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# Precognitive Remote Perception: A critical overview of the experimental program

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Running head: Precognitive Remote Perception

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## ABSTRACT

A three year experimental program in precognitive remote perception (PRP) provides the data base for a critical analysis of this mode of ESP. The program consisted of a total of forty formal trials with nineteen untrained percipients, and produced a total of eighty-two percipient transcripts of randomly selected geographical locations where an agent was situated, spatially and temporally remote from the percipeint(s). These eighty-two transcripts were blind rank ordered against photographs of the target locations in seven separate series, by a total of one hundred and fifty-seven independent judges. Of the one hundred and fifty-seven transcript rankings, eighty-four (53.5%) were correctly ranked as one. Various comparisions were made, using Norris' (1972) and Solfvin, Kelly and Burdick's (1978) statistical techniques for evaluating free-response data. The implications and problems of the protocol, evaluative methods, and the human factor in PRP experiments are examined from the standpoint of establishing the fundamental characteristics of this mode of information transfer, and devising more effective future experiments.


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## Introduction

In the spring of 1976 a successful eight trial experiment in precognitive remote perception (PRP) was conducted by the authors (Bisaha & Dunne, 1977a; Dunne & Bisaha, 1979b), following a protocol first suggested by Puthoff and Targ (1975). That experiment was the first in an experimental program which, to date, has consisted of a total of 40 formal trials in seven experimental series, with a total of 19 different percipients. Since several of the series involved more than one percipient per trial, at this time we have accumulated a data bank of 82 transcripts which have been evaluated by independent judges, and 80 of which have been analyzed in accordance with Solfvin, Kelly and Burdick's (1978) method of analyzing preferential-ranking data. (Table 2.) In addition, over 30 informal trials have been carried out which have provided considerable anecdotal evidence and insights for future research, even though they have not contributed any formal data.

The purpose of this paper is to review the results of this experimental program, to discuss some of the problems and implications which have emerged from it, and to make some suggestions for consideration in future research in remote perception and other free-response experimentation.

We have chosen to use the nomenclature of precognitive remote perception at this point, in preference to precognitive remote viewing, since its generality avoids the categorization of this anomalous process as a visual one. It is possible that even the word "perception" will prove inappropriate once the process is understood better, however, at this stage of our knowledge it is necessary to find a description term which is suitably ambiguous, without extending beyond the prevailing paradigm.

In brief, the PRP experimental procedure, or portocol, requires one or more percipients to describe, by free-response verbal or written narrative or drawing, a remote, unknown target location where an agent will be situated at a future time, with no available channels for communication via known sensory modes between agent and percipient, and no means of deducing the target by logical process. The target is not selected, and therefore is unknown to anyone, including the agent or the experimenter remaining with the percipient, until after the percipient has completed his description. (See Table 1 for a sample protocol.)

## Experimental Program

### Protocol #1. (Bisaha & Dunne, 1977a; Dunne & Bisaha, 1979b.)

Two inexperienced, volunteer, female percipients were tested individually, $P_1$ participating in 6 trials and $P_2$ in two trials.

In all eight trials B.D. was the agent, or outbound experimenter, and J.B. remained with the percipient. Percipients were asked to spend 15 minutes describing aloud, into a tape recorder, their impressions of where the agent would be between 35 and 50 minutes later, and to draw these impressions, if possible. The target was selected randomly from a group of 10 locations which had been randomly selected from a pool of over 100, five minutes after the percipient had concluded her narrative. The contents of the target pool were unknown to anyone involved in the experiment, including the two experimenters. (Table 2.)

The original judging procedure consisted of having three separate judges blind rank order the eight transcripts of the percipients' narratives, three with accompanying drawings, against photographs and descriptive notes taken by the agent at the time of the trials, on a scale of 1 to 8 (best to worst match). The results of these rankings were analyzed by Morris' (1972) method for evaluating preferentially matched free-response material. The sum of the ranks assigned was 12 in two cases ($p=10^{-4}$) and 15 in the third case ($p=.0005$). (All p-values cited in this paper are one-tailed.) These transcripts were subsequently re-judged by three sets of eight independent judges, each judge ranking a single transcript against the eight targets, and the results analyzed by the Solfvin, Kelly and Burdick (1978) technique. The resultant sums of ranks were 20 ($p=.008$), 21 ($p=.012$), and 23 ($p=.027$). (Table 3.)

Protocol #2 (Bisaha & Dunne, 1977b; Bisaha & Dunne, 1979; Dunne & Bisaha, 1978.)

In the fall of 1976, a second series of PRP trials was conducted following the same protocol and using the same target pool, with the exception that the seven volunteer percipients were tested in four different pairs while both percipients in each trial were spatially separated from each other, in three instances by a distance of over ten miles. Seven trials of this sort were performed with B.D. as the agent, yielding data in the form of one set of seven target photographs and notes, and fourteen transcripts, two of which corresponded to each target. The transcripts were randomly divided into two sets, Group A and Group B, so that each set contained one description for each of the seven targets.

Each set of transcripts was judged as if a separate experiment, following the original procedure in Protocol #1. Two judges blind rank ordered the Group A transcripts against the targets with sums of ranks of 15 ($p=.01$) and 13 ($p=.005$). Two other judges blind rank ordered the Group B transcripts against the targets, with sums of ranks of 15 ($p=.01$) and 14 ($p=.005$). In addition, a fifth judge had matched both sets with sums of ranks for Group A of 18 ($p=.04$) and Group B of 19 ($p=.10$). These transcripts have since been ranked by four sets of seven independent judges each (two sets of judges for each of the two groups of transcripts). The results of these evaluations, using Solfvin, Kelly and Burdick's (1978) method, were: Group A sums of ranks of 15 ($p=.008$) and 18 ($p=.036$); Group B, sums of ranks of 17 ($p=.023$) and 12 ($p=.001$). (Table 4.)

This design afforded us the opportunity to compare and note the diversity in individual narrative styles of two percipients describing the same target. In spite of this diversity, two judges who were asked to rank order the Group B transcripts against the Group A transcripts were able to match them with significant results (rank sums of 12 (p=.001) and 14 (p=.005), using Morris' (1972) table.)

Protocol #3 (Bisaha & Dunne, 1977b; Dunne & Bisaha, 1979a; Bisaha & Dunne, 1979.)

In August of 1976, a series of five trials was conducted between eastern Europe and Wisconsin, with an approximate spatial distance of 5,000 miles and a temporal differential of approximately 24 hours separating the participants. In all five trials the agent was J.B. and the percipient was B.D. The agent was on an extended trip with an itinerary which was undetermined at the time of his departure, precluding the possibility of compiling a target pool. Since neither agent nor percipient had ever been in that part of the world (Russia and Czechoslovakia) and had little or no familiarity with its topography or geography and had no means of knowing where the agents tour would place him at any given day or time, it was agreed that the target would be wherever the agent happened to find himself between 3:00 and 3:15 P.M. (local European time) and the percipient would attempt to describe this location between 8:30 and 8:45 A.M. on the previous day.

