15:22,320

uh what does it mean to be conscious

2254

01:15:25,270 --> 01:15:23,360

right it's

2255

01:15:27,750 --> 01:15:25,280

it's unimaginable that the physical

2256

01:15:28,470 --> 01:15:27,760

system like the clockwork could become

2257

01:15:30,229 --> 01:15:28,480

conscious

2258

01:15:31,590 --> 01:15:30,239

how would the physical system become

2259

01:15:33,910 --> 01:15:31,600

conscious something that

2260

01:15:35,910 --> 01:15:33,920

leibniz describes for instance uh with a

2261

01:15:38,470 --> 01:15:35,920

metaphor of a mill imagine that

2262

01:15:40,149 --> 01:15:38,480

your mind was like a big mill of all

2263

01:15:41,590 --> 01:15:40,159

these moving parts and so on and you

2264

01:15:43,189 --> 01:15:41,600

enlarge it in such a way that you can

2265

01:15:45,110 --> 01:15:43,199

enter it and you see all these

2266

01:15:46,229 --> 01:15:45,120

mechanical parts pushing and pulling

2267

01:15:48,229 --> 01:15:46,239

against each other

2268

01:15:50,149 --> 01:15:48,239

there is nothing in there over which

2269

01:15:52,790 --> 01:15:50,159

feelings and emotion and perception

2270

01:15:55,590 --> 01:15:52,800

consciousness could arise

2271

01:15:56,950 --> 01:15:55,600

and this is uh it's very strong

2272

01:15:59,189 --> 01:15:56,960

intuition that also drives

2273

01:16:01,270 --> 01:15:59,199

uh so earl's chinese room argument that

2274

01:16:03,350 --> 01:16:01,280

i think is a reformulation of

2275

01:16:04,630 --> 01:16:03,360

uh leibniz intuition pump here yeah so

2276

01:16:05,590 --> 01:16:04,640

what do you think of that experiment the

2277

01:16:09,270 --> 01:16:05,600

chinese room

2278

01:16:12,550 --> 01:16:09,280

so uh i think the difficulty is that uh

2279

01:16:12,950 --> 01:16:12,560

the uh it's a category mistake to think

2280

01:16:18,390 --> 01:16:12,960

that

2281

01:16:20,149 --> 01:16:18,400

so imagine you were trying to build an

2282

01:16:23,189 --> 01:16:20,159

artificial agent

2283

01:16:25,030 --> 01:16:23,199

that is conscious in the same way as you

2284

01:16:26,790 --> 01:16:25,040

and me are

2285

01:16:28,310 --> 01:16:26,800

you we cannot do this with the physical

2286

01:16:30,149 --> 01:16:28,320

system right the physical system cannot

2287

01:16:31,910 --> 01:16:30,159

be conscious apparently

2288

01:16:33,430 --> 01:16:31,920

so you would have to simulate it you

2289

01:16:36,870 --> 01:16:33,440

have to make it as if

2290

01:16:38,470 --> 01:16:36,880

to pretend to be conscious

2291

01:16:40,229 --> 01:16:38,480

how would you do this you would you need

2292

01:16:42,709 --> 01:16:40,239

for instance to have qualia qualia

2293

01:16:44,390 --> 01:16:42,719

are the features of experience there are

2294

01:16:45,830 --> 01:16:44,400

things like colors and sounds and the

2295

01:16:49,110 --> 01:16:45,840

relationship between them

2296

01:16:50,870 --> 01:16:49,120

and surfaces and the experience of

2297

01:16:52,390 --> 01:16:50,880

information flowing through space and

2298

01:16:55,270 --> 01:16:52,400

being hindered their pressure

2299

01:16:57,030 --> 01:16:55,280

and lightness and heaviness and so on

2300

01:16:57,990 --> 01:16:57,040

right and valence something feels good

2301
01:17:02,310 --> 01:16:58,000
or bad

2302
01:17:03,830 --> 01:17:02,320
to leave that state or attracts you to

2303
01:17:05,669 --> 01:17:03,840
that state and so on

2304
01:17:06,950 --> 01:17:05,679
and all these dimensions these feature

2305
01:17:08,950 --> 01:17:06,960
dimensions we can of course

2306
01:17:11,590 --> 01:17:08,960
implement as basically geometrical

2307
01:17:15,270 --> 01:17:11,600
models that we can compute

2308
01:17:17,270 --> 01:17:15,280
with formal systems of our choice

2309
01:17:18,790 --> 01:17:17,280
so it's there is technical difficulty in

2310
01:17:20,550 --> 01:17:18,800
how to get all these computations right

2311
01:17:22,870 --> 01:17:20,560
but there is nothing mysterious about

2312
01:17:23,990 --> 01:17:22,880
how to make a system that behaves as if

2313
01:17:25,910 --> 01:17:24,000

it would see colors

2314

01:17:27,830 --> 01:17:25,920

right it's going to not just measure the

2315

01:17:29,270 --> 01:17:27,840

wavelengths but it's going to generalize

2316

01:17:30,870 --> 01:17:29,280

the wavelength in such a way that it

2317

01:17:32,390 --> 01:17:30,880

normalizes over average highlighting

2318

01:17:33,030 --> 01:17:32,400

conditions says for instance red is

2319

01:17:34,950 --> 01:17:33,040

something

2320

01:17:36,070 --> 01:17:34,960

that passes as red under arbitrary

2321

01:17:38,630 --> 01:17:36,080

lighting conditions

2322

01:17:40,229 --> 01:17:38,640

on the surface of an object that is red

2323

01:17:42,070 --> 01:17:40,239

and that you generalize this over all

2324

01:17:43,590 --> 01:17:42,080

the red objects and then you also get

2325

01:17:47,510 --> 01:17:43,600

the associations to

2326

01:17:51,270 --> 01:17:47,520

blood and the flag of the working class

2327

01:17:54,550 --> 01:17:51,280

and to roses and love and heat

2328

01:17:57,590 --> 01:17:54,560

right all the rednesses are now one step

2329

01:17:59,669 --> 01:17:57,600

away from this abstraction of red that

2330

01:18:01,189 --> 01:17:59,679

can be translated as a feature dimension

2331

01:18:04,310 --> 01:18:01,199

as part of the

2332

01:18:06,709 --> 01:18:04,320

simulated experience of a virtual system

2333

01:18:08,550 --> 01:18:06,719

and so uh of course this experience is

2334

01:18:09,669 --> 01:18:08,560

not real there is not really any

2335

01:18:11,830 --> 01:18:09,679

physical system that

2336

01:18:13,750 --> 01:18:11,840

experiences anything it's only being

2337

01:18:15,110 --> 01:18:13,760

represented as if it was it's basically

2338

01:18:18,229 --> 01:18:15,120

like a multimedia story

2339

01:18:19,910 --> 01:18:18,239

it's not written in words in a natural

2340

01:18:20,870 --> 01:18:19,920

language or in a logical language but

2341

01:18:21,990 --> 01:18:20,880

it's written in

2342

01:18:24,550 --> 01:18:22,000

something like a machine learning

2343

01:18:26,709 --> 01:18:24,560

language and then this model is being

2344

01:18:28,470 --> 01:18:26,719

used to drive the behavior of the agent

2345

01:18:30,790 --> 01:18:28,480

it's a control model that is being used

2346

01:18:32,149 --> 01:18:30,800

to inform what the system should learn

2347

01:18:34,790 --> 01:18:32,159

and how it should interact with the

2348

01:18:36,550 --> 01:18:34,800

environment and as a result it produces

2349

01:18:38,070 --> 01:18:36,560

new steps that produces new model

2350

01:18:39,750 --> 01:18:38,080

contents and some of these model

2351

01:18:41,590 --> 01:18:39,760

contents are for instance thoughts

2352

01:18:43,189 --> 01:18:41,600

these are not real thoughts these are as

2353

01:18:46,790 --> 01:18:43,199

if sorts which means

2354

01:18:49,510 --> 01:18:46,800

there are conceptual and linguistic and

2355

01:18:51,030 --> 01:18:49,520

idiotic and imagined configurations of

2356

01:18:52,470 --> 01:18:51,040

such features

2357

01:18:54,149 --> 01:18:52,480

that give rise to the next set of

2358

01:18:55,430 --> 01:18:54,159

features to the next set of thoughts and

2359

01:18:57,350 --> 01:18:55,440

experiences right

2360

01:18:59,590 --> 01:18:57,360

again these are virtual they're not real

2361

01:19:01,510 --> 01:18:59,600

here the is what if the system would

2362

01:19:02,229 --> 01:19:01,520

feel something what if it there was a

2363

01:19:03,830 --> 01:19:02,239

person

2364

01:19:05,350 --> 01:19:03,840

what if there were social interactions

2365

01:19:08,630 --> 01:19:05,360

that would matter to the system

2366

01:19:09,189 --> 01:19:08,640

what if that would experience red in a

2367

01:19:10,870 --> 01:19:09,199

way that

2368

01:19:12,550 --> 01:19:10,880

corresponds to heat and so on right so

2369

01:19:15,510 --> 01:19:12,560

you build all this into the system

2370

01:19:16,470 --> 01:19:15,520

and you let it drive behavior including

2371

01:19:18,470 --> 01:19:16,480

speech

2372

01:19:19,750 --> 01:19:18,480

and self reports and it gives rise to

2373

01:19:20,790 --> 01:19:19,760

the next set of things

2374

01:19:23,430 --> 01:19:20,800

so this system would be

2375

01:19:25,110 --> 01:19:23,440

indistinguishable from us right

2376

01:19:26,709 --> 01:19:25,120

because it's also thinking the same

2377

01:19:28,950 --> 01:19:26,719

things now it's producing the same

2378

01:19:30,790 --> 01:19:28,960

thoughts and producing the same story

2379

01:19:32,550 --> 01:19:30,800

and it would have emotions and

2380

01:19:34,149 --> 01:19:32,560

experiences

2381

01:19:35,910 --> 01:19:34,159

it was experienced phenomena for the

2382

01:19:37,030 --> 01:19:35,920

same reason that a character in a novel

2383

01:19:38,390 --> 01:19:37,040

experiences it

2384

01:19:40,630 --> 01:19:38,400

because it's being written into the

2385

01:19:42,229 --> 01:19:40,640

novel by the author in our case the

2386

01:19:44,149 --> 01:19:42,239

author is the mind

2387

01:19:45,910 --> 01:19:44,159

and i think the answer to the big

2388

01:19:47,910 --> 01:19:45,920

question how is it that we can be

2389

01:19:49,910 --> 01:19:47,920

conscious in the physical universe is

2390

01:19:51,990 --> 01:19:49,920

we are not in the physical universe that

2391

01:19:53,270 --> 01:19:52,000

we only exist in that story we only

2392

01:19:55,910 --> 01:19:53,280

exist in the dream

2393

01:19:56,470 --> 01:19:55,920

that's written by the mind so this is

2394

01:20:00,470 --> 01:19:56,480

the

2395

01:20:02,149 --> 01:20:00,480

consciousness is virtual

2396

01:20:03,990 --> 01:20:02,159

and the experience of realness that we

2397

01:20:05,510 --> 01:20:04,000

have is not the realness of the physical

2398

01:20:07,350 --> 01:20:05,520

universe because the physical universe

2399

01:20:10,390 --> 01:20:07,360

doesn't feel like anything right

2400

01:20:12,310 --> 01:20:10,400

reality doesn't feel real what feels

2401

01:20:14,390 --> 01:20:12,320

real is only simulacrum only a

2402

01:20:17,030 --> 01:20:14,400

simulation can feel real

2403

01:20:19,830 --> 01:20:17,040

to a simulacrum realness itself not

2404

01:20:22,790 --> 01:20:19,840

reality is a simulated property

2405

01:20:24,149 --> 01:20:22,800

consciousness is a simulated property of

2406

01:20:25,990 --> 01:20:24,159

a simulated system

2407

01:20:27,990 --> 01:20:26,000

a physical system cannot be conscious

2408

01:20:31,030 --> 01:20:28,000

only a simulation can be conscious

2409

01:20:33,189 --> 01:20:31,040

outside of the dream there is nobody

2410

01:20:35,270 --> 01:20:33,199

so we're conscious because we're part of

2411

01:20:37,510 --> 01:20:35,280

the story that the brain tells itself

2412

01:20:38,790 --> 01:20:37,520

yes the only conscious inside of the

2413

01:20:40,709 --> 01:20:38,800

story

2414

01:20:42,229 --> 01:20:40,719

and we are inside we are characters in

2415

01:20:42,870 --> 01:20:42,239

in a story that the brain is telling

2416

01:20:44,790 --> 01:20:42,880

itself

2417

01:20:46,070 --> 01:20:44,800

and we can talk across stories so here

2418

01:20:47,110 --> 01:20:46,080

we are

2419

01:20:49,030 --> 01:20:47,120

right now here's where i'm having

2420

01:20:50,149 --> 01:20:49,040

trouble because if i write a lord of the

2421

01:20:52,229 --> 01:20:50,159

rings for example

2422

01:20:53,910 --> 01:20:52,239

is frodo baggins actually feeling

2423

01:20:55,990 --> 01:20:53,920

something or is he just scribbles on a

2424

01:20:57,590 --> 01:20:56,000

paper just because it's a story

2425

01:20:59,030 --> 01:20:57,600

doesn't mean it has to have experiences

2426

01:21:02,149 --> 01:20:59,040

associated with it

2427

01:21:02,629 --> 01:21:02,159

so so why do we question is what do you

2428

01:21:05,910 --> 01:21:02,639

mean by

2429

01:21:07,350 --> 01:21:05,920

is right so uh this is the story

2430

01:21:10,070 --> 01:21:07,360

it sounds like it sounds like bill

2431

01:21:10,790 --> 01:21:10,080

clinton it depends upon what the meaning

2432

01:21:14,149 --> 01:21:10,800

of the word

2433

01:21:14,790 --> 01:21:14,159

is yes yes so it has to do with the

2434

01:21:18,070 --> 01:21:14,800

question of

2435

01:21:21,430 --> 01:21:18,080

uh what's being taken as the uh

2436

01:21:23,750 --> 01:21:21,440

of of reality uh i think that

2437

01:21:25,430 --> 01:21:23,760

reality that cannot be experienced is

2438

01:21:27,750 --> 01:21:25,440

very unsatisfying right it's not the

2439

01:21:30,390 --> 01:21:27,760

reality that most people would refer to

2440

01:21:32,229 --> 01:21:30,400

the experience of reality is something

2441

01:21:34,229 --> 01:21:32,239

that is virtual it's something that's

2442

01:21:35,430 --> 01:21:34,239

it's the experience of the vr generated

2443

01:21:37,189 --> 01:21:35,440

by your mind

2444

01:21:39,750 --> 01:21:37,199

right it's a virtual reality that you

2445

01:21:41,510 --> 01:21:39,760

inhabit as a non-player character

2446

01:21:43,270 --> 01:21:41,520

and the non-player character is

2447

01:21:45,110 --> 01:21:43,280

generated by the mind as well

2448

01:21:47,910 --> 01:21:45,120

to describe the interactions of the

2449

01:21:49,430 --> 01:21:47,920

organism with the world

2450

01:21:51,030 --> 01:21:49,440

right it's a story about what the

2451
01:21:51,830 --> 01:21:51,040
organism does in the words the best

2452
01:21:54,870 --> 01:21:51,840
story that

2453
01:21:56,950 --> 01:21:54,880
the mind can come up with and this story

2454
01:21:59,189 --> 01:21:56,960
is being used to inform the behavior of

2455
01:22:01,110 --> 01:21:59,199
the organism

2456
01:22:03,350 --> 01:22:01,120
and you cannot break out of the story

2457
01:22:07,110 --> 01:22:03,360
that's why the story is real to you so

2458
01:22:10,070 --> 01:22:07,120
the the thing is to uh to frodo

2459
01:22:10,790 --> 01:22:10,080
his feelings are real in the story to us

2460
01:22:12,550 --> 01:22:10,800
they're not

2461
01:22:14,629 --> 01:22:12,560
because we see this from the outside we

2462
01:22:16,310 --> 01:22:14,639
see how this thing can be constructed we

2463
01:22:17,350 --> 01:22:16,320

can even change the story if we have a

2464

01:22:18,709 --> 01:22:17,360

pen and paper

2465

01:22:20,470 --> 01:22:18,719

and can make him feel something

2466

01:22:22,390 --> 01:22:20,480

different but

2467

01:22:23,990 --> 01:22:22,400

to frodo himself it doesn't make sense

2468

01:22:26,310 --> 01:22:24,000

that his feelings are real to him

2469

01:22:29,430 --> 01:22:26,320

unless we write into the story that they

2470

01:22:32,070 --> 01:22:29,440

suddenly don't feel real to him anymore

2471

01:22:32,470 --> 01:22:32,080

right give me a scenario where you can

2472

01:22:35,910 --> 01:22:32,480

write

2473

01:22:38,390 --> 01:22:35,920

and make a conscious being

2474

01:22:38,950 --> 01:22:38,400

from your writing of a story do you just

2475

01:22:41,590 --> 01:22:38,960

write

2476

01:22:43,510 --> 01:22:41,600

frodo now feels so and so and then frodo

2477

01:22:45,910 --> 01:22:43,520

actually does feel so and so

2478

01:22:47,750 --> 01:22:45,920

so it doesn't work with natural language

2479

01:22:48,310 --> 01:22:47,760

you have to use a functional language

2480

01:22:51,350 --> 01:22:48,320

that

2481

01:22:52,550 --> 01:22:51,360

is it's basically not just giving rise

2482

01:22:54,550 --> 01:22:52,560

to a description of

2483

01:22:56,149 --> 01:22:54,560

what photo is doing but you need to have

2484

01:22:59,189 --> 01:22:56,159

a functional implementation

2485

01:23:00,629 --> 01:22:59,199

of an agent in an environment right so

2486

01:23:02,310 --> 01:23:00,639

you need to have something like a

2487

01:23:03,990 --> 01:23:02,320

representation of middle earth and you

2488

01:23:06,229 --> 01:23:04,000

need to have a control agent inside of

2489

01:23:09,270 --> 01:23:06,239

middle earth that is being controlled by

2490

01:23:11,830 --> 01:23:09,280

a frodo self

2491

01:23:12,790 --> 01:23:11,840

and photo self is a model of what frodo

2492

01:23:14,229 --> 01:23:12,800

is

2493

01:23:16,229 --> 01:23:14,239

and it's a model of basically the

2494

01:23:17,910 --> 01:23:16,239

affordances of that agent and the state

2495

01:23:19,669 --> 01:23:17,920

of that agent that is driven by that

2496

01:23:22,870 --> 01:23:19,679

control model

2497

01:23:25,510 --> 01:23:22,880

contain

2498

01:23:26,470 --> 01:23:25,520

thoughts that are the result of produce

2499

01:23:29,270 --> 01:23:26,480

interaction

2500

01:23:30,149 --> 01:23:29,280

with photo's environment and the

2501

01:23:32,870 --> 01:23:30,159

thoughts

2502

01:23:35,510 --> 01:23:32,880

when photo is implemented properly will

2503

01:23:37,669 --> 01:23:35,520

reflect on the needs that this agent has

2504

01:23:39,510 --> 01:23:37,679

and the needs uh are in the agent

2505

01:23:41,270 --> 01:23:39,520

because they're being programmed into it

2506

01:23:43,669 --> 01:23:41,280

right it behaves according to these

2507

01:23:46,070 --> 01:23:43,679

needs and the if the model is adequate

2508

01:23:48,070 --> 01:23:46,080

and is con conforming to those needs

2509

01:23:49,430 --> 01:23:48,080

then this model is representing uh

2510

01:23:51,430 --> 01:23:49,440

pleasure and pain

2511

01:23:52,629 --> 01:23:51,440

in such a way that voter would describe

2512

01:23:54,229 --> 01:23:52,639

them similar to

2513

01:23:56,310 --> 01:23:54,239

the way that we would describe pleasure

2514

01:23:57,990 --> 01:23:56,320

and pain and he would describe them

2515

01:24:00,870 --> 01:23:58,000

as his thoughts because that's the best

2516

01:24:03,430 --> 01:24:00,880

uh implementation of its control model

2517

01:24:05,189 --> 01:24:03,440

that photo's mind can come up with

2518

01:24:07,110 --> 01:24:05,199

so the language that is being used is

2519

01:24:09,750 --> 01:24:07,120

not a natural language is not

2520

01:24:11,110 --> 01:24:09,760

english words or something it's a

2521

01:24:14,310 --> 01:24:11,120

functional language it's

2522

01:24:16,310 --> 01:24:14,320

a programming language in a way

2523

01:24:18,390 --> 01:24:16,320

so can you then take that and stimulate

2524

01:24:20,070 --> 01:24:18,400

a small consciousness

2525

01:24:21,669 --> 01:24:20,080

let's because we mentioned that it's

2526

01:24:23,110 --> 01:24:21,679

extremely complex to do something like a

2527

01:24:25,590 --> 01:24:23,120

human at least at this

2528

01:24:27,750 --> 01:24:25,600

at least in 2020. can we make a small

2529

01:24:30,629 --> 01:24:27,760

conscious agent

2530

01:24:31,270 --> 01:24:30,639

i think that we can but if the agent is

2531

01:24:33,270 --> 01:24:31,280

too small

2532

01:24:35,590 --> 01:24:33,280

it's very difficult to ascribe an

2533

01:24:38,149 --> 01:24:35,600

interesting type of consciousness to it

2534

01:24:39,910 --> 01:24:38,159

and the biggest difficulty is if you

2535

01:24:41,910 --> 01:24:39,920

have a conscious system that is not able

2536

01:24:42,709 --> 01:24:41,920

to attend to anything meaningful that we

2537

01:24:45,430 --> 01:24:42,719

can relate to

2538

01:24:47,189 --> 01:24:45,440

how can we say that it tends to anything

2539

01:24:48,950 --> 01:24:47,199

and in a way the biggest unsolved

2540

01:24:49,990 --> 01:24:48,960

problem of artificial intelligence is

2541

01:24:53,270 --> 01:24:50,000

not consciousness

2542

01:24:54,229 --> 01:24:53,280

it's understanding and understanding

2543

01:24:57,270 --> 01:24:54,239

means that we map

2544

01:24:59,189 --> 01:24:57,280

everything that we perceive onto a

2545

01:25:01,910 --> 01:24:59,199

unified model of the universe

2546

01:25:02,790 --> 01:25:01,920

more or less unified but it's uh we

2547

01:25:05,030 --> 01:25:02,800

basically

2548

01:25:07,110 --> 01:25:05,040

explain something by creating a

2549

01:25:08,950 --> 01:25:07,120

relationship to a unified meaning

2550

01:25:10,390 --> 01:25:08,960

and the unified meaning is our model of

2551
01:25:12,310 --> 01:25:10,400
the world and

2552
01:25:13,990 --> 01:25:12,320
everything that we perceive we are able

2553
01:25:14,629 --> 01:25:14,000
to integrate into this model of the

2554
01:25:16,310 --> 01:25:14,639
world

2555
01:25:20,070 --> 01:25:16,320
and this is something that our ai

2556
01:25:21,430 --> 01:25:20,080
systems are so far incapable of doing

2557
01:25:23,270 --> 01:25:21,440
everything i think we are getting there

2558
01:25:26,229 --> 01:25:23,280
but uh yeah

2559
01:25:27,350 --> 01:25:26,239
is understanding predicated on

2560
01:25:32,470 --> 01:25:27,360
consciousness

2561
01:25:34,229 --> 01:25:32,480
understanding

2562
01:25:35,750 --> 01:25:34,239
and it depends a little bit on how we

2563
01:25:38,550 --> 01:25:35,760

would define understanding

2564

01:25:39,350 --> 01:25:38,560

so uh to understand something in the uh

2565

01:25:41,830 --> 01:25:39,360

it's often

2566

01:25:43,590 --> 01:25:41,840

seen as a verb that means there is a

2567

01:25:45,510 --> 01:25:43,600

relationship between the

2568

01:25:47,189 --> 01:25:45,520

one who understands it and the thing

2569

01:25:48,870 --> 01:25:47,199

that is being understood which means you

2570

01:25:52,070 --> 01:25:48,880

have to have a self concept

2571

01:25:53,590 --> 01:25:52,080

and and a system that can attend and uh

2572

01:25:55,110 --> 01:25:53,600

the self concept needs to have a

2573

01:25:56,229 --> 01:25:55,120

representation of the fact that it's

2574

01:25:58,470 --> 01:25:56,239

currently attending

2575

01:25:59,350 --> 01:25:58,480

and what's in the focus of attention and

2576

01:26:00,870 --> 01:25:59,360

i think if

2577

01:26:02,790 --> 01:26:00,880

the question of whether a system is

2578

01:26:04,709 --> 01:26:02,800

conscious comes down to the question of

2579

01:26:06,070 --> 01:26:04,719

whether it has a functional model of

2580

01:26:08,870 --> 01:26:06,080

what it's attending to

2581

01:26:09,669 --> 01:26:08,880

and the fact that it's attending to it

2582

01:26:11,510 --> 01:26:09,679

right so

2583

01:26:13,669 --> 01:26:11,520

uh you have to have these two aspects

2584

01:26:15,270 --> 01:26:13,679

there's contents of attention

2585

01:26:17,350 --> 01:26:15,280

and the fact that you are currently

2586

01:26:17,990 --> 01:26:17,360

aware of them you using this attentional

2587

01:26:19,510 --> 01:26:18,000

process

2588

01:26:21,110 --> 01:26:19,520

once you have that i think it makes

2589

01:26:22,550 --> 01:26:21,120

sense to ascribe consciousness to the

2590

01:26:23,990 --> 01:26:22,560

system

2591

01:26:25,350 --> 01:26:24,000

have you heard of the other theories of

2592

01:26:26,709 --> 01:26:25,360

consciousness like the integrated

2593

01:26:28,390 --> 01:26:26,719

information theory

2594

01:26:32,390 --> 01:26:28,400

and daniel denetz and so on what do you

2595

01:26:36,390 --> 01:26:32,400

think of them well let's go iit

2596

01:26:36,950 --> 01:26:36,400

i think that iit is several things so it

2597

01:26:39,110 --> 01:26:36,960

starts

2598

01:26:40,629 --> 01:26:39,120

out if you look at the axioms of iit

2599

01:26:42,390 --> 01:26:40,639

with the

2600

01:26:43,750 --> 01:26:42,400

phenomenologist description of

2601

01:26:45,669 --> 01:26:43,760

consciousness it describes what

2602

01:26:47,750 --> 01:26:45,679

consciousness feels like from the inside

2603

01:26:50,470 --> 01:26:47,760

so for instance you have this

2604

01:26:51,189 --> 01:26:50,480

impression over here and now and this uh

2605

01:26:52,950 --> 01:26:51,199

here and now

2606

01:26:54,550 --> 01:26:52,960

is distinct from the physical here and

2607

01:26:56,550 --> 01:26:54,560

now i think

2608

01:26:58,390 --> 01:26:56,560

something that uh iit as far as i'm

2609

01:26:59,350 --> 01:26:58,400

aware doesn't really emphasize but it's

2610

01:27:01,669 --> 01:26:59,360

pretty clear

2611

01:27:02,790 --> 01:27:01,679

that uh from the perspective of the here

2612

01:27:05,110 --> 01:27:02,800

and now in consciousness

2613

01:27:06,149 --> 01:27:05,120

uh the physical universe is is not in

2614

01:27:09,510 --> 01:27:06,159

that here and now

2615

01:27:10,950 --> 01:27:09,520

and cannot be because we often construct

2616

01:27:14,070 --> 01:27:10,960

the conscious experience

2617

01:27:15,669 --> 01:27:14,080

after the fact or predictively

2618

01:27:18,550 --> 01:27:15,679

which means the the here and now of

2619

01:27:21,830 --> 01:27:18,560

physics is smeared out

2620

01:27:23,270 --> 01:27:21,840

right and we are able to experience

2621

01:27:25,990 --> 01:27:23,280

things consciously that

2622

01:27:28,229 --> 01:27:26,000

don't happen physically not just because

2623

01:27:28,870 --> 01:27:28,239

we are simplifying them but uh because

2624

01:27:31,430 --> 01:27:28,880

we

2625

01:27:33,669 --> 01:27:31,440

feed emerge the features of our models

2626
01:27:35,830 --> 01:27:33,679
in a way that is not compatible with the

2627
01:27:37,830 --> 01:27:35,840
physical universe but that is useful

2628
01:27:39,590 --> 01:27:37,840
to the control of the physical universe

2629
01:27:41,270 --> 01:27:39,600
so basically the contents of our

2630
01:27:42,950 --> 01:27:41,280
consciousness are determined by what

2631
01:27:44,470 --> 01:27:42,960
makes up useful control model

2632
01:27:46,229 --> 01:27:44,480
not by what's physically possible and

2633
01:27:49,270 --> 01:27:46,239
what's physically happening

2634
01:27:52,229 --> 01:27:49,280
the other aspect of iit is

2635
01:27:52,870 --> 01:27:52,239
its denial of functionalism so iit in

2636
01:27:56,229 --> 01:27:52,880
some sense

2637
01:27:59,430 --> 01:27:56,239
is makes metaphysical assumptions

2638
01:28:02,229 --> 01:27:59,440

and these metaphysical assumptions i i

2639

01:28:05,270 --> 01:28:02,239

suspect amount to panpsychism

2640

01:28:07,430 --> 01:28:05,280

which means that um consciousness

2641

01:28:09,669 --> 01:28:07,440

is in some sense inseparable for matter

2642

01:28:11,030 --> 01:28:09,679

or from the background of the universe

2643

01:28:12,550 --> 01:28:11,040

therefore it must be an intrinsic

2644

01:28:15,830 --> 01:28:12,560

property of matter itself

2645

01:28:17,830 --> 01:28:15,840

you could say imagine you cannot just

2646

01:28:19,669 --> 01:28:17,840

determine what color is and if you look

2647

01:28:21,830 --> 01:28:19,679

with the microscope is you cannot

2648

01:28:23,590 --> 01:28:21,840

see what color is made of right color

2649

01:28:26,550 --> 01:28:23,600

doesn't have components so

2650

01:28:28,470 --> 01:28:26,560

uh color must be an intrinsic part of

2651

01:28:30,870 --> 01:28:28,480

matter color is not made by matter

2652

01:28:31,830 --> 01:28:30,880

it's inseparable for matter every matter

2653

01:28:34,149 --> 01:28:31,840

contains color

2654

01:28:35,510 --> 01:28:34,159

right right this is almost correct but

2655

01:28:37,030 --> 01:28:35,520

it's not because

2656

01:28:38,709 --> 01:28:37,040

if you zoom in at a certain point there

2657

01:28:40,709 --> 01:28:38,719

is no more color

2658

01:28:42,229 --> 01:28:40,719

color only makes sense as a kind of

2659

01:28:43,990 --> 01:28:42,239

interpretation of

2660

01:28:46,229 --> 01:28:44,000

what we sense about matter and i think

2661

01:28:48,709 --> 01:28:46,239

that's also true for consciousness

2662

01:28:50,790 --> 01:28:48,719

right consciousness only exists within

2663

01:28:53,110 --> 01:28:50,800

minds not within the physical universe

2664

01:28:55,270 --> 01:28:53,120

and so in some sense iit i think is

2665

01:28:58,070 --> 01:28:55,280

putting the locus of consciousness into

2666

01:29:00,310 --> 01:28:58,080

a domain where it doesn't belong

2667

01:29:01,910 --> 01:29:00,320

and then there are the technical aspects

2668

01:29:05,669 --> 01:29:01,920

of the implementation of

2669

01:29:08,629 --> 01:29:05,679

uh the i t series iit

2670

01:29:09,590 --> 01:29:08,639

that is this factor phi the measure of

2671

01:29:11,910 --> 01:29:09,600

integration

2672

01:29:13,350 --> 01:29:11,920

and uh there are some good aspects about

2673

01:29:16,870 --> 01:29:13,360

this uh so

2674

01:29:19,669 --> 01:29:16,880

in the sense that uh your own neocortex

2675

01:29:21,030 --> 01:29:19,679

is uh integrating information in such a

2676

01:29:22,390 --> 01:29:21,040

way that when a lot of it is

2677

01:29:25,350 --> 01:29:22,400

synchronized

2678

01:29:26,229 --> 01:29:25,360

and is stored uh in an intentional

2679

01:29:28,310 --> 01:29:26,239

protocol

2680

01:29:29,750 --> 01:29:28,320

then you will probably have a larger

2681

01:29:31,830 --> 01:29:29,760

focus of your

2682

01:29:33,750 --> 01:29:31,840

attentional awareness than when you have

2683

01:29:35,110 --> 01:29:33,760

when your uh consciousness is highly

2684

01:29:36,950 --> 01:29:35,120

fragmented and your

2685

01:29:38,790 --> 01:29:36,960

this will be reflected in the

2686

01:29:39,430 --> 01:29:38,800

fragmentation of the cortical contents

2687

01:29:40,950 --> 01:29:39,440

which means

2688

01:29:43,510 --> 01:29:40,960

that a lot of it is not firing in

2689

01:29:44,310 --> 01:29:43,520

synchrony and this is being described to

2690

01:29:47,350 --> 01:29:44,320

some degree

2691

01:29:48,229 --> 01:29:47,360

by phi but uh this is a relatively small

2692

01:29:51,030 --> 01:29:48,239

aspect in this

2693

01:29:51,990 --> 01:29:51,040

of phi and i think if you go deeper

2694

01:29:54,390 --> 01:29:52,000

and try to make

2695

01:29:56,390 --> 01:29:54,400

more out of phi then it falls apart

2696

01:29:57,430 --> 01:29:56,400

because you it's no longer necessary in

2697

01:29:59,430 --> 01:29:57,440

sufficient condition

2698

01:30:01,189 --> 01:29:59,440

you don't know what gradual states of

