

# OBSERVER EFFECTS ON QUANTUM RANDOMNESS

MORITZ DECHAMPS



**SOCIETY  
FOR  
SCIENTIFIC  
EXPLORATION**

1

00:00:10,959 --> 00:00:08,709

yeah so welcome thanks for having me my

2

00:00:14,560 --> 00:00:10,969

name is Mustafa I'm a doctoral student

3

00:00:17,050 --> 00:00:14,570

at LMU Munich unfortunately there won't

4

00:00:20,920 --> 00:00:17,060

be any flying objects in my talk so

5

00:00:23,230 --> 00:00:20,930

please don't be disappointed still will

6

00:00:26,050 --> 00:00:23,240

be I'll still talk about the question

7

00:00:28,510 --> 00:00:26,060

whether the mind can influence the

8

00:00:29,980 --> 00:00:28,520

physical surroundings and I've been

9

00:00:31,840 --> 00:00:29,990

doing research on this topic for the

10

00:00:34,930 --> 00:00:31,850

last three years and in unique Germany

11

00:00:37,180 --> 00:00:34,940

in my hometown at the University and I

12

00:00:40,690 --> 00:00:37,190

have found an answer in the last three

13

00:00:43,900 --> 00:00:40,700

years and that is you can influence it

14  
00:00:45,069 --> 00:00:43,910  
sometimes when you were a smoker and I'd

15  
00:00:47,650 --> 00:00:45,079  
like to show you in the next 20 minutes

16  
00:00:49,450 --> 00:00:47,660  
what I mean by that before we jump right

17  
00:00:51,069 --> 00:00:49,460  
into the minds of smokers and

18  
00:00:52,930 --> 00:00:51,079  
non-smokers I'd like to talk about the

19  
00:00:56,049 --> 00:00:52,940  
relationship of mind and metaphor bit in

20  
00:00:57,819 --> 00:00:56,059  
general so most would agree that the

21  
00:00:59,500 --> 00:00:57,829  
world as we experience it seems to

22  
00:01:03,549 --> 00:00:59,510  
comprise two distinct elements the

23  
00:01:05,770 --> 00:01:03,559  
physical world and the mental world and

24  
00:01:07,270 --> 00:01:05,780  
there are different ideas though if and

25  
00:01:09,399 --> 00:01:07,280  
how these two worlds interact with each

26

00:01:12,249 --> 00:01:09,409

other so there's interaction as dualism

27

00:01:13,809 --> 00:01:12,259

that says physical causally interacts

28

00:01:15,190 --> 00:01:13,819

with the mental and the mental does with

29

00:01:17,800 --> 00:01:15,200

the physical and this goes pretty well

30

00:01:19,149 --> 00:01:17,810

with our day to day experience both

31

00:01:22,179 --> 00:01:19,159

these interactions are very hard to

32

00:01:24,249 --> 00:01:22,189

prove though so how can unique phenomena

33

00:01:26,769 --> 00:01:24,259

check phenomenological experience like

34

00:01:30,639 --> 00:01:26,779

certain color for example can be

35

00:01:33,129 --> 00:01:30,649

explained by purely physical processing

36

00:01:34,899 --> 00:01:33,139

and this is such a hard problem to solve

37

00:01:36,519 --> 00:01:34,909

they became known as a hard problem of

38

00:01:38,169 --> 00:01:36,529

consciousness center yeah we heard

39

00:01:42,429 --> 00:01:38,179

already heard something about that I

40

00:01:46,359 --> 00:01:42,439

think two days ago the other way around

41

00:01:47,830 --> 00:01:46,369

is by no means easier to explain so the

42

00:01:51,039 --> 00:01:47,840

influence of the mental world to the

43

00:01:52,800 --> 00:01:51,049

physical world it's hard to to think of

44

00:01:56,379 --> 00:01:52,810

a place where this could happen and

45

00:01:57,999 --> 00:01:56,389

that's why there's other ideas of the

46

00:02:00,449 --> 00:01:58,009

interaction of those two worlds for

47

00:02:02,679 --> 00:02:00,459

example epiphenomenalism and that gets

48

00:02:04,899 --> 00:02:02,689

consequently gets rid of this connection

49

00:02:07,269 --> 00:02:04,909

and this is basically the typical view

50

00:02:09,490 --> 00:02:07,279

of most modern science so it states that

51  
00:02:11,770 --> 00:02:09,500  
the female phenomenological experience

52  
00:02:14,710 --> 00:02:11,780  
is just a byproduct of the physical

53  
00:02:16,780 --> 00:02:14,720  
working and that all causation can be

54  
00:02:18,280 --> 00:02:16,790  
reduced to fundamental physics so no

55  
00:02:20,589 --> 00:02:18,290  
influence at all

56  
00:02:22,330 --> 00:02:20,599  
and if this were to be true one might

57  
00:02:24,160 --> 00:02:22,340  
ask what about free will what about

58  
00:02:26,800 --> 00:02:24,170  
morality if the mental world has no

59  
00:02:28,240 --> 00:02:26,810  
influence at all and still the hard

60  
00:02:31,149 --> 00:02:28,250  
problem of consciousness is a problem

61  
00:02:34,059 --> 00:02:31,159  
here as well so there's yet another idea

62  
00:02:35,770 --> 00:02:34,069  
it's psychophysical parallelism and this

63  
00:02:38,830 --> 00:02:35,780

gets rid of all problems that are caused

64

00:02:40,569 --> 00:02:38,840

by explaining causality since the two

65

00:02:45,819 --> 00:02:40,579

worlds don't interact with it with

66

00:02:47,800 --> 00:02:45,829

another at all so they are as Leibniz

67

00:02:49,720 --> 00:02:47,810

would put it like two parallel clocks

68

00:02:52,569 --> 00:02:49,730

that lead to events being perfectly

69

00:02:54,839 --> 00:02:52,579

synchronized and the reason for that for

70

00:02:58,270 --> 00:02:54,849

Leibniz was a pre-established harmony

71

00:02:59,860 --> 00:02:58,280

created by God there might be another

72

00:03:01,960 --> 00:02:59,870

explanation though and that is the third

73

00:03:03,729 --> 00:03:01,970

underlying world that interacts with

74

00:03:08,800 --> 00:03:03,739

both the mental and the physical world

75

00:03:10,420 --> 00:03:08,810

and this could be the quantum world so

76  
00:03:12,610 --> 00:03:10,430  
what do we know of the quantum world and

77  
00:03:14,679 --> 00:03:12,620  
how could it be that it interacts both

