



ERIC
WEINSTEIN

**HERE'S HOW MY
MIND OPERATES**

1
00:00:06,639 --> 00:00:03,980
enjoy Eric this is gonna be an expose

2
00:00:09,290 --> 00:00:06,649
into you an investigation a

3
00:00:11,780 --> 00:00:09,300
peregrination into your mind I don't

4
00:00:13,190 --> 00:00:11,790
care too much I care but I but not for

5
00:00:14,570 --> 00:00:13,200
this about your idea I don't care too

6
00:00:16,099 --> 00:00:14,580
much about your ideas for this I care

7
00:00:20,150 --> 00:00:16,109
about your thought process how did you

8
00:00:21,500 --> 00:00:20,160
come up with your ideas if it isn't

9
00:00:21,920 --> 00:00:21,510
already first of all good to be with you

10
00:00:23,560 --> 00:00:21,930
sir

11
00:00:28,790 --> 00:00:23,570
thank you thank you I appreciate that

12
00:00:30,200 --> 00:00:28,800
we'll start broadly okay you have quite

13
00:00:33,260 --> 00:00:30,210

a few projects you have your work for

14

00:00:35,049 --> 00:00:33,270

Peter Thiel I see and you have your

15

00:00:38,330 --> 00:00:35,059

podcast you have your husband your

16

00:00:39,590 --> 00:00:38,340

father you have geometric unity which

17

00:00:41,569 --> 00:00:39,600

you work on so that's five that I can

18

00:00:44,930 --> 00:00:41,579

count does that exhaust it are there

19

00:00:49,610 --> 00:00:44,940

more does it stretch you thin well I

20

00:00:51,770 --> 00:00:49,620

mean there's also the gauge theory and

21

00:00:54,080 --> 00:00:51,780

economics project which I'm very keen to

22

00:00:56,830 --> 00:00:54,090

push through I'm very focused on making

23

00:00:59,750 --> 00:00:56,840

sure that my brother's work on

24

00:01:02,299 --> 00:00:59,760

senescence telomeres and antagonistic

25

00:01:07,730 --> 00:01:02,309

pleiotropy is understood recognized and

26
00:01:12,160 --> 00:01:07,740
its implications chased down there are

27
00:01:16,460 --> 00:01:12,170
some avenues for immigration reform

28
00:01:19,490 --> 00:01:16,470
trying to understand why it is that this

29
00:01:21,920 --> 00:01:19,500
important economic topic is deranged

30
00:01:25,840 --> 00:01:21,930
because it has to do with units of labor

31
00:01:29,910 --> 00:01:27,160
yeah there are a number of different

32
00:01:32,649 --> 00:01:29,920
projects but they all sort of seek to

33
00:01:35,680 --> 00:01:32,659
try to make sure that humanity has a

34
00:01:39,040 --> 00:01:35,690
future and that we don't tear ourselves

35
00:01:42,460 --> 00:01:39,050
apart in the present trying to construct

36
00:01:44,140 --> 00:01:42,470
false utopias and that we don't find

37
00:01:48,790 --> 00:01:44,150
ourselves limited by what we've already

38
00:01:51,719 --> 00:01:48,800

achieved in a way where we forsake our

39

00:01:54,790 --> 00:01:51,729

ability to achieve in the future by

40

00:01:58,180 --> 00:01:54,800

actually deranging ourselves in a false

41

00:02:01,630 --> 00:01:58,190

hope of a kind of utopian present which

42

00:02:04,600 --> 00:02:01,640

can't possibly obtain do you ever

43

00:02:06,999 --> 00:02:04,610

feel like it's too many projects or do

44

00:02:09,460 --> 00:02:07,009

you have one day for one project it's a

45

00:02:12,130 --> 00:02:09,470

chaotic well honestly to be blunt about

46

00:02:14,320 --> 00:02:12,140

it that's not really where I feel like

47

00:02:17,050 --> 00:02:14,330

the problem is the problem is is that I

48

00:02:20,080 --> 00:02:17,060

live in a world that I I have a very

49

00:02:23,650 --> 00:02:20,090

strong impression that people are

50

00:02:25,630 --> 00:02:23,660

generically crazy and in a world in

51
00:02:28,360 --> 00:02:25,640
which I take people to be generically

52
00:02:30,970 --> 00:02:28,370
crazy that is that there's they're

53
00:02:33,910 --> 00:02:30,980
simply humans and computing machines

54
00:02:36,430 --> 00:02:33,920
that have been fed lots of terrible

55
00:02:39,430 --> 00:02:36,440
information on a daily basis of a few

56
00:02:41,319 --> 00:02:39,440
centralized sources and so the biggest

57
00:02:43,360 --> 00:02:41,329
problem is there aren't enough people to

58
00:02:45,479 --> 00:02:43,370
work on the projects that matter because

59
00:02:48,340 --> 00:02:45,489
everyone is constantly distracted and

60
00:02:51,610 --> 00:02:48,350
distractible by projects that do not and

61
00:02:53,680 --> 00:02:51,620
that the the incentive structures can't

62
00:02:57,460 --> 00:02:53,690
be put towards things that must be done

63
00:03:00,280 --> 00:02:57,470

there in fact structured almost so that

64

00:03:02,319 --> 00:03:00,290

the things that can that must be done

65

00:03:03,970 --> 00:03:02,329

cannot be done and I think that's the

66

00:03:07,890 --> 00:03:03,980

biggest problem so that mean leaves me

67

00:03:11,830 --> 00:03:10,270

speaking of working alone you have a

68

00:03:15,130 --> 00:03:11,840

wife who's er collaborator at least in

69

00:03:19,319 --> 00:03:15,140

the Economics Department when did you

70

00:03:22,180 --> 00:03:19,329

get married in 1996 how old were you

71

00:03:24,310 --> 00:03:22,190

about 30

72

00:03:26,490 --> 00:03:24,320

how did you know she was the right one

73

00:03:30,370 --> 00:03:26,500

or do you not believe in the right one

74

00:03:32,050 --> 00:03:30,380

well I have different theories about

75

00:03:34,570 --> 00:03:32,060

this I believe that you meet the right

76

00:03:36,580 --> 00:03:34,580

one every three years on average that

77

00:03:38,500 --> 00:03:36,590

there there isn't what one right person

78

00:03:40,780 --> 00:03:38,510

for each one of us but there's a very

79

00:03:45,550 --> 00:03:40,790

small subset of people who can be the

80

00:03:48,700 --> 00:03:45,560

right one and you know I would say that

81

00:03:50,530 --> 00:03:48,710

when you meet and

82

00:03:54,660 --> 00:03:50,540

Indian Jewish super mind who's

83

00:03:57,640 --> 00:03:54,670

incredibly gorgeous and has a huge heart

84

00:04:01,330 --> 00:03:57,650

who takes your breath away and makes you

85

00:04:04,870 --> 00:04:01,340

laugh it's pretty hard to resist so

86

00:04:07,840 --> 00:04:04,880

there aren't so many people like Pia

87

00:04:11,140 --> 00:04:07,850

Milani he's just truly amazing human

88

00:04:13,780 --> 00:04:11,150

being on just about every axis I mean I

89

00:04:15,990 --> 00:04:13,790

sometimes feel bad when people say you

90

00:04:19,570 --> 00:04:16,000

have to compromise on various things and

91

00:04:21,310 --> 00:04:19,580

outside of a tiny number of areas I feel

92

00:04:24,160 --> 00:04:21,320

like there was no compromise with her at

93

00:04:27,640 --> 00:04:24,170

all just one person had everything in

94

00:04:30,880 --> 00:04:27,650

beyond BIA and and I just I think I

95

00:04:33,280 --> 00:04:30,890

guess I've enjoyed my time talking being

96

00:04:37,409 --> 00:04:33,290

and traveling with Pia more than I ever

97

00:04:42,659 --> 00:04:39,350

now you said enjoy do you still enjoy

98

00:04:45,330 --> 00:04:42,669

that is to say I know that after some

99

00:04:46,529 --> 00:04:45,340

time marriages don't have the same zeal

100

00:04:48,540 --> 00:04:46,539

or spark but they did in the beginning

101
00:04:49,740 --> 00:04:48,550
do you feel like you've managed to

102
00:04:52,230 --> 00:04:49,750
maintain it or it's increased or

103
00:04:53,730 --> 00:04:52,240
decreased or it's changed it's a deeper

104
00:04:57,119 --> 00:04:53,740
level as meaningful that is not

105
00:04:59,070 --> 00:04:57,129
encapsulated by why well you're talking

106
00:05:03,260 --> 00:04:59,080
you're talking to the wrong guy I mean

107
00:05:06,179 --> 00:05:03,270
I'm just I'm I'm still I guess I would

108
00:05:08,520 --> 00:05:06,189
if you told me I had 10 years on a sand

109
00:05:11,429 --> 00:05:08,530
bar with enough coconuts and fish to get

110
00:05:14,519 --> 00:05:11,439
by with Pia I would say that that would

111
00:05:17,670 --> 00:05:14,529
be a complete intellectual diet I could

112
00:05:20,999 --> 00:05:17,680
spend my time talking thinking

113
00:05:23,279 --> 00:05:21,009

theorizing arguing and it's very weird

114

00:05:26,730 --> 00:05:23,289

if I just think about my family my wife

115

00:05:29,640 --> 00:05:26,740

and our two kids those would be probably

116

00:05:32,939 --> 00:05:29,650

the three people that any one of whom

117

00:05:38,960 --> 00:05:32,949

would be a complete a relatively

118

00:05:41,090 --> 00:05:38,970

complete life in terms of just being so

119

00:05:43,460 --> 00:05:41,100

to people and and being fascinated by

120

00:05:47,690 --> 00:05:43,470

their minds and and appreciative of the

121

00:05:51,980 --> 00:05:47,700

differences between us all my family is

122

00:05:54,640 --> 00:05:51,990

exactly the people that I find most

123

00:05:56,630 --> 00:05:54,650

fascinating and most fulfilling to talk

124

00:06:00,770 --> 00:05:56,640

how do you know you were ready to have

125

00:06:01,190 --> 00:06:00,780

kids that wasn't nobody is was it a

126
00:06:02,780 --> 00:06:01,200
surprise

127
00:06:07,490 --> 00:06:02,790
or you just decided to jump in

128
00:06:10,130 --> 00:06:07,500
voluntarily um you know when I when I

129
00:06:11,990 --> 00:06:10,140
met my wife I probably told her that I

130
00:06:13,670 --> 00:06:12,000
really didn't need to have children and

131
00:06:19,270 --> 00:06:13,680
I think she really needed to have kids

132
00:06:22,520 --> 00:06:19,280
and you know kids are a very strange

133
00:06:24,230 --> 00:06:22,530
undertaking in that there are few

134
00:06:27,770 --> 00:06:24,240
features we don't appreciate first of

135
00:06:30,530 --> 00:06:27,780
all they have the strange feature that

136
00:06:33,230 --> 00:06:30,540
they are the most fascinating things

137
00:06:36,710 --> 00:06:33,240
that are absolutely not fascinating by

138
00:06:38,360 --> 00:06:36,720

fascinating to talk about so like if I

139

00:06:40,790 --> 00:06:38,370

start to tell you about what my kid did

140

00:06:42,830 --> 00:06:40,800

today your eyes will glaze over but to

141

00:06:45,290 --> 00:06:42,840

me it's the most fast figured the wrong

142

00:06:47,150 --> 00:06:45,300

so it divides us in a very strange way

143

00:06:49,670 --> 00:06:47,160

because we're so asymmetrically attached

144

00:06:51,650 --> 00:06:49,680

to our own children another feature that

145

00:06:55,520 --> 00:06:51,660

I think is really interesting is that if

146

00:06:57,590 --> 00:06:55,530

my kids didn't absolutely fascinate me

147

00:07:01,040 --> 00:06:57,600

it would be the greatest time sink in

148

00:07:02,600 --> 00:07:01,050

the world but if you have great kids

149

00:07:05,360 --> 00:07:02,610

there's nothing better you can do with

150

00:07:06,710 --> 00:07:05,370

your life so it's really it's important

151

00:07:09,440 --> 00:07:06,720

to love your children I think Jordan

152

00:07:13,310 --> 00:07:09,450

Peterson has one of his basic rules for

153

00:07:15,440 --> 00:07:13,320

life is don't let your children become

154

00:07:17,210 --> 00:07:15,450

anything that don't let your children do

155

00:07:22,100 --> 00:07:17,220

anything that makes you dislike them or

156

00:07:24,260 --> 00:07:22,110

something like that I just I guess I

157

00:07:26,260 --> 00:07:24,270

feel like it's it's about the biggest

158

00:07:30,110 --> 00:07:26,270

time sink imaginable

159

00:07:32,600 --> 00:07:30,120

so it's astounding that anything can pay

160

00:07:34,640 --> 00:07:32,610

for itself given the given the demands

161

00:07:37,280 --> 00:07:34,650

and yet child rearing I would absolutely

162

00:07:39,280 --> 00:07:37,290

recommend it to anyone if you really

163

00:07:42,110 --> 00:07:39,290

love your kids

164

00:07:44,870 --> 00:07:42,120

you managed at least in my estimation to

165

00:07:47,120 --> 00:07:44,880

stay productive I think you're extremely

166

00:07:48,950 --> 00:07:47,130

productive you might not consider

167

00:07:52,010 --> 00:07:48,960

yourself to be some people think on

168

00:07:53,749 --> 00:07:52,020

counter product well

169

00:07:56,749 --> 00:07:53,759

either way there's a word productive in

170

00:07:57,770 --> 00:07:56,759

there you're doing something do you do

171

00:08:00,050 --> 00:07:57,780

you consider yourself to be productive

172

00:08:02,119 --> 00:08:00,060

and do you take nootropics what does

173

00:08:06,710 --> 00:08:02,129

your schedule look like how do you

174

00:08:10,339 --> 00:08:06,720

maintain yes I have no schedule I have a

175

00:08:14,659 --> 00:08:10,349

terrible sleep schedule I don't take no

176

00:08:19,040 --> 00:08:14,669

tropics I don't sell optimize in any of

177

00:08:24,080 --> 00:08:19,050

the sort of Tim Ferriss style ways why

178

00:08:26,779 --> 00:08:24,090

not well it's a very weird question or

179

00:08:29,300 --> 00:08:26,789

ways in which I think like I really left

180

00:08:31,790 --> 00:08:29,310

this planet when I started making

181

00:08:34,240 --> 00:08:31,800

theoretical physics very seriously and I

182

00:08:37,010 --> 00:08:34,250

don't exactly know what those words mean

183

00:08:38,930 --> 00:08:37,020

but it's a sort of a dissociative brain

184

00:08:41,360 --> 00:08:38,940

state where you don't really think about

185

00:08:43,339 --> 00:08:41,370

this as the plane of existence you think

186

00:08:43,639 --> 00:08:43,349

about trying to commune with something

187

00:08:45,680 --> 00:08:43,649

else

188

00:08:47,560 --> 00:08:45,690

it means you sort of lose track of the

189

00:08:50,870 --> 00:08:47,570

here in the now the practical the

190

00:08:53,480 --> 00:08:50,880

instance of something you know if I have

191

00:08:55,639 --> 00:08:53,490

a coffee mug do I see this as the

192

00:08:57,470 --> 00:08:55,649

Platonic essence of all coffee mugs or

193

00:08:59,150 --> 00:08:57,480

do I see it as the particular coffee mug

194

00:09:02,630 --> 00:08:59,160

that I'm holding that as a chip on one

195

00:09:03,949 --> 00:09:02,640

side you know I think that I started to

196

00:09:07,180 --> 00:09:03,959

move towards greater and greater

197

00:09:09,650 --> 00:09:07,190

abstraction and how I interact and

198

00:09:14,380 --> 00:09:09,660

probably caused me not to focus too much

199

00:09:17,449 --> 00:09:14,390

on the sort of westcoast optimization

200

00:09:19,870 --> 00:09:17,459

program in part I also think that a lot

201
00:09:22,220 --> 00:09:19,880
of those people spend so much time

202
00:09:24,170 --> 00:09:22,230
optimizing themselves that they don't do

203
00:09:26,300 --> 00:09:24,180
anything with the optimized machine that

204
00:09:31,090 --> 00:09:26,310
they create and so there is a trade-off

205
00:09:35,300 --> 00:09:31,100
and for better for worse I decided to

206
00:09:38,060 --> 00:09:35,310
ignore some aspects of that to pursue

207
00:09:40,160 --> 00:09:38,070
something that seemed impossible so it's

208
00:09:42,590 --> 00:09:40,170
like they're constantly defragmenting

209
00:09:45,680 --> 00:09:42,600
and they're not running any applications

210
00:09:47,480 --> 00:09:45,690
or besides the disk optimization I

211
00:09:50,810 --> 00:09:47,490
didn't say that for that's quite funny

212
00:09:52,670 --> 00:09:50,820
okay do you microdose I remember you

213
00:09:54,769 --> 00:09:52,680

were going to talk to Tim Ferriss about

214

00:09:57,350 --> 00:09:54,779

micro dosing it was in the title but I

215

00:10:02,389 --> 00:09:57,360

don't recall the topic of psychedelics

216

00:10:07,940 --> 00:10:02,399

coming up about you personally no no

217

00:10:12,449 --> 00:10:10,860

okay here's the here's the question with

218

00:10:14,280 --> 00:10:12,459

the presumption in it what what

219

00:10:17,069 --> 00:10:14,290

life-changing insight have you gotten

220

00:10:21,960 --> 00:10:17,079

from psychedelics that you feel like you

221

00:10:23,970 --> 00:10:21,970

couldn't have gone elsewhere the

222

00:10:27,600 --> 00:10:23,980

life-changing insight that I've gotten

223

00:10:29,460 --> 00:10:27,610

from psychedelics is that we should

224

00:10:32,430 --> 00:10:29,470

never have created the Controlled

225

00:10:35,939 --> 00:10:32,440

Substances Act in the early 1970s to go

226

00:10:38,910 --> 00:10:35,949

after Blacks and Jews and that many of

227

00:10:40,650 --> 00:10:38,920

the substances on that list do not

228

00:10:44,490 --> 00:10:40,660

belong on that list because the twin

229

00:10:46,410 --> 00:10:44,500

criteria that have to be met are that

230

00:10:49,530 --> 00:10:46,420

something has a high propensity for harm

231

00:10:51,509 --> 00:10:49,540

and that it has no known medical benefit

232

00:10:53,699 --> 00:10:51,519

and we now know from research coming out

233

00:11:00,780 --> 00:10:53,709

of Johns Hopkins and NYU and other

234

00:11:02,610 --> 00:11:00,790

places friends at maps that in fact many

235

00:11:06,930 --> 00:11:02,620

of the substances on the schedule one

236

00:11:11,480 --> 00:11:06,940

list should not be on them do you find

237

00:11:13,920 --> 00:11:11,490

that you're a fast reader no Bob I'm a

238

00:11:16,139 --> 00:11:13,930

fast reader in a very strange sense

239

00:11:18,720 --> 00:11:16,149

which is that I don't actually read the

240

00:11:20,880 --> 00:11:18,730

books I have a different technique of

241

00:11:23,040 --> 00:11:20,890

sampling information inside of books

242

00:11:24,980 --> 00:11:23,050

trying to figure out where it's dense

243

00:11:28,199 --> 00:11:24,990

and then drilling in where I need to

244

00:11:31,110 --> 00:11:28,209

okay let's let's explore that let's

245

00:11:32,790 --> 00:11:31,120

expand elaborate what do you mean let's

246

00:11:34,920 --> 00:11:32,800

take take us through let's say you want

247

00:11:38,160 --> 00:11:34,930

to learn about a topic some topic that

248

00:11:42,230 --> 00:11:38,170

you haven't give me a topic touched on

249

00:11:48,630 --> 00:11:45,889

particle phenomenology okay

250

00:11:49,949 --> 00:11:48,640

okay now I just said a word particle

251
00:11:50,939 --> 00:11:49,959
phenomenology so most people they're

252
00:11:53,100 --> 00:11:50,949
like okay I don't even know what that is

253
00:11:55,050 --> 00:11:53,110
now let's assume you obviously know what

254
00:11:56,759 --> 00:11:55,060
those words mean so you have some

255
00:11:58,230 --> 00:11:56,769
familiarity with the field what do you

256
00:12:00,530 --> 00:11:58,240
what's your first step Wikipedia article

257
00:12:03,150 --> 00:12:00,540
skim that then well the first thing is

258
00:12:05,639 --> 00:12:03,160
what I want to know why it is that I'm

259
00:12:07,259 --> 00:12:05,649
okay I care about particle phenomenology

260
00:12:09,329 --> 00:12:07,269
did a professor tell me that that's

261
00:12:12,480 --> 00:12:09,339
something I really need to drill down on

262
00:12:14,880 --> 00:12:12,490
because I'm asking question or is this

263
00:12:16,829 --> 00:12:14,890

just some words crossed my path and now

264

00:12:18,850 --> 00:12:16,839

I have to find out what they meet so

265

00:12:20,980 --> 00:12:18,860

depending upon what the purpose

266

00:12:22,930 --> 00:12:20,990

is I probably do things slightly

267

00:12:25,060 --> 00:12:22,940

different okay let's imagine that for

268

00:12:27,220 --> 00:12:25,070

your theory of everything you know that

269

00:12:31,810 --> 00:12:27,230

having some predictive power is useful

270

00:12:35,290 --> 00:12:31,820

and you want to know well well how can i

