

1  
00:00:00,000 --> 00:00:04,139  
if it is at before observation before

2  
00:00:01,709 --> 00:00:06,000  
you open the lid the cat is both dead

3  
00:00:04,139 --> 00:00:08,339  
and alive now Schrodinger presented this

4  
00:00:06,000 --> 00:00:10,050  
as an absurdity case saying that this

5  
00:00:08,339 --> 00:00:12,750  
couldn't obviously couldn't possibly be

6  
00:00:10,050 --> 00:00:17,490  
true except it seems like maybe it is

7  
00:00:12,750 --> 00:00:20,039  
true so what we're interested in is what

8  
00:00:17,489 --> 00:00:21,868  
when a seer sees and somebody is gazing

9  
00:00:20,039 --> 00:00:23,130  
at this with remote viewing is if

10  
00:00:21,868 --> 00:00:26,070  
knowledge is gained through remote

11  
00:00:23,129 --> 00:00:27,868  
viewing does that caused a cat to be

12  
00:00:26,070 --> 00:00:41,820  
dead or alive does it collapse at

13  
00:00:27,868 --> 00:00:44,489  
superposition well I like kitties as

14  
00:00:41,820 --> 00:00:46,200  
much as anyone else so rather than using

15  
00:00:44,488 --> 00:00:52,229  
a kitty I decided to use a michelson

16  
00:00:46,200 --> 00:00:54,120  
interferometer so here comes the there's

17  
00:00:52,229 --> 00:00:56,279  
a laser low-powered laser sending

18  
00:00:54,119 --> 00:00:58,108  
photons into this system it goes through

19  
00:00:56,280 --> 00:01:00,359  
a half silver mirror and it goes through

20  
00:00:58,109 --> 00:01:02,789  
and bounces off of it and then it hits

21  
00:01:00,359 --> 00:01:05,760  
two mirrors they bounce off the mirrors

22  
00:01:02,789 --> 00:01:07,650  
they reconnect and there's where the

23  
00:01:05,760 --> 00:01:11,790  
interference pattern is formed now these

24  
00:01:07,650 --> 00:01:13,650  
two arms or the interference of the

25  
00:01:11,790 --> 00:01:16,170  
Michelson interferometer is very similar

26  
00:01:13,650 --> 00:01:18,359  
to the idea of two slits but the reason

27  
00:01:16,170 --> 00:01:19,950  
I use it in this form rather than a

28  
00:01:18,359 --> 00:01:22,319  
double slit apparatus is because I'm

29

00:01:19,950 --> 00:01:25,290  
asking people to try to put their minds

30  
00:01:22,319 --> 00:01:26,849  
eye in one of the arms and I found it if

31  
00:01:25,290 --> 00:01:28,590  
I tried to describe to them that you

32  
00:01:26,849 --> 00:01:30,929  
have two slits that are 10 microns apart

33  
00:01:28,590 --> 00:01:32,728  
and to put your eye in front of one of

34  
00:01:30,930 --> 00:01:35,310  
them people can't see it and they can't

35  
00:01:32,728 --> 00:01:37,140  
imagine what what to do in this case

36  
00:01:35,310 --> 00:01:38,909  
it's very easy to imagine because it's

37  
00:01:37,140 --> 00:01:41,670  
about the size of your hand and I could

38  
00:01:38,909 --> 00:01:44,689  
show them put your eye here so they

39  
00:01:41,670 --> 00:01:46,799  
understand so this isn't a light-tight

40  
00:01:44,688 --> 00:01:48,419  
sealed room this shows the same

41  
00:01:46,799 --> 00:01:50,159  
apparatus if the laser going from the

42  
00:01:48,420 --> 00:01:53,040  
side showing that rather than getting

43  
00:01:50,159 --> 00:01:54,810

the vertical bars like you'd get in a

44

00:01:53,040 --> 00:01:55,920

double set you get concentric circles

45

00:01:54,810 --> 00:01:59,250

but it's the same thing it's an

46

00:01:55,920 --> 00:02:03,269

interference pattern so here's the this

47

00:01:59,250 --> 00:02:07,349

is our 2,000 pounds solid steel Faraday

48

00:02:03,269 --> 00:02:09,780

cage light tight inside it is the target

49

00:02:07,349 --> 00:02:11,609

area in the interferometer we ask people

50

00:02:09,780 --> 00:02:13,860

from the outside to stick their minds

