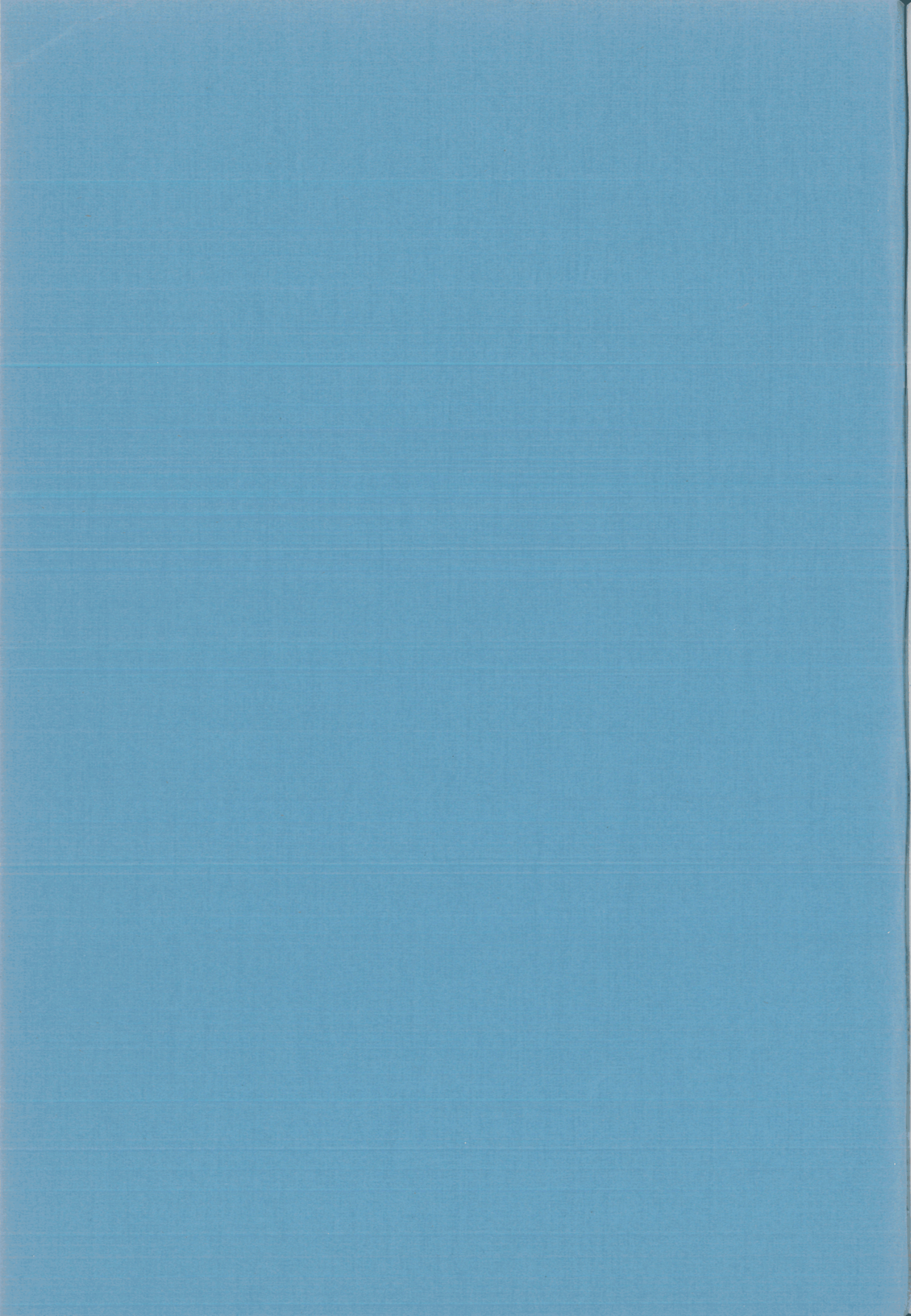


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THREE PAPERS ON THE TOKEN-OBJECT PHENOMENON

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by Martin Johnson

Correction of some figures in the articles,
published in the march 1972 issue of this
research letter 34

Sybo A. Schouten

THEORETICAL PROBLEMS

Martin Johnson

INTRODUCTION

In recent years W.G. Roll (12, 14) and M. Ryzl and J.G. Pratt (18) have raised anew the question whether the token object in itself may play more than a motivational or suggestive rôle in matching experiments. Roll's theoretical discussions on the possible existence of certain psi-fields may have some bearing on the old "impregnation hypothesis". In 1956 the present author (2, 13) tried to test this hypothesis in his little experiment with Mr. G. Croiset.

