

1
00:00:00,000 --> 00:00:06,660
today and so my question is how do you

2
00:00:03,779 --> 00:00:09,959
avoid bilking and the answer comes from

3
00:00:06,660 --> 00:00:12,449
information entropy entropy has two

4
00:00:09,960 --> 00:00:15,570
forms the classical form is

5
00:00:12,449 --> 00:00:17,719
thermodynamics and at a previous SS a

6
00:00:15,570 --> 00:00:20,310
meeting I talked about this

7
00:00:17,719 --> 00:00:22,919
thermodynamic entropy and discussed how

8
00:00:20,309 --> 00:00:25,140
it can be used with regard to Sian

9
00:00:22,920 --> 00:00:26,730
formation there's another form of

10
00:00:25,140 --> 00:00:28,589
entropy and that is information entropy

11
00:00:26,730 --> 00:00:31,669
and that is the entropy that I'm going

12
00:00:28,589 --> 00:00:33,899
to be using today and it has been shown

13
00:00:31,669 --> 00:00:36,170
pretty much conclusively that

14
00:00:33,899 --> 00:00:41,039
information entropy is in fact identical

15
00:00:36,170 --> 00:00:43,890
to thermodynamic entropy so again this

16
00:00:41,039 --> 00:00:46,009
is a measure of disorder this

17
00:00:43,890 --> 00:00:48,120
information entropy can be expressed

18
00:00:46,009 --> 00:00:50,939
quantitatively and you can express it in

19
00:00:48,119 --> 00:00:53,698
terms of how surprised you are to learn

20
00:00:50,939 --> 00:00:56,308
that an intended outcome has occurred

21
00:00:53,698 --> 00:01:01,589
and that's called surprise elitsa

22
00:00:56,308 --> 00:01:03,479
technical term so if you know little it

23
00:01:01,590 --> 00:01:08,189
really is I didn't make it up if you

24
00:01:03,479 --> 00:01:10,739
know little about the outcome and it

25
00:01:08,188 --> 00:01:12,389
occurs then you will be very surprised

26
00:01:10,739 --> 00:01:16,469
if you know a lot you'll be less

27
00:01:12,390 --> 00:01:18,150
surprised and so this surprise ille is a

28
00:01:16,469 --> 00:01:22,349
measure of uncertainty and it's

29

00:01:18,150 --> 00:01:24,210
quantified in terms of entropy and so if

30
00:01:22,349 --> 00:01:26,849
you know little beforehand the

31
00:01:24,209 --> 00:01:29,039
information entropy is large and it

32
00:01:26,849 --> 00:01:31,769
turns out that in this case the

33
00:01:29,040 --> 00:01:35,790
possibility of retro psychokinesis is

34
00:01:31,769 --> 00:01:39,298
large this has been described and can be

35
00:01:35,790 --> 00:01:43,009
described quantitatively using entropy

36
00:01:39,299 --> 00:01:46,229
and surprise ille in information entropy

37
00:01:43,009 --> 00:01:47,969
an information theory involving

38
00:01:46,228 --> 00:01:52,049
Shannon's famous formula I'm not going

39
00:01:47,969 --> 00:01:55,170
to go into that right now so what are

40
00:01:52,049 --> 00:01:58,969
the implications of this approach in

41
00:01:55,170 --> 00:02:02,189
which we say that in fact you can have

42
00:01:58,968 --> 00:02:06,478
retro causation it does not contradict

43
00:02:02,188 --> 00:02:09,469

physics under certain conditions well we

44

00:02:06,478 --> 00:02:11,370

can say that retro causation is

45

00:02:09,469 --> 00:02:13,680

compatible and I haven't gone into that

46

00:02:11,370 --> 00:02:16,319

here with Newton's laws and

47

00:02:13,680 --> 00:02:18,689

of energy and I can say that the real

48

00:02:16,318 --> 00:02:22,679

question is one of the second law of

49

00:02:18,688 --> 00:02:25,169

thermodynamics and entropy is a vector

50

00:02:22,680 --> 00:02:27,180

causation compatible with that and I

51

00:02:25,169 --> 00:02:30,059

think that really is the question and

52

00:02:27,180 --> 00:02:32,189

that's how it ought to be posed why the

53

00:02:30,060 --> 00:02:35,340

second law of thermodynamics because the

54

00:02:32,188 --> 00:02:38,818

second law of thermodynamics is really

55

00:02:35,340 --> 00:02:43,280

just a description of logic it describes

56

00:02:38,818 --> 00:02:47,750

logically how a multi-part system by a

57

00:02:43,280 --> 00:02:52,408

probability must evolve over time so

58
00:02:47,750 --> 00:02:55,500
what I've done is I've linked logic from

59
00:02:52,408 --> 00:03:00,149
the second law of thermodynamics and the

60
00:02:55,500 --> 00:03:04,019
bilking paradox to produce what are the

61
00:03:00,150 --> 00:03:06,658
conditions for retro causation and we

62
00:03:04,019 --> 00:03:10,438
find that it's not not an all-or-nothing

63
00:03:06,658 --> 00:03:13,828
process but in fact it's a it's a part

64
00:03:10,438 --> 00:03:17,280
