

1
00:00:00,490 --> 00:00:08,529
[Music]

2
00:00:16,089 --> 00:00:28,399
[Music]

3
00:00:22,179 --> 00:00:30,980
okay well thanks Garrett and thanks Dean

4
00:00:28,399 --> 00:00:33,350
Radin for sponsoring me in thanks for

5
00:00:30,980 --> 00:00:35,570
the program committee for inviting me

6
00:00:33,350 --> 00:00:36,320
and thanks to all of you were in

7
00:00:35,570 --> 00:00:44,079
attendance

8
00:00:36,320 --> 00:00:47,980
I am revisiting a topic that I did in

9
00:00:44,079 --> 00:00:50,170
2012 for this body which was called the

10
00:00:47,979 --> 00:00:52,909
consciousness and the quantum paradigm

11
00:00:50,170 --> 00:00:56,539
and I thought to myself I wonder if this

12
00:00:52,909 --> 00:00:58,219
folds in with quantum field theory and I

13
00:00:56,539 --> 00:01:02,979
worked out a few things that I'd like to

14
00:00:58,219 --> 00:01:05,899
share with you as many of you know

15
00:01:02,979 --> 00:01:07,459
trying to explain consciousness with

16
00:01:05,899 --> 00:01:11,539
quantum mechanics is a dangerous

17
00:01:07,459 --> 00:01:13,459
minefield for the researcher especially

18
00:01:11,539 --> 00:01:16,069
with the physicists like me when we get

19
00:01:13,459 --> 00:01:21,849
up here so put on your skeptical armor

20
00:01:16,069 --> 00:01:26,329
and let's go and I would like to

21
00:01:21,849 --> 00:01:30,468
introduce you to my pet cat his name is

22
00:01:26,328 --> 00:01:32,688
Schrodinger and he has never been the

23
00:01:30,468 --> 00:01:34,709
same since that nasty superposition

24
00:01:32,688 --> 00:01:37,478
incident

25
00:01:34,709 --> 00:01:42,788
but he follows me around a lot and tries

26
00:01:37,478 --> 00:01:48,578
to keep me in perspective and reminds me

27
00:01:42,789 --> 00:01:52,599
not to take this stuff too seriously so

28
00:01:48,578 --> 00:01:54,178
and in the new paradigm I introduced

29

00:01:52,599 --> 00:02:02,530
five ideas

30
00:01:54,179 --> 00:02:06,368
first of all objects and particles are

31
00:02:02,530 --> 00:02:09,239
illusory and the reality is in events

32
00:02:06,368 --> 00:02:11,860
whenever you see two particles

33
00:02:09,239 --> 00:02:17,920
interacting that's an event and that's

34
00:02:11,860 --> 00:02:20,980
real secondly I will revisit the retro

35
00:02:17,919 --> 00:02:23,500
causality the reversal of cause and

36
00:02:20,979 --> 00:02:26,828
effect in time and show that it is

37
00:02:23,500 --> 00:02:30,969
consistent suggest that it is consistent

38
00:02:26,829 --> 00:02:33,040
with with the second law of

39
00:02:30,969 --> 00:02:35,109
thermodynamics which is forward causal

40
00:02:33,039 --> 00:02:37,769
and if I have time I will discuss a

41
00:02:35,109 --> 00:02:43,480
little bit over the cosmological

42
00:02:37,769 --> 00:02:46,769
implications of retro causality quantum

43
00:02:43,479 --> 00:02:51,719

coherence and indistinguishability I

44

00:02:46,769 --> 00:02:52,870

suggested leads to a an emergent

45

00:02:51,719 --> 00:02:57,519

self-identity

46

00:02:52,870 --> 00:03:01,629

in the coherence of the electromagnetic

47

00:02:57,519 --> 00:03:04,569

field and finally I will remind you

48

00:03:01,629 --> 00:03:07,150

about conscious observational causality

49

00:03:04,568 --> 00:03:09,969

but I have nothing new particularly to

50

00:03:07,150 --> 00:03:13,859

add to that or to the fact that entropy

51

00:03:09,969 --> 00:03:19,209