Upon the agent's return, his photographs and notes were given, along with the randomized transcripts of the percipient's narratives, to three judges for rank ordering and analysis by Morris' (1972) method. The resultant rank sums were 9 (p=.05), 11 ($p<.20$), and 15 ($p<.20$). Re-evaluation with four sets of five independent judges each, and Solfvin, Burdick and Kelly's (1978) technique, yielded rank sums of 9 (p=.041), 11 (p=.139), 6 (p=.002), and 7 (p=.007). (Table 5.)

Protocol #4 (Bisaha, Dunne & Blauvelt, 1979)

In June of 1977, two carefully controlled trials were carried out under the supervision of CBS-TV, and were aired on national television in a 15-minute segment of "CBS News Magazine" on January 5, 1978. Two experienced percipients, E.W. and D.F., were selected on the basis of past successful PRP performance, and B.D. acted as agent. In Trial #1, the agent was flown to an unknown destination, which turned out to be Columbus, Indiana, and a target site was randomly selected from a pool of 10 potential targets, prepared by an employee of CBS, unconnected with this experiment. The agent visited the site four hours after the percipient had described the target. In Trial #2, the target was Rockefeller Chapel in Chicago, also chosen by random process from an unknown target pool, and visited by the agent an hour after the percipient described it.

Two trials were insufficient for analysis by the usual method, however, two sets of ten independent judges each were asked to rank each description against photographs of the ten sites which had comprised each target pool. The rank sum for Trial #1 was 27, and the rank sum for Trial #2 was 10 (all ten judges correctly matched the transcript to the correct target). (Table 6.)

Protocol #5

In September of 1978, B.D. had occasion to travel in the far west under circumstances similar to those of Protocol #3, leaving the last six days of the trip totally unplanned and unknown. We took advantage of this situation to conduct a series of six multiple-percipient, multiple-mode, long distance PRP trials. Seven volunteers, two of whom the agent had never personally met, from parapsychology laboratories in various parts of the country, served as percipients. Two followed the precognitive mode of the protocol, four followed a retrocognitive mode (describing the target several hours after the agent's visit), and one attempted to describe the target simultaneously with the agent's visit. Two percipients were located in the Chicago area, the others were in Princeton, N. J.; Brooklyn, N. Y.; Menlo Park, Cal.; Durham, N.C.; and the last spent part of the period in London, England and part in San Antonio, Tex. It was agreed that the target would be wherever the agent happened to find herself at noon (Central Daylight Time) each day for six consecutive days. Each set of transcripts was sent, along with a set of target photographs and notes to a laboratory other than the one which had generated that set (with the exception of one of the Chicago percipients, whose transcripts were judged in Chicago).

The results of these judgings provided rank sums of 6 (with only five transcripts) ($p<.001$), 13 ($p=.036$), 14 ($p=.061$), 17 ($p<.145$), 19 ($p<.145$), 22 ($p<.145$), 24 ($p<.145$). (Table 7.)

Protocol #6

This series was conducted in two parts with a person (M.K.) who had never before participated in a PRP experiment serving as agent, and the authors serving as percipients. Three trials were conducted in the spring of 1978, with B.D. as percipient, between Acapulco, Mexico and Chicago, and three were conducted in the spring of 1979, with J.B. as percipient, between Florida and Chicago. All six trials followed the same precognitive protocol, with the percipient attempting to describe the location where the agent would happen to find herself at a future time. Since all the trials had occurred in a similar climate at the same time of year and day, we combined these transcripts and had them judged as a series. Six independent judges assigned a rank sum of 16 ($p=.145$). (Table 8)

Protocol #7

In the spring of 1979, a series of six long distance trials was conducted between Florida and Chicago, with M.K. as agent and two inexperienced percipients, J.B. and N.S. Since J.B. was only

able to complete three trials, those three were included as part of Protocol #6, and the results of this series was based only on the transcripts generated by N.S. The target selection process was similar to Protocols #3, 5, and 6, with the target being something in the vicinity of where the agent happened to be at a given time on six consecutive days. Five of these trials were conducted precognitively, and one, due to unavoidable circumstances, took place retrocognitively. In addition, in one trial the agent forgot to "send" at the prearranged time, creating a control trial, where the percipient was describing impressions of a non-existent target. The sum of ranks of all six trials, evaluated by six independent judges, was 15 (p=.097). Omitting the "control" trial, which we had ranked twice and which was assigned a rank of 6 by both judges, the rank sum was 9 (p=.006). The results of the four precognitive trials alone was 8 (p=.007). (Table 9.)

Miscellaneous Trials and Anecdotal Evidence

In addition to the 40 trials described above, three formal trials have been carried out under the conditions of Protocol #1, but are insufficient for evaluation by the accepted methods. Arrangements have been made to conduct three or four additional trials in the near future, at the same time of year when the three existing trials took place, and to combine these for evaluation as a series.

Of the formal trials conducted to date, six have been discarded; two because they failed to produce any percipient narratives, three because the designated targets were non-existent and the agent returned to the laboratory instead of selecting an alternative target (as in trial #6 of Protocol #1), and one because several interruptions broke the percipient's concentration and she was unable to maintain her flow of imagery. All other formal trials to date have been reported above and elsewhere.

Over 30 informal trials have been conducted under a variety of conditions, including a series of 16 consecutive trials between Chicago and Russia, while an acquaintance was travelling in that country. Most of these informal trials were evaluated on the basis of subsequent exchange of information between agent and percipient and did not involve target photographs or independent judging. Nevertheless, we were able to observe many instances of extremely accurate correspondence as well as some interesting serendipitous effects which will be taken into consideration in the following sections, along with the formal data.

General Observations

At this point in the experimental program we have collected sufficient data to support the hypothesis that some non-sensory mode of information transfer can function under the conditions of the PRP protocol. Of a total of 157 transcript judgings, 84 (53.5%), have resulted in ranks of 1. Perhaps the success of this design might be attributable to the fact that it comes closer to simulating

spontaneous psi experiences than most formal experimental designs because: 1) it utilizes real experiences with real targets in a naturalistic environment; and 2) the agent/percipient relationship is closer and less formal as both are active participants in a shared task within a shared belief system. Under these circumstances, the effects of experimenter expectations are likely to be magnified as a result of being openly communicated to, and shared by, percipients. However, it also is apparent that this communication channel is not completely reliable insofar as the clarity and specificity of the transmitted information, or the "signal-to-noise ratio" are concerned.