2699

01:30:04,310 --> 01:30:01,199

phi mean and so on

2700

01:30:05,990 --> 01:30:04,320

so i i don't think that i buy iit at

2701

01:30:07,669 --> 01:30:06,000

this point it's not explaining how this

2702

01:30:11,030 --> 01:30:07,679

phenomenon comes about

2703

01:30:13,830 --> 01:30:11,040

and it's uh descriptive and it

2704

01:30:16,149 --> 01:30:13,840

has metaphysics that cannot be evidenced

2705

01:30:19,270 --> 01:30:16,159

that are not predictive

2706

01:30:21,270 --> 01:30:19,280

um the next thing was donald hoffman i

2707

01:30:23,030 --> 01:30:21,280

by donald hoffman's first part of the

2708

01:30:24,950 --> 01:30:23,040

theory which is typically

2709

01:30:26,390 --> 01:30:24,960

the world looks nothing like what we

2710

01:30:29,990 --> 01:30:26,400

experience it as

2711

01:30:33,270 --> 01:30:30,000

that is obviously the case and

2712

01:30:36,629 --> 01:30:33,280

the second half

2713

01:30:38,950 --> 01:30:36,639

i don't follow it's a uh depends on

2714

01:30:40,950 --> 01:30:38,960

in which way you look at uh what he

2715

01:30:44,629 --> 01:30:40,960

writes and spells out

2716

01:30:45,110 --> 01:30:44,639

so uh the second part to me is the thing

2717

01:30:46,950 --> 01:30:45,120

that

2718

01:30:48,870 --> 01:30:46,960

computers are an inadequate

2719

01:30:50,229 --> 01:30:48,880

representation of what our brains are

2720

01:30:51,510 --> 01:30:50,239

doing our brains are not computers

2721

01:30:53,430 --> 01:30:51,520

there's something else

2722

01:30:56,950 --> 01:30:53,440

and i think this results from a

2723

01:30:58,870 --> 01:30:56,960

misunderstanding of what a computer is

2724

01:31:00,790 --> 01:30:58,880

there so he's he's driving the intuition

2725

01:31:02,070 --> 01:31:00,800

here that a computer is a digital von

2726

01:31:05,669 --> 01:31:02,080

neumann machine similar

2727

01:31:05,910 --> 01:31:05,679

to a pc and our brain is not organized

2728

01:31:09,430 --> 01:31:05,920

in

2729

01:31:11,750 --> 01:31:09,440

computers are

2730

01:31:12,709 --> 01:31:11,760

our brains are self-organizing systems

2731

01:31:14,550 --> 01:31:12,719

there are

2732

01:31:16,310 --> 01:31:14,560

oscillators and they use very different

2733

01:31:18,629 --> 01:31:16,320

ways of translating

2734

01:31:19,830 --> 01:31:18,639

the information between the different

2735

01:31:21,830 --> 01:31:19,840

parts and

2736

01:31:23,189 --> 01:31:21,840

achieving coherence and so on than our

2737

01:31:25,110 --> 01:31:23,199

digital computers are

2738

01:31:27,430 --> 01:31:25,120

but this doesn't mean that they cannot

2739

01:31:29,350 --> 01:31:27,440

be described as turing machines

2740

01:31:31,189 --> 01:31:29,360

the turing machine is too general for

2741

01:31:33,750 --> 01:31:31,199

that thing basically

2742

01:31:35,189 --> 01:31:33,760

you're looking at a finite state machine

2743

01:31:36,629 --> 01:31:35,199

that can be used to compute

2744

01:31:39,750 --> 01:31:36,639

representations and

2745

01:31:39,990 --> 01:31:39,760

execute control functions and the brain

2746

01:31:42,709 --> 01:31:40,000

is

2747

01:31:44,310 --> 01:31:42,719

clearly in that category and what we can

2748

01:31:46,310 --> 01:31:44,320

show mathematically is that these

2749

01:31:48,229 --> 01:31:46,320

uh the different instances of that

2750

01:31:48,790 --> 01:31:48,239

category are equivalent to each other

2751
01:31:51,270 --> 01:31:48,800
which means

2752
01:31:52,550 --> 01:31:51,280
there are mappings you can take a

2753
01:31:55,990 --> 01:31:52,560
digital computer

2754
01:31:58,229 --> 01:31:56,000
and create a simulation of the brain

2755
01:31:59,750 --> 01:31:58,239
a virtual brain in that digital computer

2756
01:32:02,470 --> 01:31:59,760
that behaves in the same way

2757
01:32:03,350 --> 01:32:02,480
in principle and also in principle vice

2758
01:32:05,189 --> 01:32:03,360
versa

2759
01:32:07,270 --> 01:32:05,199
so you can create a simulation of a

2760
01:32:08,550 --> 01:32:07,280
digital computer in a brain

2761
01:32:11,189 --> 01:32:08,560
but it's this is much much more

2762
01:32:13,910 --> 01:32:11,199
difficult because our brain is

2763
01:32:15,910 --> 01:32:13,920

largely indeterministic so it's hard to

2764

01:32:18,149 --> 01:32:15,920

get enough determinism from the brain to

2765

01:32:19,110 --> 01:32:18,159

keep a model of a large digital computer

2766

01:32:21,590 --> 01:32:19,120

stable in it

2767

01:32:22,790 --> 01:32:21,600

and so we can only run relatively small

2768

01:32:25,830 --> 01:32:22,800

digital computers

2769

01:32:27,110 --> 01:32:25,840

in our brain but using external tools

2770

01:32:28,229 --> 01:32:27,120

for instance if we are allowed to use

2771

01:32:31,590 --> 01:32:28,239

pen and paper

2772

01:32:33,510 --> 01:32:31,600

we can use our uh analog

2773

01:32:35,990 --> 01:32:33,520

or our chaotic and independentistic

2774

01:32:37,669 --> 01:32:36,000

brains to run pretty large simulations

2775

01:32:39,189 --> 01:32:37,679

of digital computers

2776

01:32:40,790 --> 01:32:39,199

but externalizing the memory and

2777

01:32:42,470 --> 01:32:40,800

determinism

2778

01:32:44,310 --> 01:32:42,480

what about douglas hofstetter's idea of

2779

01:32:45,750 --> 01:32:44,320

consciousness the strange loop i'm not

2780

01:32:46,950 --> 01:32:45,760

sure if you're familiar with it but what

2781

01:32:48,310 --> 01:32:46,960

do you think of it

2782

01:32:50,310 --> 01:32:48,320

and do you mind explaining to the

2783

01:32:54,709 --> 01:32:50,320

audience the idea as far as you

2784

01:32:56,229 --> 01:32:54,719

understand it

2785

01:32:57,910 --> 01:32:56,239

i don't think that i can adequately

2786

01:33:01,350 --> 01:32:57,920

explain it uh

2787

01:33:07,350 --> 01:33:04,390

found about to a tradition of uh

2788

01:33:10,709 --> 01:33:07,360

computer science that is uh taking

2789

01:33:13,910 --> 01:33:12,070

talking about a property of the

2790

01:33:16,870 --> 01:33:13,920

languages that he still try to use

2791

01:33:17,350 --> 01:33:16,880

so he's not a proper computationalist he

2792

01:33:19,510 --> 01:33:17,360

is

2793

01:33:20,870 --> 01:33:19,520

using classical semantics to describe

2794

01:33:23,590 --> 01:33:20,880

computational system

2795

01:33:25,110 --> 01:33:23,600

and it leads to contradictions in his

2796

01:33:27,430 --> 01:33:25,120

descriptions

2797

01:33:30,070 --> 01:33:27,440

and i think that the strange loop is in

2798

01:33:33,030 --> 01:33:30,080

the class of these contradictions

2799

01:33:34,790 --> 01:33:33,040

and i i think that our consciousness is

2800

01:33:37,510 --> 01:33:34,800

not strange

2801
01:33:39,669 --> 01:33:37,520
as a loop it's there is some loop going

2802
01:33:41,270 --> 01:33:39,679
on but it's not a strange loop at all

2803
01:33:43,110 --> 01:33:41,280
it's a loop that goes between the

2804
01:33:45,030 --> 01:33:43,120
contents of the attention

2805
01:33:46,709 --> 01:33:45,040
and uh paying attention to the fact that

2806
01:33:48,390 --> 01:33:46,719
we still pay attention so we notice that

2807
01:33:50,790 --> 01:33:48,400
we haven't drifted off

2808
01:33:52,390 --> 01:33:50,800
so the strange loop sorry the strange

2809
01:33:53,590 --> 01:33:52,400
loop doesn't exist there's no such thing

2810
01:33:55,430 --> 01:33:53,600
as a strange loop because it's

2811
01:33:56,790 --> 01:33:55,440
predicated on false mathematics or at

2812
01:33:58,709 --> 01:33:56,800
mathematics that doesn't apply so

2813
01:34:00,629 --> 01:33:58,719

yes but i am not sure if i represent it

2814

01:34:00,950 --> 01:34:00,639

adequately and i would have to reread it

2815

01:34:03,430 --> 01:34:00,960

and

2816

01:34:04,070 --> 01:34:03,440

properly formulate it so i am reluctant

2817

01:34:06,310 --> 01:34:04,080

to

2818

01:34:07,910 --> 01:34:06,320

talk about it because i cannot properly

2819

01:34:08,310 --> 01:34:07,920

translate and define it here i would

2820

01:34:11,510 --> 01:34:08,320

have to

2821

01:34:13,430 --> 01:34:11,520

uh look it up again yeah no problem how

2822

01:34:14,870 --> 01:34:13,440

about the holonomic theory the holonomic

2823

01:34:16,790 --> 01:34:14,880

brain theory

2824

01:34:19,189 --> 01:34:16,800

oh it's a long time that i stumbled into

2825

01:34:21,189 --> 01:34:19,199

this one i didn't quite understand how

2826

01:34:23,110 --> 01:34:21,199

it was explaining consciousness so there

2827

01:34:27,189 --> 01:34:23,120

is a certain way in which

2828

01:34:28,709 --> 01:34:27,199

it is pointing at the hierarchies

2829

01:34:30,470 --> 01:34:28,719

of perception that we have and that's

2830

01:34:32,550 --> 01:34:30,480

accurate but

2831

01:34:35,510 --> 01:34:32,560

uh i i haven't understood how the

2832

01:34:37,830 --> 01:34:35,520

holonomics theory explains consciousness

2833

01:34:39,510 --> 01:34:37,840

in the sense that i i didn't see a

2834

01:34:42,390 --> 01:34:39,520

specification that i can implement and

2835

01:34:44,709 --> 01:34:42,400

end up with a conscious system

2836

01:34:45,750 --> 01:34:44,719

how about daniel dennett's idea of

2837

01:34:47,590 --> 01:34:45,760

consciousness

2838

01:34:50,070 --> 01:34:47,600

or at least his explanation is to how

2839

01:34:52,070 --> 01:34:50,080

consciousness arises and what it is

2840

01:34:53,590 --> 01:34:52,080

i think that danette as far as i

2841

01:34:55,590 --> 01:34:53,600

understand than it is

2842

01:34:56,709 --> 01:34:55,600

uh there's nothing wrong with what

2843

01:35:00,070 --> 01:34:56,719

danette says ever

2844

01:35:02,629 --> 01:35:00,080

the incredible person that that uh

2845

01:35:03,990 --> 01:35:02,639

so the things that i read from him i

2846

01:35:06,629 --> 01:35:04,000

don't have any objections

2847

01:35:08,470 --> 01:35:06,639

except that he seems to ignore the part

2848

01:35:11,430 --> 01:35:08,480

that most people struggle with

2849

01:35:12,629 --> 01:35:11,440

which is phenomenal experience so

2850

01:35:15,990 --> 01:35:12,639

basically he does

2851
01:35:19,189 --> 01:35:16,000
make fun of the people that explain

2852
01:35:20,870 --> 01:35:19,199
how mary proves that

2853
01:35:22,790 --> 01:35:20,880
machines cannot be conscious and he's

2854
01:35:24,950 --> 01:35:22,800
justified in making fun of them and

2855
01:35:27,030 --> 01:35:24,960
it's a very good read but he is not

2856
01:35:29,109 --> 01:35:27,040
going to convince any of these people

2857
01:35:30,390 --> 01:35:29,119
because he is not deconstructing the

2858
01:35:32,390 --> 01:35:30,400
thing that they are struggling with

2859
01:35:35,270 --> 01:35:32,400
which is phenomenal experience

2860
01:35:36,950 --> 01:35:35,280
he is mostly seems to be ignoring it so

2861
01:35:39,990 --> 01:35:36,960
it's incomplete it's correct

2862
01:35:41,590 --> 01:35:40,000
but incomplete i yeah i suspect that he

2863
01:35:42,149 --> 01:35:41,600

doesn't think that there's that much to

2864

01:35:44,149 --> 01:35:42,159

explain

2865

01:35:45,750 --> 01:35:44,159

because he uh may not have that much

2866

01:35:47,430 --> 01:35:45,760

phenomenal experience he probably has a

2867

01:35:49,350 --> 01:35:47,440

fantasia

2868

01:35:50,470 --> 01:35:49,360

only speculating here it could be that

2869

01:35:53,350 --> 01:35:50,480

basically uh

2870

01:35:54,830 --> 01:35:53,360

then its mind is so conceptual that he

2871

01:35:56,390 --> 01:35:54,840

doesn't think that there is that much to

2872

01:35:58,470 --> 01:35:56,400

explain

2873

01:36:00,229 --> 01:35:58,480

and there are people which are rarely

2874

01:36:02,310 --> 01:36:00,239

visiting the conceptual realm

2875

01:36:03,510 --> 01:36:02,320

and they make the have the experience

2876

01:36:05,910 --> 01:36:03,520

that the this

2877

01:36:07,990 --> 01:36:05,920

logical language is unfit to describe

2878

01:36:10,229 --> 01:36:08,000

anything of consequence in in

2879

01:36:12,229 --> 01:36:10,239

real everyday life so how could it

2880

01:36:12,790 --> 01:36:12,239

explain something that is so fundamental

2881

01:36:14,950 --> 01:36:12,800

as

2882

01:36:16,550 --> 01:36:14,960

a phenomenal experience right you need

2883

01:36:19,990 --> 01:36:16,560

art to describe that

2884

01:36:21,669 --> 01:36:20,000

and uh danette is so far removed in the

2885

01:36:23,270 --> 01:36:21,679

way that he speaks talks

2886

01:36:24,790 --> 01:36:23,280

things operates that his own mind

2887

01:36:26,990 --> 01:36:24,800

operates that it's

2888

01:36:28,229 --> 01:36:27,000

very hard i think to see for the

2889

01:36:30,070 --> 01:36:28,239

phenomenologists

2890

01:36:31,590 --> 01:36:30,080

how dennet is actually talking about the

2891

01:36:33,910 --> 01:36:31,600

same thing

2892

01:36:35,590 --> 01:36:33,920

but uh having said that i do think that

2893

01:36:37,510 --> 01:36:35,600

danette is right

2894

01:36:39,109 --> 01:36:37,520

it's just he is not giving us a

2895

01:36:41,030 --> 01:36:39,119

specification that we can implement at

2896

01:36:42,709 --> 01:36:41,040

this point then again he's a philosopher

2897

01:36:44,870 --> 01:36:42,719

so he's not uh dealing with the

2898

01:36:48,550 --> 01:36:44,880

specifications very much

2899

01:36:50,470 --> 01:36:48,560

uh and so when i read done it i

2900

01:36:53,189 --> 01:36:50,480

i don't object to anything that i read

2901

01:36:54,870 --> 01:36:53,199

so far but uh i also learned very little

2902

01:36:57,030 --> 01:36:54,880

it's basically trivially true but it

2903

01:36:59,669 --> 01:36:57,040

says

2904

01:37:01,109 --> 01:36:59,679

how about the sensory motor theory so uh

2905

01:37:02,709 --> 01:37:01,119

what does it mean to have a sensory

2906

01:37:04,310 --> 01:37:02,719

motor theory of consciousness i suspect

2907

01:37:06,790 --> 01:37:04,320

that there are a number of

2908

01:37:07,830 --> 01:37:06,800

people that would refer to sensory motor

2909

01:37:10,950 --> 01:37:07,840

integration

2910

01:37:14,390 --> 01:37:10,960

as at the core of consciousness and

2911

01:37:16,390 --> 01:37:14,400

you could say that there is crucially a

2912

01:37:19,990 --> 01:37:16,400

notion of agency that results

2913

01:37:22,390 --> 01:37:20,000

from performing actions

2914

01:37:24,629 --> 01:37:22,400

and sensing the result of the actions

2915

01:37:25,830 --> 01:37:24,639

and making sense of the relationship

2916

01:37:30,229 --> 01:37:25,840

between

2917

01:37:35,430 --> 01:37:33,270

when i was confronted with this notion

2918

01:37:36,629 --> 01:37:35,440

i i thought well how do you know that

2919

01:37:39,750 --> 01:37:36,639

there is action

2920

01:37:42,950 --> 01:37:39,760

what exists is eventually just a notion

2921

01:37:46,470 --> 01:37:44,709

have you heard of bergson's theory of

2922

01:37:48,870 --> 01:37:46,480

consciousness

2923

01:37:50,390 --> 01:37:48,880

wait let's let's go yeah sorry sorry

2924

01:37:50,950 --> 01:37:50,400

let's continue with the sensory motor

2925

01:37:53,430 --> 01:37:50,960

thing if

2926

01:37:54,550 --> 01:37:53,440

you're still yeah no i apologize i took

2927

01:37:58,950 --> 01:37:54,560

your pauses

2928

01:38:01,270 --> 01:37:58,960

as as you were finished no no um

2929

01:38:02,390 --> 01:38:01,280

my bad by the way just in case i'm a bit

2930

01:38:04,550 --> 01:38:02,400

loopy i

2931

01:38:06,229 --> 01:38:04,560

i haven't had enough i haven't had sleep

2932

01:38:08,709 --> 01:38:06,239

proper sleep in like three days and i've

2933

01:38:09,590 --> 01:38:08,719

only eaten one meal in 72 hours

2934

01:38:11,990 --> 01:38:09,600

approximately

2935

01:38:15,030 --> 01:38:12,000

because i'm in the middle of a fast so

2936

01:38:18,950 --> 01:38:15,040

if i seem a bit drowsy or

2937

01:38:21,430 --> 01:38:18,960

or slow please forgive me

2938

01:38:23,030 --> 01:38:21,440

i have no difficulty forgiving you okay

2939

01:38:24,310 --> 01:38:23,040

why don't you continue about the sensory

2940

01:38:26,870 --> 01:38:24,320

motor

2941

01:38:28,950 --> 01:38:26,880

uh so i suspect that we discover our

2942

01:38:29,990 --> 01:38:28,960

body the motor aspect only through the

2943

01:38:32,470 --> 01:38:30,000

senses so it's

2944

01:38:34,390 --> 01:38:32,480

basically we discover the control

2945

01:38:38,070 --> 01:38:34,400

architect architecture we discover

2946

01:38:40,870 --> 01:38:38,080

that there is a relationship between

2947

01:38:41,430 --> 01:38:40,880

the environment and certain states which

2948

01:38:43,510 --> 01:38:41,440

we

2949

01:38:45,430 --> 01:38:43,520

notice as being intentional states and

2950

01:38:47,350 --> 01:38:45,440

the body that is the instrument of

2951
01:38:49,270 --> 01:38:47,360
translating intentional states into

2952
01:38:50,870 --> 01:38:49,280
changes in the environment and this

2953
01:38:54,070 --> 01:38:50,880
control hierarchy of

2954
01:38:57,590 --> 01:38:57,109
originating and motivation and needs and

2955
01:39:01,030 --> 01:38:57,600
then

2956
01:39:01,590 --> 01:39:01,040
this leading to the initiation of motor

2957
01:39:07,590 --> 01:39:01,600
actions

2958
01:39:09,669 --> 01:39:07,600
or mental operations and then as a

2959
01:39:10,790 --> 01:39:09,679
result to changes in the world in the

2960
01:39:14,229 --> 01:39:10,800
perceived

2961
01:39:16,550 --> 01:39:14,239
mental world and this again

2962
01:39:18,149 --> 01:39:16,560
leading to changes in our needs and

2963
01:39:20,310 --> 01:39:18,159

motivations and so on

2964

01:39:22,470 --> 01:39:20,320

this this discovery of the loop is only

2965

01:39:23,189 --> 01:39:22,480

possible because we have the entire loop

2966

01:39:26,470 --> 01:39:23,199

given

2967

01:39:28,870 --> 01:39:26,480

if any element of this loop was missing

2968

01:39:29,669 --> 01:39:28,880

we would not be able to discover our own

2969

01:39:31,910 --> 01:39:29,679

agency

2970

01:39:33,189 --> 01:39:31,920

right we only discover our bodies as

2971

01:39:35,430 --> 01:39:33,199

being that instrument

2972

01:39:37,030 --> 01:39:35,440

we wouldn't discover that we have a body

2973

01:39:39,350 --> 01:39:37,040

outside of volitional states and

2974

01:39:40,950 --> 01:39:39,360

environment we wouldn't discover

2975

01:39:43,030 --> 01:39:40,960

volitional states

2976

01:39:44,070 --> 01:39:43,040

in the absence of a body and the

2977

01:39:46,550 --> 01:39:44,080

environment

2978

01:39:47,350 --> 01:39:46,560

and the body could uh also be a mental

2979

01:39:48,790 --> 01:39:47,360

body that

2980

01:39:50,390 --> 01:39:48,800

is able to perform mathematical

2981

01:39:51,030 --> 01:39:50,400

operations that's probably sufficient

2982

01:39:53,910 --> 01:39:51,040

for this

2983

01:39:55,590 --> 01:39:53,920

but you will need to have to see some

2984

01:39:58,790 --> 01:39:55,600

outcome of your actions

2985

01:39:59,669 --> 01:39:58,800

and something that some way to affect

2986

01:40:01,430 --> 01:39:59,679

these outcomes

2987

01:40:04,310 --> 01:40:01,440

to arrive at the notion of your own

2988

01:40:05,590 --> 01:40:04,320

agency and the type of intelligence that

2989

01:40:08,870 --> 01:40:05,600

makes us distinct

2990

01:40:09,830 --> 01:40:08,880

is the ability to conceptualize

2991

01:40:12,550 --> 01:40:09,840

ourselves as an

2992

01:40:15,030 --> 01:40:12,560

agent embedded into the universe our the

2993

01:40:16,870 --> 01:40:15,040

generality of our intelligence is given

2994

01:40:18,149 --> 01:40:16,880

by us having to solve control problems

2995

01:40:19,910 --> 01:40:18,159

that are so general

2996

01:40:22,149 --> 01:40:19,920

that we need to model ourselves that we

2997

01:40:23,590 --> 01:40:22,159

need to reverse engineer us right

2998

01:40:24,629 --> 01:40:23,600

imagine you start out with the

2999

01:40:28,629 --> 01:40:24,639

thermostat

3000

01:40:30,390 --> 01:40:28,639

controls the temperature in a room

3001

01:40:33,109 --> 01:40:30,400

based on a measurement of the

3002

01:40:35,910 --> 01:40:33,119

temperature and a control impulse that

3003

01:40:38,310 --> 01:40:35,920

turns a heating element on and off and

3004

01:40:40,950 --> 01:40:38,320

now imagine that this uh

3005

01:40:43,030 --> 01:40:40,960

thermometer is very close to the heating

3006

01:40:45,030 --> 01:40:43,040

element so there is some feedback

3007

01:40:46,550 --> 01:40:45,040

between the heating element and the

3008

01:40:48,790 --> 01:40:46,560

measurement that you make

3009

01:40:50,310 --> 01:40:48,800

and if you want to get the temperature

3010

01:40:51,910 --> 01:40:50,320

in the room right and don't want to run

3011

01:40:53,590 --> 01:40:51,920

into viral fluctuations

3012

01:40:55,030 --> 01:40:53,600

you might need to have a second order

3013

01:40:56,070 --> 01:40:55,040

control loop and the second order

3014

01:40:58,629 --> 01:40:56,080

control loop

3015

01:41:00,629 --> 01:40:58,639

is basically correcting the measurement

3016

01:41:03,350 --> 01:41:00,639

that you're making with your sensor

3017

01:41:03,990 --> 01:41:03,360

for the activity of the heating element

3018

01:41:06,149 --> 01:41:04,000

which means

3019

01:41:07,189 --> 01:41:06,159

now your second order control loop will

3020

01:41:09,430 --> 01:41:07,199

have to uh

3021

01:41:11,669 --> 01:41:09,440

implement a model of the interaction

3022

01:41:14,390 --> 01:41:11,679

between heating element and heater

3023

01:41:14,870 --> 01:41:14,400

and it might have to implement a model

3024

01:41:18,070 --> 01:41:14,880

of

3025

01:41:19,669 --> 01:41:18,080

how much this contributes to the

3026

01:41:21,270 --> 01:41:19,679

temperature in the vicinity

3027

01:41:23,109 --> 01:41:21,280

and the second order control group is

3028

01:41:26,149 --> 01:41:23,119

what's conscious in this example

3029

01:41:27,750 --> 01:41:26,159

no it's just a second order model no

3030

01:41:30,390 --> 01:41:27,760

it's uh so basically we are now looking

3031

01:41:31,109 --> 01:41:30,400

at a nested system a nested cybernetic

3032

01:41:33,990 --> 01:41:31,119

loop

3033

01:41:35,510 --> 01:41:34,000

and if you have a room where you for

3034

01:41:37,189 --> 01:41:35,520

instance have a changing volume of

3035

01:41:38,790 --> 01:41:37,199

air because you sometimes open the

3036

01:41:40,229 --> 01:41:38,800

vendor or not

3037

01:41:42,149 --> 01:41:40,239

you might need to have a third order

3038

01:41:44,470 --> 01:41:42,159

control loop that is now

3039

01:41:46,149 --> 01:41:44,480

measuring how the heating element is

3040

01:41:47,430 --> 01:41:46,159

changing the temperature of the room

3041

01:41:49,590 --> 01:41:47,440

depending on that third

3042

01:41:50,870 --> 01:41:49,600

hidden variable and you try to guess at

3043

01:41:53,109 --> 01:41:50,880

this hidden variable

3044

01:41:54,629 --> 01:41:53,119

and now if you also have temperature

3045

01:41:56,070 --> 01:41:54,639

fluctuations on the outside because

3046

01:41:57,590 --> 01:41:56,080

maybe you have a change of season and

3047

01:42:00,310 --> 01:41:57,600

the air that comes in

3048

01:42:01,830 --> 01:42:00,320

uh and out now that might require more

3049

01:42:03,990 --> 01:42:01,840

complicated loops right

3050

01:42:05,750 --> 01:42:04,000

and eventually you will also need to

3051
01:42:08,550 --> 01:42:05,760
have a model that describes

3052
01:42:08,950 --> 01:42:08,560
the uh sensitivity of the heating sensor

3053
01:42:11,189 --> 01:42:08,960
and

3054
01:42:12,470 --> 01:42:11,199
the inaccuracies of the heating sensor

3055
01:42:15,109 --> 01:42:12,480
and maybe

3056
01:42:16,870 --> 01:42:15,119
the at certain temperatures the switch

3057
01:42:19,830 --> 01:42:16,880
doesn't operate at the same

3058
01:42:21,350 --> 01:42:19,840
rate as it would uh happen at uh your

3059
01:42:25,030 --> 01:42:21,360
default temperature right

3060
01:42:27,669 --> 01:42:25,040
so you need to allow for the

3061
01:42:29,270 --> 01:42:27,679
quirks of your own control architecture

3062
01:42:31,030 --> 01:42:29,280
and this means that at some point the

3063
01:42:32,070 --> 01:42:31,040

control loops have to model the system

3064

01:42:35,430 --> 01:42:32,080

itself

3065

01:42:37,189 --> 01:42:35,440

so you get to a system that is modeling

3066

01:42:39,109 --> 01:42:37,199

its own place in the environment its own

3067

01:42:40,709 --> 01:42:39,119

relationship to the environment

3068

01:42:42,310 --> 01:42:40,719

consciousness is not yet related to this

3069

01:42:44,229 --> 01:42:42,320

consciousness is a tool

3070

01:42:46,310 --> 01:42:44,239

to discover this imagine you have this

3071

01:42:46,709 --> 01:42:46,320

vast multitude of possible measurements

3072

01:42:48,629 --> 01:42:46,719

and

3073

01:42:50,229 --> 01:42:48,639

possible hidden states that you cannot

3074

01:42:51,189 --> 01:42:50,239

directly measure but you have to

3075

01:42:54,470 --> 01:42:51,199

construct

3076

01:42:56,470 --> 01:42:54,480

to explain the data that you're

3077

01:42:57,830 --> 01:42:56,480

measuring the relationship between them

3078

01:42:59,910 --> 01:42:57,840

and because you have this vast

3079

01:43:00,950 --> 01:42:59,920

conflagration of possible relationships

3080

01:43:02,709 --> 01:43:00,960

between them

3081

01:43:04,470 --> 01:43:02,719

you cannot just do a blind search

3082

01:43:06,229 --> 01:43:04,480

instead you need to have some kind of a

3083

01:43:08,390 --> 01:43:06,239

directed search something that is

3084

01:43:09,669 --> 01:43:08,400

structuring your search and telling you

3085

01:43:11,430 --> 01:43:09,679

which of these

3086

01:43:13,270 --> 01:43:11,440

parameters you should single out and

3087

01:43:14,950 --> 01:43:13,280

relate to each other and uh

3088

01:43:17,030 --> 01:43:14,960

try to change the relationship see what

3089

01:43:18,870 --> 01:43:17,040

the outcome is and so on and that

3090

01:43:20,629 --> 01:43:18,880

is the purpose of consciousness is the

3091

01:43:24,310 --> 01:43:20,639

direction of attention

3092

01:43:26,149 --> 01:43:24,320

over this multitude of possible states

3093

01:43:27,430 --> 01:43:26,159

okay so the purpose of consciousness is

3094

01:43:28,790 --> 01:43:27,440

the direction of attention

3095

01:43:30,070 --> 01:43:28,800

but also at the same time you said that

3096

01:43:30,550 --> 01:43:30,080

it was the story that the brain tells

3097

01:43:32,470 --> 01:43:30,560

itself

3098

01:43:34,470 --> 01:43:32,480

so in this thermostat example what is

3099

01:43:36,310 --> 01:43:34,480

the story that's being told

3100

01:43:38,149 --> 01:43:36,320

so the story that could be told about

3101
01:43:40,070 --> 01:43:38,159
the thermostat would be that

3102
01:43:41,270 --> 01:43:40,080
there is this thermostat or a measuring

3103
01:43:43,830 --> 01:43:41,280
system

3104
01:43:45,750 --> 01:43:43,840
that is regulating a parameter in in the

3105
01:43:46,709 --> 01:43:45,760
world that relates to other parameters

3106
01:43:48,390 --> 01:43:46,719
in the world

3107
01:43:50,870 --> 01:43:48,400
for instance volume of air outside

3108
01:43:51,750 --> 01:43:50,880
temperature frequency at which a window

3109
01:43:53,510 --> 01:43:51,760
is being opened

3110
01:43:54,950 --> 01:43:53,520
maybe other agents which open and close

3111
01:43:56,470 --> 01:43:54,960
the windows uh

3112
01:43:58,229 --> 01:43:56,480
maybe other agents that change my

3113
01:43:59,590 --> 01:43:58,239

settings depending on what's happening

3114

01:44:01,750 --> 01:43:59,600

and so on right and the more

3115

01:44:03,590 --> 01:44:01,760

data you can integrate the more complete

3116

01:44:05,510 --> 01:44:03,600

your model of the universe will get

3117

01:44:07,030 --> 01:44:05,520

the more parameters of the universe you

3118

01:44:08,950 --> 01:44:07,040

will have to integrate

3119

01:44:11,750 --> 01:44:08,960

and at some point you get to a model

3120

01:44:14,950 --> 01:44:11,760

that is complete in a sense that

3121

01:44:16,870 --> 01:44:14,960

you have a smaller set of causal laws

3122

01:44:18,550 --> 01:44:16,880

basically physical laws that are

3123

01:44:20,070 --> 01:44:18,560

sufficient to explain the conditions of

3124

01:44:22,310 --> 01:44:20,080

your existence

3125

01:44:24,709 --> 01:44:22,320

and the basic uh principle that explains

3126

01:44:26,470 --> 01:44:24,719

how everything relates to everything how

3127

01:44:28,229 --> 01:44:26,480

functions are being computed how a

3128

01:44:29,830 --> 01:44:28,239

system can exist in the universe how a

3129

01:44:32,229 --> 01:44:29,840

universe can be generated

3130

01:44:34,149 --> 01:44:32,239

and how a system can change itself as a

3131

01:44:36,310 --> 01:44:34,159

relationship to that that is computation

3132

01:44:38,950 --> 01:44:36,320

so computation gives you a language to

3133

01:44:40,629 --> 01:44:38,960

talk about first principles

3134

01:44:42,070 --> 01:44:40,639

and what is intelligence in this is it

3135

01:44:43,030 --> 01:44:42,080

just the ability to model for the

3136

01:44:44,229 --> 01:44:43,040

generation of

3137

01:44:46,550 --> 01:44:44,239

more models whether or not they're

3138

01:44:48,149 --> 01:44:46,560

predictive or whether or not they fit

3139

01:44:49,669 --> 01:44:48,159

yeah what's a call intelligence the

3140

01:44:51,830 --> 01:44:49,679

ability to make models

3141

01:44:53,830 --> 01:44:51,840

but of course it this makes sense in the

3142

01:44:55,590 --> 01:44:53,840

context of a control task usually so

3143

01:44:56,709 --> 01:44:55,600

there is a certain control task that is

3144

01:44:58,470 --> 01:44:56,719

being fulfilled

3145

01:44:59,750 --> 01:44:58,480

and the intelligence of the thermostat

3146

01:45:01,910 --> 01:44:59,760

would be

3147

01:45:04,070 --> 01:45:01,920

measured by the complexity of the models

3148

01:45:07,030 --> 01:45:04,080

that the thermostat can build