271

00:12:38,020 --> 00:12:35,300

mangle this into a form that that won't

272

00:12:40,860 --> 00:12:38,030

be dismissive the usual let's just take

273

00:12:43,180 --> 00:12:40,870

the sort of the particle and wave Zoo

274

00:12:46,200 --> 00:12:43,190

you know you've got lots of things that

275

00:12:50,830 --> 00:12:46,210

end in the word on it's protons neutrons

276

00:12:52,150 --> 00:12:50,840

gluons photons electrons right and then

277

00:12:57,190 --> 00:12:52,160

you've got different words like

278

00:12:59,740 --> 00:12:57,200

neutrinos quarks and W and Z particles

279

00:13:01,810 --> 00:12:59,750

so you've got this whole slew of words

280

00:13:03,940 --> 00:13:01,820

around particles first thing I would say

281

00:13:08,590 --> 00:13:03,950

is okay how do these words relate to

282

00:13:11,650 --> 00:13:08,600

each other right so how long before you

283

00:13:13,990 --> 00:13:11,660

figure out the basic division is bosons

284

00:13:17,080 --> 00:13:14,000

versus fermions that's the most

285

00:13:19,270 --> 00:13:17,090

important division in all of the

286

00:13:20,320 --> 00:13:19,280

particles ooh okay I'm gonna stop you

287

00:13:22,210 --> 00:13:20,330

for a second because I want to get into

288

00:13:23,530 --> 00:13:22,220

some specifics so you're like alright

289

00:13:25,390 --> 00:13:23,540

well there's some terminology and

290

00:13:26,920 --> 00:13:25,400

they're disparate at least right now how

291

00:13:29,350 --> 00:13:26,930

do I connect them do you do you do

292

00:13:31,420 --> 00:13:29,360

something like the traditional madman

293

00:13:35,020 --> 00:13:31,430

who writes on paper puts it on the wall

294

00:13:37,270 --> 00:13:35,030

and then read strings between them or or

295

00:13:39,400 --> 00:13:37,280

is it you type it or you ask well this

296

00:13:41,830 --> 00:13:39,410

isn't my first this isn't my first rodeo

297

00:13:45,600 --> 00:13:41,840

so I know that if I bomb it all the

298

00:13:48,670 --> 00:13:45,610

stuff that is confusing me onto one

299

00:13:50,710 --> 00:13:48,680

let's say white board or piece of paper

300

00:13:53,440 --> 00:13:50,720

or a spreadsheet or whatever whatever it

301
00:13:56,170 --> 00:13:53,450
is that there are going to be ways in

302
00:14:01,480 --> 00:13:56,180
which all of those concepts relate to

303
00:14:04,800 --> 00:14:01,490
each other and whatever that structure

304
00:14:08,200 --> 00:14:04,810
is around the raw unstructured verbiage

305
00:14:10,030 --> 00:14:08,210
has to be teased out and usually the

306
00:14:13,180 --> 00:14:10,040
things that I care about are going to be

307
00:14:15,340 --> 00:14:13,190
highly structured I can be the counter

308
00:14:17,290 --> 00:14:15,350
example that history is not very highly

309
00:14:19,870 --> 00:14:17,300
structured because it kind of unfolds

310
00:14:23,350 --> 00:14:19,880
haphazardly or like the phylogenetic

311
00:14:27,820 --> 00:14:23,360
tree in biology is pretty haphazard is

312
00:14:29,890 --> 00:14:27,830
it unfolded just as it were

313
00:14:32,770 --> 00:14:29,900

when things are highly systematized like

314

00:14:34,720 --> 00:14:32,780

particle phenomenology you have to

315

00:14:38,470 --> 00:14:34,730

understand when somebody says like the

316

00:14:40,540 --> 00:14:38,480

word hadron where does hadron fit with

317

00:14:44,770 --> 00:14:40,550

respect to the word pork or the word

318

00:14:46,560 --> 00:14:44,780

boson or fermium so the next thing is

319

00:14:50,710 --> 00:14:46,570

sort of the hierarchy of relationships

320

00:14:52,830 --> 00:14:50,720

that are in intrinsic to assist so for

321

00:14:56,260 --> 00:14:52,840

example if i was doing human physiology

322

00:14:58,180 --> 00:14:56,270

bursar I was doing biology I would think

323

00:15:01,210 --> 00:14:58,190

about the break up into the four layers

324

00:15:04,890 --> 00:15:01,220

of anatomy physiology histology and

325

00:15:08,650 --> 00:15:04,900

cytology right so think about those as

326

00:15:10,240 --> 00:15:08,660

URIs I can't really talk about Anatomy

327

00:15:12,040 --> 00:15:10,250

unless I'm also talking about the

328

00:15:15,040 --> 00:15:12,050

function which is physiology and

329

00:15:16,660 --> 00:15:15,050

physiology really depends on tissues so

330

00:15:18,220 --> 00:15:16,670

that would be histology and tissues are

331

00:15:20,740 --> 00:15:18,230

made up of cells so that would be

332

00:15:23,470 --> 00:15:20,750

psychology so I would build some sort of

333

00:15:25,450 --> 00:15:23,480

dependency structure and then I would

334

00:15:29,140 --> 00:15:25,460

try to remember this is the top-level

335

00:15:30,670 --> 00:15:29,150

categorization so that I have a map okay

336

00:15:32,170 --> 00:15:30,680

now please forgive me if it's getting

337

00:15:34,270 --> 00:15:32,180

tedious I'm getting too much of the

338

00:15:35,740 --> 00:15:34,280

details well do you say Matt are you

339

00:15:37,300 --> 00:15:35,750

writing it down or are you still keeping

340

00:15:40,090 --> 00:15:37,310

it in your head or are you just reading

341

00:15:42,130 --> 00:15:40,100

this I'm in flow

342

00:15:44,350 --> 00:15:42,140

so maybe I'm dancing around next to a

343

00:15:46,030 --> 00:15:44,360

whiteboard and I'm recording things and

344

00:15:48,010 --> 00:15:46,040

I'm writing things in spreadsheets I'm

345

00:15:51,130 --> 00:15:48,020

just trying to get the structure because

346

00:15:55,210 --> 00:15:51,140

initially I'm always astounded at how

347

00:15:57,850 --> 00:15:55,220

the the simplifying is tend to be hidden

348

00:16:01,240 --> 00:15:57,860

from view until very late in the game

349

00:16:03,610 --> 00:16:01,250

with most pedagogy I think because if we

350

00:16:06,130 --> 00:16:03,620

give them to people up front they will

351

00:16:09,160 --> 00:16:06,140

learn too quickly and teacher will hat

352

00:16:11,680 --> 00:16:09,170

will be out of a job that's interesting

353

00:16:13,510 --> 00:16:11,690

okay so you think there's a nefarious

354

00:16:15,130 --> 00:16:13,520

reason the selfishness of the depths of

355

00:16:18,220 --> 00:16:15,140

the self press availability taught

356

00:16:20,320 --> 00:16:18,230

against us all which withhold the simple

357

00:16:24,130 --> 00:16:20,330

diagrams that would keep us much less

358

00:16:25,210 --> 00:16:24,140

confused you also mention and I'm

359

00:16:26,770 --> 00:16:25,220

slightly kidding

360

00:16:31,269 --> 00:16:26,780

but yeah yeah there's something to it

361

00:16:37,929 --> 00:16:33,790

I've been told I'm Dyslexic of course

362

00:16:40,479 --> 00:16:37,939

dyslexia is itself not always a well

363

00:16:42,100 --> 00:16:40,489

understood clustered of disparate

364

00:16:44,410 --> 00:16:42,110

phenomena certainly I have learning

365

00:16:49,210 --> 00:16:44,420

differences from the average human yeah

366

00:16:50,439 --> 00:16:49,220

okay whatever you think well some of

367

00:16:56,410 --> 00:16:50,449

them are none of your business and

368

00:16:59,739 --> 00:16:56,420

others of them have to do with symbols

369

00:17:03,189 --> 00:16:59,749

are very cumbersome to keep straight and

370

00:17:06,360 --> 00:17:03,199

they dance around too much so that it's

371

00:17:09,519 --> 00:17:06,370

hard to learn through symbolic channel

372

00:17:10,899 --> 00:17:09,529

okay now when I hear that and I hear

373

00:17:15,000 --> 00:17:10,909

that coming from a mathematician that

374

00:17:20,439 --> 00:17:15,010

strikes me as odd because math is a

375

00:17:21,819 --> 00:17:20,449

tremendously symbolic so how do how do

376

00:17:23,590 --> 00:17:21,829

you overcome the giant pain and then

377

00:17:25,329 --> 00:17:23,600

it's 8:00 in the neck it's a real

378

00:17:27,360 --> 00:17:25,339

problem right all right okay but at the

379

00:17:29,409 --> 00:17:27,370

same time it doesn't seem like you took

380

00:17:31,870 --> 00:17:29,419

longer than the average person to

381

00:17:33,789 --> 00:17:31,880

formulate your PhD or to study you

382

00:17:39,070 --> 00:17:33,799

graduated pretty much at this plus or

383

00:17:42,129 --> 00:17:39,080

minus one year that the my PhD did take

384

00:17:44,320 --> 00:17:42,139

longer because it you know I started

385

00:17:47,889 --> 00:17:44,330

when I was 19 with the master's degree

386

00:17:49,360 --> 00:17:47,899

so effectively you know function okay

387

00:17:50,500 --> 00:17:49,370

okay okay yeah but you started in

388

00:17:52,720 --> 00:17:50,510

nineteen with a master's degree

389

00:17:54,370 --> 00:17:52,730

many people are entering university 18

390

00:17:57,549 --> 00:17:54,380

no but I've heard of them from a

391

00:18:00,310 --> 00:17:57,559

different point Kurt people have a very

392

00:18:01,720 --> 00:18:00,320

simplistic idea okay you were really

393

00:18:05,610 --> 00:18:01,730

good at math or you were really bad at

394

00:18:11,110 --> 00:18:08,919

you know if you look at Ray Charles

395

00:18:16,240 --> 00:18:11,120

would you say he's good at music or bad

396

00:18:19,080 --> 00:18:16,250

at his I would say I'm not sure who Ray

397

00:18:23,529 --> 00:18:19,090

Charles is I'm specific animation okay

398

00:18:24,639 --> 00:18:23,539

yeah it was a blind sort of right there

399

00:18:29,830 --> 00:18:24,649

is a mute there's a document a

400

00:18:31,960 --> 00:18:29,840

non-player okay and the next

401
00:18:34,390 --> 00:18:31,970
would be after saying well he was

402
00:18:35,860 --> 00:18:34,400
obviously very good at music I would

403
00:18:37,149 --> 00:18:35,870
have asked you how was he at reading

404
00:18:38,590 --> 00:18:37,159
music and you would have said well he

405
00:18:42,760 --> 00:18:38,600
was blind of course he wasn't reading

406
00:18:44,890 --> 00:18:42,770
right great he's both good and bad as a

407
00:18:47,620 --> 00:18:44,900
musician if part of being a musician to

408
00:18:49,299 --> 00:18:47,630
you is reading music mm-hmm um since the

409
00:18:50,769 --> 00:18:49,309
same thing is true in mathematics for

410
00:18:54,970 --> 00:18:50,779
those of us who are symbolically

411
00:18:57,730 --> 00:18:54,980
challenged hmm okay so there's different

412
00:19:00,130 --> 00:18:57,740
facets of physics and mathematics is

413
00:19:02,139 --> 00:19:00,140

there one in particular about physics

414

00:19:05,560 --> 00:19:02,149

that you find hard to grok or to

415

00:19:08,590 --> 00:19:05,570

understand or to comprehend is there one

416

00:19:09,940 --> 00:19:08,600

one so for example in math there is the

417

00:19:11,680 --> 00:19:09,950

understanding of the formula which I

418

00:19:13,240 --> 00:19:11,690

imagine comes to you fairly easily and

419

00:19:17,500 --> 00:19:13,250

then there's the writing it though it's

420

00:19:19,870 --> 00:19:17,510

those explicit explication of it out

421

00:19:23,980 --> 00:19:19,880

into a formula so that is symbolic and

422

00:19:26,590 --> 00:19:23,990

that one I imagine is tricky for you now

423

00:19:27,430 --> 00:19:26,600

physics has different components like

424

00:19:28,659 --> 00:19:27,440

there's the formula

425

00:19:30,039 --> 00:19:28,669

there's the understanding as well and

426
00:19:32,680 --> 00:19:30,049
there's probably three more or maybe a

427
00:19:34,560 --> 00:19:32,690
hundred more what do you what do you

428
00:19:39,490 --> 00:19:34,570
particularly find difficult in physics

429
00:19:50,990 --> 00:19:43,620
so people yuning discriminate between

430
00:19:56,250 --> 00:19:53,880
they'll talk about a classical object

431
00:19:59,070 --> 00:19:56,260
and a quantum problem without explaining

432
00:20:01,320 --> 00:19:59,080
why they're allowed to have a classical

433
00:20:02,909 --> 00:20:01,330
version of let's say the slit in the

434
00:20:05,009 --> 00:20:02,919
double slit experiment but a quantum

435
00:20:07,049 --> 00:20:05,019
version of the electron that supposedly

436
00:20:09,630 --> 00:20:07,059
is going through both slits at the same

437
00:20:11,639 --> 00:20:09,640
time and then you know you ask the

438
00:20:13,649 --> 00:20:11,649

question well you know might it be the

439

00:20:16,080 --> 00:20:13,659

problem that you haven't defined what an

440

00:20:18,180 --> 00:20:16,090

observer is you haven't said how you

441

00:20:22,200 --> 00:20:18,190

have a detector that is itself quantum

442

00:20:24,919 --> 00:20:22,210

mechanical you're never quite sure with

443

00:20:27,450 --> 00:20:24,929

the physicists whether they are

444

00:20:30,120 --> 00:20:27,460

simplifying things in a way that is not

445

00:20:32,639 --> 00:20:30,130

destructive of the truth or whether they

446

00:20:34,129 --> 00:20:32,649

are actually playing with sleight of

447

00:20:37,169 --> 00:20:34,139

hand

448

00:20:39,970 --> 00:20:37,179

so I think physics is just they don't

449

00:20:42,970 --> 00:20:39,980

think as cleanly

450

00:20:46,060 --> 00:20:42,980

as mathematicians but the upside of that

451
00:20:47,620 --> 00:20:46,070
is is that that non cleanliness means

452
00:20:49,210 --> 00:20:47,630
that they can do things no other

453
00:20:52,480 --> 00:20:49,220
community can do because they've

454
00:20:56,269 --> 00:20:52,490
hybridized the purity of mathematics

455
00:20:59,220 --> 00:20:56,279
with the dirt and grit of experiment

456
00:21:01,860 --> 00:20:59,230
and when you're thinking do you tend to

457
00:21:06,060 --> 00:21:01,870
you wrote plenty by the way I was

458
00:21:08,430 --> 00:21:06,070
looking through your edge pages as well

459
00:21:14,009 --> 00:21:08,440
as your papers somewhere all in

460
00:21:15,690 --> 00:21:14,019
economics it is it's fairly lengthy yet

461
00:21:18,600 --> 00:21:15,700
you consider yourself to have an impart

462
00:21:21,389 --> 00:21:18,610
dyslexia do do you write in order to

463
00:21:22,560 --> 00:21:21,399

think or do you think aloud do you think

464

00:21:26,039 --> 00:21:22,570

while conversing do you think while

465

00:21:28,230 --> 00:21:26,049

walking yeah but I also for example

466

00:21:31,560 --> 00:21:28,240

calculate inside of a typesetting

467

00:21:34,490 --> 00:21:31,570

program which is unheard of okay yeah

468

00:21:39,600 --> 00:21:34,500

what do you what do you mean wire I

469

00:21:43,649 --> 00:21:39,610

require the rigor of a program called

470

00:21:46,110 --> 00:21:43,659

late a core law tech in order to keep my

471

00:21:48,539 --> 00:21:46,120

symbols from dropping a minus sign or

472

00:21:50,789 --> 00:21:48,549

running off the edge of the page so I

473

00:21:53,039 --> 00:21:50,799

actually use typesetting as the

474

00:21:57,690 --> 00:21:53,049

environment in which I calculate as a

475

00:22:00,299 --> 00:21:57,700

crutch no when you came up with your

476

00:22:01,649 --> 00:22:00,309

theory of everything let me just

477

00:22:03,330 --> 00:22:01,659

actually say one other thing since

478

00:22:07,049 --> 00:22:03,340

you're palling at this issue

479

00:22:09,750 --> 00:22:07,059

I don't know anybody at all who is in my

480

00:22:11,549 --> 00:22:09,760

situation in math and physics that is I

481

00:22:18,810 --> 00:22:11,559

never met somebody with my learning

482

00:22:22,889 --> 00:22:18,820

issues who refused to accept that that

483

00:22:24,810 --> 00:22:22,899

they couldn't do this right because the

484

00:22:26,639 --> 00:22:24,820

strong indication that I have by the

485

00:22:29,940 --> 00:22:26,649

time I was leaving high school with the

486

00:22:31,759 --> 00:22:29,950

b-minus in mathematics was that this was

487

00:22:35,009 --> 00:22:31,769

not something I was supposed to go into

488

00:22:36,690 --> 00:22:35,019

and I couldn't imagine that if the

489

00:22:39,600 --> 00:22:36,700

secrets of the universe were written in

490

00:22:41,580 --> 00:22:39,610

this language that anyone should be

491

00:22:44,700 --> 00:22:41,590

fenced out of it because their learning

492

00:22:47,279 --> 00:22:44,710

process was different from others there

493

00:22:50,129 --> 00:22:47,289

have been blind mathematicians there

494

00:22:52,649 --> 00:22:50,139

have been met one of the greatest is but

495

00:22:56,240 --> 00:22:52,659

I never encountered any one one

496

00:22:59,909 --> 00:22:56,250

one-on-one face-to-face personally who

497

00:23:02,220 --> 00:22:59,919

had a significant symbolic challenge

498

00:23:06,570 --> 00:23:02,230

because our language is so focused on

499

00:23:08,930 --> 00:23:06,580

symbolic expression you mentioned one

500

00:23:10,460 --> 00:23:08,940

time about you would take anyone

501
00:23:12,289 --> 00:23:10,470
being classified as having a learning

502
00:23:13,549 --> 00:23:12,299
disability and show them why they either

503
00:23:15,469 --> 00:23:13,559
don't have one or you have a teaching

504
00:23:17,629 --> 00:23:15,479
disability let's be very clear

505
00:23:18,979 --> 00:23:17,639
there are a set of learning disabilities

506
00:23:20,659 --> 00:23:18,989
which are actually not learning

507
00:23:22,279 --> 00:23:20,669
disabilities and then there are things

508
00:23:24,139 --> 00:23:22,289
like you know the person didn't get

509
00:23:27,529 --> 00:23:24,149
enough oxygen in the birth canal and

510
00:23:30,469 --> 00:23:27,539
their brain never recovered that's not

511
00:23:32,779 --> 00:23:30,479
what I'm saying I'm saying that there

512
00:23:34,909 --> 00:23:32,789
are certain learning disabilities in the

513
00:23:36,859 --> 00:23:34,919

parlance of educators that are simply

514

00:23:40,279 --> 00:23:36,869

misdiagnosed superpowers with the

515

00:23:42,979 --> 00:23:40,289

deficit that pays for right is to choose

516

00:23:44,839 --> 00:23:42,989

my learning disabled mutant so I'll take

517

00:23:47,960 --> 00:23:44,849

that group of people over standard

518

00:23:51,710 --> 00:23:47,970

learners any day you just have to change

519

00:23:56,530 --> 00:23:51,720

education so that it doesn't consign the

520

00:23:58,300 --> 00:23:56,540

dummy pile I imagine

521

00:24:00,970 --> 00:23:58,310

painful for you to understand your own

522

00:24:02,050 --> 00:24:00,980

learning disability because you're just

523

00:24:04,720 --> 00:24:02,060

having trouble you don't know why you're

524

00:24:05,710 --> 00:24:04,730

having such such a hard time now let's

525

00:24:08,050 --> 00:24:05,720

see there are other people who have

526

00:24:09,340 --> 00:24:08,060

similar maybe not similar just learning

527

00:24:11,910 --> 00:24:09,350

disabilities but learning disabilities

528

00:24:16,210 --> 00:24:11,920

in general or in the way that you just

529

00:24:18,310 --> 00:24:16,220

define them how what advice do you have

530

00:24:19,690 --> 00:24:18,320

so that they can uncover what's holding

531

00:24:24,850 --> 00:24:19,700

them back because it could be a myriad

532

00:24:27,850 --> 00:24:24,860

of items well first thing is is that

533

00:24:32,430 --> 00:24:27,860

recognize that your performance is a

534

00:24:35,770 --> 00:24:32,440

hybrid of your abilities and your

535

00:24:37,480 --> 00:24:35,780

teachers abilities and that you are

536

00:24:40,600 --> 00:24:37,490

going to pay the price if your teacher

537

00:24:42,520 --> 00:24:40,610

cannot find abilities and just uses what

538

00:24:46,210 --> 00:24:42,530

they use on every other neurotypical

539

00:24:48,370 --> 00:24:46,220