51

00:02:11,610 --> 00:02:15,480

eye over there to stick it in or

52

00:02:13,860 --> 00:02:18,150

take it out put it in take it out in a

53

00:02:15,479 --> 00:02:21,780

counterbalance fashion here we have a

54

00:02:18,150 --> 00:02:23,490

very sensitive camera not quite as

55

00:02:21,780 --> 00:02:26,490

sensitive as one Gary was using which is

56

00:02:23,490 --> 00:02:28,320

a hundred degree minus 100 degrees ours

57

00:02:26,490 --> 00:02:32,040

is only something like minus 20 degrees

58  
00:02:28,319 --> 00:02:34,919  
C but still pretty good so what the

59  
00:02:32,039 --> 00:02:36,780  
camera sees is when when an interference

60  
00:02:34,919 --> 00:02:39,239  
pattern is there you see a Ripley

61  
00:02:36,780 --> 00:02:40,409  
pattern and when there's no interference

62  
00:02:39,240 --> 00:02:42,659  
if you physically go into this

63  
00:02:40,409 --> 00:02:46,049  
interferometer and you block one of the

64  
00:02:42,659 --> 00:02:48,900  
of the arms you get a flat pattern so

65  
00:02:46,050 --> 00:02:50,459  
this is a no Ripley pattern and a Ripley

66  
00:02:48,900 --> 00:02:53,010  
pattern so that's expect that's what

67  
00:02:50,459 --> 00:02:54,450  
you'd expect to see so what we can do

68  
00:02:53,009 --> 00:02:55,909  
that as we take what the camera is

69  
00:02:54,449 --> 00:02:58,139  
actually looking at is looking at a

70  
00:02:55,909 --> 00:03:00,090  
two-dimensional surface and you take the

71  
00:02:58,139 --> 00:03:02,279  
cross-section of it and you can plot the

72  
00:03:00,090 --> 00:03:04,080  
cross section for both of these and you

73  
00:03:02,280 --> 00:03:06,629  
notice that for when one of the slits is

74  
00:03:04,080 --> 00:03:08,130  
actually blocked you get there are error

75  
00:03:06,629 --> 00:03:09,599  
bars here but they're so small you can't

76  
00:03:08,129 --> 00:03:12,599  
even see them whereas if the

77  
00:03:09,599 --> 00:03:15,780  
interference pattern is as present any

78  
00:03:12,599 --> 00:03:18,150  
tiny movement any vibration any

79  
00:03:15,780 --> 00:03:20,370  
temperature change makes the the system

80  
00:03:18,150 --> 00:03:21,750  
change because a quarter wavelength of

81  
00:03:20,370 --> 00:03:26,700  
light will cause the whole system to

82  
00:03:21,750 --> 00:03:28,739  
move so we go through a lot of a pre

83  
00:03:26,699 --> 00:03:30,629  
calibration time to make sure that the

84  
00:03:28,739 --> 00:03:32,340  
the interferometer is as stable as it

85  
00:03:30,629 --> 00:03:34,139  
can possibly be because of that little

86

00:03:32,340 --> 00:03:35,670  
jittery movement so what we're looking

87  
00:03:34,139 --> 00:03:38,548  
for here then Anna counterbalanced

88  
00:03:35,669 --> 00:03:40,679  
fashion with mind in the Box mind out of

89  
00:03:38,549 --> 00:03:42,959  
the box is the difference between these

90  
00:03:40,680 --> 00:03:44,400  
two conditions the two ideal conditions

91  
00:03:42,959 --> 00:03:47,400  
and ideally you end up with this

92  
00:03:44,400 --> 00:03:49,260  
negative going pattern a nega- going

93  
00:03:47,400 --> 00:03:52,409  
Ripley wave that's what we ideally would

94  
00:03:49,259 --> 00:03:54,389  
get so some of the people we worked with

95  
00:03:52,409 --> 00:03:58,560  
were very advanced meditators this is

96  
00:03:54,389 --> 00:04:00,869  
Swami Veda bharti who's a meditator in

97  
00:03:58,560 --> 00:04:03,569  
the yogic tradition from the Himalayas

98  
00:04:00,870 --> 00:04:05,909  
and he came into the lab and meditated

99  
00:04:03,569 --> 00:04:08,370  
for 30 minutes and we have a little bell

100  
00:04:05,909 --> 00:04:09,329

here which he used to not speak because