3149

01:45:08,790 --> 01:45:07,040

as a result of the interaction between

3150

01:45:11,030 --> 01:45:08,800

the data and the measurements

3151

01:45:12,709 --> 01:45:11,040

and its actions is there a relationship

3152

01:45:14,390 --> 01:45:12,719

between intelligence and consciousness

3153

01:45:16,390 --> 01:45:14,400

such that the higher your iq as an

3154

01:45:18,229 --> 01:45:16,400

individual let's say as a human you are

3155

01:45:21,750 --> 01:45:18,239

more conscious

3156

01:45:25,270 --> 01:45:21,760

i would say that consciousness is a

3157

01:45:26,629 --> 01:45:25,280

solution for creating certain types of

3158

01:45:29,030 --> 01:45:26,639

models

3159

01:45:30,629 --> 01:45:29,040

so it's basically an aspect of a certain

3160

01:45:32,629 --> 01:45:30,639

class of algorithms

3161

01:45:33,990 --> 01:45:32,639

of algorithms that require the direction

3162

01:45:37,430 --> 01:45:34,000

of attention

3163

01:45:40,229 --> 01:45:37,440

in a particular way and so

3164

01:45:41,510 --> 01:45:40,239

the fact that we can recall having

3165

01:45:43,430 --> 01:45:41,520

attended to something

3166

01:45:45,189 --> 01:45:43,440

while being something that was attending

3167

01:45:46,950 --> 01:45:45,199

and while being aware of the fact that

3168

01:45:47,910 --> 01:45:46,960

we were attending instead of drifting

3169

01:45:50,950 --> 01:45:47,920

off

3170

01:45:52,229 --> 01:45:50,960

uh right this is what determines our

3171

01:45:54,550 --> 01:45:52,239

type of consciousness

3172

01:45:55,910 --> 01:45:54,560

and it's not necessarily the case that

3173

01:45:58,550 --> 01:45:55,920

every system

3174

01:46:00,149 --> 01:45:58,560

has all these degrees of freedom or

3175

01:46:01,510 --> 01:46:00,159

needs to have these degrees of freedom

3176

01:46:03,510 --> 01:46:01,520

to be able to solve

3177

01:46:04,950 --> 01:46:03,520

the same problems as we do because we

3178

01:46:06,870 --> 01:46:04,960

could just fixate these things

3179

01:46:08,390 --> 01:46:06,880

maybe we can have an attentional system

3180

01:46:10,470 --> 01:46:08,400

that is itself unconscious

3181

01:46:12,629 --> 01:46:10,480

when you say to solve the problems are

3182

01:46:15,270 --> 01:46:12,639

you referring to just propagation of

3183

01:46:18,310 --> 01:46:15,280

existence that they don't die

3184

01:46:20,390 --> 01:46:18,320

no our death is unrelated to this our

3185

01:46:22,470 --> 01:46:20,400

death is a concept that exists it's an

3186

01:46:24,310 --> 01:46:22,480

idea that our word line is broken in a

3187

01:46:26,870 --> 01:46:24,320

certain way that it ends

3188

01:46:28,149 --> 01:46:26,880

and we are not continuous in the first

3189

01:46:29,990 --> 01:46:28,159

place our idea of

3190

01:46:31,910 --> 01:46:30,000

existing in a continuous fashion is a

3191

01:46:33,189 --> 01:46:31,920

construction that we have over our

3192

01:46:34,870 --> 01:46:33,199

memories to explain

3193

01:46:37,590 --> 01:46:34,880

memories that we seem to have of past

3194

01:46:42,550 --> 01:46:41,030

sorry continue continue whether three

3195

01:46:45,590 --> 01:46:42,560

will come in

3196

01:46:47,109 --> 01:46:45,600

free will is a representation isn't

3197

01:46:50,149 --> 01:46:47,119

envisioned in the system that

3198

01:46:53,189 --> 01:46:50,159

it's made a decision and the decision is

3199

01:46:55,109 --> 01:46:53,199

being made on the best understanding of

3200

01:46:58,390 --> 01:46:55,119

what's correct

3201

01:47:00,310 --> 01:46:58,400

and a free will is uh

3202

01:47:02,550 --> 01:47:00,320

it's basically it's uh the out flow of

3203

01:47:03,109 --> 01:47:02,560

this control task it's the outflow of

3204

01:47:05,990 --> 01:47:03,119

the

3205

01:47:06,870 --> 01:47:06,000

control uh algorithm being executed in

3206

01:47:08,790 --> 01:47:06,880

the right way

3207

01:47:10,470 --> 01:47:08,800

the opposite to free will is not

3208

01:47:12,550 --> 01:47:10,480

determinism

3209

01:47:14,470 --> 01:47:12,560

if you are indeterministic you cannot

3210

01:47:16,310 --> 01:47:14,480

have free will if you behave randomly

3211

01:47:19,990 --> 01:47:16,320

there is no will involved

3212

01:47:23,109 --> 01:47:20,000

right it's just random and the opposite

3213

01:47:25,030 --> 01:47:23,119

to free will is also not coercion

3214

01:47:26,550 --> 01:47:25,040

because you are deciding that you are

3215

01:47:28,149 --> 01:47:26,560

giving in to the coercion

3216

01:47:30,790 --> 01:47:28,159

you wouldn't need to be coerced if you

3217

01:47:32,629 --> 01:47:30,800

wouldn't have a degree of freedom

3218

01:47:33,910 --> 01:47:32,639

but the opposite to free will is

3219

01:47:35,590 --> 01:47:33,920

compulsion

3220

01:47:37,030 --> 01:47:35,600

it's basically when you do something

3221

01:47:38,629 --> 01:47:37,040

despite knowing better

3222

01:47:40,390 --> 01:47:38,639

the opposite of free will is compulsion

3223

01:47:43,030 --> 01:47:40,400

as well as randomness

3224

01:47:43,910 --> 01:47:43,040

uh so uh randomness is the absence of

3225

01:47:45,669 --> 01:47:43,920

will at all

3226

01:47:48,709 --> 01:47:45,679

right the system that is random has no

3227

01:47:50,470 --> 01:47:48,719

will so the will cannot be free or not

3228

01:47:52,550 --> 01:47:50,480

but so we have to look at the opposite

3229

01:47:54,149 --> 01:47:52,560

of the freedom and the opposite of the

3230

01:47:55,590 --> 01:47:54,159

freedom is not the coercion it's the

3231

01:48:00,070 --> 01:47:55,600

compulsion

3232

01:48:01,109 --> 01:48:00,080

means that you have a model of what you

3233

01:48:03,830 --> 01:48:01,119

should be doing

3234

01:48:05,590 --> 01:48:03,840

but you don't find yourself acting on it

3235

01:48:07,270 --> 01:48:05,600

you find yourself acting on something

3236

01:48:09,270 --> 01:48:07,280

else you are acting on based on some

3237

01:48:11,669 --> 01:48:09,280

impulse or some addiction

3238

01:48:15,189 --> 01:48:11,679

and that is basically the true

3239

01:48:19,189 --> 01:48:17,430

but it's important to realize that

3240

01:48:22,070 --> 01:48:19,199

freedom is not an absolute

3241

01:48:23,590 --> 01:48:22,080

notion in the physical sense it's it's a

3242

01:48:24,629 --> 01:48:23,600

reference that we make to certain

3243

01:48:27,350 --> 01:48:24,639

internal states

3244

01:48:30,229 --> 01:48:27,360

so when i refer to my own decisions as

3245

01:48:32,629 --> 01:48:30,239

being the result of my free will

3246

01:48:34,070 --> 01:48:32,639

depends on the context in which i use

3247

01:48:35,669 --> 01:48:34,080

this and when i talk about the

3248

01:48:37,750 --> 01:48:35,679

experiential context

3249

01:48:39,189 --> 01:48:37,760

experience by will is free when i have

3250

01:48:42,550 --> 01:48:39,199

the impression

3251

01:48:44,550 --> 01:48:42,560

that i made the decision based on

3252

01:48:45,990 --> 01:48:44,560

parameters that are the right ones that

3253

01:48:47,510 --> 01:48:46,000

are in the proper order

3254

01:48:49,750 --> 01:48:47,520

with respect to the control structures

3255

01:48:52,229 --> 01:48:49,760

that my mind currently implements

3256

01:48:54,310 --> 01:48:52,239

and not because of uh some glitch in the

3257

01:48:55,350 --> 01:48:54,320

matrix of some glitch in the system that

3258

01:48:58,709 --> 01:48:55,360

implements me

3259

01:48:59,430 --> 01:48:58,719

or uh of some erroneous programming or

3260

01:49:02,470 --> 01:48:59,440

some

3261

01:49:03,590 --> 01:49:02,480

uh external force that is spreading in

3262

01:49:05,830 --> 01:49:03,600

my mind

3263

01:49:06,870 --> 01:49:05,840

so uh when people have the impression

3264

01:49:09,109 --> 01:49:06,880

that they inter

3265

01:49:11,669 --> 01:49:09,119

act uh out of a compulsion for instance

3266

01:49:14,870 --> 01:49:11,679

because they say first and have anorexia

3267

01:49:16,629 --> 01:49:14,880

they might decide to

3268

01:49:18,229 --> 01:49:16,639

or bulimia they might decide not to

3269

01:49:19,830 --> 01:49:18,239

throw up after eating but they cannot

3270

01:49:22,310 --> 01:49:19,840

help themselves they just have this

3271

01:49:23,270 --> 01:49:22,320

enormous urge to throw up or make

3272

01:49:24,629 --> 01:49:23,280

themselves throw up

3273

01:49:26,790 --> 01:49:24,639

there's nothing that they can do about

3274

01:49:28,870 --> 01:49:26,800

this and it's a very disturbing

3275

01:49:30,470 --> 01:49:28,880

experience because it impinges on your

3276

01:49:31,109 --> 01:49:30,480

freedom there is one thing that you want

3277

01:49:32,790 --> 01:49:31,119

to do

3278

01:49:34,550 --> 01:49:32,800

and another thing that you find yourself

3279

01:49:36,470 --> 01:49:34,560

to be doing

3280

01:49:39,030 --> 01:49:36,480

and this is a very big existential

3281

01:49:41,109 --> 01:49:39,040

disturbance that happens in that case

3282

01:49:42,550 --> 01:49:41,119

okay so freedom is like you have a model

3283

01:49:44,310 --> 01:49:42,560

then you execute on the model based on

3284

01:49:47,030 --> 01:49:44,320

the parameters and it's salutary and

3285

01:49:52,550 --> 01:49:49,669

what does positive mean that it fits

3286

01:49:56,950 --> 01:49:54,950

it typically does right so imagine you

3287

01:50:00,229 --> 01:49:56,960

have your frodo in

3288

01:50:02,229 --> 01:50:00,239

your middle earth world and it's a story

3289

01:50:03,910 --> 01:50:02,239

and we imagine we implement this as

3290

01:50:05,990 --> 01:50:03,920

a computer simulation like a minecraft

3291

01:50:06,790 --> 01:50:06,000

middle earth and you have your photo

3292

01:50:08,550 --> 01:50:06,800

agent in there

3293

01:50:10,390 --> 01:50:08,560

and the photo agent is acting based on

3294

01:50:13,750 --> 01:50:10,400

models that photo is creating

3295

01:50:16,070 --> 01:50:13,760

then photo would probably conceptualize

3296

01:50:17,430 --> 01:50:16,080

his actions as being the result of his

3297

01:50:20,470 --> 01:50:17,440

own free will

3298

01:50:22,070 --> 01:50:20,480

if he has the impression that

3299

01:50:23,990 --> 01:50:22,080

everything happened in the way that it

3300

01:50:25,990 --> 01:50:24,000

was supposed to in his own mind

3301

01:50:27,430 --> 01:50:26,000

that is he is perceiving certain things

3302

01:50:28,790 --> 01:50:27,440

there are certain things he wants as a

3303

01:50:31,589 --> 01:50:28,800

result of his

3304

01:50:34,149 --> 01:50:31,599

physiological social and cognitive needs

3305

01:50:35,990 --> 01:50:34,159

and spiritual transcendental needs maybe

3306

01:50:37,430 --> 01:50:36,000

which i think may be understood as a

3307

01:50:40,470 --> 01:50:37,440

class of social needs

3308

01:50:42,070 --> 01:50:40,480

and as a result he is doing certain

3309

01:50:43,589 --> 01:50:42,080

things he's making certain decisions

3310

01:50:45,510 --> 01:50:43,599

because they increase the likelihood

3311

01:50:47,589 --> 01:50:45,520

that he is reaping the anticipated

3312

01:50:49,910 --> 01:50:47,599

rewards with respect to his needs

3313

01:50:52,310 --> 01:50:49,920

and if this all happens in the proper

3314

01:50:55,030 --> 01:50:52,320

order then his mind will represent

3315

01:50:56,070 --> 01:50:55,040

i wanted this the intention is being

3316

01:50:58,629 --> 01:50:56,080

represented

3317

01:51:00,709 --> 01:50:58,639

and i wanted this because of a mechanism

3318

01:51:01,750 --> 01:51:00,719

that was only determined but what by

3319

01:51:03,350 --> 01:51:01,760

what i needed

3320

01:51:05,990 --> 01:51:03,360

and what i consider to be the right

3321

01:51:08,310 --> 01:51:06,000

thing which defines my own freedom

3322

01:51:10,790 --> 01:51:08,320

so it's in some sense a paradox the more

3323

01:51:13,030 --> 01:51:10,800

you know what you ought to be doing

3324

01:51:14,870 --> 01:51:13,040

the more agency you have and the more

3325

01:51:16,310 --> 01:51:14,880

freedom you have subjectively

3326

01:51:18,950 --> 01:51:16,320

but the fewer degrees of freedom you

3327

01:51:19,589 --> 01:51:18,960

have and the less you know what you are

3328

01:51:21,430 --> 01:51:19,599

doing

3329

01:51:23,589 --> 01:51:21,440

the more degrees of freedom you have but

3330

01:51:25,109 --> 01:51:23,599

the less do your actions mean anything

3331

01:51:30,629 --> 01:51:25,119

which means you have less objective

3332

01:51:34,390 --> 01:51:32,229

so is free will a story that we tell

3333

01:51:35,910 --> 01:51:34,400

ourselves part of that it's a model

3334

01:51:37,030 --> 01:51:35,920

right in a sense it's a story that we

3335

01:51:38,950 --> 01:51:37,040

tell ourselves

3336

01:51:40,870 --> 01:51:38,960

but it's not we who do this it's the

3337

01:51:43,030 --> 01:51:40,880

mind who tells it to the self

3338

01:51:45,189 --> 01:51:43,040

it's upstream from the self your mind

3339

01:51:49,109 --> 01:51:45,199

cannot control what experiences

3340

01:51:50,310 --> 01:51:49,119

at its own will except in certain states

3341

01:51:52,310 --> 01:51:50,320

at one point you mentioned that the

3342

01:51:53,990 --> 01:51:52,320

dalai lama can

3343

01:51:55,750 --> 01:51:54,000

effectively live forever in the sense

3344

01:51:57,350 --> 01:51:55,760

that he identifies with the government

3345

01:52:00,229 --> 01:51:57,360

and as long as that government

3346

01:52:02,470 --> 01:52:00,239

is instantiated and not dissolved then

3347

01:52:04,390 --> 01:52:02,480

he lives in some way shape or form

3348

01:52:05,830 --> 01:52:04,400

okay i didn't quite get that do you mind

3349

01:52:08,709 --> 01:52:05,840

explaining what do you mean that he

3350

01:52:09,910 --> 01:52:08,719

identifies with so and so so uh what i

3351
01:52:14,070 --> 01:52:09,920
mean is not this

3352
01:52:17,430 --> 01:52:14,080
i said i meant s so uh most of us

3353
01:52:19,669 --> 01:52:17,440
identify as a person in the sense that

3354
01:52:22,629 --> 01:52:19,679
we live for a certain time span

3355
01:52:24,310 --> 01:52:22,639
uh we have certain organismic needs we

3356
01:52:26,070 --> 01:52:24,320
have a physiology

3357
01:52:27,669 --> 01:52:26,080
we have social relationships to our

3358
01:52:29,510 --> 01:52:27,679
environment

3359
01:52:31,589 --> 01:52:29,520
we have relationships that we serve we

3360
01:52:34,470 --> 01:52:31,599
have a greater whole that we serve

3361
01:52:34,950 --> 01:52:34,480
that gives rise to our spirituality and

3362
01:52:37,830 --> 01:52:34,960
so on

3363
01:52:38,709 --> 01:52:37,840

and all these things define what we try

3364

01:52:41,430 --> 01:52:38,719

to keep stable

3365

01:52:43,109 --> 01:52:41,440

what we perpetuate the thing that we try

3366

01:52:44,709 --> 01:52:43,119

to control the control system that we

3367

01:52:45,990 --> 01:52:44,719

are for this is where we are the

3368

01:52:47,189 --> 01:52:46,000

thermostat for right all these

3369

01:52:49,030 --> 01:52:47,199

dimensions of needs

3370

01:52:50,310 --> 01:52:49,040

a few hundred physiological needs a

3371

01:52:53,109 --> 01:52:50,320

dozen social needs

3372

01:52:54,790 --> 01:52:53,119

a handful of cognitive needs and uh

3373

01:52:57,270 --> 01:52:54,800

keeping all these in balance

3374

01:52:58,070 --> 01:52:57,280

gives rise to our identification the

3375

01:53:00,070 --> 01:52:58,080

identification

3376

01:53:01,830 --> 01:53:00,080

is a result of us making models of how

3377

01:53:03,430 --> 01:53:01,840

these needs relate and so we create a

3378

01:53:05,350 --> 01:53:03,440

hierarchy of purposes

3379

01:53:07,430 --> 01:53:05,360

the needs themselves are not sufficient

3380

01:53:09,189 --> 01:53:07,440

we need to have a model of what is going

3381

01:53:11,270 --> 01:53:09,199

to give us pleasure and pain

3382

01:53:12,950 --> 01:53:11,280

and this is what we would call a purpose

3383

01:53:13,830 --> 01:53:12,960

and their purposes need to be compatible

3384

01:53:15,589 --> 01:53:13,840

with each other

3385

01:53:16,870 --> 01:53:15,599

and this hierarchy of purposes that we

3386

01:53:19,669 --> 01:53:16,880

end up with is

3387

01:53:21,350 --> 01:53:19,679

in some sense our soul it's who we are

3388

01:53:22,870 --> 01:53:21,360

or what what we think we are what we

3389

01:53:25,189 --> 01:53:22,880

think of as ourselves

3390

01:53:27,030 --> 01:53:25,199

and we change this hierarchy of purpose

3391

01:53:29,109 --> 01:53:27,040

yes of course we can we do

3392

01:53:30,950 --> 01:53:29,119

our in our because of our life it

3393

01:53:32,470 --> 01:53:30,960

changes so for instance um for most

3394

01:53:33,990 --> 01:53:32,480

people it changes radically when they

3395

01:53:35,270 --> 01:53:34,000

have children

3396

01:53:37,589 --> 01:53:35,280

right and what i mean is can we

3397

01:53:39,270 --> 01:53:37,599

consciously direct it

3398

01:53:40,790 --> 01:53:39,280

yes directly it's just like it's the

3399

01:53:42,790 --> 01:53:40,800

mind there's something behind us

3400

01:53:43,990 --> 01:53:42,800

that's producing us and we're just

3401
01:53:45,510 --> 01:53:44,000
players in this game

3402
01:53:46,790 --> 01:53:45,520
yeah we have the feeling that we're

3403
01:53:48,709 --> 01:53:46,800
controlling it but we're actually just

3404
01:53:51,030 --> 01:53:48,719
being told what to do

3405
01:53:51,910 --> 01:53:51,040
so we can control it in such a way that

3406
01:53:54,550 --> 01:53:51,920
we uh

3407
01:53:56,790 --> 01:53:54,560
identify pathways in which the models

3408
01:53:59,669 --> 01:53:56,800
that are being created in the self or

3409
01:54:00,870 --> 01:53:59,679
as contents of the self inform future

3410
01:54:03,589 --> 01:54:00,880
behavior

3411
01:54:06,310 --> 01:54:03,599
and of course there is the self itself

3412
01:54:09,270 --> 01:54:06,320
is not an agent it's a model of that

3413
01:54:11,510 --> 01:54:09,280

but you can experience that uh from the

3414

01:54:13,350 --> 01:54:11,520

level at which yourself is constituted

3415

01:54:16,550 --> 01:54:13,360

you can change the identification of the

3416

01:54:19,589 --> 01:54:16,560

self this is basically keegan level five

3417

01:54:20,149 --> 01:54:19,599

where uh an agent gets agency not just

3418

01:54:22,470 --> 01:54:20,159

over

3419

01:54:24,550 --> 01:54:22,480

the way it constructs its beliefs but

3420

01:54:27,030 --> 01:54:24,560

also agency over the way in asian

3421

01:54:29,669 --> 01:54:27,040

constructs its identification

3422

01:54:31,109 --> 01:54:29,679

and colloquially we talk about these

3423

01:54:33,510 --> 01:54:31,119

states as ones

3424

01:54:34,629 --> 01:54:33,520

of enlightenment because we realize that

3425

01:54:37,669 --> 01:54:34,639

the way things

3426

01:54:38,950 --> 01:54:37,679

appear to us that these appearances are

3427

01:54:40,629 --> 01:54:38,960

representations

3428

01:54:43,030 --> 01:54:40,639

now things are not objectively good or

3429

01:54:45,030 --> 01:54:43,040

bad that but that there is a choice that

3430

01:54:46,070 --> 01:54:45,040

happens at some level in the mind

3431

01:54:48,070 --> 01:54:46,080

whether these things are being

3432

01:54:49,350 --> 01:54:48,080

experienced as good or bad and that we

3433

01:54:52,070 --> 01:54:49,360

are responsible for

3434

01:54:53,990 --> 01:54:52,080

our reactions to things and the way that

3435

01:54:56,870 --> 01:54:54,000

we react to things is instrumental

3436

01:54:58,870 --> 01:54:56,880

to higher level goals that we might have

3437

01:55:01,430 --> 01:54:58,880

and once this happens we can

3438

01:55:03,189 --> 01:55:01,440

learn a number of techniques in which we

3439

01:55:05,910 --> 01:55:03,199

change

3440

01:55:06,470 --> 01:55:05,920

how things appear to us so uh for

3441

01:55:10,229 --> 01:55:06,480

instance

3442

01:55:12,149 --> 01:55:10,239

uh when you do the dishes this might uh

3443

01:55:13,990 --> 01:55:12,159

so you might find it horrible to do the

3444

01:55:14,310 --> 01:55:14,000

dishes because it takes time away from

3445

01:55:19,030 --> 01:55:14,320

you

3446

01:55:21,910 --> 01:55:19,040

sticky and

3447

01:55:22,550 --> 01:55:21,920

it's annoying and so on you could also

3448

01:55:24,550 --> 01:55:22,560

realize

3449

01:55:25,669 --> 01:55:24,560

it's time out for you where you just do

3450

01:55:27,510 --> 01:55:25,679

a very simple

3451

01:55:30,070 --> 01:55:27,520

physical tassel itself is pleasant

3452

01:55:31,910 --> 01:55:30,080

because it's nice and warm on your hands

3453

01:55:33,589 --> 01:55:31,920

your body doesn't hurt while you do it

3454

01:55:35,589 --> 01:55:33,599

and you get some time to contemplate

3455

01:55:37,510 --> 01:55:35,599

and you need to do it anyway and you can

3456

01:55:39,910 --> 01:55:37,520

turn this into a time that you enjoy

3457

01:55:40,709 --> 01:55:39,920

right and you can get agency over the

3458

01:55:42,310 --> 01:55:40,719

simple thing

3459

01:55:43,750 --> 01:55:42,320

so this sounds like in self-development

3460

01:55:45,350 --> 01:55:43,760

where they would say just reframe your

3461

01:55:47,750 --> 01:55:45,360

problems into something positive so

3462

01:55:49,510 --> 01:55:47,760

let's say you have to run

3463

01:55:50,870 --> 01:55:49,520

you're you hate running you just say

3464

01:55:51,510 --> 01:55:50,880

well i'm doing something that's good for

3465

01:55:54,629 --> 01:55:51,520

my body

3466

01:55:56,470 --> 01:55:54,639

i like it yeah so the the question is uh

3467

01:55:58,229 --> 01:55:56,480

are you just telling yourself a

3468

01:56:00,470 --> 01:55:58,239

different story consciously or do you

3469

01:56:04,229 --> 01:56:00,480

experience the story as being different

3470

01:56:06,149 --> 01:56:04,239

and so their intended result is

3471

01:56:08,070 --> 01:56:06,159

that something happens upstream of your

3472

01:56:09,589 --> 01:56:08,080

experience which means you now suddenly

3473

01:56:11,589 --> 01:56:09,599

experience doing the dishes

3474

01:56:14,070 --> 01:56:11,599

as pleasant intrinsically pleasant it's

3475

01:56:17,990 --> 01:56:14,080

not just you're talking yourself into

3476

01:56:20,790 --> 01:56:18,000

uh some kind of a delusion

3477

01:56:22,629 --> 01:56:20,800

that uh makes you pretend that you like

3478

01:56:24,070 --> 01:56:22,639

right so how do you cross that barrier

3479

01:56:25,510 --> 01:56:24,080

because if you just tell yourself well i

3480

01:56:26,390 --> 01:56:25,520

like this task i like this task even

3481

01:56:27,189 --> 01:56:26,400

though you hate it

3482

01:56:29,589 --> 01:56:27,199

you feel like you're being

3483

01:56:31,030 --> 01:56:29,599

self-deceptive and it doesn't work

3484

01:56:33,030 --> 01:56:31,040

so how do you actually get it so that

3485

01:56:34,950 --> 01:56:33,040

you experience positive emotion from it

3486

01:56:37,510 --> 01:56:34,960

in that case it's super simple you just

3487

01:56:38,149 --> 01:56:37,520

focus on those aspects of the task that

3488

01:56:39,750 --> 01:56:38,159

are

3489

01:56:41,589 --> 01:56:39,760

that for instance contain sensory

3490

01:56:43,910 --> 01:56:41,599

pleasure

3491

01:56:45,589 --> 01:56:43,920

and uh there is uh and the aesthetic

3492

01:56:47,109 --> 01:56:45,599

pleasure of being able to follow your

3493

01:56:48,790 --> 01:56:47,119

own thoughts where you do something that

3494

01:56:50,470 --> 01:56:48,800

does not bind your attention very much

3495

01:56:53,189 --> 01:56:50,480

and is not directed on

3496

01:56:54,149 --> 01:56:53,199

say work goals or family goals or

3497

01:56:57,109 --> 01:56:54,159

something else

3498

01:56:59,270 --> 01:56:57,119

right so you can uh enjoy the mental

3499

01:57:02,310 --> 01:56:59,280

freedom that you get and you can enjoy

3500

01:57:04,310 --> 01:57:02,320

the uh pleasant aspects of the sensation

3501

01:57:07,910 --> 01:57:04,320

of the warm water and the soap

3502

01:57:10,070 --> 01:57:07,920

and the movement of the hands and the uh

3503

01:57:10,950 --> 01:57:10,080

softness of the cloths that you use for

3504

01:57:13,589 --> 01:57:10,960

cleaning and

3505

01:57:15,270 --> 01:57:13,599

the hardness and of of the things that

3506

01:57:17,270 --> 01:57:15,280

you are cleaning and so on and the

3507

01:57:18,870 --> 01:57:17,280

sense of cleanliness that you are

3508

01:57:19,589 --> 01:57:18,880

creating in the world and the aesthetics

3509

01:57:21,990 --> 01:57:19,599

that are

3510

01:57:23,189 --> 01:57:22,000

involved in that process in the same way

3511

01:57:25,430 --> 01:57:23,199

if you

3512

01:57:27,189 --> 01:57:25,440

don't want to do the dishes because the

3513

01:57:29,510 --> 01:57:27,199

things it takes attention from you

3514

01:57:30,390 --> 01:57:29,520

you can focus on the negative aspects

3515

01:57:32,629 --> 01:57:30,400

and uh by

3516

01:57:33,750 --> 01:57:32,639

emphasizing this in your attention you

3517

01:57:35,589 --> 01:57:33,760

basically uh

3518

01:57:36,790 --> 01:57:35,599

put a spotlight on this part or that

3519

01:57:39,109 --> 01:57:36,800

part of reality

3520

01:57:41,030 --> 01:57:39,119

and you make you emphasize the parts

3521

01:57:41,990 --> 01:57:41,040

that you experience in there right so

3522

01:57:44,229 --> 01:57:42,000

you can get

3523

01:57:45,589 --> 01:57:44,239

pleasure aesthetic and sensory pleasure

3524

01:57:48,550 --> 01:57:45,599

from a task

3525

01:57:50,149 --> 01:57:48,560

and you can get uh sensory horrors from

3526

01:57:51,589 --> 01:57:50,159

it and aesthetic displeasure from the

3527

01:57:52,070 --> 01:57:51,599

same task if you focus on different

3528

01:57:54,629 --> 01:57:52,080

aspects

3529

01:57:56,390 --> 01:57:54,639

of it if it's a matter of changing one's

3530

01:57:57,189 --> 01:57:56,400

focus from the negative to the positive

3531

01:57:59,350 --> 01:57:57,199

how could we

3532

01:58:00,470 --> 01:57:59,360

seldom do that if it's so positive i

3533

01:58:02,470 --> 01:58:00,480

mean if it's so

3534

01:58:04,149 --> 01:58:02,480

net positive to look at a task and just

3535

01:58:04,950 --> 01:58:04,159

focus on what's bringing you sensory

3536

01:58:08,229 --> 01:58:04,960

pleasure

3537

01:58:09,990 --> 01:58:08,239

why don't we do that i suspect that we

3538

01:58:11,589 --> 01:58:10,000

don't have intrinsic attention on this

3539

01:58:13,589 --> 01:58:11,599

for the most part because it would not

3540

01:58:14,229 --> 01:58:13,599

be useful if we protect ourselves in

3541

01:58:15,990 --> 01:58:14,239

this way

3542

01:58:17,750 --> 01:58:16,000

maybe there is a reason why we don't

3543

01:58:18,709 --> 01:58:17,760

like doing the dishes or we like doing

3544

01:58:21,350 --> 01:58:18,719

the dishes

3545

01:58:23,030 --> 01:58:21,360

that we are not wise enough to discover

3546

01:58:25,350 --> 01:58:23,040

and if we could just reprogram

3547

01:58:26,950 --> 01:58:25,360

our reaction to things before we

3548

01:58:28,950 --> 01:58:26,960

understand that reason

3549

01:58:30,950 --> 01:58:28,960

uh maybe that would be premature and we

3550

01:58:32,790 --> 01:58:30,960

would end up in a local optimum in the

3551

01:58:35,109 --> 01:58:32,800

way that we organize our life

3552

01:58:37,030 --> 01:58:35,119

where we end up being a dishwasher when

3553

01:58:41,189 --> 01:58:37,040

we should instead be a lover

3554

01:58:44,229 --> 01:58:41,199

or an artist or an explorer

3555

01:58:47,270 --> 01:58:44,239

or a an intellectual worker right

3556

01:58:47,990 --> 01:58:47,280

so maybe it's too early to to reprogram

3557

01:58:49,270 --> 01:58:48,000

your experience

3558

01:58:51,510 --> 01:58:49,280

before you know what you're actually

3559

01:58:52,870 --> 01:58:51,520

doing i see so you have to come you have

3560

01:58:53,669 --> 01:58:52,880

to understand yourself because there

3561

01:58:56,149 --> 01:58:53,679

could be

3562

01:58:57,830 --> 01:58:56,159

an evolutionary right yeah okay i

3563

01:59:00,470 --> 01:58:57,840

suspect evolution would have given us

3564

01:59:02,229 --> 01:59:00,480

the ability to reframe our experiences

3565

01:59:04,870 --> 01:59:02,239

fundamentally if that would have been

3566

01:59:06,550 --> 01:59:04,880

useful and the fact that it's not is uh

3567

01:59:08,709 --> 01:59:06,560

if you treat yourselves into

3568

01:59:11,430 --> 01:59:08,719

experiencing whatever you do as pleasant

3569

01:59:13,430 --> 01:59:11,440

too early it might make you very happy

3570

01:59:15,669 --> 01:59:13,440

but also dysfunctional

3571

01:59:16,950 --> 01:59:15,679

you also mentioned once that your theory

3572

01:59:18,470 --> 01:59:16,960

of consciousness is something that we

3573

01:59:19,430 --> 01:59:18,480

intuitively know and that when you tell

3574

01:59:23,750 --> 01:59:19,440

people

3575

01:59:24,629 --> 01:59:23,760

when they stumble upon this insight that

3576

01:59:26,310 --> 01:59:24,639

you also

3577

01:59:28,390 --> 01:59:26,320

elucidate that they get

3578

01:59:30,149 --> 01:59:28,400

depersonalization disorder

3579

01:59:32,229 --> 01:59:30,159

it can go two ways where they feel

3580

01:59:33,910 --> 01:59:32,239

liberated or they feel

3581

01:59:35,669 --> 01:59:33,920

distance from their body and it's and

3582

01:59:38,390 --> 01:59:35,679

it's net

3583

01:59:39,750 --> 01:59:38,400

wretched and ruinous for them what do

3584

01:59:43,430 --> 01:59:39,760

you say to those people

3585

01:59:44,790 --> 01:59:43,440

who who feel disidentified from there

3586

01:59:48,070 --> 01:59:44,800

who don't feel identified with their

3587

01:59:51,750 --> 01:59:48,080

body and it's not a positive experience

3588

01:59:53,589 --> 01:59:51,760

what advice would you give them i would

3589

01:59:55,189 --> 01:59:53,599

advise them to go to a real therapist

3590

01:59:56,950 --> 01:59:55,199

