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RESEARCH NOTE: CAN PEOPLE TELL WHEN THEY ARE BEING LISTENED TO ON TELEPHONES?

By Rupert Sheldrake, Tom Stedall & Pam Smart

ABSTRACT

In surveys, most people say they have detected being stared at, and/or that by staring they have made people turn around and look back at them. We investigated whether there is a comparable sense of being listened to. Can people tell when another person is listening to them on the telephone? In automated, randomized tests conducted on telephones, people worked in pairs. In some trials one person spoke, and in others the other person spoke. In all trials the listener was muted to prevent the speaker receiving any auditory cues. In about half the trials, randomly selected, the listener heard the speaker, and in the other half the listener heard music instead. At the end of each trial, the speakers indicated whether or not they felt they were being listened to. In a total of 1895 trials, the overall hit rate was 51.1%, not significantly above the chance level of 50%. Hit rates did not improve with practice. This null result suggests that acoustaesthesia is either weak or non-existent. We suggest further experiments involving radio, with potentially millions of listeners, to find out if more listeners produce a measurable effect.

Introduction

People in conversation with others can usually tell when they are being listened to through visual signals like nods and eye contact, or through auditory signals like "uh-huh". They can also tell if they are not being listened to, especially if the other person falls asleep and starts snoring. All this is obvious. But is there a more subtle sense of being listened to, in the absence of the usual visual and auditory cues, for example when someone is eavesdropping or listening on the telephone? In such cases, when the listener is invisible and inaudible, can a person tell when someone else is paying attention to their speech?

We were prompted to ask this question by research on the sense of being stared at, or *scopaesthesia*. There is now much evidence from case studies, interviews with detectives, surveillance officers and photographers, surveys and experimental tests (Sheldrake, 2003) that many people can detect when they are being stared at from behind, in the absence of any visual, olfactory, or auditory cues—as, for example in experiments in which they are blindfolded

and stared at through closed windows or one-way mirrors (Sheldrake, 2005). Even when watched through closed-circuit TV, on average, people respond physiologically through changes in their galvanic skin response (Schmidt et al., 2004).

Scopaesthesia seems to be widespread in the animal kingdom and may have evolved in the context of predator–prey relationships (Sheldrake, 2003). A prey animal that could feel when a hidden predator was looking at it would tend to escape better than one that was insensitive.

Is there a sense of being listened to analogous to the sense of being stared at? This question was asked by Friday and Luke (2015), who proposed the term *acoustasthesia* for this putative ability. We follow them in adopting this term, but change the spelling to *acoustaesthesia*, reflecting the spelling of the Greek *aesthesia* (= feeling). (In the USA, "aesthesia" is usually spelled "esthesia", so the US spelling of this new term would be acoustesthesia.) This term includes a possible ability to detect, without normal sensory cues, both when someone else is listening directly, as in eavesdropping from an adjacent room, and also when the listener is at a distance and listening though the telephone or internet. In both cases, acoustaesthesia would involve the ability to detect someone else's auditory attention, and perhaps also the listener's intentions.

As far as we know, Friday (2019) was the first person to investigate acoustaesthesia empirically. In tests in which people were either listened to, watched, or watched and listened to by a nearby unseen observer in a randomized series of trials, he found no evidence for acoustaesthesia, whereas there was a significant effect of scopaesthesia.

In both scopaesthesia and putative acoustaesthesia, the subject is the object of another person's attention. In scopaesthesia this attention is visual: the starers gaze at the subjects, directing their attention through their eyes. In listening, listeners focus attention on the subjects' speech, but this is not necessarily directional. For example, hearing someone speak on the telephone gives no clue as to where that person is located.

In our collection of more than 6,000 reports of seemingly psychic human behaviour, more than 1,130 concern scopaesthesia, but only 13 relate to possible acoustaesthesia. This suggests that the latter is much rarer, or at least much less noticed, than scopaesthesia. One possible reason for this might be that vision usually operates over a larger range than hearing. However, telephones greatly extend the range over which we can hear another person, and even though their use is now so common, in our collection there are no reports of acoustaesthesia with telephones.

