

1
00:00:01,040 --> 00:00:07,020
we're in a long streak of people who

2
00:00:03,359 --> 00:00:09,900
need no introduction Roger Nelson was at

3
00:00:07,019 --> 00:00:14,428
the pear lab and princeton from 1982

4
00:00:09,900 --> 00:00:16,769
2002 in 1997 he started the global

5
00:00:14,429 --> 00:00:19,410
consciousness project is it forward and

6
00:00:16,769 --> 00:00:22,379
he wants you to know that although he

7
00:00:19,410 --> 00:00:24,000
retired from Princeton in 2002 his wife

8
00:00:22,379 --> 00:00:25,288
claims that he didn't really retire

9
00:00:24,000 --> 00:00:29,490
because of the global consciousness

10
00:00:25,289 --> 00:00:31,759
project so Roger thank you and good

11
00:00:29,489 --> 00:00:35,879
morning or as bob says whatever it is

12
00:00:31,759 --> 00:00:39,600
are these are wonderful long days I want

13
00:00:35,880 --> 00:00:44,190
to talk about basically the what amounts

14
00:00:39,600 --> 00:00:48,570
to hard-edged scientific statistically

15
00:00:44,189 --> 00:00:52,019
based material but i would like to start

16
00:00:48,570 --> 00:00:54,299
by mentioning that this project began

17
00:00:52,020 --> 00:00:56,550
because we were interested in

18
00:00:54,299 --> 00:00:57,959
consciousness we were interested in the

19
00:00:56,549 --> 00:01:00,479
possibility that there is inter

20
00:00:57,960 --> 00:01:01,890
connection among people that there might

21
00:01:00,479 --> 00:01:03,839
even be something that could be

22
00:01:01,890 --> 00:01:06,478
construed as a global consciousness I

23
00:01:03,840 --> 00:01:08,579
won't prove or demonstrate that

24
00:01:06,478 --> 00:01:12,209
necessarily but we have some very

25
00:01:08,579 --> 00:01:15,209
interesting results over time I guess

26
00:01:12,209 --> 00:01:18,179
most importantly I think we're able to

27
00:01:15,209 --> 00:01:22,069
show with clarity that there really is

28
00:01:18,180 --> 00:01:26,479
as gertrude stein said some there there

29

00:01:22,069 --> 00:01:30,868
the odds are of this being just chances

30
00:01:26,478 --> 00:01:32,609
million to one or ten million to one we

31
00:01:30,868 --> 00:01:34,759
have independent measures and they're

32
00:01:32,609 --> 00:01:38,489
correlated they have correlated response

33
00:01:34,759 --> 00:01:40,469
to these events there's some structure

34
00:01:38,489 --> 00:01:44,219
in terms of distance in terms of time

35
00:01:40,469 --> 00:01:45,769
and also in terms of what you might

36
00:01:44,219 --> 00:01:48,989
think of the psychological qualities

37
00:01:45,769 --> 00:01:52,009
there's a lot of structure where there

38
00:01:48,989 --> 00:01:54,810
shouldn't be any this is what the

39
00:01:52,009 --> 00:01:56,519
network looks like inter has spread out

40
00:01:54,810 --> 00:01:59,189
over the world we'll see a lot of

41
00:01:56,519 --> 00:02:00,929
concentration in the US and Europe but

42
00:01:59,188 --> 00:02:03,359
we have tried to get a distribution that

43
00:02:00,930 --> 00:02:08,310

was big enough so we could ask questions

44

00:02:03,359 --> 00:02:10,830

about distance the data flow through the

45

00:02:08,310 --> 00:02:12,180

internet to Princeton and that's what

46

00:02:10,830 --> 00:02:13,440

the data looked like when they are

47

00:02:12,180 --> 00:02:16,680

coming in

48

00:02:13,439 --> 00:02:19,859

we have to do a lot of processing to

49

00:02:16,680 --> 00:02:22,140

make sense or make find out whether

50

00:02:19,860 --> 00:02:26,100

they're in indeed is in any kind of

51

00:02:22,139 --> 00:02:29,399

structure in the data the we look at

52

00:02:26,099 --> 00:02:33,049