78  
00:03:17,500 --> 00:03:14,689  
the mental and the classical physical

79  
00:03:19,780 --> 00:03:17,510  
world quantum theory possesses a number

80  
00:03:21,190 --> 00:03:19,790  
of very strange properties and I only

81  
00:03:24,099 --> 00:03:21,200  
have time to go into one of them and

82  
00:03:26,080 --> 00:03:24,109  
that superposition and this is can be

83  
00:03:28,930 --> 00:03:26,090  
seen here so this is a visualization of

84  
00:03:30,250 --> 00:03:28,940  
the double slit experiment experiment

85  
00:03:33,219 --> 00:03:30,260  
that's the most famous quantum

86  
00:03:36,909 --> 00:03:33,229  
experiment and in it a single particles

87  
00:03:40,420 --> 00:03:36,919  
like photons or electrons a shot at a at

88  
00:03:46,270 --> 00:03:40,430

a plate with two slits and what happens

89

00:03:49,360 --> 00:03:46,280

is that that you can see certain pattern

90

00:03:51,550 --> 00:03:49,370

behind the behind the plate so they form

91

00:03:54,069 --> 00:03:51,560

a interference pattern and this means

92

00:03:55,990 --> 00:03:54,079

that the photon must pass both slits at

93

00:03:58,629 --> 00:03:56,000

the same time it's a few with itself and

94

00:04:00,670 --> 00:03:58,639

this is what's called a superposition so

95

00:04:02,289 --> 00:04:00,680

it's it's different different states

96

00:04:04,390 --> 00:04:02,299

it has different states at the same time

97

00:04:06,879 --> 00:04:04,400

and in this case it's at different

98

00:04:08,020 --> 00:04:06,889

places at the same time and what's even

99

00:04:10,059 --> 00:04:08,030

more surprising is that this

100

00:04:12,009 --> 00:04:10,069

superposition vanishes when you measure

101

00:04:13,689 --> 00:04:12,019

the path of the particle so in that case

102

00:04:15,610 --> 00:04:13,699

it goes either to the top slit or

103

00:04:19,149 --> 00:04:15,620

through the bottom slit and just appears

104

00:04:20,920 --> 00:04:19,159

behind those slits and what's unclear to

105

00:04:22,839 --> 00:04:20,930

this point is what constitutes a

106

00:04:24,100 --> 00:04:22,849

measurement on other words at what point

107

00:04:26,379 --> 00:04:24,110

of this interaction with environment

108

00:04:29,019 --> 00:04:26,389

does this transition from the super post

109

00:04:30,300 --> 00:04:29,029

quantum states to a single classical

110

00:04:32,160 --> 00:04:30,310

state take place

111

00:04:34,920 --> 00:04:32,170

is that when a camera is directed at

112

00:04:38,490 --> 00:04:34,930

slits on computers processing the path

113

00:04:43,140 --> 00:04:38,500

or is it a conscious processing of the

114

00:04:45,420 --> 00:04:43,150

way the of the weight of the result that

115

00:04:46,620 --> 00:04:45,430

has taken place and this is a discussion

116

00:04:50,330 --> 00:04:46,630

held under the name of the Heisenberg

117

00:04:53,340 --> 00:04:50,340

cut and there's still no no answer to it

118

00:04:55,170 --> 00:04:53,350

so what we know is there a lot of

119

00:04:56,700 --> 00:04:55,180

different interpretations though the

120

00:04:59,700 --> 00:04:56,710

deal with this measurement problem and

121

00:05:01,380 --> 00:04:59,710

some of them put more emphasis on the

122

00:05:02,730 --> 00:05:01,390

mental aspects and unconsciousness in

123

00:05:06,090 --> 00:05:02,740

particular like those I've highlighted

124

00:05:08,520 --> 00:05:06,100

here and that means there is at least

125

00:05:10,620 --> 00:05:08,530

one solution to this quantum mechanical

126

00:05:12,000 --> 00:05:10,630

measurement problem problem that can

127

00:05:16,290 --> 00:05:12,010

explain this perfect synchronicity

128

00:05:18,060 --> 00:05:16,300

between those two worlds and that would

129

00:05:22,080 --> 00:05:18,070

be that measurement is the conscious

130

00:05:23,250 --> 00:05:22,090

processing of quantum information and if

131

00:05:24,240 --> 00:05:23,260

this is true this would mean definitely

132

00:05:26,940 --> 00:05:24,250

several things

133

00:05:29,850 --> 00:05:26,950

this would mean superposition is still

134

00:05:31,410 --> 00:05:29,860

maintained in subconscious subconscious

135

00:05:32,730 --> 00:05:31,420

processing would therefore have much

136

00:05:34,470 --> 00:05:32,740

more information at hand would be

137

00:05:35,700 --> 00:05:34,480

uncompelled lee more effective than

138

00:05:37,800 --> 00:05:35,710

conscious processing and this is

139

00:05:40,530 --> 00:05:37,810

something we know to be true as a

140

00:05:42,630 --> 00:05:40,540

psychologist and since quantum

141

00:05:44,970 --> 00:05:42,640

information has no arrow of time this

142

00:05:47,010 --> 00:05:44,980

would explain how sub con subconscious

143

00:05:49,920 --> 00:05:47,020

anticipation of future whence events

144

00:05:51,210 --> 00:05:49,930

would be possible so precognition and

145

00:05:53,660 --> 00:05:51,220

premonition could be explained by this

146

00:05:56,160 --> 00:05:53,670

and the result of the measurement

147

00:05:58,730 --> 00:05:56,170

originates in the observer and this

148

00:06:00,810 --> 00:05:58,740

leaves room for an subjective influence

149

00:06:02,520 --> 00:06:00,820

for an subjective element for an

150

00:06:05,910 --> 00:06:02,530

influence on which of the super force

151  
00:06:10,200 --> 00:06:05,920  
state becomes real and this leads us to

152  
00:06:12,030 --> 00:06:10,210  
micro psychokinesis micro PK's is

153  
00:06:15,690 --> 00:06:12,040  
researching the mental influences on

154  
00:06:18,030 --> 00:06:15,700  
inanimate probabilistic systems and it

155  
00:06:20,780 --> 00:06:18,040  
can only be observed where statistical

156  