Thus the circumstantial evidence for a sense of being listened to is poor, and Friday's (2019) preliminary experiments failed to provide any positive evidence for its occurrence. Does acoustaesthesia exist at all? Despite the lack of circumstantial evidence for telephone acoustaesthesia, we addressed this question by experiments using telephones because they allow for randomized

trials in which all possible sensory cues can be eliminated, and thus provide a rigorous and potentially sensitive way of testing for this possible ability.

Randomized experiments with telephones have already been used successfully in the study of telephone telepathy, whereby a person feels who is calling before answering the telephone or looking at the caller ID (Lobach & Bierman, 2004; Schmidt et al., 2009; Sheldrake & Smart, 2003). In these tests, there were several potential callers, and in each trial the caller was selected at random. When the telephone rang, the subject had to guess which of the potential callers was on the line before answering the telephone. Such telephone telepathy tests have also been carried out using automated procedures (Sheldrake et al., 2015; Sheldrake & Stedall, 2023; Wahbeh et al., 2023). Our experience with such automated tests enabled us to develop a new procedure for testing for acoustaesthesia with telephones. Here, we describe this procedure and the results of our tests.

Methods

Participants

Participants were recruited through Rupert Sheldrake's email newsletter, social media channels, and talks. All participants were informed of the nature of the experiment, and all took part with informed consent. Each participant who registered online for the test recruited a partner with whom to do the test. Each test involved six trials. Altogether there were 280 complete tests. Twenty-eight pairs of participants completed the test at least once, and many of these pairs did the test repeatedly (see Figure 2).

Design

People worked in self-selected pairs, interacting remotely by telephone. In each trial, one was the speaker, the other the listener. The speaker spoke about whatever they liked while the listener was muted. In some trials, in an automatically randomized procedure, the listeners heard the speakers; in others, the listeners did not hear the speakers but heard music instead, played at moderate volume, to distract them from thinking about the speaker. At the end of each trial, the speakers reported whether they felt were being listened to or not. A test consisted of six trials and there were roughly equal numbers of listening and not-listening trials. In each trial the roles of speaker and listener were allocated at random. The hit rate by random guessing would be around 50%.

Procedure

In order to carry out these tests using an automated procedure, we devised a web application in which one participant could register their name and telephone number and those of a friend through an online form and then

initiate a test. The application used the programmable communication service Twilio.[1] This test could be conducted on mobile phones or landlines.

Both participants were called and asked to confirm participation, and then heard pre-recorded instructions (see below). They were then connected in a conference call and allowed to talk to each other for between 30 seconds and 1 minute (the actual time was randomly chosen between these bounds for each trial). One participant was then randomly selected as the speaker and the other as the listener. The listener was muted to avoid auditory clues, and randomly selected to listen or not listen. The web application used the native PHP function *mt_rand()* for randomization.

If the listener was selected to listen, they heard the speaker. If the listener was selected to not listen, they did not hear the speaker and were played some music instead. This instrumental music was provided by the composer Cosmo Sheldrake, whose music can be heard on his website.[2] The speaker was asked to talk for 30 seconds about anything they liked, and was then asked to say whether they felt listened to. The response was recorded in an online database. This procedure was a "trial". The speaker was then reconnected with the listener, and they talked to each other until the next trial began. A "test" consisted of six trials, during which the two participants remained continuously connected through their telephones for a total duration of less than 10 minutes.

The initial instructions read to participants were as follows:

> This test involves you and your friend talking together on the phone. The experiment is looking at whether you can tell if your friend is listening to you even if you can't hear them on the other end of the line. Prompts will be given along the way to tell you what to do. There will be six trials in total.

After each trial, in which the listener was muted, the choice offered to the speaker was expressed as follows:

> Please try to guess whether [*NAME*] was listening to you. If you think this person was listening, press 1. If you think this person was not listening, press 0.

When they had finished, participants were invited to do the test again; some pairs did it more than 20 times (see Figure 2). The experiment was made available to participants in the UK and the USA.

We validated the design by testing it ourselves before asking our participants to take the test. We did not monitor participants to find out if speakers were really talking in the listening tests, or if listeners were really listening. It is possible that sometimes some failed to follow our instructions, but it is very unlikely that all did so all the time.

1. https://twilio.com
2. https://www.cosmosheldrake.com

Results

We present combined results for the UK experiment (1,773 total responses) and the US experiment (122 total responses).