The question at this point is where do we go from here. We can continue to carry out more confirmatory experiments of this type, and indeed we are doing so, but these are not likely to tell us more than that such a communication channel exists under these conditions and seems to be relatively reliable. We are still far from explaining what the phenomenon is, how it works, or why it fails on some occasions. In some respects, the experimental procedure is somewhat analogous to the children's game of "Telephone," where a whispered message is passed from one person to another, and after several transmissions of this kind, becomes distorted, often beyond recognition. We too are dealing with a chain of communications - from target to agent to percipient to transcript to experimenter to judge - and every link in that chain is vulnerable to distortion and bias. At each link in the chain, information is being received, interpreted, and transmitted by individuals with varying cognitive styles; and at each transfer point a different mode of perception is being employed. When the quantification of the fidelity of information transfer finally is attempted at the end of the process, as in the present statistical procedure, much of the abstract and impressionistic component may be overlooked. Then too, it is clear that much of the unusual and plentiful anecdotal evidence, which seems to provide empirical confirmation of the process being investigated, is not taken into account by the judging process and may even work to the detriment of the final statistical outcome.

One class of such unused evidence is that derived from time intervals other than those prescribed by the protocol. For example, during the series from the far west (Protocol #5), on one occasion, several hours before the formal trial was to take place, the agent unexpectedly found herself riding a very wobbly bicycle which she found at a gas station where she and her companions had interrupted their trip. The target site that day was a gambling casino. One percipient's description, obtained retrocognitively, made no mention of and contained only vague symbolic resemblances to the casino. By the formal judging criteria, this transcript might easily be considered a miss. However, one part of the transcript read: "I have an image of (the agent) on a bicycle, now she's on it. She teetered and tottered a little, but apparently she's OK. She's going down, well - I have the impression that she's gotten the bike from maybe like a roadside stand or something like that." This kind of displaced information has been acquired on numerous occasions, and while such events impress the experimenters as significant evidence of PRP, they invariably distort the narrative and lower the probability of that transcript being correctly matched to the target.

A similar effect is displayed in descriptions which contains elements of more than one target; this has also occurred on several occasions, notably in those series in which the agent was on a trip and no feedback was available to percipients until well after the series was completed and when the efforts were on successive days. (Protocols #3, 5, 6, and 7.) In such cases, it is clear that information is being transmitted, yet the formal results are negatively affected by it, rather than enhanced.

It is beyond the scope of this paper to examine in detail each link in this communication chain; nevertheless, they can, and should, be recognized and taken into consideration in any attempt to formulate a model of the PRP process:

1. Agent/target. First, the agent selects a target via a random process which is possibly vulnerable to some psi influence. Then, at the target, he is involved in some process of perception and representation. While it is not completely clear whether the agent is actually "sending" the information telepathically, or merely serving as a beacon for the percipient (although the evidence of the single control trial in Protocol #7 appears to support the "sending" hypothesis), in either case he acquires information regarding the target via sensory input, which he then translates into an extrasensory transmission, whether consciously or unconsciously.

2. Percipient/agent. The percipient is attempting to pick up an extrasensory signal, either from the agent or the target, or possibly both, against a background of internal and external noise, to interpret it in terms of his own cognitive patterns, and to translate it into a more conventional communication. At the same time the percipient may be extrasensorily influencing the agent's perceptions of the target. (At the time the envelope was opened, which contained the designated target in trial #2 of Protocol #4, the agent experienced a rush of excitement and a sense of certainty that the trial was successful, and felt a strong desire to go inside the chapel as well as to view the exterior; indeed, the percipient had described the interior as well as the exterior of the building. Up to this point we had assumed that information was being transmitted only from agent to percipient, however, in this case it seemed that not only was the percipient perceiving forward in time, but the agent was perceiving backward in time in a similar mode. This experience has recurred several times since then.)

3. Experimenter/percipient. The experimenter, in his instructions to the percipient and through the environment he creates for the experiment, is in a position to exercise considerable influence on the percipient's performance. It is his words, actions, and attitude which mold the percipient's understanding of his task, his belief in his ability to accomplish it, and the mood, or emotional climate, of the trial.

4. Percipient/narrative. The translation of the received signal into language or drawing involves a subjective interpretation of the original signal, which can easily be biased by attempts to define, rather than describe the impressions received. It is important to

realize that the percipient's interpretation of the signal emerges in the form of language only after being filtered through a cognitive structure predisposed to categorizing sensory input through the use of memory, expectations, imagination, etc. Still another potential distortion lies in the fact that the percipient's free-response verbal description is presented to the judge in written form, where nuances of emphasis, tone of voice, pauses, and so forth, are lost.

5. Transcript/experimenter/judge. It is inevitable that an experimenter will examine the transcript to seek out similarities between the narrative and the target before passing the transcript on to the judge. His unofficial evaluation could possibly bias his expectations for the outcome, which in turn may influence the choice of judges, the judge's attitude toward the task, or even the judge's decision by some extrasensory influence.

6. Judge/transcript. Once again there is a process of interpretation going on, vulnerable to subjective opinion and perspective. The judge reads the transcript, which is a written version of a percipient's verbal impressions of the original target (links 1-4 above), and attempts to match it to his perception of a photograph of that original target. (This is why we include the agent's notes with the photographs; it helps the judge to get a better idea of the agent's perspective of the target.)

Keeping all these points in mind, it seems clear that if we are to utilize the PRP protocol for further investigation of the nature and process of psi phenomena, we must attempt to strengthen some of the weaknesses in the technique itself, by examining and evaluating the perception and communication links described above and finding ways to minimize the distortions of the signal occurring at these points, and possibly by finding means to evaluate the quality of the transmission at each link.

## Methodological Criticisms

Two methodological criticisms have been directed against the RP protocol and other free-response experiments. The first is the issue of target selection and the possibility of psi influence in the selection of the random number yielding the target. This possibility cannot be categorically refuted by any protocol, no matter how elaborate, but we have taken deliberate care to avoid any logical deduction of the target. We have employed four different methods of target selection in our experiments, and it appears that the method employed had little influence on the results. In Protocols #1 and #2, where the target was selected through two processes of random selection (10 envelopes from a pool of 100, and 1 envelope from a pool of 10), the contents of the envelopes were unknown to anyone associated with the experiment. In the CBS trials (Protocol #4), once again the contents were completely unknown to any of the participants, and in one case even the city in which the target was located was unknown. In these two trials random selection was carefully controlled through the use of electronic random number

generators, using in one instance a nuclear decay noise source, and in another a hand calculator chip. In Protocols #3, #5, #6 and #7 (as well as trial #6 in Protocol #1) there was no target pool, and the agent personally selected the target from his immediate enviroment, which was itself unknown until the actual time of the trial, and percipients were completely unaware of even the general location of the agent. The method utilized in these trials also permitted the agent to select targets which were as distinctively different from each other as possible, thereby reducing the possibility of confusing the judges with a target pool containing several similar sites, as had been the situation in series utilizing more traditional methods of random target selection. Since each judge ranked only one transcript, any deduction he might make as to the order of the targets would provide him no information regarding which of those targets corresponded to the transcript he was ranking. We have tentatively concluded, on the basis of the manipulation of these variables, particularly trial #6 of Protocol #1, where the designated target was unavoidably aborted at the last moment, that the method of target selection is not a critical component of the process being studied, so long as the target is selected in some random fashion and cannot be deduced by the percipient through logical process.