101

00:04:08,370 --> 00:04:10,950  
he didn't want to break his

102

00:04:09,330 --> 00:04:13,950  
concentration he rang the bell when he

103

00:04:10,949 --> 00:04:16,019  
was ready to go so there is ringing the

104

00:04:13,949 --> 00:04:18,149  
bell and now I'm in the same room at the

105

00:04:16,019 --> 00:04:20,519  
other side of the room by the way from

106

00:04:18,149 --> 00:04:22,319  
his perspective the seal the shielded

107

00:04:20,519 --> 00:04:24,720  
room is roughly over there it starts

108

00:04:22,319 --> 00:04:26,519  
over there so I'm now going to give him

109

00:04:24,720 --> 00:04:27,420  
instructions by following a protocol

110

00:04:26,519 --> 00:04:30,269  
that I've set up into

111

00:04:27,420 --> 00:04:32,040  
of for the next 30 seconds put your mind

112

00:04:30,269 --> 00:04:34,349  
in that spot where I told you to put it

113

00:04:32,040 --> 00:04:36,390  
and try to see the incoming photons gain

114

00:04:34,350 --> 00:04:37,920  
knowledge about the photons and now for

115  
00:04:36,389 --> 00:04:39,899  
the next 30 seconds take your mind out

116  
00:04:37,920 --> 00:04:41,670  
of the box and then put it in take it

117  
00:04:39,899 --> 00:04:46,199  
out put it in and take it out again and

118  
00:04:41,670 --> 00:04:48,600  
again so first of all before each

119  
00:04:46,199 --> 00:04:51,180  
session I ran a control condition where

120  
00:04:48,600 --> 00:04:52,950  
I did the same protocol except there was

121  
00:04:51,180 --> 00:04:54,600  
no one to putting their mind in and out

122  
00:04:52,949 --> 00:04:56,009  
of the box this is simply to test to see

123  
00:04:54,600 --> 00:04:58,620  
whether the equipment might have been

124  
00:04:56,009 --> 00:05:00,509  
biased in some way to and what you

125  
00:04:58,620 --> 00:05:03,060  
should end up with is a flatline in fact

126  
00:05:00,509 --> 00:05:05,159  
we get a flat line well when I we did

127  
00:05:03,060 --> 00:05:09,000  
their actual experiment what we got was

128  
00:05:05,160 --> 00:05:10,740  
this which is very close to what we had

129  
00:05:09,000 --> 00:05:12,750  
predicted what we hoped we would get and

130  
00:05:10,740 --> 00:05:14,670  
this means that there's a difference

131  
00:05:12,750 --> 00:05:18,120  
that was happening when he was asked to

132  
00:05:14,670 --> 00:05:23,520  
put his mind in versus out so again that

133  
00:05:18,120 --> 00:05:25,530  
was observed this was predicted and that

134  
00:05:23,519 --> 00:05:33,269  
would be the result of someone like me

135  
00:05:25,529 --> 00:05:34,979  
she okok you or brian greene here what

136  
00:05:33,269 --> 00:05:36,389  
i've done is i've since we have a camera

137  
00:05:34,980 --> 00:05:38,189  
taking pictures of the interference

138  
00:05:36,389 --> 00:05:39,779  
patterns i curate a movie out of it by

139  
00:05:38,189 --> 00:05:43,469  
simply taking the frames of the camera

140  
00:05:39,779 --> 00:05:45,899  
in sequence so when is this is for Swami

141  
00:05:43,470 --> 00:05:47,400  
Veda when his he was not observing the

142  
00:05:45,899 --> 00:05:49,439  
systems mine was not in the

143

00:05:47,399 --> 00:05:51,620  
interferometer you get a fairly stable

144  
00:05:49,439 --> 00:05:53,459  
pattern and this this is the

145  
00:05:51,620 --> 00:05:55,230  
interference pattern as part of this

146  
00:05:53,459 --> 00:05:57,419  
concentric circle and it's using false

147  
00:05:55,230 --> 00:05:59,160  
color to highlight it but when his mind

148  
00:05:57,420 --> 00:06:00,990  
is in the box he get something that

149  
00:05:59,160 --> 00:06:03,060  
looks like a beating heart and what this