because i'm sadly not a therapist i'm

3591

01:59:58,950 --> 01:59:56,960

not competent of doing this don't listen

3592

01:59:59,589 --> 01:59:58,960

to me if it gives weird experiences in

3593

02:00:01,750 --> 01:59:59,599

your body

3594

02:00:03,430 --> 02:00:01,760

i have cannot take responsibility for

3595

02:00:06,390 --> 02:00:03,440

what's happening to you

3596

02:00:07,910 --> 02:00:06,400

so uh i'm just a cognitive scientist i

3597

02:00:09,030 --> 02:00:07,920

that would be super dangerous i think

3598

02:00:10,790 --> 02:00:09,040

and irresponsible

3599

02:00:12,070 --> 02:00:10,800

if i just try to create weird

3600

02:00:15,189 --> 02:00:12,080

experiences in your body

3601
02:00:16,790 --> 02:00:15,199
as a result of my theories so i would

3602
02:00:18,310 --> 02:00:16,800
say this is a side effect

3603
02:00:19,910 --> 02:00:18,320
and it might be a side effect of you

3604
02:00:22,229 --> 02:00:19,920
trying to answer a

3605
02:00:23,270 --> 02:00:22,239
question that i have myself and me

3606
02:00:25,109 --> 02:00:23,280
answering this question

3607
02:00:26,550 --> 02:00:25,119
doesn't lead to weird experiences in my

3608
02:00:29,030 --> 02:00:26,560
body

3609
02:00:30,390 --> 02:00:29,040
and the i have yet experiences in my

3610
02:00:32,950 --> 02:00:30,400
body because i exist

3611
02:00:34,629 --> 02:00:32,960
right existing is weird and i want to

3612
02:00:35,270 --> 02:00:34,639
explain why is it possible that they

3613
02:00:37,270 --> 02:00:35,280

exist that

3614

02:00:39,189 --> 02:00:37,280

experience that i have a body why is it

3615

02:00:39,510 --> 02:00:39,199

that this body sometimes feels very big

3616

02:00:43,030 --> 02:00:39,520

and

3617

02:00:46,390 --> 02:00:43,040

extremely small

3618

02:00:47,750 --> 02:00:46,400

why does it sometimes disappear how is

3619

02:00:49,189 --> 02:00:47,760

it possible that i can have an out of

3620

02:00:51,750 --> 02:00:49,199

body experience

3621

02:00:53,430 --> 02:00:51,760

i want to explain all these things and i

3622

02:00:53,990 --> 02:00:53,440

find plausible explanations that all

3623

02:00:56,310 --> 02:00:54,000

make sense

3624

02:00:58,550 --> 02:00:56,320

and are much more logical than the

3625

02:01:02,149 --> 02:00:58,560

inverse of these explanations

3626

02:01:05,430 --> 02:01:02,159

right so i i find them helpful and

3627

02:01:07,270 --> 02:01:05,440

what i can offer people is suggested

3628

02:01:08,870 --> 02:01:07,280

solutions to similar question that i

3629

02:01:09,510 --> 02:01:08,880

have and i might be wrong with my

3630

02:01:13,189 --> 02:01:09,520

answers

3631

02:01:15,669 --> 02:01:13,199

at this point in my life

3632

02:01:16,229 --> 02:01:15,679

and they are compatible with the answers

3633

02:01:19,990 --> 02:01:16,239

that

3634

02:01:21,990 --> 02:01:20,000

have looked into this they're also

3635

02:01:24,149 --> 02:01:22,000

largely co-extensional with the answers

3636

02:01:26,149 --> 02:01:24,159

that a lot of meditators give

3637

02:01:27,350 --> 02:01:26,159

it's only that they are using a language

3638

02:01:28,870 --> 02:01:27,360

that

3639

02:01:30,709 --> 02:01:28,880

seems to be incompatible with the

3640

02:01:32,870 --> 02:01:30,719

language that we have established since

3641

02:01:35,589 --> 02:01:32,880

the enlightenment in our own culture

3642

02:01:36,310 --> 02:01:35,599

it's basically uh there is a disconnect

3643

02:01:39,189 --> 02:01:36,320

between

3644

02:01:40,629 --> 02:01:39,199

what we experience as being real and how

3645

02:01:43,430 --> 02:01:40,639

we talk about reality

3646

02:01:45,350 --> 02:01:43,440

in our culture and this makes it so hard

3647

02:01:48,149 --> 02:01:45,360

to make sense of consciousness

3648

02:01:49,669 --> 02:01:48,159

and feelings and fundamental experience

3649

02:01:53,030 --> 02:01:49,679

and identity

3650

02:01:53,910 --> 02:01:53,040

and transcendence and so on and the goal

3651
02:01:56,870 --> 02:01:53,920
that

3652
02:01:57,910 --> 02:01:56,880
i have when i give these explanations to

3653
02:02:01,270 --> 02:01:57,920
myself and others

3654
02:02:03,510 --> 02:02:01,280
is to explain how we can get what we

3655
02:02:06,870 --> 02:02:03,520
experience as being real

3656
02:02:09,910 --> 02:02:06,880
and what we also

3657
02:02:11,669 --> 02:02:09,920
observe as happening around us in our

3658
02:02:13,910 --> 02:02:11,679
interaction with the environment

3659
02:02:15,750 --> 02:02:13,920
and the way that we reason about reality

3660
02:02:17,669 --> 02:02:15,760
how we can put this into one how we can

3661
02:02:19,669 --> 02:02:17,679
construct the metaphysics

3662
02:02:20,950 --> 02:02:19,679
that is compatible with our scientific

3663
02:02:22,870 --> 02:02:20,960

worldview

3664

02:02:26,470 --> 02:02:22,880

and that allows us to make sense of what

3665

02:02:29,990 --> 02:02:28,310

what about people who fear losing

3666

02:02:31,669 --> 02:02:30,000

control that as soon as they have this

3667

02:02:33,990 --> 02:02:31,679

insight that the mind is just that you

3668

02:02:36,149 --> 02:02:34,000

are just a story within your own mind

3669

02:02:37,589 --> 02:02:36,159

that you don't have control now you say

3670

02:02:39,430 --> 02:02:37,599

well we have control but i'm

3671

02:02:40,950 --> 02:02:39,440

i'm unclear as to how as to who has

3672

02:02:42,709 --> 02:02:40,960

control seems like the mind has control

3673

02:02:44,470 --> 02:02:42,719

and there's some relationship between

3674

02:02:46,070 --> 02:02:44,480

the story that you're in and what's

3675

02:02:47,589 --> 02:02:46,080

telling the story i i don't see that

3676

02:02:49,189 --> 02:02:47,599

connection

3677

02:02:51,350 --> 02:02:49,199

so they never had control in the first

3678

02:02:53,510 --> 02:02:51,360

place yes and i mean you see this every

3679

02:02:55,990 --> 02:02:53,520

day right there are things that you do

3680

02:02:57,910 --> 02:02:56,000

that you would prefer you wouldn't do at

3681

02:03:00,390 --> 02:02:57,920

least most of us are in that state and

3682

02:03:02,229 --> 02:03:00,400

unless there are perfect sages in a

3683

02:03:04,709 --> 02:03:02,239

there was tradition

3684

02:03:06,550 --> 02:03:04,719

where everything that they do is in a

3685

02:03:07,510 --> 02:03:06,560

complete union with their perception of

3686

02:03:10,629 --> 02:03:07,520

what the universe

3687

02:03:12,550 --> 02:03:10,639

needs to have done at that point and

3688

02:03:13,990 --> 02:03:12,560

most of us don't get to this point it's

3689

02:03:16,709 --> 02:03:14,000

very hard to cultivate your mind

3690

02:03:17,430 --> 02:03:16,719

to this union where you have an identity

3691

02:03:19,030 --> 02:03:17,440

between you

3692

02:03:20,709 --> 02:03:19,040

perceive what needs to be done and what

3693

02:03:23,270 --> 02:03:20,719

you do

3694

02:03:25,109 --> 02:03:23,280

and uh this discrepancy is something

3695

02:03:25,830 --> 02:03:25,119

that we have to explain and we can only

3696

02:03:28,790 --> 02:03:25,840

explain it

3697

02:03:30,629 --> 02:03:28,800

as as as not being in control and

3698

02:03:32,790 --> 02:03:30,639

meditators describe this as the

3699

02:03:33,990 --> 02:03:32,800

monkeys trying to prod the elephant and

3700

02:03:36,470 --> 02:03:34,000

the elephant

3701
02:03:37,910 --> 02:03:36,480
just walking its way as it wants to and

3702
02:03:39,910 --> 02:03:37,920
sometimes it's aligned with what the

3703
02:03:41,589 --> 02:03:39,920
monkey sees and thinks is important

3704
02:03:43,030 --> 02:03:41,599
but by and large the elephant follows

3705
02:03:45,270 --> 02:03:43,040
its own wisdom

3706
02:03:47,109 --> 02:03:45,280
do you have any advice for someone who

3707
02:03:50,790 --> 02:03:47,119
finds that disconcerting that the

3708
02:03:56,629 --> 02:03:53,510
uh i think it's uh try to not take the

3709
02:03:58,390 --> 02:03:56,639
monkey that seriously and try to

3710
02:04:00,069 --> 02:03:58,400
sense what the elephant is doing and

3711
02:04:01,430 --> 02:04:00,079
realize that it's a much much larger

3712
02:04:03,830 --> 02:04:01,440
dance than the dance on the

3713
02:04:04,870 --> 02:04:03,840

of the monkey on top of the elephant but

3714

02:04:06,950 --> 02:04:04,880

uh

3715

02:04:08,790 --> 02:04:06,960

and it's also a larger dance than the

3716

02:04:11,589 --> 02:04:08,800

elephant itself it's the

3717

02:04:13,430 --> 02:04:11,599

entire forest right and the elephant

3718

02:04:14,950 --> 02:04:13,440

being part of it and being in resonance

3719

02:04:18,149 --> 02:04:14,960

with it interacting with it

3720

02:04:19,910 --> 02:04:18,159

and there's only very few decisions uh

3721

02:04:21,669 --> 02:04:19,920

in proportion to the entire thing that

3722

02:04:22,390 --> 02:04:21,679

is happening that can actually be

3723

02:04:25,990 --> 02:04:22,400

controlled

3724

02:04:28,709 --> 02:04:26,000

certain ways and what you can

3725

02:04:29,669 --> 02:04:28,719

explore is in which ways you can create

3726

02:04:31,350 --> 02:04:29,679

a coherence

3727

02:04:33,510 --> 02:04:31,360

between what you perceive that needs to

3728

02:04:35,189 --> 02:04:33,520

be done the global aesthetics of the

3729

02:04:36,470 --> 02:04:35,199

universe that you prefer the way the

3730

02:04:38,470 --> 02:04:36,480

forest should look like

3731

02:04:40,069 --> 02:04:38,480

and this is a part of your task is to

3732

02:04:42,069 --> 02:04:40,079

figuring out these aesthetics

3733

02:04:43,430 --> 02:04:42,079

how can this universe be coherent and

3734

02:04:46,390 --> 02:04:43,440

consistent and

3735

02:04:47,910 --> 02:04:46,400

as a result beautiful and what is the

3736

02:04:50,950 --> 02:04:47,920

things that can be controlled

3737

02:04:52,790 --> 02:04:50,960

as part of it locally and

3738

02:04:54,950 --> 02:04:52,800

you are the result of that you are not

3739

02:04:56,950 --> 02:04:54,960

the cause of that

3740

02:04:58,629 --> 02:04:56,960

you are the result of the local control

3741

02:04:58,950 --> 02:04:58,639

you are not the thing that causes the

3742

02:05:02,390 --> 02:04:58,960

low

3743

02:05:03,830 --> 02:05:02,400

control now the local control you

3744

02:05:04,470 --> 02:05:03,840

mentioned intuition earlier that it's

3745

02:05:07,189 --> 02:05:04,480

important

3746

02:05:07,510 --> 02:05:07,199

to follow your intuition and i assume

3747

02:05:11,750 --> 02:05:07,520

that

3748

02:05:14,149 --> 02:05:11,760

conscience your heart

3749

02:05:14,870 --> 02:05:14,159

is that a part of the elephant so in

3750

02:05:16,069 --> 02:05:14,880

some sense

3751

02:05:17,510 --> 02:05:16,079

you should stop trying to direct the

3752

02:05:19,589 --> 02:05:17,520

elephant and follow the elephant as the

3753

02:05:22,069 --> 02:05:19,599

monkey

3754

02:05:24,390 --> 02:05:22,079

well you need to do both but ideally you

3755

02:05:26,310 --> 02:05:24,400

want to have a state where the elephant

3756

02:05:28,629 --> 02:05:26,320

is treating the monkey as one of its

3757

02:05:32,870 --> 02:05:28,639

most useful tools but of course not it's

3758

02:05:35,669 --> 02:05:32,880

uh it's only one and uh the

3759

02:05:37,350 --> 02:05:35,679

um monkey needs to be able to shut up

3760

02:05:39,430 --> 02:05:37,360

from time to time

3761

02:05:41,589 --> 02:05:39,440

and it can give the elephant feedback

3762

02:05:43,510 --> 02:05:41,599

especially when the elephant needs it

3763

02:05:44,629 --> 02:05:43,520

and so in some sense there should be a

3764

02:05:46,390 --> 02:05:44,639

friendship between the

3765

02:05:49,189 --> 02:05:46,400

monkey and the elephant in the sense

3766

02:05:51,830 --> 02:05:49,199

that the monkey waits until

3767

02:05:53,589 --> 02:05:51,840

it has its task and its time and the

3768

02:05:55,350 --> 02:05:53,599

elephant is actually asking it for

3769

02:05:57,109 --> 02:05:55,360

something the purpose of reason

3770

02:05:59,750 --> 02:05:57,119

and analytical thinking is to repair

3771

02:06:02,790 --> 02:05:59,760

perception and when i mean intuition

3772

02:06:04,709 --> 02:06:02,800

i mean perception because we mean that

3773

02:06:08,550 --> 02:06:04,719

it's the purpose is to repair

3774

02:06:11,430 --> 02:06:08,560

perception perception is the

3775

02:06:12,470 --> 02:06:11,440

part of our mind that is integrating

3776

02:06:15,270 --> 02:06:12,480

information

3777

02:06:16,709 --> 02:06:15,280

in a way that is not linguistic and not

3778

02:06:19,990 --> 02:06:16,719

conceptual

3779

02:06:22,709 --> 02:06:20,000

it means the integration is not discrete

3780

02:06:24,229 --> 02:06:22,719

it's an integration that happens over

3781

02:06:25,830 --> 02:06:24,239

many many features often in an

3782

02:06:28,229 --> 02:06:25,840

irreducible way

3783

02:06:29,750 --> 02:06:28,239

or in a way that we don't yet understand

3784

02:06:31,830 --> 02:06:29,760

imagine the way that you integrate

3785

02:06:33,910 --> 02:06:31,840

information when you try to catch a ball

3786

02:06:35,830 --> 02:06:33,920

right you see how the appearance of the

3787

02:06:38,149 --> 02:06:35,840

ball changes in your visual field

3788

02:06:39,109 --> 02:06:38,159

and as a result you learn how to move to

3789

02:06:41,270 --> 02:06:39,119

catch it

3790

02:06:42,390 --> 02:06:41,280

and if you try to do this analytically

3791

02:06:44,629 --> 02:06:42,400

if you try to

3792

02:06:46,149 --> 02:06:44,639

compute the model with the capacity that

3793

02:06:46,870 --> 02:06:46,159

your mind has you're not going to be as

3794

02:06:48,790 --> 02:06:46,880

effective

3795

02:06:50,790 --> 02:06:48,800

than when you are using in perceptual

3796

02:06:51,430 --> 02:06:50,800

model which we would call intuitive

3797

02:06:53,830 --> 02:06:51,440

right you

3798

02:06:54,870 --> 02:06:53,840

train your intuition of what movements

3799

02:06:57,990 --> 02:06:54,880

you should be making

3800

02:06:59,589 --> 02:06:58,000

to get the ball and when this is

3801
02:07:02,149 --> 02:06:59,599
systematically not working

3802
02:07:03,669 --> 02:07:02,159
okay and you can use your uh reason to

3803
02:07:05,750 --> 02:07:03,679
figure out what's going on

3804
02:07:07,350 --> 02:07:05,760
okay or when you are already very good

3805
02:07:08,709 --> 02:07:07,360
and you try to figure out is there a way

3806
02:07:10,629 --> 02:07:08,719
in which i could do it better

3807
02:07:12,229 --> 02:07:10,639
right then you can use your reason to

3808
02:07:14,069 --> 02:07:12,239
construct a system that is measuring

3809
02:07:16,790 --> 02:07:14,079
your movements and using camera and

3810
02:07:18,229 --> 02:07:16,800
optimizing your technique or uh or

3811
02:07:19,189 --> 02:07:18,239
simpler things like finding a better

3812
02:07:20,629 --> 02:07:19,199
trainer

3813
02:07:22,069 --> 02:07:20,639

right right right okay so there's a

3814

02:07:22,790 --> 02:07:22,079

mismatch between what you want and then

3815

02:07:24,390 --> 02:07:22,800

what you get

3816

02:07:25,910 --> 02:07:24,400

and the repairing is yes this is what

3817

02:07:28,790 --> 02:07:25,920

reason is for it's basically for dealing

3818

02:07:30,709 --> 02:07:28,800

with these edge cases

3819

02:07:33,270 --> 02:07:30,719

is there a way to falsify or test your

3820

02:07:35,430 --> 02:07:33,280

model of consciousness

3821

02:07:37,189 --> 02:07:35,440

i think that there is a way to test it

3822

02:07:38,470 --> 02:07:37,199

in the sense that we can at some point

3823

02:07:41,589 --> 02:07:38,480

build a system

3824

02:07:43,669 --> 02:07:41,599

that will explain that it's conscious

3825

02:07:44,790 --> 02:07:43,679

to others that that would be the

3826

02:07:46,790 --> 02:07:44,800

ultimate proof

3827

02:07:48,550 --> 02:07:46,800

and to itself and that there would be

3828

02:07:50,310 --> 02:07:48,560

nothing left to be explained

3829

02:07:51,830 --> 02:07:50,320

wait wait sorry sorry if it just says

3830

02:07:54,310 --> 02:07:51,840

that it's conscious then it's conscious

3831

02:07:56,069 --> 02:07:54,320

this is so so the question is whether

3832

02:07:57,589 --> 02:07:56,079

you build it in such a way that it

3833

02:07:59,270 --> 02:07:57,599

cheats

3834

02:08:01,030 --> 02:07:59,280

right so you could of course make a

3835

02:08:03,589 --> 02:08:01,040

chatbot that pretends that it's

3836

02:08:05,830 --> 02:08:03,599

conscious without being conscious

3837

02:08:07,030 --> 02:08:05,840

and but this would mean that at some

3838

02:08:07,830 --> 02:08:07,040

point you will see a functional

3839

02:08:11,830 --> 02:08:07,840
difference

3840

02:08:14,310 --> 02:08:11,840
behavior of a conscious system

3841

02:08:15,270 --> 02:08:14,320
and the behavior of a system that is not

3842

02:08:17,510 --> 02:08:15,280
conscious

3843

02:08:19,430 --> 02:08:17,520
and i think currently that the

3844

02:08:22,069 --> 02:08:19,440
difference that you would observe

3845

02:08:24,229 --> 02:08:22,079
is that the system does not have a

3846

02:08:25,830 --> 02:08:24,239
control model of its own attention

3847

02:08:29,270 --> 02:08:25,840
it's not aware of the fact that it's

3848

02:08:31,030 --> 02:08:29,280
attending and what it is attending to

3849

02:08:32,790 --> 02:08:31,040
so for instance the question is a cat

3850

02:08:34,870 --> 02:08:32,800
conscious i think is a decidable

3851

02:08:35,510 --> 02:08:34,880

question it's a question that comes down

3852

02:08:38,550 --> 02:08:35,520

to

3853

02:08:42,149 --> 02:08:38,560

whether the cat can be best explained as

3854

02:08:43,990 --> 02:08:42,159

being aware of what it attends to and

3855

02:08:47,430 --> 02:08:44,000

based on this criterion i would say cats

3856

02:08:51,910 --> 02:08:49,910

and if you look at a sleepwalker a

3857

02:08:53,430 --> 02:08:51,920

sleepwalker is a person that is unaware

3858

02:08:55,430 --> 02:08:53,440

of what they attend to

3859

02:08:56,870 --> 02:08:55,440

they can attend two things but they

3860

02:08:58,149 --> 02:08:56,880

don't know that they do this and as a

3861

02:08:58,790 --> 02:08:58,159

result they cannot question their

3862

02:09:00,870 --> 02:08:58,800

actions

3863

02:09:01,830 --> 02:09:00,880

they cannot redirect their attention

3864

02:09:04,149 --> 02:09:01,840

they behave

3865

02:09:04,950 --> 02:09:04,159

in a way like an automaton because there

3866

02:09:08,390 --> 02:09:04,960

is

3867

02:09:09,109 --> 02:09:08,400

would be able to reflect on what they

3868

02:09:11,350 --> 02:09:09,119

are doing

3869

02:09:13,189 --> 02:09:11,360

and learn they can walk yes but they

3870

02:09:14,629 --> 02:09:13,199

cannot learn

3871

02:09:16,550 --> 02:09:14,639

they cannot change their behavior as a

3872

02:09:17,589 --> 02:09:16,560

result of reflecting

3873

02:09:19,430 --> 02:09:17,599

on the interaction with their

3874

02:09:20,709 --> 02:09:19,440

environment they cannot direct their

3875

02:09:21,910 --> 02:09:20,719

attention in this sense for this

3876

02:09:23,990 --> 02:09:21,920

attention learning

3877

02:09:25,189 --> 02:09:24,000

they can perform all the automatic

3878

02:09:27,510 --> 02:09:25,199

autonomous behaviors

3879

02:09:28,550 --> 02:09:27,520

that the elephant has been trained into

3880

02:09:30,470 --> 02:09:28,560

they can

3881

02:09:33,270 --> 02:09:30,480

there are perceptions taking place right

3882

02:09:36,310 --> 02:09:33,280

they can open the door they can even

3883

02:09:37,270 --> 02:09:36,320

make dinner but they are unable to learn

3884

02:09:39,350 --> 02:09:37,280

something

3885

02:09:41,030 --> 02:09:39,360

so they're able to coordinate actions

3886

02:09:42,390 --> 02:09:41,040

but it's like an orchestra without a

3887

02:09:44,310 --> 02:09:42,400

conductor

3888

02:09:45,510 --> 02:09:44,320

so capacity to learn as well as

3889

02:09:46,069 --> 02:09:45,520

attention is what's required for

3890

02:09:47,589 --> 02:09:46,079

consciousness

3891

02:09:49,189 --> 02:09:47,599

and somehow this becomes a test of

3892

02:09:51,030 --> 02:09:49,199

consciousness that you can falsify it

3893

02:09:53,830 --> 02:09:51,040

from this

3894

02:09:55,669 --> 02:09:53,840

i think that the ability to learn is

3895

02:09:57,430 --> 02:09:55,679

neither necessary nor sufficient you

3896

02:09:59,350 --> 02:09:57,440

have people that are conscious and that

3897

02:10:01,990 --> 02:09:59,360

have lost the ability to learn

3898

02:10:02,629 --> 02:10:02,000

and you have systems that can learn

3899

02:10:05,669 --> 02:10:02,639

clearly

3900

02:10:07,430 --> 02:10:05,679

they're not conscious but i think the

3901
02:10:09,589 --> 02:10:07,440
the purpose why we have this attention

3902
02:10:11,910 --> 02:10:09,599
is largely to enable us to

3903
02:10:14,950 --> 02:10:11,920
do a targeted recall of indexed memories

3904
02:10:17,109 --> 02:10:14,960
for the purpose of learning

3905
02:10:18,310 --> 02:10:17,119
is it ever possible to get a continuous

3906
02:10:20,790 --> 02:10:18,320
perception from

3907
02:10:22,229 --> 02:10:20,800
a discrete phenomenon so what i mean is

3908
02:10:25,030 --> 02:10:22,239
let's say we're just bits

3909
02:10:27,830 --> 02:10:25,040
zeros and ones and it's binary discrete

3910
02:10:29,430 --> 02:10:27,840
yet we perceive continuity smoothness

3911
02:10:31,910 --> 02:10:29,440
okay

3912
02:10:33,669 --> 02:10:31,920
how can smoothness come about from

3913
02:10:35,189 --> 02:10:33,679

discreteness

3914

02:10:36,709 --> 02:10:35,199

the trick that our brain is using

3915

02:10:38,709 --> 02:10:36,719

because our neurons don't act

3916

02:10:41,109 --> 02:10:38,719

continuously right the neurons involved

3917

02:10:42,550 --> 02:10:41,119

tend to fire at rates of like 20 hertz

3918

02:10:44,310 --> 02:10:42,560

how is it possible that we see a

3919

02:10:46,470 --> 02:10:44,320

continuous movement

3920

02:10:48,790 --> 02:10:46,480

and the trick that our brain seems to be

3921

02:10:51,990 --> 02:10:48,800

using is that it uses keyframes

3922

02:10:53,910 --> 02:10:52,000

and vectors that tell it how to compute

3923

02:10:56,470 --> 02:10:53,920

the next keyframe

3924

02:10:57,270 --> 02:10:56,480

and you can see some evidence for that

3925

02:11:00,709 --> 02:10:57,280

in two ways

3926

02:11:03,030 --> 02:11:00,719

one is um there are optical illusions

3927

02:11:05,830 --> 02:11:03,040

where you have a static image that is

3928

02:11:07,910 --> 02:11:05,840

seems to move on the page

3929

02:11:09,510 --> 02:11:07,920

and if you have such an optical illusion

3930

02:11:10,470 --> 02:11:09,520

it shows that there is the difference

3931

02:11:12,470 --> 02:11:10,480

between

3932

02:11:14,709 --> 02:11:12,480

the appearance of movement and the

3933

02:11:15,990 --> 02:11:14,719

change of location

3934

02:11:17,510 --> 02:11:16,000

right if something was moving

3935

02:11:19,510 --> 02:11:17,520

continuously you would expect it to

3936

02:11:21,030 --> 02:11:19,520

change location

3937

02:11:22,709 --> 02:11:21,040

but if something can move without

3938

02:11:24,550 --> 02:11:22,719

changing location it means that your

3939

02:11:25,669 --> 02:11:24,560

brain is representing the movement

3940

02:11:27,750 --> 02:11:25,679

separate

3941

02:11:29,189 --> 02:11:27,760

from the change in location the change

3942

02:11:30,950 --> 02:11:29,199

in location is the difference in the

3943

02:11:31,990 --> 02:11:30,960

keyframe there is only one frame right

3944

02:11:32,629 --> 02:11:32,000

that you don't look at different

3945

02:11:34,310 --> 02:11:32,639

keyframes

3946

02:11:36,550 --> 02:11:34,320

when you look at a static printout of an

3947

02:11:38,870 --> 02:11:36,560

optical illusion that moves

3948

02:11:40,629 --> 02:11:38,880

if you see it moving it's because you

3949

02:11:42,629 --> 02:11:40,639

only perceive the vector of movement

3950

02:11:44,550 --> 02:11:42,639

this means it's a static representation

3951
02:11:46,390 --> 02:11:44,560
that applies to the single frame

3952
02:11:47,589 --> 02:11:46,400
and tells you where you would expect the

3953
02:11:50,790 --> 02:11:47,599
thing to be

3954
02:11:52,790 --> 02:11:50,800
if it was a changing location and the

3955
02:11:54,550 --> 02:11:52,800
second evidence is that there are people

3956
02:11:58,470 --> 02:11:54,560
which have brain lesions

3957
02:12:00,149 --> 02:11:58,480
uh that uh lead to a stroboscopic

3958
02:12:02,069 --> 02:12:00,159
representation of reality which means

3959
02:12:04,550 --> 02:12:02,079
they only perceive the keyframes but

3960
02:12:06,149 --> 02:12:04,560
not the movement between the keyframes

3961
02:12:07,910 --> 02:12:06,159
okay so let's forget about external

3962
02:12:08,790 --> 02:12:07,920
sensory experience and what if you close

3963
02:12:11,109 --> 02:12:08,800

your eyes and you

3964

02:12:12,470 --> 02:12:11,119

visualize in your mind's eye a circle so

3965

02:12:15,109 --> 02:12:12,480

you see that as smooth

3966

02:12:17,030 --> 02:12:15,119

now are we just wrong in our perception

3967

02:12:18,310 --> 02:12:17,040

the circle is actually not smooth we've

3968

02:12:20,229 --> 02:12:18,320

tricked ourselves somehow

3969

02:12:22,069 --> 02:12:20,239

it's actually jagged like pixels if we

3970

02:12:23,669 --> 02:12:22,079

were to zoom in

3971

02:12:25,589 --> 02:12:23,679

how is it that we can get smoothness

3972

02:12:27,270 --> 02:12:25,599

even internally i would have to look at

3973

02:12:29,350 --> 02:12:27,280

the real circle because i have a

3974

02:12:30,629 --> 02:12:29,360

fantasia so i have a circular light up

3975

02:12:33,830 --> 02:12:30,639

here and i can see

3976

02:12:36,229 --> 02:12:33,840

it as a smooth in the sense but the

3977

02:12:41,030 --> 02:12:36,239

smoothness is mostly the absence of

3978

02:12:43,990 --> 02:12:41,040

a detectable non-smoothness

3979

02:12:45,270 --> 02:12:44,000

right so basically i can use a function

3980

02:12:48,550 --> 02:12:45,280

that describes

3981

02:12:51,350 --> 02:12:48,560

the progression of the line using this

3982

02:12:52,390 --> 02:12:51,360

smooth circle and i don't notice

3983

02:12:55,990 --> 02:12:52,400

features

3984

02:12:57,589 --> 02:12:56,000

that go away from that simple function

3985

02:12:59,830 --> 02:12:57,599

and i want to have a more complicated

3986

02:13:02,709 --> 02:12:59,840

function to describe an object that has

3987

02:13:04,709 --> 02:13:02,719

jaggies right so in some sense the

3988

02:13:05,270 --> 02:13:04,719

smoothness is a decision surface between

3989

02:13:08,229 --> 02:13:05,280

features

3990

02:13:10,069 --> 02:13:08,239

it tells me where to expect more sensory

3991

02:13:12,709 --> 02:13:10,079

data it tells me where to expect

3992

02:13:14,470 --> 02:13:12,719

certain blips on the retina or on my

3993

02:13:15,030 --> 02:13:14,480

mental retina so to speak on my mental

3994

02:13:17,270 --> 02:13:15,040

stage

3995

02:13:18,709 --> 02:13:17,280

when i imagine that object so it's

3996

02:13:19,430 --> 02:13:18,719

basically some kind of generator

3997

02:13:23,430 --> 02:13:19,440

function

3998

02:13:24,950 --> 02:13:23,440

that tells me in which way i expect the

3999

02:13:28,310 --> 02:13:24,960

features to fall

4000

02:13:30,470 --> 02:13:28,320

but it's not something where i

4001
02:13:31,430 --> 02:13:30,480
i can only see the jaggies if i expect

4002
02:13:33,189 --> 02:13:31,440
to see jaggies

4003
02:13:34,870 --> 02:13:33,199
and this can get confirmed in some way

4004
02:13:35,510 --> 02:13:34,880
right and the jaggy function the one

4005
02:13:38,310 --> 02:13:35,520
where i see

4006
02:13:40,069 --> 02:13:38,320
the aliasing or corners and so on needs

4007
02:13:41,669 --> 02:13:40,079
to have an explicit representation in a

4008
02:13:42,310 --> 02:13:41,679
certain way if this representation is

4009
02:13:46,149 --> 02:13:42,320
absent

4010
02:13:47,669 --> 02:13:46,159
then i will only see the smooth surface

4011
02:13:49,589 --> 02:13:47,679
how has your view of consciousness

4012
02:13:53,109 --> 02:13:49,599
changed in the past few years let's say

4013
02:13:57,030 --> 02:13:56,550

uh i think that i focus it's basically a

4014

02:14:00,709 --> 02:13:57,040

shift

4015

02:14:03,910 --> 02:14:00,719

away from the

4016

02:14:05,990 --> 02:14:03,920

phenomenon experience itself um to

4017

02:14:07,109 --> 02:14:06,000

uh what gives rise to the phenomenal

4018

02:14:09,589 --> 02:14:07,119

experience

4019

02:14:10,870 --> 02:14:09,599

and uh especially the way attention is

4020

02:14:14,229 --> 02:14:10,880

implemented as in

4021

02:14:16,709 --> 02:14:14,239

as opposed to control in general and

4022

02:14:18,069 --> 02:14:16,719

uh so i would say that i get closer to

4023

02:14:19,750 --> 02:14:18,079

an implementation

4024

02:14:21,350 --> 02:14:19,760

my view of the femininology of

4025

02:14:22,629 --> 02:14:21,360

consciousness i don't think has changed

4026

02:14:25,109 --> 02:14:22,639

in the last few years

4027

02:14:26,470 --> 02:14:25,119

so my phenomenology of consciousness as

4028

02:14:28,550 --> 02:14:26,480

a result of observing

4029

02:14:29,750 --> 02:14:28,560

consciousness of zooming in at different

4030

02:14:32,149 --> 02:14:29,760

layers

4031

02:14:33,430 --> 02:14:32,159

of resolution and observing altered

4032

02:14:35,589 --> 02:14:33,440

states for instance the

4033

02:14:37,510 --> 02:14:35,599

dreaming states at night and when i do

4034

02:14:38,790 --> 02:14:37,520

lucid dreaming or the hypnagogic state

4035

02:14:40,390 --> 02:14:38,800

between dreaming and waking in the

4036

02:14:42,629 --> 02:14:40,400

morning and so on

4037

02:14:43,910 --> 02:14:42,639

do you practice lucid dreaming i did

4038

02:14:46,629 --> 02:14:43,920

this in the past

4039

02:14:48,310 --> 02:14:46,639

but i don't do it systematically anymore

4040