The second criticism, the possibility of sensory cues, has been raised in an article by Perci Diaconis in Science (1978), in a letter to Nature by D. Marks and R. Kammann (1978), and by J. E. Kennedy in an article in J.A.S.P.R. (1979). These critics hypothesize that the apparent success of remote viewing experiments could be attributed to an "artifact of statements" in the transcripts which provide extraneous cues to the judges, about the weather on the day of the trial, for example. While the criticisms of the Science and Nature articles were not expressly directed at our work, Professor Kennedy has extended this censure to include our work as well, suggesting that the photographs taken on the days of the trials and the transcripts of those days "might have contained cues about the weather on the day of the trial." This criticism is invalid with regard to these experiment for two reasons: first, all trials in a given series took place at approximately the same time of day and any variations in weather conditions which might have existed were undetectable from the agent's photographs or notes; and second, all transcirpts were carefully screened before they were given to the judges eliminating references to weather, the order of the trials (i.e., remarks such as "yesterday's trial" or "this is the first (last) day," etc.), or any other potential identifying cues.

## Judging Strategies and Problems in Quantitative Evaluation

In the nature of the PRP experiment, the data evaluation procedure is not an integral part of the testing process, but involves post facto comparisons by individuals who have not participated actively in the experimental test. Results take the form of relative overall accuracy, indicated by an assigned rank, rather than an absolute score, as would obtain in a binary choice design. The distinction between a hit and

a miss is therefore blurred, causing the experimental outcome to be especially sensitive to the personal characteristics of the judges. For these reasons, there is room to question whether the traditional judging procedures are appropriate for establishing the fidelity index of PRP experiments.

The procedure originally followed in the first three PRP experiments was Morris' (1972) method for evaluating preferentially ranked free-response material. It was pointed out that this method was inappropriate to the PRP protocol for two reasons. First, in the original experiments, a single judge was asked to rank order the entire series, which introduced the problem that once he had matched a particular transcript to a given target he was not as likely to give full consideration to that target when making subsequent matches. Second, the judging takes place under closed-deck conditions; that is, the composition of the target pool is fixed, consisting of those targets consituting the given series of trials. These two factors were corrected by having independent judges each match only one transcript against the target pool, and by switching to Solfvin, Burdick and Kelly's (1978) evaluative procedure, which, while similar to Morris', is a more conservative measure as well as being more appropriate for closed deck experiments. (Note: in the tables giving the results of the experiments described in this paper, we have included the p-values from both statistical tables, for comparison.)

In spite of these corrections, there are still several shortcomings in the preferential ranking technique itself, some of which have been pointed out in previous sections of this paper. For example, the judgements of correspondence made are inherently subjective, and are as much a measure of the individual judge's ability to discern, interpret, and evaluate the informational content of the transcripts, as they are an evaluation of the percipient's ability to obtain information via a non-sensory communication channel and translate it into traditional communication symbolism. The existence of such subjective bias was suggested by the judging results of the two CBS transcripts (Protocol #4.) Both transcripts had been evaluated by ten independent judges, and while one had been correctly matched by every judge, the second produced a variety of different ranks, ranging from one to four. Even allowing for the similarities in the target pool in this case, which might have posed a handicap to the judges, there was still little conformity in the judges' opinions.

In an attempt to gauge the extent of judges' subjective bias, we had the 27 transcripts of Protocols #1, 2, and 3 re-judged several times by a number of different judges. The transcripts were all matched against the target photos and notes of their particular series, the same choices as had been presented to the original judges. These new ranks were compared with the original ranks assigned these transcripts by both non-independent and independent judges, resulting in a minimum of five ranks assigned each transcript by separate individuals. (Tables 3 - 9.) Of the 27 transcripts, only three were consistently ranked as 1 by all judges, and three others were never ranked higher than 2. Five other transcripts were ranked as 1 or 2 by all judges with a single exception. In all, 13 transcripts received a mean rank score of 2 or less.

However, the fourteen remaining transcripts received a wide range of ranks, demonstrating a broad diversity in the judges' opinions, and suggesting that the final positive outcomes of these experiments were, at least as far as these 14 transcripts were concerned, largely due to chance. That is, after several series of judgings had been performed on a given series of trials, if we added the highest ranks assigned by any judge to each transcript, the resultant sume of ranks for that total series would have been a non-significang figure.

This subjective variability in judges' ranks is especially insidious when applied to the least correlated transcripts. Often, once a judge has selected his first, and perhaps second choice, he will tend to be less precise in the ordering of the remaining targets, and the choice of whether to assign a 4 or an 8 might be purely arbitrary. However, that extra four points, carelessly assigned, could make the difference between a significant sum of ranks or a non-significant one. For example, in series D of Protocol #5, the rank sum was 14, a figure with a non-significant p value of .061. Had one transcript in that series, which was ranked as 5, been assigned a rank of 4 (still not an outstanding hit), the series would have been defined as significant at p=.036. The remaining five ranks in this series were 1, 3, 2, 2, and 1. Again, the central point is that when the outcome of an entire series is this sensitive to a single rank, the assignment of those ranks should not be as vulnerable as they are to the subjective opinion of a single individual.

A second basic problem with the present judging methods is their relative insensitivity to description quality. A judge might assign a rank of 1 to a transcript simply because, in his opinion, there is some vague resemblance to a minor detail of that particular target and less resemblance to any of the other targets, or, he might assign a rank of 1 because the correspondences between the description and target are so markedly accurate as to exclude the possibility of it referring to any but the correct target. In either case, the rank is the same and bears strongly on the statistical outcome of the series.

We attempted to demonstrate this variability by including a "measure of confidence" indicator in the judging form drawn up for these new evaluations. After making their selections, judges were asked to rank the degree of confidence with which they chose their first-place match, on an ascending scale of 1 to 5. Since we were unable to compare these confidence indicators across all of the ranks assigned any given transcript, there was insufficient data to reach any definitive conclusion other than that not all first-place matches were made with the same degree of confidence, even though they carried the same weight. We did observe, however, that those transcripts which obtained the lowest mean rank sums, particularly the three transcripts consistently ranked as 1, did appear to have received higher confidence indicators than most of the other transcripts.