decreases as a result of the action of

52

00:03:13,859 --> 00:03:21,579

conscious observational causality we're

53

00:03:19,209 --> 00:03:24,400

talking about quantum fields a field is

54

00:03:21,579 --> 00:03:26,379

this a set of state vectors and the

55

00:03:24,400 --> 00:03:30,280

state vectors are just sets of numbers

56

00:03:26,379 --> 00:03:34,628

which describe the possible states of a

57

00:03:30,280 --> 00:03:38,439

physical field for electrons for example

58
00:03:34,628 --> 00:03:41,168
the states may consists of things like

59
00:03:38,439 --> 00:03:43,780
position momentum spin mass charge and

60
00:03:41,169 --> 00:03:45,330
so forth and more recently perhaps the

61
00:03:43,780 --> 00:03:50,810
conscious will

62
00:03:45,330 --> 00:03:50,810
the state vectors are activated by

63
00:03:50,840 --> 00:03:58,439
operators and the operators cause events

64
00:03:55,680 --> 00:04:04,020
the events are real the state vectors

65
00:03:58,439 --> 00:04:08,430
are virtual the state the events and the

66
00:04:04,020 --> 00:04:11,159
operators are governed by physical law

67
00:04:08,430 --> 00:04:18,798
and the physical law is defined by

68
00:04:11,159 --> 00:04:18,798
overarching principles such as well

69
00:04:20,000 --> 00:04:32,939
conservation thinking conservation is

70
00:04:25,470 --> 00:04:36,540
one of the laws the event field where am

71
00:04:32,939 --> 00:04:41,730
I here yeah in 2012 I scrapped wave

72
00:04:36,540 --> 00:04:46,280
particle duality and the events governed

73
00:04:41,730 --> 00:04:49,110
by the wave function action are real the

74
00:04:46,279 --> 00:04:55,139
wave function is a force field which

75
00:04:49,110 --> 00:04:57,990
defines the causal influence for causing

76
00:04:55,139 --> 00:05:00,449
events to happen the amplitude is a

77
00:04:57,990 --> 00:05:02,460
measure of the strength an example of a

78
00:05:00,449 --> 00:05:07,229
force field is the electromagnetic force

79
00:05:02,459 --> 00:05:10,649
field the field aspect the operators two

80
00:05:07,230 --> 00:05:14,310
of the principal ones are raising and

81
00:05:10,649 --> 00:05:17,849
lowering operators the raising operators

82
00:05:14,310 --> 00:05:19,829
will add quanta to the field which

83
00:05:17,850 --> 00:05:23,220
increases the strength of the field and

84
00:05:19,829 --> 00:05:27,560
the lowering operators will subtract

85
00:05:23,220 --> 00:05:35,360
quanta the raising and lowering of field

86

00:05:27,560 --> 00:05:35,360
constitutes an event the two basic

87
00:05:35,899 --> 00:05:47,429
events are the spin operators the e_1 and

88
00:05:43,379 --> 00:05:49,379
the e_2 are what I call the binary

89
00:05:47,430 --> 00:05:51,150
exchange operators these are not two

90
00:05:49,379 --> 00:05:53,788
spin operators these are binary exchange

91
00:05:51,149 --> 00:05:59,758
so called because they swap the elements

92
00:05:53,788 --> 00:06:04,779
of the virtual eigen eigen vectors

93
00:05:59,759 --> 00:06:13,620
the 0 1 and 1 0 those elements are

94
00:06:04,779 --> 00:06:17,529
swapped the when properly sequenced

95
00:06:13,620 --> 00:06:21,250
those binary spin those binary event

96
00:06:17,529 --> 00:06:24,698
operators will form the four basic

97
00:06:21,250 --> 00:06:28,720
elements of the direct vector the Σ

98
00:06:24,699 --> 00:06:33,030
the Σ 's down below these direct

99
00:06:28,720 --> 00:06:36,400