each of the devices which we often call

53

00:02:29,400 --> 00:02:35,370

eggs there that's a node in the network

54

00:02:33,050 --> 00:02:38,370

it's a random event generator with

55

00:02:35,370 --> 00:02:40,289

custom software and if we look at them

56

00:02:38,370 --> 00:02:43,740

separately and then calculate an average

57

00:02:40,289 --> 00:02:45,719

of their accumulating deviation over

58
00:02:43,740 --> 00:02:50,850
time it will look something like this

59
00:02:45,719 --> 00:02:54,960
black summary trace and it may look

60
00:02:50,849 --> 00:02:59,819
like this in our formal experiments we

61
00:02:54,960 --> 00:03:01,730
first define the event we figure out we

62
00:02:59,819 --> 00:03:04,459
decide that there's an interesting event

63
00:03:01,729 --> 00:03:07,139
something that might possibly affect

64
00:03:04,460 --> 00:03:09,570
global consciousness if you will by

65
00:03:07,139 --> 00:03:12,299
because it makes an awful lot of people

66
00:03:09,569 --> 00:03:15,419
feel the same emotions think the same

67
00:03:12,300 --> 00:03:19,400
kind of thoughts so we discover the

68
00:03:15,419 --> 00:03:22,379
event in the news Perhaps and then we

69
00:03:19,400 --> 00:03:24,569
define the beginning and end and extract

70
00:03:22,379 --> 00:03:27,750
the data and do the calculations so the

71
00:03:24,569 --> 00:03:31,709
experiment is done in a hypothesis

72
00:03:27,750 --> 00:03:34,139
testing since we know a ahead of time

73
00:03:31,709 --> 00:03:38,099
without looking at the data which data

74
00:03:34,139 --> 00:03:40,049
we're interested in and we often show

75
00:03:38,099 --> 00:03:43,849
use these kind of figures to plot the

76
00:03:40,050 --> 00:03:48,090
result they're really just a historical

77
00:03:43,849 --> 00:03:50,759
record of the duration of the event but

78
00:03:48,090 --> 00:03:53,370
this point at the end is the point we're

79
00:03:50,759 --> 00:03:57,389
interested in in terms of a bottom-line

80
00:03:53,370 --> 00:03:58,920
statistic for each of the events here I

81
00:03:57,389 --> 00:04:01,559
will just give you two or three examples

82
00:03:58,919 --> 00:04:05,129
and then get on to the kind of analytic

83
00:04:01,560 --> 00:04:09,180
details this is sep tember 11th in the

84
00:04:05,129 --> 00:04:11,250
context of a week of surrounding days so

85
00:04:09,180 --> 00:04:13,769
we if we look at at the our first

86

00:04:11,250 --> 00:04:15,930
prediction really only encompassed four

87
00:04:13,769 --> 00:04:18,509
hours that's the formal prediction and

88
00:04:15,930 --> 00:04:20,759
it was marginally significant it was at

89
00:04:18,509 --> 00:04:24,689
the point 0 2 level or something like

90
00:04:20,759 --> 00:04:26,670
that had we realized the magnitude and

91
00:04:24,689 --> 00:04:30,899
and consciousness space we might have

92
00:04:26,670 --> 00:04:33,720
said let's look at two days that effect

93
00:04:30,899 --> 00:04:36,000
in the data data should look like what

94
00:04:33,720 --> 00:04:38,880
it looks like on the left a kind of

95
00:04:36,000 --> 00:04:42,509
random walk with a level trend and and

96
00:04:38,879 --> 00:04:45,089
of course you see when we examine over a

97
00:04:42,509 --> 00:04:48,629
longer period of time there's a

98
00:04:45,089 --> 00:04:50,849
tremendous persistence in the effect a

99
00:04:48,629 --> 00:04:52,350
big deviation that's apparently

100
00:04:50,850 --> 00:04:56,160

associated with the feelings and

101

00:04:52,350 --> 00:04:58,110

thoughts that people had this one is a

102

00:04:56,160 --> 00:05:00,630

completely different kind of event this

103

00:04:58,110 --> 00:05:04,050