Another difficulty with these procedures is their insensitivity to striking fidelity of individual trials of a total series. In Protocol #3, trial #5, the Danube River, was one of those three transcripts which received a rank of 1 from all seven judges who evaluated

it. The fact that one of the most outstanding hits in these series was part of a series which, overall, had lower significance levels, and in some cases non-significant results, is an indication of this problem. This insensitivity also applies in the context of evaluating the critical detail within a single transcript. Since each transcript is judged against a given pool, an unfortunate by-product of the random target selection process is lack of control over potential similarities of more than one target in a series. For example, in Protocol #2, two of the targets, the Lindheimer Observatory and the Grant Park Bandshell, contained rounded structures in open fields with tall buildings in the background and Lake Michigan within easy view. Such similarities complicate the judges' task and reduce the probability of first place ranks, even when the descriptions are quite accurate, as they were in these two trials. Unsolicited additional information, although accurate, may further complicate the problem, as in the case of the bicycle ride mentioned earlier, or in the case of a transcript which described, in part, the agent walking through a parking lot and a grove of trees. The agent did follow such a path en route to the target, but these details were not specified in the photographs of the target. Still another example can be found in the transcript of one of the percipients in Protocol #5. The target was a young man sitting in an abandoned car wreck, playing a trumpet. The percipient described the sound of a horn blowing, but he also described elements which may have fit several other targets as well. (Note: this was one of the sequential series which seem so sensitive to bleed-through or overlap of trials.) Once again, the judge's subjective bias, his decision to make his selection on the basis of the overall impression of the transcript vs. specific details within the transcript, determines the final outcome, and this decision may be easily influenced by the percipient's unique descriptive style, as well as his (the percipient's) choice of priority and order of transmission of the remotely perceived information. Some percipients tend to describe minute details, while others are more general in describing their impressions. For this reason, we have added to our judging forms, in addition to the confidence indicator, two additional questions for the judge to answer. 1) Did you reach your decision more on the basis of the transcript's explicit detail, overall impression, or both?, and 2) In reaching your decision, were you more influenced by the transcript's symbolic similarities, realistic features, or both?

We have already mentioned the problem of overlap or bleed-through in series conducted over an extended period with no feedback to percipients until all trials have been completed. This effect has also been noted by Targ and Puthoff (personal communication) in series they have conducted under similar conditions. Reference to a similar phenomenon can be found in the work of Whately Carington (1940) when he conducted experiments on paranormal cognition of drawings in series of ten targets without feedback. It is as if, at some level of awareness, percipients regard the entire series as a single extended trial when they have no information regarding the outcome of each individual trial. After all, the task assigned the percipients requires them to disregard temporal distinction, a difficult enough task without also requiring that they be able to assiduously pinpoint their location

outside "real" time. The present evaluation procedures do not take this effect into consideration, and are thus inadequate for assessing series of this kind.

A final criticism of the current evaluative methods involves the possibility of psi influences in the judging process itself. There is no way of ruling out the possibility that the judges, perhaps due to the influence of the experimenter, are making their matches via some extrasensory process. In Protocol #5, the two sets of transcripts which were significant belonged to a percipient in a precognitive mode who had never met the agent, and a percipient in a retrocognitive mode who was a close friend of the agent's. The only commonalities they shared were 1) both were experienced, successful PRP percipients (Diane Freemand and Hella Hammid), and 2) these were the two sets of transcripts which were judged in Chicago. It might be noted that, while we had no familiarity with Hella Hammid's typical descriptive style, the authors both agreed that, in their personal opinions, Diane's transcripts were not up to her usual descriptive standards. Under the conditions of the PRP protocol, an argument could be made to regard the entire procedure, up to the judging process, as nothing more than an elaborate and convoluted technique for selecting targets for an ESP matching test in which the judges are the subjects. In a later section we will be discussing the role of the experimenter in influencing the percipient's attitude and performance, as well as the importance of a positive attitude on the part of the percipient, for obtaining positive results. These same factors may also be a determinant in the judges' performance. In the light of this hypothesis, it may be possible that the non-significant results obtained for some of the transcript sets of Protocol #5 may be the result of having the judging undertaken under the supervision of experimenters other than those conducting the experiment. We are currently having some of our earlier transcripts re-evaluated at different laboratories to test this.

It seems clear that some alternative strategy for evaluating PRP experiments must be developed; one that is more sensitive to the intricacies of the phenomenon and, at the same time, more objective in its assessment of the transmitted information. This paper does not presume to detail such a strategy, however, perhaps some relevant factors can be delineated which may percipitate and aid the design of a suitable process in the near future.

One possibility is the development of a more sensitive ranking scale and a uniform process for training judges, thus reducing the subjective bias in evaluation tasks of this kind. Transcripts might be broken down to the elemental descriptive components of their content, and each informational bit ranked on a more sensitive scale against a pool of potential targets. The problem with a procedure of this kind is that, while it might provide a method for evaluating each transcript on its own merit, rather than as a single element of an overall series, it might also negate the influence of Gestalt impressions which involve much more than simple superposition of details and which provide a "feel" of a particular location to the judge, without specifying the individual elements in detail. The interpretation of

symbolic similarities would still be dependent upon the subjective perspective of the judge. One might account for the subjective bias by having each transcript ranked by a number of different judges, as we attempted to do, but this is cumbersome, time-consuming, and places a strain on one's ability to recruit a sufficient number of competent judges, especially when one is trying to evaluate a number of trials in this fashion.

Some of the earliest free-response experiments attempted to capitalize on subjective perspective by having the percipient judge his own transcript against a pool of targets, since the percipient is more capable than anyone else of interpreting his own impressions and experiences during the trial. Such a procedure does render the evaluation more sensitive and reduces the vulnerability of the process to subjective interpretation by eliminating one of the links in the communication chain, however, at the same time it renders the results more susceptible to criticisms of experimenter/percipient collusion by eliminating the substantiation of objective verification of the results.

An alternative might be to eliminate the subjective component altogether, by designing a procedure by which experimental results might be evaluated by a computerized process. By altering the protocol somewhat from the unstructured free-response mode presently employed, the percipient could be presented with a finite list of yes/no questions regarding his impressions (i.e., is it outdoors?, is there water present?, etc.), the results of which could be quantified easily and evaluated by binary logic. However, this intrusion on the PRP process, by attempting to force the percipient into a predominantly logical mode of experience, could prove fatal to the phenomenon, if psi is indeed evidence of "paranormal" perception of cognition. (Nevertheless, this could prove an interesting line of research to probe the perceptual or cognitive parameters of the phenomenon.) Alternatively, a description obtained in the traditional fashion could be broken down to binary bits of information. Once again, the problem with this method is that there would be difficulty in interpreting the many Gestalt impressions with which PRP transcripts seem to abound.

It might be worth exploring the possibility of developing an algorithm which would code and compare the elements of the target and the elements of a free-response description, taking such factors as narrative style into consideration, via electronic pattern recognition.