as a somewhat process and the greater

65
00:03:13,829 --> 00:03:20,329
our knowledge of a previous outcome the

66
00:03:17,280 --> 00:03:22,949
smaller the information entropy is and

67
00:03:20,329 --> 00:03:26,489
the smaller the interim information

68
00:03:22,949 --> 00:03:29,359
entropy is the less of an effect we can

69
00:03:26,489 --> 00:03:31,859
have on the past the lower our

70
00:03:29,359 --> 00:03:35,280
psychokinesis efficiency if we can

71
00:03:31,859 --> 00:03:39,840
define such a quantity so the bilking

72
00:03:35,280 --> 00:03:42,359
paradox disappears if psychokinesis is

73
00:03:39,840 --> 00:03:46,259
limited by uncertainty and that

74
00:03:42,359 --> 00:03:49,680
uncertainty is measured by information

75
00:03:46,258 --> 00:03:52,500
entropy and looking at it a little bit

76
00:03:49,680 --> 00:03:54,989
more in terms of quantities that we deal

77
00:03:52,500 --> 00:03:57,509
with every day in life it's limited by

78
00:03:54,989 --> 00:04:00,539
noise because the more noise that a

79
00:03:57,508 --> 00:04:02,638
system has the greater the entropy the

80
00:04:00,539 --> 00:04:07,560
information entropy is and the greater

81
00:04:02,639 --> 00:04:10,680
the psychokinesis can be and it this is

82
00:04:07,560 --> 00:04:13,680
consistent with other musings and

83
00:04:10,680 --> 00:04:16,019
studies which have linked sigh phenomena

84
00:04:13,680 --> 00:04:18,329
to noise in a system if you have a

85
00:04:16,019 --> 00:04:22,860
perfectly defined system with no

86

00:04:18,329 --> 00:04:25,210
randomness associated with noise then we

87
00:04:22,860 --> 00:04:38,610
cannot have a sigh phenomena

88
00:04:25,209 --> 00:04:38,609
thank you questions comments

89
00:04:41,800 --> 00:04:49,478
I was afraid of a question from York and

90
00:04:44,168 --> 00:04:53,250
here it comes some speculations by the

91
00:04:49,478 --> 00:04:58,740
late philosopher Robert Nozick about the

92
00:04:53,250 --> 00:05:01,389
the way truth values are related to time

93
00:04:58,740 --> 00:05:05,439
suggest an alternative scenario in which

94
00:05:01,389 --> 00:05:07,900
it is possible to win yesterday's

95
00:05:05,439 --> 00:05:14,918
lottery even after you already know the

96
00:05:07,899 --> 00:05:17,288
wrong ticket that if a retro PK can

97
00:05:14,918 --> 00:05:20,109
actually operate it would be in

98
00:05:17,288 --> 00:05:23,709
principle possible using Nozick's model

99
00:05:20,110 --> 00:05:25,689
that you make your PK effort you change

100
00:05:23,709 --> 00:05:29,019

this event in the past and then all

101

00:05:25,689 --> 00:05:31,329

causal carlitz change ah in which case

102

00:05:29,019 --> 00:05:33,189

you would find yourself completely

103

00:05:31,329 --> 00:05:35,709

forgetting everything that had happened

104

00:05:33,189 --> 00:05:38,199

before and you would simply have been

105

00:05:35,709 --> 00:05:39,758

holding the winning lottery ticket the

106

00:05:38,199 --> 00:05:42,879

whole time and there would be no point

107

00:05:39,759 --> 00:05:45,848

in this case of using the retro PK this

108

00:05:42,879 --> 00:05:50,139

is not a that this is not an internal

109

00:05:45,848 --> 00:05:52,810

contradiction because the of the way

110

00:05:50,139 --> 00:05:55,900

Nozick's truth values are handled and

111

00:05:52,810 --> 00:05:59,050

I'm wondering if you'd like to comment

112

00:05:55,899 --> 00:06:01,978

on this approach ok so that is one of a

113

00:05:59,050 --> 00:06:04,360

class of several philosophical

114

00:06:01,978 --> 00:06:06,990

descriptions of ways that you can

115
00:06:04,360 --> 00:06:11,259
uncaused something in the past to happen

116
00:06:06,990 --> 00:06:13,870
retro actively and I find them to be

117
00:06:11,259 --> 00:06:16,150
highly artificial and I see no

118
00:06:13,870 --> 00:06:19,000
experimental evidence for them it

119
00:06:16,149 --> 00:06:21,098
doesn't seem to relate in any way to

120
00:06:19,000 --> 00:06:25,538
what I understand is house I phenomena

121
00:06:21,098 --> 00:06:28,930
occur and although I think they're nice

122
00:06:25,538 --> 00:06:30,519
mind candy I don't think that they help

123
00:06:28,930 --> 00:06:34,810
us in understanding what's happening

124
00:06:30,519 --> 00:06:37,538
here so Garrett as a as a practical

125
00:06:34,810 --> 00:06:39,490
matter in doing this when you start

126
00:06:37,538 --> 00:06:42,699
thinking about picking the six numbers

127