02:14:50,550 --> 02:14:48,320

i suspect it's not functional for the

4041

02:14:53,189 --> 02:14:50,560

brain because it's in some sense like

4042

02:14:54,550 --> 02:14:53,199

inducing a trip in your brain similar to

4043

02:14:56,229 --> 02:14:54,560

taking drugs

4044

02:14:57,589 --> 02:14:56,239

uh because you are forming long-term

4045

02:14:58,390 --> 02:14:57,599

memories of things that you are not

4046

02:15:01,109 --> 02:14:58,400

meant to

4047

02:15:02,229 --> 02:15:01,119

form lentil memories about basically

4048

02:15:07,270 --> 02:15:02,239

there are several modes

4049

02:15:08,790 --> 02:15:07,280

of learning one is a simple uh

4050

02:15:10,310 --> 02:15:08,800

conceptual learning where your

4051
02:15:13,030 --> 02:15:10,320
perception doesn't change but the way

4052
02:15:14,550 --> 02:15:13,040
you relate your perception is changing

4053
02:15:16,069 --> 02:15:14,560
and there is another one where you

4054
02:15:16,629 --> 02:15:16,079
change the construction of reality

4055
02:15:20,229 --> 02:15:16,639
itself

4056
02:15:23,189 --> 02:15:20,239
the way that you construe reality and uh

4057
02:15:24,390 --> 02:15:23,199
if you go to this level uh if you also

4058
02:15:26,310 --> 02:15:24,400
change the way you relate to the

4059
02:15:28,229 --> 02:15:26,320
environments you need to deconstruct or

4060
02:15:30,310 --> 02:15:28,239
suspend yourself and your agency and the

4061
02:15:32,149 --> 02:15:30,320
boundary between self and universe

4062
02:15:33,990 --> 02:15:32,159
and i suspect that's uh one of the

4063
02:15:35,510 --> 02:15:34,000

reasons why we have these dream states

4064

02:15:37,990 --> 02:15:35,520

in which we don't react

4065

02:15:39,669 --> 02:15:38,000

or interact with reality itself right i

4066

02:15:41,990 --> 02:15:39,679

remember you saying that dreams might be

4067

02:15:43,750 --> 02:15:42,000

something akin to generative adversarial

4068

02:15:44,790 --> 02:15:43,760

networks and i'm curious to explore that

4069

02:15:45,910 --> 02:15:44,800

what do you mean how does that come

4070

02:15:50,470 --> 02:15:45,920

about

4071

02:15:52,950 --> 02:15:50,480

so in some sense we are producing um

4072

02:15:54,470 --> 02:15:52,960

hypothetical realities that can predict

4073

02:15:56,149 --> 02:15:54,480

sensory patterns

4074

02:15:57,750 --> 02:15:56,159

and we have a system that acts as a

4075

02:16:01,109 --> 02:15:57,760

discriminator that

4076
02:16:01,910 --> 02:16:01,119
tunes these generations of degenerative

4077
02:16:03,910 --> 02:16:01,920
functions

4078
02:16:05,030 --> 02:16:03,920
to see whether they are able to explain

4079
02:16:06,709 --> 02:16:05,040
sensory data

4080
02:16:08,790 --> 02:16:06,719
and the most important discriminator is

4081
02:16:12,069 --> 02:16:08,800
your perceptual apparatus that is

4082
02:16:14,629 --> 02:16:12,079
uh connected to your sensory input

4083
02:16:15,350 --> 02:16:14,639
that is your retina your cochlea and so

4084
02:16:17,030 --> 02:16:15,360
on so

4085
02:16:18,950 --> 02:16:17,040
by enlarge your thylamos which is the

4086
02:16:20,629 --> 02:16:18,960
big switchboard that connects

4087
02:16:22,550 --> 02:16:20,639
the different brain regions and your

4088
02:16:25,189 --> 02:16:22,560

sensory input

4089

02:16:27,270 --> 02:16:25,199

so and in some sense your imagination is

4090

02:16:30,470 --> 02:16:27,280

being used to predict sensory data

4091

02:16:32,070 --> 02:16:30,480

and the set of functions that is closely

4092

02:16:34,549 --> 02:16:32,080

predicting the next batch of sensory

4093

02:16:36,629 --> 02:16:34,559

data is what you experience as reality

4094

02:16:39,270 --> 02:16:36,639

but it's a dream every experience of

4095

02:16:41,110 --> 02:16:39,280

reality is in some sense a dream state

4096

02:16:42,709 --> 02:16:41,120

and the dream states at night are

4097

02:16:43,750 --> 02:16:42,719

different from the green states during

4098

02:16:46,790 --> 02:16:43,760

the day

4099

02:16:49,190 --> 02:16:46,800

mostly in two aspects one is in

4100

02:16:51,270 --> 02:16:49,200

if you unless you do lucid dreaming you

4101
02:16:53,110 --> 02:16:51,280
don't have a consistent sense of agency

4102
02:16:54,709 --> 02:16:53,120
which means you cannot recall who you

4103
02:16:55,910 --> 02:16:54,719
are and you cannot really direct your

4104
02:16:57,589 --> 02:16:55,920
attention in any way

4105
02:16:59,270 --> 02:16:57,599
there is no subject involved there might

4106
02:17:01,429 --> 02:16:59,280
be a story about a subject

4107
02:17:03,830 --> 02:17:01,439
but the subject is not doing things that

4108
02:17:05,750 --> 02:17:03,840
can be controlled by the subject

4109
02:17:07,830 --> 02:17:05,760
and in the lucid dream you bring this

4110
02:17:09,349 --> 02:17:07,840
agent online you gain a sense of agency

4111
02:17:11,190 --> 02:17:09,359
and the sense of control

4112
02:17:13,270 --> 02:17:11,200
can direct your attention according to

4113
02:17:15,110 --> 02:17:13,280

control parameters right this means now

4114

02:17:16,790 --> 02:17:15,120

you have a system that is exerting

4115

02:17:19,509 --> 02:17:16,800

control based on

4116

02:17:21,110 --> 02:17:19,519

uh the expectation of maximizing some

4117

02:17:23,509 --> 02:17:21,120

kind of reward and some of the

4118

02:17:26,309 --> 02:17:23,519

dimensions that your mind cares about

4119

02:17:28,150 --> 02:17:26,319

and uh but at night the second thing

4120

02:17:29,910 --> 02:17:28,160

that happens beside the agency is you

4121

02:17:30,709 --> 02:17:29,920

are no longer in touch with your sensory

4122

02:17:32,629 --> 02:17:30,719

apparatus

4123

02:17:34,790 --> 02:17:32,639

so you have no way to access what's

4124

02:17:37,830 --> 02:17:34,800

happening on your retina anymore

4125

02:17:40,549 --> 02:17:37,840

in the external world yes so uh

4126

02:17:41,990 --> 02:17:40,559

everything that plays in your cortex

4127

02:17:44,870 --> 02:17:42,000

plays out on your cortex

4128

02:17:47,110 --> 02:17:44,880

is now originating in your cortex there

4129

02:17:47,910 --> 02:17:47,120

is some slight interference with the

4130

02:17:50,790 --> 02:17:47,920

sensation

4131

02:17:51,669 --> 02:17:50,800

of color or whether you need to urinate

4132

02:17:53,589 --> 02:17:51,679

or smell

4133

02:17:55,349 --> 02:17:53,599

smell translates relatively well into

4134

02:17:57,270 --> 02:17:55,359

dreams for most people

4135

02:17:59,190 --> 02:17:57,280

but by and large you cannot sense what

4136

02:18:01,110 --> 02:17:59,200

happens in the outside world

4137

02:18:03,030 --> 02:18:01,120

and this is not going to enter your

4138

02:18:03,830 --> 02:18:03,040

dreams in any consistent way instead you

4139

02:18:05,830 --> 02:18:03,840

are only

4140

02:18:07,190 --> 02:18:05,840

going to use your mental representations

4141

02:18:09,750 --> 02:18:07,200

to make sense of other mental

4142

02:18:12,309 --> 02:18:09,760

representations

4143

02:18:14,150 --> 02:18:12,319

if dreams are for learning why is it

4144

02:18:17,110 --> 02:18:14,160

that we don't remember them why does it

4145

02:18:19,349 --> 02:18:17,120

go away uh it's largely because dreams

4146

02:18:22,389 --> 02:18:19,359

play out as situations

4147

02:18:23,830 --> 02:18:22,399

uh of things that has never happened but

4148

02:18:25,030 --> 02:18:23,840

we do that all the time in our own head

4149

02:18:26,549 --> 02:18:25,040

when we're just thinking about

4150

02:18:27,750 --> 02:18:26,559

speaking to someone like a boss like

4151
02:18:29,270 --> 02:18:27,760
what am i going to say to that boss how

4152
02:18:31,429 --> 02:18:29,280
do i get a raise how do i get

4153
02:18:33,349 --> 02:18:31,439
not get fired yes but all these things

4154
02:18:35,429 --> 02:18:33,359
are prefaced as this doesn't happen

4155
02:18:37,349 --> 02:18:35,439
this is an imagination of an imaginary

4156
02:18:38,870 --> 02:18:37,359
situation i'm playing out the following

4157
02:18:42,469 --> 02:18:38,880
things

4158
02:18:43,830 --> 02:18:42,479
in the following way

4159
02:18:45,669 --> 02:18:43,840
and then you can compare them with

4160
02:18:47,349 --> 02:18:45,679
reality and you can use this to tune

4161
02:18:48,070 --> 02:18:47,359
your imagination to make it better next

4162
02:18:49,750 --> 02:18:48,080
time

4163
02:18:52,309 --> 02:18:49,760

whereas in a dream your construction of

4164

02:18:54,150 --> 02:18:52,319

reality itself is changed for instance

4165

02:18:55,750 --> 02:18:54,160

you see objects from perspectives that

4166

02:18:57,270 --> 02:18:55,760

you've never seen them from

4167

02:18:59,349 --> 02:18:57,280

you might be have a flying dream as a

4168

02:19:00,469 --> 02:18:59,359

result right you see the world from top

4169

02:19:03,110 --> 02:19:00,479

down perspective

4170

02:19:04,790 --> 02:19:03,120

and as a child i think many children

4171

02:19:06,309 --> 02:19:04,800

have playing dreams for that reason that

4172

02:19:08,950 --> 02:19:06,319

basically your brain is generating new

4173

02:19:10,469 --> 02:19:08,960

perspectives of known objects

4174

02:19:12,469 --> 02:19:10,479

and so you can recognize them from these

4175

02:19:13,910 --> 02:19:12,479

new perspectives that's uh

4176

02:19:15,830 --> 02:19:13,920

it's very useful but it's not very

4177

02:19:17,910 --> 02:19:15,840

useful to remember that you can fly

4178

02:19:19,589 --> 02:19:17,920

because you can't do you know of any

4179

02:19:21,830 --> 02:19:19,599

studies that have been done

4180

02:19:24,469 --> 02:19:21,840

about people who can recall their dreams

4181

02:19:27,190 --> 02:19:24,479

versus people who can't and if they

4182

02:19:27,669 --> 02:19:27,200

report higher life satisfaction if any

4183

02:19:32,070 --> 02:19:27,679

of those

4184

02:19:34,309 --> 02:19:32,080

groups no i'm unaware of that

4185

02:19:35,990 --> 02:19:34,319

so i don't know how uh if people that

4186

02:19:38,790 --> 02:19:36,000

you can recall their dreams

4187

02:19:39,110 --> 02:19:38,800

are happier than people that can't and

4188

02:19:42,469 --> 02:19:39,120

uh

4189

02:19:44,709 --> 02:19:42,479

to

4190

02:19:46,469 --> 02:19:44,719

change the equilibrium of most people

4191

02:19:48,150 --> 02:19:46,479

that cannot recall their dreams

4192

02:19:50,309 --> 02:19:48,160

in such a way that they can or to wake

4193

02:19:51,830 --> 02:19:50,319

them up at the right moment and

4194

02:19:53,590 --> 02:19:51,840

that they will be able to remember their

4195

02:19:55,910 --> 02:19:53,600

dreams if you uh

4196

02:19:57,590 --> 02:19:55,920

wake them up during ram faces but i'm

4197

02:19:58,389 --> 02:19:57,600

unaware of these studies i'm not a steve

4198

02:20:02,070 --> 02:19:58,399

scientist

4199

02:20:04,469 --> 02:20:02,080

if if all we did was dream is that real

4200

02:20:06,950 --> 02:20:04,479

well all we do is dream in a way right

4201
02:20:09,349 --> 02:20:06,960
so every perception of reality is a

4202
02:20:11,750 --> 02:20:09,359
trans state it's a dream state

4203
02:20:12,870 --> 02:20:11,760
there is no reality that is it can be

4204
02:20:15,910 --> 02:20:12,880
sensed

4205
02:20:18,630 --> 02:20:15,920
it's only this vr that you are

4206
02:20:21,030 --> 02:20:18,640
entrenched to believing that it's real

4207
02:20:22,469 --> 02:20:21,040
it's a movie that your mind is showing

4208
02:20:24,150 --> 02:20:22,479
to the self and the

4209
02:20:25,990 --> 02:20:24,160
self is recording in some sense what

4210
02:20:27,990 --> 02:20:26,000
happens at its boundary

4211
02:20:30,389 --> 02:20:28,000
with this intentional protocol and we

4212
02:20:31,670 --> 02:20:30,399
can uh partially recreate these binding

4213
02:20:33,750 --> 02:20:31,680

states later on

4214

02:20:35,830 --> 02:20:33,760

as the memories of states that you think

4215

02:20:37,910 --> 02:20:35,840

you have been conscious of

4216

02:20:39,429 --> 02:20:37,920

and this is all there is this is only

4217

02:20:41,429 --> 02:20:39,439

the stream

4218

02:20:42,790 --> 02:20:41,439

let's end this on a positive note with

4219

02:20:44,550 --> 02:20:42,800

you saying

4220

02:20:46,630 --> 02:20:44,560

with you telling people how like almost

4221

02:20:48,469 --> 02:20:46,640

instructionally how is it that

4222

02:20:50,070 --> 02:20:48,479

from your insights from what you've said

4223

02:20:51,750 --> 02:20:50,080

how do you get from that

4224

02:20:54,070 --> 02:20:51,760

to then changing your mind so that you

4225

02:20:55,750 --> 02:20:54,080

experience positive emotion or at least

4226
02:20:58,630 --> 02:20:55,760
a negation of negative emotion there's

4227
02:21:00,309 --> 02:20:58,640
none an absence of it

4228
02:21:02,630 --> 02:21:00,319
i don't think that you should sort

4229
02:21:04,710 --> 02:21:02,640
emotions into positive and negative ones

4230
02:21:07,270 --> 02:21:04,720
i think that you should look uh whether

4231
02:21:09,349 --> 02:21:07,280
your emotions are helpful or unhelpful

4232
02:21:10,870 --> 02:21:09,359
and you should have the most appropriate

4233
02:21:12,550 --> 02:21:10,880
and helpful emotions that you can have

4234
02:21:13,270 --> 02:21:12,560
not the most positive emotions that you

4235
02:21:16,550 --> 02:21:13,280
can have

4236
02:21:18,950 --> 02:21:16,560
the purpose of life is not to

4237
02:21:20,710 --> 02:21:18,960
be happy in a sense that you should be

4238
02:21:22,710 --> 02:21:20,720

in a state of constant bliss

4239

02:21:24,309 --> 02:21:22,720

you should be able to achieve the things

4240

02:21:27,349 --> 02:21:24,319

that matter to you

4241

02:21:29,750 --> 02:21:27,359

and the emotions help you for that so

4242

02:21:31,270 --> 02:21:29,760

uh but see you should check whether uh

4243

02:21:33,030 --> 02:21:31,280

your emotions for instance

4244

02:21:34,309 --> 02:21:33,040

express ruminations which means you

4245

02:21:35,910 --> 02:21:34,319

might be caught in a loop that is

4246

02:21:38,630 --> 02:21:35,920

unproductive and you're just

4247

02:21:39,990 --> 02:21:38,640

veering a groove in your mind rather

4248

02:21:41,349 --> 02:21:40,000

than making progress

4249

02:21:43,110 --> 02:21:41,359

you should see whether you are suffering

4250

02:21:44,150 --> 02:21:43,120

which is usually a result of you trying

4251
02:21:45,830 --> 02:21:44,160
to change something

4252
02:21:46,870 --> 02:21:45,840
that you cannot actually control at

4253
02:21:48,550 --> 02:21:46,880
least not in the way that you're

4254
02:21:50,150 --> 02:21:48,560
currently trying it

4255
02:21:51,910 --> 02:21:50,160
right so this is what you should be

4256
02:21:54,469 --> 02:21:51,920
monitoring you should monitor

4257
02:21:56,710 --> 02:21:54,479
the trajectory of your emotions and see

4258
02:21:59,429 --> 02:21:56,720
whether they are still helpful

4259
02:22:00,710 --> 02:21:59,439
but they're your tools and just turning

4260
02:22:03,429 --> 02:22:00,720
your tools into

4261
02:22:05,190 --> 02:22:03,439
something that only gives you one site

4262
02:22:07,349 --> 02:22:05,200
is not helpful

4263
02:22:10,950 --> 02:22:07,359

so how do you control your tools to make

4264

02:22:14,790 --> 02:22:13,670

it seems like you do this or do you

4265

02:22:17,830 --> 02:22:14,800

struggle with this

4266

02:22:19,830 --> 02:22:17,840

the best person to ask

4267

02:22:21,750 --> 02:22:19,840

okay here's one of the reasons why i ask

4268

02:22:23,190 --> 02:22:21,760

when i see you you're extremely positive

4269

02:22:24,230 --> 02:22:23,200

and most cognitive scientists that i

4270

02:22:26,150 --> 02:22:24,240

talk to they're neutral

4271

02:22:27,910 --> 02:22:26,160

neutral to positive and you're almost

4272

02:22:29,670 --> 02:22:27,920

always happy

4273

02:22:31,510 --> 02:22:29,680

it seems like you're in you're not

4274

02:22:32,150 --> 02:22:31,520

perturbed you're not easily perturbed

4275

02:22:37,510 --> 02:22:32,160

you're

4276

02:22:38,630 --> 02:22:37,520

no i think it's a useful state for

4277

02:22:40,790 --> 02:22:38,640

communication

4278

02:22:42,710 --> 02:22:40,800

and a lot of people that have to

4279

02:22:44,070 --> 02:22:42,720

maintain an academic position find it

4280

02:22:46,150 --> 02:22:44,080

extremely useful to

4281

02:22:48,150 --> 02:22:46,160

uh look like a professor right it's a

4282

02:22:50,630 --> 02:22:48,160

culture you have to

4283

02:22:51,349 --> 02:22:50,640

maintain a certain gravitas if you uh

4284

02:22:54,150 --> 02:22:51,359

come across

4285

02:22:55,429 --> 02:22:54,160

as a a friendly person uh or as a

4286

02:22:57,830 --> 02:22:55,439

humorous person

4287

02:22:59,510 --> 02:22:57,840

uh that might limit your impact and with

4288

02:23:01,429 --> 02:22:59,520

certain audiences right are you really

4289

02:23:02,070 --> 02:23:01,439

the person that deserves this funding if

4290

02:23:04,950 --> 02:23:02,080

you

4291

02:23:07,270 --> 02:23:04,960

uh are goofy in some way right yeah so

4292

02:23:10,389 --> 02:23:07,280

uh of course i don't want to be goofy

4293

02:23:11,830 --> 02:23:10,399

but i also don't want to scare you and i

4294

02:23:15,190 --> 02:23:11,840

want us to

4295

02:23:18,469 --> 02:23:15,200

uh have a straightforward uh friendly

4296

02:23:20,550 --> 02:23:18,479

um and maybe even loving conversation so

4297

02:23:22,870 --> 02:23:20,560

i'm trying to open myself to you and i

4298

02:23:23,910 --> 02:23:22,880

try to build a personal relationship and

4299

02:23:27,110 --> 02:23:23,920

i find that

4300

02:23:28,950 --> 02:23:27,120

uh kindness and friendliness and humor

4301

02:23:31,830 --> 02:23:28,960

are useful tools for that

4302

02:23:33,910 --> 02:23:31,840

i also find that humor is often a useful

4303

02:23:36,550 --> 02:23:33,920

tool to deal with your own suffering

4304

02:23:39,429 --> 02:23:36,560

and kindness and friendliness so instead

4305

02:23:41,830 --> 02:23:39,439

of basically using graphness to

4306

02:23:43,429 --> 02:23:41,840

enter your suffering that is typically

4307

02:23:45,670 --> 02:23:43,439

something that pushes you out of the

4308

02:23:48,710 --> 02:23:45,680

area which you would need to deal with

4309

02:23:49,510 --> 02:23:48,720

and humor is sometimes a tool that

4310

02:23:51,750 --> 02:23:49,520

allows you to

4311

02:23:53,510 --> 02:23:51,760

make an area of your mind that you have

4312

02:23:56,469 --> 02:23:53,520

to explore because you need to repair it

4313

02:24:00,230 --> 02:23:58,469

is there any principle that's higher

4314

02:24:02,230 --> 02:24:00,240

that's worth dying for so far

4315

02:24:03,670 --> 02:24:02,240

like it sounds vague but for example you

4316

02:24:05,510 --> 02:24:03,680

mentioned that the machines

4317

02:24:06,790 --> 02:24:05,520

will likely win or let's imagine there's

4318

02:24:07,990 --> 02:24:06,800

a scenario where they win let's just

4319

02:24:09,510 --> 02:24:08,000

hypothetical

4320

02:24:11,590 --> 02:24:09,520

then merging with them if we want to

4321

02:24:13,590 --> 02:24:11,600

survive is what we should do

4322

02:24:15,190 --> 02:24:13,600

but is surviving what we should do what

4323

02:24:16,550 --> 02:24:15,200

if the machines win and part of the

4324

02:24:19,510 --> 02:24:16,560

machine's goal is to take over

4325

02:24:20,790 --> 02:24:19,520

the entire planet i know we've done that

4326

02:24:23,670 --> 02:24:20,800

but let's say they do it in a

4327

02:24:24,309 --> 02:24:23,680

in a way that causes excruciation for

4328

02:24:26,389 --> 02:24:24,319

most of

4329

02:24:27,670 --> 02:24:26,399

life but we say well we want to live so

4330

02:24:29,910 --> 02:24:27,680

let's merge with them

4331

02:24:30,950 --> 02:24:29,920

should we do that is there something

4332

02:24:33,910 --> 02:24:30,960

else

4333

02:24:36,150 --> 02:24:33,920

that's more important than simply

4334

02:24:38,150 --> 02:24:36,160

propagating

4335

02:24:40,790 --> 02:24:38,160

i think that something can only be

4336

02:24:42,790 --> 02:24:40,800

important if the mind makes it so

4337

02:24:44,070 --> 02:24:42,800

the physical universe by itself has no

4338

02:24:45,910 --> 02:24:44,080

importance whatsoever

4339

02:24:47,270 --> 02:24:45,920

life by itself has no importance

4340

02:24:50,389 --> 02:24:47,280

whatsoever

4341

02:24:52,630 --> 02:24:50,399

uh from the perspectives uh

4342

02:24:54,469 --> 02:24:52,640

that my own statistics give me i think

4343

02:24:56,790 --> 02:24:54,479

complexity is valuable

4344

02:24:59,429 --> 02:24:56,800

and mainly maintaining complexity over

4345

02:25:02,870 --> 02:24:59,439

long time spans is desirable

4346

02:25:03,670 --> 02:25:02,880

and so basically having a state in which

4347

02:25:06,630 --> 02:25:03,680

you

4348

02:25:08,630 --> 02:25:06,640

see the continuation of life at high

4349

02:25:10,630 --> 02:25:08,640

complexity on this planet

4350

02:25:12,070 --> 02:25:10,640

seems to be a desirable thing to me on

4351

02:25:14,389 --> 02:25:12,080

the other hand life

4352

02:25:15,750 --> 02:25:14,399

is excruciating for most conscious

4353

02:25:18,230 --> 02:25:15,760

beings

4354

02:25:19,110 --> 02:25:18,240

for most of the time in some sense

4355

02:25:21,750 --> 02:25:19,120

existence is

4356

02:25:23,429 --> 02:25:21,760

by itself not necessarily pleasant if

4357

02:25:25,270 --> 02:25:23,439

it's consciously experienced

4358

02:25:26,790 --> 02:25:25,280

even though it's a constructed thing by

4359

02:25:28,790 --> 02:25:26,800

the mind itself

4360

02:25:30,710 --> 02:25:28,800

and so i don't have an absolute answer

4361

02:25:32,550 --> 02:25:30,720

to questions like this they only need to

4362

02:25:34,710 --> 02:25:32,560

be framed by a certain context

4363

02:25:36,950 --> 02:25:34,720

in the context of having children i will

4364

02:25:38,550 --> 02:25:36,960

give you a very different answer than

4365

02:25:41,190 --> 02:25:38,560

by the context of looking at the

4366

02:25:43,190 --> 02:25:41,200

planetary ecosystem

4367

02:25:44,790 --> 02:25:43,200

right so uh depending on on that

4368

02:25:46,710 --> 02:25:44,800

particular context for instance

4369

02:25:48,469 --> 02:25:46,720

what do i wish for my children or what

4370

02:25:51,590 --> 02:25:48,479

do i wish for my friends

4371

02:25:52,950 --> 02:25:51,600

how they should explore existence or

4372

02:25:59,190 --> 02:25:52,960

what do i wish for

4373

02:26:02,150 --> 02:25:59,200

ecosystem that i'm part of

4374

02:26:04,150 --> 02:26:02,160

these are uh very specific questions and

4375

02:26:07,030 --> 02:26:04,160

for these specific questions

4376

02:26:09,030 --> 02:26:07,040

no yeah of course they are and in some

4377

02:26:10,710 --> 02:26:09,040

sense ethics is about the negotiation

4378

02:26:13,429 --> 02:26:10,720

between these conflicts

4379

02:26:13,830 --> 02:26:13,439

but they all are predicated by a choice

4380

02:26:15,750 --> 02:26:13,840

that you

4381

02:26:17,510 --> 02:26:15,760

need to make in the beginning the choice

4382

02:26:19,429 --> 02:26:17,520

of what is important to you

4383

02:26:21,110 --> 02:26:19,439

and initially we don't make that choice

4384

02:26:22,230 --> 02:26:21,120

because we have innate choices that

4385

02:26:24,950 --> 02:26:22,240

evolution has

4386

02:26:26,389 --> 02:26:24,960

done for us and that are solidified in

4387

02:26:27,910 --> 02:26:26,399

our interaction with the social

4388

02:26:30,150 --> 02:26:27,920

environment and so on

4389

02:26:31,190 --> 02:26:30,160

but eventually we get to the point where

4390

02:26:32,950 --> 02:26:31,200

we get

4391

02:26:34,870 --> 02:26:32,960

agency over these choices and where we

4392

02:26:36,630 --> 02:26:34,880

can deconstruct them

4393

02:26:38,950 --> 02:26:36,640

and then the answers become complicated

4394

02:26:39,830 --> 02:26:38,960

and there is not a single answer because

4395

02:26:42,150 --> 02:26:39,840

the answer

4396

02:26:43,110 --> 02:26:42,160

obviously depends on the system that you

4397

02:26:46,230 --> 02:26:43,120

are

4398

02:26:46,950 --> 02:26:46,240

right if you become a machine so to

4399

02:26:50,070 --> 02:26:46,960

speaking if you

4400

02:26:51,670 --> 02:26:50,080

uh identify with a different system

4401

02:26:53,910 --> 02:26:51,680

uh for instance in this way that the

4402

02:26:54,950 --> 02:26:53,920

dalai lama identifies as a form of

4403

02:26:58,070 --> 02:26:54,960

government

4404

02:27:00,550 --> 02:26:58,080

as an institution a thing that

4405

02:27:01,670 --> 02:27:00,560

or the queen to some degree identifies

4406

02:27:04,070 --> 02:27:01,680

with the crown

4407

02:27:05,990 --> 02:27:04,080

which is an institution it limits her

4408

02:27:07,030 --> 02:27:06,000

actions as a human being the queen is

4409

02:27:08,790 --> 02:27:07,040

not free to do

4410

02:27:10,150 --> 02:27:08,800

what you and me are doing the dalai lama

4411

02:27:10,790 --> 02:27:10,160

is not free to do what you and me are

4412

02:27:12,309 --> 02:27:10,800

doing

4413

02:27:14,790 --> 02:27:12,319

because he operates on different

4414

02:27:18,230 --> 02:27:14,800

constraints right these constraints

4415

02:27:19,830 --> 02:27:18,240

give him both more agency and

4416

02:27:22,630 --> 02:27:19,840

fewer degrees of freedom in a certain

4417

02:27:24,070 --> 02:27:22,640

way and they also free him from worrying

4418

02:27:25,830 --> 02:27:24,080

about certain things because

4419

02:27:27,349 --> 02:27:25,840

to the degree that you identify for

4420

02:27:29,270 --> 02:27:27,359

instance with your family

4421

02:27:31,270 --> 02:27:29,280

you are free to worry about your own

4422

02:27:33,190 --> 02:27:31,280

individuality within the family

4423

02:27:34,309 --> 02:27:33,200

to the degree that you identify with an

4424

02:27:36,950 --> 02:27:34,319

ideology you can

4425

02:27:38,790 --> 02:27:36,960

disidentify with your personal ideas to

4426

02:27:42,389 --> 02:27:38,800

the degree that you identify

4427

02:27:45,190 --> 02:27:42,399

with being a form of governance for a

4428

02:27:46,710 --> 02:27:45,200

group of beings you can identify with

4429

02:27:48,309 --> 02:27:46,720

this single individual that you are and

4430

02:27:48,790 --> 02:27:48,319

it doesn't really matter if you die as

4431

02:27:51,190 --> 02:27:48,800

long

4432

02:27:53,110 --> 02:27:51,200

as you are reborn this form of

4433

02:27:54,950 --> 02:27:53,120

government in a new individual that is

4434

02:27:56,389 --> 02:27:54,960

performing the role as well as you can

4435

02:27:59,349 --> 02:27:56,399

or even better maybe

4436

02:28:01,270 --> 02:27:59,359

right so this who am i what is this

4437

02:28:04,630 --> 02:28:01,280

thing that i stand for what is it that i

4438

02:28:06,469 --> 02:28:04,640

identify as is not necessarily related

4439

02:28:07,990 --> 02:28:06,479

to the substrate very tightly

4440

02:28:09,990 --> 02:28:08,000

the same way as the software does not

4441

02:28:10,950 --> 02:28:10,000

need to identify with the hardware that

4442

02:28:12,870 --> 02:28:10,960

it runs on

4443

02:28:14,389 --> 02:28:12,880

you are not identified with your brain

4444

02:28:15,429 --> 02:28:14,399

you are identified with the things that

4445

02:28:17,349 --> 02:28:15,439

you care about

4446

02:28:19,349 --> 02:28:17,359

and as soon as you get agency over what

4447

02:28:20,790 --> 02:28:19,359

you care about you can say that the

4448

02:28:22,309 --> 02:28:20,800

choices that you make are more or less

4449

02:28:23,670 --> 02:28:22,319

consistent with each other

4450

02:28:25,429 --> 02:28:23,680

and they are more or less compatible

4451

02:28:28,070 --> 02:28:25,439

with the choices that others make

4452

02:28:30,870 --> 02:28:28,080

but there is no absolute answer anymore

4453

02:28:34,070 --> 02:28:30,880

what do you identify as

4454

02:28:36,150 --> 02:28:34,080

it depends i am not identified as the

4455

02:28:40,389 --> 02:28:36,160

same thing in every state

4456

02:28:42,950 --> 02:28:40,399

and sometimes i identify as a father

4457

02:28:44,710 --> 02:28:42,960

and sometimes as a lover sometimes as a

4458

02:28:47,750 --> 02:28:44,720

partner as a friend

4459

02:28:48,230 --> 02:28:47,760

as a coworker uh as uh somebody who

4460

02:28:49,910 --> 02:28:48,240

thinks

4461

02:28:51,510 --> 02:28:49,920

as somebody who struggles as somebody

4462

02:28:53,910 --> 02:28:51,520

who doesn't want to live anymore

4463

02:28:55,830 --> 02:28:53,920

somebody who wants to get some sleep and

4464

02:28:56,309 --> 02:28:55,840

nothing is as important as that and so

4465

02:28:58,950 --> 02:28:56,319

on

4466

02:29:01,110 --> 02:28:58,960

who doesn't want to live anymore because

4467

02:29:02,630 --> 02:29:01,120

i'm curious what if someone says

4468

02:29:04,230 --> 02:29:02,640

i think what's most important is the

4469

02:29:05,750 --> 02:29:04,240

destruction of life i don't think it's

4470

02:29:07,429 --> 02:29:05,760

worth it i think that the amount of

4471

02:29:08,630 --> 02:29:07,439

suffering is not worth the pleasure

4472

02:29:10,389 --> 02:29:08,640

and you're saying that objectively

4473

02:29:12,070 --> 02:29:10,399

there's nothing wrong with that so what

4474

02:29:15,590 --> 02:29:12,080

if they come to that conclusion

4475

02:29:18,070 --> 02:29:15,600

and they pursue it is there

4476

02:29:19,590 --> 02:29:18,080

yeah what if they do that that just it

4477

02:29:21,670 --> 02:29:19,600

sounds like it's objectively

4478

02:29:23,270 --> 02:29:21,680

wrong but you're saying uh that's fine

4479

02:29:27,110 --> 02:29:23,280

just pursue what you want as long as

4480

02:29:31,910 --> 02:29:30,309

so yes uh i can only object to this to

4481

02:29:34,790 --> 02:29:31,920

the degree that it is

4482

02:29:36,469 --> 02:29:34,800

conflicting with my own goals and for

4483

02:29:39,590 --> 02:29:36,479

