

1
00:00:00,000 --> 00:00:05,490
a while Garrett Modell obviously is

2
00:00:03,209 --> 00:00:08,400
known to all of us he has graduate

3
00:00:05,490 --> 00:00:10,919
degrees in applied physics for the last

4
00:00:08,400 --> 00:00:12,809
23 years he's developed new thin film

5
00:00:10,919 --> 00:00:14,730
technologies as a professor of

6
00:00:12,808 --> 00:00:17,129
electrical engineering at the University

7
00:00:14,730 --> 00:00:20,429
of Colorado at Boulder his

8
00:00:17,129 --> 00:00:23,669
non-mainstream interests he wants you to

9
00:00:20,429 --> 00:00:25,829
know our experimental but since the

10
00:00:23,670 --> 00:00:27,539
members of the sse have been so

11
00:00:25,829 --> 00:00:29,879
malicious to him by electing him

12
00:00:27,539 --> 00:00:31,949
president he hasn't had time to do

13
00:00:29,879 --> 00:00:34,439
experiments in the past year and so he

14
00:00:31,949 --> 00:00:39,210
asked me to apologize in advance that

15
00:00:34,439 --> 00:00:41,128
this is a theory paper thank you so

16
00:00:39,210 --> 00:00:44,340
today I'm going to talk about the

17
00:00:41,128 --> 00:00:46,199
possibility of retro causation and the

18
00:00:44,340 --> 00:00:49,020
possibility of the sort of thing that

19
00:00:46,200 --> 00:00:52,079
Courtney dramatically just pointed out

20
00:00:49,020 --> 00:00:54,680
to us so why am I asking about this

21
00:00:52,079 --> 00:00:58,558
possibility if we know it's happening

22
00:00:54,679 --> 00:01:02,519
and that has to do with a response to a

23
00:00:58,558 --> 00:01:05,128
recent book put out by michio kaku and

24
00:01:02,520 --> 00:01:10,020
he the book is called a collapse of the

25
00:01:05,129 --> 00:01:13,049
foundations of physics in it he I'm

26
00:01:10,019 --> 00:01:16,789
sorry the book is called physics of the

27
00:01:13,049 --> 00:01:19,770
impossible and in it he said that if

28
00:01:16,790 --> 00:01:22,259
retro causation occurred it would

29

00:01:19,769 --> 00:01:24,329
violate causality and the fundamental

30
00:01:22,259 --> 00:01:26,549
ordering of cause and effect and it

31
00:01:24,329 --> 00:01:29,700
ultimately it would produce a collapse

32
00:01:26,549 --> 00:01:32,909
of the foundations of physics so the

33
00:01:29,700 --> 00:01:35,340
purpose of this talk is to resolve this

34
00:01:32,909 --> 00:01:39,200
impossibility of wrath of retro

35
00:01:35,340 --> 00:01:41,549
causation and I will do this using the

36
00:01:39,200 --> 00:01:43,920
paradox of bilking and we'll talk about

37
00:01:41,549 --> 00:01:47,070
that what I am NOT going to be talking

38
00:01:43,920 --> 00:01:49,710
about in this presentation is how retro

39
00:01:47,069 --> 00:01:52,408
causation works or how psychokinesis

40
00:01:49,709 --> 00:01:55,908
works that's a completely different

41
00:01:52,409 --> 00:02:00,299
subject so first I'll go over

42
00:01:55,909 --> 00:02:03,270
precognition and retro psychokinesis and

43
00:02:00,299 --> 00:02:06,060

describe what these phenomena are and

44

00:02:03,269 --> 00:02:09,079

very briefly talk about experimental

45

00:02:06,060 --> 00:02:11,909

evidence for it then we'll talk about

46

00:02:09,080 --> 00:02:13,290

the compatibility with physics what sort

47

00:02:11,909 --> 00:02:16,408

of physics are we talking about

48

00:02:13,289 --> 00:02:18,628

out I'll introduce the bilking paradox

49

00:02:16,408 --> 00:02:21,239

and use it along with information

50

00:02:18,628 --> 00:02:24,389

entropy to come to a resolution about

51

00:02:21,239 --> 00:02:26,519

the impossibility or not of retro

52

00:02:24,389 --> 00:02:30,500

causation and then finally talk about

53

00:02:26,519 --> 00:02:33,509

some implications so a precognition is

54

00:02:30,500 --> 00:02:36,000

knowing about something in advance of

55

00:02:33,509 --> 00:02:37,679

its happening is there evidence for this

56

00:02:36,000 --> 00:02:40,109