00:06:39,490 --> 00:06:45,699
of the lottery out of the pool of 40 or

128
00:06:42,699 --> 00:06:47,259
so numbers doesn't I aren't those

129
00:06:45,699 --> 00:06:49,360
completely independent events and the

130
00:06:47,259 --> 00:06:51,338
knowledge of one really shouldn't have

131
00:06:49,360 --> 00:06:52,960
any effect on the on the others it just

132
00:06:51,338 --> 00:06:55,360
basically reduces the probability

133
00:06:52,959 --> 00:06:58,750
the of picking a one in 40 versus the

134
00:06:55,360 --> 00:07:01,330
next numbers of one and 39 so I'm not

135
00:06:58,750 --> 00:07:04,538
sure it's if you think about it as each

136
00:07:01,329 --> 00:07:07,240
each prediction or each information

137
00:07:04,538 --> 00:07:10,269
exchange is it is a independent event

138
00:07:07,240 --> 00:07:12,579
unless you're saying that you're at well

139
00:07:10,269 --> 00:07:14,168
those leave it there Darryl I think your

140
00:07:12,579 --> 00:07:17,709
point is well taken and particularly

141
00:07:14,168 --> 00:07:19,839
after my response to York and saying

142
00:07:17,709 --> 00:07:22,299
that York's examples were unrealistic

143

00:07:19,839 --> 00:07:26,138
you're pointing out that my example 2 is

144
00:07:22,300 --> 00:07:28,509
unrealistic and I agree with you

145
00:07:26,139 --> 00:07:30,639
actually the lottery example I put it up

146
00:07:28,509 --> 00:07:33,580
there because the numbers give us a good

147
00:07:30,639 --> 00:07:35,949
mechanism to kind of think how much of

148
00:07:33,579 --> 00:07:37,899
something do we know but I agree with

149
00:07:35,949 --> 00:07:39,520
you that there are problems with the

150
00:07:37,899 --> 00:07:41,469
lottery example and if we want to talk

151
00:07:39,519 --> 00:07:42,909
about a real example it would have to be

152
00:07:41,470 --> 00:07:44,919
some sort of a fuzziness of

153
00:07:42,910 --> 00:07:46,780
understanding an image or something like

154
00:07:44,918 --> 00:07:49,240
that where we've gotten certain parts of

155
00:07:46,779 --> 00:07:51,638
it so your point is well taken hey

156
00:07:49,240 --> 00:07:53,259
Garrett um I'm kind of going to ask a

157
00:07:51,639 --> 00:07:56,069

similar question to everybody else but

158

00:07:53,259 --> 00:07:58,270

then as everyone else but isn't there a

159

00:07:56,069 --> 00:08:00,129

can you always kind of have a broader

160

00:07:58,269 --> 00:08:02,978

system around the system that you're in

161

00:08:00,129 --> 00:08:05,139

where for example it turns out that your

162

00:08:02,978 --> 00:08:07,149

lottery information was a mistake or you

163

00:08:05,139 --> 00:08:11,740

misheard it or just kind of on and on

164

00:08:07,149 --> 00:08:13,120

and aren't those sort of things wouldn't

165

00:08:11,740 --> 00:08:17,800

they be governed by the same sorts of

166

00:08:13,120 --> 00:08:20,649

rules in a way so this mistake I I

167

00:08:17,800 --> 00:08:24,310

actually need a response from John this

168

00:08:20,649 --> 00:08:26,829

mistake is it part of the noise of a

169

00:08:24,310 --> 00:08:32,528

larger system or is it separate from the

170

00:08:26,829 --> 00:08:34,509

noise of a larger system you can always

171

00:08:32,528 --> 00:08:35,528

have a larger system effectively I mean

172
00:08:34,509 --> 00:08:37,179
at the end of the day you could keep

173
00:08:35,528 --> 00:08:38,769
working through these systems and then

174
00:08:37,179 --> 00:08:40,929
you could come upon an observation and

175
00:08:38,769 --> 00:08:43,028
say oh my god and then just wake up

176
00:08:40,929 --> 00:08:46,028
effectively so you know that's a silly

177
00:08:43,028 --> 00:08:47,860
philosophical way of looking at it but I

178
00:08:46,028 --> 00:08:50,379
don't know that we can talk about a

179
00:08:47,860 --> 00:08:52,419
system that's totally isolated including

180
00:08:50,379 --> 00:08:54,730
I agree with you and this is really a

181
00:08:52,419 --> 00:08:56,349
flaw of the law the second law of

182
00:08:54,730 --> 00:08:58,420
thermodynamics which says that you're

183
00:08:56,350 --> 00:09:00,278
dealing with a closed system and the

184
00:08:58,419 --> 00:09:01,870
entropy within that closed system act in

185
00:09:00,278 --> 00:09:05,379
a certain way and you're saying that

186
00:09:01,870 --> 00:09:06,548
really no system is closed and I agree

187
00:09:05,379 --> 00:09:13,019
Thank You Garrett it's time for our

188
00:09:06,548 --> 00:09:13,019
break thank you