The solution does not have to lie in an either/or decision between human judge sensitivity and electronic objectivity. For example, a hybrid system could be explored wherein each process could evaluate that aspect of the protocol where its expertise lies. Two separate scales could be developed and compared: an electronically generated evaluation of descriptive detail, and a human judge generated evaluation of the Gestalt of the narrative content - i.e., mood, feeling, and overall resemblances couched in comparative terms.

The classification of information, whether cognitive or scientific, is a matter of drawing distinctions. These distinctions are usually drawn in accordance with agreed-upon systems of rules or definitions

which have proven useful from past experience. One of these rule systems, that of statistical probability, was designed to organize and classify large amounts of data, or events, in order to infer a pattern of behavior which is typical of the group, so that fairly reliable predictions can be made regarding future events which appear to belong to the same classification. In psi research, we are looking at deviations from these patterns; that is, we are examining a body of events which do not follow or conform to the normal probability distribution describing this class of events. We attempt to collect a sufficient amount of this non-conforming data to begin to classify these events as a new category with properties of its own, and to form generalizations and make predictions regarding them.

The problem we are facing may lie in the fact that we have been attempting to force these events which do not conform to our already existing categories into new categories defined by the same distincitions which define the behavior of "normal" events. It is just possible that those rules do not apply to these "paranormal" events, which is why they are distinguished as "paranormal" in the first place. We may need to distance ourselves from our preconceived expectations of how psi operates before we can begin to establish appropriate new categories to describe how it actually functions. The evaluation an analysis of PRP and other parapsychological experiments at present are predicated on rules which were developed for the evaluation an analysis of "normal" events, and hence, may not provide us with a useful basis for representing the essential nature of psi. We might examine the precedent set by the example of the development of Quantum Statistics, as a result of the inability of the rule system of Classical Statistics to provide the appropriate tools for the task of evaluating certain quantum events. (Fowler and Guggenheim, 1952.)

Human Factor Recognition

Parellel to the need for a sufficiently sensitive evaluation and quantification procedure to measure the information transfer occurring during PRP, is the necessity to develop an adequate framework or paradigm within which to examine the nature of the information transfer process. We have observed that, regardless how strict the adherence to the experimental protocol, the degree of success in PRP is still unpredictable. Apparently, there is still some variable not taken into consideration in the experimental design, and, since PRP describes a particular mode of human behavior, it is likely that this unknown factro is in some way related to the specific characteristics of the people participating in the experiment.

A great deal of research has been reported in the literature which has attempted to establish correlations between psychological and personality characteristics of subjects and successful psi functioning. (Carpenter, 1977.) However, the results of these experiments, like so many others in this field, have often failed to be replicated, and in some instances have even demonstrated contradictory results. The fact that even subjects of the "ideal" personality type do not

demonstrate consistently successful psi functioning, suggests that there is still a missing ingredient in the formula. This raises the issue of the role of the experimenter in PRP and other psi research. Along with the problem of quantification and evaluation of data, the questions of "experimenter effects" and performance feedback are two of the major issues currently being confronted by psychic researchers as potential sources for the resolution of the replicability enigma.

Reported replications attempted in remote perception experimentation, both formal and anecdotal, support the assumption that the attitude of the experimenter may be as important a factor as that of the percipient in producing the desired experimental outcome. Researchers who hold the belief that remote perception is a valid possibility which they would like to see confirmed tend to obtain positive results, while those motivated to disprove the phenomenon generally report chance, or even below chance results. The role of the experimenter as a variable in any parapsychological experiment has been acknowledged by researchers in this field for a long time (White, 1977), but very little empirical research has been undertaken to ascertain to what extent the experimenter's contagious enthusiasm affects the experimental outcome, or, for that matter, to what extent the experimenter's, or possibly even the laboratory's, past successes affect his contagious enthusiasm.

Earlier in this paper it was suggested that the experimenter and/or agent was in a position to exert influence on the percipient's (or judge's) performance, by establishing the experimental environment via his words, actions, attitude, and expectations, thereby molding the percipient's (or judge's) understanding of the task, contributing to his confidence in accomplishing it, and providing the emotional climate of the experimental trial. This suggestion is in accord with the so-called "Rosenthal effect", in which it has been demonstrated that an experimenter's wishes and expectations may bias the outcome of the experimental data. (Rosenthal, 1966.)

It may well be that the psi effects demonstrated in PRP research are not simply evidence of an individual percipient's, or experimenter's, "paranormal" ability, but are by-products of the interaction between the experimenter and the percipient. (None of the participants in any of our trials considered themselves to have any unusual "psychic" talents.) If this is the case, psi cannot be predicted or evaluated simply on the basis of the personality parameters of either of the participants, or even on the basis of an additive process, such as Personality A + Personality B = psi. The process, or interaction, is complicated by factor E: the environment within which A and B interact. Within the context of the experimental protocol, A and B together may be capable of behavior of which neither is capable independently. The personality factors which have been identified as being representative of good subjects, may be no more than the characteristics which define those individuals best capable of entering into, contributing to, and functioning within the type of bonded interaction which is conducive to psi effects.

Perhaps one of the most relevant aspects of the experimental procedure we followed in these experiments, which does not appear on Table 1, is the fact that before each of the experiments began, the percipients were briefed informally about the nature of the experiment and the experimental protocol, as the agent took time to talk casually with each percipient in an informal, friendly atmosphere, attempting to establish a comfortable rapport and a shared enthusiasm for the project.

To date, psychic research has been proceeding along a linear path, attempting to identify each of the individual components contributing to the psi process. Yet, the subjective reports of individuals participating in PRP experiments suggest that there is an element of the experience which defies cognitive categorization. Two percipients who have each participated successfully in at least seven separate trials, were asked to describe their experiences in terms of their feelings. One expressed this in terms of feeling "tuned into" the experimenter/agent, "like we were both on the same wave length." She said she didn't think about the nature of the task or the logical impossibility of accomplishing it, but relaxed, tried to clear her mind of any extraneous thoughts, and concentrated on trying to visualize the agent and sensing the rapport between them. The second percipient explained that she had to "be in the right mood", which involved a "willing suspension of disbelief and a general mental posture of receptivity." In addition, she described a "sense of overall physiological alertness." Even after ten successful trials, she does not consider herself to have any unusual psychic abilities. When asked to what she attributed her remarkable success rate, she replied, "Some kind of high energy level combined with intense concentration." One of the authors, B. D., who has been a percipient in eight formal trials and several informal ones, has described her experiences in similar terms. In addition, as agent, she has sensed the same kind of resonance with the percipient(s), a feeling of heightened alertness and excitement, and an awareness of an emotional, as well as an intellectual, involvement in the experiment which is similar to participating in an exciting game. It is as if one "makes believe" that one can accomplish the impossible to the extent that it becomes real.

Perhaps the current linear direction of parapsychological research should be complemented by a holistic perspective of the phenomena. This would involve, in part, an investigation of the nature of the experimenter/percipient, and the experimenter/judge, relationships. We have observed, informally, that the more comfortable, intimate, and warm the relationship between the agent and the percipient, the more confident we have felt of success in the endeavor. The results of the trials we have conducted appear to support this assumption, although a formal analysis along these lines has yet to be attempted.