student so first of all stop stop

540

00:24:50,920 --> 00:24:48,380

sniveling stop saying you're bad at math

541

00:24:52,570 --> 00:24:50,930

stop saying you can't do this stop

542

00:24:55,600 --> 00:24:52,580

listening to your teacher stop reading

543

00:24:57,780 --> 00:24:55,610

your report card recognize that none of

544

00:25:06,730 --> 00:24:57,790

that actually matters for you because

545

00:25:07,800 --> 00:25:06,740

it's predicated on an idea that I mean

546

00:25:09,690 --> 00:25:07,810

let's imagine

547

00:25:14,850 --> 00:25:09,700

example that you're in Intuit in the

548

00:25:16,620 --> 00:25:14,860

north of Alaska okay should you feel bad

549

00:25:18,750 --> 00:25:16,630

that you're not going to win the Boston

550

00:25:22,710 --> 00:25:18,760

Marathon because the people who win that

551
00:25:24,840 --> 00:25:22,720
are in general East Africans who are the

552
00:25:27,300 --> 00:25:24,850
world champions of radiating heat

553
00:25:28,710 --> 00:25:27,310
whereas you are the world champion of

554
00:25:30,470 --> 00:25:28,720
retaining Heat because of the

555
00:25:32,790 --> 00:25:30,480
differences in your environment so

556
00:25:34,560 --> 00:25:32,800
you're gonna be maximally bad at

557
00:25:39,210 --> 00:25:34,570
marathon running because you're very

558
00:25:41,160 --> 00:25:39,220
well adapted to live in the hole now my

559
00:25:43,800 --> 00:25:41,170
people stop feeling bad that you're not

560
00:25:47,120 --> 00:25:43,810
the symbolic King you know solving it

561
00:25:50,130 --> 00:25:47,130
complicated integrals through lots of

562
00:25:51,900 --> 00:25:50,140
you know mathematical trickery instead

563
00:25:54,750 --> 00:25:51,910

focus on what you're good what you're

564

00:25:57,270 --> 00:25:54,760

good at which is that probably speaking

565

00:26:01,200 --> 00:25:57,280

your conceptually much more advanced as

566

00:26:03,210 --> 00:26:01,210

you're symbolically [h__h] so it's

567

00:26:05,010 --> 00:26:03,220

very bad for me to give advice because I

568

00:26:07,950 --> 00:26:05,020

tend to tell people to stop listening to

569

00:26:10,650 --> 00:26:07,960

their teachers get a backbone become

570

00:26:12,480 --> 00:26:10,660

more arrogant more self-possessed learn

571

00:26:13,590 --> 00:26:12,490

to build yourself up and then people

572

00:26:15,930 --> 00:26:13,600

will say oh my god you're going to

573

00:26:17,700 --> 00:26:15,940

encourage the dunning-kruger effect well

574

00:26:19,770 --> 00:26:17,710

you know that may be true that may be

575

00:26:20,550 --> 00:26:19,780

into down what I'm saying but let me say

576

00:26:22,500 --> 00:26:20,560

the upside

577

00:26:24,270 --> 00:26:22,510

you're gonna consign a bunch of super

578

00:26:26,130 --> 00:26:24,280

Minds to the dummy pile because you

579

00:26:28,920 --> 00:26:26,140

don't even understand that they can't

580

00:26:31,200 --> 00:26:28,930

perform on the tests for the same reason

581

00:26:32,730 --> 00:26:31,210

that one person might taste cilantro is

582

00:26:34,590 --> 00:26:32,740

a beautiful spice and the other might

583

00:26:37,080 --> 00:26:34,600

taste it as a bar of soap because of a

584

00:26:39,240 --> 00:26:37,090

genetic predisposition we are all

585

00:26:41,730 --> 00:26:39,250

different and it is not the role of

586

00:26:45,150 --> 00:26:41,740

school to tell the super learners who

587

00:26:46,860 --> 00:26:45,160

have my profile that they're idiots it's

588

00:26:48,720 --> 00:26:46,870

much better to tell the teachers that

589

00:26:50,220 --> 00:26:48,730

they may be idiots for not recognizing

590

00:26:53,460 --> 00:26:50,230

they have a different population that

591

00:26:56,190 --> 00:26:53,470

they're mangling okay right here you

592

00:26:58,080 --> 00:26:56,200

have your own point of view and almost

593

00:26:59,820 --> 00:26:58,090

every single almost invariably when

594

00:27:01,800 --> 00:26:59,830

someone asks you a question one that you

595

00:27:03,510 --> 00:27:01,810

haven't been posed before I assume EULA

596

00:27:05,780 --> 00:27:03,520

I assume you happen it's novel to you

597

00:27:08,790 --> 00:27:05,790

you will come back in about five seconds

598

00:27:12,600 --> 00:27:08,800

with an interesting and different answer

599

00:27:13,590 --> 00:27:12,610

I'm not always that it's cogent which is

600

00:27:15,030 --> 00:27:13,600

difficult because you can string

601
00:27:17,640 --> 00:27:15,040
together a sentence and not have it go

602
00:27:19,410 --> 00:27:17,650
here now

603
00:27:24,450 --> 00:27:19,420
that come from having an articulated

604
00:27:27,150 --> 00:27:24,460
worldview I don't want that but I don't

605
00:27:28,320 --> 00:27:27,160
mean to keep singing your praises but at

606
00:27:28,710 --> 00:27:28,330
some point I'll insult you I'll figure

607
00:27:34,770 --> 00:27:28,720
it out

608
00:27:37,290 --> 00:27:34,780
but do you it does it come from were you

609
00:27:39,690 --> 00:27:37,300
able to have such quick responses and

610
00:27:41,340 --> 00:27:39,700
unique responses when you were 25 or

611
00:27:44,730 --> 00:27:41,350
when you were 30 doesn't just come with

612
00:27:46,950 --> 00:27:44,740
age if you know some I've pretty much

613
00:27:50,600 --> 00:27:46,960

been the same guy since my 20s but

614

00:27:55,610 --> 00:27:50,610

nobody was listening to me and my planet

615

00:27:57,930 --> 00:27:55,620

okay and that came from life experience

616

00:27:59,970 --> 00:27:57,940

how do you know you how do you tell

617

00:28:02,580 --> 00:27:59,980

someone to think originally I see you as

618

00:28:04,980 --> 00:28:02,590

an original thinker and that doesn't

619

00:28:07,230 --> 00:28:04,990

mean you're correct but obviously I'm

620

00:28:09,780 --> 00:28:07,240

biased I good and I don't want to give

621

00:28:13,040 --> 00:28:09,790

away my biases but but I tremendously

622

00:28:15,540 --> 00:28:13,050

like you and I'm curious how is it bit

623

00:28:17,280 --> 00:28:15,550

someone else can what advice do you have

624

00:28:19,920 --> 00:28:17,290

for someone else to be able to

625

00:28:23,850 --> 00:28:19,930

articulate their own point of view well

626

00:28:25,050 --> 00:28:23,860

okay so let me this is a super dangerous

627

00:28:28,200 --> 00:28:25,060

question if you're really interested

628

00:28:30,900 --> 00:28:28,210

I'll give you a real answer every single

629

00:28:35,430 --> 00:28:30,910

person walks through their day seeing

630

00:28:37,320 --> 00:28:35,440

that they're told aren't there or they

631

00:28:41,220 --> 00:28:37,330

fail to see things that they're told are

632

00:28:44,130 --> 00:28:41,230

there and they learn to silence their

633

00:28:46,710 --> 00:28:44,140

own voice we all have this voice that is

634

00:28:49,580 --> 00:28:46,720

not the voice that is received through

635

00:28:53,760 --> 00:28:49,590

the television the radio podcasts

636

00:28:55,640 --> 00:28:53,770

newspapers websites and we learn to

637

00:29:00,270 --> 00:28:55,650

spell to ourself

638

00:29:02,940 --> 00:29:00,280

now that process

639

00:29:04,410 --> 00:29:02,950

is a very dangerous one to undo because

640

00:29:05,880 --> 00:29:04,420

what you'll notice is that every time

641

00:29:09,720 --> 00:29:05,890

you ask me a question where I don't have

642

00:29:11,700 --> 00:29:09,730

a standard take potentially somebody's

643

00:29:13,290 --> 00:29:11,710

gonna get really angry about it whatever

644

00:29:14,610 --> 00:29:13,300

whatever it isn't that I'm saying like

645

00:29:16,380 --> 00:29:14,620

you know what we were just talking about

646

00:29:18,390 --> 00:29:16,390

it when I just said that many teachers

647

00:29:19,980 --> 00:29:18,400

have teaching disabilities that they

648

00:29:25,320 --> 00:29:19,990

pawn off on students learning

649

00:29:27,360 --> 00:29:25,330

disabilities we imagine you know an

650

00:29:30,390 --> 00:29:27,370

article in a newspaper called American

651
00:29:33,210 --> 00:29:30,400
educator like today Weinstein continued

652
00:29:34,530 --> 00:29:33,220
his tirade against the teaching like

653
00:29:37,710 --> 00:29:34,540
somebody's always gonna get angry that

654
00:29:40,620 --> 00:29:37,720
it's a strictly a function of courage or

655
00:29:41,880 --> 00:29:40,630
did you build this up what I'm saying is

656
00:29:44,100 --> 00:29:41,890
you you could say something you know

657
00:29:46,800 --> 00:29:44,110
might be taken out of proportion just

658
00:29:48,330 --> 00:29:46,810
like Jordan Peterson is at some point

659
00:29:49,740 --> 00:29:48,340
you just you just stopped caring you

660
00:29:51,780 --> 00:29:49,750
mentioned well I'm posed the same way

661
00:29:54,510 --> 00:29:51,790
since I was 20 I imagine that you would

662
00:29:58,260 --> 00:29:54,520
be more hard skinned as you get older

663
00:30:01,410 --> 00:29:58,270

thick skinned I don't know everything

664

00:30:04,170 --> 00:30:01,420

still hurts you know you're never gonna

665

00:30:05,430 --> 00:30:04,180

be accepted when you give up on being

666

00:30:10,350 --> 00:30:05,440

accepted you know that you're never

667

00:30:12,690 --> 00:30:10,360

going home so I guess what I would I

668

00:30:15,690 --> 00:30:12,700

would say to people is single one of us

669

00:30:17,700 --> 00:30:15,700

has a lot of ideas and opinions that

670

00:30:19,620 --> 00:30:17,710

we've never shared and you'll find this

671

00:30:21,990 --> 00:30:19,630

out because when I say things somebody

672

00:30:23,700 --> 00:30:22,000

will say to me oh my god you're the only

673

00:30:25,610 --> 00:30:23,710

other person I've ever heard think this

674

00:30:28,050 --> 00:30:25,620

nobody's ever said it out loud until now

675

00:30:31,650 --> 00:30:28,060

they say oh that's interesting you had

676

00:30:33,180 --> 00:30:31,660

that observation and it just didn't come

677

00:30:36,960 --> 00:30:33,190

out of your mouth because you were

678

00:30:39,240 --> 00:30:36,970

terrified as to what it might do someone

679

00:30:40,620 --> 00:30:39,250

accused you recently on your Q&A I was

680

00:30:41,850 --> 00:30:40,630

just watching some of your Instagram q

681

00:30:43,800 --> 00:30:41,860

and A's and they said I'm just gonna

682

00:30:47,190 --> 00:30:43,810

read you a comment and I want to know

683

00:30:49,490 --> 00:30:47,200

what you would say to it hey I can't

684

00:30:51,930 --> 00:30:49,500

find it right now but it was essentially

685

00:30:54,690 --> 00:30:51,940

calling you an alarmist for using the

686

00:30:56,550 --> 00:30:54,700

term Marxist and Maoist to talk about

687

00:31:00,120 --> 00:30:56,560

those on the extreme left and what's

688

00:31:04,380 --> 00:31:00,130

going on currently no no to those who

689

00:31:07,500 --> 00:31:04,390

are uninitiated why why is calling them

690

00:31:10,070 --> 00:31:07,510

a Maoist or Marxist an understand or an

691

00:31:13,290 --> 00:31:10,080

overseen or precisely correct

692

00:31:16,650 --> 00:31:13,300

what why is calling a Marxist a Marxist

693

00:31:17,850 --> 00:31:16,660

I don't understand the question they

694

00:31:21,480 --> 00:31:17,860

would say that what's happening right

695

00:31:25,040 --> 00:31:21,490

now with black lives matters I mean let

696

00:31:28,950 --> 00:31:27,660

someone ranted it was I don't have it I

697

00:31:31,170 --> 00:31:28,960

paraphrase if someone was ranting about

698

00:31:34,680 --> 00:31:31,180

you meant you talking about the current

699

00:31:37,830 --> 00:31:34,690

state of affairs and it being akin to

700

00:31:39,150 --> 00:31:37,840

Marxism or maoism let's remove Marxism

701
00:31:41,910 --> 00:31:39,160
because some people will say I am a

702
00:31:48,600 --> 00:31:41,920
Marxist and you can always write those I

703
00:31:52,260 --> 00:31:48,610
mean isn't that how is that not an

704
00:31:52,530 --> 00:31:52,270
accurate statement okay all right all

705
00:31:54,660 --> 00:31:52,540
right

706
00:31:57,780 --> 00:31:54,670
in other words you have this woman

707
00:32:00,600 --> 00:31:57,790
patrisse cullors right who's a founder

708
00:32:03,360 --> 00:32:00,610
of black lives matter describing herself

709
00:32:07,020 --> 00:32:03,370
as a trained Marxist and her fellow

710
00:32:10,980 --> 00:32:07,030
co-founders trained Marxist

711
00:32:15,050 --> 00:32:10,990
so I just I guess I'm bewildered how am

712
00:32:18,090 --> 00:32:15,060
i an alarmist four-lane self-described

713
00:32:19,410 --> 00:32:18,100

again this so let's go back to this is

714

00:32:23,060 --> 00:32:19,420

in part my frustration with your

715

00:32:28,110 --> 00:32:25,680

there's nothing original that I'm doing

716

00:32:31,770 --> 00:32:28,120

in calling somebody who self describes

717

00:32:33,840 --> 00:32:31,780

them as a Marxist a Marxist and then the

718

00:32:35,940 --> 00:32:33,850

fact that I can be called out for

719

00:32:39,330 --> 00:32:35,950

listening to the founders self

720

00:32:41,400 --> 00:32:39,340

description like I I just don't

721

00:32:43,950 --> 00:32:41,410

understand what planet I'm on am I on a

722

00:32:48,000 --> 00:32:43,960

planet that faults me for being an

723

00:32:50,760 --> 00:32:48,010

attentive listener why do you think

724

00:32:52,410 --> 00:32:50,770

people why do you think people do is it

725

00:32:54,090 --> 00:32:52,420

because they don't want to they don't

726

00:32:55,830 --> 00:32:54,100

want to think it's difficult or they

727

00:32:58,680 --> 00:32:55,840

have an ideology and they see an attack

728

00:32:59,940 --> 00:32:58,690

so they preserve it like what is

729

00:33:02,430 --> 00:32:59,950

motivating the people on Saints

730

00:33:04,830 --> 00:33:02,440

resentment in Larnaca Zingerman's we're

731

00:33:07,590 --> 00:33:04,840

losing our mind collectively we are in a

732

00:33:11,940 --> 00:33:07,600

process of mass insanity right we've

733

00:33:13,950 --> 00:33:11,950

been through these before and you know

734

00:33:16,260 --> 00:33:13,960

I'm choosing not to go along with an

735

00:33:18,060 --> 00:33:16,270

insanity and that generates epithets but

736

00:33:21,210 --> 00:33:18,070

please don't tell me that the inmates

737

00:33:22,650 --> 00:33:21,220

have once again told me that I'm crazy

738

00:33:26,390 --> 00:33:22,660

because I know that that's what they

739

00:33:30,000 --> 00:33:26,400

will say their inmates they're nuts

740

00:33:32,520 --> 00:33:30,010

well you know going back this is this is

741

00:33:35,400 --> 00:33:32,530

a reject for clarification on this why

742

00:33:38,880 --> 00:33:35,410

am i answering a question about being an

743

00:33:40,710 --> 00:33:38,890

alarmist who is fetch I mean like I've

744

00:33:42,720 --> 00:33:40,720

just given you the name of a person who

745

00:33:46,230 --> 00:33:42,730

founded black lives matter co-founded

746

00:33:48,990 --> 00:33:46,240

and self describes as a Marxist trained

747

00:33:51,570 --> 00:33:49,000

Marxist whatever that means not my words

748

00:33:53,160 --> 00:33:51,580

and now I'm fighting the question if I'm

749

00:33:55,050 --> 00:33:53,170

an alarmist I'm gonna just do something

750

00:33:56,910 --> 00:33:55,060

that I like to do which is I don't like

751
00:34:00,390 --> 00:33:56,920
these questions these are a legal

752
00:34:03,390 --> 00:34:00,400
question I'm an accurate person whoever

753
00:34:05,880 --> 00:34:03,400
made that claim is an inaccurate person

754
00:34:10,260 --> 00:34:05,890
and you don't privilege inaccurate

755
00:34:12,149 --> 00:34:10,270
people with the idea that we have to

756
00:34:16,800 --> 00:34:12,159
answer they're inaccurate question it's

757
00:34:18,270 --> 00:34:16,810
just it's a stupid exercise right

758
00:34:20,850 --> 00:34:18,280
telling you before one of the reasons

759
00:34:22,080 --> 00:34:20,860
why I think the radical after extreme

760
00:34:25,430 --> 00:34:22,090
left or whatever you want to call them

761
00:34:29,160 --> 00:34:25,440
is pestilential is because it takes

762
00:34:32,400 --> 00:34:29,170
seconds to install is like what we're in

763
00:34:37,140 --> 00:34:32,410

my analogy before and and days or hours

764

00:34:40,280 --> 00:34:37,150

at least to unpack do you what what

765

00:34:42,480 --> 00:34:40,290

avenues when you were going this is a

766

00:34:43,650 --> 00:34:42,490

discursive jump but what avenues did you

767

00:34:51,810 --> 00:34:43,660

explore for your theory of everything

768

00:34:55,590 --> 00:34:51,820

that didn't work I mean a million what

769

00:34:59,610 --> 00:34:55,600

my earliest ideas was that we should

770

00:35:03,060 --> 00:34:59,620

look towards exceptional algebra to hear

771

00:35:07,260 --> 00:35:03,070

it rate Jared the smaller category of

772

00:35:09,720 --> 00:35:07,270

candidate theories and the natural

773

00:35:14,430 --> 00:35:09,730

objects to look at in that world or two

774

00:35:16,410 --> 00:35:14,440

objects plug an e 8 together with

775

00:35:19,690 --> 00:35:16,420

something called the exceptional Jordan

776

00:35:19,700 --> 00:35:23,210

and

777

00:35:29,730 --> 00:35:26,550

you know I thought that was in Garrett

778

00:35:34,020 --> 00:35:29,740

Lisi later came along and made a theory

779

00:35:35,790 --> 00:35:34,030

around EA which there were certain

780

00:35:38,820 --> 00:35:35,800

problems effectively it wasn't large

781

00:35:40,590 --> 00:35:38,830

enough Garrett was insightful where most

782

00:35:43,790 --> 00:35:40,600

people did not understand that EA tis

783

00:35:47,040 --> 00:35:43,800

about a principle called tri ality

784

00:35:48,810 --> 00:35:47,050

neutrality theoretically had the

785

00:35:51,710 --> 00:35:48,820

possibility of weaving together the

786

00:35:55,290 --> 00:35:51,720

three copies of matter that we find

787

00:35:57,120 --> 00:35:55,300

known as the three families but there

788

00:36:00,780 --> 00:35:57,130

actually isn't enough room inside of EA

789

00:36:03,030 --> 00:36:00,790

to do this little maneuver and it's also

790

00:36:05,700 --> 00:36:03,040

the case that if you used eh which is

791

00:36:07,650 --> 00:36:05,710

this 248 dimensional set of symmetries

792

00:36:09,750 --> 00:36:07,660

you run into a different problem which

793

00:36:11,790 --> 00:36:09,760

is that you're bosons and fermions are

794

00:36:13,440 --> 00:36:11,800

difficult to treat in different ways yet

795

00:36:16,560 --> 00:36:13,450

they have to have different quantization

796

00:36:19,830 --> 00:36:16,570

so that's an example of an avenue that I

797

00:36:22,050 --> 00:36:19,840

don't see how to fix or how to solve and

798

00:36:25,380 --> 00:36:22,060

probably isn't correct but that's

799

00:36:29,040 --> 00:36:25,390

something I abandoned right what else if

800

00:36:30,660 --> 00:36:29,050

you have to give one more just because

801

00:36:33,120 --> 00:36:30,670

that one's fairly familiar people know

802

00:36:36,060 --> 00:36:33,130

when some people know about e8 and I'm

803

00:36:38,640 --> 00:36:36,070

curious what was what what were you

804

00:36:41,160 --> 00:36:38,650

mulling over what do you mean

805

00:36:43,080 --> 00:36:41,170

what were you thinking about when it

806

00:36:44,610 --> 00:36:43,090

comes to theories of everything okay I

807

00:36:45,930 --> 00:36:44,620

want to come up with my all so it

808

00:36:47,160 --> 00:36:45,940