one was a planned and organized

104

00:05:00,629 --> 00:05:06,300

synchronized meditation which we as best

105

00:05:04,050 --> 00:05:08,699

we can tell involved about a half a

106

00:05:06,300 --> 00:05:10,500

million people around the world that's

107

00:05:08,699 --> 00:05:13,229

not a huge number in comparison to what

108

00:05:10,500 --> 00:05:16,259

911 might produce nevertheless there's a

109

00:05:13,230 --> 00:05:20,129

powerful deviation from the expected

110

00:05:16,259 --> 00:05:22,980

level trend another completely different

111

00:05:20,129 --> 00:05:24,750

kind of event new years we've now had

112

00:05:22,980 --> 00:05:27,270

ten new years that we could look at and

113

00:05:24,750 --> 00:05:30,240

the question one of the questions we

114

00:05:27,269 --> 00:05:33,479

asked is does the variability of the

115
00:05:30,240 --> 00:05:36,810
data stay constant or does it decrease

116
00:05:33,480 --> 00:05:38,280
and as you can see a few minutes before

117
00:05:36,810 --> 00:05:41,250
midnight when people are beginning to

118
00:05:38,279 --> 00:05:44,939
think Midnight's coming I am I have to

119
00:05:41,250 --> 00:05:46,649
find my partner so I can get a hug or I

120
00:05:44,939 --> 00:05:49,949
have to get my glass ready so I can

121
00:05:46,649 --> 00:05:54,029
toast the new year and so forth fairly

122
00:05:49,949 --> 00:05:58,139
strong evidence that there's even in an

123
00:05:54,029 --> 00:06:01,859
unimportant event and this coalescence

124
00:05:58,139 --> 00:06:05,370
of large numbers of people in a similar

125
00:06:01,860 --> 00:06:08,850
direction or the same interest can

126
00:06:05,370 --> 00:06:11,310
produce an effect on our random event

127
00:06:08,850 --> 00:06:14,930
generator network this is a picture of

128
00:06:11,310 --> 00:06:19,470
the data over almost ten years there are

129
00:06:14,930 --> 00:06:20,939
250 events and the cumulative even

130
00:06:19,470 --> 00:06:22,590
though sometimes it's backwards

131
00:06:20,939 --> 00:06:25,980
sometimes we're flat sometimes there's

132
00:06:22,589 --> 00:06:27,750
no kind of effect the tendency is for

133
00:06:25,980 --> 00:06:30,180
there to be in effect it's relatively

134
00:06:27,750 --> 00:06:33,089
small but the accumulation over such a

135
00:06:30,180 --> 00:06:36,300
large number of formal trials is highly

136
00:06:33,089 --> 00:06:38,709
significant with a z-score equivalent to

137
00:06:36,300 --> 00:06:44,579
five plus standard

138
00:06:38,709 --> 00:06:49,060
creations million one odds or smaller

139
00:06:44,579 --> 00:06:50,680
the independent statistics are we have

140
00:06:49,060 --> 00:06:53,980
names for them we call one of them

141
00:06:50,680 --> 00:06:57,220
network variance or net net far and a

142
00:06:53,980 --> 00:06:59,310
second one which is called kovar they're

143

00:06:57,220 --> 00:07:02,950
really pair products in one case of

144
00:06:59,310 --> 00:07:05,009
z-scores in the other case of squared c

145
00:07:02,949 --> 00:07:09,339
scores one is more responsive to

146
00:07:05,009 --> 00:07:14,110
distance implications and one more

147
00:07:09,339 --> 00:07:19,389
responsive to temporal interconnections

148
00:07:14,110 --> 00:07:21,759
in the data if we plot those over time

149
00:07:19,389 --> 00:07:25,000
that we see and compare that with the

150
00:07:21,759 --> 00:07:27,310
kind of control data the gray cloud is a

151
00:07:25,000 --> 00:07:30,120
thousand resampling from the database

152
00:07:27,310 --> 00:07:31,959
with the same kind of the same event

153
00:07:30,120 --> 00:07:34,660