## Concluding Observations

The course of future research in PRP will be dependent upon several factors, such as whether experimentation is motivated by a desire for more specific phenomenological demonstration or the development of the utilitarian potential of the information transfer process. Both

lines of exploration are worthy of pursuit, although they would, most likely, take different directions. The former would stress the interactive psychological aspects of the phenomenon, employing a variety of percipient personality types and a broad range of freely-selected target material. The latter would concentrate on improving the fidelity index of transmitted information and limit itself to working with a few highly trained percipients to develop a method of optimal relay of clearly defined details of specific types of targets. Appropriate evaluative techniques would be needed in both instances. In the former case, the emphasis would be placed on the development of a method sufficiently sensitive to individual narrative styles, abstract or symbolic representations, critical detail, and Gestalt impressions. In the latter case, binary representation of specific detail might be preferable for the determination of precise measurement of "signal-to-noise ratio," data acquisition rate, etc.

Up to this point, PRP research has provided a quantity of data which bears strong evidence of some kind of non-sensory information transfer taking place under the conditions of these experiments. The results of this experimental program have supported the hypothesis that this information transfer is not limited by temporal or spatial barriers, in spite of the difficulty that such findings pose in the light of generally accepted physical laws. Yet, we believe that the consistently positive results we have obtained can be attributed, in part, to the fact that the precognitive aspect of the design reinforces the logical impossibility of the task, forcing the percipient and agent into a "paranormal" mode of communication. In addition, we have tentatively concluded that the specific temporal distinction established by the protocol cannot always be enforced, particularly in series of consecutive trials where no feedback is available at the end of each trial.

Some of the additional findings of this program can be summarized as follows:

1) It appears as if the agent's attentional direction may be more important factor in the process than the contents of the target envelope.

2) The method of target selection does not appear to be a critical component of the process, as long as the target is chosen in a random fashion and cannot be deduced by the percipient through normal logical processes.

3) Moving targets are detected as easily as stationary ones.

4) The assumption that a relaxed, quiet environment is a prerequisite for successful PRP is not borne out, since several trials, including the two CBS trials of Protocol #4, were conducted successfully under contrary conditions of high tension and excitement and in the presence of television personnel and paraphenalia; however, this tension and excitement were of a positive nature, which may have had the effect of increasing motivation rather than producing anxiety. This does not mean that a relaxed, quiet environment and

state of mind is not conducive to psi functioning, it merely suggests that the process can function successfully under alternative conditions as well.

5) The PRP process is not limited to two-person interactions, and appears to function equally as well with more than one percipient.

6) Ungifted percipients appear to be able to demonstrate this ability without extensive training, and the roles of agent and percipient appear to be interchangeable.

The shortcomings of the experimental design, discussed at length in this paper, while presenting difficulties in the description and quantification of the results, provide no evidence to deny the existence of the hypothesized communication channel. These problems are not insurmountable, but rather present a challenge to scientists dedicated to discriminating orderly patterns in apparently random events. The existence of "paranormal" phenomena is a fact, supported by anecdotal reports since the beginnings of recorded history and ever more scholarly investigations over the past century. If we cannot find a way to fit this fact into our existing models of reality, then it is just possible that the models themselves are in need of revision.

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Table 1

Sample Experimental Protocol

(Precognitive Remote Perception)

| | |
|---|---|
| 10:00 | Outbound experimenter leaves with 10 envelopes containing target locations and begins 20-minute drive. |
| | Experimenter remaining with percipient elicits description of location where outbound experimenter will be between 10:35 and 10:50. |
| 10:15 | Percipient response completed, at which time laboratory part of experiment is over. |
| 10:20 | Outbound experimenter generates random number between 1 and 10, counts down to associated envelope, opens it and proceeds to target location indicated. |
| 10:35 | Outbound experimenter arrives at target and remains there for 15 minutes, until 10:50. |
| 10:50 | Outbound experimenter photographs the target and makes notes of her impressions of it, then returns to laboraotry. Experimental trial completed. |

Table 2

Cumulative Results of PRP Experimental Program

| tocol | # of Percipients | # of Trials | # of Transcripts | # of Judges | Times Judged | $\bar{X}$ Sum of Ranks | p-value* |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 8 | 8 | 27 | 6 | 17.2 | .002 |
| 2-A | 5 | 7 | 7 | 17 | 5 | 15.8 | .041 |
| B | 6 | 7 | 7 | 17 | 5 | 15.4 | .008 |
| otal #2 | 7 | 7 | 14 | 34 | 5 | 15.6 | >.001 |
| 3 | 1 | 5 | 5 | 23 | 7 | 10.1 | .079 |
| 4 | 2 | 2 | 2 | 20 | 10 | (27)(10) | |
| 5-A | 1 | 6 | 6 | 6 | 1 | 13 | .036 |
| B | 1 | 6 | 5 | 5 | 1 | 6 | >.001 |
| C | 1 | 6 | 6 | 6 | 1 | 22 | <.145 |
| D | 1 | 6 | 6 | 6 | 1 | 14 | .061 |
| E | 1 | 6 | 6 | 6 | 1 | 17 | <.145 |
| F | 1 | 6 | 6 | 6 | 1 | 19 | <.145 |
| G | 1 | 6 | 6 | 6 | 1 | 24 | <.145 |
| tal #5 | 7 | 6 | 41 | 41 | 1 | 16.4 | |
| #6 | 2 | 6 | 6 | 6 | 1 | 16 | .145 |
| #7 | 1 | 6 | 6 | 6 | 1 | 15 (a)<br>9 (b)<br>8 (c) | .097<br>.006<br>.007 |
| tals | 19 | 40 | 82 | 157 | | | |

* Solfvin, Kelly & Burdick, 1978



(a) Includes control trial.
(b) Excludes co[illegible] trial.