doesn't start with this question I want

809

00:36:48,330 --> 00:36:47,170

to come up with my own theory of

810

00:36:50,910 --> 00:36:48,340

everything where does it just start with

811

00:36:55,080 --> 00:36:50,920

the frustration that that there doesn't

812

00:36:59,330 --> 00:36:55,090

exist one well no I think it comes up it

813

00:37:02,420 --> 00:36:59,340

comes from the idea that you first one

814

00:37:04,340 --> 00:37:02,430

what theories exists you're not

815

00:37:06,110 --> 00:37:04,350

necessarily focused on the theory of

816

00:37:08,120 --> 00:37:06,120

everything you shouldn't be you should

817

00:37:10,790 --> 00:37:08,130

be focused on knowing what time it is in

818

00:37:12,460 --> 00:37:10,800

human history so this is one of my

819

00:37:13,730 --> 00:37:12,470

Miller Ising yourself with the landscape

820

00:37:15,980 --> 00:37:13,740

pardon me

821

00:37:18,470 --> 00:37:15,990

so familiarizing yourself with what's

822

00:37:22,240 --> 00:37:18,480

out there in the physics well there's

823

00:37:24,740 --> 00:37:22,250

that but there's also the question of

824

00:37:27,470 --> 00:37:24,750

you know what would Newton have done if

825

00:37:33,140 --> 00:37:27,480

Newton had lived in Einstein's time we

826

00:37:35,030 --> 00:37:33,150

don't know you have to understand this

827

00:37:37,370 --> 00:37:35,040

weird question what time is it because

828

00:37:39,080 --> 00:37:37,380

the only breakthroughs you can make are

829

00:37:44,570 --> 00:37:39,090

the breakthroughs that are available to

830

00:37:47,990 --> 00:37:44,580

you from more time so you know could

831

00:37:50,810 --> 00:37:48,000

Galilei have landed a probe on the

832

00:37:53,570 --> 00:37:50,820

surface of Titan no he wasn't in a

833

00:37:55,910 --> 00:37:53,580

position to do it doesn't matter how

834

00:37:58,700 --> 00:37:55,920

brilliant he is so I happen to think

835

00:38:01,040 --> 00:37:58,710

that this time is the first time that it

836

00:38:05,030 --> 00:38:01,050

is barely possible to get to a theory of

837

00:38:06,680 --> 00:38:05,040

everything and you know that itself

838

00:38:08,810 --> 00:38:06,690

isn't clear but that's part of my

839

00:38:13,330 --> 00:38:08,820

determination my determination is that

840

00:38:16,100 --> 00:38:13,340

we actually at least as of 19 75 or 76

841

00:38:18,290 --> 00:38:16,110

were within striking distance of

842

00:38:22,070 --> 00:38:18,300

finishing the whole thing off the only

843

00:38:25,580 --> 00:38:22,080

problem is is that the last move is the

844

00:38:31,280 --> 00:38:25,590

hardest move of all and so my take is is

845

00:38:36,110 --> 00:38:31,290

that by 1975 we were in reach but the

846

00:38:38,420 --> 00:38:36,120

last move is not as the earlier moves

847

00:38:40,700 --> 00:38:38,430

you know there's I'm sure you're aware

848

00:38:41,900 --> 00:38:40,710

Freeman Dyson and Hawking both thought

849

00:38:43,400 --> 00:38:41,910

that girdles and completeness theorem

850

00:38:46,580 --> 00:38:43,410

had something to say about a fundamental

851
00:38:49,100 --> 00:38:46,590
theory of everything that is to say that

852
00:38:51,170 --> 00:38:49,110
it excludes it or potentially exclusive

853
00:38:52,730 --> 00:38:51,180
do you do you see girls incompleteness

854
00:38:53,720 --> 00:38:52,740
theorem says as having anything to do

855
00:38:54,860 --> 00:38:53,730
with physical theories

856
00:38:57,830 --> 00:38:54,870
so being hosta thought that doesn't

857
00:38:59,870 --> 00:38:57,840
think so for example so there's well it

858
00:39:03,010 --> 00:38:59,880
depends what you mean I mean I guess the

859
00:39:05,210 --> 00:39:03,020
way I would read it is the following

860
00:39:06,920 --> 00:39:05,220
what is the theory of everything that's

861
00:39:08,900 --> 00:39:06,930
something we haven't even discussed and

862
00:39:10,430 --> 00:39:08,910
I don't even know that you and I agree

863
00:39:12,110 --> 00:39:10,440

on a theory of everything so let me ask

864

00:39:17,100 --> 00:39:12,120

you what is the theory of everything to

865

00:39:18,060 --> 00:39:17,110

you well I'll tell you what what

866

00:39:21,030 --> 00:39:18,070

you think and then I'll tell you what I

867

00:39:23,130 --> 00:39:21,040

what I think so great I believe I heard

868

00:39:24,660 --> 00:39:23,140

you describe it as a theory in which

869

00:39:27,330 --> 00:39:24,670

we're no longer looking for mathematical

870

00:39:29,550 --> 00:39:27,340

improvements though it leaves open the

871

00:39:32,960 --> 00:39:29,560

door for religious theological

872

00:39:35,940 --> 00:39:32,970

philosophy philosophical progress

873

00:39:39,120 --> 00:39:35,950

however one way to define progress okay

874

00:39:40,740 --> 00:39:39,130

it's pretty close okay pretty close

875

00:39:44,880 --> 00:39:40,750

pretty good love it and then for me it

876

00:39:47,550 --> 00:39:44,890

would be similar except I'm interested

877

00:39:49,320 --> 00:39:47,560

in consciousness as well now most

878

00:39:52,170 --> 00:39:49,330

physicists I'm not even sure if it's

879

00:39:55,080 --> 00:39:52,180

include yourself but most physicists

880

00:39:57,890 --> 00:39:55,090

believe that consciousness is a an

881

00:40:02,130 --> 00:39:57,900

emergent phenomenon from fundamentally

882

00:40:03,600 --> 00:40:02,140

material a material substrate and I'm

883

00:40:05,280 --> 00:40:03,610

unconvinced it might be

884

00:40:07,100 --> 00:40:05,290

I'm just unconvinced and I would like

885

00:40:10,500 --> 00:40:07,110

there to be an explanation of

886

00:40:11,670 --> 00:40:10,510

consciousness or more of an a see you

887

00:40:13,290 --> 00:40:11,680

could either you can have a quantum

888

00:40:17,880 --> 00:40:13,300

gravity so you can have you can unify

889

00:40:19,410 --> 00:40:17,890

them gr and QM but that to me isn't in

890

00:40:21,180 --> 00:40:19,420

and of itself a theory of everything I

891

00:40:22,890 --> 00:40:21,190

would like more explanation so why is

892

00:40:25,140 --> 00:40:22,900

there dark matter what is dark energy

893

00:40:29,310 --> 00:40:25,150

why are the fundamental constants the

894

00:40:31,920 --> 00:40:29,320

way they are and maybe that's asking too

895

00:40:34,440 --> 00:40:31,930

much maybe it's like lisa lee smolin

896

00:40:37,940 --> 00:40:34,450

where to cut the constants of all of

897

00:40:41,490 --> 00:40:37,950

them they change within black holes

898

00:40:45,720 --> 00:40:41,500

still that's an explanation

899

00:40:47,220 --> 00:40:45,730

more interested in I see it as broader

900

00:40:49,470 --> 00:40:47,230

than most people conceptualize theories

901
00:40:50,580 --> 00:40:49,480
of everything I take the word everything

902
00:40:53,030 --> 00:40:50,590
in other words I take the word

903
00:41:02,890 --> 00:40:53,040
everything very seriously

904
00:41:07,760 --> 00:41:05,510
well I give an analogy that I I'm

905
00:41:09,800 --> 00:41:07,770
partial to which is a theory of

906
00:41:12,200 --> 00:41:09,810
everything is an attempt to look at

907
00:41:15,410 --> 00:41:12,210
chess games being played and to learn

908
00:41:18,410 --> 00:41:15,420
the complete set of rules of all chess

909
00:41:20,960 --> 00:41:18,420
game it is not a theory of how to play

910
00:41:23,830 --> 00:41:20,970
chess well and what can be done inside

911
00:41:26,860 --> 00:41:23,840
the game of chess

912
00:41:28,420 --> 00:41:26,870
okay so when you're trying to come up

913
00:41:30,700 --> 00:41:28,430

with a theory of everything it's really

914

00:41:33,910 --> 00:41:30,710

very restricted you're trying to come up

915

00:41:38,340 --> 00:41:33,920

with what is the natural mathematical

916

00:41:42,760 --> 00:41:38,350

description all of the rules that

917

00:41:46,000 --> 00:41:42,770

generate the universe that we see okay

918

00:41:48,520 --> 00:41:46,010

the consequences of those sure sure

919

00:41:50,380 --> 00:41:48,530

let's take this analogy a bit more a bit

920

00:41:52,660 --> 00:41:50,390

farther then there's the question of why

921

00:41:56,380 --> 00:41:52,670

are the rules the way they are why are

922

00:41:57,850 --> 00:41:56,390

there pieces at all why these pieces are

923

00:42:00,780 --> 00:41:57,860

those not questions that you think a

924

00:42:03,850 --> 00:42:00,790

theory of everything should answer

925

00:42:06,670 --> 00:42:03,860

there's rules and why the rules well

926
00:42:09,520 --> 00:42:06,680
look my standard gambit which nobody

927
00:42:11,350 --> 00:42:09,530
ever picks up on is the theory of

928
00:42:14,260 --> 00:42:11,360
everything is effectively a newspaper

929
00:42:17,350 --> 00:42:14,270
story with six questions where and when

930
00:42:19,870 --> 00:42:17,360
who and what how and why where and when

931
00:42:22,540 --> 00:42:19,880
is obviously space and time which tells

932
00:42:25,270 --> 00:42:22,550
you it's the arena in which things are

933
00:42:28,120 --> 00:42:25,280
taking place but who in the what is like

934
00:42:30,580 --> 00:42:28,130
the equipment and the players so I would

935
00:42:33,910 --> 00:42:30,590
say that I'm gonna make the players into

936
00:42:37,420 --> 00:42:33,920
the fermions the matter and the

937
00:42:41,260 --> 00:42:37,430
equipment into the bosons the force okay

938
00:42:43,320 --> 00:42:41,270

we've got now four of your six questions

939

00:42:47,080 --> 00:42:43,330

and then your last two or how and why

940

00:42:49,570 --> 00:42:47,090

I'm gonna say how is the equations and

941

00:42:52,420 --> 00:42:49,580

why Lagrangian that generates the

942

00:42:56,560 --> 00:42:52,430

equation now that means that if you

943

00:42:58,810 --> 00:42:56,570

don't know anything about physics you

944

00:43:01,540 --> 00:42:58,820

can remember oh that guy on the internet

945

00:43:04,120 --> 00:43:01,550

said where and when who and what how and

946

00:43:08,140 --> 00:43:04,130

why and that that's what constitutes a

947

00:43:10,360 --> 00:43:08,150

physical theory so I would say that

948

00:43:13,210 --> 00:43:10,370

that's what I'm responsible for when I'm

949

00:43:15,310 --> 00:43:13,220

trying to give you idiot an

950

00:43:18,580 --> 00:43:15,320

understanding of where all of this comes

951
00:43:21,820 --> 00:43:18,590
from are you ever interested in how is

952
00:43:23,740 --> 00:43:21,830
it that the how is it that an electron

953
00:43:27,490 --> 00:43:23,750
knows what to do how is it that it

954
00:43:29,500 --> 00:43:27,500
follows the laws at all do you ever

955
00:43:31,000 --> 00:43:29,510
think about that cuz that that could

956
00:43:33,370 --> 00:43:31,010
blow someone's mind if you just keep

957
00:43:34,750 --> 00:43:33,380
thinking about that or maybe it doesn't

958
00:43:37,180 --> 00:43:34,760
maybe ever reason why it shouldn't blow

959
00:43:39,670 --> 00:43:37,190
your mind well it's not how I

960
00:43:44,170 --> 00:43:39,680
it I mean the key point is let's just

961
00:43:47,230 --> 00:43:44,180
follow my my newspaper story once you've

962
00:43:50,380 --> 00:43:47,240
defined as being wise the lagrangean why

963
00:43:53,710 --> 00:43:50,390

not ask the Bible a Gandhian why is

964

00:43:55,930 --> 00:43:53,720

there any Lagrangian or why why is the

965

00:43:58,690 --> 00:43:55,940

Lagrangian the way of solving the

966

00:44:00,910 --> 00:43:58,700

equations of motion so why do LeBron

967

00:44:02,980 --> 00:44:00,920

turn white and how does it even follow

968

00:44:05,280 --> 00:44:02,990

the Lagrangian like how does it go about

969

00:44:07,420 --> 00:44:05,290

following the rules

970

00:44:09,370 --> 00:44:07,430

these may be foolish questions and I

971

00:44:12,880 --> 00:44:09,380

apologize it pleases it and forgive my

972

00:44:16,120 --> 00:44:12,890

my naivety well what we believe is that

973

00:44:19,030 --> 00:44:16,130

the electron if you will constitutes a

974

00:44:21,550 --> 00:44:19,040

kind of a wave in a wave taking place

975

00:44:22,359 --> 00:44:21,560

over the arena which is the who which is

976

00:44:26,170 --> 00:44:22,369

the where and the when

977

00:44:28,150 --> 00:44:26,180

that is space-time it is part of the who

978

00:44:32,230 --> 00:44:28,160

because it's a player it's part of the

979

00:44:34,450 --> 00:44:32,240

matter which corresponds to a wave and

980

00:44:36,910 --> 00:44:34,460

you ask to have to ask all waves live in

981

00:44:41,050 --> 00:44:36,920

a medium what medium does the electron

982

00:44:44,670 --> 00:44:41,060

wave live within that medium is called a

983

00:44:47,079 --> 00:44:44,680

fiber bundle and it states a vector μ

984

00:44:48,900 --> 00:44:47,089

so now you've got a question okay I've

985

00:44:52,260 --> 00:44:48,910

got a vector bundle and I've got a wave

986

00:44:55,270 --> 00:44:52,270

now how does it know how to behave well

987

00:44:56,109 --> 00:44:55,280

that question is implicitly to a

988

00:44:58,740 --> 00:44:56,119

physicist

989

00:45:03,040 --> 00:44:58,750

what differential equation does it obey

990

00:45:04,809 --> 00:45:03,050

now a differential equation is something

991

00:45:07,510 --> 00:45:04,819

that allows us to say how fast it's

992

00:45:10,089 --> 00:45:07,520

moving in time and in space right how

993

00:45:14,230 --> 00:45:10,099

does it propagate across the where and

994

00:45:15,730 --> 00:45:14,240

the win well that has to involve rates

995

00:45:17,530 --> 00:45:15,740

of change which involve derivatives

996

00:45:19,359 --> 00:45:17,540

that's why it's a partial differential

997

00:45:21,849 --> 00:45:19,369

equation but how do you take a

998

00:45:23,680 --> 00:45:21,859

derivative of this crazy gadget which is

999

00:45:26,740 --> 00:45:23,690

a wave in a vector bundle now here's the

1000

00:45:28,990 --> 00:45:26,750

weird thing the photon is effectively

1001

00:45:32,260 --> 00:45:29,000

the instruction for building a

1002

00:45:33,970 --> 00:45:32,270

derivative to govern the electron and we

1003

00:45:36,550 --> 00:45:33,980

don't say that I don't know why we don't

1004

00:45:39,460 --> 00:45:36,560

say that but a photon is closely

1005

00:45:43,710 --> 00:45:39,470

associated with the derivative operator

1006

00:45:48,309 --> 00:45:43,720

on the electron which is effectively a

1007

00:45:49,880 --> 00:45:48,319

function we call it a section the garden

1008

00:45:52,130 --> 00:45:49,890

variety would be a function

1009

00:45:55,700 --> 00:45:52,140

okay that's really cool now I've got a

1010

00:45:58,340 --> 00:45:55,710

derivative which is determined by the

1011

00:45:59,930 --> 00:45:58,350

photon differentiating a function which

1012

00:46:02,560 --> 00:45:59,940

is representing the electron which has

1013

00:46:07,880 --> 00:46:02,570

not pushed out to the general public and

1014

00:46:10,210 --> 00:46:07,890

furthermore that derivative has a weird

1015

00:46:13,520 --> 00:46:10,220

property which is that what we would say

1016

00:46:15,260 --> 00:46:13,530

to our calculus students is that

1017

00:46:18,160 --> 00:46:15,270

normally we lie to you and tell you that

1018

00:46:20,450 --> 00:46:18,170

mixed partial derivatives commute

1019

00:46:22,010 --> 00:46:20,460

Ferengi ate a quantity in the X

1020

00:46:24,620 --> 00:46:22,020

direction and follow that by

1021

00:46:26,180 --> 00:46:24,630

differentiating the Y or I can start

1022

00:46:28,100 --> 00:46:26,190

with the Y Direction following it by

1023

00:46:30,140 --> 00:46:28,110

differentiating the X Direction we claim

1024

00:46:32,780 --> 00:46:30,150

that those two represent the same

1025

00:46:35,420 --> 00:46:32,790

quantity well when you have the photon

1026

00:46:37,250 --> 00:46:35,430

in play they don't so you say okay well

1027

00:46:40,100 --> 00:46:37,260

two objects that I thought were equal

1028

00:46:42,140 --> 00:46:40,110

are no longer equal so now you say I

1029

00:46:44,180 --> 00:46:42,150

want to measure the failure of my

1030

00:46:45,440 --> 00:46:44,190

calculus class to prepare me for this so

1031

00:46:47,060 --> 00:46:45,450

I'm going to take the difference between

1032

00:46:49,490 --> 00:46:47,070

the two quantities that I thought were

1033

00:46:51,920 --> 00:46:49,500

always that are turn out not to be

1034

00:46:55,040 --> 00:46:51,930

well that means is the electromagnetic

1035

00:46:57,950 --> 00:46:55,050

field so the electromagnetic field that

1036

00:47:01,400 --> 00:46:57,960

we perceive is the amount of lying that

1037

00:47:05,300 --> 00:47:01,410

takes place when we attempt to apply the

1038

00:47:08,140 --> 00:47:05,310

rule that mixed partials commute when in

1039

00:47:11,060 --> 00:47:08,150

fact in grown-up mathematics they do not

1040

00:47:13,640 --> 00:47:11,070

ok well that allows the electron to

1041

00:47:15,290 --> 00:47:13,650

influence the photon so the function is

1042

00:47:17,540 --> 00:47:15,300

influencing the derivative and the

1043

00:47:19,910 --> 00:47:17,550

derivative is feeding back on the

1044

00:47:22,250 --> 00:47:19,920

function so now you've got this great

1045

00:47:24,080 --> 00:47:22,260

situation in which the electron and the

1046

00:47:25,700 --> 00:47:24,090

photon are having a conversation with

1047

00:47:28,280 --> 00:47:25,710

each other and changing each other's

1048

00:47:29,480 --> 00:47:28,290

behavior now what's the name of that

1049

00:47:32,150 --> 00:47:29,490

conversation

1050

00:47:34,530 --> 00:47:32,160

well it's called quantum electrodynamics

1051

00:47:36,660 --> 00:47:34,540

or quantum field theory

1052

00:47:38,310 --> 00:47:36,670

that's an amazing story and we don't

1053

00:47:41,340 --> 00:47:38,320

tell it like this and I don't know why

1054

00:47:43,860 --> 00:47:41,350

we don't tell it like this right

1055

00:47:45,450 --> 00:47:43,870

like it'll air any part of you that that

1056

00:47:47,280 --> 00:47:45,460

wants to write a book almost like

1057

00:47:49,830 --> 00:47:47,290

finding the defining lectures of physics

1058

00:47:51,690 --> 00:47:49,840

in his way all right

1059

00:47:57,510 --> 00:47:51,700

why find like listen to an internet

1060

00:47:59,850 --> 00:47:57,520

gadfly a non physicist with a supposed

1061

00:48:02,670 --> 00:47:59,860

theory of everything let's just first of

1062

00:48:04,170 --> 00:48:02,680

all make contact with the fact that if

1063

00:48:07,920 --> 00:48:04,180

there are physicists in your audience

1064

00:48:12,990 --> 00:48:07,930

they're getting angry saying understand

1065

00:48:15,420 --> 00:48:13,000

normally normally these guys are cranks

1066

00:48:17,220 --> 00:48:15,430

this guy sounds like he's not a full

1067

00:48:19,880 --> 00:48:17,230

crank I recognize a lot of what he's

1068

00:48:23,160 --> 00:48:19,890

saying but he's acting incredibly

1069

00:48:25,020 --> 00:48:23,170

irresponsibly so I might be very

1070

00:48:27,450 --> 00:48:25,030

interested in writing that book once the

1071

00:48:29,430 --> 00:48:27,460

theory is understood and accepted but

1072

00:48:33,180 --> 00:48:29,440

let's be clear I am acting as an

1073

00:48:35,130 --> 00:48:33,190

imposter I'm not a physicist I've taken

1074

00:48:38,070 --> 00:48:35,140

I think one semester of mechanics

1075

00:48:40,620 --> 00:48:38,080

I haven't taken quantum theory I haven't

1076
00:48:42,480 --> 00:48:40,630
taken electromagnetism I haven't taken