00:06:24,330 --> 00:06:20,790  
means so not not with the naked eye and

157  
00:06:26,100 --> 00:06:24,340  
usually it's it's just the influence on

158  
00:06:28,460 --> 00:06:26,110  
random number generator or dice as we

159  
00:06:31,500 --> 00:06:28,470  
had heard before and there's great

160  
00:06:33,690 --> 00:06:31,510  
remarkable results we have heard

161  
00:06:36,090 --> 00:06:33,700  
something about already and but there

162  
00:06:37,830 --> 00:06:36,100  
still it's still something it's not

163  
00:06:40,140 --> 00:06:37,840

universally accepted and there's several

164

00:06:42,150 --> 00:06:40,150

reasons for that it has an

165

00:06:43,540 --> 00:06:42,160

unconventional high heterogeneity of the

166

00:06:46,960 --> 00:06:43,550

data so

167

00:06:48,550 --> 00:06:46,970

some might believe that publication bias

168

00:06:51,100 --> 00:06:48,560

and other selection mechanisms aren't

169

00:06:53,279 --> 00:06:51,110

had and even more important that's an

170

00:06:56,290 --> 00:06:53,289

astounding lack of direct replication

171

00:06:57,999 --> 00:06:56,300

attempts so the most prominent example

172

00:07:01,180 --> 00:06:58,009

is to peer studied that we already heard

173

00:07:03,059 --> 00:07:01,190

of and there was a replication attempt

174

00:07:06,249 --> 00:07:03,069

of the pair study in Germany right away

175

00:07:07,689 --> 00:07:06,259

at the ganske BJP's if you gain a degree

176

00:07:10,240 --> 00:07:07,699

at Freiburg and Center for behavioral

177

00:07:12,790 --> 00:07:10,250

medicine at Giessen and they only had

178

00:07:15,360 --> 00:07:12,800

rather disappointing results they

179

00:07:19,059 --> 00:07:15,370

couldn't replicate the results at all

180

00:07:22,059 --> 00:07:19,069

non significant result and this led some

181

00:07:23,950 --> 00:07:22,069

to believe that Michael BK does indeed

182

00:07:25,719 --> 00:07:23,960

exist but does not seem to be a very

183

00:07:29,649 --> 00:07:25,729

robust effect that it cannot be

184

00:07:31,870 --> 00:07:29,659

replicated and that's a different

185

00:07:33,790 --> 00:07:31,880

there's a second problem from from my

186

00:07:35,080 --> 00:07:33,800

personal point of view and that is that

187

00:07:37,439 --> 00:07:35,090

there's no consideration of the

188

00:07:40,120 --> 00:07:37,449

subconscious content in most of the

189

00:07:43,749 --> 00:07:40,130

designs so usually designs are very

190

00:07:45,189 --> 00:07:43,759

explicit it's usually something like try

191

00:07:49,240 --> 00:07:45,199

to get the RNG to behave in a certain

192

00:07:51,399 --> 00:07:49,250

way and has been shown is that

193

00:07:54,370 --> 00:07:51,409

effortless intention usually gets better

194

00:07:58,180 --> 00:07:54,380

result and the crucial difference might

195

00:08:00,850 --> 00:07:58,190

be the intentionality itself so we might

196

00:08:02,649 --> 00:08:00,860

get better micro PK effects when the

197

00:08:05,170 --> 00:08:02,659

participants have a connection with the

198

00:08:07,570 --> 00:08:05,180

outcome on a deeply rooted or implicit

199

00:08:09,879 --> 00:08:07,580

level and that's where we decided to

200

00:08:11,950 --> 00:08:09,889

create such an experiment where the

201  
00:08:14,080 --> 00:08:11,960  
outcome matters to the participant on an

202  
00:08:16,629 --> 00:08:14,090  
implicit level and here is where the

203  
00:08:17,980 --> 00:08:16,639  
smokers come into play so we tried we

204  
00:08:19,749 --> 00:08:17,990  
used the desire for cigarettes and

205  
00:08:23,439 --> 00:08:19,759  
smokers as our unconsciously driven

206  
00:08:26,290 --> 00:08:23,449  
state and the idea of the experiment was

207  
00:08:29,409 --> 00:08:26,300  
that we have participants with a

208  
00:08:30,730 --> 00:08:29,419  
specific mental idea to what cigarettes

209  
00:08:33,819 --> 00:08:30,740  
that is the need for cigarettes or a

210  
00:08:36,699 --> 00:08:33,829  
lack of cigarettes that are connected by

211  
00:08:38,769 --> 00:08:36,709  
the quantum world to a specific to the

212  
00:08:41,829 --> 00:08:38,779  
corresponding physical events that is

213  
00:08:43,690 --> 00:08:41,839

stimuli that address this need and the

214

00:08:45,630 --> 00:08:43,700

quantum was represented by quantum based

215

00:08:47,560 --> 00:08:45,640

random number generator and that

216

00:08:50,050 --> 00:08:47,570

basically conducts a double slit

217

00:08:53,680 --> 00:08:50,060

experiment and the slits are connected

218

00:08:54,710 --> 00:08:53,690

to output to to outputting either 0 or 1

219

00:08:57,710 --> 00:08:54,720

and

220

00:08:59,780 --> 00:08:57,720

turn displaying either a neutral image

221

00:09:02,269 --> 00:08:59,790

or a image of hazard to be smoking a

222

00:09:06,199 --> 00:09:02,279

cigarette image so I was our design

223

00:09:08,300 --> 00:09:06,209

protested 254 participants and we

224

00:09:10,670 --> 00:09:08,310

hypothesized that the specific way the

225

00:09:12,379 --> 00:09:10,680

mind is set to what cigarettes within

226

00:09:13,999 --> 00:09:12,389

the smokers would lead to a deviation in

227

00:09:16,610 --> 00:09:14,009

Shawn's cigarette related stimuli and

228

00:09:20,780 --> 00:09:16,620

from chance and we wouldn't expect such

229

00:09:22,369 --> 00:09:20,790

a deviation with non-smokers yeah at

230

00:09:24,100 --> 00:09:22,379

this point I'd like to lose a few words

231

00:09:26,449 --> 00:09:24,110

about the statistical approach we used

232

00:09:31,040 --> 00:09:26,459

so that you can understand results we

233

00:09:33,910 --> 00:09:31,050

used two Bayesian analysis design and

234

00:09:36,199 --> 00:09:33,920

[Music]