most people that would be the case and

4484

02:29:40,550 --> 02:29:39,600

so they legitimately would uh give

4485

02:29:42,309 --> 02:29:40,560

opposition

4486

02:29:43,910 --> 02:29:42,319

there's also this issue it's very very

4487

02:29:46,790 --> 02:29:43,920

hard to sterilize a planet

4488

02:29:48,309 --> 02:29:46,800

life is extremely resilient even let's

4489

02:29:49,510 --> 02:29:48,319

just say they dislike humans because

4490

02:29:50,630 --> 02:29:49,520

humans are the ones that have betrayed

4491

02:29:52,309 --> 02:29:50,640

them in the past

4492

02:29:53,990 --> 02:29:52,319

yeah the humans are going to take care

4493

02:29:55,910 --> 02:29:54,000

of themselves at some point right this

4494

02:29:58,469 --> 02:29:55,920

species is not immortal

4495

02:30:00,150 --> 02:29:58,479

uh we might already be on the way out

4496

02:30:00,550 --> 02:30:00,160

and of course there are individuals

4497

02:30:03,990 --> 02:30:00,560

which

4498

02:30:07,349 --> 02:30:04,000

um the individual might fall

4499

02:30:10,630 --> 02:30:07,359

out of this and uh

4500

02:30:13,990 --> 02:30:10,640

peterson describes this as uh the

4501
02:30:16,790 --> 02:30:14,000
uh school shooter got angry at god right

4502
02:30:18,469 --> 02:30:16,800
and uh i think that god in in this way

4503
02:30:19,110 --> 02:30:18,479
that peterson has been using it in this

4504
02:30:22,469 --> 02:30:19,120
sentence

4505
02:30:24,389 --> 02:30:22,479
is the uh platonic form of the

4506
02:30:25,830 --> 02:30:24,399
civilization that somebody is part of

4507
02:30:26,710 --> 02:30:25,840
it's the greater whole seen as a

4508
02:30:28,550 --> 02:30:26,720
sentient agent

4509
02:30:30,550 --> 02:30:28,560
the relationship of this individual to

4510
02:30:31,990 --> 02:30:30,560
this god is the relationship that the

4511
02:30:35,110 --> 02:30:32,000
cell has to the organism

4512
02:30:38,150 --> 02:30:35,120
and are you a plaintiff no

4513
02:30:39,429 --> 02:30:38,160

but uh so in some sense there is an uh a

4514

02:30:41,670 --> 02:30:39,439

practical sense in which i'm

4515

02:30:43,190 --> 02:30:41,680

a platonist but i'm not a platonist in

4516

02:30:45,910 --> 02:30:43,200

the intellectual sense

4517

02:30:47,190 --> 02:30:45,920

so i don't think that these categories

4518

02:30:48,870 --> 02:30:47,200

exist

4519

02:30:50,469 --> 02:30:48,880

beyond being more or less coherent

4520

02:30:54,150 --> 02:30:50,479

models but

4521

02:30:55,510 --> 02:30:54,160

i think that as a learning system i

4522

02:30:57,349 --> 02:30:55,520

i need to believe that there is

4523

02:30:59,349 --> 02:30:57,359

something at the end of the gradient

4524

02:31:00,790 --> 02:30:59,359

right there is going to be a certain

4525

02:31:02,870 --> 02:31:00,800

model that i can approximate that

4526

02:31:05,270 --> 02:31:02,880

describes reality optimally well

4527

02:31:07,349 --> 02:31:05,280

given my resources and starting point

4528

02:31:08,950 --> 02:31:07,359

and in this sense i have a strong

4529

02:31:10,790 --> 02:31:08,960

experience of platonism that these

4530

02:31:13,030 --> 02:31:10,800

categories are real and

4531

02:31:15,030 --> 02:31:13,040

so in this context it seems that we are

4532

02:31:17,590 --> 02:31:15,040

a state-building species we are not in

4533

02:31:19,030 --> 02:31:17,600

species of solitary individuals unless

4534

02:31:21,590 --> 02:31:19,040

you are a sociopath

4535

02:31:23,349 --> 02:31:21,600

that is does not have any sense for a

4536

02:31:24,309 --> 02:31:23,359

greater whole and most of us have this

4537

02:31:27,190 --> 02:31:24,319

sense of

4538

02:31:28,710 --> 02:31:27,200

feeling that we are functionally part of

4539

02:31:31,750 --> 02:31:28,720

something that is more important than

4540

02:31:33,190 --> 02:31:31,760

us as an individual and this would be

4541

02:31:35,190 --> 02:31:33,200

the implementation that you would need

4542

02:31:36,870 --> 02:31:35,200

to give a cell if the cell was conscious

4543

02:31:38,309 --> 02:31:36,880

and was able to make sense of its

4544

02:31:40,150 --> 02:31:38,319

relationship to the environment

4545

02:31:41,990 --> 02:31:40,160

if the cell is part of an organism and

4546

02:31:44,309 --> 02:31:42,000

not a single cell organism

4547

02:31:45,270 --> 02:31:44,319

if you as organisms don't actually exist

4548

02:31:47,349 --> 02:31:45,280

right

4549

02:31:48,710 --> 02:31:47,359

organisms are away to think of large

4550

02:31:51,910 --> 02:31:48,720

groups of cells

4551
02:31:54,550 --> 02:31:51,920
that act as part of a greater whole

4552
02:31:55,830 --> 02:31:54,560
they act sorry when you say organisms

4553
02:31:57,270 --> 02:31:55,840
don't exist you mean to say that they're

4554
02:31:59,110 --> 02:31:57,280
just a collection of molecules that move

4555
02:32:01,750 --> 02:31:59,120
in a particular way and we model them

4556
02:32:03,590 --> 02:32:01,760
as organisms an organism is a function

4557
02:32:05,030 --> 02:32:03,600
that describes the interaction between a

4558
02:32:06,550 --> 02:32:05,040
group of cells

4559
02:32:08,950 --> 02:32:06,560
and it's a function that is different

4560
02:32:11,110 --> 02:32:08,960
from a bunch of cells because it

4561
02:32:13,110 --> 02:32:11,120
says that some of the cells are not

4562
02:32:14,389 --> 02:32:13,120
helpful to the organism rate is a

4563
02:32:17,030 --> 02:32:14,399

function that describes

4564

02:32:18,790 --> 02:32:17,040

a control structure there are cells

4565

02:32:20,790 --> 02:32:18,800

which don't belong to the organism even

4566

02:32:23,429 --> 02:32:20,800

though they are in the same region

4567

02:32:24,389 --> 02:32:23,439

and some of these cells even share the

4568

02:32:25,910 --> 02:32:24,399

same genome

4569

02:32:27,590 --> 02:32:25,920

and but there might be tumors for

4570

02:32:28,550 --> 02:32:27,600

instance and the organism tries to get

4571

02:32:31,349 --> 02:32:28,560

rid of them

4572

02:32:33,510 --> 02:32:31,359

and so the organism is in some sense a

4573

02:32:35,830 --> 02:32:33,520

function that describes an order

4574

02:32:37,349 --> 02:32:35,840

and the same way a society or a

4575

02:32:38,790 --> 02:32:37,359

civilization is a function that

4576

02:32:40,630 --> 02:32:38,800

describes this order

4577

02:32:42,870 --> 02:32:40,640

and the organism if you look closely

4578

02:32:44,790 --> 02:32:42,880

only exists approximately

4579

02:32:46,389 --> 02:32:44,800

right because you cannot describe

4580

02:32:48,630 --> 02:32:46,399

everything that happens there

4581

02:32:49,910 --> 02:32:48,640

using that thing if you look at reality

4582

02:32:51,830 --> 02:32:49,920

you only can do this

4583

02:32:53,510 --> 02:32:51,840

in a hypothetical space where you reason

4584

02:32:55,830 --> 02:32:53,520

about what also cells are doing

4585

02:32:57,110 --> 02:32:55,840

and the same thing is true for society

4586

02:32:59,670 --> 02:32:57,120

or for cells

4587

02:33:02,070 --> 02:32:59,680

and this notion of the emergence of a

4588

02:33:03,750 --> 02:33:02,080

society that is entirely coherent

4589

02:33:05,590 --> 02:33:03,760

where the behavior of all the

4590

02:33:07,590 --> 02:33:05,600

individuals has sense

4591

02:33:09,270 --> 02:33:07,600

with respect to the greater whole this

4592

02:33:11,030 --> 02:33:09,280

coincides with the invention of the

4593

02:33:12,469 --> 02:33:11,040

concept of gods and i think they are

4594

02:33:14,389 --> 02:33:12,479

basically the same concept

4595

02:33:16,550 --> 02:33:14,399

it's the idea that individuals can

4596

02:33:18,550 --> 02:33:16,560

interact in such a way that their form

4597

02:33:20,389 --> 02:33:18,560

and agent on the next level of

4598

02:33:21,750 --> 02:33:20,399

description and this agent is sentient

4599

02:33:22,469 --> 02:33:21,760

it has a relationship to the world

4600

02:33:25,510 --> 02:33:22,479

around it

4601

02:33:27,110 --> 02:33:25,520

as goals and a relationship to its

4602

02:33:28,790 --> 02:33:27,120

constituents to the parts

4603

02:33:30,710 --> 02:33:28,800

and you can see in the history of the

4604

02:33:32,389 --> 02:33:30,720

religions that this relationship to the

4605

02:33:35,190 --> 02:33:32,399

constituent parts changes

4606

02:33:36,950 --> 02:33:35,200

right the old abrahamic god is is really

4607

02:33:38,870 --> 02:33:36,960

a mean he doesn't care about the

4608

02:33:41,510 --> 02:33:38,880

individuals what he does to job

4609

02:33:42,469 --> 02:33:41,520

uh just to uh prove a coin point to the

4610

02:33:45,349 --> 02:33:42,479

devil is

4611

02:33:45,670 --> 02:33:45,359

uh horrible right from the perspective

4612

02:33:47,910 --> 02:33:45,680

of

4613

02:33:49,750 --> 02:33:47,920

an individual but from the perspective

4614

02:33:51,270 --> 02:33:49,760

of an organism doing something to its

4615

02:33:53,429 --> 02:33:51,280

cells it doesn't matter at all

4616

02:33:55,190 --> 02:33:53,439

right of course the organism is able to

4617

02:33:56,790 --> 02:33:55,200

do things to its cells and the cells are

4618

02:33:58,309 --> 02:33:56,800

not supposed to care about this

4619

02:33:59,910 --> 02:33:58,319

because they belong to the organism they

4620

02:34:00,469 --> 02:33:59,920

are owned by the organism they only

4621

02:34:02,389 --> 02:34:00,479

exist

4622

02:34:04,070 --> 02:34:02,399

by the grace of the organism and for the

4623

02:34:05,910 --> 02:34:04,080

good of the organism it reminds me of

4624

02:34:09,270 --> 02:34:05,920

what you describe fascism is like

4625

02:34:11,429 --> 02:34:09,280

yes exactly and the idea of for instance

4626
02:34:13,190 --> 02:34:11,439
the introduction of jesus christ and

4627
02:34:16,710 --> 02:34:13,200
catholicism

4628
02:34:18,070 --> 02:34:16,720
was necessary to deal with a religion

4629
02:34:18,790 --> 02:34:18,080
that was compatible with the roman

4630
02:34:20,630 --> 02:34:18,800
empire

4631
02:34:22,389 --> 02:34:20,640
so you want to have a society where you

4632
02:34:24,150 --> 02:34:22,399
already have pax romana and every

4633
02:34:25,190 --> 02:34:24,160
individual has something like its own

4634
02:34:27,349 --> 02:34:25,200
dignity

4635
02:34:28,389 --> 02:34:27,359
and its own role regardless of the

4636
02:34:29,910 --> 02:34:28,399
society

4637
02:34:31,429 --> 02:34:29,920
and you need to make a good offer to

4638
02:34:33,110 --> 02:34:31,439

these individuals and you need to

4639

02:34:35,270 --> 02:34:33,120

structure the relationship between the

4640

02:34:36,630 --> 02:34:35,280

individuals and allow them to grow into

4641

02:34:39,190 --> 02:34:36,640

the part of the organism

4642

02:34:40,230 --> 02:34:39,200

so you introduce humanism and the entire

4643

02:34:42,150 --> 02:34:40,240

idea of

4644

02:34:43,270 --> 02:34:42,160

jesus christ i think is the introduction

4645

02:34:45,670 --> 02:34:43,280

of humanism

4646

02:34:47,429 --> 02:34:45,680

into this hebrew religion and of course

4647

02:34:49,270 --> 02:34:47,439

the hebrew religion has changed later on

4648

02:34:51,670 --> 02:34:49,280

and became more humanist

4649

02:34:53,429 --> 02:34:51,680

in other ways but i think that

4650

02:34:55,990 --> 02:34:53,439

originally the invention or

4651
02:34:57,990 --> 02:34:56,000
the introduction of the concept of jesus

4652
02:35:01,590 --> 02:34:58,000
was exactly this humanization

4653
02:35:04,150 --> 02:35:01,600
of this uh resulting hyperorganism

4654
02:35:06,150 --> 02:35:04,160
and we have been selected to be part of

4655
02:35:08,070 --> 02:35:06,160
an hyperorganism people that didn't play

4656
02:35:09,830 --> 02:35:08,080
their role in the hyperorganism and were

4657
02:35:11,270 --> 02:35:09,840
unwilling to subscribe to it

4658
02:35:13,110 --> 02:35:11,280
they were often killed right they didn't

4659
02:35:15,270 --> 02:35:13,120
have a lot of offspring

4660
02:35:16,950 --> 02:35:15,280
and we did this for a period of many

4661
02:35:18,710 --> 02:35:16,960
many generations literally over more

4662
02:35:21,670 --> 02:35:18,720
than a thousand years

4663
02:35:22,150 --> 02:35:21,680

and so most of the people that live

4664

02:35:24,389 --> 02:35:22,160

today

4665

02:35:25,429 --> 02:35:24,399

on this planet are the result of having

4666

02:35:28,150 --> 02:35:25,439

grown up in such

4667

02:35:29,590 --> 02:35:28,160

systems of organization and so they are

4668

02:35:30,950 --> 02:35:29,600

selected for these systems of

4669

02:35:32,790 --> 02:35:30,960

organizations we are all

4670

02:35:34,389 --> 02:35:32,800

selected for feeding part of something

4671

02:35:35,110 --> 02:35:34,399

that is much larger than a tribe or a

4672

02:35:37,590 --> 02:35:35,120

family

4673

02:35:38,389 --> 02:35:37,600

we are part of a transcendental greater

4674

02:35:40,950 --> 02:35:38,399

whole of

4675

02:35:42,070 --> 02:35:40,960

of some civilization and the old word

4676

02:35:43,510 --> 02:35:42,080

before enlightenment for this

4677

02:35:45,030 --> 02:35:43,520

civilization was god

4678

02:35:47,270 --> 02:35:45,040

we are reluctant to use this word

4679

02:35:50,550 --> 02:35:47,280

because it's so tainted by the

4680

02:35:52,230 --> 02:35:50,560

mythology of the cults that we

4681

02:35:53,990 --> 02:35:52,240

invented or that were invented to

4682

02:35:55,910 --> 02:35:54,000

stabilize the civilizations

4683

02:35:58,309 --> 02:35:55,920

right the religions invented mythologies

4684

02:35:59,990 --> 02:35:58,319

that are not possibly true that don't

4685

02:36:01,750 --> 02:36:00,000

have evidence going for them

4686

02:36:03,830 --> 02:36:01,760

and cannot have possible evidence like

4687

02:36:04,469 --> 02:36:03,840

creator gods cannot have evidence for

4688

02:36:06,309 --> 02:36:04,479

them

4689

02:36:07,750 --> 02:36:06,319

you cannot observe as an inhabitant of

4690

02:36:09,429 --> 02:36:07,760

the universe act

4691

02:36:11,429 --> 02:36:09,439

that relates to its creation and any

4692

02:36:11,910 --> 02:36:11,439

statement thereof will only be a mental

4693

02:36:14,230 --> 02:36:11,920

state

4694

02:36:15,910 --> 02:36:14,240

that the individual has not something

4695

02:36:17,990 --> 02:36:15,920

that is a valid experiment

4696

02:36:19,830 --> 02:36:18,000

that tells you something about reality

4697

02:36:22,469 --> 02:36:19,840

so gods are

4698

02:36:23,910 --> 02:36:22,479

mental constructs they are about as real

4699

02:36:25,030 --> 02:36:23,920

as selves which are also mental

4700

02:36:27,429 --> 02:36:25,040

constructs

4701
02:36:28,150 --> 02:36:27,439
a god is the same gods are as real as

4702
02:36:31,910 --> 02:36:28,160
you

4703
02:36:34,230 --> 02:36:31,920
construct yes gods can

4704
02:36:35,349 --> 02:36:34,240
are basically selves that span multiple

4705
02:36:37,910 --> 02:36:35,359
minds

4706
02:36:39,750 --> 02:36:37,920
and the greek gods are good good

4707
02:36:40,630 --> 02:36:39,760
examples for that so the greek gods are

4708
02:36:42,790 --> 02:36:40,640
stable

4709
02:36:44,070 --> 02:36:42,800
because they are all archetypes they are

4710
02:36:46,469 --> 02:36:44,080
all certain

4711
02:36:48,230 --> 02:36:46,479
extremes of psychology or connections of

4712
02:36:50,870 --> 02:36:48,240
extremes of psychology that give

4713
02:36:52,309 --> 02:36:50,880

rise to some kind of a human archetype

4714

02:36:54,230 --> 02:36:52,319

and this makes them immortal you can

4715

02:36:56,710 --> 02:36:54,240

refer to them

4716

02:36:58,790 --> 02:36:56,720

across human beings and you can treat

4717

02:37:01,670 --> 02:36:58,800

them as if they would exist

4718

02:37:03,190 --> 02:37:01,680

and then they are the demigods like

4719

02:37:05,990 --> 02:37:03,200

hercules

4720

02:37:07,429 --> 02:37:06,000

who exists because he has stories that

4721

02:37:09,590 --> 02:37:07,439

make him immortal

4722

02:37:13,110 --> 02:37:09,600

but this thing that you can live in the

4723

02:37:15,830 --> 02:37:13,120

mind of another person or of an organism

4724

02:37:16,630 --> 02:37:15,840

and move from one mind to another one

4725

02:37:18,389 --> 02:37:16,640

this is what

4726
02:37:20,230 --> 02:37:18,399
makes you a god in this conception of

4727
02:37:22,309 --> 02:37:20,240
the greeks it's not the normative force

4728
02:37:24,950 --> 02:37:22,319
that our religions had

4729
02:37:26,710 --> 02:37:24,960
and in our religions the identification

4730
02:37:27,830 --> 02:37:26,720
of a god is not just it's an immortal

4731
02:37:30,469 --> 02:37:27,840
superhero comic

4732
02:37:31,590 --> 02:37:30,479
character but it's some kind of

4733
02:37:34,630 --> 02:37:31,600
archetype instead

4734
02:37:36,230 --> 02:37:34,640
it's uh it's a singular thing it's

4735
02:37:39,270 --> 02:37:36,240
monotheist god

4736
02:37:40,469 --> 02:37:39,280
uh or it's a subset of it that is like a

4737
02:37:43,590 --> 02:37:40,479
limp of that god

4738
02:37:46,230 --> 02:37:43,600

that is describing what our civilization

4739

02:37:47,990 --> 02:37:46,240

ought to be seen as and the relationship

4740

02:37:50,230 --> 02:37:48,000

that we have to that god is

4741

02:37:51,910 --> 02:37:50,240

established for instance in prayer

4742

02:37:53,830 --> 02:37:51,920

prayer is an activity in which we

4743

02:37:55,750 --> 02:37:53,840

meditate about the properties of god and

4744

02:37:57,990 --> 02:37:55,760

the relationships that we have to god

4745

02:37:59,590 --> 02:37:58,000

and thereby establish god and in the

4746

02:38:01,429 --> 02:37:59,600

process of prayers

4747

02:38:03,190 --> 02:38:01,439

gods can even become conscious if that's

4748

02:38:05,270 --> 02:38:03,200

part of their specification even though

4749

02:38:07,349 --> 02:38:05,280

they use the hardware of the human brain

4750

02:38:08,710 --> 02:38:07,359

of the individual human brain so in some

4751

02:38:11,429 --> 02:38:08,720

sense prayer works

4752

02:38:12,630 --> 02:38:11,439

even though the god doesn't exist in the

4753

02:38:15,030 --> 02:38:12,640

physicalist sense

4754

02:38:16,630 --> 02:38:15,040

it exists in some abstract sense yes of

4755

02:38:18,309 --> 02:38:16,640

course the prayer changes the

4756

02:38:19,830 --> 02:38:18,319

relationships that people have to each

4757

02:38:21,349 --> 02:38:19,840

other and the identifications that

4758

02:38:22,870 --> 02:38:21,359

people have they change what people

4759

02:38:24,309 --> 02:38:22,880

think is right and normal and good and

4760

02:38:25,750 --> 02:38:24,319

what they want to do

4761

02:38:27,670 --> 02:38:25,760

and they change the way they interact

4762

02:38:28,469 --> 02:38:27,680

how they share resources do you pray

4763

02:38:31,990 --> 02:38:28,479

first

4764

02:38:33,830 --> 02:38:32,000

no you meditate yes and

4765

02:38:35,670 --> 02:38:33,840

i could say that there is maybe

4766

02:38:36,870 --> 02:38:35,680

everybody prays in a certain way in the

4767

02:38:38,870 --> 02:38:36,880

sense that we try to

4768

02:38:40,309 --> 02:38:38,880

spend time in establishing our

4769

02:38:41,429 --> 02:38:40,319

relationship to the greater whole and

4770

02:38:43,270 --> 02:38:41,439

reflect on that

4771

02:38:45,030 --> 02:38:43,280

so i would say that in a very secular

4772

02:38:49,510 --> 02:38:45,040

way i'm praying

4773

02:38:51,830 --> 02:38:49,520

but i grew up in in a world where

4774

02:38:53,750 --> 02:38:51,840

the religious cults were seen as

4775

02:38:55,190 --> 02:38:53,760

repulsive because they are antagonistic

4776

02:38:57,429 --> 02:38:55,200

to rationality

4777

02:38:59,190 --> 02:38:57,439

and i take issue with the

4778

02:39:02,469 --> 02:38:59,200

anti-rationalism of the way the

4779

02:39:05,190 --> 02:39:02,479

mythology of religions is enforced

4780

02:39:07,429 --> 02:39:05,200

so somebody who forces me to believe

4781

02:39:09,349 --> 02:39:07,439

things that are manifestly untrue

4782

02:39:11,670 --> 02:39:09,359

just to have a checksum on my mind that

4783

02:39:13,910 --> 02:39:11,680

distinguishes me from non-believers

4784

02:39:15,830 --> 02:39:13,920

is violating me that's why i cannot be

4785

02:39:17,830 --> 02:39:15,840

part of such a cult

4786

02:39:19,590 --> 02:39:17,840

at least not in my present state i can

4787

02:39:21,349 --> 02:39:19,600

only be part of something that is

4788

02:39:24,309 --> 02:39:21,359

compatible with being rational

4789

02:39:25,110 --> 02:39:24,319

and this means retaining autonomy over

4790

02:39:32,790 --> 02:39:25,120

my

4791

02:39:34,070 --> 02:39:32,800

morality identity i cannot be part of

4792

02:39:37,510 --> 02:39:34,080

something

4793

02:39:37,990 --> 02:39:37,520

and i there are groups that act like

4794

02:39:39,030 --> 02:39:38,000

this

4795

02:39:40,630 --> 02:39:39,040

and you could say that they are

4796

02:39:41,830 --> 02:39:40,640

spiritual that but they're probably not

4797

02:39:43,190 --> 02:39:41,840

religious at least not in the

4798

02:39:44,710 --> 02:39:43,200

traditional sense because they don't

4799

02:39:45,990 --> 02:39:44,720

have organized religion for the most

4800

02:39:48,870 --> 02:39:46,000

part

4801
02:39:50,790 --> 02:39:48,880
but so uh to get back to this a person

4802
02:39:51,670 --> 02:39:50,800
who wants to end all life it tends to be

4803
02:39:53,830 --> 02:39:51,680
a person

4804
02:39:55,110 --> 02:39:53,840
who is not disinterested in life it

4805
02:39:57,110 --> 02:39:55,120
tends to be a person

4806
02:39:58,309 --> 02:39:57,120
who does take an interest in the greater

4807
02:40:00,309 --> 02:39:58,319
whole

4808
02:40:02,309 --> 02:40:00,319
because uh the actions of that

4809
02:40:02,710 --> 02:40:02,319
individual affect other individuals

4810
02:40:04,550 --> 02:40:02,720
right

4811
02:40:07,349 --> 02:40:04,560
they want to end life and experience for

4812
02:40:08,790 --> 02:40:07,359
all of them right and so this means that

4813
02:40:11,110 --> 02:40:08,800

there is a relationship that this

4814

02:40:13,910 --> 02:40:11,120

individual has to the greater whole

4815

02:40:15,269 --> 02:40:13,920

and it's one of uh disenchantment it's

4816

02:40:17,990 --> 02:40:15,279

one of opposition

4817

02:40:18,469 --> 02:40:18,000

it's one where that individual decides

4818

02:40:25,510 --> 02:40:18,479

that

4819

02:40:27,030 --> 02:40:25,520

morally unjustified and this can happen

4820

02:40:27,830 --> 02:40:27,040

right if you're for instance if you're a

4821

02:40:29,590 --> 02:40:27,840

kid that is

4822

02:40:31,349 --> 02:40:29,600

mistreated and bullied by everyone and

4823

02:40:31,830 --> 02:40:31,359

you don't have a space in the world at

4824

02:40:33,670 --> 02:40:31,840

all

4825

02:40:35,269 --> 02:40:33,680

and you decide it's not your fault and

4826

02:40:38,389 --> 02:40:35,279

so you should die

4827

02:40:40,230 --> 02:40:38,399

but it's everybody else's fault and the

4828

02:40:42,070 --> 02:40:40,240

way that everybody else plays and

4829

02:40:43,670 --> 02:40:42,080

maybe it's the way that everybody else

4830

02:40:45,429 --> 02:40:43,680

is organized by the forces of the

4831

02:40:46,870 --> 02:40:45,439

universe and evolution and you can just

4832

02:40:48,469 --> 02:40:46,880

not make peace with that

4833

02:40:50,550 --> 02:40:48,479

maybe you radically oppose it and you

4834

02:40:53,110 --> 02:40:50,560

want to end it

4835

02:40:54,950 --> 02:40:53,120

and that experientially might uh

4836

02:40:57,190 --> 02:40:54,960

manifest itself as

4837

02:40:59,110 --> 02:40:57,200

running amok so it's a result of not

4838

02:41:00,630 --> 02:40:59,120

just a loss of meaning but an inversion

4839

02:41:04,070 --> 02:41:00,640

of meaning it's

4840

02:41:05,590 --> 02:41:04,080

it's an inversion of this spiritual need

4841

02:41:07,670 --> 02:41:05,600

that people have but it's still a

4842

02:41:09,990 --> 02:41:07,680

spiritual need can you expound on that

4843

02:41:12,790 --> 02:41:10,000

it's an inversion of the spiritual need

4844

02:41:13,269 --> 02:41:12,800

i think that uh in our society that has

4845

02:41:16,070 --> 02:41:13,279

lost

4846

02:41:17,670 --> 02:41:16,080

its future and uh you cannot have a

4847

02:41:18,710 --> 02:41:17,680

civilization without planning for a

4848

02:41:20,550 --> 02:41:18,720

future because this is what a

4849

02:41:22,230 --> 02:41:20,560

civilization is for and about

4850

02:41:23,990 --> 02:41:22,240

right in the niche in sense of the death

4851

02:41:26,790 --> 02:41:24,000

of a higher value

4852

02:41:28,950 --> 02:41:26,800

uh no it's basically a civilization is

4853

02:41:31,670 --> 02:41:28,960

the thing which makes you

4854

02:41:32,950 --> 02:41:31,680

build a cathedral over 500 years it's

4855

02:41:34,309 --> 02:41:32,960

something that allows you to act on

4856

02:41:36,070 --> 02:41:34,319

long-term plans it's something that

4857

02:41:36,550 --> 02:41:36,080

allows you to organize things in such a

4858

02:41:38,469 --> 02:41:36,560

way

4859

02:41:39,830 --> 02:41:38,479

that your grand grandchildren will have

4860

02:41:42,790 --> 02:41:39,840

a way of living

4861

02:41:44,550 --> 02:41:42,800

and we have given up on that our future

4862

02:41:46,070 --> 02:41:44,560

is changing much more rapidly than our

4863

02:41:47,510 --> 02:41:46,080

models of the future and so we have

4864

02:41:49,990 --> 02:41:47,520

stopped tracking the future

4865

02:41:51,750 --> 02:41:50,000

but what we can track now is that there

4866

02:41:53,429 --> 02:41:51,760

is not much future left possibly at

4867

02:41:53,910 --> 02:41:53,439

least we don't see how it can play out

4868

02:41:55,590 --> 02:41:53,920

well

4869

02:41:57,429 --> 02:41:55,600

we don't have strategies to deal with

4870

02:41:58,469 --> 02:41:57,439

the existential problems that our future

4871

02:42:01,030 --> 02:41:58,479

is bringing

4872

02:42:01,670 --> 02:42:01,040

we realize that the summer is awkward

4873

02:42:03,190 --> 02:42:01,680

that's

4874

02:42:05,750 --> 02:42:03,200

one of the worst summers that we ever

4875

02:42:07,510 --> 02:42:05,760

had but we also

4876

02:42:09,590 --> 02:42:07,520

realized that this is going to be one of

4877

02:42:10,630 --> 02:42:09,600

the coolest summers of the next hundred

4878

02:42:12,630 --> 02:42:10,640

years

4879

02:42:14,070 --> 02:42:12,640

we are unable to imagine what the summer

4880

02:42:16,630 --> 02:42:14,080

of 2025

4881

02:42:18,309 --> 02:42:16,640

will be like and when we think about it

4882

02:42:19,750 --> 02:42:18,319

we are terrified because we don't

4883

02:42:21,349 --> 02:42:19,760

prepare for it we don't have ways for

4884

02:42:23,269 --> 02:42:21,359

dealing with something that is worse

4885

02:42:24,630 --> 02:42:23,279

than the status quo what is that this is

4886

02:42:26,710 --> 02:42:24,640

spirituality

4887

02:42:28,150 --> 02:42:26,720

so basically we live in a world that has

4888

02:42:31,190 --> 02:42:28,160

lost its future

4889

02:42:34,070 --> 02:42:31,200

and as a result we have lost our culture

4890

02:42:34,469 --> 02:42:34,080

and so our spirituality our innate need

4891

02:42:36,469 --> 02:42:34,479

for

4892

02:42:38,950 --> 02:42:36,479

being part of a culture that is giving

4893

02:42:41,269 --> 02:42:38,960

rise to a sentient civilization

4894

02:42:42,630 --> 02:42:41,279

this has become a phantom limp and

4895

02:42:44,230 --> 02:42:42,640

that's why people are drawn to

4896

02:42:46,870 --> 02:42:44,240

superstition to

4897

02:42:48,950 --> 02:42:46,880

uh to feel that phantom lamp so this

4898

02:42:52,870 --> 02:42:48,960

phantom lamp attaches itself to

4899

02:42:55,510 --> 02:42:52,880

ideas of a conscious universe or of

4900

02:42:56,230 --> 02:42:55,520

immaterial deities that uh care about

4901
02:42:59,349 --> 02:42:56,240
you in some

4902
02:43:02,550 --> 02:42:59,359
magical way and uh

4903
02:43:03,030 --> 02:43:02,560
this is all of course this is

4904
02:43:04,469 --> 02:43:03,040
uh

4905
02:43:06,389 --> 02:43:04,479
this is really the expression of that

4906
02:43:08,389 --> 02:43:06,399
phantom lump the thing that is

4907
02:43:09,670 --> 02:43:08,399
is real is this is life on the planet

4908
02:43:11,349 --> 02:43:09,680
it's the ecosystem

4909
02:43:12,790 --> 02:43:11,359
and it's our part in the ecosystem and

4910
02:43:14,710 --> 02:43:12,800
it's our civilization

4911
02:43:15,910 --> 02:43:14,720
that organizes us as part of that

4912
02:43:17,910 --> 02:43:15,920
ecosystem

4913
02:43:19,670 --> 02:43:17,920

and if we cannot maintain that then

4914

02:43:24,469 --> 02:43:19,680

everything becomes meaningless and we

4915

02:43:28,309 --> 02:43:26,630

what do you disagree about with peterson

4916

02:43:30,630 --> 02:43:28,319

you mentioned peterson's

4917

02:43:32,070 --> 02:43:30,640

conception of the high school shooters

4918

02:43:34,230 --> 02:43:32,080

as saying they

4919

02:43:36,150 --> 02:43:34,240

are objecting to god and you said well

4920

02:43:37,990 --> 02:43:36,160

that's correct in some sense there are

4921

02:43:39,830 --> 02:43:38,000

many many aspects where i don't uh

4922

02:43:41,429 --> 02:43:39,840

really agree with peterson it's i just

4923

02:43:42,950 --> 02:43:41,439

referred to him because he

4924

02:43:44,550 --> 02:43:42,960

uh is one of the few public

4925

02:43:45,510 --> 02:43:44,560

intellectuals we have left for better or

4926

02:43:46,950 --> 02:43:45,520

verse right

4927

02:43:48,550 --> 02:43:46,960

i'm curious what ways do you defer we

4928

02:43:49,830 --> 02:43:48,560

talked about dennett and you you said

4929

02:43:50,870 --> 02:43:49,840

you disagree with him in some sense

4930

02:43:53,349 --> 02:43:50,880

because he's incomplete

4931

02:43:54,870 --> 02:43:53,359

what about peterson that's more

4932

02:43:56,710 --> 02:43:54,880

commission right that's more old mission