vectors describe the electron field and

100
00:06:33,029 --> 00:06:38,948

they also form a basis for space-time

101

00:06:36,399 --> 00:06:44,319

which is important and they form a basis

102

00:06:38,949 --> 00:06:46,900

for for momentum ok let's take a closer

103

00:06:44,319 --> 00:06:50,589

look at these two binary exchange

104

00:06:46,899 --> 00:06:53,168

operators as I said they are called

105

00:06:50,589 --> 00:06:57,508

binary exchange because they swap the

106

00:06:53,168 --> 00:07:03,908

elements of the half spinner vectors

107

00:06:57,509 --> 00:07:06,970

which are which are virtual the 2 by 2

108

00:07:03,908 --> 00:07:14,848

matrices themselves represent real event

109

00:07:06,970 --> 00:07:20,169

operators so these are self referential

110

00:07:14,848 --> 00:07:23,379

within the within the spinners in much

111

00:07:20,168 --> 00:07:29,370

the same way that consciousness is self

112

00:07:23,379 --> 00:07:35,279

referential within the within the within

113

00:07:29,370 --> 00:07:35,280

a living identity so

114

00:07:37,939 --> 00:07:45,949

let's go on to the next one Oh Harry's

115
00:07:43,790 --> 00:07:49,790
he's reminding me to try to lighten it

116
00:07:45,949 --> 00:07:52,399
up and get a little faster in funnier I

117
00:07:49,790 --> 00:07:53,750
don't know if I can do that this next

118
00:07:52,399 --> 00:07:56,589
one is still pretty heavy though

119
00:07:53,750 --> 00:07:56,589
retrocausality

120
00:08:00,790 --> 00:08:07,629
is appears to violate the second law but

121
00:08:04,459 --> 00:08:11,349
the second law is a thermodynamic

122
00:08:07,629 --> 00:08:14,000
principle it's a maximum probability

123
00:08:11,350 --> 00:08:17,330
principle having to do with large

124
00:08:14,000 --> 00:08:20,449
quantities of events and is heavy with

125
00:08:17,329 --> 00:08:23,029
forward causality retrocausality

126
00:08:20,449 --> 00:08:24,889
on on the other hand is a quantum

127
00:08:23,029 --> 00:08:29,199
symmetry principle which applies to

128
00:08:24,889 --> 00:08:31,339
single events I'm maintaining that the

129
00:08:29,199 --> 00:08:35,288
thermodynamic principle and the

130
00:08:31,339 --> 00:08:38,509
retrocausality principle can co-exist

131
00:08:35,288 --> 00:08:43,009
retrocausality can explain entanglement

132
00:08:38,509 --> 00:08:45,649
I have demonstrated this in 212 2012 by

133
00:08:43,009 --> 00:08:51,439
using Occam's razor where I showed that

134
00:08:45,649 --> 00:08:53,480
retrocausality was probably the simplest

135
00:08:51,440 --> 00:08:54,640
explanation for entanglement and

136
00:08:53,480 --> 00:08:56,210
therefore the most probable

137
00:08:54,639 --> 00:08:58,370
retrocausality

138
00:08:56,210 --> 00:09:01,129
is needed to support the event

139
00:08:58,370 --> 00:09:06,039
hypothesis which involves raising

140
00:09:01,129 --> 00:09:10,970
operators which are forward causal and

141
00:09:06,039 --> 00:09:16,730
involve retarded waves and the lowering

142
00:09:10,970 --> 00:09:20,660
operators are retro causal and in

143

00:09:16,730 --> 00:09:22,909
involved advanced waves retrocausality

144
00:09:20,659 --> 00:09:26,569
is also needed to support the wheeler

145
00:09:22,909 --> 00:09:28,059
Fineman absorber theory in cosmology and

146
00:09:26,570 --> 00:09:31,150
I'll take a quick quick look at that

147
00:09:28,059 --> 00:09:31,149
[Music]