235

00:09:38,569 --> 00:09:36,209

Bayesian statistics works by updating

236

00:09:40,189 --> 00:09:38,579

your beliefs given new data and by

237

00:09:41,059 --> 00:09:40,199

pitting the likelihoods for the null

238

00:09:43,249 --> 00:09:41,069

hypothesis and the alternative

239

00:09:49,069 --> 00:09:43,259

hypothesis against each other

240

00:09:50,480 --> 00:09:49,079

so usually you you pre-specify stopping

241

00:09:52,220 --> 00:09:50,490

criterion for the quality of the

242

00:09:53,960 --> 00:09:52,230

evidence and you add data until this

243

00:09:56,480 --> 00:09:53,970

criterion is met so it's a sequential

244

00:09:58,100 --> 00:09:56,490

design and the evidence is measured with

245

00:10:00,139 --> 00:09:58,110

the base factor that's just a

246

00:10:02,389 --> 00:10:00,149

relationship of the probabilities so

247

00:10:03,949 --> 00:10:02,399

base factor of one means there's no

248

00:10:06,139 --> 00:10:03,959

evidence towards either direction and

249

00:10:08,179 --> 00:10:06,149

three is moderate evidence and we use

250

00:10:10,999 --> 00:10:08,189

the base factor of 10 which means strong

251  
00:10:15,160 --> 00:10:11,009  
evidence so I'll make it exciting and

252  
00:10:17,809 --> 00:10:15,170  
start with the non-smokers no no

253  
00:10:20,689 --> 00:10:17,819  
deviation from chance was was seen here

254  
00:10:23,929 --> 00:10:20,699  
you can see the base factor is going

255  
00:10:26,990 --> 00:10:23,939  
below one so individual in the direction

256  
00:10:28,759 --> 00:10:27,000  
of the null hypothesis and yeah we have

257  
00:10:32,259 --> 00:10:28,769  
moderate evidence for the null

258  
00:10:34,490 --> 00:10:32,269  
hypothesis and this is what we expected

259  
00:10:36,949 --> 00:10:34,500  
with a smokers on the other hand they

260  
00:10:39,259 --> 00:10:36,959  
experienced less cigarette pictures and

261  
00:10:41,869 --> 00:10:39,269  
in non-smokers and if we look at the

262  
00:10:44,360 --> 00:10:41,879  
base factor it shows a highly

263  
00:10:46,429 --> 00:10:44,370

significant result so the base factor

264

00:10:49,129 --> 00:10:46,439

was 66 in the end and this means this

265

00:10:50,480 --> 00:10:49,139

result is 66 times more likely to be

266

00:10:53,809 --> 00:10:50,490

obtained under the alternative

267

00:10:55,879 --> 00:10:53,819

hypothesis then I already know so the

268

00:10:58,009 --> 00:10:55,889

amount amount of pictures was different

269

00:10:59,360 --> 00:10:58,019

from chance and yeah we were pretty

270

00:11:02,059 --> 00:10:59,370

excited at this point as you can imagine

271

00:11:04,189 --> 00:11:02,069

it worked and we decided to do a

272

00:11:06,049 --> 00:11:04,199

replication of this experiment we

273

00:11:08,180 --> 00:11:06,059

pre-registered this replication

274

00:11:10,220 --> 00:11:08,190

everything was the same we used to

275

00:11:12,020 --> 00:11:10,230

I'd approach this time we had a clear

276  
00:11:13,940 --> 00:11:12,030  
prediction smokers see less than chance

277  
00:11:17,000 --> 00:11:13,950  
cigarette pictures we tested four

278  
00:11:18,080 --> 00:11:17,010  
hundred new participants and yeah I'm

279  
00:11:20,480 --> 00:11:18,090  
going to show you the results of the

280  
00:11:23,420 --> 00:11:20,490  
second study so this is the non-smokers

281  
00:11:25,720 --> 00:11:23,430  
again not a huge surprise again the in

282  
00:11:29,660 --> 00:11:25,730  
the direction of the null hypothesis and

283  
00:11:33,650 --> 00:11:29,670  
now to watch the smokers so this time

284  
00:11:36,200 --> 00:11:33,660  
the smokers showed no deviation from

285  
00:11:38,150 --> 00:11:36,210  
chance you can see the effect was

286  
00:11:39,650 --> 00:11:38,160  
present at first so the base vector goes

287  
00:11:42,470 --> 00:11:39,660  
up to what standard first and then

288  
00:11:45,260 --> 00:11:42,480

quickly vanished and even went to into

289

00:11:48,830 --> 00:11:45,270

the other direction yeah so we were

290

00:11:51,740 --> 00:11:48,840

pretty bummed out by this result we

291

00:11:54,530 --> 00:11:51,750

couldn't have we didn't get a replicable

292

00:11:57,290 --> 00:11:54,540

effect replicable effect but we still

293

00:11:59,330 --> 00:11:57,300

had the idea this is this feeling that

294

00:12:02,150 --> 00:11:59,340

the smokers and the non-smokers data was

295

00:12:04,490 --> 00:12:02,160

somehow different so what we did next is

296

00:12:08,150 --> 00:12:04,500

we looked at the data of both studies

297

00:12:10,400 --> 00:12:08,160

combined and what you can see here on

298

00:12:12,740 --> 00:12:10,410

the left is the smokers sample and

299

00:12:14,690 --> 00:12:12,750

there's a remarkable change in effect

300

00:12:18,590 --> 00:12:14,700

over the course of the time that means

301

00:12:21,800 --> 00:12:18,600

the data that was added so the base

302

00:12:25,130 --> 00:12:21,810

factor was in the middle of the of both