Most of the reported experiments on token object tests have been characterized by a rather scanty methodological design. The author's first major objective in designing this experiment has been to exclude motivational errors¹⁾ recording errors, and sensory-cue errors. The second major objective has been to develop an experimental procedure that may help us to find out whether or not targets in a token object test really need to have "perceptible" signs of identification in order to function as carriers of ESP-information. The third main objective has been to develop a method whereby we might be able to determine whether or not a subject's success in a token object Blind-Matching test can be explained entirely in terms of precognitive processes, or whether some kind of more fundamental process, that might have some kind of affinity to the "psi-field" hypothesis, must be considered.

¹⁾ Motivational errors here denote those artifacts that are usually described as experimenter expectancy effect, or discussed under the heading of demand characteristics (17)

An attempt at a Theoretical Analysis of Possible Explanations of "Significant" Results from Token Object Tests Carried Out Under Different Methodological Conditions.

Consider an experiment in general psychology in which a certain subject responds to a certain stimulus situation. The response given can thus be expressed according to the following mathematical function:

$$(a) R=f\left(h_1(s), h_2(s) \dots h_n(s), g_1(o), g_2(o) \dots g_m(o)\right)$$

where h denotes certain aspects of the stimulus situation and g denotes different variables within the organism responding to the stimulus in question.

In connection with ESP-experiments the function will become a little more complicated because of the effects that may be exerted on the observed responses by different kinds of psi-variables. The definition of psi-variables is closely linked to the experimental setting in which the responses are observed.

The following psi-variables are usually thought of as possible explanations of observed results:

- A. telepathy, here denoted as "variable \underline{t} ";
- B. clairvoyance, ,, ,, \underline{c}
- C. precognition, ,, ,, \underline{p}

Beside these three variables or "parameters" paranormal phenomena with physical effects are reported and labelled as "psychokinetic" in their nature.

Upon closer consideration we can think of different temporal aspects of the \underline{t} and \underline{c} -variables and we can also think of different functional aspects of the p-variable. These temporal and functional aspects are compiled in Table 1.

Table 1

TEMPORAL ASPECTS OF THE t- AND c-VARIABLES
AND DIFFERENT FUNCTIONAL ASPECTS OF THE
p-VARIABLE

Phenomenon	Temporal aspect	Simul- taneous	Pre- cognitive	Retro- spective
Telepathy		t_s	t_p	$t_r?$
Clairvoyance		c_s	c_p	$c_r?$
Precognition ("pure")?				

After the precognition phenomenon was demonstrated under laboratory controlled conditions it is hard to imagine any kind of ESP-experiment where some kind of precognitive influences will not be found to be present. In all experiments in which a final protocol will be obtained there seems theoretically to be a possibility that the obtained results may be affected either by the figures in the protocol itself (precognitive clairvoyance) or by the experimenter's or somebody else's experiences when reading the record.

Does the concept "pure" precognition make sense? Could it be possible to anticipate "future" events outside the conceptual frame-work of processes defined as "telepathy" and "clair-

voyance"?¹⁾. In ordinary psychological terms regarding the process of "concept formation", the concept "pure" precognition doesn't make sense. This semantic conclusion doesn't prove that "pure" precognition doesn't exist, but the author hasn't been able to imagine one single case in which the concept makes sense outside the conceptual framework of "objective" events or mental activities.

Regarding "retrospective" telepathy and/or, clairvoyance, it is also hard to imagine any kind of experimental procedure by which such processes could be studied. These difficulties are related to the fact that as soon as a "retrospective" statement is to be evaluated, some kind of criteria has to be established. Someone has to judge if the statement is veridical or not. To "validate" the statements given by the sensitive we have to use either one or other of these criteria:

- a) Someone in present time must have the knowledge of the things that "retrospectively" are obtained by the subject
- or
- b) if no one at present time has the knowledge which makes it possible to evaluate what the sensitive by a "retrospective"

1) According to the glossary of the Journal of Parapsychology:

- a) telepathy is defined as extrasensory perception of mental activities of another person;
- b) clairvoyance=extrasensory perception of objective events (as distinguished from telepathic cognition of mental activities of another person).
- c) precognition is defined as cognition of future events which could not be known through rational inference.

telepathic or clairvoyant process is supposed to have obtained, the statements are irrelevant unless:

- 1) data with some bearing on the matter already exist (written in some kind of document) in which case simultaneous clairvoyance cannot be excluded or
- 2) someone will later on find and read the document eventually deciphering the document for the first time. According to this case precognitive phenomena cannot be excluded as variables affecting the experiment.