148
00:09:33,519 --> 00:09:42,789
classical photon emission the causal

149
00:09:36,860 --> 00:09:46,519
story for that there is no mechanism for

150
00:09:42,789 --> 00:09:49,159
radiative damping forces to cause an

151
00:09:46,519 --> 00:09:51,379
electron emitter to accelerate which

152
00:09:49,159 --> 00:09:55,719
it's needs to do if it's going to

153
00:09:51,379 --> 00:09:58,849
radiates now the wheeler flagmen theory

154
00:09:55,720 --> 00:10:03,619
provides both retarded and advanced

155
00:09:58,849 --> 00:10:09,259
waves in a mixture and the advanced

156
00:10:03,619 --> 00:10:13,428
waves will provide force field for the

157
00:10:09,259 --> 00:10:17,599

emitter to accelerate the emitting

158

00:10:13,428 --> 00:10:23,269

electron and the retarded waves provide

159

00:10:17,599 --> 00:10:25,220

a force field for the absorber so every

160

00:10:23,269 --> 00:10:28,328

emitter in this every emitter in the

161

00:10:25,220 --> 00:10:31,278

universe must have an absorber and the

162

00:10:28,328 --> 00:10:36,998

problem cosmologically is that there are

163

00:10:31,278 --> 00:10:40,188

not enough absorbers in our BIGBANG

164

00:10:36,999 --> 00:10:43,428

ever-expanding universe to accommodate

165

00:10:40,188 --> 00:10:44,478

all of the densely packed emitters in

166

00:10:43,428 --> 00:10:48,619

the Big Bang

167

00:10:44,479 --> 00:10:51,709

so I've proposed a model of future

168

00:10:48,619 --> 00:10:56,839

virtual absorbers to augment the real

169

00:10:51,708 --> 00:11:00,948

absorbers and these as the as the

170

00:10:56,839 --> 00:11:01,970

photons expand due to redshift expansion

171

00:11:00,948 --> 00:11:06,668

of the universe they've become

172
00:11:01,970 --> 00:11:10,309
susceptible to absorbed by virtual

173
00:11:06,668 --> 00:11:13,970
electron positron pairs which pop up out

174
00:11:10,308 --> 00:11:15,978
of the space-time continuum and these

175
00:11:13,970 --> 00:11:20,418
absorbs and events will send back

176
00:11:15,979 --> 00:11:24,859
retarded waves to the to the emitters

177
00:11:20,418 --> 00:11:27,470
thus completing the cycle so well he's

178
00:11:24,859 --> 00:11:29,269
climbing the walls and so am I so and

179
00:11:27,470 --> 00:11:35,569
we've still got a ways to go so hang in

180
00:11:29,269 --> 00:11:40,239
there okay well identical particles are

181
00:11:35,568 --> 00:11:42,948
not just identical in substance they are

182
00:11:40,239 --> 00:11:46,609
intrinsically the same particle they

183
00:11:42,948 --> 00:11:52,389
occupy the same state and they form a

184
00:11:46,609 --> 00:11:58,038
coherent group of undifferentiated

185
00:11:52,389 --> 00:12:02,509
substance which can I propose go here to

186
00:11:58,038 --> 00:12:04,278
form a living conscious identity this

187
00:12:02,509 --> 00:12:08,180
gives rise to and

188
00:12:04,278 --> 00:12:16,159
created self-identity laser-light is a

189
00:12:08,179 --> 00:12:20,258
good example of coherent coherent wave

190
00:12:16,159 --> 00:12:23,389
function the waves of individual photons

191
00:12:20,259 --> 00:12:25,789
have the same peaks and the same troughs

192
00:12:23,389 --> 00:12:30,318
in the same frequency they all group

193
00:12:25,789 --> 00:12:32,719
together to form a coherent structure we

194
00:12:30,318 --> 00:12:36,828
observe electromagnetic coherence in

195
00:12:32,720 --> 00:12:40,819
many living systems and the neural and

196
00:12:36,828 --> 00:12:52,818
motor networks and sometimes between

197
00:12:40,818 --> 00:12:54,740
systems the the equations are going to

198
00:12:52,818 --> 00:12:57,558
be a little bit unfamiliar to most of

199
00:12:54,740 --> 00:13:07,159
you but I like to use them as as talking

200

00:12:57,558 --> 00:13:10,698
points if I can get to them the Dirac

201
00:13:07,159 --> 00:13:14,899
field for electrons is where the

202
00:13:10,698 --> 00:13:20,528
consciousness operators first emerge the

203
00:13:14,899 --> 00:13:24,769
electron field is not coherent but the

204
00:13:20,528 --> 00:13:28,480
