WHO'S CALLING AT THIS HOUR? LOCAL SIDEREAL TIME AND TELEPHONE TELEPATHY

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ABSTRACT

Can we guess who is calling us on the phone before picking up, and does local sidereal time (LST) affect how often we guess right? Reviews of anomalous cognition studies have shown that effect sizes are highest around 13.30 LST (Spottiswoode, 1997). A post-hoc analysis of telephone telepathy data of Sheldrake (2003) also showed a peak at that time. LST (peak or non-peak) was an independent variable in our prospective telephone telepathy study. Six women who indicated they often experienced telephone telepathy were selected to participate. Each participant chose four close friends or relatives to act as callers. All completed a total of 36 trials; six sessions of six trials each, three sessions at peak time (between 8.00 and 9.00 local time) and three at non-peak time (between 17.30 and 18.30 local time). One of the experimenters was at the participant's home during the sessions. The experimenter made sure no irregular communication was going on and logged times of the calls and responses of the participant. At a different location another experimenter used a dice to select a caller about five minutes before the scheduled trial. Then he or she contacted the caller who was asked to call the participant in five minutes and to concentrate his or her thoughts on the participant for the last two minutes before the call was made. When the phone rang at the participant's home, the participant guessed who she thought was calling before picking up. Analyses show a significant over-all scoring rate of 29.4% ($p = .05$). Almost all of this effect originates from the sessions at peak time with a scoring rate of 34.6%. Exploratory analyses show that a stronger emotional bond between particpant and caller is associated with a higher hitrate. It is concluded that results provide tentative support for the hypothesis that Local Sidereal Time is related to a phenomenon like telephone telepathy. In addition, the results are in support of the existence of telephone telepathy. Other explanations of the anomalous effect cannot be ruled out, such as precognition, retro psychokinesis by the experimenter or the participant so the dice throw would coincide with the particular caller the participant would guess, or clairvoyance of the dice throws. Future studies should aim at teasing apart the supposed effects of LST and local time on 'telephone telepathy.'

INTRODUCTION

You are at home. The phone rings. And you know who is calling before answering. This kind of 'telephone telepathy' appears to be an ordinary phenomenon, although some of us appear to be better at it than others. A number of studies with pre-selected individuals who performed above chance in a pilot study showed evidence that some people are quite good at guessing who is calling them, especially when the callers are good friends or relatives (Sheldrake, 2003).

Interestingly, there is evidence that telephone telepathy, which is considered to be a form of anomalous cognition (AC), not only varies among individuals, but also varies along the hours of the day, or more accurately, by local sidereal time (LST). In a large sample of anomalous cognition studies, Spottiswoode (1997) found that effect sizes were highest around 13.30 h LST. Although there is no obvious explanation for such a finding, the same distribution of effect sizes was confirmed in a separate sample of anomolous cognition studies. Submitting Sheldrake's telephone telepathy data to the same procedure, these again showed the largest effect sizes around 13.30 h LST (Spottiswoode, 2003).

These findings are very suggestive, but they are post-hoc analyses, and therefore a prospective study is much needed. Our goal was to replicate the telephone telepathy study of Sheldrake, and use LST as a within-subjects independent variable.

Although we implemented a few changes in order to obviate criticisms aimed at Sheldrake's (2003) studies, the general lay-out of our study was very similar. Participants were at home, since a familiar

environment is assumed to foster telepathic sensitivity, and would receive several phone calls on their landline phone (without number display), in a previously arranged period of time. The participant knew that the dice thrown by the experimenter at some different location would determine which one of four different callers would be calling. Before picking up, the participant would state clearly who it was.

Instead of audio- or videotaping the sessions as Sheldrake did, we chose to have one of the other experimenters visit the participant, in order to check if there were no other types of communication going on before the phone calls were being made so as to preclude any suspicions of hidden accomplices.

All participants took part in six sessions, three at peak LST (peak condition), around 13.30 h LST, and three at non-peak LST (non-peak condition) around 00.00 h LST. Participants were not informed of the LST hypothesis.

Although Spottiswoode's analyses showed that the lowest AC effect sizes occurred around 18.00 h LST, we chose 00.00 h LST as our non-peak time for a pragmatic reason. When this experiment was conducted (December 2003 / January 2004, Amsterdam, The Netherlands), peak LST was between 8.00 and 9.00 AM, and Spottiswoode's low at 18.00 LST would be around lunch time. We reasoned that it would be difficult to organize sessions at the participants' homes around that time, and instead chose to conduct the non-peak sessions around 00.00 LST, which was between 6.30 and 7.30 PM local time. According to Spottiswoode's analyses, this would be a time of about average effect sizes.