4933

02:43:58,710 --> 02:43:56,720

rather than commission

4934

02:44:00,389 --> 02:43:58,720

uh i refer to peterson because he is a

4935

02:44:01,590 --> 02:44:00,399

common point of reference we all know

4936

02:44:02,790 --> 02:44:01,600

about him right now no that's fine

4937

02:44:03,590 --> 02:44:02,800

that's fine but i'm curious where you

4938

02:44:07,030 --> 02:44:03,600

disagree

4939

02:44:10,150 --> 02:44:07,040

so um and where you

4940

02:44:10,710 --> 02:44:10,160

agree yes so uh yeah the interesting

4941

02:44:12,070 --> 02:44:10,720

thing is

4942

02:44:13,830 --> 02:44:12,080

for me when i have to talk about

4943

02:44:14,710 --> 02:44:13,840

disagreement because disagreement is the

4944

02:44:16,630 --> 02:44:14,720

default state

4945

02:44:17,990 --> 02:44:16,640

between mines isn't it it's only where

4946

02:44:20,550 --> 02:44:18,000

we can establish agreement

4947

02:44:21,110 --> 02:44:20,560

when we are independent thinkers where

4948

02:44:24,309 --> 02:44:21,120

we

4949

02:44:27,110 --> 02:44:24,319

same way

4950

02:44:27,990 --> 02:44:27,120

so uh peterson thinks that the best way

4951
02:44:31,910 --> 02:44:28,000
to

4952
02:44:32,870 --> 02:44:31,920
state religion with some kind of

4953
02:44:35,429 --> 02:44:32,880
aggregate war

4954
02:44:35,990 --> 02:44:35,439
is to make a stand and to expose

4955
02:44:39,670 --> 02:44:36,000
yourself

4956
02:44:40,389 --> 02:44:39,680
and uh i am not sure if i agree with

4957
02:44:42,469 --> 02:44:40,399
that

4958
02:44:46,150 --> 02:44:42,479
so basically he is fighting a cultural

4959
02:44:47,990 --> 02:44:46,160
war in an ineffectual way i think there

4960
02:44:50,469 --> 02:44:48,000
is also a deeper level

4961
02:44:52,790 --> 02:44:50,479
peterson thinks that growing up consists

4962
02:44:56,790 --> 02:44:52,800
in making a sacrifice

4963
02:44:58,710 --> 02:44:56,800

and the sacrifice is self-actualization

4964

02:45:00,230 --> 02:44:58,720

he would like to be happy but he cannot

4965

02:45:01,990 --> 02:45:00,240

afford to be happy but it was it's

4966

02:45:04,710 --> 02:45:02,000

incompatible with being an adult and

4967

02:45:08,070 --> 02:45:04,720

doing the things that an adult has to do

4968

02:45:09,630 --> 02:45:08,080

and his sacrifice is incomplete he has

4969

02:45:11,190 --> 02:45:09,640

not sacrificed his need for

4970

02:45:12,630 --> 02:45:11,200

self-actualization

4971

02:45:14,230 --> 02:45:12,640

and that's why he appears to be so

4972

02:45:15,990 --> 02:45:14,240

bitter right

4973

02:45:17,349 --> 02:45:16,000

if he had made the sacrifice he wouldn't

4974

02:45:19,070 --> 02:45:17,359

be bitter

4975

02:45:21,110 --> 02:45:19,080

would sacrifice sacrifice of

4976

02:45:24,469 --> 02:45:21,120

self-actualization yes

4977

02:45:26,309 --> 02:45:24,479

so he would become a priest

4978

02:45:28,870 --> 02:45:26,319

he would have that serene state of

4979

02:45:30,309 --> 02:45:28,880

somebody who has not lost anything

4980

02:45:33,429 --> 02:45:30,319

because he doesn't need anything

4981

02:45:34,150 --> 02:45:33,439

what he doesn't have right this if you

4982

02:45:37,030 --> 02:45:34,160

look at the

4983

02:45:37,590 --> 02:45:37,040

archetypal priest it's a person that is

4984

02:45:39,269 --> 02:45:37,600

serene

4985

02:45:41,190 --> 02:45:39,279

that is smiling because they are at

4986

02:45:43,110 --> 02:45:41,200

peace with themselves and the world

4987

02:45:44,790 --> 02:45:43,120

and they might be suffering momentarily

4988

02:45:47,670 --> 02:45:44,800

because the unbelievers

4989

02:45:48,870 --> 02:45:47,680

crucify him but apart from the moments

4990

02:45:52,630 --> 02:45:48,880

of

4991

02:45:54,469 --> 02:45:52,640

acute pain or the

4992

02:45:56,710 --> 02:45:54,479

moments of compassion for their flock

4993

02:45:58,150 --> 02:45:56,720

when they are involved in their

4994

02:46:00,150 --> 02:45:58,160

dealings with the world and try to help

4995

02:46:01,510 --> 02:46:00,160

them and fail at doing so because not

4996

02:46:04,309 --> 02:46:01,520

all things can be helped

4997

02:46:05,590 --> 02:46:04,319

right the priest is supposed to be okay

4998

02:46:07,429 --> 02:46:05,600

with what he does

4999

02:46:08,790 --> 02:46:07,439

and peterson is not okay with what he

5000

02:46:12,309 --> 02:46:08,800

does he is

5001
02:46:14,469 --> 02:46:12,319
suffering because he uh has retained his

5002
02:46:16,469 --> 02:46:14,479
identity

5003
02:46:18,309 --> 02:46:16,479
that the one that he thinks he has uh

5004
02:46:19,670 --> 02:46:18,319
sacrificed he hasn't

5005
02:46:20,950 --> 02:46:19,680
yes basically trying to understand it

5006
02:46:21,510 --> 02:46:20,960
i'm trying to understand this so you're

5007
02:46:23,349 --> 02:46:21,520
saying that

5008
02:46:24,630 --> 02:46:23,359
he has an identity and because he's

5009
02:46:25,670 --> 02:46:24,640
holding on to it it's like a want and

5010
02:46:26,389 --> 02:46:25,680
you should get rid of your wants and

5011
02:46:29,670 --> 02:46:26,399
then you'll be

5012
02:46:31,590 --> 02:46:29,680
placid and serene and tranquil yes

5013
02:46:33,269 --> 02:46:31,600

so he basically he's doing something

5014

02:46:34,790 --> 02:46:33,279

that he has not fully internalized

5015

02:46:37,990 --> 02:46:34,800

himself

5016

02:46:40,309 --> 02:46:38,000

he is expressing the tension between

5017

02:46:41,349 --> 02:46:40,319

what he thinks he needs to be doing and

5018

02:46:43,750 --> 02:46:41,359

what he does

5019

02:46:44,630 --> 02:46:43,760

and what he feels would reward him for

5020

02:46:50,870 --> 02:46:44,640

doing

5021

02:46:55,269 --> 02:46:53,110

and uh there is of course this uh other

5022

02:46:57,269 --> 02:46:55,279

thing that uh

5023

02:46:58,389 --> 02:46:57,279

he is acting on certain incentives in

5024

02:47:00,630 --> 02:46:58,399

this game

5025

02:47:02,550 --> 02:47:00,640

and the question is uh are these

5026
02:47:05,429 --> 02:47:02,560
incentives completely pure

5027
02:47:07,349 --> 02:47:05,439
so he is a publicist that is filling a

5028
02:47:11,830 --> 02:47:07,359
certain niche a certain vacuum

5029
02:47:13,670 --> 02:47:11,840
he is uh trying to give people values

5030
02:47:16,150 --> 02:47:13,680
uh he is trying to a protective

5031
02:47:18,070 --> 02:47:16,160
authority in a time that needs authority

5032
02:47:20,309 --> 02:47:18,080
and he might not be projecting exactly

5033
02:47:21,910 --> 02:47:20,319
the right authority of fitting authority

5034
02:47:23,910 --> 02:47:21,920
but he's interacting with the fact that

5035
02:47:24,469 --> 02:47:23,920
the millennials are the first generation

5036
02:47:28,790 --> 02:47:24,479
since

5037
02:47:30,469 --> 02:47:28,800
uh the post-war generation that are

5038
02:47:31,349 --> 02:47:30,479

authoritarian again right every

5039

02:47:34,389 --> 02:47:31,359

generation

5040

02:47:36,550 --> 02:47:34,399

after world war ii was liberal why are

5041

02:47:38,230 --> 02:47:36,560

we authoritarian

5042

02:47:39,830 --> 02:47:38,240

um i think that the millennials became

5043

02:47:41,670 --> 02:47:39,840

authoritarian because they realized that

5044

02:47:43,910 --> 02:47:41,680

liberalism has failed them

5045

02:47:45,750 --> 02:47:43,920

it has failed at uh saving the

5046

02:47:46,950 --> 02:47:45,760

environment at uh

5047

02:47:49,110 --> 02:47:46,960

offering resources and

5048

02:47:51,269 --> 02:47:49,120

self-actualization to everybody

5049

02:47:53,030 --> 02:47:51,279

so now we need to go to some

5050

02:47:54,630 --> 02:47:53,040

authoritarian system where we control

5051
02:47:55,349 --> 02:47:54,640
what people think and feel and how they

5052
02:47:58,469 --> 02:47:55,359
interact

5053
02:48:00,230 --> 02:47:58,479
and the result

5054
02:48:02,469 --> 02:48:00,240
of the world the insufficiency of the

5055
02:48:04,710 --> 02:48:02,479
world is no longer seen as the

5056
02:48:06,230 --> 02:48:04,720
uh absence uh the result of the absence

5057
02:48:07,910 --> 02:48:06,240
of freedom right the

5058
02:48:09,510 --> 02:48:07,920
post-war generation saw that the

5059
02:48:11,510 --> 02:48:09,520
problems of the world were that we

5060
02:48:13,750 --> 02:48:11,520
didn't have enough freedom

5061
02:48:15,190 --> 02:48:13,760
we needed to uh free individuals for

5062
02:48:17,349 --> 02:48:15,200
instance we we should have

5063
02:48:18,550 --> 02:48:17,359

the ability to engage freely in love and

5064

02:48:21,269 --> 02:48:18,560

sexuality

5065

02:48:22,790 --> 02:48:21,279

to self-actualize and the problems that

5066

02:48:23,670 --> 02:48:22,800

we had in relationship was because we

5067

02:48:26,389 --> 02:48:23,680

didn't have enough

5068

02:48:26,790 --> 02:48:26,399

freedom in our relationships and now and

5069

02:48:30,150 --> 02:48:26,800

now

5070

02:48:30,469 --> 02:48:30,160

uh the results of injustice in the world

5071

02:48:32,550 --> 02:48:30,479

are

5072

02:48:34,150 --> 02:48:32,560

seen by many millennials as the result

5073

02:48:36,630 --> 02:48:34,160

of a surplus of freedom

5074

02:48:38,150 --> 02:48:36,640

well oppression is the flip side or

5075

02:48:41,429 --> 02:48:38,160

referring to the

5076
02:48:44,150 --> 02:48:41,439
that's that's privileged or this yes yes

5077
02:48:44,790 --> 02:48:44,160
it's basically the uh the now the issue

5078
02:48:47,429 --> 02:48:44,800
that we

5079
02:48:50,150 --> 02:48:47,439
need to fight is privilege we don't need

5080
02:48:52,630 --> 02:48:50,160
and privilege is a surplus of freedom

5081
02:48:53,269 --> 02:48:52,640
and if we can remove the privilege as a

5082
02:48:54,950 --> 02:48:53,279
result

5083
02:48:57,110 --> 02:48:54,960
we get less oppression in a more just

5084
02:48:59,190 --> 02:48:57,120
world right but it also means basically

5085
02:49:00,230 --> 02:48:59,200
we have to limit the self-expression of

5086
02:49:02,469 --> 02:49:00,240
the

5087
02:49:03,349 --> 02:49:02,479
of people and this is opposed to

5088
02:49:05,910 --> 02:49:03,359

liberalism

5089

02:49:07,670 --> 02:49:05,920

what if they say that hey we just want

5090

02:49:10,230 --> 02:49:07,680

freedom for ourselves you have freedom

5091

02:49:12,389 --> 02:49:10,240

all we're doing is trying to

5092

02:49:13,510 --> 02:49:12,399

promulgate freedom just to those who are

5093

02:49:14,870 --> 02:49:13,520

on the oppressed end

5094

02:49:16,870 --> 02:49:14,880

yeah then there would be liberals there

5095

02:49:19,429 --> 02:49:16,880

would be people like for instance uh the

5096

02:49:21,349 --> 02:49:19,439

gay movement in the 1970s which said

5097

02:49:23,830 --> 02:49:21,359

uh you have freedom to marry for

5098

02:49:27,750 --> 02:49:23,840

instance and we also want to marry

5099

02:49:30,230 --> 02:49:27,760

right but social justice is for instance

5100

02:49:31,349 --> 02:49:30,240

uh if you are uh heterosexual you cannot

5101

02:49:32,309 --> 02:49:31,359

kiss in public because that's

5102

02:49:34,070 --> 02:49:32,319

heteronormative

5103

02:49:36,790 --> 02:49:34,080

i see yes and it's insulting those

5104

02:49:39,510 --> 02:49:36,800

people which cannot kiss in public

5105

02:49:39,990 --> 02:49:39,520

right and uh if you have an ability uh

5106

02:49:42,230 --> 02:49:40,000

to

5107

02:49:43,110 --> 02:49:42,240

do a certain thing you cannot uh

5108

02:49:45,269 --> 02:49:43,120

construct

5109

02:49:46,790 --> 02:49:45,279

a life around this ability because

5110

02:49:49,110 --> 02:49:46,800

that's ableist

5111

02:49:50,950 --> 02:49:49,120

right so instead we have to level the

5112

02:49:52,150 --> 02:49:50,960

playing field we have to build a society

5113

02:49:53,990 --> 02:49:52,160

that gives a

5114

02:49:56,070 --> 02:49:54,000

level playing round to those which have

5115

02:49:58,870 --> 02:49:56,080

no ability

5116

02:50:00,950 --> 02:49:58,880

and this leads uh into some apparent

5117

02:50:03,030 --> 02:50:00,960

contradictions but ideologies have no

5118

02:50:04,150 --> 02:50:03,040

difficulties with this contradiction and

5119

02:50:05,910 --> 02:50:04,160

the main issue is

5120

02:50:07,990 --> 02:50:05,920

that the rationality of this liberal

5121

02:50:09,429 --> 02:50:08,000

system is still a rationality that even

5122

02:50:11,269 --> 02:50:09,439

though it's internally logically

5123

02:50:12,469 --> 02:50:11,279

logical is a rationality that doesn't

5124

02:50:13,670 --> 02:50:12,479

serve most people

5125

02:50:15,750 --> 02:50:13,680

and it seems to be something that

5126
02:50:18,710 --> 02:50:15,760
peterson doesn't seem to understand

5127
02:50:21,190 --> 02:50:18,720
you cannot force people to abide by the

5128
02:50:23,110 --> 02:50:21,200
logic of a system by which they lose

5129
02:50:25,670 --> 02:50:23,120
but why should they play a game by which

5130
02:50:26,870 --> 02:50:25,680
they lose why should you create criteria

5131
02:50:29,349 --> 02:50:26,880
for getting a job

5132
02:50:30,790 --> 02:50:29,359
that require the equivalent of an

5133
02:50:33,110 --> 02:50:30,800
aptitude test

5134
02:50:34,790 --> 02:50:33,120
that you fail and if that job is the

5135
02:50:37,590 --> 02:50:34,800
only way that you can feed your kids

5136
02:50:39,990 --> 02:50:37,600
right uh if for instance becoming a stem

5137
02:50:41,429 --> 02:50:40,000
scientist or a machine learning engineer

5138
02:50:43,510 --> 02:50:41,439

is one of the main ways that you can

5139

02:50:46,230 --> 02:50:43,520

have social mobility and late stage

5140

02:50:48,389 --> 02:50:46,240

capitalism in the u.s

5141

02:50:49,510 --> 02:50:48,399

and you limit this to a certain subset

5142

02:50:51,269 --> 02:50:49,520

of the population

5143

02:50:53,670 --> 02:50:51,279

isn't that massively unfair to most

5144

02:50:54,630 --> 02:50:53,680

people in society and so why should most

5145

02:50:56,630 --> 02:50:54,640

people

5146

02:50:58,469 --> 02:50:56,640

subscribe to the criteria by which you

5147

02:51:00,630 --> 02:50:58,479

give out these jobs

5148

02:51:01,750 --> 02:51:00,640

and so you will find yourself with a

5149

02:51:02,630 --> 02:51:01,760

movement that's the answer what's the

5150

02:51:04,550 --> 02:51:02,640

alternative

5151
02:51:05,830 --> 02:51:04,560
i don't know what the answer is but i

5152
02:51:07,830 --> 02:51:05,840
think that

5153
02:51:09,429 --> 02:51:07,840
so i suspect that peterson is not going

5154
02:51:11,190 --> 02:51:09,439
to solve the problem

5155
02:51:12,870 --> 02:51:11,200
right he is telling these people you are

5156
02:51:14,710 --> 02:51:12,880
wrong then you try to change the

5157
02:51:15,590 --> 02:51:14,720
criteria for how we give our jobs in

5158
02:51:18,710 --> 02:51:15,600
stem

5159
02:51:21,990 --> 02:51:18,720
but he is not addressing the reason why

5160
02:51:24,389 --> 02:51:22,000
they want to change the criteria

5161
02:51:25,670 --> 02:51:24,399
and the reason is once more the reason

5162
02:51:26,870 --> 02:51:25,680
is social inequality

5163
02:51:29,590 --> 02:51:26,880

the reason is that they don't know how

5164

02:51:33,910 --> 02:51:29,600

to feed their children

5165

02:51:37,990 --> 02:51:37,110

uh i don't see a systemic order in which

5166

02:51:40,309 --> 02:51:38,000

ubi works

5167

02:51:41,590 --> 02:51:40,319

so i i think that if you want to

5168

02:51:44,710 --> 02:51:41,600

introduce ubi you

5169

02:51:46,710 --> 02:51:44,720

ought to produce a simulation

5170

02:51:48,630 --> 02:51:46,720

of the economic environment in which the

5171

02:51:50,870 --> 02:51:48,640

ubi is sustainable

5172

02:51:52,469 --> 02:51:50,880

i think that ubi is the attempt to

5173

02:51:54,870 --> 02:51:52,479

perpetuate a system

5174

02:51:56,070 --> 02:51:54,880

under changed conditions at the moment

5175

02:51:57,990 --> 02:51:56,080

uh wages

5176
02:51:59,670 --> 02:51:58,000
salary is the way that we allocate

5177
02:52:01,830 --> 02:51:59,680
resources to individuals

5178
02:52:03,030 --> 02:52:01,840
right and they are also a way in which

5179
02:52:04,309 --> 02:52:03,040
we evaluate the

5180
02:52:06,150 --> 02:52:04,319
value of the contribution of the

5181
02:52:08,469 --> 02:52:06,160
individual to society

5182
02:52:10,070 --> 02:52:08,479
and uh they are a way to discipline

5183
02:52:12,309 --> 02:52:10,080
individuals and their way to integrate

5184
02:52:14,710 --> 02:52:12,319
individuals into teams and groups into

5185
02:52:15,990 --> 02:52:14,720
society as a whole and measure the value

5186
02:52:18,230 --> 02:52:16,000
of their contribution

5187
02:52:19,830 --> 02:52:18,240
and as soon as you automate things and

5188
02:52:22,230 --> 02:52:19,840

globalize and outsource

5189

02:52:23,429 --> 02:52:22,240

uh this falls apart and this is what we

5190

02:52:25,990 --> 02:52:23,439

witnessed to some degree

5191

02:52:26,710 --> 02:52:26,000

it never worked perfectly well but now

5192

02:52:28,150 --> 02:52:26,720

it works

5193

02:52:30,389 --> 02:52:28,160

less than ever because we have more

5194

02:52:32,309 --> 02:52:30,399

productivity than ever and people don't

5195

02:52:35,590 --> 02:52:32,319

live better than ever

5196

02:52:37,990 --> 02:52:35,600

and so how do we deal with that and

5197

02:52:38,630 --> 02:52:38,000

so the idea is we give people salaries

5198

02:52:41,429 --> 02:52:38,640

but they are

5199

02:52:42,389 --> 02:52:41,439

independent of what they contribute to

5200

02:52:45,349 --> 02:52:42,399

society

5201
02:52:45,670 --> 02:52:45,359
and independent of productivity and uh

5202
02:52:47,190 --> 02:52:45,680
this

5203
02:52:49,030 --> 02:52:47,200
is probably sounds like great for

5204
02:52:51,269 --> 02:52:49,040
artists yes

5205
02:52:53,269 --> 02:52:51,279
of course because artists are largely

5206
02:52:56,070 --> 02:52:53,279
not going to change what they do

5207
02:52:56,550 --> 02:52:56,080
so uh in some sense if you give an

5208
02:52:58,469 --> 02:52:56,560
artist

5209
02:52:59,830 --> 02:52:58,479
a salary they are still going to do

5210
02:53:00,950 --> 02:52:59,840
their art because they are intrinsically

5211
02:53:02,950 --> 02:53:00,960
motivated

5212
02:53:04,150 --> 02:53:02,960
and uh it's very difficult to force an

5213
02:53:06,070 --> 02:53:04,160

artist to not do art

5214

02:53:07,750 --> 02:53:06,080

at least the artists will suffer a lot

5215

02:53:10,150 --> 02:53:07,760

and the artists will

5216

02:53:11,590 --> 02:53:10,160

typically play along with society

5217

02:53:13,349 --> 02:53:11,600

arguably a society that

5218

02:53:14,710 --> 02:53:13,359

consists entirely of artists will not

5219

02:53:17,269 --> 02:53:14,720

work very well

5220

02:53:18,710 --> 02:53:17,279

because many of the other things will be

5221

02:53:20,710 --> 02:53:18,720

left undone

5222

02:53:22,550 --> 02:53:20,720

right and a lot of society requires that

5223

02:53:24,070 --> 02:53:22,560

people do things despite not wanting to

5224

02:53:25,990 --> 02:53:24,080

do them

5225

02:53:27,349 --> 02:53:26,000

people that collect the garbage probably

5226

02:53:29,269 --> 02:53:27,359

need to be paid very well and they

5227

02:53:31,670 --> 02:53:29,279

deserve to be paid very well because

5228

02:53:33,349 --> 02:53:31,680

nobody wants to do this voluntarily

5229

02:53:34,389 --> 02:53:33,359

unless it's your own garbage and nobody

5230

02:53:35,990 --> 02:53:34,399

else does it then

5231

02:53:38,070 --> 02:53:36,000

of course somebody will eventually need

5232

02:53:40,150 --> 02:53:38,080

to do it so

5233

02:53:41,990 --> 02:53:40,160

how can we perform this allocation of

5234

02:53:44,150 --> 02:53:42,000

resources how can we make sure that the

5235

02:53:46,870 --> 02:53:44,160

garbage gets collected

5236

02:53:48,550 --> 02:53:46,880

and how can we make sure that people

5237

02:53:49,830 --> 02:53:48,560

have skin in the game in our larger

5238

02:53:53,030 --> 02:53:49,840

enterprises

5239

02:53:54,630 --> 02:53:53,040

in a system where we have ubi so i

5240

02:53:55,349 --> 02:53:54,640

suspect that something like a citizen

5241

02:54:02,150 --> 02:53:55,359

income

5242

02:54:05,510 --> 02:54:02,160

and communities decide uh what kind of

5243

02:54:07,030 --> 02:54:05,520

labor you perform and this money can be

5244

02:54:08,070 --> 02:54:07,040

given out as stipends for instance if

5245

02:54:09,670 --> 02:54:08,080

you want to write a book and your

5246

02:54:11,990 --> 02:54:09,680

community says yes sure write this book

5247

02:54:14,630 --> 02:54:12,000

it's a useful thing to do

5248

02:54:15,030 --> 02:54:14,640

uh right uh but but we still have a way

5249

02:54:20,230 --> 02:54:15,040

to

5250

02:54:22,630 --> 02:54:20,240

community management

5251

02:54:23,990 --> 02:54:22,640

or into education i think that would be

5252

02:54:25,269 --> 02:54:24,000

a good thing to have

5253

02:54:27,190 --> 02:54:25,279

i see a big danger in the

5254

02:54:29,030 --> 02:54:27,200

particularization of society if people

5255

02:54:29,590 --> 02:54:29,040

no longer feel as part of a greater

5256

02:54:31,429 --> 02:54:29,600

whole

5257

02:54:33,349 --> 02:54:31,439

and just see that society is that thing

5258

02:54:34,389 --> 02:54:33,359

that feeds me but it's something that i

5259

02:54:37,429 --> 02:54:34,399

don't need to put

5260

02:54:40,550 --> 02:54:37,439

things back into and uh

5261

02:54:42,070 --> 02:54:40,560

to uh think that ubi uh is going to

5262

02:54:44,070 --> 02:54:42,080

magically achieve this because people

5263

02:54:45,830 --> 02:54:44,080

have an intrinsic need of doing that

5264

02:54:47,830 --> 02:54:45,840

it's probably not going to work out

5265

02:54:49,590 --> 02:54:47,840

because they as if there is no force

5266

02:54:51,190 --> 02:54:49,600

ultimately for doing that over multiple

5267

02:54:53,670 --> 02:54:51,200

generation there's going to be drift

5268

02:54:54,870 --> 02:54:53,680

if there's to make you contribute to the

5269

02:54:57,590 --> 02:54:54,880

whole society yes

5270

02:54:59,429 --> 02:54:57,600

then eventually people uh will stop

5271

02:55:00,469 --> 02:54:59,439

contributing to society because of the

5272

02:55:02,550 --> 02:55:00,479

drift

5273

02:55:04,309 --> 02:55:02,560

our opinions are not intrinsically moral

5274

02:55:05,190 --> 02:55:04,319

there is no intrinsically moral power in

5275

02:55:07,349 --> 02:55:05,200

the universe

5276

02:55:09,429 --> 02:55:07,359

it's ecological if an opinion is

5277

02:55:10,389 --> 02:55:09,439

possible or if a behavior is possible it

5278

02:55:13,190 --> 02:55:10,399

will exist

5279

02:55:13,510 --> 02:55:13,200

if it's incentivized it will be abundant

5280

02:55:15,590 --> 02:55:13,520

and

5281

02:55:16,870 --> 02:55:15,600

if it's not helpful it doesn't matter it

5282

02:55:18,389 --> 02:55:16,880

will still be abundant

5283

02:55:20,230 --> 02:55:18,399

it will just mean that the system breaks

5284

02:55:23,110 --> 02:55:20,240

down and so uh

5285

02:55:23,750 --> 02:55:23,120

but i like the idea of ubi but in some

5286

02:55:25,750 --> 02:55:23,760

sense

5287

02:55:26,790 --> 02:55:25,760

the artist in eastern germany and so on

5288

02:55:29,910 --> 02:55:26,800

did have ubi

5289

02:55:31,349 --> 02:55:29,920

and we basically had a right to work but

5290

02:55:32,710 --> 02:55:31,359

we were not really forced to work in

5291

02:55:34,469 --> 02:55:32,720

eastern germany

5292

02:55:36,469 --> 02:55:34,479

and as a result we went bankrupt our

5293

02:55:38,630 --> 02:55:36,479

society went bankrupt

5294

02:55:40,230 --> 02:55:38,640

like literally and the houses that we

5295

02:55:42,150 --> 02:55:40,240

lived in they still had the pock marks

5296

02:55:44,070 --> 02:55:42,160

of the last war because in 40 years we

5297

02:55:46,230 --> 02:55:44,080

were not able to get enough resources

5298

02:55:47,190 --> 02:55:46,240

to fix the houses even in our capital

5299

02:55:50,469 --> 02:55:47,200

berlin

5300

02:55:52,070 --> 02:55:50,479

right it's ridiculous we always set a

5301

02:55:53,670 --> 02:55:52,080

shortage of labor for instance

5302

02:55:55,190 --> 02:55:53,680

the west had an enormous surplus of

5303

02:55:56,950 --> 02:55:55,200

labor and often didn't know

5304

02:55:58,950 --> 02:55:56,960

how to get people into gainful

5305

02:56:02,309 --> 02:55:58,960

employment because the productivity grew

5306

02:56:04,150 --> 02:56:02,319

but the population didn't shrink

5307

02:56:06,309 --> 02:56:04,160

and there was still labor competition so

5308

02:56:08,710 --> 02:56:06,319

working hours didn't shrink

5309

02:56:10,309 --> 02:56:08,720

and as a result a growing number of

5310

02:56:12,389 --> 02:56:10,319

people got unemployed because we were

5311

02:56:13,110 --> 02:56:12,399

unable to allocate labor in an efficient

5312

02:56:15,910 --> 02:56:13,120

way

5313

02:56:16,469 --> 02:56:15,920

in the west and in the east people we

5314

02:56:18,630 --> 02:56:16,479

just

5315

02:56:19,910 --> 02:56:18,640

absorbed productivity by being

5316

02:56:21,510 --> 02:56:19,920

unproductive

5317

02:56:23,990 --> 02:56:21,520

and to some degree this also happens in

5318

02:56:26,630 --> 02:56:24,000

the u.s right the healthcare system is

5319

02:56:28,150 --> 02:56:26,640

the most expensive system in the world

5320

02:56:28,790 --> 02:56:28,160

and it's largely because most of it

5321

02:56:31,190 --> 02:56:28,800

consists

5322

02:56:32,309 --> 02:56:31,200

from unproductive things in documenting

5323

02:56:33,830 --> 02:56:32,319

transactions

5324

02:56:36,070 --> 02:56:33,840

and most of the things that people do in

5325

02:56:37,510 --> 02:56:36,080

the u.s is arguably documentation of

5326

02:56:39,990 --> 02:56:37,520

transactions it's the biggest

5327

02:56:41,830 --> 02:56:40,000

part of employment apparently and so

5328

02:56:43,349 --> 02:56:41,840

people work very hard very long hours

5329

02:56:45,510 --> 02:56:43,359

and they still live in houses made from

5330

02:56:47,030 --> 02:56:45,520

tyvek and plywood have bad water

5331

02:56:48,630 --> 02:56:47,040

and have health care that makes them

5332

02:56:50,870 --> 02:56:48,640

bankrupt

5333

02:56:53,429 --> 02:56:50,880

and so the big question would be how can

5334

02:56:55,750 --> 02:56:53,439

we change this how can we implement

5335

02:56:56,950 --> 02:56:55,760

an architecture of systemic incentives

5336

02:56:59,110 --> 02:56:56,960

and i think that

5337

02:57:00,870 --> 02:56:59,120

ubi is not part of systemic thinking

5338

02:57:02,070 --> 02:57:00,880

it's only dealing with a single symptom

5339

02:57:03,349 --> 02:57:02,080

at a single level

5340

02:57:05,670 --> 02:57:03,359

and this is not the right way to

5341

02:57:08,550 --> 02:57:05,680

comprehend society you need to zoom out

5342

02:57:11,750 --> 02:57:08,560

and understand the superorganism

5343

02:57:13,670 --> 02:57:11,760

and is ai the solution or gai i think

5344

02:57:15,750 --> 02:57:13,680

that ai can help

5345

02:57:17,590 --> 02:57:15,760

definitely it can help in making com

5346

02:57:18,710 --> 02:57:17,600

simulations and models of extremely

5347

02:57:21,349 --> 02:57:18,720

complicated

5348

02:57:22,150 --> 02:57:21,359

things but there is also a difficulty if

5349

02:57:24,630 --> 02:57:22,160

we

5350

02:57:25,269 --> 02:57:24,640

start to compete with ais as individuals

5351
02:57:28,790 --> 02:57:25,279
and as

5352
02:57:30,550 --> 02:57:28,800
going to lose if we

5353
02:57:31,910 --> 02:57:30,560
succeed in building them they see no

5354
02:57:32,630 --> 02:57:31,920
reason why we should not succeed in

5355
02:57:33,990 --> 02:57:32,640
building them

5356
02:57:36,070 --> 02:57:34,000
right they need to be our friends in

5357
02:57:37,510 --> 02:57:36,080
some way yeah but if you teach the rocks

5358
02:57:39,590 --> 02:57:37,520
how to think you're not going to share

5359
02:57:41,030 --> 02:57:39,600
many purposes with them

5360
02:57:42,870 --> 02:57:41,040
how do you deal with a nested hierarchy

5361
02:57:44,070 --> 02:57:42,880
of eyes so for example someone says i

5362
02:57:45,830 --> 02:57:44,080
want to eat that chocolate but i don't

5363
02:57:47,750 --> 02:57:45,840

want to want to eat that chocolate

5364

02:57:50,150 --> 02:57:47,760

so it's like they have different eyes

5365

02:57:52,950 --> 02:57:50,160

different selves in your model

5366

02:57:54,950 --> 02:57:52,960

how does that work it happens in every

5367

02:57:57,830 --> 02:57:54,960

once of our minds we can see this

5368

02:57:59,590 --> 02:57:57,840

in children especially right so children

5369

02:58:02,070 --> 02:57:59,600

cannot establish behaviors

5370

02:58:03,429 --> 02:58:02,080

that integrate over long time spends and

5371

02:58:05,269 --> 02:58:03,439

i think the difference between these

5372

02:58:06,710 --> 02:58:05,279

different eyes is the time span the

5373

02:58:08,630 --> 02:58:06,720

length of the games over which they

5374

02:58:10,309 --> 02:58:08,640

integrate their rewards

5375

02:58:11,750 --> 02:58:10,319

so you have behaviors which integrate

5376

02:58:13,590 --> 02:58:11,760

over short time spends and those that

5377

02:58:15,510 --> 02:58:13,600

integrate over long time spans

5378

02:58:17,510 --> 02:58:15,520

and the difficulty is not so much to

5379

02:58:19,429 --> 02:58:17,520

find that integration and to implement

5380

02:58:21,349 --> 02:58:19,439

it the difficulty is mostly attention

5381

02:58:24,389 --> 02:58:21,359

deficit

5382

02:58:25,429 --> 02:58:24,399

sorry meaning if you are unable to

5383

02:58:27,990 --> 02:58:25,439

maintain

5384

02:58:29,110 --> 02:58:28,000

an intrinsic awareness on your long-term

5385

02:58:30,790 --> 02:58:29,120

goals

5386

02:58:33,190 --> 02:58:30,800

then you are in trouble if you are able

5387

02:58:35,670 --> 02:58:33,200

to model the world in deep time

5388

02:58:36,870 --> 02:58:35,680

