Remote Viewing: Examination of the Marks and Kammann Cueing Artifact Hypothesis

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Targ and Puthoff (1974; 1977; Puthoff & Targ, 1976) reported a remote viewing experiment with subject Pat Price that seemed to illustrate that ESP could sometimes function at very high levels of information transfer and accuracy. When the target was a boat marina on San Francisco Bay, for example, Price's consistent narrative began, "What I'm looking at is a little boat jetty or boat dock along the bay . . . I see the little boats, some motor launch (sic), some little sailing ships . . .". When the target was Hoover Tower, a landmark on the Stanford University campus, he described towers and ended by saying, ". . .seems like it would be Hoover Tower." When the target was a swimming pool complex with two pools, one a 75x100 ft. rectangular pool and the other a 110 ft. diameter circular pool, he made a drawing of the target area as centered around two pools, one recangular that he dimensioned as 60x89 feet, the other circular that he dimensioned as 120 feet in diameter. The results of the experiment were evaluated by a blind judge known to have skill in these sorts of evaluations in others' experiments; he correctly matched seven of the nine target/transcript combinations, a result significant at $P \approx 10^{-4}$ (Puthoff & Targ, 1976). Similar, highly significant results were obtained by a panel of five unselected blind judges (Targ & Puthoff, 1974). Because of the important implications of high level functioning of ESP, these results brought about considerable discussion in the scientific community. In this paper we examine an alternate hypothesis to ESP that has been put forward by Marks and Kammann (1978).

Marks and Kammann examined the transcripts of the nine trials of the Price series. While not questioning the data collection procedures or assessing the actual quality of the descriptions obtained, they hypothesized that the judging procedure was defective in that extraneous transcript cues (such as whether a trial was early or late in the series) had allowed the judges to significantly match transcripts and targets on an artifactual basis. They reported that one of them (Marks) was able to match correctly a subset of five of the transcripts against a list of the associated five targets without actually visiting the sites, on the basis of the cues alone. They also reported (with a dearth of detail) that two (unselected?) psychologist judges they used were unable to match these same targets and transcripts significantly when they had edited out potential cues.

Since publication of our reply to Marks and Kammann (Tart, Puthoff, and Targ, 1980), H.P. suggested to C.T.T. that Marks and Kammann did not actually test the hypothesis they claimed to be testing. They, in effect, claimed that there were two kinds of material in the transcripts, descriptions (D) intended to fit the designated target by ostensible use of ESP, and remarks which provided extraneous cues (C). They hypothesized that the latter kind of C material alone was sufficient to account for the results reported by Targ and Puthoff. When Marks judged his subset of five, however, he apparently worked with <u>both</u> D and C material, viz., the complete transcripts. Marks' successful judging results, then, might be due either to the adequacy of the (ESP inspired) descriptions of the targets, the extraneous cues, or a mixture of both. As a result, their methodology suffers from the same shortcoming they criticized as existing in the original study. Therefore we decided to examine the Marks and Kammann hypothesis adequately, carrying out the experiment they failed to.

With regard to the putative cues themselves, careful examination of examples given by Marks and Kammann leads to some doubts as to how useful

many of them could actually be. For example, their post hoc example of Price apparently expressing apprehension on his first trial and thus supposedly alerting a judge that this was his first try is not very convincing when all the transcripts are examined: Price frequently verbalized at length about his psychic processes in a way which might be interpreted as apprehension. The presence of this sort of verbalization in the first transcript may look impressive by hindsight, but is not really a very useful cue. As another example, comments like "second place of the day" can only definitely be used to determine that that particular transcript is not the very first trial of the series, but it could be any of the remaining eight, resulting in a very minor change in the probability of a correct match from one-ninth to one-eighth on that trial. As a third example, a casual statement in one of the transcripts "that's not far from the yacht harbor" would, by their method, have resulted in an inference that a previous target was being discussed. This would have (erroneously) eliminated this transcript as a possible match to a marina target, perforce resulting in two incorrect assignments in a force-choice judging.

Procedures and Results

To assess the actual importance of the extraneous cues, C.T.T. went over the Price transcripts to extract all such potential cues. They are displayed in Table 1. As can be seen, three transcripts had no extraneous cues at all in their texts, five of the others had one or two indications of which target the transcript was not intended to match, and one had three indications of which target it was not intended to match.