There is, however, another possibility regarding "retrospective" impressions which it is worthwhile to consider. Presuppose that mental activities induce or leave some kind of "trace" in matter itself. We can think of such a process as happening in many ways, for instance in terms of psi-fields. If mental activities in some way or another could be "recorded" in the very matter of the token object, the object itself could function as a carrier of "clues" for the sensitive. Before we enter into a more detailed discussion of this hypothetical question one more distinction regarding target characteristics has to be made.

When a subject in an ESP-experiment is performing for instance a clairvoyance-test according to the Down-Through procedure, the subject is responding to target-characteristics or symbols which, in fact, are (principally) accessible to normal perception.

In some experiments reported for instance by Schmeidler (19) and Johnson (2) statistically significant results have been obtained in spite of the fact that "events" or target characteristics are not accessible to sensory perception. An alternative explanation of the reported results can be expressed in terms of precognition, even if at least some "countermeasures" have been

taken to complicate or thwart the process of precognition.

For reasons of logic it may be worthwhile to distinguish between two kinds of clairvoyance given in Table II. on this page.

Table 2
CLASSIFICATION OF CLAIRVOYANCE

Phenomenon	Temporal aspect	Simultaneous	Precognitive
Clairvoyance of "perceptible" events	c_{s-p}	c_{p-p}	
Clairvoyance of "non-perceptible" events	c_{s-np}	c_{p-np}	

After this presentation of various operational definitions or attempts to try to classify some observed psi-phenomena, we shall return to a few varieties of token object test-situations, to see in what terms the explanations of observed results can be thought of.

Example 1. Let us consider one of the "classic" experiments, in which a medium is handed a token object, e.g. a piece of China, The object is freely exposed and the experimenter or some other person present at the experiment is aware of the history of the object.

The responses given by the medium are evaluated in a rather loose sense. In this case the following mathematical function may be applicable,

$$(b) R = f \left(h_1(s), h_2(s) \dots h_n(s); g_1(o) \dots g_m(o); \right. \\ \left. t_s(t), t_p(t'), c_{s-p}(u), c_{p-p}(u'), c_{s-np}(v), \right. \\ \left. c_{p-np}(v'), i(w) \right)$$

where i denotes the hypothetical "impregnation."

The reported results may to some extent reflect ESP-processes but there is such a variety of sources of error-sensory cues, rational inference, selective reporting etc. that the results in themselves are quite inconclusive as far as the ESP-effect is concerned.

Example 2. Presuppose that the experiment is performed in a little more sophisticated way, which means:

- a) that the "free verbal response technique" is utilized, making the statements given, accessible to statistical evaluation;
- b) that the token objects are put into boxes of identical size and appearance;
- c) that the experimenter at the time of the experiment is not by "normal" cognition aware of the objects used and their history.

In this case the following function may be valid:

$$(c) R = f \left(h_1(s), h_2(s) \dots h_n; g_1(o), g_2(o) \dots g_m(o); \right. \\ \left. t_s(t), t_p(t'), c_{s-p}(u), c_{p-p}(u'), c_{s-np}(v), \right. \\ \left. c_{p-np}(v'), i(w) \right)$$

What we are told by this expression is, that the results R, while statistically significant, cannot primarily be an effect of rational inference, sensory cues etc.

At the same time we have to consider that the specific appearance of the token objects may have been perceived by the "sensitive" by clairvoyance (e.g. c_s), and that this information may secondarily s have influenced the sensitive's responses. All the other psi-parameters discussed earlier may also be looked upon as possible explanations.

C o m m e n t s

The possibility can not be excluded that a kind of "sensory cue" can have secondarily exercised an influence on the observed results, for instance if the experimenter himself, during the experiment, has by paranormal means obtained some kind of information of relevance to the experiment.

There may then exist a kind of interaction both sensory and extra-sensory between the sensitive and the experimenter. Here we have to stress that the presupposed significant results cannot be explained away as primarily an effect of sensory cues. The information-process must primarily be initiated by psi, but the psi information may to some extent be reinforced by sensory cues in the presupposed interaction process between the experimenter and the sensitive. The h-variables in our function will still account for this hypothetical process.

Let us advance one step further! Could a method be designed in which not only the h-variables can be looked upon as quite incapable of explaining obtained results but also in which explanations in terms of the t_s , t_p , c_{s-p} and c_{p-p} -variables will

appear as very unlikely contributors to significant results obtained in a token object test? The author thinks that such an experimental procedure can be imagined. In the following such a method will be presented.