the answer is yes there's a lot of

57

00:02:37,680 --> 00:02:43,650

evidence there are many published papers

58
00:02:40,109 --> 00:02:47,150
peer-reviewed in good journals without

59
00:02:43,650 --> 00:02:49,950
going into detail spottiswoode in May

60
00:02:47,150 --> 00:02:53,519
recently described an experiment in

61
00:02:49,949 --> 00:02:56,188
which a randomly timed noise source was

62
00:02:53,519 --> 00:02:57,900
set off and the response of a listener

63
00:02:56,188 --> 00:02:59,519
was measured by measuring their skin

64
00:02:57,900 --> 00:03:03,620
conductance their galvanic skin response

65
00:02:59,519 --> 00:03:05,789
and through a series of these

66
00:03:03,620 --> 00:03:08,609
experiments they found that the skin

67
00:03:05,789 --> 00:03:11,340
response actually started several

68
00:03:08,609 --> 00:03:14,099
seconds in advance of the noise going

69
00:03:11,340 --> 00:03:19,049
off another experiment was by Dean Radin

70
00:03:14,098 --> 00:03:21,899
in which he looked at the EEG by

71
00:03:19,049 --> 00:03:26,219
measuring it between the electrodes on

72

00:03:21,900 --> 00:03:28,859
people's ears and found that within

73

00:03:26,219 --> 00:03:31,799
roughly a second before light was

74

00:03:28,859 --> 00:03:35,099
randomly flashed the person's EEG showed

75

00:03:31,799 --> 00:03:39,299
signs of that people have even imaged

76

00:03:35,098 --> 00:03:42,948
the brain using fMRI Biermann & Schulte

77

00:03:39,299 --> 00:03:45,689
in 2002 looked at the brain and found

78

00:03:42,949 --> 00:03:49,379
evidence in the brain parts of the brain

79

00:03:45,689 --> 00:03:50,609
lit up in advance of a stimulus and so

80

00:03:49,378 --> 00:03:53,608
there are many experiments like this

81

00:03:50,609 --> 00:03:56,430
that prove it regarding retro

82

00:03:53,609 --> 00:04:00,840
psychokinesis causing something to

83

00:03:56,430 --> 00:04:04,500
happen backwards in time there are many

84

00:04:00,840 --> 00:04:07,139
experiments on this a classic one was

85

00:04:04,500 --> 00:04:10,348
produced by Schmidt in which he

86

00:04:07,139 --> 00:04:14,189
pre-recorded some blips on two channels

87
00:04:10,348 --> 00:04:16,348
of a tape and later played that tape to

88
00:04:14,188 --> 00:04:20,129
a listener who was asked to use their

89
00:04:16,348 --> 00:04:22,048
intention to make the blips go more to

90
00:04:20,129 --> 00:04:24,658
one side or the other and they were able

91
00:04:22,048 --> 00:04:26,399
to do that despite the fact that other

92
00:04:24,658 --> 00:04:30,659
recordings were made

93
00:04:26,399 --> 00:04:32,939
earlier the pair lab has done many many

94
00:04:30,660 --> 00:04:34,710
many experiments with random number

95
00:04:32,939 --> 00:04:38,459
generators and random mechanical

96
00:04:34,709 --> 00:04:40,349
Cascades and they found that one could

97
00:04:38,459 --> 00:04:42,750
use psychokinesis to affect the output

98
00:04:40,350 --> 00:04:45,180
of these devices and it didn't matter

99
00:04:42,750 --> 00:04:47,310
whether it was done in real time before

100
00:04:45,180 --> 00:04:49,590

or after the event took place and there

101

00:04:47,310 --> 00:04:52,530

are many more experiments so these

102

00:04:49,589 --> 00:04:56,099

things exist yet we're being told that

103

00:04:52,529 --> 00:04:58,439

they cannot exist why am I asking the

104

00:04:56,100 --> 00:05:00,150

question is this compatible with physics

105

00:04:58,439 --> 00:05:02,639

is this just an idle intellectual

106

00:05:00,149 --> 00:05:05,489

exercise so there are a number of

107

00:05:02,639 --> 00:05:07,949

reasons one is just to be correct is

108

00:05:05,490 --> 00:05:12,120

Kaku and other other people like that

109

00:05:07,949 --> 00:05:14,129

correct secondly should retro causation

110

00:05:12,120 --> 00:05:16,110

be rejected out of hand well certainly

111

00:05:14,129 --> 00:05:17,519