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Insert Table 1 about here

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Taking into account that the judges in the original Price study did not know that they had inadvertently received the list of target sites in the order in which they had been used, we note that most of the cues indicating

"This is not the first" and the like would be of no use. To give the Marks and Kammann hypothesis its best chance, however, we take a worst case position and assume that a judge might consider the possibility that he had received the target list in order and deliberately make use of this order information in conjunction with extraneous cues to improve matching. Table 2 shows how this would be done. The cues would be used to narrow the range of choices about possible matches for each site.

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Insert Table 2 about here

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As can be seen from the table, in the best case for cues (Hoover Tower) the probability of a correct match can probably be increased from one-ninth to one-third; in the next best case from one-ninth to one-seventh; and in two other cases from one-ninth to one-eighth. The remaining five cases gain no direct advantage from cues; just indirect advantage from not using as possibilities the ones already used in the more advantageous cases. When one takes into account the resulting constraints due to cues, the number of possible target/transcript matchings is reduced from $9! = 362,880$ to 68,760 combinations. Assuming now that the cues are used to maximum advantage, we find that the significance level associated with obtaining at least 7 matches (as was done) in a forced-choice, non-independent assignment of transcripts to target sites (the most conservative statistic) is only reduced from $P = 10^{-4}$ to $P = 3.9 \times 10^{-4}$, still a quite significant result.

If the original judging and re-done judging (Tart, Puthoff, and Targ, 1980, described below) of the edited Price material had been only marginally significant, the argument concerning possible confounding of the results due to potential cues might have carried some weight. As we see, however, the change in significance resulting from use of the extraneous cues is negligible, considering the magnitude (seven first place matches) of the actual results. This supports our original assessment that, given that the Marina target was described as a boat dock, Hoover Tower was named as such, the swimming pool

complex target was described as having two pools in it, etc., the cueing artifacts were probably not of major importance in the original analyses. Our present position in retrospect, however, is that we (H. P. and R. T.) should have elected to edit the Price transcripts before giving them to our blind judges (as has been standard procedure in later experiments), rather than having set a policy to use unedited transcripts to avoid possible criticisms of selective editing.

Nonetheless, in order to settle this issue decisively, because the implications of high level ESP functioning are so important, and because we routinely insist on the best possible procedures being used to evaluate ESP experiments, one of us (C.T.T.), who had not been involved in the original Price series, decided to independently re-analyze the data, after editing out all possibly useful extraneous cues. The details of this project and its results have been reported elsewhere (Tart, Puthoff, & Targ, 1980). Briefly, C.T.T. edited out all potential cues about time and date of a given transcript, as well as any comments comparing a target to some previous one that could possibly cue a judge as to which target a particular transcript was <u>not</u> intended for (as per Table 1). Since the juding task depends on a judge's ability to extract signal from noise for correct matching, C.T.T. began to search for a talented judge to re-judge the series, testing potential candidates (who knew nothing of remote viewing research) on material from a different remote viewing study. The second potential judge tested did well, and was thus selected for this task. She then judged the edited Price series transcripts and, as our previous skilled judge had done, successfully matched seven of the nine. A complete analysis of the judge's rating matrix by a direct-count-of-permutations factorial method in which the judge's rating matrix is permuted through all possible target/transcript assignments, yields a result significant at $P = 2.2 \times 10^{-5}$, one-tailed. Similarly, the subset of five that Marks and Kammann's judges could not match was also significant at $P = .025$, one-tailed. Thus the Marks and

Kammann hypothesis that extraneous cues were necessary for significance received no support, and extrasensory perception remains the best hypothesis to explain the Price series result.

Summary and Conclusions

We have examined the Marks and Kammann hypothesis that success in the first SRI remote viewing series was due to cueing artifacts in the judging process. Our first finding is that their experimental design was inadequate in principle to test their cueing hypothesis. We have now adequately tested their hypothesis, and have found that the possible effects of inadvertent cues are negligible compared with the actual magnitude of results obtained in the original remote viewing series in question. The in-depth re-examination of that series indicates not only that ESP is the most feasible explanation of the results found in the Price series, but also that the exceptional quality of some of the results of that series indicates that ESP can function at high and potentially useful levels, as well as at theoretically interesting levels. Relatively routine replication of remote viewing results at SRI, as well as the beginnings of replication in other laboratories (Tart, Puthoff, and Targ, 1979) continue to confirm the importance and potential of this ESP procedure.