In 1,680 trials in the completed tests, the mean total hit rate was 50.7% (Table 1). "Completed tests" mean that all six trials were completed. Tests were incomplete when participants stopped the test before all six trials, or when a speaker did not register a guess in some trials, which could have happened because they did not make the choice in time, or mispressed a key. There were 215 trials in incomplete tests, with a mean total hit rate of 54.9%. Taking all the data together, the hit rate was 51.1%. None of these hit rates was significantly above the chance level of 50%.

In many psychological and parapsychological experiments, participants show a response bias in favour of one response rather than another. However, in randomized tests, such as our own, this type of bias would not affect the overall result. For example, if everyone always responded "listening", they would be right in all listening trials, but wrong in all not-listening trials, and hence the overall score would be at the chance level of 50%. There was in fact a bias in favour of "listening", with 59% of all responses. This bias did indeed lead to an enhanced hit rate in listening trials, but this was offset by the reduced hit rate in not-listening trials (Table 2). Using signal detection theory to compare the hits and false alarms, the discriminability index, d', was 0.06, showing a negligible ability to detect listening. If all responses were correct, this index would be 1; if responses were entirely random it would be 0.

Table 1.

Hit Rates in Complete and Incomplete Listening Tests

Test type	Total trials	Hits	Hits (%)	p
Complete	1,680	851	50.7	0.30
Incomplete	215	118	54.9	0.09
Total	1,895	969	51.1	0.17

The p values were calculated using the binomial test.

Table 2.

Signal Detection in Listening and Not-Listening Trials Showing the Number of Hits and False Alarms

Response	Listening trials	Not-listening trials
Listening	564 hits	369 false alarms
Not listening	557 false alarms	405 hits

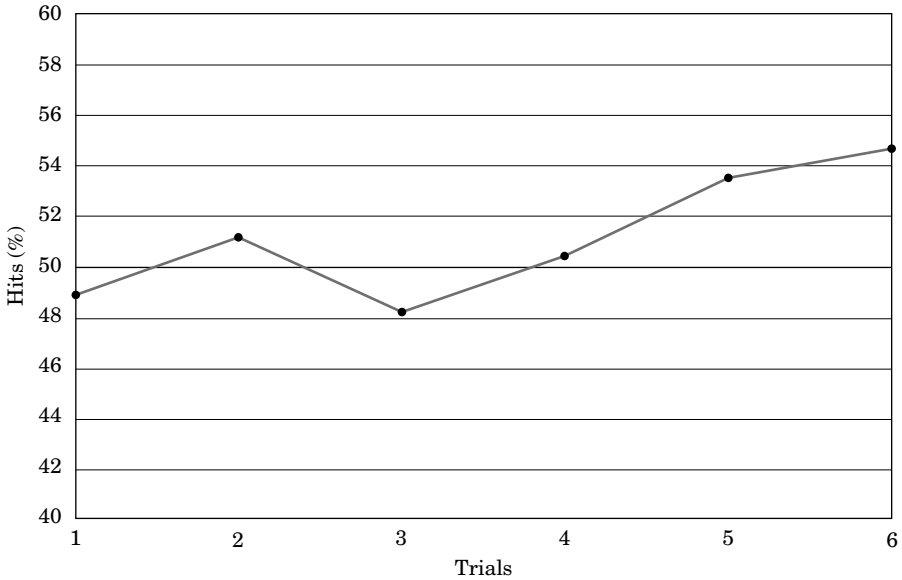

Figure 1. Average hit rate trial by trial in complete tests.