The experimental procedure includes some refinements that offer some possibilities of finding out whether the obtained results can be locked upon as entirely depending on precognition or whether something more than precognition has worked. This will mean that by using the outlined method, the "impregnation-hypothesis" could be tested differentially.

PART TWO

AN OUTLINE OF A METHODOLOGY

A new Method of Quantitative Token Object Test by the Use of the Tracer Technique.

The experimental procedure that will be described here does not represent an example of an ideal solution to a difficult methodological problem. It may rather be looked upon as an example of an optimal solution, in which the experimenter has been forced to adapt the method according to several practical factors. Many alternatives can be proposed but the approach that will be introduced here is the one that could be realized most easily at Lund University. Importance had also to be given to the main subject's attitude towards what she thought she could be able to perform. The rather complicated technical procedure that will be discussed here cannot easily be replaced by the "target substituting technique" used in the Croiset-experiment. (1,12) One reason is that the technique of putting tape-strips together is a both tedious and time-consuming task. Another reason and a more important one is that the target-items (the strips) cannot easily be used in repeated experiments—something essential for the study of the "focusing effect" (4,7,9) because the ends of the tape-strips usually become damaged with the procedure of detachment. This means that if the tape-strips are used in a repeated experiment they will no longer be identical in appearance, which may have some bearing on the problem of different kinds of clairvoyant processes, earlier denoted as c_{s-p} , c_{p-p} respectively c_{s-np} , and c_{p-np} .

There are two basic problems as far as the methodology is concerned, one is psychological and is associated with the idea of "mental impregnation", and the other is technical and is related to the problem of how to present identical matching-items

which will be free from any kind of signs of identification which can be perceived by sensory means.

A) The choice of target-persons

A certain number of "target persons" can be used in a token object test of the "blind-matching" type. For "discriminative" reasons we may choose the same number of male and female subjects as "activators" or target persons in our experiment. Furthermore there could be a rationale for choosing "profiled" people, all characterized by strong personalities, but who in spite of this general similarity, nevertheless are very different in other respects (age, social background, personality traits, occupations, interests etc.). These differences regarding background characteristics may make it easier for the subject to discriminate among objects related or "linked" to the different target-persons.

B:I) The choice of identification technique to make evaluation of the experiment possible.

The general outline of the experiment has been adapted to the idea of utilizing the tracer technique as a means of identification of the items. To record the items a rather sophisticated scintillation counter device, used for biochemical studies, may be used. The scintillation counter device, "the Chicago-counter", which will be used in our experiment, belongs to the Department of Biochemistry at the Chemical Research Centre of Lund University.

For the discrimination between different target-persons one single radio-isotope can be used, but to make it possible to discriminate between different target-items within a set related to the same target person, another radio-isotope can be used. The first kind of

marking will be denoted as "nominal marking", but the individual marking of the target items will be designated as the "serial marking".

B:II) As target items a special brand of glass tube, used in connection with scintillation counter analysis, has been chosen. The glass tubes are precision-made in all respects, the effect being that it seems very unlikely by sensory means to discriminate among different glass tubes. (The variance of weight is extremely small: ± 3 milligrams within a set of 50 items).

B:III) The isotope used for the "nominal marking" has been H^3 (tritium) and for the "serial marking" C^{14} .

Comments on the indication procedure.

The decay products from the two isotopes are low-energy beta-particles. It ought to be noticed that no beta-particles penetrate the glass tubes, but that energy of the particles is, by an energy-absorbing process in the scintillation liquid, put into the tubes and then transformed into photons which penetrate the glass tubes and ram a photo-multiplier device. Notice also that the photons which are emitted cannot be visually perceived, because of their low amount of energy and also because of the fact that the wavelengths of the photons are in the region of 100-1000 AE. The energy of the beta-particles emitted from H^3 is .018 Mev and those from C^{14} .156 Mev.

C. Further precautions to be considered.

After the target-items have been in contact with the target-person the "marking" of each of the sets is performed by a biochemist. The biochemist has to predetermine the different "activity levels" of both the "nominal" and the "serial" markings to make sure that the Chicago-

counter will be able to discriminate reliably between the items. Furthermore the following things must be considered:

1. After the tubes have been "marked" by the tracers the weight of the tubes plus the liquid in the tube must be the same within say + 2 milligrams. This can be accomplished by filling up the tubes with an accurate volume of the "scintillation liquid" which means that the weight of each (sealed) and marked tube within very strict limits will be the same; furthermore the density and opacity of the solution in all the tubes will be the same.