303

00:12:27,410 --> 00:12:25,140

studies need close to 600 which is

304

00:12:29,360 --> 00:12:27,420

really really uncommon right and there

305

00:12:31,070 --> 00:12:29,370

are no such change in effect could be

306

00:12:33,740 --> 00:12:31,080

seen with the non-smokers and no such

307

00:12:39,080 --> 00:12:33,750

change could be seen with the simulation

308

00:12:40,940 --> 00:12:39,090

as well so could there be a micro PK

309

00:12:45,830 --> 00:12:40,950

effect despite this lack of replication

310

00:12:48,140 --> 00:12:45,840

and could could we maybe further examine

311

00:12:49,910 --> 00:12:48,150

this decline effect we already heard

312

00:12:51,440 --> 00:12:49,920

something about the decline effect and

313

00:12:53,900 --> 00:12:51,450

about the importance of novelty and

314

00:12:55,460 --> 00:12:53,910

there's a theory that supports this idea

315

00:12:58,910 --> 00:12:55,470

it's the model of pragmatic information

316

00:13:01,010 --> 00:12:58,920

by from Lookadoo but still we were

317

00:13:05,570 --> 00:13:01,020

asking ourselves why would this happen

318

00:13:10,100 --> 00:13:05,580

and yeah let me walk you through our our

319

00:13:12,950 --> 00:13:10,110

thoughts to about this so we'll start

320

00:13:14,630 --> 00:13:12,960

with hopefully with a well-designed

321

00:13:16,670 --> 00:13:14,640

micro PK study that leads to the

322

00:13:19,250 --> 00:13:16,680

emergence of a micro PK effect in the

323

00:13:21,260 --> 00:13:19,260

form of a deviation from chance and this

324

00:13:21,810 --> 00:13:21,270

deviation should violate the no signal

325

00:13:24,210 --> 00:13:21,820

theory

326

00:13:26,850 --> 00:13:24,220

in quantum mechanics since information

327

00:13:28,350 --> 00:13:26,860

is basically created out of nothing so

328

00:13:30,540 --> 00:13:28,360

where there should be randomness and

329

00:13:31,890 --> 00:13:30,550

randomness means no information there

330

00:13:33,360 --> 00:13:31,900

isn't random as anymore and therefore

331

00:13:35,970 --> 00:13:33,370

there's information and this is a

332

00:13:38,970 --> 00:13:35,980

problem for the second law of

333

00:13:41,520 --> 00:13:38,980

thermodynamics this that says entropy

334

00:13:42,560 --> 00:13:41,530

must always increase and order cannot

335

00:13:44,970 --> 00:13:42,570

come out of chaos

336

00:13:47,520 --> 00:13:44,980

so what could happen at this point is

337

00:13:50,730 --> 00:13:47,530

that a counter effect is setting in to

338

00:13:52,230 --> 00:13:50,740

equalize this micro PK effect and to

339

00:13:54,840 --> 00:13:52,240

make sure the information is lost again

340

00:13:56,700 --> 00:13:54,850

and the world is back in order and as

341

00:13:58,670 --> 00:13:56,710

soon as this happens everything can

342

00:14:01,320 --> 00:13:58,680

start over again

343

00:14:03,030 --> 00:14:01,330

so with this idea there's still a

344

00:14:04,560 --> 00:14:03,040

problem and that's what's the difference

345

00:14:08,430 --> 00:14:04,570

between a real not effect and the

346

00:14:10,620 --> 00:14:08,440

decline effect and yeah we had an idea

347

00:14:12,090 --> 00:14:10,630

to what this as well and that is that

348

00:14:15,840 --> 00:14:12,100

effect and count effect are in a

349

00:14:17,160 --> 00:14:15,850

systematic interplay so once the effect

350

00:14:19,470 --> 00:14:17,170

has been neutralized the entropic

351  
00:14:21,030 --> 00:14:19,480  
counter force also decreases allowing

352  
00:14:22,830 --> 00:14:21,040  
the effect to reappear with a lowered

353  
00:14:24,660 --> 00:14:22,840  
effect than initially shown and so on

354  
00:14:26,970 --> 00:14:24,670  
and this interplay should lead to a

355  
00:14:28,710 --> 00:14:26,980  
temporal change in effect comparable to

356  
00:14:30,480 --> 00:14:28,720  
a damped harmonic oscillation that's the

357  
00:14:32,850 --> 00:14:30,490  
blue line that you can see here so

358  
00:14:35,760 --> 00:14:32,860  
effect and count effect are in are in a

359  
00:14:41,120 --> 00:14:35,770  
systemic interplay so was our data

360  
00:14:45,600 --> 00:14:41,130  
oscillatory and that's our data as

361  
00:14:47,250 --> 00:14:45,610  
that's the z-scores the community of

362  
00:14:48,780 --> 00:14:47,260  
z-scores of our data that's pretty

363  
00:14:50,760 --> 00:14:48,790

similar to the base factor it's just

364

00:14:52,920 --> 00:14:50,770

upside down because the effect was

365

00:14:56,970 --> 00:14:52,930

negative this on less less cigarette

366

00:14:58,740 --> 00:14:56,980

pictures and we match this data to a

367

00:15:01,890 --> 00:14:58,750

suitable damped harmonic oscillation

368

00:15:03,900 --> 00:15:01,900

that's the red line and this is the

369

00:15:09,960 --> 00:15:03,910

formula and you all need to remember

370

00:15:11,640 --> 00:15:09,970

this okay and if you continue to look at

371

00:15:13,470 --> 00:15:11,650

the oscillation you can derive a