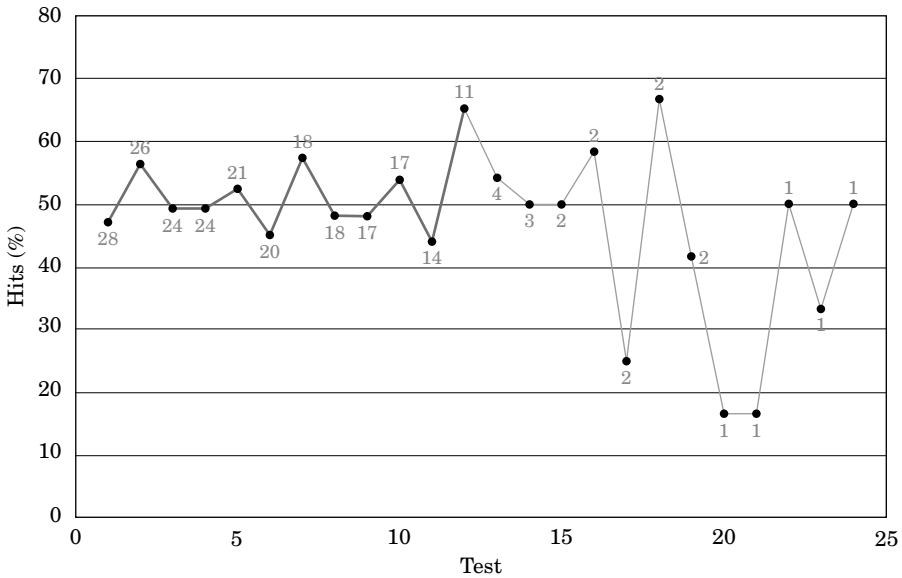

Figure 2. Average hit rates in successive tests carried out by pairs of participants. Two pairs did only one test, 14 pairs did 10 tests and one pair did 24 tests. The total number of tests taken at each stage is indicated next to the circles, and the thickness of the line is proportional to the number of tests.

When we averaged the hit rates in successive trials in the complete tests, there was a tendency for the hit rate to increase in the final two trials (Figure 1).

This effect could perhaps suggest that participants were getting better with practice. Most pairs of participants carried out multiple tests, so we looked to see if hit rates increased the more often they did the tests. Twenty-nine pairs of subjects did at least five successive tests. There was no suggestion of an increased hit rate with practice. Some pairs did more than 10 tests, and they too showed no evidence of improvement (Figure 2).

Discussion

The results of this experiment, with a total of 1,895 trials, showed an overall hit rate of 51.1%, which is not significantly higher than the chance expectation of 50% (see Table 1). A signal detection analysis also showed that hit rates were very similar to false alarm rates (see Table 2) and the discriminability index d^1 was close to 0. Thus, there was little or no indication of an ability of speakers to tell when they were being listened to. Most pairs of participants did the test repeatedly, and one pair did it more than 20 times, but there was no tendency to improve with practice (see Figure 2). This does not necessarily mean that a sense of being listened to is non-existent, but it shows that it is not detectable under these test conditions.

In terms of statistical analysis, the fact that most pairs of participants did the test repeatedly means that the results of these repeated tests were not independent; in theory they could have shown a practice effect. However, there was no sign of such an effect. Moreover, if we look at the results only for the first test carried out by each pair of participants, where there were 28 independent pairs, the hit rate of 79 out of 168 trials (47%) was also non-significant ($p = 0.8$).

With similar tests for scopaesthesia involving randomized looking and not-looking trials, hit rates averaged 55% in more than 30,000 trials, very significantly above the chance level of 50% (Sheldrake, 2005). In automated tests for telephone telepathy, with 745 trials, hit rates also averaged 55%, also very significantly above the chance level of 50% (Sheldrake et al., 2015). Thus, using comparable test systems, scopaesthesia and telephone telepathy tests give significant positive results, while this acoustaesthesia test gave a null result.

The test could be improved by making sure that people really were listening during the listening trials by asking them to summarize what they had heard. The speaking could also be standardized by asking speakers to read specific texts. Different lengths of speaking could be tested, say 30, 60 and 90 seconds, to find out if acoustaesthesia worked better with longer test periods. Also, pairs of participants who know each other well could be compared with pairs who are strangers to find out if closeness or distance of relationship has any effect.

However, such experimental tests are inevitably very artificial. Investigations under more "ecological", real-life conditions may be more informative (Cooper, 2021). Scopaesthesia has been tested under ecological conditions by Sheldrake

(2003) and Friday (2019), with encouraging positive results, but as far as we know, no such tests have been done for acoustaesthesia. Nevertheless, under real-life conditions, some people are very experienced in listening to others on the phone through phone tapping. In order to explore what some of them had found, RS's assistant, Jane Turney, interviewed four investigators in different London-based investigation agencies that specialized in tapping phones. She asked the investigators whether they had ever noticed that people whose calls were being tapped knew that they were being listened to. The operations manager at one company told her:

> It is very difficult to be able to say for sure if a person knows if they are being listened to, because if somebody goes to the length of tapping the phone, the other person may well believe that it is a possibility that they have been bugged. Also, people who are having an affair, for instance, may feel they are doing something wrong, and their senses may be heightened anyway. There would be the paranoia that people may well be looking out for them or listening to them. I haven't really noticed that people can tell when they are being listened to.