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Table 1

Transcript*	Text Phrases Possibly Relevant as Cues	Conclusions
A	Q: How do you feel about this target . . . vs. the other targets . . .Q: Even more than yesterday's two targets?	Not first or second target
B	The only time I've been over there was that day we went over to the Tower . . .	Not Hoover Tower, not first target
C	. . . their second place of this day . . .	Not first target
D	They don't feel as far away . . . half the distance they were to the Marina . . .	Not first target and not Marina
E	No cues	
F	No cues	
G	No cues	
H	. . . where you went yesterday out on the nature walk . . . Nothing like having three successes behind you . . . other than what you can physically see from the road, at the radar tower . . . Maybe another thing like the observatory	Not nature walk (Baylands), at least the fourth or greater target, not the radio telescope,
I	. . . in an acceptable manner this time . . . they don't look like Stanford library	Not first target, probably not Hoover Tower (Stanford campus, first target)

*Note: Transcript identifiers A through I were randomly assigned and do not correspond to order of target use.

Table 2

Order in Series	Target Site Name	Definitely Not Transcript	Possibilities	Rejudging with Cues Removed**
1st	Hoover Tower	A,B,C,D,H,I	E,F,G	1st place
2nd	Bayland Nature Walk*	A,H	B,C,D,E,F,G,I	1st place
3rd	Radio Telescope*	H	A,B,C,D,E,F,G,I	1st place
4th	Marina	D	A,B,C,D,F,G,H,I	1st place
5th	Bridge Toll Plaza*		A,B,C,D,E,F,G,H,I	5-1/2th place
6th	Drive-in Theatre*		A,B,C,D,E,F,G,H,I	1st place
7th	Allied Arts Shopping Plaza		A,B,C,D,E,F,G,H,I	1st place
8th	Catholic Church*		A,B,C,D,E,F,G,H,I	6th place
9th	Swimming Pool Complex		A,B,C,D,E,F,G,H,I	1st place

*Indicates target sites used in Marks and Kammann subgroup analysis.

**Tart, Puthoff, and Targ, 1980.

The Neglected Sender:
Preliminary Indication that Multiple Senders May Enhance Psi Performance

1980
pk

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When "mental telepathy" was a dominant model for psi, the role of the sender or agent seemed intuitively obvious: someone needed to generate a strong psi signal and "send" it, as well as the receiver being "receptive," if success was to be likely. When Rhine and his associates at Duke University found that clairvoyance experiments, with no real-time "sender"present, frequently seemed to work about as well as telepathy or GESP experiments, the role of the sender seemed less important, if indeed he really mattered at all. In parapsychological research today, the sender receives little, if any, attention. Is the sender really unimportant, or has he become unfortunately neglected for extraneous reasons? Can a "good" sender make psi function more effectively?

Several years ago my colleagues and I began research on feedback training of psi capacity, using various training devices that provided immediate feedback of correctness or incorrectness to the percipient (Tart, 1966; 1976; 1977; Tart, Palmer, & Redington, 1979). We noticed that many percipients treated the psi task not simply as one of coming up with the number of the current target, but as a spatial task, looking for some kind of "feeling" as they ran their hand over the circular spatial arrangement of the target response buttons. A closed circuit TV setup allowed the experimenter/

sender to follow the percipient's hand movements, so that he could try not only to send the number of the correct target but also simpler messages like "Now!" or "Push it!" when the percipient's hand was over the correct target. Various informal observations by myself and most other experimenters during the course of several experiments (Tart, 1976; Tart, Palmer, & Redington, 1979),as well as pilot studies and demonstrations to visitors, led us to become subjectively convinced that our role as senders was quite important at times. Obvious hesitation over a correct response button in time with our sending activity, a percipient's hand going back to the correct button after passing it as we ~~sent~~ thought "Go back!", and the like were subjectively impressive. Particularly impressive to me were a number of occasions when I was demonstrating the experimental setup to small groups of visitors, often getting excellent results with unselected percipients; the presence of a group of senders seemed more effective than a single sender.