direct field and the Maxwell field for

205
00:13:24,769 --> 00:13:31,720
electromagnetism and the photons are

206
00:13:28,480 --> 00:13:35,569
formally and mathematically the same and

207
00:13:31,720 --> 00:13:39,709
the Maxwell field is a coherent field

208
00:13:35,568 --> 00:13:44,558
which can give rise to consciousness and

209
00:13:39,708 --> 00:13:52,669
conscious entities so I've worked out

210
00:13:44,558 --> 00:13:56,870
that the gamma vector no if I can

211
00:13:52,669 --> 00:14:04,039
identify that but over on the right hand

212
00:13:56,870 --> 00:14:06,709
side the gamma vector is the direct

213
00:14:04,039 --> 00:14:10,870
that's the set of direct vectors which

214
00:14:06,708 --> 00:14:13,888

acts as a finite difference operator and

215

00:14:10,870 --> 00:14:16,769

when it operates on the

216

00:14:13,889 --> 00:14:21,509

momentum eigenvectors represented by this

217

00:14:16,769 --> 00:14:24,899

I filled it becomes a differential

218

00:14:21,509 --> 00:14:27,079

operator over space-time and that is the

219

00:14:24,899 --> 00:14:30,359

same as the momentum operator

220

00:14:27,078 --> 00:14:33,208

represented by P now the upside-down

221

00:14:30,359 --> 00:14:36,239

triangle is the divergence operator and

222

00:14:33,208 --> 00:14:38,758

that that Dirac equation and the direct

223

00:14:36,239 --> 00:14:42,059

equation then tells us that the

224

00:14:38,759 --> 00:14:49,409

divergence or the divergence of the

225

00:14:42,058 --> 00:14:52,588

momentum field comes from the mass

226

00:14:49,409 --> 00:14:55,528

density space-time mass density MC

227

00:14:52,589 --> 00:14:57,540

squared in space-time so what we're

228

00:14:55,528 --> 00:15:02,338

saying is that the momentum the motion

229
00:14:57,539 --> 00:15:04,588
field comes from the mass density and I

230
00:15:02,339 --> 00:15:07,709
with a little vector algebra I can show

231
00:15:04,589 --> 00:15:13,319
that the Dirac equation is equivalent to

232
00:15:07,708 --> 00:15:15,719
the Maxwell equation down below the the

233
00:15:13,318 --> 00:15:17,428
expression in the inner brackets is

234
00:15:15,720 --> 00:15:20,548
equal to the electromagnetic field

235
00:15:17,428 --> 00:15:25,168
tensor and the a vector is the

236
00:15:20,548 --> 00:15:30,918
electromagnetic potential vector and the

237
00:15:25,168 --> 00:15:35,970
a vector is equivalent to the momentum

238
00:15:30,918 --> 00:15:38,639
potential vector P up above so there is

239
00:15:35,970 --> 00:15:43,619
an equivalence which is not necessarily

240
00:15:38,639 --> 00:15:47,369
physical but it's mathematical the MC

241
00:15:43,619 --> 00:15:49,829
squared mass density becomes a four

242
00:15:47,369 --> 00:15:55,339
vector which is equivalent to the J in

243
00:15:49,828 --> 00:15:59,578
the lower equation which is the

244
00:15:55,339 --> 00:16:02,699
electromagnetic current vector so once

245
00:15:59,578 --> 00:16:05,269
again this is not necessarily a physical

246
00:16:02,698 --> 00:16:10,618
equivalence but it is a good

247
00:16:05,269 --> 00:16:12,798
mathematical equivalence oh boy I got

248
00:16:10,619 --> 00:16:15,509
the hare and his ears standing on end

249
00:16:12,798 --> 00:16:16,619
and it's been pretty scary but I think

250
00:16:15,509 --> 00:16:22,678
we're over the worst of it

251
00:16:16,619 --> 00:16:27,040
now I'll revisit the conscious

252
00:16:22,678 --> 00:16:29,769
observational causality that I did in 22

253
00:16:27,039 --> 00:16:33,870
the thing is that consciousness is a

254
00:16:29,769 --> 00:16:37,860
quantum mechanical measurement device

255
00:16:33,870 --> 00:16:45,129
consider for example the electron spin

256
00:16:37,860 --> 00:16:46,959
which is the has a value of $1/2$ you

257

00:16:45,129 --> 00:16:49,088
can't measure its components you can

258
00:16:46,958 --> 00:16:52,000
only measure it in one direction and

259
00:16:49,089 --> 00:16:53,560
that direction turns out to have the

260
00:16:52,000 --> 00:16:55,720
same direction that you point your