An investigator at another company said:

> Bugging is a very controversial issue, and the only time we would get involved is when we are carrying out monitoring of staff who are suspected of fraud on our client's premises. Unless they are extremely paranoid, or suspect they are being investigated, people do not know when they are being listened to. When people get caught for fraud and are interviewed, you never hear them saying "Oh, I thought I was being bugged."

Another investigator said:

> I have not observed people being aware of being listened to. If you are in a normal phone conversation there is no reason for suspicion because people aren't going to pick up a hint from a mechanical listening device—unless they can hear it making unusual noises —that there is any reason for them to be listened to. If someone is looking at you, you might have the feeling that you are being looked at, but you are not going to get that kind of feeling from something mechanical.

The fourth person interviewed also said he had not come across any examples of people knowing when they were being listened to. When asked, "What happens when companies call you in because they think their boardroom might be bugged?" he answered:

> There is usually a normal cause for concern one way or another, like a loss of contracts, or something has been said that would only have been talked about at a board meeting—so there are grounds for believing you are being listened to. Generally, I do not think people have a true intuition they are being listened to. I think there is probably more validity to the sense of being stared at than listening.

However, bugging of telephones is usually carried out using recording devices, so in most cases the people being bugged are not being listened to directly. Investigators usually listen to recordings later. Therefore, the fact that

these investigators did not notice any sensitivity to being listened to may be weaker evidence against acoustaesthesia than appears at first sight.

What about straightforward eavesdropping, like listening through closed doors? On our own database, there is only one very weak example of eavesdropping detection. The only two cases on our database that might suggest a real ability to know when someone was listening concern making music rather than speaking. The first was from an amateur pianist, who told us, "One day I was practising a Chopin piece on my piano and it was completely dull and lifeless. Then, suddenly a huge wall of sound washed out of the piano as the music leapt to life. It was only then that I heard the sound of my neighbour's footsteps outside the front door." The other report was also from a pianist: "I have for some time felt when humans and animals are listening to me play, or I should perhaps say listening to me with intensity".

Possibly performers, including actors and public speakers, can feel their audience's attention or lack of attention in a way that goes beyond auditory or visual cues. But it would be difficult to eliminate such cues experimentally in theatres or auditoria. Perhaps the best way of testing for a sense of being listened to by performers would be on the radio, where there could be thousands, even millions, of listeners.

For a radio experiment, in a randomized series of trials, the speaker would either be heard by large numbers of people, or not heard by anyone. However, in a normal radio programme, it would not be feasible suddenly to break into a person talking with randomized interruptions. To avoid this problem, one possibility would be to do this experiment as part of a news programme. The problem of breaks in transmission could be overcome if there were two newsreaders, both reading the news from auto prompters more or less in synchrony, with news in paragraphs. Their roles could be switched in the control room at the end of paragraphs without either of them knowing by any normal means who was being heard in each trial period. At the end of each period, both would be asked to indicate whether they thought they were "on air" or not. In this experiment, the audience would hear all the news, but for some paragraphs they would hear one newsreader and for others, the other reader.

If these newsreaders could indeed tell when they were being listened to by large numbers of people, with responses significantly above chance levels, then the effect could be investigated further by varying the strength of the signal. The same experiment could be carried out on popular national news channels with audiences of millions and on local radio stations with audiences of hundreds. But even if acoustaesthesia is detectable with people talking on radios, for most practical purposes it seems to play no role, or only a very small role, in most people's lives.

Our null finding in acoustaesthesia tests has major scientific implications. If scopaesthesia exists and acoustaesthesia does not, this shows that there is

some special effect of being looked at, as opposed to being listened to, over and above being at the centre of someone else's attention.

In summary, the people we tested did not seem able to tell when an unseen person was listening to them on the telephone.

rupert@rsheldrake.org RUPERT SHELDRAKE

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