not you can never reject something out

112

00:05:16,110 --> 00:05:21,150

of hand if you've got experimental

113

00:05:17,519 --> 00:05:23,038

evidence for it then second comes the

114

00:05:21,149 --> 00:05:25,529

question of understanding does our

115
00:05:23,038 --> 00:05:27,300
current logic extend to retro causation

116
00:05:25,529 --> 00:05:29,939
and in fact can we use the logic to help

117
00:05:27,300 --> 00:05:32,250
us understand retro causation and can we

118
00:05:29,939 --> 00:05:34,709
model the effect why is this important

119
00:05:32,250 --> 00:05:37,228
if we can model it we can start to

120
00:05:34,709 --> 00:05:39,000
understand the mechanism and finally

121
00:05:37,228 --> 00:05:41,519
what are the limits for retro causation

122
00:05:39,000 --> 00:05:43,680
where can we expect it to work where can

123
00:05:41,519 --> 00:05:47,668
we not expect it to work and can we make

124
00:05:43,680 --> 00:05:49,259
use of it what sort of physics are we

125
00:05:47,668 --> 00:05:51,658
talking about which supposedly is

126
00:05:49,259 --> 00:05:54,269
incompatible with retro causation I've

127
00:05:51,658 --> 00:05:56,129
listed three four categories of physics

128
00:05:54,269 --> 00:05:58,889
here I'm not going to talk about

129
00:05:56,129 --> 00:06:01,110
Newton's laws and causality or quantum

130
00:05:58,889 --> 00:06:04,199
mechanics those are dealt with elsewhere

131
00:06:01,110 --> 00:06:06,509
and there's no incompatibility in these

132
00:06:04,199 --> 00:06:08,819
cases but as I say I'm not going to talk

133
00:06:06,509 --> 00:06:12,319
about it now what about conservation of

134
00:06:08,819 --> 00:06:14,009
energy well there are two types of

135
00:06:12,319 --> 00:06:15,389
psychokinesis there's macro

136
00:06:14,009 --> 00:06:18,149
psychokinesis so those would be

137
00:06:15,389 --> 00:06:20,579
poltergeists moving large objects things

138
00:06:18,149 --> 00:06:24,569
like that all evidence that i know of

139
00:06:20,579 --> 00:06:27,629
for these type of events they are they

140
00:06:24,569 --> 00:06:29,969
occur locally close to the cause they

141
00:06:27,629 --> 00:06:31,709
occur in forward causality in the sense

142
00:06:29,970 --> 00:06:35,090
the cause seems to happen before the

143

00:06:31,709 --> 00:06:38,870
event and there is an energy transfer

144
00:06:35,089 --> 00:06:39,959
then in contrast to that their micro

145
00:06:38,870 --> 00:06:42,930
psychokinesis

146
00:06:39,959 --> 00:06:45,149
events and the micro PK events are

147
00:06:42,930 --> 00:06:48,360
non-local they can be far away from the

148
00:06:45,149 --> 00:06:51,109
agent they're non temporal it can the

149
00:06:48,360 --> 00:06:53,759
causality can be forward or retro and

150
00:06:51,110 --> 00:06:55,590
there appears to be no energy transfer

151
00:06:53,759 --> 00:06:57,889
it's simply a matter of information

152
00:06:55,589 --> 00:07:00,179
transfer it is these type of events

153
00:06:57,889 --> 00:07:01,889
Micro psychokinesis events that I'm

154
00:07:00,180 --> 00:07:04,110
talking about along with precognition

155
00:07:01,889 --> 00:07:06,569
and these have no problem with a

156
00:07:04,110 --> 00:07:08,639
conservation of energy because there

157
00:07:06,569 --> 00:07:14,220

appears to be no energy involved in the

158

00:07:08,639 --> 00:07:15,478

process then the other physical law

159

00:07:14,220 --> 00:07:19,949

which I think ends up being very

160

00:07:15,478 --> 00:07:22,800

insightful for us is the second law of

161

00:07:19,949 --> 00:07:24,960

thermodynamics and the second law of

162

00:07:22,800 --> 00:07:27,598

thermodynamics tells us that entropy

163

00:07:24,959 --> 00:07:30,359

which is a measure of disorder in any

164

00:07:27,598 --> 00:07:32,459

closed system cannot decrease over time

165

00:07:30,360 --> 00:07:35,970

it can either increase or remain the