150  
00:06:00,990 --> 00:06:05,639  
shows is that he wasn't fully collapsing

151  
00:06:03,060 --> 00:06:07,620  
the system he was perturbing the system

152  
00:06:05,639 --> 00:06:09,990  
a little bit but it was perturbed enough

153  
00:06:07,620 --> 00:06:13,250  
in order for the result to end up with

154  
00:06:09,990 --> 00:06:13,250  
the results that we were hoping to get

155  
00:06:13,670 --> 00:06:19,319  
we did 18 sessions about half half of

156  
00:06:17,730 --> 00:06:21,150  
them were with meditators half with non

157  
00:06:19,319 --> 00:06:23,129

meditators overall we got a significant

158

00:06:21,149 --> 00:06:24,599

result we're hoping by designed to get a

159

00:06:23,129 --> 00:06:27,240

negative z-score and that's what we got

160

00:06:24,600 --> 00:06:29,250

so that was nice but when we separated

161

00:06:27,240 --> 00:06:31,769

the data oh and the control conditions

162

00:06:29,250 --> 00:06:34,139

didn't show any tendency to show an

163

00:06:31,769 --> 00:06:36,000

artifact Schewel result we separate the

164

00:06:34,139 --> 00:06:38,959

data by meditators and non meditators

165

00:06:36,000 --> 00:06:41,310

all of the action rather than meditators

166

00:06:38,959 --> 00:06:43,949

a very strong result is

167

00:06:41,310 --> 00:06:45,629

publishes past January the pupil

168

00:06:43,949 --> 00:06:48,810

dilation study by the way hasn't been

169

00:06:45,629 --> 00:06:50,719

published yet that's it's still being

170

00:06:48,810 --> 00:06:53,720

prepared for submission for publication

171

00:06:50,720 --> 00:06:56,370

so among other things this suggests that

172  
00:06:53,720 --> 00:06:59,340  
meditators the reason I use meditators

173  
00:06:56,370 --> 00:07:01,319  
is because the task requires 30 seconds

174  
00:06:59,339 --> 00:07:03,299  
of very stable putting your mind over

175  
00:07:01,319 --> 00:07:05,550  
there somewhere and if you're not a

176  
00:07:03,300 --> 00:07:07,560  
meditator and you don't have practice in

177  
00:07:05,550 --> 00:07:10,379  
mental discipline you may not be able to

178  
00:07:07,560 --> 00:07:11,850  
do that task so the reason why I had two

179  
00:07:10,379 --> 00:07:14,420  
kinds of people in the experiments

180  
00:07:11,850 --> 00:07:17,879  
because I expected that people who

181  
00:07:14,420 --> 00:07:20,910  
people who don't meditate and are from

182  
00:07:17,879 --> 00:07:22,680  
the MTV generation if asked to put your

183  
00:07:20,910 --> 00:07:25,110  
mind over there for 30 seconds and keep

184  
00:07:22,680 --> 00:07:26,040  
it there after one and a half seconds

185  
00:07:25,110 --> 00:07:27,330  
you'll forget that you're in an

186  
00:07:26,040 --> 00:07:30,300  
experiment you'll start thinking about

187  
00:07:27,329 --> 00:07:33,539  
dinner and that's I think why we didn't

188  
00:07:30,300 --> 00:07:35,040  
see a result in that group so the

189  
00:07:33,540 --> 00:07:36,960  
conclusions of these two experiments are

190  
00:07:35,040 --> 00:07:38,730  
peers that the mind sees the actual

191  
00:07:36,959 --> 00:07:42,419  
future at least in this instantiation of

192  
00:07:38,730 --> 00:07:44,160  
an experiment the mind interacts with

193  
00:07:42,420 --> 00:07:47,400  
matter at the quantum level and I'll say

194  
00:07:44,160 --> 00:07:50,490  
maybe because as Garrett has mentioned

195  
00:07:47,399 --> 00:07:52,679  
that because the interferometer uses

196  
00:07:50,490 --> 00:07:55,650  
mirrors it's also conceivable that may

197  
00:07:52,680 --> 00:07:58,139  
be what the effect of the meditating I

198  
00:07:55,649 --> 00:08:00,719  
was doing was changing the reflectivity

199  