1077
00:48:45,360 --> 00:48:42,490
the standard sequence I haven't even

1078
00:48:47,130 --> 00:48:45,370
taken the full mechanics so whatever

1079
00:48:49,620 --> 00:48:47,140
you're looking at and whatever you're

1080
00:48:51,510 --> 00:48:49,630
talking to me about we just just put a

1081
00:48:53,610 --> 00:48:51,520
warning label for the benefit of our

1082
00:48:55,430 --> 00:48:53,620
friends in the physics community but

1083
00:48:57,630 --> 00:48:55,440
this is a totally unauthorized

1084
00:48:59,130 --> 00:48:57,640
conversation now the fact that I think

1085
00:49:00,420 --> 00:48:59,140
that they're falling down on the job

1086
00:49:02,970 --> 00:49:00,430
because they didn't tell you that the

1087
00:49:04,770 --> 00:49:02,980
photon was part of a derivative and that

1088
00:49:07,980 --> 00:49:04,780

they didn't define the electromagnetic

1089

00:49:10,110 --> 00:49:07,990

field strength as volt VM lying about

1090

00:49:12,900 --> 00:49:10,120

mixed partials and they haven't really

1091

00:49:14,820 --> 00:49:12,910

teased out the fact that theoretical

1092

00:49:16,020 --> 00:49:14,830

physics is a newspaper story and most of

1093

00:49:18,000 --> 00:49:16,030

their readers don't really know what a

1094

00:49:19,950 --> 00:49:18,010

Lagrangian is and they spend all their

1095

00:49:21,600 --> 00:49:19,960

time on the double slit experiment and

1096

00:49:24,270 --> 00:49:21,610

the entanglement in many worlds other

1097

00:49:26,280 --> 00:49:24,280

time wasting activities you know I have

1098

00:49:27,750 --> 00:49:26,290

a very deep disagreement with the

1099

00:49:29,490 --> 00:49:27,760

physics community about what they're

1100

00:49:32,070 --> 00:49:29,500

pushing out to the lay community that

1101

00:49:34,620 --> 00:49:32,080

they expect to support the physics in

1102

00:49:37,320 --> 00:49:34,630

them I think but a terrible

1103

00:49:40,410 --> 00:49:37,330

and so in part they should be pissed off

1104

00:49:42,300 --> 00:49:40,420

that I'm calling them bad exponents of

1105

00:49:44,100 --> 00:49:42,310

their field and that they have failed to

1106

00:49:46,690 --> 00:49:44,110

advance their field in 50 years and they

1107

00:49:49,030 --> 00:49:46,700

should say that I'm an imposter

1108

00:49:50,800 --> 00:49:49,040

but at the end of that day the key

1109

00:49:52,390 --> 00:49:50,810

question is is anybody going to move

1110

00:49:55,330 --> 00:49:52,400

this field forward and I'm certainly

1111

00:49:57,730 --> 00:49:55,340

going to try my hand at it you know I

1112

00:50:00,990 --> 00:49:57,740

see the vitriol thrown at you

1113

00:50:03,550 --> 00:50:01,000

from the physics community as akin to

1114

00:50:06,250 --> 00:50:03,560

the word cultural appropriation and let

1115

00:50:07,450 --> 00:50:06,260

me just explain my analogy here I'm just

1116

00:50:09,160 --> 00:50:07,460

gonna read because I have some notes

1117

00:50:10,480 --> 00:50:09,170

here so you mentioned that physics

1118

00:50:12,310 --> 00:50:10,490

businesses should be thanking you

1119

00:50:13,900 --> 00:50:12,320

because you put out intellectual novel

1120

00:50:15,730 --> 00:50:13,910

novelties to the public in the form of

1121

00:50:17,460 --> 00:50:15,740

offer your graduates did I say that the

1122

00:50:20,860 --> 00:50:17,470

physicist should be thanking me just now

1123

00:50:25,840 --> 00:50:20,870

not now but on on Bryan Keating's

1124

00:50:27,700 --> 00:50:25,850

podcast yeah okay just let me just let

1125

00:50:29,950 --> 00:50:27,710

me finish let me think elect me after

1126

00:50:32,050 --> 00:50:29,960

because you put out curiosities such as

1127

00:50:37,980 --> 00:50:32,060

vibrations yet physicists at least the

1128

00:50:39,940 --> 00:50:37,990

popular ones tend to not acknowledge the

1129

00:50:42,970 --> 00:50:39,950

the good that you're doing for the

1130

00:50:45,040 --> 00:50:42,980

physics community by by getting people

1131

00:50:46,390 --> 00:50:45,050

interested in physics and it could be

1132

00:50:47,500 --> 00:50:46,400

potentially out of spite now I'm

1133

00:50:49,810 --> 00:50:47,510

wondering if there's a parallel between

1134

00:50:52,390 --> 00:50:49,820

this and emergence of the term cultural

1135

00:50:54,630 --> 00:50:52,400

appropriation I was like why am i well I

1136

00:50:57,190 --> 00:50:54,640

think the now G is is befitting that

1137

00:50:58,660 --> 00:50:57,200

there's some group say black people or

1138

00:51:00,970 --> 00:50:58,670

brown people and they weren't able to

1139

00:51:02,440 --> 00:51:00,980

get success in some market for whatever

1140

00:51:04,750 --> 00:51:02,450

reason for it perhaps predominately

1141

00:51:06,070 --> 00:51:04,760

racism in this case and so they feel

1142

00:51:07,750 --> 00:51:06,080

like they have to demean themselves by

1143

00:51:10,750 --> 00:51:07,760

playing to the lowest common denominator

1144

00:51:12,880 --> 00:51:10,760

for the most part and then some outsider

1145

00:51:15,190 --> 00:51:12,890

comes usually white in their estimation

1146

00:51:17,260 --> 00:51:15,200

it could be Elvis or could be Eminem and

1147

00:51:18,780 --> 00:51:17,270

takes their dance moves or accents and

1148

00:51:22,330 --> 00:51:18,790

makes it palatable to a larger audience

1149

00:51:23,620 --> 00:51:22,340

now when I think about this part of me

1150

00:51:26,170 --> 00:51:23,630

says that this should be a move for

1151

00:51:30,510 --> 00:51:26,180

celebration because it allows the

1152

00:51:34,360 --> 00:51:30,520

consumption of of previously niche and

1153

00:51:36,490 --> 00:51:34,370

and black or minority areas for the

1154

00:51:38,290 --> 00:51:36,500

wider audience like rap music now white

1155

00:51:42,430 --> 00:51:38,300

people up rap music because of Eminem

1156

00:51:45,250 --> 00:51:42,440

and so in a sense it should be it should

1157

00:51:47,470 --> 00:51:45,260

be thought of thought of as a boon but

1158

00:51:49,450 --> 00:51:47,480

and perhaps I'm going out on a limb it's

1159

00:51:51,160 --> 00:51:49,460

not because of perhaps deep seeded

1160

00:51:52,750 --> 00:51:51,170

hatred that someone else was successful

1161

00:51:54,310 --> 00:51:52,760

in domain that they tried to be

1162

00:51:55,720 --> 00:51:54,320

successful in which makes them envious

1163

00:51:57,790 --> 00:51:55,730

and so they come up with this

1164

00:51:59,160 --> 00:51:57,800

intellectual justification in the form

1165

00:52:01,230 --> 00:51:59,170

of a construct like

1166

00:52:02,520 --> 00:52:01,240

cultural appropriation now do you see

1167

00:52:05,220 --> 00:52:02,530

the same phenomenon happening right now

1168

00:52:07,500 --> 00:52:05,230

to you worth you promulgating science

1169

00:52:09,359 --> 00:52:07,510

particularly math physics and ideas from

1170

00:52:10,920 --> 00:52:09,369

economics into the broader public sphere

1171

00:52:12,960 --> 00:52:10,930

when physicists have been twiddling

1172

00:52:13,980 --> 00:52:12,970

their you're a real troublemaker career

1173

00:52:15,720 --> 00:52:13,990

this is very interesting

1174

00:52:18,720 --> 00:52:15,730

okay there and and they're parroting the

1175

00:52:21,690 --> 00:52:18,730

same over trod and trite Schrodinger's

1176

00:52:22,680 --> 00:52:21,700

cat twin paradox all right do you want

1177

00:52:24,960 --> 00:52:22,690

to really get into this thing like

1178

00:52:30,780 --> 00:52:24,970

digging this yeah yeah let's go all

1179

00:52:33,599 --> 00:52:30,790

right so who is Otis blackwell I don't

1180

00:52:36,660 --> 00:52:33,609

know that's the problem you'd mentioned

1181

00:52:39,270 --> 00:52:36,670

Elvis but you don't even know the name

1182

00:52:44,839 --> 00:52:39,280

Oh dis Blackwell and Otis army

1183

00:52:46,770 --> 00:52:44,849

in large measure made Elvis Presley not

1184

00:52:48,960 --> 00:52:46,780

single-handedly but he is one of the

1185

00:52:52,200 --> 00:52:48,970

people who wrote the songs and sang the

1186

00:52:54,329 --> 00:52:52,210

songs that Elvis Presley made famous so

1187

00:52:56,579 --> 00:52:54,339

you know this is a problem that I talked

1188

00:52:58,490 --> 00:52:56,589

about on my podcast with Stephon

1189

00:53:01,680 --> 00:52:58,500

Alexander but in the initial

1190

00:53:04,859 --> 00:53:01,690

introductory essay which was coming to

1191

00:53:06,960 --> 00:53:04,869

understand that there were three names

1192

00:53:10,430 --> 00:53:06,970

that I kept finding on all the rock and

1193

00:53:14,490 --> 00:53:10,440

roll that I loved McKinley Morganfield

1194

00:53:16,620 --> 00:53:14,500

Dixon and Ellis McDaniel who these guys

1195

00:53:18,720 --> 00:53:16,630

I didn't know so I had to find out and

1196

00:53:22,440 --> 00:53:18,730

turned out that McKinley Morganfield was

1197

00:53:24,990 --> 00:53:22,450

Muddy Waters W Dixon was Willie Dixon

1198

00:53:27,030 --> 00:53:25,000

the great blues writer from Chicago and

1199

00:53:31,319 --> 00:53:27,040

Ellis McDaniel was a guy named Bo

1200

00:53:33,539 --> 00:53:31,329

Diddley the idea that a lot of these

1201
00:53:36,089 --> 00:53:33,549
cats never got their due and that other

1202
00:53:38,220 --> 00:53:36,099
people were less talented got richly

1203
00:53:40,980 --> 00:53:38,230
rewarded for the work that they had done

1204
00:53:43,770 --> 00:53:40,990
is part of a problem I don't think

1205
00:53:45,900 --> 00:53:43,780
that's the situation in physics I don't

1206
00:53:48,780 --> 00:53:45,910
think you know if you look at Elvis

1207
00:53:51,980 --> 00:53:48,790
Presley go look at the video for

1208
00:53:58,140 --> 00:53:51,990
jailhouse rock and tell me that guy

1209
00:54:00,089 --> 00:53:58,150
wasn't an unbelievable genius on top of

1210
00:54:01,620 --> 00:54:00,099
Otis blackwell you Otis Blackwell may

1211
00:54:03,059 --> 00:54:01,630
have been a genius for writing the songs

1212
00:54:05,490 --> 00:54:03,069
and all this Presley was a different

1213
00:54:06,569 --> 00:54:05,500

genius on top of that team that's not

1214

00:54:09,059 --> 00:54:06,579

the same thing

1215

00:54:10,980 --> 00:54:09,069

well something Bobby Darin version of

1216

00:54:12,539 --> 00:54:10,990

what did I say which happens to be

1217

00:54:14,249 --> 00:54:12,549

palatal it's not near

1218

00:54:17,819 --> 00:54:14,259

is frightening is when Ray Charles sings

1219

00:54:20,400 --> 00:54:17,829

a proper that situation is different

1220

00:54:22,319 --> 00:54:20,410

than saying look I don't even know what

1221

00:54:24,449 --> 00:54:22,329

you guys are doing you claim to be high

1222

00:54:25,739 --> 00:54:24,459

energy physicist to spend your time

1223

00:54:28,349 --> 00:54:25,749

talking about things that have nothing

1224

00:54:30,959 --> 00:54:28,359

to do with high energy physics you're

1225

00:54:32,640 --> 00:54:30,969

talking about khalaby Yau manifolds and

1226
00:54:35,429 --> 00:54:32,650
worlds that we will never visit because

1227
00:54:38,039 --> 00:54:35,439
they don't actually exist because you

1228
00:54:40,169 --> 00:54:38,049
ran out of ways to attack the problems

1229
00:54:42,269 --> 00:54:40,179
which you're specifically employed to

1230
00:54:43,140 --> 00:54:42,279
try to solve that's a very different

1231
00:54:44,809 --> 00:54:43,150
situation

1232
00:54:47,249 --> 00:54:44,819
and I do want to help that community

1233
00:54:50,999 --> 00:54:47,259
because I just don't find that that

1234
00:54:53,069 --> 00:54:51,009
community understands how much its

1235
00:54:56,370 --> 00:54:53,079
elders have run it into the ground

1236
00:54:58,979 --> 00:54:56,380
I mean marvel at the old h-bomb footage

1237
00:55:02,219 --> 00:54:58,989
and recognize what theoretical physics

1238
00:55:05,670 --> 00:55:02,229

is capable I mean you can't ignore it as

1239

00:55:08,220 --> 00:55:05,680

being a highly capable subject

1240

00:55:09,900 --> 00:55:08,230

right now we've failed to make progress

1241

00:55:12,660 --> 00:55:09,910

and so long people don't even remember

1242

00:55:17,220 --> 00:55:12,670

what they're doing it were they've never

1243

00:55:19,470 --> 00:55:17,230

seen a breakthrough in their lifetime

1244

00:55:21,870 --> 00:55:19,480

only the really old people have seen the

1245

00:55:23,730 --> 00:55:21,880

breakthroughs it's a lot like the only

1246

00:55:27,599 --> 00:55:23,740

people have ever walked in the moon on

1247

00:55:32,069 --> 00:55:27,609

the moon or you know in their 70s or 80s

1248

00:55:36,349 --> 00:55:32,079

and higher there's something about the

1249

00:55:42,690 --> 00:55:38,700

now is your art of motivation is

1250

00:55:44,660 --> 00:55:42,700

entirely altruistic I say that no no no

1251

00:55:48,530 --> 00:55:44,670

absolutely they're not entirely out I

1252

00:55:51,750 --> 00:55:48,540

think that I can buy much more cocaine

1253

00:55:54,599 --> 00:55:51,760

if I actually win a Nobel Prize than

1254

00:56:00,060 --> 00:55:54,609

without what are you asking me Kurt I'll

1255

00:56:02,910 --> 00:56:00,070

tell you because for me I I I take a

1256

00:56:03,930 --> 00:56:02,920

step back when I say that I'm trying to

1257

00:56:05,550 --> 00:56:03,940

help the world I'm trying to move the

1258

00:56:08,490 --> 00:56:05,560

world forward cuz I find myself saying

1259

00:56:10,230 --> 00:56:08,500

that a lot especially to myself and as I

1260

00:56:13,170 --> 00:56:10,240

studied more psychoanalysis I realized

1261

00:56:15,240 --> 00:56:13,180

well there's much more deep-seated envy

1262

00:56:19,290 --> 00:56:15,250

and hatred and callousness associated

1263

00:56:21,900 --> 00:56:19,300

with my motivations then then I let on

1264

00:56:23,700 --> 00:56:21,910

so for doing me both brother so I'll

1265

00:56:25,339 --> 00:56:23,710

give you an example when I was young

1266

00:56:27,270 --> 00:56:25,349

fairly young I heard about the Riemann

1267

00:56:29,040 --> 00:56:27,280

hypothesis and I was like I'm gonna

1268

00:56:30,180 --> 00:56:29,050

prove that and now part of me would say

1269

00:56:31,440 --> 00:56:30,190

I'm gonna prove that because that would

1270

00:56:35,010 --> 00:56:31,450

be great for the mathematical community

1271

00:56:36,630 --> 00:56:35,020

but the other part is that maybe I want

1272

00:56:40,260 --> 00:56:36,640

more attention and I want people to

1273

00:56:43,200 --> 00:56:40,270

recognize me as someone who can be on

1274

00:56:47,760 --> 00:56:43,210

their level of intellectual prowess yeah

1275

00:56:50,030 --> 00:56:47,770

and and so I'm curious and this snot

1276

00:56:52,770 --> 00:56:50,040

that's not a gotcha question at all and

1277

00:56:59,250 --> 00:56:52,780

I'm curious what you've well you see

1278

00:57:05,819 --> 00:56:59,260

your non benevolent reasons for pursuing

1279

00:57:06,730 --> 00:57:05,829

a theory of everything it's an

1280

00:57:08,109 --> 00:57:06,740

interesting in bizarre

1281

00:57:12,850 --> 00:57:08,119

questions is turning out to be one hell

1282

00:57:14,859 --> 00:57:12,860

of an interview I guess the way I look

1283

00:57:16,900 --> 00:57:14,869

at it is you have to look at my behavior

1284

00:57:25,750 --> 00:57:16,910

if I've been playing with this theory

1285

00:57:27,580 --> 00:57:25,760

since 1980 83 84 and I really didn't

1286

00:57:33,660 --> 00:57:27,590

come through to talk about it with the

1287

00:57:36,310 --> 00:57:33,670

world until I guess 2013 at Oxford I

1288

00:57:39,280 --> 00:57:36,320

would not say that wanting to be

1289

00:57:41,859 --> 00:57:39,290

recognized was very high on my list in

1290

00:57:44,080 --> 00:57:41,869

fact I don't really like it it's fun to

1291

00:57:46,150 --> 00:57:44,090

get the affirmation people tell you

1292

00:57:48,130 --> 00:57:46,160

great work and oh my god I can't believe

1293

00:57:50,890 --> 00:57:48,140

I'm meeting you there's a very quick

1294

00:57:56,140 --> 00:57:50,900

buzz that very quickly fades off with

1295

00:57:59,230 --> 00:57:56,150

that you lose your privacy you have to

1296

00:58:01,240 --> 00:57:59,240

deal with very angry people who are very

1297

00:58:04,359 --> 00:58:01,250

often miss portraying you sometimes they

1298

00:58:06,970 --> 00:58:04,369

have ways to do it at scale I don't love

1299

00:58:11,620 --> 00:58:06,980

this party

1300

00:58:13,930 --> 00:58:11,630

I am at my happiest when I'm working

1301
00:58:16,680 --> 00:58:13,940
completely alone on something that

1302
00:58:19,390 --> 00:58:16,690
nobody even knows that I'm working so

1303
00:58:20,920 --> 00:58:19,400
that's a very awkward thing for me to

1304
00:58:22,090 --> 00:58:20,930
deal with which is that as soon as you

1305
00:58:24,550 --> 00:58:22,100
come out and you say that you've been

1306
00:58:26,950 --> 00:58:24,560
working on something in my case it took

1307
00:58:29,500 --> 00:58:26,960
my friend Marcus - so joy more or less

1308
00:58:34,000 --> 00:58:29,510
telling me you don't have a right to sit

1309
00:58:35,770 --> 00:58:34,010
on top of the city so I don't think my

1310
00:58:38,710 --> 00:58:35,780
motivations are very different than my

1311
00:58:41,830 --> 00:58:38,720
motivations for playing the piano I

1312
00:58:44,380 --> 00:58:41,840
don't think I've ever performed playing

1313
00:58:45,970 --> 00:58:44,390

the piano in public I guarantee you that

1314

00:58:48,970 --> 00:58:45,980

if you put me on a desert island with

1315

00:58:51,420 --> 00:58:48,980

the tune piano and no one to pick me up

1316

00:58:54,070 --> 00:58:51,430

for five years I'd be a piano every day

1317

00:58:58,030 --> 00:58:54,080

simply for my own reasons and I think

1318

00:58:59,980 --> 00:58:58,040

it's the same thing as the physics now

1319

00:59:01,420 --> 00:58:59,990

if someone asked me for like insight

1320

00:59:04,650 --> 00:59:01,430

into my character yeah there's a

1321

00:59:07,510 --> 00:59:04,660

delusional aspect to my character

1322

00:59:12,270 --> 00:59:07,520

you mean the same if everything you have

1323

00:59:13,420 --> 00:59:12,280

to be deluded and another megalomaniacal

1324

00:59:17,410 --> 00:59:13,430

really

1325

00:59:20,970 --> 00:59:19,030

I think I'm extremely overconfident and

1326

00:59:25,350 --> 00:59:20,980

that I feel like I can accomplish

1327

00:59:27,580 --> 00:59:25,360

virtually any task that's not physical

1328

00:59:29,410 --> 00:59:27,590

when I say physical I mean I don't I

1329

00:59:35,190 --> 00:59:29,420

don't think I can run that quickly nor

1330

00:59:37,480 --> 00:59:35,200

lift too heavy a weight but but I was

1331

00:59:41,200 --> 00:59:37,490

but it's rare for me to find something

1332

00:59:43,450 --> 00:59:41,210

that that's outside of my skull it's

1333

00:59:49,120 --> 00:59:43,460

actually no no it takes a little 7 times

1334

00:59:50,860 --> 00:59:49,130

29 great ok no just say that look the

1335

00:59:53,380 --> 00:59:50,870

situation is I don't think it's

1336

00:59:55,870 --> 00:59:53,390

megalomaniacal I think it's delusional I

1337

00:59:58,600 --> 00:59:55,880

think that there is a delusion and the

1338

01:00:01,630 --> 00:59:58,610

key question is can you pay back the the

1339

01:00:03,730 --> 01:00:01,640

cost of the delusion is the delusion

1340

01:00:05,770 --> 01:00:03,740

actually buy you something I'm sure that

1341

01:00:08,190 --> 01:00:05,780