261
00:16:53,559 --> 00:16:57,129
measuring instrument that you orient

262
00:16:55,720 --> 00:17:00,579
your measuring instrument in the

263
00:16:57,129 --> 00:17:04,269
laboratory in the same way you can

264
00:17:00,578 --> 00:17:07,088
orient consciousness to cover a subspace

265
00:17:04,269 --> 00:17:10,900
of state vectors and that is where

266
00:17:07,088 --> 00:17:17,379
events will emerge so consciousness acts

267
00:17:10,900 --> 00:17:19,780
as a a selection device and a

268
00:17:17,380 --> 00:17:22,530
measurement device when you put enough

269
00:17:19,779 --> 00:17:25,209
of these when you put many of these

270
00:17:22,529 --> 00:17:26,709
quantum events together these conscious

271
00:17:25,209 --> 00:17:31,808

events you get higher orders of

272

00:17:26,709 --> 00:17:34,960

consciousness coherent obsequious of

273

00:17:31,808 --> 00:17:39,369

elementary events and this is this has

274

00:17:34,960 --> 00:17:43,259

the character of psychophysical law now

275

00:17:39,369 --> 00:17:46,019

any good hypothesis in order to be a

276

00:17:43,259 --> 00:17:49,900

candidate for theory should be testable

277

00:17:46,019 --> 00:17:53,250

a consciousness hypothesis has been

278

00:17:49,900 --> 00:17:55,870

tested many times in paranormal effects

279

00:17:53,250 --> 00:17:58,058

these are not well accepted in

280

00:17:55,869 --> 00:18:01,569

mainstream science so I've looked for

281

00:17:58,058 --> 00:18:05,019

other tests one good test is the

282

00:18:01,569 --> 00:18:09,158

resonance models of will if we can find

283

00:18:05,019 --> 00:18:12,158

correlations between mental intention

284

00:18:09,159 --> 00:18:14,799

and conscious feelings and the

285

00:18:12,159 --> 00:18:17,559

resonances in neural networks and motor

286

00:18:14,798 --> 00:18:20,349

networks we have a test Dean Radin works

287

00:18:17,558 --> 00:18:23,279

in this area another test is the

288

00:18:20,349 --> 00:18:25,959

quantization of space-time which is a

289

00:18:23,279 --> 00:18:29,859

high-energy physics type of problem and

290

00:18:25,960 --> 00:18:32,440

is somewhat beyond the scope of our

291

00:18:29,859 --> 00:18:35,829

technology at this point but based on

292

00:18:32,440 --> 00:18:38,409

the direct vectors which are quanta of

293

00:18:35,829 --> 00:18:41,048

space-time this is a possible test of

294

00:18:38,409 --> 00:18:43,840

the future second law violations are

295

00:18:41,048 --> 00:18:49,808

been tested as George Williams observed

296

00:18:43,839 --> 00:18:52,538

and as you will see in a later paper in

297

00:18:49,808 --> 00:18:57,509

this conference given by Daniel Sheehan

298

00:18:52,538 --> 00:19:01,089

of the University of San Diego Sheehan

299

00:18:57,509 --> 00:19:04,149

has done experiments which appear to

300
00:19:01,089 --> 00:19:06,720
violate the second law and is attempting

301
00:19:04,148 --> 00:19:09,248
to harvest energy out of the heat sink

302
00:19:06,720 --> 00:19:11,440
finally there may be tests of virtual

303
00:19:09,249 --> 00:19:13,269
absorption if we can find ultra low

304
00:19:11,440 --> 00:19:15,220
frequency cut-offs in the microwave

305
00:19:13,269 --> 00:19:18,159
background due to virtual absorption

306
00:19:15,220 --> 00:19:25,600
which are predictable that'll be another

307
00:19:18,159 --> 00:19:30,639
test very good so in summary I talked

308
00:19:25,599 --> 00:19:35,798
about the application of quantum fields

309
00:19:30,638 --> 00:19:39,099
and raising and lowering operations the

310
00:19:35,798 --> 00:19:42,179
operators are conscious events the field

311
00:19:39,099 --> 00:19:43,748
itself is virtual I've discussed

312
00:19:42,179 --> 00:19:46,389
retrocausality

313
00:19:43,749 --> 00:19:49,108
and how it is consistent with the second

314

00:19:46,388 --> 00:19:52,719
law and certain cosmological problems

315
00:19:49,108 --> 00:19:56,710
try to make that clear consciousness

316
00:19:52,720 --> 00:19:59,710
operators support electromagnetic wave