00:07:58,139 --> 00:08:02,789  
of the mirror and I can't tell that in

200

00:08:00,720 --> 00:08:04,620  
this particular design so the next

201  
00:08:02,790 --> 00:08:06,360  
version of this will actually use a real

202  
00:08:04,620 --> 00:08:07,829  
double slit in which case you can get

203  
00:08:06,360 --> 00:08:09,600  
rid of mirrors there's no mirrors in at

204  
00:08:07,829 --> 00:08:11,819  
all I still have to figure out how to

205  
00:08:09,600 --> 00:08:14,340  
tell people how to gain knowledge from

206  
00:08:11,819 --> 00:08:17,909  
something which is 10 microns across but

207  
00:08:14,339 --> 00:08:19,769  
I'll cross that want to get to it and in

208  
00:08:17,910 --> 00:08:22,290  
general that space-time separations are

209  
00:08:19,769 --> 00:08:24,569  
an illusion that's that's essentially

210  
00:08:22,290 --> 00:08:28,110  
what's I tells us anyway that we it

211  
00:08:24,569 --> 00:08:29,490  
every day perceptual reality things

212  
00:08:28,110 --> 00:08:31,050  
certainly appear and look to be

213  
00:08:29,490 --> 00:08:33,180  
different but at this level they're not

214  
00:08:31,050 --> 00:08:36,240

so different here's a way of

215

00:08:33,179 --> 00:08:39,569

illustrating it what most people see

216

00:08:36,240 --> 00:08:42,659

here is a dark circle and a little bit

217

00:08:39,570 --> 00:08:44,850

less dark and a little less dark but

218

00:08:42,659 --> 00:08:46,819

course this is an illusion and you can

219

00:08:44,850 --> 00:08:49,170

demonstrate the illusion by simply

220

00:08:46,820 --> 00:08:51,180

covering the boundaries here the

221

00:08:49,169 --> 00:08:52,919

boundaries is what creates this illusion

222

00:08:51,179 --> 00:08:55,169

and now you can see that the background

223

00:08:52,919 --> 00:08:58,169

is actually all the same level

224

00:08:55,169 --> 00:09:01,019

illumination and the the illusion is

225

00:08:58,169 --> 00:09:04,049

created by a very subtle shading right

226

00:09:01,019 --> 00:09:06,720

at the edge and it the reason why this

227

00:09:04,049 --> 00:09:09,149

works is because if you see something in

228

00:09:06,720 --> 00:09:10,500

real life which has a shading of that

229  
00:09:09,149 --> 00:09:12,750  
type typically it's something like a

230  
00:09:10,500 --> 00:09:14,970  
step so you expect that it should go

231  
00:09:12,750 --> 00:09:17,789  
down and your expectations drive what

232  
00:09:14,970 --> 00:09:19,860  
you see so if I take these the boundary

233  
00:09:17,789 --> 00:09:22,828  
markers away then the illusion comes

234  
00:09:19,860 --> 00:09:24,629  
right back so our expectations are very

235  
00:09:22,828 --> 00:09:28,409  
strong drivers of what we actually

236  
00:09:24,629 --> 00:09:31,259  
perceive this is the experiment which is

237  
00:09:28,409 --> 00:09:34,500  
currently about to start it'll start

238  
00:09:31,259 --> 00:09:36,958  
when I go back home the people help me

239  
00:09:34,500 --> 00:09:39,720  
build this as Paul Wendland here and

240  
00:09:36,958 --> 00:09:43,138  
Robert rickenbach both optical engineers

241  
00:09:39,720 --> 00:09:46,290  
and the design of this thing is to look

242  
00:09:43,139 --> 00:09:47,940  
at the role of intention in a physical

243  
00:09:46,289 --> 00:09:49,649  
constant in this case the speed of light

244  
00:09:47,940 --> 00:09:51,449  
we want to see whether advanced

245  
00:09:49,649 --> 00:09:54,480  
meditators can change the speed of light

246  
00:09:51,448 --> 00:09:56,819  
and the way we do it is each one of

247  
00:09:54,480 --> 00:10:01,159  
these things is five kilometers of

248  
00:09:56,820 --> 00:10:01,160  
optical fiber it's about 3.1 miles