In order to carry out a preliminary test of whether a group of senders was more effective than a single experimenter/sender, a pilot study was carried out, and the encouraging initial results are reported herein.

Method:

Basic data was collected on the Apple/ADEPT (A/ADEPT) ESP testing and feedback training device. Briefly, this consists of a circle of ten unlit lamps, numbered one to ten, with a push button beside each. The percipient, M.C., indicated her call by pushing the push button beside the target she thought had been selected on each trial. The correct target lamp then came on for immediate feedback. A closed-circuit television camera displayed the percipient's hand movements over the response console on a TV screen mounted beside the experimenter/sender's console in another room. This basic experimental arrangement has been diagrammed elsewhere (Tart, 1976). For group sending sessions, the TV signal was also sent to either of two

auditoriums in distant (more than one thousand feet from the building housing the percipient's room) buildings on the UC Davis campus.

The A/ADEPT ten-choice training device used evolved from the original ten-choice trainer (Tart, 1976). An Apple II microcomputer controlled the functioning of the display and response consoles, as well as electronically recording data. The A/ADEPT system used here utilized the same display consoles as the ADEPT (Advanced Decimal Extrasensory Perception Trainer) system used in the second Training Study (Redington & Tart, 1976; Tart, Palmer, & Redington, 1979), but rather than the special analog circuits used in the original ADEPT, the Apple II computer controlled both target generation, console operation, and data scoring and storage.

The Apple II computer contains a typical computer pseudo-random number generator. A seed number in the computer is processed by a complex algorithm on each occasion that a random number is requested, and the algorithm presents the last digit of the computation as a random output. Numerous testings of this pseudo-random generator in batches of 10,000 outputs have shown no significant biases by Chi-square test at the singlet, doublet, or triplet level. Our control program, developed by Dana J. Redington, turned the Apple II into a true random generator rather than a pseudo-random generator in the following way. The time in milliseconds between each response of a percipient was measured, and this highly variable value was used to provide a brand new seed number for the Apple II pseudo-generator on every single trial.

The advance plan for the study called for a total of eight sessions of 22 trials each. One single-sender session was aborted due to extraneous factors. M.C. was to be the percipient in all eight sessions. She was chosen on the basis of availability and interest, and the fact that she had worked with C.T.T. and P.C. as an experimenter in a small class the previous

fall dealing with psi experimentation. While it would have been desirable to have a percipient who had previously demonstrated psi abilities in this type of test, time limitations did not allow this. Thus using M.C. as a percipient made the possible role of multiple senders even more important than if a known, talented percipient had been used.

Four of the planned eight sessions were to involve only P.C. as the experimenter operating the equipment and sole sender. The other four were to involve a group (fifteen or more) of students from C.T.T.'s ongoing class on Altered States of Consciousness acting as a group in one or the other of the distant auditoriums, as well as P.C. continuing to act as experimenter and sender. These students were selected because of their student-teacher relationship with C.T.T. and expressed enthusiasm for participating in an ESP experiment. Time considerations determined that C.T.T. would lead the group-sending process on two occasions and his teaching assistant, Paul Hardy (P.H.) would lead them on the other two. Exact size of attendance varied in each group session, depending on when students could come. It ranged from 12 to 31. The experimenter and percipient, P.C. and M.C., were kept ignorant of which sessions were group and which were single sender. The choice of which sessions were which was randomly determined.

Conceptually, we wished to make the percipient's psi receiving task as simple and primitive as possible, viz., detecting or responding to simple excitement when her hand was over the correct target, as compared to no signal at all when her hand was not over the correct target. For the experimenter/sender, P.C., we shaped his excitement response by mounting a circular cut-out over the TV monitor screen such that the percipient's hand was visible to him only when it was over the correct target on each trial. At those times he would think, "Push it!" or similar thoughts. At all other times he tried to keep his mind calm and quiet. He always announced the target identity for each trial at the beginning of that trial over a special intercom

circuit that went to whatever distant auditorium was being used. The experimenter/sender sent and made these announcements in all seven sessions, without knowing, of course, whether there was also a group sending at the same time.