definitions except now they're just

154
00:07:31,959 --> 00:07:37,169
randomly pieces of data randomly

155
00:07:34,660 --> 00:07:40,030
extracted that's a kind of background

156
00:07:37,170 --> 00:07:42,879
that we would you expect from truly

157
00:07:40,029 --> 00:07:44,459

random data all three or both of those

158

00:07:42,879 --> 00:07:47,219

measures or a combination of those

159

00:07:44,459 --> 00:07:49,870

independent measures show pretty strong

160

00:07:47,220 --> 00:07:53,290

difference here's another way to look at

161

00:07:49,870 --> 00:07:56,949

the independent measure question we

162

00:07:53,290 --> 00:08:00,850

created a random sample of pseudo events

163

00:07:56,949 --> 00:08:02,860

with a an effect size equivalent to what

164

00:08:00,850 --> 00:08:05,050

we find in a database and that blue

165

00:08:02,860 --> 00:08:08,580

curve shows what happens not

166

00:08:05,050 --> 00:08:13,480

unexpectedly because we've constructed a

167

00:08:08,579 --> 00:08:16,750

powerful large database of small effect

168

00:08:13,480 --> 00:08:19,780

sizes we get a peek z score of seven or

169

00:08:16,750 --> 00:08:22,089

eight standard deviations now the neck

170

00:08:19,779 --> 00:08:24,539

the question is what happens if we on

171

00:08:22,089 --> 00:08:28,149

these pseudo events calculate the same

172
00:08:24,540 --> 00:08:30,760
kind of the same do the same

173
00:08:28,149 --> 00:08:33,129
calculations but now with our covariance

174
00:08:30,759 --> 00:08:35,830
measure and the red tray shows that

175
00:08:33,129 --> 00:08:38,139
there's basically no nothing there this

176
00:08:35,830 --> 00:08:40,170
is a I think of good demonstration of

177
00:08:38,139 --> 00:08:42,879
the true independence of these measures

178
00:08:40,169 --> 00:08:47,679
now going on to some of the other is the

179
00:08:42,879 --> 00:08:51,340
structure we see that if we move the

180
00:08:47,679 --> 00:08:52,479
event from its real time slide it toward

181
00:08:51,340 --> 00:08:58,320
the future toward

182
00:08:52,480 --> 00:09:02,620
past we quickly lose the high high

183
00:08:58,320 --> 00:09:04,570
departure from expectation and and enter

184
00:09:02,620 --> 00:09:06,129
in a kind of random space this also

185
00:09:04,570 --> 00:09:08,199
answers the question that some people

186
00:09:06,129 --> 00:09:10,328
ask aren't there a lot of other spikes

187
00:09:08,198 --> 00:09:12,879
in the database and this in a sense

188
00:09:10,328 --> 00:09:15,099
shows that the spikes associated with

189
00:09:12,879 --> 00:09:17,980
the events that are predefined are

190
00:09:15,100 --> 00:09:20,860
themselves spectacular the correlation

191
00:09:17,980 --> 00:09:25,089
between the two measures is shown in the

192
00:09:20,860 --> 00:09:27,579
right hand figure they both are centered

193
00:09:25,089 --> 00:09:32,260
on the time of the real event and if you

194
00:09:27,578 --> 00:09:35,669
move the event artificially from either

195
00:09:32,259 --> 00:09:39,819
to the future of the past it changes

196
00:09:35,669 --> 00:09:42,490
another version of time structure this

197
00:09:39,820 --> 00:09:44,829
by the way I should I believe was on the

198
00:09:42,490 --> 00:09:48,940
first lie but much of this work is that

199
00:09:44,828 --> 00:09:51,549
is from Peter Bensele who was here at the

200

00:09:48,940 --> 00:09:55,810
SSC meeting and gave a present

201
00:09:51,549 --> 00:09:58,240
presentation last year he in this case

202
00:09:55,809 --> 00:10:01,859
looked at the correlation between our

203
00:09:58,240 --> 00:10:01,860
two independent measures they've