372

00:15:16,290 --> 00:15:13,480

prediction about the size of the future

373

00:15:18,930 --> 00:15:16,300

data and that's what we did and we

374

00:15:20,220 --> 00:15:18,940

decided to do yet another study but this

375

00:15:21,960 --> 00:15:20,230

time we wouldn't look at a number of

376

00:15:24,570 --> 00:15:21,970

pictures but if the temporal change of

377

00:15:26,610 --> 00:15:24,580

the effect follows our prediction and we

378

00:15:30,360 --> 00:15:26,620

again pre-read pre-registered this study

379

00:15:31,960 --> 00:15:30,370

and tested to hundreds more smokers yeah

380

00:15:35,679 --> 00:15:31,970

that's a prediction and

381

00:15:38,529 --> 00:15:35,689

that's our data so as you can see it's

382

00:15:41,829 --> 00:15:38,539

not a perfect fit it's I think it's a

383

00:15:44,019 --> 00:15:41,839

rather good fit so as predicted the

384

00:15:45,789 --> 00:15:44,029

effect gets weaker again this means the

385

00:15:48,159 --> 00:15:45,799

line goes up and then get strong again

386

00:15:50,169 --> 00:15:48,169

the line goes down again yeah but it's

387

00:15:53,229 --> 00:15:50,179

hard to tell just by looking at it

388

00:15:54,369 --> 00:15:53,239

so I conducted some simulations to

389

00:15:57,879 --> 00:15:54,379

compare the state to do

390

00:16:01,659 --> 00:15:57,889

that's just 33 and also the first 10 of

391

00:16:03,759 --> 00:16:01,669

1000 simulations and yeah as you can see

392

00:16:06,009 --> 00:16:03,769

already here is that our prediction is

393

00:16:07,839 --> 00:16:06,019

not very distinguishable so it's

394

00:16:09,639 --> 00:16:07,849

basically just the horizontal line with

395

00:16:11,739 --> 00:16:09,649

a very small amplitude and that's

396

00:16:14,319 --> 00:16:11,749

something that's very easy for the

397

00:16:17,859 --> 00:16:14,329

random data to follow and yeah that's

398

00:16:23,619 --> 00:16:17,869

what we see when we look certificate the

399

00:16:26,289 --> 00:16:23,629

other data and that means 41.5% of the

400

00:16:29,379 --> 00:16:26,299

simulations have a better area under

401  
00:16:32,889 --> 00:16:29,389  
curve than our experimental data which

402  
00:16:35,049 --> 00:16:32,899  
is an indicator for the fit but if you

403  
00:16:38,769 --> 00:16:35,059  
look at the endpoint and analysis only

404  
00:16:41,489 --> 00:16:38,779  
3.1 percent had a better prediction so

405  
00:16:43,809 --> 00:16:41,499  
it's still kind of an success and I'm

406  
00:16:46,929 --> 00:16:43,819  
I'm still in the middle of analyzing

407  
00:16:50,169 --> 00:16:46,939  
this so as soon as I'm finished I'll

408  
00:16:55,419 --> 00:16:50,179  
publish it probably okay the last thing

409  
00:16:58,839 --> 00:16:55,429  
I want to do to show you is the final

410  
00:17:01,239 --> 00:16:58,849  
patient sequential analysis of all 500

411  
00:17:04,840 --> 00:17:01,249  
smokers and this remarkable change in

412  
00:17:06,639 --> 00:17:04,850  
effect and I wanted to know if this

413  
00:17:11,379 --> 00:17:06,649

could be just a random fluctuation if

414

00:17:13,749 --> 00:17:11,389

this happens all by itself and so I once

415

00:17:16,720 --> 00:17:13,759

more conducted some simulations and I

416

00:17:19,840 --> 00:17:16,730

actually to take a look and to try to

417

00:17:21,789 --> 00:17:19,850

see if the lines go above 100 it's just

418

00:17:26,769 --> 00:17:21,799

a real rapid slide show just to get a

419

00:17:29,919 --> 00:17:26,779

feel of okay rapid slideshow didn't work

420

00:17:32,009 --> 00:17:29,929

so this is this is just one of those 100

421

00:17:34,690 --> 00:17:32,019

simulations it's the most extreme one

422

00:17:38,049 --> 00:17:34,700

and as you can see the base vector

423

00:17:41,590 --> 00:17:38,059

barely touches the 30 and yeah never

424

00:17:44,630 --> 00:17:41,600

once did we experience base vector close

425

00:17:46,190 --> 00:17:44,640

to 600 so that makes me pretty confident

426

00:17:52,730 --> 00:17:46,200

that what we found is really truly

427

00:17:55,160 --> 00:17:52,740

special okay so to sum up we in a first

428

00:17:56,600 --> 00:17:55,170

study we found a micro PK effect that

429

00:17:59,480 --> 00:17:56,610

can be understood as a particular

430

00:18:01,340 --> 00:17:59,490

mindset a lack of cigarettes but found

431

00:18:02,960 --> 00:18:01,350

through the quantum world its

432

00:18:06,610 --> 00:18:02,970

correspondence in the physical world

433

00:18:09,440 --> 00:18:06,620

that means fewer secret pictures

434

00:18:11,390 --> 00:18:09,450

secondly if measurement takes place

435

00:18:14,060 --> 00:18:11,400

through conscious processing we should

436

00:18:16,220 --> 00:18:14,070

use deeply-rooted subconsciously active

437

00:18:19,700 --> 00:18:16,230

independent variables from my point of

438

00:18:22,670 --> 00:18:19,710

view and finally the problems

439

00:18:24,410 --> 00:18:22,680

replicating micro PK can be understood