In group sessions, the leader (C.T.T. or P.H.) instructed the senders that the idea was to have a sudden burst of excitement just as the percipient's hand moved over the correct target, and, if her hand moved past the correct target, the excitement should diminish at once. To accomplish this, the leader instructed the sending group to keep their eyes closed and their minds as calm and blank as possible. When he announced, "Open," they were to open their eyes and look at the TV screens. The leader announced "open" just before the percipient's hand seemed about to move to the correct target. As soon as the hand moved to the correct target, everyone began thinking and shouting "Push it!" or similar words. As soon as the hand moved past the correct target, the group immediately stopped shouting, closed their eyes, and calmed their minds as much as possible. Excitement ran very high at the moments of sending! Putting the sending group in a distant building was, of course, absolutely necessary to be sure that their shouting could not constitute a sensory cue to the percipient.

As the random scheduling turned out, C.T.T. led the first and third sending groups, P.H. the second and fourth. C.T.T. was the class instructor and so,much better known to the student senders, and C.T.T. is a known psi-favorable experimenter, while P.H., his teaching assistant, has no particular interest in psi: thus it seemed reasonable to look at C.T.T.'s and P.H.'s group sending data separately.

Time constraints on running the experiment forced us to settle for a total of eight planned (and seven accomplished) sessions, which is too small for a sensitive between-groups analysis, but could suggest differences if

they were pronounced.

An equipment problem with the A/ADEPT sometimes caused it to fail to load its control program properly, resulting in the same target repeating over and over. This was always detected by the third trial, and the A/ADEPT control program was reloaded to function properly. An a priori decision was made to count the first response from such a "stuck" program, as a percipient would have no way of knowing of the problem, but to then count the next 21 trials from the properly functioning program to have uniform length runs of 22 trials each. Inspection of the raw data showed that the only effect of this decision rule was to eliminate one hit from one of the group-sending sessions, a conservative result which requires that the group-sending effect, if it exists, be more pronounced in order to be visible.

Results:

The experiment as a whole produced 19 hits in 154 trials. Table 1 presents the breakdown by the three experimental groupings. Within groupings the scores are listed in the temporal order of the experimental sessions. As can be seen, the group-sending process with C.T.T. as leader produced 10 hits in 44 trials, which has an exact binomial probability of .01, one-tailed. The group sending sessions led by P.H. produced only chance results, as did the single sender sessions.

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Insert Table 1 about here

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A frequent observation in our laboratory is that some percipients seem to show psi that is not quite focused spatially, i.e., they frequently hit the target immediately adjacent to the correct one. A "wider" target, in which a hit is scored if the percipient hits either the correct target or the immediately clockwise (+1) or counterclockwise (-1) target, has a chance

probability of .3 of occurring on each trial. Examination of the wider target scores shows (last column of Table 1) that the group-sending led by C.T.T. was also significant for the wider target scoring, while neither of the two other conditions were. One of the group sending sessions led by C.T.T. was also remarkable in having an apparently sustained period of psi functioning, consisting of a hit, followed by a miss, followed by three hits in a row, followed by a near hit (-1 spatial displacement).

We should also note that the group sending sessions led by C.T.T. attracted twice as many student senders as those led by P.H., and both of C.T.T.'s sessions were in mid (3 P.M.) afternoon as compared to the morning (9 A.M.) sessions of P.H. Such possible confounding factors should be taken into account in future research. The higher attendance at C.T.T.'s sessions might have been due to differences in student enthusiasm, time of day effects, or problems in scheduling.

Discussion:

This brief pilot experiment suggests that the neglect of the sender, common in modern psi research, should be investigated. Perhaps multiple senders, who can coordinate a simple burst of strong emotion in a tight time slot, creates a psi signal that is easier for a percipient to respond to. A similar effect might hold for multiple agents in PK.

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Table 1

Group Sending versus Single Sender

Mode	Leader	No. of Senders	Hits	Trials	Spatial Displacement -1	Spatial Displacement +1	Wide Target
Group of Senders	C.T.T.	26	5	22	0	4	9
		31	5	22	2	4	11
	Totals		10*	44			20**
Group of Senders	P.H.	12	1	22	1	4	6
		13	2	22	2	0	4
	Totals		3	44			10
Single Sender		1	1	22	3	3	7
		1	3	22	1	2	6
		1	2	22	4	0	6
	Totals		6	66			19

*P = .01, one-tailed, exact binomial

**P = .02, one-tailed, exact binomial