METHOD

Participants

Participants were recruited through e-mails sent to friends and acquaintances of the experimenters. They had to meet four requirements: they had to be available at the scheduled times, live close enough to one of the experimenters, find four good friends or relatives to cooperate, and have experienced that they often guessed correctly who was calling them on the phone.

Six women, aged 16, 19, 20, 21, 21, and 54 were selected. They received €40 for taking part in all six sessions. The callers, four for each participant, 24 in total, each received €15. Participants were at home during all sessions. Callers could be anywhere, as long as they could be reached by phone.

Materials

Local Sidereal Time. Local sidereal times were calculated by means of on online scheduler, Local Sidereal Time – Monthly experiment scheduler for PSI research (Melssen, 2003).

Number of sessions and trials. Each participant took part in six sessions, three at peak and three at non-peak LST. Each session consisted of six trials, so there were about ten minutes in between the calls. Participants were each called 36 times, the total number of trials was 216.

Emotional bond. Before the start of the first session, the participants indicated their emotional bond with each of the four selected callers on a five point scale from 1, 'good emotional bond', to 5, 'very strong emotional bond'.

Logs. There were two logs, one was kept by the experimenter visiting the participant ('visiting experimenter'), and the other one was kept by the experimenter selecting the callers ('control experimenter'). Both logs bore the name of the participant and names of the callers, date, LST condition and session number.

The control experimenter wrote down the time at which each call was made to the selected caller, and who was selected to make the call. Any irregularities, such as when a caller couldn't be reached, were also logged.

The visiting experimenter wrote down the time the participant received the call, the response of the participant and whether it was a hit or a miss, according to the participant.

Randomization. A number between one and four was pre-assigned to each caller. A dice thrown by the control experimenter determined which caller had to make a particular call. Five and six were disregarded.

Procedure

Just before the scheduled time, the visiting experimenter arrived at the participant's home and checked if everything was in order. He or she then retreated to a different room, within hearing distance of the participant, but out of sight, so as to disturb the home environment of the participant as little as possible.

The callers weren't at any specific location, but were asked to be available by phone at the scheduled times.

At the start of each session, the control experimenter contacted the four callers and the participant to tell them that the session had started and to check if everything was ready at the participant's home. If it turned out that not all callers were available at the start of the session, the procedure was still followed through.

Before each trial, the control experimenter threw a dice to select the caller for that trial. The caller was told to call the participant in five minutes, and to concentrate his or her thoughts on the participant for the last two minutes before making the call. If the caller's line was busy or if the caller didn't answer, the control experimenter contacted the caller again in three minutes and asked the caller to call the participant in two minutes. If the line was still busy or the caller was still unavailable, the experimenter would throw the dice again to select another caller.

When the phone rang at the participant's home, the participant said who she thought was calling, and the response was logged by the visiting experimenter. The participant then answered the phone and told the visiting experimenter whether she was right or wrong.

After six trials the control experimenter contacted the callers to tell them that the session was over, to thank them for their cooperation and to remind them of the next session.

RESULTS

Session integrity

Logs of the two experimenters were put together in one datafile. In two cases we found a discrepancy between the two logs. According to the logs, the participant's guess and the caller were the same, so it should have been a hit, but the visiting experimenter had logged it as a miss. These two trials were further considered as missing values.

The logs showed that in ten of the 36 sessions, one or more of the callers were partly or totally unavailable for various reasons. They could have missed the appointment entirely, or could have forgotten to turn there mobile on in time. In a number of cases, a caller was not available during part of a session, e.g., because she was taking a shower. It seemed unlikely, though not impossible, that the participant would know about the absence of one of the callers. The chances of guessing correctly if one is aware of the absence of a caller is 1/3 rather than the a priori hit probability of 1/4. Therefore we decided to analyse the data twice: once with all sessions included (Table 1), and once again with only the regular sessions (Table 2).

Distribution and randomness

To acquire an indication of the 'randomness' of the dice throws and the participants' guesses, we checked the frequency distributions for all trials and all consecutive pairs of trials.

The frequency distribution of dice throws and of the participants' guesses did not differ from the expected 25% for each of the four options, χ^2 (3) = 3.53, $p > .3$ and χ^2 (3) = 4.51, $p > .2$ respectively.

As an indication of the randomness of the sequences, we looked at all pairs of consecutive dice throws and guesses. If the sequences are random, consecutive pairs of similar numbers (in this case 11, 22, 33, and

44) are expected to make up 25% of the total of all consecutive pairs, while 75% of the pairs would be dissimilar.

For the dice, 35 (20%) of the 179 consecutive pairs contained similar numbers, less than expected according to chance. The difference with chance expectation was not statistically significant, however, χ^2 (1) = 2.83, p =.09.