Table 3

Ranks Assigned by Judges in Protocol #1

| Target | Ranks Assigned | | | | | | |
|---|---|---|---|---|---|---|---|
| | Judge 1 | Judge 2 | Judge 3 | Ind J. 1 | Ind. J. 2 | Ind. J. 3 | $\bar{x}$ |
| Windmill Cemetery | 1 | 2 | 3 | 1 | 1 | 8 | 2.7 |
| Adler Planetarium | 1 | 2 | 1 | 1 | 4 | 1 | 1.7 |
| Playboy Building | 3 | 1 | 3 | 3 | 1 | 3 | 2.3 |
| Marina Towers | 1 | 1 | 1 | 2 | 3 | 3 | 1.8 |
| Lincoln Park Conservatory | 1 | 2 | 2 | 1 | 1 | 2 | 1.5 |
| Elks Memorial & Headquarters | 2 | 2 | 3 | 5 | 2 | 2 | 2.7 |
| Ivanhoe Restaurant | 2 | 1 | 1 | 6 | 8 | 3 | 3.5 |
| Angel Guardian Florist | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Sum of ranks | 12 | 12 | 15 | 20 | 21 | 23 | 17.2 |
| p value (one-tailed) (Morris, 1972) | $10^{-4}$ | $10^{-4}$ | .0005 | .01 | .025 | .04 | .002 |
| p value (one-tailed) (Solfvin, Kelly & Burdick, 1978) | $>.001$ | $>.001$ | $>.001$ | .008 | .012 | .027 | .002 |



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Table 4

Ranks Assigned by Judges in Protocol #2

| Target | Percipients (A B) | Ranks Assigned | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Group A Transcripts | | | | | | Group B Transcripts | | | | | |
| | | J1A | J2A | J3A | Ind.1A | Ind.2A | $\bar{X}$ | J1B | J2B | J3B | Ind.1B | Ind.2B | $\bar{X}$ |
| Plaza del Lago | ($P_4$, $P_5$) | 1 | 5 | 6 | 2 | 3 | 3.4 | 2 | 4 | 2 | 4 | 1 | 2.6 |
| Wrigley Field | ($P_{10}$, $P_9$) | 1 | 1 | 2 | 1 | 2 | 1.4 | 2 | 3 | 3 | 4 | 1 | 2.8 |
| Tenny Mission | ($P_4$, $P_5$) | 3 | 1 | 1 | 7 | 6 | 3.6 | 3 | 1 | 3 | 2 | 2 | 2.4 |
| Lindheimer Observatory | ($P_6$, $P_7$) | 2 | 3 | 2 | 1 | 1 | 1.8 | 3 | 1 | 3 | 2 | 2 | 2.2 |
| Madonna della Strada | ($P_5$, $P_4$) | 3 | 1 | 2 | 1 | 4 | 2.2 | 2 | 2 | 2 | 4 | 3 | 2.6 |
| NWUR Station | ($P_6$, $P_8$) | 2 | 1 | 1 | 2 | 1 | 1.4 | 1 | 3 | 2 | 1 | 2 | 1.8 |
| Grant Park Bandshell | ($P_7$, $P_6$) | 3 | 1 | 4 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Sum of ranks | | 15 | 13 | 18 | 15 | 18 | 15.8 | 14 | 15 | 19 | 17 | 12 | 15.4 |
| p value (one-tailed) (Morris, 1972) | | .01 | .005 | .04 | .01 | .04 | .01 | .005 | .01 | .10 | .025 | .001 | .01 |
| p value (one-tailed) (Solfvin, Kelly, & Burdick, 1978) | | .008 | .002 | .036 | .008 | .036 | .041 | .005 | .008 | .055 | .023 | .001 | .008 |


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Table 5

Ranks Assigned by Judges in Protocol #3

| Target | Ranks Assigned | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Judge 1 | Judge 2 | Judge 3 | Ind. J. 1 | Ind. J. 2 | Ind. J. 3 | Ind. J. 4 | X |
| Moscow Exhibition | 1 | 2 | 2 | 1 | 3 | 1 | 1 | 1.6 |
| Taxi to Ukraine Hotel | 2 | 1 | 3 | 2 | 3 | 1 | 2 | |
| St. Michael's Church | 3 | 3 | 5 | 3 | 2 | 2 | 1 | 2.1 |
| Tertrezeko Art Gallery | 2 | 4 | 4 | 2 | 2 | 1 | 2 | 2.4 |
| Danube River | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Sum of Ranks | 9 | 11 | 15 | 9 | 11 | 6 | 7 | 12.1 |
| p value (one-tailed) (Morris, 1972 | .05 | .20 | <.20 | .05 | .20 | .005 | .01 | .20 |
| p value (one-tailed) (Solfvin, Kelly & Burdick, 1978) | .041 | .139 | <.139 | .041 | .139 | .002 | .007 | .179 |



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Table 6

Ranks Assigned by Judges in Protocol #4

| Target | Ranks Assigned | | | | | | | | | | Rank Sum | X1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Columbus, Indiana Public Library | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 27 | 2. |
| Rockefeller Chapel | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 1 |



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Table 7

Ranks Assigned by Judges in Protocol #5

| Target | Ranks Assigned | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Set A | Set B | Set C | Set D | Set E | Set F | Set G | X |
| Feathered Pipe Ranch Lodge (Mont.) | 1 | 1 | 2 | 1 | 1 | 3 | 4 | 1.8 |
| Pontiac wreck and trumpet player (Mont.) | 3 | 1 | 5 | 3 | 1 | 4 | 3 | 2.9 |
| Herd of cows and culvert (Idaho) | 2 | 1 | 4 | 2 | 1 | 6 | 6 | 3.1 |
| Gambling casino (Nev.) | 2 | 1 | 2 | 5 | 5 | 3 | 6 | 3.4 |
| Coffee shop (Calif.) | 3 | 2 | 4 | 2 | 4 | 2 | 4 | 3.0 |
| Driving down Pacific coast (Calif.) | 4 | | 5 | 1 | 4 | 1 | 1 | 2.7 |
| Sum of ranks | 13 | 6 | 22 | 14 | 17 | 19 | 24 | 16.2 |
| p value (one-tailed) (Morris, 1972) | .04 | .0005 | <.20 | <.05 | <.20 | <.20 | <.20 | |
| p value (one-tailed) (Solfvin, Kelly & Burdick, 1978) | .036 | >.001 | <.145 | .061 | <.145 | <.145 | <.145 | |



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Table 8

Ranks Assigned by Judges in Protocol #6

| Target | Rank Assigned |
|---|---|
| Salt Water Lagoon | 4 |
| Cafe Pollito | 1 |
| Lobby of Princess Hotel | 1 |
| River Boat at Disney World Village | 3 |
| Seaworld | 2 |
| Riding on expressway | 5 |
| Sum of Ranks | 16 |
| p value (one-tailed) (Morris, 1972) | .20 |
| p value (one-tailed) (Solfvin, Kelly & Burdick, 1978) | .145 |

Table 9

Ranks Assigned by Judges in Protocol #7

| Target | Rank Assigned | | |
|---|---|---|---|
| River Boat at Disney World Village (retro) | 1 | | |
| Seaworld | 1 | | |
| Hotel room (no target) | 6 | | |
| Carib Hotel deck | 2 | | |
| Riding on expressway | 2 | | |
| Gatorland | 3 | | |
| Sum of ranks | 15 | (a) 9 | (b) 8 |
| p value (one-tailed) (Morris, 1972) | .10 | | |
| p value (one-tailed) (Solfvin, Kelly & Burdick, 1978) | .097 | .006 | .007 |

(a) Excluding control trial

(b) Excluding control and retrocognitive trials