166

00:07:32,459 --> 00:07:39,779

same so we will be using the second law

167

00:07:35,970 --> 00:07:42,360

of thermodynamics to help us now the

168

00:07:39,779 --> 00:07:44,369

retro causation has often been posed in

169

00:07:42,360 --> 00:07:46,530

terms of the grandfather paradox this is

170

00:07:44,370 --> 00:07:49,470

based upon a novel written by Renee

171

00:07:46,529 --> 00:07:52,228

barge oval called the imprudent traveler

172
00:07:49,470 --> 00:07:54,570
and in this novel the protagonist goes

173
00:07:52,228 --> 00:07:57,240
back in time to kill his grandfather

174
00:07:54,569 --> 00:08:00,870
before his grandfather met his

175
00:07:57,240 --> 00:08:03,538
grandmother this I believe is not a well

176
00:08:00,870 --> 00:08:06,810
posed problem why well first of all it's

177
00:08:03,538 --> 00:08:09,120
unnecessarily vicious but secondly and

178
00:08:06,810 --> 00:08:11,129
more importantly perhaps is that there's

179
00:08:09,120 --> 00:08:13,860
no evidence for this sort of retro

180
00:08:11,129 --> 00:08:15,680
causation instead I want to pose a

181
00:08:13,860 --> 00:08:18,718
problem in which it's not an

182
00:08:15,680 --> 00:08:22,978
all-or-nothing situation but there are

183
00:08:18,718 --> 00:08:24,240
degrees of retro causation and so what

184
00:08:22,978 --> 00:08:27,949
I'm going to be talking about is a

185
00:08:24,240 --> 00:08:30,750
lottery and in this lottery yesterday a

186
00:08:27,949 --> 00:08:33,629
number was chosen by a some random

187
00:08:30,750 --> 00:08:35,519
process and today you decide that you

188
00:08:33,629 --> 00:08:38,759
would like to be the winner and you use

189
00:08:35,519 --> 00:08:41,668
retroactive psychokinesis our retro PK

190
00:08:38,759 --> 00:08:43,200
to affect the result yesterday is this

191
00:08:41,668 --> 00:08:46,169
possible and that's the problem that I

192
00:08:43,200 --> 00:08:48,540
posed in general this is called the

193
00:08:46,169 --> 00:08:51,750
bilking paradox in which you have an

194
00:08:48,539 --> 00:08:54,029
early event be caused by a later event a

195
00:08:51,750 --> 00:08:57,029
and the bilking occur

196
00:08:54,029 --> 00:08:59,939
if you after event B occurs you block a

197
00:08:57,029 --> 00:09:02,129
and then event B is built out of its

198
00:08:59,940 --> 00:09:04,860
cause so that's the general phenomena

199
00:09:02,129 --> 00:09:07,919
we're dealing with so let's take several

200

00:09:04,860 --> 00:09:10,680
cases in case one let's say that you

201
00:09:07,919 --> 00:09:14,370
know nothing about the lottery and its

202
00:09:10,679 --> 00:09:17,639
result that occurred yesterday in that

203
00:09:14,370 --> 00:09:19,440
case can you in principle use retro PK

204
00:09:17,639 --> 00:09:23,159
to affect it and the answer is yes

205
00:09:19,440 --> 00:09:25,200
there's no bilking problem with that you

206
00:09:23,159 --> 00:09:28,589
certainly can the mechanism is another

207
00:09:25,200 --> 00:09:31,710
question let's take case be in this case

208
00:09:28,590 --> 00:09:33,660
you totally you know completely the

209
00:09:31,710 --> 00:09:37,879
lottery result of yesterday and you ask

210
00:09:33,659 --> 00:09:40,799
can you build that knowledge by

211
00:09:37,879 --> 00:09:43,110
affecting the lottery result yesterday

212
00:09:40,799 --> 00:09:44,759
to produce a different result than you

213
00:09:43,110 --> 00:09:47,490
know and the answer is no that's

214
00:09:44,759 --> 00:09:49,860

impossible so the interesting case is

215

00:09:47,490 --> 00:09:52,169

case 3 where you have partial knowledge

216

00:09:49,860 --> 00:09:53,759

of the lottery results you know some of

217

00:09:52,169 --> 00:09:56,219

the numbers but not all of the numbers

218

00:09:53,759 --> 00:10:01,580

maybe you heard some on the radio can

219

00:09:56,220 --> 00:10:01,580

you affect the result to some degree