440

00:18:26,000 --> 00:18:24,420

as an entropic counter effect that

441

00:18:28,720 --> 00:18:26,010

together with the effect should form a

442

00:18:38,880 --> 00:18:28,730

pattern of damned harmonic oscillation

443

00:18:47,890 --> 00:18:40,930

thank you and we have some time for

444

00:18:50,560 --> 00:18:47,900

questions thank you for a very nice talk

445

00:18:53,950 --> 00:18:50,570

every time I see oscillations I think of

446

00:18:55,900 --> 00:18:53,960

the possibility of correlating with Geo

447

00:18:59,440 --> 00:18:55,910

cosmic rhythms so I wonder if you'd

448

00:19:00,700 --> 00:18:59,450

considered that as a possible influence

449

00:19:03,310 --> 00:19:00,710

on your results

450

00:19:05,350 --> 00:19:03,320

we haven't no we have not but yeah it's

451

00:19:08,710 --> 00:19:05,360

a good idea good try Thanks

452

00:19:12,430 --> 00:19:08,720

I have a three questions but I'm gonna

453

00:19:15,460 --> 00:19:12,440

limited to two the first question in

454

00:19:18,220 --> 00:19:15,470

regards the it studies conducted by the

455

00:19:21,040 --> 00:19:18,230

German institutions and you know the

456

00:19:23,680 --> 00:19:21,050

Monte Carlo iterations what do you think

457

00:19:26,290 --> 00:19:23,690

that was like a hell Mary passed to try

458

00:19:28,330 --> 00:19:26,300

and find some structure in the data and

459

00:19:31,150 --> 00:19:28,340

then actually the more important

460

00:19:32,980 --> 00:19:31,160

question I have for you is regarding the

461

00:19:35,049 --> 00:19:32,990

theory of the subconscious mind versus

462

00:19:37,919 --> 00:19:35,059

the conscious mind like the conscious

463

00:19:40,990 --> 00:19:37,929

mind being that it has a kind of a

464

00:19:42,940 --> 00:19:41,000

method of a method of collapsing reality

465

00:19:45,880 --> 00:19:42,950

and being specific and being very like

466

00:19:47,290 --> 00:19:45,890

directed and so you know and the

467

00:19:49,560 --> 00:19:47,300

subconscious mind on the other hand

468

00:19:51,850 --> 00:19:49,570

isn't aware of the conscious Minds

469

00:19:53,260 --> 00:19:51,860

impressions of reality are you

470

00:19:55,960 --> 00:19:53,270

suggesting that the subconscious mind

471

00:19:58,830 --> 00:19:55,970

when people shut it their conscious mind

472

00:20:01,480 --> 00:19:58,840

down effects can be easier to obtain

473

00:20:03,430 --> 00:20:01,490

this is certainly a possibility so

474

00:20:05,980 --> 00:20:03,440

there's one theory it's called the

475

00:20:11,010 --> 00:20:05,990

extended Everett concept for example and

476

00:20:13,930 --> 00:20:11,020

it says that in in in states where the

477

00:20:15,430 --> 00:20:13,940

conscious conscious mind is not as

478

00:20:16,390 --> 00:20:15,440

active for example when you're sleeping

479

00:20:18,669 --> 00:20:16,400

when you're dreaming when you're

480

00:20:21,340 --> 00:20:18,679

meditating that you have better access

481

00:20:23,560 --> 00:20:21,350

to this different quantum possibilities

482

00:20:26,799 --> 00:20:23,570

and quantum information and that you can

483

00:20:33,250 --> 00:20:26,809

try and learn how to use to extract this

484

00:20:40,200 --> 00:20:36,909

so this is really interesting could you

485

00:20:44,400 --> 00:20:40,210

talk a little bit more about entropy and

486

00:20:47,140 --> 00:20:44,410

how this could possibly be related to

487

00:20:49,930 --> 00:20:47,150

the conscious mind in the subconscious

488

00:20:53,289 --> 00:20:49,940

mind I'm thinking about some of Ed Mays

489

00:20:54,760 --> 00:20:53,299

research that tries to look at the way

490

00:20:57,580 --> 00:20:54,770

entropy might be related to

491

00:20:59,230 --> 00:20:57,590

consciousness and awareness and just

492

00:21:02,650 --> 00:20:59,240

curious if you could talk about that a

493

00:21:05,409 --> 00:21:02,660

little bit more so I looked at the book

494

00:21:08,860 --> 00:21:05,419

of at may earlier and saw that he wrote

495

00:21:10,419 --> 00:21:08,870

something about entropy and I'm planning

496

00:21:12,549 --> 00:21:10,429

to buy the book and read it but I'm not

497

00:21:18,340 --> 00:21:12,559

sure I'm not familiar with what he but

498

00:21:20,440 --> 00:21:18,350

what he had written so the the idea that

499

00:21:22,650 --> 00:21:20,450

entropy is the is a force that's

500

00:21:25,270 --> 00:21:22,660

responsible for the decline effect as

501  
00:21:27,880 --> 00:21:25,280  
now from my point of view as nothing so

502  
00:21:33,669 --> 00:21:27,890  
much to do with consciousness but with

503  
00:21:35,770 --> 00:21:33,679  
the with the violation of the second law

504  
00:21:37,240 --> 00:21:35,780  
of thermodynamics in a sense that you

505  
00:21:45,310 --> 00:21:37,250  
create information where information

506  
00:21:48,700 --> 00:21:45,320  
shouldn't be created thank you so I'm

507  
00:21:51,820 --> 00:21:48,710  