Shackleton was delusional when he said

1342

01:00:10,830 --> 01:00:08,200

that he would rescue his men

1343

01:00:12,090 --> 01:00:10,840

but he did rescue his men but he had no

1344

01:00:14,730 --> 01:00:12,100

reason to think that he could pull it

1345

01:00:16,260 --> 01:00:14,740

off so you had his you have to be crazy

1346

01:00:18,300 --> 01:00:16,270

enough to think that you can in order

1347

01:00:19,920 --> 01:00:18,310

for you to attempt it yeah and I have I

1348

01:00:22,200 --> 01:00:19,930

have a saying which is you have to be

1349

01:00:25,560 --> 01:00:22,210

crazy enough to Stu dumb enough to get

1350

01:00:26,940 --> 01:00:25,570

in and smart enough to get out so you

1351

01:00:29,250 --> 01:00:26,950

have to be dumb enough to constrain

1352

01:00:30,840 --> 01:00:29,260

yourself in a burning building you know

1353

01:00:32,430 --> 01:00:30,850

with no exit and then you have to be

1354

01:00:34,830 --> 01:00:32,440

smart enough to figure out a way out of

1355

01:00:37,400 --> 01:00:34,840

the puzzle Eric how did you see that

1356

01:00:39,660 --> 01:00:37,410

something was going on with the nf NSF

1357

01:00:40,890 --> 01:00:39,670

how are you smart enough to figure it

1358

01:00:42,840 --> 01:00:40,900

out I'm not saying that you're not smart

1359

01:00:45,240 --> 01:00:42,850

I mean like how did you notice that well

1360

01:00:46,650 --> 01:00:45,250

what red flags were there and then what

1361

01:00:49,140 --> 01:00:46,660

led you down that route does someone say

1362

01:00:50,520 --> 01:00:49,150

by the way look up this paper well first

1363

01:00:52,800 --> 01:00:50,530

of all you should let people know what

1364

01:00:54,210 --> 01:00:52,810

you you just changed context radically

1365

01:00:56,520 --> 01:00:54,220

so you should introduce what you're

1366

01:01:00,660 --> 01:00:56,530

talking the National Science Foundation

1367

01:01:04,920 --> 01:01:00,670

I believe in the 1980s said that there

1368

01:01:06,360 --> 01:01:04,930

will be a shortage of of people

1369

01:01:07,680 --> 01:01:06,370

interested in stem where people getting

1370

01:01:09,990 --> 01:01:07,690

degrees in stem and that's going to be

1371

01:01:12,660 --> 01:01:10,000

deleterious for the United States and so

1372

01:01:14,790 --> 01:01:12,670

we need to increase the supply of people

1373

01:01:17,510 --> 01:01:14,800

coming into the STEM fields and one of

1374

01:01:19,830 --> 01:01:17,520

the ways we can do that is by allowing

1375

01:01:23,090 --> 01:01:19,840

it's being moral acts on our immigration

1376

01:01:26,520 --> 01:01:23,100

policy now that seems to have been

1377

01:01:28,770 --> 01:01:26,530

falsely constructed by the NSF for some

1378

01:01:31,800 --> 01:01:28,780

other purpose which I would like to get

1379

01:01:33,390 --> 01:01:31,810

into because I maybe I'm too foolish but

1380

01:01:34,950 --> 01:01:33,400

I wasn't able to figure that out from

1381

01:01:37,560 --> 01:01:34,960

the article like what was their actual

1382

01:01:41,310 --> 01:01:37,570

motivation was it money was it okay we

1383

01:01:44,220 --> 01:01:41,320

can get into that and it has and it has

1384

01:01:47,100 --> 01:01:44,230

had in the short-term negative effects

1385

01:01:49,410 --> 01:01:47,110

that is an oversupply of the market and

1386

01:01:52,110 --> 01:01:49,420

a lessening of the salaries for people

1387

01:01:54,720 --> 01:01:52,120

who are PhDs postdocs and lessening of

1388

01:01:59,970 --> 01:01:54,730

opportunities for them even though it

1389

01:02:01,680 --> 01:01:59,980

was said to be salutary on the whole now

1390

01:02:03,870 --> 01:02:01,690

I hope that I'm summarizing that

1391

01:02:10,580 --> 01:02:03,880

correctly and please correct me if I'm

1392

01:02:13,370 --> 01:02:10,590

wrong well what I noticed was that

1393

01:02:18,560 --> 01:02:13,380

institutions were obviously lying

1394

01:02:23,000 --> 01:02:21,170

right so you know just just shaggy

1395

01:02:26,020 --> 01:02:23,010

instructs when you get caught red-handed

1396

01:02:28,160 --> 01:02:26,030

you should just hate it wasn't me

1397

01:02:29,990 --> 01:02:28,170

by the way Chuck Berry also wrote a

1398

01:02:30,950 --> 01:02:30,000

great song it wasn't me I would check

1399

01:02:34,160 --> 01:02:30,960

out George Thorogood

1400

01:02:36,920 --> 01:02:34,170

version of every month footnote footnote

1401

01:02:38,720 --> 01:02:36,930

um I thought it was very clear that the

1402

01:02:40,430 --> 01:02:38,730

National Science Foundation was too

1403

01:02:45,470 --> 01:02:40,440

smart to be saying things that were too

1404

01:02:47,300 --> 01:02:45,480

dumb and there are no labor shortages

1405

01:02:49,670 --> 01:02:47,310

long-term labor shortages in market

1406

01:02:51,650 --> 01:02:49,680

economies that is that is a feature of a

1407

01:02:53,930 --> 01:02:51,660

centrally planned economy but because

1408

01:02:57,470 --> 01:02:53,940

the wage level is intended to rise based

1409

01:02:58,940 --> 01:02:57,480

on this claim me one of the great things

1410

01:03:00,740 --> 01:02:58,950

about being part of the capitalist

1411

01:03:02,690 --> 01:03:00,750

society is recognizing that labor

1412

01:03:08,480 --> 01:03:02,700

shortages don't exist in fact labor

1413

01:03:10,280 --> 01:03:08,490

shortages are the misconstrue l' of wage

1414

01:03:13,220 --> 01:03:10,290

pressure which is exactly what was

1415

01:03:15,860 --> 01:03:13,230

needed to make sure that we had a more

1416

01:03:17,450 --> 01:03:15,870

equal society now during the 80s when

1417

01:03:19,820 --> 01:03:17,460

people started talking about the only

1418

01:03:23,090 --> 01:03:19,830

thing that makes a more equal society as

1419

01:03:24,590 --> 01:03:23,100

being a problem I thought wow you're

1420

01:03:26,390 --> 01:03:24,600

talking about labor shortages in a

1421

01:03:28,040 --> 01:03:26,400

market economy clearly you're trying to

1422

01:03:31,130 --> 01:03:28,050

pick someone's pocket why are you

1423

01:03:32,990 --> 01:03:31,140

putting that a great thora thing and

1424

01:03:37,730 --> 01:03:33,000

just as an aside to the people listening

1425

01:03:41,680 --> 01:03:37,740

if it sits it would have been good for

1426

01:03:43,970 --> 01:03:41,690

the minorities and for and for women had

1427

01:03:46,310 --> 01:03:43,980

had the immigration policy has not been

1428

01:03:50,210 --> 01:03:46,320

instantiated the way they were oh my god

1429

01:03:52,250 --> 01:03:50,220

would it have been amazing employers

1430

01:03:54,320 --> 01:03:52,260

would have had to work so much harder

1431

01:03:57,910 --> 01:03:54,330

they would have had to put so much more

1432

01:04:00,980 --> 01:03:57,920

money into time and for training and

1433

01:04:03,410 --> 01:04:00,990

recruiting from non-traditional pools of

1434

01:04:05,630 --> 01:04:03,420

talent it would have been amazing for

1435

01:04:07,280 --> 01:04:05,640

young women who want to have a few

1436

01:04:11,030 --> 01:04:07,290

children and want to be able to

1437

01:04:15,050 --> 01:04:11,040

negotiate their ability to be serious

1438

01:04:17,300 --> 01:04:15,060

academics while taking you know five to

1439

01:04:19,710 --> 01:04:17,310

10 to 15 years to raise their their kids

1440

01:04:22,290 --> 01:04:19,720

would be terrific

1441

01:04:25,260 --> 01:04:22,300

you know you're talking about mutual

1442

01:04:27,150 --> 01:04:25,270

contact of ours Stephane Alexander

1443

01:04:30,359 --> 01:04:27,160

you know growing up as the son of the

1444

01:04:32,400 --> 01:04:30,369

cab driver in the Bronx coming from a

1445

01:04:36,570 --> 01:04:32,410

treated Trinidadian background one of

1446

01:04:38,250 --> 01:04:36,580

the only black physicists at the top of

1447

01:04:40,830 --> 01:04:38,260

the game

1448

01:04:42,450 --> 01:04:40,840

how much greater would it have been if

1449

01:04:44,849 --> 01:04:42,460

there were a recruiters coming to

1450

01:04:46,470 --> 01:04:44,859

Steph's high school and his his milieu

1451

01:04:49,680 --> 01:04:46,480

and saying hey how do we get you kids

1452

01:04:51,810 --> 01:04:49,690

interested introduced to mathematical

1453

01:04:55,440 --> 01:04:51,820

physics at the highest level it is a

1454

01:04:57,060 --> 01:04:55,450

complete tragedy that we allowed

1455

01:04:58,680 --> 01:04:57,070

ourselves to be bamboozled this goes

1456

01:05:00,390 --> 01:04:58,690

back to an earlier question of yours

1457

01:05:01,680 --> 01:05:00,400

Kurt you asked the question of how do I

1458

01:05:06,089 --> 01:05:01,690

always have a different take on

1459

01:05:08,730 --> 01:05:06,099

everything how could all of the world's

1460

01:05:11,520 --> 01:05:08,740

smart people agree on labor shortages in

1461

01:05:16,290 --> 01:05:11,530

a market economy with nobody saying this

1462

01:05:17,609 --> 01:05:16,300

is total [h__\h] almost there's two

1463

01:05:18,720 --> 01:05:17,619

there's two claim to me there one that

1464

01:05:19,890 --> 01:05:18,730

they all agree and one that they don't

1465

01:05:20,790 --> 01:05:19,900

speak up and I would say it's the latter

1466

01:05:25,589 --> 01:05:20,800

they don't speak up they don't

1467

01:05:28,230 --> 01:05:25,599

necessarily agree okay well what does it

1468

01:05:33,300 --> 01:05:28,240

tell you when everyone is silent right

1469

01:05:34,710 --> 01:05:33,310

so that is a form of agreement I agree

1470

01:05:38,760 --> 01:05:34,720

with you that it's you know it's very

1471

01:05:40,620 --> 01:05:38,770

often by omission right every economist

1472

01:05:42,690 --> 01:05:40,630

knows why you don't have labor shortages

1473

01:05:44,099 --> 01:05:42,700

in a market economy and yet they remain

1474

01:05:49,260 --> 01:05:44,109

mute because they know who their real

1475

01:05:50,870 --> 01:05:49,270

bosses are why did the National Science

1476

01:05:55,650 --> 01:05:50,880

Foundation do what they did

1477

01:05:57,839 --> 01:05:55,660

money well Reagan I believe appointed

1478

01:06:00,359 --> 01:05:57,849

somebody for the first time came from

1479

01:06:02,720 --> 01:06:00,369

industry rather than from academics to

1480

01:06:07,560 --> 01:06:02,730

head the NSF which was Erich Bois

1481

01:06:09,359 --> 01:06:07,570

believed he was hired from IBM and he

1482

01:06:11,400 --> 01:06:09,369

had one of these kind of corporate

1483

01:06:14,640 --> 01:06:11,410

mindsets which is okay we were facing a

1484

01:06:18,170 --> 01:06:14,650

problem people there was a huge bulge of

1485

01:06:20,700 --> 01:06:18,180

hires during 60s we had a baby boom and

1486

01:06:23,579 --> 01:06:20,710

now we're gonna be facing a demographic

1487

01:06:25,890 --> 01:06:23,589

short shortfall so we don't want to have

1488

01:06:28,560 --> 01:06:25,900

to pay higher prices for all of the

1489

01:06:29,700 --> 01:06:28,570

technical talent what do we do so it's

1490

01:06:31,770 --> 01:06:29,710

like that you know it's like the AGI

1491

01:06:33,120 --> 01:06:31,780

paperclip machine somebody sets up a

1492

01:06:33,390 --> 01:06:33,130

problem that says we don't want to have

1493

01:06:35,490 --> 01:06:33,400

to

1494

01:06:37,710 --> 01:06:35,500

an inflated cost for technical talent

1495

01:06:41,610 --> 01:06:37,720

the first answer is you don't get to do

1496

01:06:44,100 --> 01:06:41,620

that the second answer is you don't get

1497

01:06:46,890 --> 01:06:44,110

to do that you dick like don't be a

1498

01:06:50,430 --> 01:06:46,900

complete [h__h] and restructure the

1499

01:06:53,130 --> 01:06:50,440

labor market around scientists the needs

1500

01:06:56,010 --> 01:06:53,140

of scientific employers you just don't

1501

01:06:59,160 --> 01:06:56,020

have those rights yet that was the

1502

01:07:00,990 --> 01:06:59,170

charge and when he did do that got a

1503

01:07:02,700 --> 01:07:01,000

group called the policy research and

1504

01:07:05,220 --> 01:07:02,710

analysis division of the National

1505

01:07:09,240 --> 01:07:05,230

Science Foundation to do an economic

1506

01:07:10,740 --> 01:07:09,250

study about the wages now the problem is

1507

01:07:12,720 --> 01:07:10,750

is that you're not allowed to do this

1508

01:07:15,030 --> 01:07:12,730

you're not allowed to go after the wages

1509

01:07:18,720 --> 01:07:15,040

of scientists as the National Science

1510

01:07:20,160 --> 01:07:18,730

Foundation it's like you you know you

1511

01:07:22,670 --> 01:07:20,170

you wanted to know who should mind the

1512

01:07:25,080 --> 01:07:22,680

henhouse and so you find the best fox

1513

01:07:26,940 --> 01:07:25,090

that you can find to guard the henhouse

1514

01:07:30,150 --> 01:07:26,950

and to learn how to manage it the Fox

1515

01:07:31,860 --> 01:07:30,160

sets itself you know a task which is how

1516

01:07:34,440 --> 01:07:31,870

do we make sure that the chickens are

1517

01:07:36,950 --> 01:07:34,450

lined up in an orderly fashion and as

1518

01:07:39,510 --> 01:07:36,960

far as I from your article another

1519

01:07:42,000 --> 01:07:39,520

aspect that wasn't too great about the

1520

01:07:43,860 --> 01:07:42,010

PRA was that they didn't consult with

1521

01:07:46,470 --> 01:07:43,870

economists themselves they had their own

1522

01:07:48,000 --> 01:07:46,480

team which weren't which already had a

1523

01:07:50,880 --> 01:07:48,010

conclusion that they wanted to prove and

1524

01:07:52,740 --> 01:07:50,890

it was seriously they did it they had

1525

01:07:54,510 --> 01:07:52,750

economists they had their own economists

1526

01:07:56,970 --> 01:07:54,520

their economists were very competent

1527

01:07:59,550 --> 01:07:56,980

they were not incompetent the problem

1528

01:08:02,070 --> 01:07:59,560

was they weren't supposed to be trying

1529

01:08:04,200 --> 01:08:02,080

to figure out how to screw over American

1530

01:08:05,970 --> 01:08:04,210

technical talent at the bargaining table

1531

01:08:10,170 --> 01:08:05,980

for salary negotiations that's an

1532

01:08:11,700 --> 01:08:10,180

illegal and/or an immoral thing to do

1533

01:08:13,980 --> 01:08:11,710

nobody's gonna support that how do we

1534

01:08:16,260 --> 01:08:13,990

figure out how to screw over our own

1535

01:08:17,220 --> 01:08:16,270

technical talent can you imagine putting

1536

01:08:19,680 --> 01:08:17,230

that in front of the American people

1537

01:08:21,510 --> 01:08:19,690

America's technical employers need to

1538

01:08:24,090 --> 01:08:21,520

screw over the next generation how do we

1539

01:08:26,370 --> 01:08:24,100

lure unsuspecting kids with very high

1540

01:08:28,050 --> 01:08:26,380

abilities into a and decimate their

1541

01:08:31,140 --> 01:08:28,060

abilities to bargain back bargain

1542

01:08:32,180 --> 01:08:31,150

because that's what they were doing all

1543

01:08:35,450 --> 01:08:32,190

right

1544

01:08:37,550 --> 01:08:35,460

so what they had to do now now that

1545

01:08:39,380 --> 01:08:37,560

they'd studied the wage they had to come

1546

01:08:41,930 --> 01:08:39,390

up with an argument that didn't involve

1547

01:08:43,999 --> 01:08:41,940

wages because no one was going to

1548

01:08:44,959 --> 01:08:44,009

support the idea of screwing oversight

1549

01:08:48,289 --> 01:08:44,969

right right right

1550

01:08:52,340 --> 01:08:48,299

so now they said if we subtract off the

1551

01:08:54,380 --> 01:08:52,350

demand curves for labor and only talk

1552

01:08:56,780 --> 01:08:54,390

about the supply curbs then we can't

1553

01:08:59,329 --> 01:08:56,790

cross supply and demand and have people

1554

01:09:01,760 --> 01:08:59,339

ask us about wages so we're going to

1555

01:09:04,039 --> 01:09:01,770

take the economic analysis which is in

1556

01:09:06,410 --> 01:09:04,049

fact competence and we're going to turn

1557

01:09:08,450 --> 01:09:06,420

it into incompetence demographic

1558

01:09:10,039 --> 01:09:08,460

analysis by subtracting the demand

1559

01:09:12,439 --> 01:09:10,049

curves that we have in our own internal

1560

01:09:15,470 --> 01:09:12,449

studies and then we're going to push out

1561

01:09:17,510 --> 01:09:15,480

some fake stuff for the public this is

1562

01:09:20,510 --> 01:09:17,520

the beginning of fake news coming out of

1563

01:09:23,269 --> 01:09:20,520

the National Science Foundation so then

1564

01:09:24,920 --> 01:09:23,279

they stirred up a panic which is that

1565

01:09:26,660 --> 01:09:24,930

we're gonna have a demographic shortfall

1566

01:09:31,360 --> 01:09:26,670

meaning that there's a baby bust that

1567

01:09:34,579 --> 01:09:31,370

follows the baby boom and we need relief

1568

01:09:37,970 --> 01:09:34,589

by relief what we mean is a transfer of

1569

01:09:40,150 --> 01:09:37,980

wealth from Americans who work to

1570

01:09:43,130 --> 01:09:40,160

Americans who employ Americans who work

1571

01:09:46,640 --> 01:09:43,140

so why we are suddenly becoming so

1572

01:09:50,420 --> 01:09:46,650

sympathetic with scientific employers is

1573

01:09:53,780 --> 01:09:50,430

beyond anyone like why are scientific

1574

01:09:56,860 --> 01:09:53,790

employers something that needs bleep we

1575

01:09:58,660 --> 01:09:56,870

don't know so what they do

1576

01:10:01,510 --> 01:09:58,670

they panicked the country into passing

1577

01:10:04,030 --> 01:10:01,520

the Immigration Act of 1990 sometimes

1578

01:10:06,460 --> 01:10:04,040

called a MACT 90 which had the h-1b

1579

01:10:08,230 --> 01:10:06,470

provision and other provisions and then

1580

01:10:10,900 --> 01:10:08,240

it was later found out about two years

1581

01:10:13,390 --> 01:10:10,910

later that they had faked this entire

1582

01:10:16,390 --> 01:10:13,400

analysis in hearings held before

1583

01:10:19,150 --> 01:10:16,400

Congress and what I did on top of that

1584

01:10:23,080 --> 01:10:19,160

was to find and locate the actual study

1585

01:10:25,930 --> 01:10:23,090

that proves that in 1986 they were doing

1586

01:10:27,220 --> 01:10:25,940

secret studies inside of NSF and the

1587

01:10:28,540 --> 01:10:27,230

National Academy of Science and

1588

01:10:31,800 --> 01:10:28,550

something called the government

1589

01:10:34,650 --> 01:10:31,810

university industry research Roundtable

1590

01:10:37,140 --> 01:10:34,660

and how to gut the bargaining power of

1591

01:10:38,820 --> 01:10:37,150

the American scientists and for that

1592

01:10:41,820 --> 01:10:38,830

they should be consigned to hell I mean

1593

01:10:44,190 --> 01:10:41,830

it's an absolutely unethical program

1594

01:10:46,050 --> 01:10:44,200

which was then covered up by anybody who

1595

01:10:47,280 --> 01:10:46,060

challenges it is a xenophobe or doesn't

1596

01:10:48,480 --> 01:10:47,290

believe in the best and the brightest

1597

01:10:51,060 --> 01:10:48,490

which is the funniest part of it all

1598

01:10:52,590 --> 01:10:51,070

yeah I saw a tweet that recently you

1599

01:10:54,480 --> 01:10:52,600

excoriated because the person said

1600

01:10:58,970 --> 01:10:54,490

you're a pure villain or pure evil if

1601
01:11:01,290 --> 01:10:58,980
you don't allow an open border

1602
01:11:03,210 --> 01:11:01,300
unfortunately we don't know that there's

1603
01:11:04,710 --> 01:11:03,220
an answer to whether or not children

1604
01:11:08,010 --> 01:11:04,720
should be allowed on the internet but