For the guesses, 52 (29%) of the 179 consecutive pairs contained similar numbers, more than expected according to chance, but again the difference was not statistically significant, χ^2 (1) = 1.47, p = .23.

Although these tests cannot firmly establish whether the sequences are truly random, it should be noted that the deviations from chance expectation for dice throws and guesses are in opposite directions. This means that it is highly unlikely that peculiarities of the sequences per se could account for an above chance hitrate.

Over-all hitrates

Table 1: Number and expected number of hits at peak LST sessions, non-peak LST sessions and total

	PEAK			NON-PEAK			TOTAL		
PARTICIPANT	trials	hits	H_{exp}	trials	hits	H_{exp}	trials	hits	H_{exp}
1	18	8	4.50	18	4	4.50	36	12	9.00
2	18	5	4.50	18	4	4.50	36	9	9.00
3	18	6	4.50	18	2	4.50	36	8	9.00
4	17	4	4.25	18	6	4.50	35	10	8.75
5	18	9	4.50	17	4	4.25	35	13	8.75
6	18	5	4.50	18	6	4.50	36	11	9.00
total	107	37	26.75	107	27	26.75	214	63	53.50

Notes: Total number of sessions was 36, 18 at peak and 18 at non-peak LST. Each participant took part in 6 sessions (3 at peak and 3 at non-peak LST), and received 6 calls per session. For two trials, one peak-trial for participant 4 and one non-peak trial for participant 5, the logs of the experimenters showed discrepancies. These trials are therefore registered as missing values. H_{exp} indicates the expected number of hits.

Pooling peak and non-peak conditions together, the over-all scoring rate is 29.4% with all sessions included (Table 1) and 32.7% for the subset of sessions that confirmed strictly to the protocol (Table 2). Testing individual scoring rates of the participants against expected scoring rates (25%), a paired-samples t-test shows that scoring rates are significantly above chance, t(5)=2.01, p=0.05 (one-tailed) when all sessions are included (Table 1), and also for the subset of the 26 regular sessions (Table 2), t(5)=5.48, p<.005 (one-tailed).

Table 2: Number and expected number of hits at peak LST sessions, non-peak LST sessions and total for the 26 sessions where callers were available throughout

	PEAK			NON-PEAK			TOTAL		
PARTICIPANT	trials	hits	H_{exp}	trials	hits	H_{exp}	trials	hits	H_{exp}
1	12	6	3.00	18	4	4.50	30	10	7.50
2	18	5	4.50	12	4	3.00	30	9	7.50
3	12	4	3.00	~	~	~	12	4	3.00
4	12	3	3.00	18	6	4.50	30	9	7.50
5	18	9	4.50	12	2	3.00	30	11	7.50
6	18	5	4.50	6	3	1.50	24	8	6.00
total	90	32	22.50	66	19	16.50	156	51	39.00

Note: Results are based on 15 peak sessions and 11 non-peak sessions, a total of 26 sessions. See also the notes at Table 1.

Telephone telepathy and LST

As Table 1 shows, the scoring rate was higher than expected in the peak condition (34.6%), while it was around chance (25.2%) in the non-peak condition. To test the statistical significance of this 9.4% difference, we compared scoring rates in peak and non-peak condition for each participant. A paired-samples *t*-test showed that scoring rates were marginally significantly different between peak and non-peak condition, $t(5)=1.60$, $p=.09$ (one-tailed).

For the sessions in which all callers were available throughout (Table 2), the average scoring rate was 35.6% for the peak and 28.8% for the non-peak condition. This time, we could only compare five participants, because all non-peak sessions of one participant had to be dropped from analysis. The difference of 6.8% between peak and non-peak condition was not statistically significant.

Emotional Bond and Hitrates

The average emotional bond with the callers was $M=3.71$ ($sd=1.12$), indicating that the participants had indeed a strong emotional bond with the callers. To explore the extent of response bias due to emotional bond, we calculated the correlation between emotional bond and the number of times a participant guessed a particular caller. This correlation was performed using all 214 trials, after normalizing the variables, and turned out to be not significantly different from zero, $r=.20$, *ns*.

To explore if emotional bond between participant and caller was related to success at guessing, we again first normalized the emotional bond ratings and scoring rates for each participant separately, including all 214 trials. The correlations between emotional bond and scoring rate ranged from –0.73 to 1.00. Five of the six participants showed a positive correlation. Overall correlation between emotional bond and scoring rate was $r=.41$, $p<.05$. Controlling for response bias (the number of times the participant guessed a particular caller), the correlation between emotional bond and hitrate still reached about the same value, $r=.39$, $p=.07$.