uh that is the main difference between

5389

02:58:38,790 --> 02:58:36,880

powers between

5390

02:58:39,990 --> 02:58:38,800

power between individuals and groups is

5391

02:58:41,510 --> 02:58:40,000

whether you're able to

5392

02:58:43,510 --> 02:58:41,520

model the world deeply and act on

5393

02:58:45,910 --> 02:58:43,520

long-term plans so if we want

5394

02:58:47,510 --> 02:58:45,920

to have civilization prolonged then we

5395

02:58:49,910 --> 02:58:47,520

should identify with the highest eye

5396

02:58:52,230 --> 02:58:49,920

in the nested hierarchy we basically

5397

02:58:53,910 --> 02:58:52,240

should act on extremely long-term plans

5398

02:58:56,230 --> 02:58:53,920

right and we need to implement

5399

02:58:59,510 --> 02:58:56,240

incentives that allow us to

5400

02:59:01,269 --> 02:58:59,520

act on such long-term plans and i think

5401
02:59:02,469 --> 02:59:01,279
that for instance our present u.s

5402
02:59:05,510 --> 02:59:02,479
society

5403
02:59:08,230 --> 02:59:05,520
has forgotten this organization

5404
02:59:09,429 --> 02:59:08,240
so the idea was here to basically remove

5405
02:59:12,830 --> 02:59:09,439
structure

5406
02:59:14,070 --> 02:59:12,840
and as a result we have more freedom for

5407
02:59:18,710 --> 02:59:14,080
innovation

5408
02:59:20,630 --> 02:59:18,720
indistinguishable from cheating

5409
02:59:22,469 --> 02:59:20,640
and the us is a society that basically

5410
02:59:23,910 --> 02:59:22,479
cheats a lot on all levels what do you

5411
02:59:24,630 --> 02:59:23,920
mean that innovation is synonymous with

5412
02:59:27,110 --> 02:59:24,640
cheating

5413
02:59:27,990 --> 02:59:27,120

it means that you play short games it

5414

02:59:30,550 --> 02:59:28,000

means that you try

5415

02:59:32,309 --> 02:59:30,560

to take shortcuts instead of doing the

5416

02:59:34,469 --> 02:59:32,319

right thing you do something that

5417

02:59:36,389 --> 02:59:34,479

creates a little bit more dirt here and

5418

02:59:39,190 --> 02:59:36,399

a sludge and toxic waste and you hope

5419

02:59:42,230 --> 02:59:39,200

you are able to deal with it later

5420

02:59:43,670 --> 02:59:42,240

well you can innovate and build wind

5421

02:59:45,670 --> 02:59:43,680

farms no

5422

02:59:47,590 --> 02:59:45,680

you can innovate productive technologies

5423

02:59:49,830 --> 02:59:47,600

so not all innovation is cheating

5424

02:59:50,950 --> 02:59:49,840

in that sense no of course not but uh in

5425

02:59:54,710 --> 02:59:50,960

some sense the

5426

02:59:55,990 --> 02:59:54,720

way in which you uh i comprehend our war

5427

02:59:59,910 --> 02:59:56,000

in society is to try to

5428

03:00:02,070 --> 02:59:59,920

move upwards by innovating and

5429

03:00:04,070 --> 03:00:02,080

a society that is well organized should

5430

03:00:05,190 --> 03:00:04,080

not be focused on moving everybody

5431

03:00:07,510 --> 03:00:05,200

upwards it's

5432

03:00:09,830 --> 03:00:07,520

about moving everybody inwards everybody

5433

03:00:11,510 --> 03:00:09,840

should get better at what they're doing

5434

03:00:13,670 --> 03:00:11,520

we want to have

5435

03:00:14,870 --> 03:00:13,680

in some sense the goal is not to make

5436

03:00:16,950 --> 03:00:14,880

bread cheaper

5437

03:00:18,309 --> 03:00:16,960

and more abundant because the bread is

5438

03:00:19,590 --> 03:00:18,319

already abundant you want to make it

5439

03:00:20,230 --> 03:00:19,600

better and more wholesome and more

5440

03:00:22,309 --> 03:00:20,240

healthy

5441

03:00:24,150 --> 03:00:22,319

instead we invent kinds of yeast that

5442

03:00:27,190 --> 03:00:24,160

make the bread go up faster

5443

03:00:30,550 --> 03:00:27,200

but that give a whole generation

5444

03:00:33,590 --> 03:00:30,560

problems with digesting it right so uh

5445

03:00:35,349 --> 03:00:33,600

having gluten intolerance is now a

5446

03:00:36,309 --> 03:00:35,359

widespread and ubiquitous phenomenon

5447

03:00:39,269 --> 03:00:36,319

despite

5448

03:00:40,389 --> 03:00:39,279

our civilization having been adapted to

5449

03:00:42,550 --> 03:00:40,399

uh

5450

03:00:44,230 --> 03:00:42,560

bread and yeast and wheat for a long

5451
03:00:46,469 --> 03:00:44,240
time it's because we changed the weeds

5452
03:00:48,150 --> 03:00:46,479
faster than we could adapt to them

5453
03:00:49,750 --> 03:00:48,160
and the way that we would adapt to them

5454
03:00:51,429 --> 03:00:49,760
would be by evolution which means

5455
03:00:53,510 --> 03:00:51,439
selection which means technically

5456
03:00:54,710 --> 03:00:53,520
all these kids with celiac disease and

5457
03:00:57,190 --> 03:00:54,720
the people with

5458
03:00:58,469 --> 03:00:57,200
mild gluten intolerance should have less

5459
03:01:01,030 --> 03:00:58,479
offspring and then after

5460
03:01:02,630 --> 03:01:01,040
a long time we have adapted to the new

5461
03:01:03,750 --> 03:01:02,640
kinds of yeast is this a price that we

5462
03:01:05,670 --> 03:01:03,760
are going to pay

5463
03:01:07,830 --> 03:01:05,680

for having the bread uh being a little

5464

03:01:11,030 --> 03:01:07,840

bit cheaper probably not right

5465

03:01:11,750 --> 03:01:11,040

and so by saying we allow bread like

5466

03:01:13,510 --> 03:01:11,760

this

5467

03:01:15,429 --> 03:01:13,520

or even bread we suspect that it works

5468

03:01:17,990 --> 03:01:15,439

like this this is cheating

5469

03:01:18,550 --> 03:01:18,000

or if you see for instance the current

5470

03:01:21,670 --> 03:01:18,560

increase

5471

03:01:21,990 --> 03:01:21,680

of uh disorders that are developmental

5472

03:01:23,750 --> 03:01:22,000

like

5473

03:01:26,309 --> 03:01:23,760

um sorry when you say cheating you mean

5474

03:01:28,070 --> 03:01:26,319

it's a net detriment to the society

5475

03:01:29,429 --> 03:01:28,080

it's basically where somebody knows that

5476

03:01:32,469 --> 03:01:29,439

what they're doing is wrong

5477

03:01:33,030 --> 03:01:32,479

if they take a long perspective if you

5478

03:01:34,550 --> 03:01:33,040

say

5479

03:01:36,309 --> 03:01:34,560

if you would believe in god would god

5480

03:01:39,269 --> 03:01:36,319

want you to do that

5481

03:01:40,870 --> 03:01:39,279

this is cheating if it is what uh what

5482

03:01:42,870 --> 03:01:40,880

god wouldn't want you to do

5483

03:01:44,710 --> 03:01:42,880

and what god wants you to do is to play

5484

03:01:45,190 --> 03:01:44,720

a very very long game is to do the right

5485

03:01:48,230 --> 03:01:45,200

thing

5486

03:01:49,269 --> 03:01:48,240

to the best of your knowledge and doing

5487

03:01:51,110 --> 03:01:49,279

a thing that

5488

03:01:53,590 --> 03:01:51,120

might work relatively well in the short

5489

03:01:56,469 --> 03:01:53,600

term but in the long term kills the bees

5490

03:01:57,590 --> 03:01:56,479

or increases the prevalence of autism

5491

03:01:59,190 --> 03:01:57,600

spectrum disorder

5492

03:02:00,950 --> 03:01:59,200

because you put stuff in their foot that

5493

03:02:02,790 --> 03:02:00,960

doesn't kill rats in three months but

5494

03:02:04,790 --> 03:02:02,800

disrupt their angular criminal signaling

5495

03:02:06,710 --> 03:02:04,800

during developmental periods

5496

03:02:08,309 --> 03:02:06,720

right this is what not what you should

5497

03:02:10,550 --> 03:02:08,319

be doing

5498

03:02:12,950 --> 03:02:10,560

and this doesn't mean that uh simple

5499

03:02:16,550 --> 03:02:12,960

blind activism is the answer activists

5500

03:02:19,590 --> 03:02:16,560

often know less about a subject uh

5501
03:02:20,950 --> 03:02:19,600
somebody who is um

5502
03:02:22,870 --> 03:02:20,960
has a neutral position a neutral

5503
03:02:25,110 --> 03:02:22,880
perspective on the thing activism is

5504
03:02:26,710 --> 03:02:25,120
distorting your perspective on things

5505
03:02:28,150 --> 03:02:26,720
and the people that have the most

5506
03:02:29,910 --> 03:02:28,160
distorted perspective

5507
03:02:31,269 --> 03:02:29,920
also tend to be the most activist about

5508
03:02:32,550 --> 03:02:31,279
it if you think about it right because

5509
03:02:33,830 --> 03:02:32,560
you are why is that who gets most

5510
03:02:35,750 --> 03:02:33,840
agitated about it

5511
03:02:38,150 --> 03:02:35,760
if you are extremely agitated about a

5512
03:02:40,790 --> 03:02:38,160
subject that is not important

5513
03:02:41,269 --> 03:02:40,800

you are going to be the activist if you

5514

03:02:42,870 --> 03:02:41,279

uh

5515

03:02:45,030 --> 03:02:42,880

the loudest voices that are the most

5516

03:02:46,550 --> 03:02:45,040

emotional yeah well if you or

5517

03:02:48,150 --> 03:02:46,560

the other way around if you are the most

5518

03:02:48,950 --> 03:02:48,160

emotional person you are you tend to be

5519

03:02:51,030 --> 03:02:48,960

the loudest one

5520

03:02:52,550 --> 03:02:51,040

i see yes yes and but of course it

5521

03:02:53,030 --> 03:02:52,560

doesn't mean that activism is per se

5522

03:02:55,590 --> 03:02:53,040

wrong

5523

03:02:57,429 --> 03:02:55,600

right uh it just means that uh this

5524

03:02:58,550 --> 03:02:57,439

certainty that the activist has about

5525

03:03:01,750 --> 03:02:58,560

things

5526

03:03:03,269 --> 03:03:01,760

is often not justified and it's

5527

03:03:05,590 --> 03:03:03,279

this is only basically a measured

5528

03:03:08,630 --> 03:03:05,600

message to my younger self

5529

03:03:09,830 --> 03:03:08,640

why what do you mean oh when i was 16

5530

03:03:11,590 --> 03:03:09,840

years old i needed

5531

03:03:13,030 --> 03:03:11,600

knew exactly what was in the best

5532

03:03:15,590 --> 03:03:13,040

interest of the working class

5533

03:03:17,349 --> 03:03:15,600

were you a marxist yeah of course i grew

5534

03:03:18,389 --> 03:03:17,359

up in the system and it made so much

5535

03:03:20,710 --> 03:03:18,399

sense and the crisis

5536

03:03:22,070 --> 03:03:20,720

you're an activist an activist yeah i

5537

03:03:25,510 --> 03:03:22,080

was basically

5538

03:03:27,990 --> 03:03:25,520

willing to be an activist about this and

5539

03:03:29,990 --> 03:03:28,000

when the war came down i was very much

5540

03:03:31,830 --> 03:03:30,000

in favor of not reunifying with western

5541

03:03:33,030 --> 03:03:31,840

germany but i wanted to have a model

5542

03:03:36,710 --> 03:03:33,040

that is more like uh

5543

03:03:38,790 --> 03:03:36,720

scandinavia and uh basically a third way

5544

03:03:40,309 --> 03:03:38,800

one that wouldn't be as all-out

5545

03:03:42,790 --> 03:03:40,319

capitalist and so on

5546

03:03:44,630 --> 03:03:42,800

i also thought this idea of keeping the

5547

03:03:46,469 --> 03:03:44,640

factories collectivist instead of having

5548

03:03:47,830 --> 03:03:46,479

them owned by billionaires

5549

03:03:50,309 --> 03:03:47,840

would be much more just and therefore

5550

03:03:51,830 --> 03:03:50,319

desirable right similar to how many

5551

03:03:53,110 --> 03:03:51,840

millennials see it right now which say

5552

03:03:53,990 --> 03:03:53,120

nobody should be a billionaire a

5553

03:03:57,110 --> 03:03:54,000

billionaire shouldn't

5554

03:03:58,870 --> 03:03:57,120

exist because it's so unjust but uh

5555

03:04:00,950 --> 03:03:58,880

and i thought when our working class

5556

03:04:02,630 --> 03:04:00,960

voluntarily decided to be exploited by

5557

03:04:04,230 --> 03:04:02,640

billionaires again which they did when

5558

03:04:06,389 --> 03:04:04,240

they voted for reunification

5559

03:04:08,230 --> 03:04:06,399

under the conditions that were on offer

5560

03:04:09,990 --> 03:04:08,240

i thought they were confused and being

5561

03:04:11,510 --> 03:04:10,000

manipulated by the press

5562

03:04:13,110 --> 03:04:11,520

and there was enough evidence that this

5563

03:04:14,150 --> 03:04:13,120

manipulation took place right there was

5564

03:04:16,469 --> 03:04:14,160

a lot of propaganda

5565

03:04:18,389 --> 03:04:16,479

for making that happen but what i was

5566

03:04:20,710 --> 03:04:18,399

too stupid to realize is

5567

03:04:22,070 --> 03:04:20,720

that this idea of justice only existed

5568

03:04:24,550 --> 03:04:22,080

in my own head

5569

03:04:26,150 --> 03:04:24,560

and what was real to people was under

5570

03:04:27,030 --> 03:04:26,160

which conditions do you send your kids

5571

03:04:28,389 --> 03:04:27,040

to school

5572

03:04:31,670 --> 03:04:28,399

what kind of food do you have on the

5573

03:04:34,790 --> 03:04:31,680

table what's the quality of your yogurt

5574

03:04:36,550 --> 03:04:34,800

how nice is your apartment what's the

5575

03:04:37,190 --> 03:04:36,560

quality of your carpet how many days of

5576
03:04:38,630 --> 03:04:37,200
holiday do

5577
03:04:41,030 --> 03:04:38,640
and that matters more than billionaires

5578
03:04:42,710 --> 03:04:41,040
owning a factory of course

5579
03:04:44,389 --> 03:04:42,720
it really matters it really matters what

5580
03:04:44,630 --> 03:04:44,399
the what are your living conditions and

5581
03:04:48,389 --> 03:04:44,640
you

5582
03:04:50,070 --> 03:04:48,399
can unleash innovation

5583
03:04:51,429 --> 03:04:50,080
because he is a billionaire can control

5584
03:04:53,510 --> 03:04:51,439
resources in which that

5585
03:04:55,110 --> 03:04:53,520
a state-run committee or functionaries

5586
03:04:57,349 --> 03:04:55,120
of the party cannot

5587
03:04:58,630 --> 03:04:57,359
right uh this is the better society so

5588
03:05:00,550 --> 03:04:58,640

inequality is not

5589

03:05:02,389 --> 03:05:00,560

bad as long as the lowest tier has a

5590

03:05:03,269 --> 03:05:02,399

certain objective level of life

5591

03:05:07,269 --> 03:05:03,279

satisfaction

5592

03:05:09,349 --> 03:05:07,279

yeah i think it's very hard to justify

5593

03:05:10,389 --> 03:05:09,359

a society that uh where you have

5594

03:05:12,630 --> 03:05:10,399

equality

5595

03:05:15,190 --> 03:05:12,640

but everybody lives a shitty life it's

5596

03:05:15,990 --> 03:05:15,200

much easier to justify in a society in

5597

03:05:19,670 --> 03:05:16,000

which

5598

03:05:22,550 --> 03:05:19,680

the medium income is very high and

5599

03:05:24,550 --> 03:05:22,560

the poor people live a good life and uh

5600

03:05:27,510 --> 03:05:24,560

there is an extremely high inequality

5601
03:05:28,790 --> 03:05:27,520
inequality is not intrinsically bad the

5602
03:05:31,990 --> 03:05:28,800
question is

5603
03:05:33,670 --> 03:05:32,000
whether it's justifiable and or

5604
03:05:35,830 --> 03:05:33,680
the opposite whether the fight against

5605
03:05:37,429 --> 03:05:35,840
inequality is justified by creating a

5606
03:05:39,349 --> 03:05:37,439
world that is intrinsically better

5607
03:05:41,269 --> 03:05:39,359
and i think most people would agree that

5608
03:05:43,349 --> 03:05:41,279
a world in which the majority lives

5609
03:05:45,990 --> 03:05:43,359
better is the better world

5610
03:05:47,910 --> 03:05:46,000
right so this was the thing for i didn't

5611
03:05:49,190 --> 03:05:47,920
understand the systemic relationships

5612
03:05:50,309 --> 03:05:49,200
and i thought that differently you were

5613
03:05:51,670 --> 03:05:50,319

certain about it when you were

5614

03:05:53,349 --> 03:05:51,680

successful yes of course

5615

03:05:54,790 --> 03:05:53,359

because i didn't see the contradictions

5616

03:05:57,830 --> 03:05:54,800

yet i saw

5617

03:06:00,710 --> 03:05:57,840

a simple logical connection

5618

03:06:02,630 --> 03:06:00,720

that flew from the marxist theory that i

5619

03:06:03,910 --> 03:06:02,640

saw the antagonism between the ruling

5620

03:06:06,469 --> 03:06:03,920

class and the working class

5621

03:06:08,230 --> 03:06:06,479

i saw the injustice that would result

5622

03:06:09,429 --> 03:06:08,240

from the system i saw the limitations

5623

03:06:11,429 --> 03:06:09,439

that existed

5624

03:06:13,429 --> 03:06:11,439

within that system i saw the trend of

5625

03:06:14,070 --> 03:06:13,439

capitalism to destroy its environment

5626
03:06:17,110 --> 03:06:14,080
and itself

5627
03:06:18,070 --> 03:06:17,120
and to use more resources than it could

5628
03:06:21,510 --> 03:06:18,080
replace

5629
03:06:22,950 --> 03:06:21,520
and externalize the cost of production

5630
03:06:24,710 --> 03:06:22,960
to the environment and to

5631
03:06:27,110 --> 03:06:24,720
people that were not part of the markets

5632
03:06:28,469 --> 03:06:27,120
and so on but

5633
03:06:30,469 --> 03:06:28,479
i didn't understand that the

5634
03:06:31,590 --> 03:06:30,479
alternatives all attainable alternatives

5635
03:06:33,030 --> 03:06:31,600
were worse

5636
03:06:34,950 --> 03:06:33,040
and that the fact that our my own

5637
03:06:37,349 --> 03:06:34,960
society was worse was not the

5638
03:06:39,269 --> 03:06:37,359

result of lack of trying i thought it

5639

03:06:40,230 --> 03:06:39,279

was basically moral shortcomings of our

5640

03:06:42,309 --> 03:06:40,240

government

5641

03:06:43,990 --> 03:06:42,319

that led to the fact that socialism as

5642

03:06:45,190 --> 03:06:44,000

we experienced it had worse outcomes

5643

03:06:47,110 --> 03:06:45,200

than capitalism as

5644

03:06:49,030 --> 03:06:47,120

other people experienced it i didn't

5645

03:06:50,550 --> 03:06:49,040

understand that the capitalism that

5646

03:06:52,550 --> 03:06:50,560

existed in western germany

5647

03:06:54,469 --> 03:06:52,560

was a system that was constructed in a

5648

03:06:55,750 --> 03:06:54,479

better way than the socialism that

5649

03:06:57,429 --> 03:06:55,760

existed in the east

5650

03:06:59,030 --> 03:06:57,439

now the difficulty is the capitalism

5651
03:07:00,309 --> 03:06:59,040
that exists in western germany is also

5652
03:07:03,190 --> 03:07:00,319
not sustainable in the wrong and it's

5653
03:07:05,590 --> 03:07:03,200
also going to crash as far as we can see

5654
03:07:06,230 --> 03:07:05,600
in the us same thing same yeah same

5655
03:07:07,910 --> 03:07:06,240
thing

5656
03:07:09,510 --> 03:07:07,920
only worse because the system is larger

5657
03:07:09,990 --> 03:07:09,520
and the feedback loops are longer so

5658
03:07:11,429 --> 03:07:10,000
they're less

5659
03:07:13,670 --> 03:07:11,439
effective so it's better in the short

5660
03:07:15,030 --> 03:07:13,680
run uh if you have the system

5661
03:07:17,030 --> 03:07:15,040
we're playing the best level of the game

5662
03:07:18,230 --> 03:07:17,040
right now democracy works relatively

5663
03:07:20,309 --> 03:07:18,240

well in cities

5664

03:07:22,309 --> 03:07:20,319

and city-states and it's very difficult

5665

03:07:23,910 --> 03:07:22,319

to get it to work at the state level and

5666

03:07:24,550 --> 03:07:23,920

it's almost impossible to make it

5667

03:07:27,750 --> 03:07:24,560

effective

5668

03:07:29,190 --> 03:07:27,760

on a level of large nation state because

5669

03:07:30,630 --> 03:07:29,200

the feedback loops are too long right

5670

03:07:32,389 --> 03:07:30,640

it's very difficult to

5671

03:07:35,670 --> 03:07:32,399

set the incentives for governance rate

5672

03:07:37,590 --> 03:07:35,680

so do we need a global government

5673

03:07:39,510 --> 03:07:37,600

in some sense we need i think if we want

5674

03:07:40,870 --> 03:07:39,520

to regulate our relationship with the

5675

03:07:42,230 --> 03:07:40,880

environment properly

5676
03:07:43,990 --> 03:07:42,240
because otherwise we will have a

5677
03:07:45,510 --> 03:07:44,000
competition

5678
03:07:47,750 --> 03:07:45,520
about the things that we don't want to

5679
03:07:49,510 --> 03:07:47,760
compete about for instance

5680
03:07:51,269 --> 03:07:49,520
if we don't have a global government but

5681
03:07:53,269 --> 03:07:51,279
we have free trade we might have a

5682
03:07:55,110 --> 03:07:53,279
competition about who is willing to

5683
03:07:56,389 --> 03:07:55,120
allow uh the destruction of the

5684
03:07:58,389 --> 03:07:56,399
environment locally

5685
03:08:00,469 --> 03:07:58,399
more than others right well who is

5686
03:08:02,790 --> 03:08:00,479
willing to accept verse

5687
03:08:04,550 --> 03:08:02,800
conditions for their working class and

5688
03:08:06,630 --> 03:08:04,560

so if you had a global government you

5689

03:08:08,309 --> 03:08:06,640

would be able to regulate that

5690

03:08:09,590 --> 03:08:08,319

but if you on the other end have a

5691

03:08:10,870 --> 03:08:09,600

global government you don't have a

5692

03:08:12,309 --> 03:08:10,880

competition between different

5693

03:08:13,990 --> 03:08:12,319

governments anymore so

5694

03:08:15,510 --> 03:08:14,000

you have no incentive for the government

5695

03:08:18,630 --> 03:08:15,520

to govern well

5696

03:08:19,590 --> 03:08:18,640

how do you deal with that one and so as

5697

03:08:21,510 --> 03:08:19,600

a species

5698

03:08:23,590 --> 03:08:21,520

or as uh people that have political

5699

03:08:25,190 --> 03:08:23,600

theories we have not found universal

5700

03:08:26,870 --> 03:08:25,200

answers to these extremely difficult

5701

03:08:31,030 --> 03:08:26,880

questions

5702

03:08:33,110 --> 03:08:31,040

yoshi it's been extremely pleasurable

5703

03:08:35,030 --> 03:08:33,120

thank you so much it's probably the most

5704

03:08:36,230 --> 03:08:35,040

edifying and substantive podcast that i

5705

03:08:38,469 --> 03:08:36,240

have i don't know a subject that we

5706

03:08:42,309 --> 03:08:38,479

didn't touch on

5707

03:08:46,830 --> 03:08:42,319

menus thank you so much man

5708

03:08:46,840 --> 03:08:55,590

conversation

5709

03:08:59,030 --> 03:08:58,070

by the way with respect to the social

5710

03:09:01,030 --> 03:08:59,040

justice movement

5711

03:09:02,150 --> 03:09:01,040

it's difficult i think to say in the

5712

03:09:03,750 --> 03:09:02,160

long term

5713

03:09:05,830 --> 03:09:03,760

whether it's a good thing or not it's

5714

03:09:08,150 --> 03:09:05,840

basically an ideological movement that

5715

03:09:11,030 --> 03:09:08,160

tries to become state religion and this

5716

03:09:11,670 --> 03:09:11,040

uh seems to be poised to do so and i

5717

03:09:14,870 --> 03:09:11,680

suspect

5718

03:09:15,990 --> 03:09:14,880

uh the reason why it is emerging it's

5719

03:09:18,950 --> 03:09:16,000

part is social media

5720

03:09:19,750 --> 03:09:18,960

right so social media is creating

5721

03:09:22,309 --> 03:09:19,760

incentives

5722

03:09:23,269 --> 03:09:22,319

for agricultores to emerge and to possess

5723

03:09:25,830 --> 03:09:23,279

people

5724

03:09:27,750 --> 03:09:25,840

and the other thing is that the

5725

03:09:28,550 --> 03:09:27,760

mainstream society is not working very

5726
03:09:31,590 --> 03:09:28,560
well

5727
03:09:33,590 --> 03:09:31,600
and this leads to revolutionary

5728
03:09:35,429 --> 03:09:33,600
movements and

5729
03:09:37,670 --> 03:09:35,439
a part of social justice is about

5730
03:09:39,269 --> 03:09:37,680
redistribution of resources it's a

5731
03:09:41,349 --> 03:09:39,279
weird way of being a leftist in which

5732
03:09:43,110 --> 03:09:41,359
you don't care so much about

5733
03:09:44,950 --> 03:09:43,120
the economic conditions under which

5734
03:09:46,550 --> 03:09:44,960
people actually exist but you care about

5735
03:09:48,870 --> 03:09:46,560
the identities of people

5736
03:09:49,670 --> 03:09:48,880
so you don't care about the contrast

5737
03:09:51,510 --> 03:09:49,680
between

5738
03:09:53,110 --> 03:09:51,520

people living in chats and people living

5739

03:09:56,469 --> 03:09:53,120

in palaces but you

5740

03:09:59,750 --> 03:09:56,479

care about palestinian quotas for

5741

03:10:01,670 --> 03:09:59,760

your own people and so it seems to be a

5742

03:10:05,030 --> 03:10:01,680

movement that is largely driven

5743

03:10:07,349 --> 03:10:05,040

by uh the upper middle class

5744

03:10:08,229 --> 03:10:07,359

uh trying to get in the lower under

5745

03:10:11,030 --> 03:10:08,239

upper class

5746

03:10:12,150 --> 03:10:11,040

something like that right it's mostly

5747

03:10:14,309 --> 03:10:12,160

academics

5748

03:10:15,910 --> 03:10:14,319

that are already you could say in a

5749

03:10:19,349 --> 03:10:15,920

privileged position

5750

03:10:22,710 --> 03:10:19,359

uh and i'm putting this into square

5751

03:10:25,190 --> 03:10:22,720

skateboards because uh academia is uh

5752

03:10:26,150 --> 03:10:25,200

more open in a society that than it has

5753

03:10:29,830 --> 03:10:26,160

been for

5754

03:10:31,510 --> 03:10:29,840

most of the existence of humanity and

5755

03:10:33,349 --> 03:10:31,520

so in some sense the society is very

5756

03:10:34,630 --> 03:10:33,359

democratic in the sense that everybody

5757

03:10:36,790 --> 03:10:34,640

in the society is

5758

03:10:38,630 --> 03:10:36,800

free to become an oligarch and enter the

5759

03:10:41,110 --> 03:10:38,640

ruling class

5760

03:10:42,870 --> 03:10:41,120

and of course the society is not set up

5761

03:10:44,630 --> 03:10:42,880

in such a way that everybody can become

5762

03:10:45,910 --> 03:10:44,640

an oligarch it also would not work like

5763

03:10:48,710 --> 03:10:45,920

this and not everybody

5764

03:10:49,590 --> 03:10:48,720

is has the necessary traits to become an

5765

03:10:52,389 --> 03:10:49,600

oligarch

5766

03:10:53,990 --> 03:10:52,399

so the whole thing is in some sense

5767

03:10:55,670 --> 03:10:54,000

rigged but it's not rigged as it was

5768

03:10:58,550 --> 03:10:55,680

before where your birth decided

5769

03:11:00,389 --> 03:10:58,560

everything else and when you tried to

5770

03:11:02,630 --> 03:11:00,399

get away from what you were born into

5771

03:11:04,469 --> 03:11:02,640

people would go after you and kill you

5772

03:11:05,670 --> 03:11:04,479

and most of the previous social

5773

03:11:08,710 --> 03:11:05,680

movements for instance the

5774

03:11:10,870 --> 03:11:08,720

politics in cyrus russia were

5775

03:11:12,070 --> 03:11:10,880

working against the system of indentured

5776

03:11:14,950 --> 03:11:12,080

servitude or

5777

03:11:16,389 --> 03:11:14,960

the communists in france which started

5778

03:11:18,469 --> 03:11:16,399

the french revolution

5779

03:11:19,750 --> 03:11:18,479

were going against the monarchy which

5780

03:11:22,309 --> 03:11:19,760

was no longer

5781

03:11:23,910 --> 03:11:22,319

able to manage society in in the right

5782

03:11:26,229 --> 03:11:23,920

way right people were starving

5783

03:11:27,990 --> 03:11:26,239

despite an increase in productivity and

5784

03:11:30,550 --> 03:11:28,000

this mismanagement of society

5785

03:11:31,190 --> 03:11:30,560

had to be addressed and it was addressed

5786

03:11:34,070 --> 03:11:31,200

uh

5787

03:11:34,550 --> 03:11:34,080

in a way that was extremely brutal and

5788

03:11:38,469 --> 03:11:34,560

led

5789

03:11:40,309 --> 03:11:38,479

to by itself to starvation and to earn

5790

03:11:41,510 --> 03:11:40,319

the destruction of a lot of culture and

5791

03:11:45,990 --> 03:11:41,520

a lot of things that were

5792

03:11:49,190 --> 03:11:46,000

beautiful and probably deserve to be

5793

03:11:51,510 --> 03:11:49,200

maintained but the society it's itself

5794

03:11:52,469 --> 03:11:51,520

that was being destroyed was no more

5795

03:11:54,150 --> 03:11:52,479

sustainable

5796

03:11:55,590 --> 03:11:54,160

and that was the reason why this

5797

03:11:58,150 --> 03:11:55,600

evolutionary movement

5798

03:11:59,750 --> 03:11:58,160

propped up came up and then you have

5799

03:12:02,630 --> 03:11:59,760

violent revolutionary movements

5800

03:12:03,269 --> 03:12:02,640

that are destructive uh that it's this

5801
03:12:06,309 --> 03:12:03,279
is often

5802
03:12:07,030 --> 03:12:06,319
the result of uh your society not being

5803
03:12:09,349 --> 03:12:07,040
able to

5804
03:12:11,590 --> 03:12:09,359
implement mechanisms that perform

5805
03:12:13,670 --> 03:12:11,600
themselves in a more benevolent way

5806
03:12:15,110 --> 03:12:13,680
right in the us is stuck in this sense

5807
03:12:17,429 --> 03:12:15,120
it's stuck by

5808
03:12:18,469 --> 03:12:17,439
lots of mafias that take out resources

5809
03:12:19,990 --> 03:12:18,479
at every level

5810
03:12:21,590 --> 03:12:20,000
we're not able to build your

5811
03:12:23,030 --> 03:12:21,600
infrastructure anymore for that reason

5812
03:12:24,790 --> 03:12:23,040
for instance whenever we

5813
03:12:26,630 --> 03:12:24,800

try to build a new high-speed train the

5814

03:12:30,070 --> 03:12:26,640

money just evaporates

5815

03:12:30,710 --> 03:12:30,080

and when we try to hear cancer the

5816

03:12:32,309 --> 03:12:30,720

person

5817

03:12:34,070 --> 03:12:32,319

that has that concert typically goes

5818

03:12:36,070 --> 03:12:34,080

bankrupt in the process

5819

03:12:37,190 --> 03:12:36,080

so right something is wrong in that

5820

03:12:40,070 --> 03:12:37,200

whole system and

5821

03:12:41,269 --> 03:12:40,080

we don't have intrasystemic forces that

5822

03:12:44,309 --> 03:12:41,279

can repair the system

5823

03:12:45,750 --> 03:12:44,319

instead the system by virtue of its own

5824

03:12:48,070 --> 03:12:45,760

interest systemic forces

5825

03:12:49,510 --> 03:12:48,080

is getting worse so something needs to

5826

03:12:50,229 --> 03:12:49,520

change the system even if the

5827

03:12:54,309 --> 03:12:50,239

alternative

5828

03:12:56,790 --> 03:12:54,319

eventually will need to get its

5829

03:12:58,309 --> 03:12:56,800

together after it's taken power

5830

03:13:00,550 --> 03:12:58,319

so i suspect that's that's what's

5831

03:13:02,870 --> 03:13:00,560

happening and so if we zoom out large

5832

03:13:04,309 --> 03:13:02,880

far enough it's very hard to evaluate

5833

03:13:05,110 --> 03:13:04,319

whether the present revolutionary

5834

03:13:07,269 --> 03:13:05,120

movements

5835

03:13:09,269 --> 03:13:07,279

despite the problems that they are going

5836

03:13:12,710 --> 03:13:09,279

to cause and already causing

5837

03:13:14,630 --> 03:13:12,720

are wrong all right

5838

03:13:16,150 --> 03:13:14,640

eventually it's we are just large groups