wondering if instead of trying to fit a

508  
00:21:54,310 --> 00:21:51,830  
very specific curve through the results

509  
00:21:56,919 --> 00:21:54,320  
if you've considered looking at a power

510  
00:21:58,060 --> 00:21:56,929  
spectrum of it of some sort and making

511  
00:22:00,640 --> 00:21:58,070  
predictions about where you're gonna

512  
00:22:03,250 --> 00:22:00,650  
find peaks in that yeah it's definitely

513  
00:22:05,140 --> 00:22:03,260

definitely one of the possibilities so

514

00:22:07,570 --> 00:22:05,150

as I was saying earlier I'm still right

515

00:22:08,169 --> 00:22:07,580

in the middle of analyzing the last part

516

00:22:10,810 --> 00:22:08,179

of data

517

00:22:12,730 --> 00:22:10,820

I've already only looked at the area

518

00:22:14,530 --> 00:22:12,740

under curve and and at some points but

519

00:22:21,850 --> 00:22:14,540

we wanted to look at turning points as

520

00:22:28,700 --> 00:22:26,779

I'd like to criticize this notion which

521

00:22:33,080 --> 00:22:28,710

as far as I can tell is a complete

522

00:22:38,870 --> 00:22:33,090

fallacy that micro pique somehow creates

523

00:22:41,419 --> 00:22:38,880

information big because the entropy

524

00:22:44,539 --> 00:22:41,429

generated by the human participant

525

00:22:47,810 --> 00:22:44,549

simply by sitting there metabolizing and

526

00:22:51,860 --> 00:22:47,820

having a working brain is many orders of

527

00:22:55,580 --> 00:22:51,870

magnitude larger than the entropy

528

00:22:59,269 --> 00:22:55,590

decrease in the data stream where you're

529

00:23:01,580 --> 00:22:59,279

looking for PK effects I've been sitting

530

00:23:03,740 --> 00:23:01,590

here creating highly organized notes on

531

00:23:07,010 --> 00:23:03,750

a piece of paper and that information

532

00:23:10,519 --> 00:23:07,020

isn't appearing out of nowhere it's it's

533

00:23:14,269 --> 00:23:10,529

powered by the entropy increase in my

534

00:23:17,330 --> 00:23:14,279

own muscles and physical nutrients

535

00:23:22,010 --> 00:23:17,340

there's no reason to see PK as anything

536

00:23:23,810 --> 00:23:22,020

different thank you when you're looking

537

00:23:25,639 --> 00:23:23,820

at the decline effect the way you're

538

00:23:27,350 --> 00:23:25,649

doing in the ways traditionally done is

539

00:23:30,680 --> 00:23:27,360

people do it sequentially they do an

540

00:23:33,560 --> 00:23:30,690

experiment then they repeat it but what

541

00:23:36,100 --> 00:23:33,570

do you think would happen if you did two

542

00:23:38,659 --> 00:23:36,110

three four or five experiments

543

00:23:42,919 --> 00:23:38,669

simultaneously where you're recruiting

544

00:23:45,860 --> 00:23:42,929

to each experiment at the same time but

545

00:23:48,740 --> 00:23:45,870

in a predetermined fashion keeping the

546

00:23:52,250 --> 00:23:48,750

data separate so you're actually doing

547

00:23:55,310 --> 00:23:52,260

the replication at the same time do you

548

00:24:00,320 --> 00:23:55,320

think what do you think you would get so

549

00:24:04,450 --> 00:24:00,330

I my my opinion towards that is that

550

00:24:06,769 --> 00:24:04,460

it's important that important is the

551  
00:24:10,940 --> 00:24:06,779  
it's the timeframe in which you look at

552  
00:24:17,060 --> 00:24:10,950  
the data so responsible for this for

553  
00:24:19,070 --> 00:24:17,070  
this decline effect is the the extent to

554  
00:24:21,919 --> 00:24:19,080  
which you get a confirmation of your

555  
00:24:23,149 --> 00:24:21,929  
effect so you're saying when you look at

556  
00:24:28,490 --> 00:24:23,159  
the data suppose you did five

557  
00:24:31,909 --> 00:24:28,500  
experiments and had five groups annal in

558  
00:24:33,049 --> 00:24:31,919  
time do you think you'd get it too in

559  
00:24:34,460 --> 00:24:33,059  
other words would this be a way around

560  
00:24:36,350 --> 00:24:34,470  
the decline effect

561  
00:24:40,070 --> 00:24:36,360  
because you're doing the experiment

562  
00:24:43,879 --> 00:24:40,080  
simultaneously five replications and you

563  
00:24:46,070 --> 00:24:43,889

analyze the data simultaneously by five

564

00:24:49,999 --> 00:24:46,080

different groups at the same time would

565

00:24:52,100 --> 00:24:50,009

that be a way around it I'm just like

566

00:24:54,919 --> 00:24:52,110

you I hear you I think it's a good idea

567

00:24:59,149 --> 00:24:54,929

so maybe you could trick you could trick

568

00:25:01,610 --> 00:24:59,159

the you could trick it somehow if you if

569

00:25:03,740 --> 00:25:01,620

the novelty is is therefore for every

570

00:25:05,690 --> 00:25:03,750

research group if every research group

571

00:25:07,789 --> 00:25:05,700

is doing the same experiment for the

572

00:25:10,100 --> 00:25:07,799

first time yeah yeah then you might get

573

00:25:14,149 --> 00:25:10,110

around it I'm not sure yeah some that

574

00:25:16,050 --> 00:25:14,159

should be try yeah thank you all right