2. One "marked" tube, from each of the sets related to a target-person is set aside and will later on, in the blind-matching procedure, function as the "key-item" or the "clue-item" against which the subject performs the matchings.

3. No kinds of fingerprints on the tubes must be allowed. That means that precautions must be taken beforehand at the outset start of the procedure of "mental impregnation", and during the remaining procedure (when the tubes are "marked" and when they are placed into the dispensible containers, rubber gloves must be used.

4. As has already been mentioned, the dispensible containers into which the glass tubes will be put, must be of identical shape and size, in order to prevent any kind of sensory clues that could serve as feed-back for information in repeated matching experiments.

5. To be quite sure that the discrimination of the matching objects is not affected by differences in weights of the items, the dispensible containers have to be characterized by a greater absolute variance of weights than that of the glass tubes. This is to counteract possible criticism

based on the idea that the subject may have an extraordinary ability to discriminate very small differences in weight among the different sets or fractions of glass tubes.

6. In each experiment the matching-items (the glass tubes put into the containers) have to be randomized according to some standard-procedure of randomization.

7. During the matching-experiment the subject must not be permitted to be in direct contact with the "clue-items". Someone may think that the subject in his matching-procedure is responding to olfactory cues. These problems can easily be managed by presenting the "clue-items" on a TV-screen. Even if the different matching-items, which however is most unlikely, were characterized by different olfactory qualities related to the target-persons, extra-chance scores in a matching experiment could not, under these circumstances be explained away in terms of hyper-olfactory discrimination. Only an "internal consistancy" within the sets of matched items could hypothetically be thought of as an effect of olfactory cues, but this hypothesis would not account for extra-chance scoring.

8. The "clue-items" in each experiment have to be unidentifiable to the experimenter, the controlling personel, and the subject, during all the experiments.

9. The "clue-items" have to be randomized before they are presented on the TV-screen, according to a certain routine.

10. After the matching procedure has been carried out, one or more supervisors of the experiment must transport the clue-items and the matched items to the Department of Biochemistry for the analysis.

11. Prior to the experiment, the number of matching-sessions has to be determined.

12. The analysis of data must be carried out by "noninterested" personnel of the Biochemical Department, just as a routine analysis.

13. The recorder-strip from each of the analyses have to be kept in safe deposit by the personnel responsible for the analysis until all the experiments have been carried out.

14. All the steps of the experiment have to be watched by supervisors thus trying to eliminate every possibility of "motivated perception" and cheating from the experimenter's and/or the subject's side.

Comments on the Evaluation Procedure

The apparatus can be loaded for analysis with maximally one hundred samples (glass tubes) which are put into holders on a certain kind of conveyor. The conveyor can be programmed in such a manner that all the samples, one after another will come into position for measurement and the number of measurements of the items can also be programmed. The "Chicago-counter" is designed to be able to discriminate (simultaneously) between beta-particles emitted at different levels of energy. The "counts" at different levels of energy are recorded by a multichannel device.

The "clue-items" are put into the apparatus as the first sample of each set of "matched" items to be placed at pre-determined positions on the conveyor.

Evaluation is made by scrutinizing the number of "counts" on the paper-strips from the multi-channel-recorder.

E. "Intervention" as a Means of Differential Testing of the Impregnation Hypothesis.

I. Several attempts have been made to design "intervention experiments" in precognition.

None has, from a theoretical point of view, turned out to be successful since the only thing that will be obtained in that way is a series of "complications" which will not necessarily influence the possibility of precognizing the "intermediary" interventions. In the following the author is going to present an intervention procedure in the discussed B-M token object test; a procedure by which a differential measurement may be obtained regarding the precognition-versus the impregnation hypotheses": The weakness of the design is, that a measurement of statistically significant scoring within the experiment can inform us of two different effects, but we will never obtain knowledge of which effect is which. The general approach has some similarities to the "split-half" technique of comparing odd and even items in for instance a test of intelligence, Imagine that the experiment is carried out according to earlier discussion and with say four different kinds of target-items, characterized A, B, C and D. Let the number of "matching-items" within the set be an even one, for example 4. The TV, Blind Matching experiment, is carried out and the subject places four items in each of the sets, corresponding to the position of the clue-items presented on the screen of the closed-circuit TV set. The items within each of the sets are, for special reasons, randomized. The sets, (the containers may be put into boxes with two rows in each), are denoted as "outermost" position, outer position, inner and innermost position, related to the clue-items. (Positions OM, O, I and IM). The general idea will be easy to grasp if the reader takes a look at Fig. 1.