317
00:19:56,710 --> 00:20:03,788
coherence which is where the actual

318
00:19:59,710 --> 00:20:06,788
consciousness in living systems appears

319
00:20:03,788 --> 00:20:08,739
and finally review we reviewed second

320
00:20:06,788 --> 00:20:13,989
law violation and observational

321
00:20:08,739 --> 00:20:15,999
causality so my reply to the skeptics at

322
00:20:13,989 --> 00:20:21,519
the end of the day never mind it doesn't

323
00:20:15,999 --> 00:20:24,089
matter and with that I think I'm ready

324
00:20:21,519 --> 00:20:24,089
for questions

325
00:20:27,659 --> 00:20:37,919
okay York let's hear from New York well

326
00:20:34,388 --> 00:20:37,918
he's got something interesting to say I

327
00:20:40,950 --> 00:20:52,269
have far too much to say to fit into a

328
00:20:46,829 --> 00:20:55,329

politely long question so I would simply

329

00:20:52,269 --> 00:20:58,740

like to comment from from the word go

330

00:20:55,329 --> 00:21:01,509

and also from your last slide the

331

00:20:58,740 --> 00:21:04,210

raising and lowering operators for

332

00:21:01,509 --> 00:21:06,778

example are just symbols that describe

333

00:21:04,210 --> 00:21:09,250

mathematical relationships saying that

334

00:21:06,778 --> 00:21:11,409

raising and lowering operators are

335

00:21:09,250 --> 00:21:15,490

conscious events is a category error

336

00:21:11,409 --> 00:21:18,370

along the lines of saying that a a blob

337

00:21:15,490 --> 00:21:27,128

of blue ink on a map is the water in San

338

00:21:18,369 --> 00:21:29,558

Francisco Bay yeah and reply I don't pay

339

00:21:27,128 --> 00:21:36,209

too much attention to category errors

340

00:21:29,558 --> 00:21:40,440

and my intent was to equate or

341

00:21:36,210 --> 00:21:44,528

coordinate the mathematical process of

342

00:21:40,440 --> 00:21:48,038

raising and lowering as a field operator

343
00:21:44,528 --> 00:21:52,750
with a conscious event which is made up

344
00:21:48,038 --> 00:21:54,220
and formed by the two basic binary event

345
00:21:52,750 --> 00:21:55,869
operations which I call the

346
00:21:54,220 --> 00:21:58,440
consciousness operators thank you for

347
00:21:55,869 --> 00:22:01,508
the comments a good comment

348
00:21:58,440 --> 00:22:06,159
yeah I've been talking to Henry Stapp

349
00:22:01,509 --> 00:22:09,159
recently and he suggests another test

350
00:22:06,159 --> 00:22:15,149
that you can add to your list of tests

351
00:22:09,159 --> 00:22:18,159
of quantum mechanics and that is to do a

352
00:22:15,148 --> 00:22:21,959
small modification of the retro

353
00:22:18,159 --> 00:22:26,889
causality experiments of Biermann and

354
00:22:21,960 --> 00:22:29,579
BEM which is when the random number

355
00:22:26,888 --> 00:22:33,599
generator which is in the future chooses

356
00:22:29,579 --> 00:22:36,199
which side to have a group of observers

357
00:22:33,599 --> 00:22:39,319
looking at the random number

358
00:22:36,200 --> 00:22:43,399
generator and he claims that the

359
00:22:39,319 --> 00:22:47,418
retrocausality should vanish so that's a

360
00:22:43,398 --> 00:22:49,609
very feasible test of these connections

361
00:22:47,419 --> 00:22:52,070
between consciousness and quantum

362
00:22:49,609 --> 00:22:54,798
mechanics that should be added to our

363
00:22:52,069 --> 00:22:58,158
various lists I'm just curious what you

364
00:22:54,798 --> 00:23:03,079
think of that okay when you say it

365
00:22:58,159 --> 00:23:08,269
should vanish I interpret that as

366
00:23:03,079 --> 00:23:16,089
meaning that it will be in the nature of

367
00:23:08,269 --> 00:23:16,089
a feedback which kind of

368
00:23:27,049 --> 00:23:34,919
okay I don't think I agree with that but

369
00:23:29,490 --> 00:23:38,910
I would be happy to I'd like to explore

370
00:23:34,920 --> 00:23:40,930
that further thanks for the car man

371

00:23:38,910 --> 00:23:43,509
thank you very much

372
00:23:40,930 --> 00:23:49,189
[Applause]

373
00:23:43,509 --> 00:23:49,189
[Music]

374
00:23:58,960 --> 00:24:01,019
you