DISCUSSION

Results show weak support for the hypothesis that Local Sidereal Time affects an anomalous cognition phenomenon like telephone telepathy. Our sample was rather small, and the large number of sessions that showed irregularities further weakened the power of our statistical analyses. However, the results are still promising and replications are warranted.

Future studies should take into account that this single study could not separate the effects of local time and local *sidereal* time. It is possible that the tentative support for the LST hypothesis must be attributed to the fact that the LST peak sessions were all conducted early in the morning. Although we are not aware of any evidence that anomalous cognition effects are related to the time of day, it cannot be excluded. When the LST peak times are during the evening, however, it will always be summer at this location of the globe. Type of season is another factor that could potentially affect telephone telepathy. Replications in other continents are therefore especially helpful to gather more evidence concerning the effect of LST on anomalous cognition.

Results are more supportive of the existence of telephone telepathy. Overall, our participants guessed correctly more often than would have been expected according to chance. The evidence is not as impressive as the 45% results reported by Sheldrake (2003), however, which may have been due to his preselection of participants through a pilot study, while we employed a rather loose selection criterion by including only those participants who reported to have had experiences of telephone telepathy in the past.

The correlation between emotional bond and hitrate in our study showed that even in a relatively homogeneous group of friends and relatives, people still appear to be better at guessing those callers with whom they have the strongest emotional bond. This result is in line with Sheldrake's findings.

The effect size reported here is very close to the typical effect size found in Ganzfeld experiments. Thus the required number of trials from a power perspective (power=0.5) is between 200 and 250 to obtain a

result significant at the 5% level. However, there is a huge difference in time investment to obtain this result. We ran 12 trials per day while in Ganzfeld research it is typically 1.

Could the telephone telepathy in this experiment be explained by more 'ordinary' circumstances during the experiment?

There are some concerns.

Logs were kept by hand and experimenters could have made errors. In fact, we identified two errors (in a total of 214 trials), where the response of the participant and the name of the caller matched, but the log of the visiting experimenter nevertheless registered a miss. We treated these two instances as missing trials. Although there may have been one or two additional but undiscovered mistakes in registering the name of the caller or the actual response of the participant, it seems highly unlikely that a hit or a miss was logged inaccurately. There were only six trials in an hour, and both the participant and the experimenter were very keen on the outcome of every trial.

Could the callers have notified the participant before the call was made? This seems possible, using mobile phones in the buzz mode. A potential caller could have a code of 1, 2 or 3 buzzes before hanging up. The visiting experimenter was aware of this option, however. Furthermore, there was not much time left for the caller between being contacted by the control experimenter and making the actual call to the participant.

The participant could know some callers to be late, and this might produce subtle timing differences between callers. We had discussed the adoption of a random timing procedure, so the control experimenter would contact the callers at varying time intervals, instead of keeping to a ten-minute interval, as was the case now. However, we suspected that the timing of trials would be subject to some fluctuations anyway, e.g., when it would take the experimenter longer to throw a number under five, or when the caller was not directly available. Nevertheless, timing differences between callers might still provide an explanation of correct guesses at some trials, and future studies should consider a random timing procedure, in combination with a less cumbersome randomization procedure.

Lastly, there might have been a collusion between student experimenters and student subjects. Only replications with extra technical security measures might be able to make this type of explanations less acceptable.

It seems, nonetheless, that the results of this study provide further evidence for the existence of some anomalous effect, but should we call it 'telepathy'? In spite of using instructions for the caller to concentrate and think about the person to be called, instructions consistent with the telepathy model, some other options are possible.

First, there could be precognition at work. Precognition appears to be dependent on the time between the guess and the feedback and in this study, this time was short and hence could have produced good precognition results. Second, psi could have entered at the experimenter randomization level. That is, the dice throwing was such that it correlated with what the participant would say anyway. This could be seen as retro psychokinesis by the experimenter or the participant. And finally, it could be clairvoyance: The participant could be 'tuned' to the dice being thrown by the experimenter and know who was selected for the call as soon as 'the die was cast.' Considering this option, we inspected the trials in which the dice indicated a particular caller who later turned out to be unavailable. This happened at eight trials. In five of these eight trials, the participant guessed the name of the caller who should have called if he had been available (exact binomial p=.03). Of course, instead of clairvoyance, the 'missed hits' could also indicate telepathy with the control experimenter. Note that the finding that participants still mentioned the names of callers who turned out to be unavailable, counters the suggestion that 'psi' effects could have resulted because the participant was somehow informed of the absence of one of the callers.

In light of the generally unsuccessful replications of psi research at the university of Amsterdam the current results should be considered as a recommendation for further exploration of the telephone telepathy paradigm.

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