1605
01:11:09,420 --> 01:11:08,020
there are many of them unclear okay now

1606
01:11:10,620 --> 01:11:09,430
I don't know too much so please forgive

1607
01:11:12,900 --> 01:11:10,630
me I don't know too much about US law

1608
01:11:14,910 --> 01:11:12,910
and it seems like two years later 1992

1609
01:11:16,800 --> 01:11:14,920
around that time they figured out that

1610
01:11:18,830 --> 01:11:16,810
the NSF was lying and there was like you

1611
01:11:21,750 --> 01:11:18,840
said a congressional meeting about it

1612
01:11:23,880 --> 01:11:21,760
so that to me sounds like well it was

1613
01:11:27,060 --> 01:11:23,890

just a two-year program if the effects

1614

01:11:28,980 --> 01:11:27,070

shouldn't be felt now did it was there

1615

01:11:31,350 --> 01:11:28,990

any change is it more drastic now oh

1616

01:11:32,970 --> 01:11:31,360

they got what they wanted they changed

1617

01:11:37,170 --> 01:11:32,980

the law and now you have a permanent

1618

01:11:39,270 --> 01:11:37,180

cabal of employers who every time you

1619

01:11:41,630 --> 01:11:39,280

talk about decreasing their access to

1620

01:11:44,580 --> 01:11:41,640

visas I mean just picture

1621

01:11:46,200 --> 01:11:44,590

multi-billionaire employers whining

1622

01:11:49,710 --> 01:11:46,210

about a labor shortage in a market

1623

01:11:51,690 --> 01:11:49,720

economy when their workers can't put

1624

01:11:55,520 --> 01:11:51,700

pressure on I mean look there's

1625

01:12:05,270 --> 01:11:55,530

something evil about technical employers

1626
01:12:06,880 --> 01:12:05,280
just positively evil you know when you

1627
01:12:09,380 --> 01:12:06,890
talk about the transfer of wealth from

1628
01:12:11,060 --> 01:12:09,390
the employees to the employers you're

1629
01:12:12,710 --> 01:12:11,070
referring to that the salaries would

1630
01:12:14,790 --> 01:12:12,720
have been higher for the employees of

1631
01:12:16,350 --> 01:12:14,800
Americans

1632
01:12:17,879 --> 01:12:16,360
and so the employees didn't want to pay

1633
01:12:19,410 --> 01:12:17,889
more employers didn't want to pay more

1634
01:12:21,240 --> 01:12:19,420
and that's why they like well it's also

1635
01:12:25,310 --> 01:12:21,250
the case that we produce a different

1636
01:12:27,330 --> 01:12:25,320
style of product you know the Chinese

1637
01:12:29,129 --> 01:12:27,340
graduate student in the American

1638
01:12:32,250 --> 01:12:29,139

graduate student are coming from very

1639

01:12:36,450 --> 01:12:32,260

different mill use the US has been

1640

01:12:39,689 --> 01:12:36,460

drenched in freedom and you know even

1641

01:12:41,790 --> 01:12:39,699

leading Chinese people in tech will tell

1642

01:12:43,500 --> 01:12:41,800

me we have a culture of obedience that

1643

01:12:46,049 --> 01:12:43,510

stretches back thousands of years that's

1644

01:12:48,060 --> 01:12:46,059

not me saying that that's Chinese people

1645

01:12:52,050 --> 01:12:48,070

saying this

1646

01:12:54,180 --> 01:12:52,060

um do you want a worker who's gonna give

1647

01:12:56,370 --> 01:12:54,190

you lip and be in a position where they

1648

01:12:59,040 --> 01:12:56,380

don't have to take your crap if they

1649

01:13:00,540 --> 01:12:59,050

don't want to or do you wanted to deal

1650

01:13:02,460 --> 01:13:00,550

with somebody who's tethered to you

1651
01:13:03,990 --> 01:13:02,470
because of the conditions of their music

1652
01:13:07,290 --> 01:13:04,000
who has grown up in an authoritarian

1653
01:13:09,480 --> 01:13:07,300
regime who you can tell what to do I

1654
01:13:11,580 --> 01:13:09,490
mean I have I conducted interviews for

1655
01:13:14,670 --> 01:13:11,590
the American Society of cell biologists

1656
01:13:16,890 --> 01:13:14,680
and there were multiple biologists who

1657
01:13:19,560 --> 01:13:16,900
referred to the foreign workers and

1658
01:13:24,870 --> 01:13:19,570
students in their labs as literally

1659
01:13:27,660 --> 01:13:24,880
slave labor so you know you're talking

1660
01:13:30,950 --> 01:13:27,670
to an employer talking about their slave

1661
01:13:34,790 --> 01:13:30,960
labor and laughing about

1662
01:13:36,890 --> 01:13:34,800
I just find it astounding this seems to

1663
01:13:40,010 --> 01:13:36,900

be a running thread that you notice is

1664

01:13:42,050 --> 01:13:40,020

that people have a conclusion and then

1665

01:13:44,450 --> 01:13:42,060

they come up you know with a they come

1666

01:13:46,220 --> 01:13:44,460

up with a reason to the public to

1667

01:13:47,810 --> 01:13:46,230

justify some actions so that they can

1668

01:13:50,540 --> 01:13:47,820

have this conclusion for example it was

1669

01:13:54,439 --> 01:13:50,550

one one recent one it was with the masks

1670

01:13:56,540 --> 01:13:54,449

that we don't want hospitals to run out

1671

01:13:59,689 --> 01:13:56,550

of masks so let's tell people you didn't

1672

01:14:01,490 --> 01:13:59,699

master or ill effective but they're

1673

01:14:05,780 --> 01:14:01,500

worse than that but you know that in an

1674

01:14:09,140 --> 01:14:05,790

infected mask can get you sick right and

1675

01:14:10,520 --> 01:14:09,150

I see this too on the on the extreme

1676

01:14:11,810 --> 01:14:10,530

left so for example I was talking to

1677

01:14:13,669 --> 01:14:11,820

someone who is part of the social

1678

01:14:15,590 --> 01:14:13,679

justice studies and what tip it was I

1679

01:14:17,330 --> 01:14:15,600

was with my brother actually and we

1680

01:14:18,649 --> 01:14:17,340

talked we pointed to some breed of dog

1681

01:14:19,189 --> 01:14:18,659

so you know that's an intelligent breed

1682

01:14:22,520 --> 01:14:19,199

of dog

1683

01:14:25,100 --> 01:14:22,530

and then the person said that no no it's

1684

01:14:26,720 --> 01:14:25,110

not there's not you can't that dog is

1685

01:14:27,919 --> 01:14:26,730

not more intelligent that breed is not

1686

01:14:29,660 --> 01:14:27,929

more intelligent than any other breed

1687

01:14:32,090 --> 01:14:29,670

and then I was wondering like this seems

1688

01:14:34,310 --> 01:14:32,100

to be not a controversial statement but

1689

01:14:36,560 --> 01:14:34,320

then I realized well the reason why

1690

01:14:38,270 --> 01:14:36,570

she's saying no don't compare dog breeds

1691

01:14:39,500 --> 01:14:38,280

is because that if you compare dog trees

1692

01:14:41,090 --> 01:14:39,510

maybe what about races and then you

1693

01:14:42,860 --> 01:14:41,100

might be and because that's right so the

1694

01:14:44,870 --> 01:14:42,870

idea of being that natural selection

1695

01:14:46,280 --> 01:14:44,880

applies to every species other than

1696

01:14:48,570 --> 01:14:46,290

humans and we have it's totally

1697

01:14:50,840 --> 01:14:48,580

different rules it's it's

1698

01:14:55,470 --> 01:14:50,850

these are infantile thought patterns

1699

01:14:58,350 --> 01:14:55,480

right when I look at to wrap up but this

1700

01:15:00,300 --> 01:14:58,360

is gonna be another tangent but when I

1701

01:15:03,930 --> 01:15:00,310

look at some of your older videos like

1702

01:15:06,390 --> 01:15:03,940

from the early 2000s you're you're much

1703

01:15:08,280 --> 01:15:06,400

more articulate now than you were then

1704

01:15:09,630 --> 01:15:08,290

you're eloquent now you're poor I'm not

1705

01:15:11,730 --> 01:15:09,640

saying you weren't back then I'm saying

1706

01:15:14,470 --> 01:15:11,740

you're more now what video are you

1707

01:15:19,060 --> 01:15:16,240

so firstly some of your early Tim

1708

01:15:21,970 --> 01:15:19,070

Ferriss interviews second you speaking

1709

01:15:26,710 --> 01:15:21,980

with Lee Lee Smolin about economic age

1710

01:15:28,630 --> 01:15:26,720

theory and one about economic Manhattan

1711

01:15:31,930 --> 01:15:28,640

Project as I believe on the perimeter

1712

01:15:33,250 --> 01:15:31,940

website don't know 100% sure okay well

1713

01:15:35,830 --> 01:15:33,260

to each his own

1714

01:15:38,020 --> 01:15:35,840

yeah getting older and I'm losing my

1715

01:15:41,530 --> 01:15:38,030

faculties no no no no I'm saying you're

1716

01:15:45,460 --> 01:15:41,540

better now I know that's weak okay

1717

01:15:47,770 --> 01:15:45,470

the area's more to do it before but okay

1718

01:15:52,030 --> 01:15:47,780

okay there you go right well what I want

1719

01:15:54,550 --> 01:15:52,040

to know is is do you did you work on

1720

01:15:56,020 --> 01:15:54,560

your articulation do you practice in

1721

01:15:58,090 --> 01:15:56,030

front of the camera turn it off watch it

1722

01:15:59,710 --> 01:15:58,100

and then don't release it really okay

1723

01:16:05,560 --> 01:15:59,720

let me improve or is it just something

1724

01:16:07,210 --> 01:16:05,570

that comes as a function of age then you

1725

01:16:11,050 --> 01:16:07,220

don't do exercises to improve no but

1726

01:16:13,660 --> 01:16:11,060

it's a regularise even in Korean I I

1727

01:16:19,480 --> 01:16:13,670

don't see the change but maybe it's

1728

01:16:25,040 --> 01:16:23,480

okay you mentioned that on your recent

1729

01:16:27,350 --> 01:16:25,050

product on your recent podcast with Bret

1730

01:16:30,170 --> 01:16:27,360

that talking about free will in the

1731

01:16:31,640 --> 01:16:30,180

discourse discord servers you said he

1732

01:16:32,900 --> 01:16:31,650

said sometimes you log on you see people

1733

01:16:34,760 --> 01:16:32,910

talking about free will and one other

1734

01:16:37,220 --> 01:16:34,770

topic which I can't recall but free will

1735

01:16:39,500 --> 01:16:37,230

in particular is unproductive well why

1736

01:16:47,150 --> 01:16:39,510

why do you say that debating about free

1737

01:16:49,040 --> 01:16:47,160

will is unproductive well what I what I

1738

01:16:51,560 --> 01:16:49,050

notice is that people will have the same

1739

01:16:53,270 --> 01:16:51,570

conversations over and over again and if

1740

01:16:54,500 --> 01:16:53,280

I tuned in on one or I tune in another

1741

01:16:58,030 --> 01:16:54,510

I've pretty much heard all of the

1742

01:17:01,100 --> 01:16:58,040

arguments that are being advanced so I

1743

01:17:03,200 --> 01:17:01,110

believe that you have to learn to

1744

01:17:06,020 --> 01:17:03,210

recognize the signature of people trying

1745

01:17:08,480 --> 01:17:06,030

to solve a mistaken problem they're

1746

01:17:10,580 --> 01:17:08,490

trying to solve a problem where the

1747

01:17:13,430 --> 01:17:10,590

framework for solving that problem does

1748

01:17:15,980 --> 01:17:13,440

not yet exist okay so it's not the

1749

01:17:18,800 --> 01:17:15,990

problem itself it's the framework of the

1750

01:17:21,350 --> 01:17:18,810

problem much like the problem relative

1751

01:17:23,300 --> 01:17:21,360

to the framework that we're in where

1752

01:17:24,860 --> 01:17:23,310

people will have a conversation that

1753

01:17:26,210 --> 01:17:24,870

will go on for an hour before anyone

1754

01:17:29,879 --> 01:17:26,220

will ask the question do we even know

1755

01:17:38,310 --> 01:17:32,429

so I just find these conversations are

1756

01:17:39,750 --> 01:17:38,320

not like the conversations of you know

1757

01:17:43,979 --> 01:17:39,760

another topic I want to get people

1758

01:17:47,339 --> 01:17:43,989

interested in is that the habberman

1759

01:17:49,139 --> 01:17:47,349

switch pitch which is a toy bit based on

1760

01:17:51,569 --> 01:17:49,149

the self duality of the tetrahedron

1761

01:17:53,699 --> 01:17:51,579

could you build one exhibiting the

1762

01:17:56,129 --> 01:17:53,709

duality between the dodecahedron and

1763

01:17:58,560 --> 01:17:56,139

icosahedron that's a very concrete thing

1764

01:18:00,509 --> 01:17:58,570

that could be done somebody could

1765

01:18:05,459 --> 01:18:00,519

actually build a physical implementation

1766

01:18:07,020 --> 01:18:05,469

of this idea I'm positive that the

1767

01:18:08,580 --> 01:18:07,030

freewill discussion is gonna be going on

1768

01:18:11,850 --> 01:18:08,590

two weeks from now it's gonna sound the

1769

01:18:13,889 --> 01:18:11,860

same as the one this week now I couldn't

1770

01:18:16,589 --> 01:18:13,899

be wrong maybe somebody in some discord

1771

01:18:20,129 --> 01:18:16,599

chat somewhere is good and then I will

1772

01:18:22,469 --> 01:18:20,139

have egg on my face but I'm so unworthy

1773

01:18:24,509 --> 01:18:22,479

bad that I'm willing to commit to you on

1774

01:18:26,729 --> 01:18:24,519

this podcast that 20 years from now

1775

01:18:28,469 --> 01:18:26,739

we're still going to be having freewill

1776

01:18:31,949 --> 01:18:28,479

discussions if we don't have a more

1777

01:18:33,299 --> 01:18:31,959

profound theory of physic did you do you

1778

01:18:36,359 --> 01:18:33,309

have a personal definition of freewill

1779

01:18:38,520 --> 01:18:36,369

that you think is okay you mentioned

1780

01:18:40,949 --> 01:18:38,530

once that you like hey I do the rituals

1781

01:18:42,479 --> 01:18:40,959

of Judaism I don't consider myself a

1782

01:18:44,159 --> 01:18:42,489

practical and consider yourself a

1783

01:18:46,319 --> 01:18:44,169

practicing Jew but not a believing Jew

1784

01:18:47,909 --> 01:18:46,329

in the sense that you consciously

1785

01:18:49,889 --> 01:18:47,919

believe it but maybe unconsciously you

1786

01:18:53,399 --> 01:18:49,899

do in a Peter Sounion sense there are

1787

01:18:58,450 --> 01:18:53,409

behaviors our thoughts did you say Peter

1788

01:19:02,620 --> 01:19:00,280

I didn't know there was a Peter Soni and

1789

01:19:05,830 --> 01:19:02,630

yes I just I I like to use the word

1790

01:19:12,490 --> 01:19:05,840

Peter so needed since it's easier for me

1791

01:19:15,670 --> 01:19:12,500

okay okay well do you pray yes oh okay

1792

01:19:17,650 --> 01:19:15,680

that's it true now when you pray who do

1793

01:19:23,230 --> 01:19:17,660

you feel like your friend to if you

1794

01:19:27,280 --> 01:19:23,240

don't if you look Webber's around you

1795

01:19:29,050 --> 01:19:27,290

literally as in people oh I know you're

1796

01:19:33,760 --> 01:19:29,060

joking but I'm actually trying to I'm

1797

01:19:34,810 --> 01:19:33,770

actually curious and please forgive me

1798

01:19:37,000 --> 01:19:34,820

if this is too personal

1799

01:19:39,520 --> 01:19:37,010

no no I mean I think it has to do with

1800

01:19:43,660 --> 01:19:39,530

the idea that the concept of prayer is a

1801

01:19:45,280 --> 01:19:43,670

conserved concept in the human psyche so

1802

01:19:48,070 --> 01:19:45,290

you have widely separated groups who

1803

01:19:52,360 --> 01:19:48,080

come up on the idea of prayer and I

1804

01:19:54,250 --> 01:19:52,370

think it's because the human mind has an

1805

01:19:57,700 --> 01:19:54,260

extended phenotype if you will of

1806

01:20:00,040 --> 01:19:57,710

behaviors so you know we build churches

1807

01:20:02,350 --> 01:20:00,050

and mosques and synagogues and all sorts

1808

01:20:06,760 --> 01:20:02,360

of houses of worship that's part of our

1809

01:20:12,280 --> 01:20:06,770

extended phenotype we gather to sing do

1810

01:20:14,190 --> 01:20:12,290

you pray you try to what what what

1811

01:20:18,580 --> 01:20:14,200

tradition deed the you grow up then I

1812

01:20:21,430 --> 01:20:18,590

grew up in my family is Christian but

1813

01:20:23,260 --> 01:20:21,440

then I became an atheist as as a as a

1814

01:20:25,420 --> 01:20:23,270

young person after my brother told me

1815

01:20:26,770 --> 01:20:25,430

about quantum fluctuations because they

1816

01:20:28,540 --> 01:20:26,780

always been heard well how the heck

1817

01:20:30,370 --> 01:20:28,550

could nothing could something come from

1818

01:20:32,530 --> 01:20:30,380

nothing and then one time my brother was

1819

01:20:36,160 --> 01:20:32,540

walking with me to Blockbuster this is

1820

01:20:36,850 --> 01:20:36,170

always and and he mentioned yeah well

1821

01:20:39,010 --> 01:20:36,860

there's something called quantum

1822

01:20:42,040 --> 01:20:39,020

fluctuations and then I remember sitting

1823

01:20:44,350 --> 01:20:42,050

up in my bed and just thinking well that

1824

01:20:48,790 --> 01:20:44,360

doesn't have to be a reason for God so I

1825

01:20:51,040 --> 01:20:48,800

was an atheist and then and now I'm I'm

1826

01:20:54,760 --> 01:20:51,050

unsure I would say that I I hope I'm I

1827

01:20:56,050 --> 01:20:54,770

hope I'm religious because well we can

1828

01:21:01,690 --> 01:20:56,060

get into that conversation well I'm

1829

01:21:05,710 --> 01:21:01,700

pretty much of an atheist if you take

1830

01:21:08,680 --> 01:21:05,720

say the lyrics of you know Forever Young

1831

01:21:13,600 --> 01:21:08,690

by Bob Dylan I don't know too much of

1832

01:21:17,250 --> 01:21:13,610

music not a musical person I play music

1833

01:21:23,710 --> 01:21:19,720

starts off may God bless and keep you

1834

01:21:25,270 --> 01:21:23,720

always may promise to be true maybe what

1835

01:21:27,040 --> 01:21:25,280

what to do for others and let others do

1836

01:21:28,660 --> 01:21:27,050

for you may you always be courageous

1837

01:21:30,940 --> 01:21:28,670

stand upright and be strong and may you

1838

01:21:34,330 --> 01:21:30,950

stay forever young it's an absolutely

1839

01:21:37,879 --> 01:21:34,340

beautiful song it gets tremendous power

1840

01:21:41,000 --> 01:21:37,889

from the form of

1841

01:21:48,050 --> 01:21:41,010

right it gets tremendous power from the

1842

01:21:51,590 --> 01:21:48,060

form the form of a prayer okay right you

1843

01:21:57,430 --> 01:21:51,600

know if you think about Madonna's like a

1844

01:22:00,850 --> 01:21:57,440

prayer if you think about you

1845

01:22:04,600 --> 01:22:00,860

talked about a CDC's song you shook me

1846

01:22:10,810 --> 01:22:04,610

all night long which uses these four

1847

01:22:16,630 --> 01:22:10,820

notes yes you shook me all night long

1848

01:22:24,700 --> 01:22:16,640

very similar to SH - Ryan I don't know

1849

01:22:30,939 --> 01:22:24,710

either pain I don't I like the power of

1850

01:22:38,470 --> 01:22:30,949

those four notes I don't know you but I

1851

01:22:41,120 --> 01:22:38,480

want you to deny this is part of the

1852

01:22:44,300 --> 01:22:41,130

human endowment

1853

01:22:45,830 --> 01:22:44,310

is crazy so yeah maybe you're not gonna

1854

01:22:46,970 --> 01:22:45,840

go to synagogue and then you're sitting

1855

01:22:47,360 --> 01:22:46,980

there and you're doing what you're

1856

01:22:50,439 --> 01:22:47,370

singing

1857

01:22:54,500 --> 01:22:50,449

you shook me all night long you know and

1858

01:22:56,570 --> 01:22:54,510

it's erotic it's sacred it's profane

1859

01:22:58,850 --> 01:22:56,580

it's all of those things that animate us

1860

01:23:03,830 --> 01:22:58,860

in the contrast and the contradictions

1861

01:23:05,930 --> 01:23:03,840

and the you know the run-ins and the you

1862

01:23:08,330 --> 01:23:05,940

know weird juxtapositions so I think

1863

01:23:11,840 --> 01:23:08,340

that you have to recognize that prayer

1864

01:23:13,970 --> 01:23:11,850

has a function in our minds that we only

1865

01:23:15,530 --> 01:23:13,980

partially understand having nothing

1866

01:23:16,939 --> 01:23:15,540

necessarily to do with whether there's

1867

01:23:22,910 --> 01:23:16,949

somebody on the other end of the phone

1868

01:23:24,890 --> 01:23:22,920

when we place the call Eric you sing

1869

01:23:27,500 --> 01:23:24,900

when you're alone

1870

01:23:29,210 --> 01:23:27,510

yeah what are you saying and even what

1871

01:23:32,300 --> 01:23:29,220

I'm not but what are some of you

1872

01:23:34,880 --> 01:23:32,310

fortunately I have a high you know

1873

01:23:36,710 --> 01:23:34,890

interestingly I love nirvana so I love

1874

01:23:38,270 --> 01:23:36,720

Kurt Cobain and one of my other idols is

1875

01:23:39,620 --> 01:23:38,280

Kurt girdle and my name is Kurt and

1876

01:23:41,630 --> 01:23:39,630

that's just completely I wonder if

1877

01:23:42,770 --> 01:23:41,640

that's a correlation during its cost or

1878

01:23:45,860 --> 01:23:42,780

if it's just Queens you may be losing

1879

01:23:48,080 --> 01:23:45,870

your marbles but okay yeah so Nirvana

1880

01:23:51,800 --> 01:23:48,090

are Our Lady peace Alanis Morissette I

1881

01:23:54,200 --> 01:23:51,810

like 90s yeah well if you think about

1882

01:23:56,279 --> 01:23:54,210

Kurt Cobain there's something very sort

1883

01:23:57,700 --> 01:23:56,289

of

1884

01:23:59,500 --> 01:23:57,710

I

1885

01:24:02,830 --> 01:23:59,510

that there's something very blasphemous

1886

01:24:05,800 --> 01:24:02,840

and very sort of profane about his

1887

01:24:09,090 --> 01:24:05,810

alienation and honestly it's better when

1888

01:24:13,000 --> 01:24:09,100

it's animated by its relationship to

1889

01:24:14,770 --> 01:24:13,010

religion a little bit wait okay sorry

1890

01:24:16,209 --> 01:24:14,780

explain what you mean there that Kurt

1891

01:24:18,790 --> 01:24:16,219

Cobain's music is better when it's

1892

01:24:21,140 --> 01:24:18,800

animated by its relationship to religion

1893

01:24:24,830 --> 01:24:21,150

what do you mean

1894

01:24:28,760 --> 01:24:24,840

um well you know if you just take a line

1895

01:24:32,240 --> 01:24:28,770

like she's over bored and self-assured I

1896

01:24:35,120 --> 01:24:32,250

know I know the dirty work this is a

1897

01:24:38,420 --> 01:24:35,130

dirty word right all right look clearly

1898

01:24:40,070 --> 01:24:38,430

that's animated by religion you know did

1899

01:24:41,960 --> 01:24:40,080

somebody say damn and you have to have

1900

01:24:46,340 --> 01:24:41,970

your mouth washed out with soap in the

1901
01:24:47,690 --> 01:24:46,350
nineteen twenties I don't know so I see

1902
01:24:51,050 --> 01:24:47,700
so you're saying that music has made

1903
01:24:52,610 --> 01:24:51,060
richer when you appreciate religion

1904
01:24:55,250 --> 01:24:52,620
where you merchants or understand it in

1905
01:24:57,260 --> 01:24:55,260
the context of religion well like I was

1906
01:25:01,850 --> 01:24:57,270
talking about what did I say before you

1907
01:25:04,940 --> 01:25:01,860
know the most scandalous thing about

1908
01:25:10,190 --> 01:25:04,950
what did I say was the merging of

1909
01:25:12,770 --> 01:25:10,200
sexuality and gospel so he stopped the

1910
01:25:18,860 --> 01:25:12,780
middle of song and goes ah and his

1911
01:25:20,660 --> 01:25:18,870
backup singers going in through this

1912
01:25:23,990 --> 01:25:20,670
grunting ritual which is clearly

1913
01:25:27,080 --> 01:25:24,000

extremely sexual with the gospel feel to

1914

01:25:29,750 --> 01:25:27,090

it all right I can tell you that there's

1915

01:25:32,330 --> 01:25:29,760

nothing quite so transgressive as the

1916

01:25:35,750 --> 01:25:32,340

concept of sacred sexuality with the

1917

01:25:38,149 --> 01:25:35,760

choir so that

1918

01:25:43,820 --> 01:25:38,159

song has the power to shock us precisely

1919

01:25:50,000 --> 01:25:47,390

referenced and I do think that the

1920

01:25:54,080 --> 01:25:50,010

tension between reason and religion and

1921

01:25:56,630 --> 01:25:54,090

between superstition and ritual versus

1922

01:25:58,940 --> 01:25:56,640

our metacognitive facility which says

1923

01:26:01,760 --> 01:25:58,950

why am i doing these things that's been

1924

01:26:04,400 --> 01:26:01,770

incredibly potent it would be very weird

1925

01:26:06,500 --> 01:26:04,410

to throw religion out once you realize

1926

01:26:10,340 --> 01:26:06,510

that it's not literally true but yet

1927

01:26:13,850 --> 01:26:10,350

many people do that right and that also

1928

01:26:15,680 --> 01:26:13,860

has the sub claim that if you don't

1929

01:26:18,740 --> 01:26:15,690

believe in religion as it literally is

1930

01:26:22,310 --> 01:26:18,750

then you're not Christian or you're not

1931

01:26:23,750 --> 01:26:22,320

Jewish and I I was speaking with Peter

1932

01:26:26,090 --> 01:26:23,760

Glenn knows who's a specialist in the

1933

01:26:28,550 --> 01:26:26,100

history of religion he was saying that

1934

01:26:30,890 --> 01:26:28,560

if you go to eat early early Christian

1935

01:26:34,640 --> 01:26:30,900

early Christianity early Judaism like

1936

01:26:39,620 --> 01:26:34,650

third century in and 300 or 200 BC as

1937

01:26:43,430 --> 01:26:39,630

well for Judaism that to say to think of

1938

01:26:46,490 --> 01:26:43,440

the Bible as literal was also a sin for

1939

01:26:48,440 --> 01:26:46,500

song sex could say whatever you want

1940

01:26:51,800 --> 01:26:48,450

these are tensions that don't get

1941

01:26:53,660 --> 01:26:51,810

resolved and most of the rap I think I

1942

01:26:55,370 --> 01:26:53,670

know I've said I know five or six rabbis

1943

01:26:59,530 --> 01:26:55,380

well enough to ask the question do you

1944

01:27:04,850 --> 01:27:03,560

everything you standard typical trivial

1945

01:27:07,910 --> 01:27:04,860

sense that yeah I believe that these

1946

01:27:09,800 --> 01:27:07,920

stories are literally I'm curious about

1947

01:27:12,010 --> 01:27:09,810

your use of language sometimes even

1948

01:27:15,800 --> 01:27:12,020

Brett in the most recent podcast that

1949

01:27:17,570 --> 01:27:15,810

Eric you do use terminology that I'm

1950

01:27:19,370 --> 01:27:17,580

pretty sure you know that the

1951

01:27:20,450 --> 01:27:19,380

interlocutor is unaware of so for

1952

01:27:23,270 --> 01:27:20,460

example with you and Anna

1953

01:27:25,310 --> 01:27:23,280

you use the term expansion point to

1954

01:27:27,590 --> 01:27:25,320

describe the media and me as a

1955

01:27:29,120 --> 01:27:27,600

mathematician I know what expansion

1956

01:27:31,130 --> 01:27:29,130

point means but I'm pretty sure Anna

1957

01:27:32,900 --> 01:27:31,140

doesn't and neither and I'm pretty sure

1958

01:27:34,130 --> 01:27:32,910

that you know that Anna doesn't know so

1959

01:27:37,040 --> 01:27:34,140

I was curious why would you use that

1960

01:27:38,510 --> 01:27:37,050

another example was when you were being

1961

01:27:41,960 --> 01:27:38,520

asked about Bitcoin you said something

1962

01:27:43,550 --> 01:27:41,970

this is locally conserved

1963

01:27:45,860 --> 01:27:43,560

this is like local conservation law

1964

01:27:49,730 --> 01:27:45,870

something like that and I'm curious what

1965

01:27:51,050 --> 01:27:49,740

why do you use esoteric language now

1966

01:27:51,980 --> 01:27:51,060

here's some theories so someone might

1967

01:27:55,460 --> 01:27:51,990

say while you're trying to sound

1968

01:27:56,660 --> 01:27:55,470

intelligent and or another one might be

1969

01:27:59,780 --> 01:27:56,670

well this is how you think and you're

1970

01:28:01,160 --> 01:27:59,790

thinking aloud another one might be well

1971

01:28:04,730 --> 01:28:01,170

you're trying to provoke curiosity in

1972

01:28:07,400 --> 01:28:04,740

the audience well I don't want to give

1973

01:28:10,180 --> 01:28:07,410

you some answers but I think an

1974

01:28:13,150 --> 01:28:10,190

excellent job of answer here a question

1975

01:28:16,040 --> 01:28:13,160

I'm not interested in sounding

1976

01:28:19,460 --> 01:28:16,050

intelligent because that's going to cut

1977

01:28:21,380 --> 01:28:19,470

down on my estimation of intelligence

1978

01:28:27,580 --> 01:28:21,390

probably and it's going to cut down on

1979

01:28:33,420 --> 01:28:31,500

just a minute just a minute

1980

01:28:34,680 --> 01:28:33,430

to be blunt about it I think there's a

1981

01:28:37,860 --> 01:28:34,690

difference which is why does this

1982

01:28:40,620 --> 01:28:37,870

language even exist why don't you ask

1983

01:28:42,810 --> 01:28:40,630

the people who live inside of every

1984

01:28:44,880 --> 01:28:42,820

single discipline to conduct themselves

1985

01:28:45,930 --> 01:28:44,890

so that if their grandmother barges in

1986

01:28:49,320 --> 01:28:45,940

she'll be able to follow the

1987

01:28:52,170 --> 01:28:49,330

conversation I don't know where that

1988

01:28:54,540 --> 01:28:52,180

became a good idea or a gold standard no

1989

01:28:58,170 --> 01:28:54,550

there's a quote of fineman's that

1990

01:29:02,460 --> 01:28:58,180

everybody likes to throw at you which is

1991

01:29:04,290 --> 01:29:02,470

you know that which I cannot create I do

1992

01:29:06,630 --> 01:29:04,300

not understand or another one which is

1993

01:29:08,130 --> 01:29:06,640

you have to you can't explain something

1994

01:29:10,740 --> 01:29:08,140

you know to every man and you don't

1995

01:29:15,150 --> 01:29:10,750

really understand it mm-hmm horseshit

1996

01:29:17,160 --> 01:29:15,160

nonsense we developed certain language

1997

01:29:20,210 --> 01:29:17,170

for a reason because it's well tailored

1998

01:29:24,330 --> 01:29:20,220

to what it is that we're thinking about

1999

01:29:27,300 --> 01:29:24,340

so what y'all let's take the case of

2000

01:29:31,500 --> 01:29:27,310

Bitcoin Bitcoin is frequently advertised

2001

01:29:34,229 --> 01:29:31,510

as digital gold but what is gold gold is

2002

01:29:37,729 --> 01:29:34,239

a physical element it's created from the

2003

01:29:40,800 --> 01:29:37,739

fusion of stars where stars collide and

2004

01:29:42,780 --> 01:29:40,810

that allows us to overcome certain

2005

01:29:45,360 --> 01:29:42,790

barriers so that the protons can fused

2006

01:29:49,080 --> 01:29:45,370

together all right so bold is a is

2007

01:29:52,560 --> 01:29:49,090

effectively based on a nucleus which is

2008

01:29:55,440 --> 01:29:52,570

fermionic and that fermionic nucleus is

2009

01:29:57,020 --> 01:29:55,450

a wave and that wave behaves in a

2010

01:30:02,040 --> 01:29:57,030

physical sense now what is the

2011

01:30:05,040 --> 01:30:02,050

quintessential issue about gold is that

2012

01:30:07,080 --> 01:30:05,050

it's hard to produce it's hard to faith

2013

01:30:10,260 --> 01:30:07,090

gold you can't just go print up a bunch

2014

01:30:14,160 --> 01:30:10,270

of gold because you'd like some some

2015

01:30:17,850 --> 01:30:14,170

gold marks so of course if you could put

2016

01:30:19,500 --> 01:30:17,860

water and dirt into your Smithsonian 5000

2017

01:30:23,310 --> 01:30:19,510

machine and have gold bars come out the

2018

01:30:27,090 --> 01:30:23,320

other side gold wouldn't work as a form

2019

01:30:29,010 --> 01:30:27,100

of currency r is a store of value so

2020

01:30:31,710 --> 01:30:29,020

what are the properties abstractly of

2021

01:30:34,710 --> 01:30:31,720

gold that makes it work as a store of

2022

01:30:37,470 --> 01:30:34,720

value well the fact that if I have a

2023

01:30:39,690 --> 01:30:37,480

pole bar and you do not and if I give

2024

01:30:41,450 --> 01:30:39,700

you the gold bar are no longer at that

2025

01:30:43,850 --> 01:30:41,460

is a conservation law

2026

01:30:47,150 --> 01:30:43,860

and the fact that I can give you a gold

2027

01:30:52,190 --> 01:30:47,160

bar in my backyard and nobody can stop

2028

01:30:53,600 --> 01:30:52,200

us from that making that transfer has to

2029

01:30:55,340 --> 01:30:53,610

do with the fact that it's locally

2030

01:30:58,190 --> 01:30:55,350

enforced I don't need to go to a central

2031

01:30:59,990 --> 01:30:58,200

authority permit like if I have money in

2032

01:31:01,970 --> 01:31:00,000

a bank account I wish to put it in your

2033

01:31:06,110 --> 01:31:01,980

bank account we have to involve the

2034

01:31:10,390 --> 01:31:06,120

banks and the transfer okay well this is

2035

01:31:13,460 --> 01:31:10,400

a locally enforced rule with gold

2036

01:31:16,040 --> 01:31:13,470

that's because gold is concerned I'm out

2037

01:31:18,430 --> 01:31:16,050

of gold I give up to you is the amount

2038

01:31:22,220 --> 01:31:18,440

of gold that you now have that I do not

2039

01:31:24,710 --> 01:31:22,230

now that's how I think and why I

2040

01:31:27,500 --> 01:31:24,720

constantly want to be referenced to some

2041

01:31:30,560 --> 01:31:27,510

standard whereby the source of my

2042

01:31:32,810 --> 01:31:30,570

thinking is covered up no effectively

2043

01:31:34,820 --> 01:31:32,820

the way I'm using language is a bit like

2044

01:31:37,760 --> 01:31:34,830

scaffolding for a building and I'm

2045

01:31:39,950 --> 01:31:37,770

leaving the scaffolding up so that if

2046

01:31:43,130 --> 01:31:39,960

you're confused by what I'm saying you

2047

01:31:45,800 --> 01:31:43,140

have a hope of not only saying well

2048

01:31:47,810 --> 01:31:45,810

that's interesting but you can also say

2049

01:31:49,700 --> 01:31:47,820

I wonder where he got it from oh his

2050

01:31:54,080 --> 01:31:49,710

language is a clue I'm gonna find out

2051

01:31:56,870 --> 01:31:54,090

what a conservation law so by leaving

2052

01:31:58,760 --> 01:31:56,880

the scaffolding up I feel like it's

2053

01:32:01,010 --> 01:31:58,770

actually an invitation to people who are

2054

01:32:03,950 --> 01:32:01,020

more interested to figure out where the

2055

01:32:06,650 --> 01:32:03,960

stuff comes from so if I have some

2056

01:32:08,810 --> 01:32:06,660

paradigm in the theory of natural and

2057

01:32:10,280 --> 01:32:08,820

sexual selection and I talk about it in

2058

01:32:14,480 --> 01:32:10,290

terms of natural and sexual selection

2059

01:32:17,540 --> 01:32:14,490

I'm giving you the pointer the hyper the

2060

01:32:21,590 --> 01:32:17,550

metadata a hyperlink to go find out

2061

01:32:23,270 --> 01:32:21,600

where I got my thinking from so as far

2062

01:32:25,460 --> 01:32:23,280

as I'm concerned I'm giving you extra

2063

01:32:28,250 --> 01:32:25,470

and if you're put off by that that's

2064

01:32:30,830 --> 01:32:28,260

really your problem not mine I guess I

2065

01:32:32,660 --> 01:32:30,840

started deciding that I would use my own

2066

01:32:36,980 --> 01:32:32,670

native language my own native language

2067

01:32:39,140 --> 01:32:36,990

is a version of English with a Creole or

2068

01:32:41,120 --> 01:32:39,150

pidgin on top of it made from the

2069

01:32:45,400 --> 01:32:41,130

languages of the fields that I draw from

2070

01:32:49,190 --> 01:32:45,410

the economics physics finance risk

2071

01:32:53,580 --> 01:32:49,200

computer programming music molecular

2072

01:32:56,640 --> 01:32:53,590

biology evolutionary theory architecture

2073

01:33:01,320 --> 01:32:56,650

wine whatever these things are they're

2074

01:33:03,990 --> 01:33:01,330

all sources of inspiration and so I

2075

01:33:06,810 --> 01:33:04,000

guess I actually just reject the charge

2076

01:33:09,359 --> 01:33:06,820

and I find it very infantile that people

2077

01:33:11,580 --> 01:33:09,369

imagine that it's an affectation I think

2078

01:33:14,580 --> 01:33:11,590

I just gave up not talking the way I

2079

01:33:16,800 --> 01:33:14,590

natively think so at some level you're

2080

01:33:21,419 --> 01:33:16,810

looking at somebody else's code and I

2081

01:33:25,020 --> 01:33:21,429

probably use a pastiche of different

2082

01:33:26,870 --> 01:33:25,030

programming languages if you will where

2083

01:33:29,600 --> 01:33:26,880

most people agree that they're gonna

2084

01:33:33,810 --> 01:33:29,610

write programming in some very

2085

01:33:35,609 --> 01:33:33,820

restricted set of commands and my

2086

01:33:37,919 --> 01:33:35,619

feeling is well your restricted set of

2087

01:33:39,470 --> 01:33:37,929

commands aren't sufficiently expressive

2088

01:33:41,640 --> 01:33:39,480

now you see I've just done it again

2089

01:33:43,410 --> 01:33:41,650

expressive as a concept that you would

2090

01:33:47,700 --> 01:33:43,420

talk about in the comparison of computer

2091

01:33:50,430 --> 01:33:47,710

languages but my point is that that's

2092

01:33:52,830 --> 01:33:50,440

the natural paradigm for me to explain

2093

01:33:55,109 --> 01:33:52,840

the thought do I want you said to me

2094

01:33:56,370 --> 01:33:55,119

earlier you asked the question how is it

2095

01:33:58,350 --> 01:33:56,380

that you always have sort of a

2096

01:34:01,140 --> 01:33:58,360

contrarian or original answer no matter

2097

01:34:04,649 --> 01:34:01,150

what question gets asked and in part

2098

01:34:06,510 --> 01:34:04,659

it's exactly this that I try to look

2099

01:34:09,810 --> 01:34:06,520

into all the different fields for what

2100

01:34:12,510 --> 01:34:09,820

they sell at and borrow whatever I can

2101
01:34:14,850 --> 01:34:12,520
learn from them about how to think about

2102
01:34:16,950 --> 01:34:14,860
various paradigms and then even to see

2103
01:34:19,470 --> 01:34:16,960
the same paradigms crop up in fields

2104
01:34:20,729 --> 01:34:19,480
that are widely separated and nobody

2105
01:34:26,760 --> 01:34:20,739
knows that the same way of thinking

2106
01:34:29,070 --> 01:34:26,770
occurs across them all I think that's

2107
01:34:30,629 --> 01:34:29,080
that's one of the ways that you are able

2108
01:34:32,459 --> 01:34:30,639
perhaps to integrate the knowledge

2109
01:34:34,709 --> 01:34:32,469
because one of my earlier questions that

2110
01:34:36,570 --> 01:34:34,719
I didn't even say was if these fields

2111
01:34:37,770 --> 01:34:36,580
are so variegated and they seemingly

2112
01:34:39,300 --> 01:34:37,780
have nothing to do with one another

2113
01:34:41,939 --> 01:34:39,310

although if it's a part of this world

2114

01:34:43,070 --> 01:34:41,949

there's some connection how is it that

2115

01:34:46,320 --> 01:34:43,080

you're able to keep all this knowledge

2116

01:34:47,850 --> 01:34:46,330

in your head because for example I took

2117

01:34:51,270 --> 01:34:47,860

an economics course in the university

2118

01:34:53,490 --> 01:34:51,280

but I forgotten most of the fundamentals

2119

01:34:55,319 --> 01:34:53,500

and it's I blamed that person I'm not

2120

01:34:56,850 --> 01:34:55,329

using the knowledge on a regular basis I

2121

01:34:59,040 --> 01:34:56,860

was like well does Eric uses knowledge

2122

01:35:01,470 --> 01:34:59,050

well how does he use it perhaps he uses

2123

01:35:03,390 --> 01:35:01,480

it in conversation now you're you're

2124

01:35:05,189 --> 01:35:03,400

you're actually giving credence to this

2125

01:35:07,080 --> 01:35:05,199

idea I'm gonna thought well maybe also

2126

01:35:09,419 --> 01:35:07,090

he uses it when he writes maybe he

2127

01:35:10,680 --> 01:35:09,429

writes privately and it's constructing

2128

01:35:12,419 --> 01:35:10,690

some theory on it so that's why I asked

2129

01:35:17,279 --> 01:35:12,429

you about writing some actually so this

2130

01:35:21,020 --> 01:35:17,289

whole conversation was and an attempt to

2131

01:35:23,580 --> 01:35:21,030

deconstruct deconstruct deal and I said

2132

01:35:25,140 --> 01:35:23,590

well I would say that I just have more