Fig. 1.

Clue-items presented at The TV-screen	T _a IM	T _b I	T _c O	T _d OM
Matched Fractions	x	x	x	x
(Relative order from top to bottom)	x	x	x	x
	x	x	x	x

Then imagine an "intervention apparatus" of the following general design.

1) The vital part of the apparatus consists of a disc which can be turned around by a motor unit.

2) From the centre of the disc there are four identical radially distributed boxes, each of these having four similar-looking stands.

3) The items of the "outermost" fraction are then put into the "outermost" stands of the four boxes. The items of the "outer" fraction are put into the next stands (designated as stands for the "outer" items). Then the items of the "inner" fraction are put in the stands of the next four boxes and finally the items of the innermost" fraction are put into the stand of the four boxes closest to the centre of the disc. The general principle is depicted in Fig. 2.

II. The act of "intervention"

The items are put into appropriate position according to the previous discussion. They are placed into the stand of the boxes in a uniform way. The boxes must not have any kind of

Fig. 2.

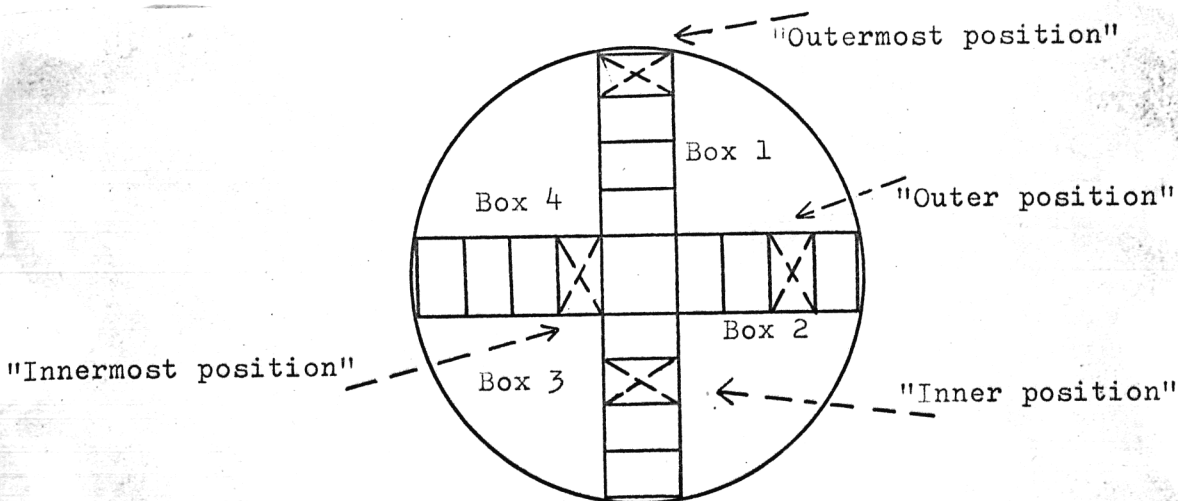


Fig. 2

The disc with its boxes seen from above.

perceptually recognisable differences. The same must be the case regarding the items (containers), when put into the stands. Then the motor unit is started and the disc is revolved for a randomly determined time. The "intervention apparatus" must be fairly well screened off during the act of intervention (for instance enclosed in a box with the front covered with a curtain).

After a randomly determined time the motor unit is cut off and the revolving disc has stopped, a person puts his arm through the curtain. His task is now, without seeing what he is doing, to rearrange the four items in the quadruple box next to the opening of the curtain. (He is supposed to use rubber gloves to prevent finger prints). Then he manually brings the disc to rotate 180° , and rearranges the position of the four items in that box. Then the motor is switched on and the disc rotates again for a randomly

determined time. Then the "intervention apparatus" is removed and the items are taken out, the set in the outermost position first, then the "outer" set etc. What has been obtained by this procedure is that every second item in each set has been "intervened", but we will never obtain knowledge of which ones they are.

If in repeated experiments statistically significant irregularities of hits on "odds" and "evens" are obtained, these results may indicate that the act of intervention has't been anticipated by the subject. If the number of matching items is increased (and consequently the number of possible positions within a box) the hypothetical effect of significant scoring differences between "odds" and "evens" will be easier to measure, from a strict statistical point of view. A possible establishment of an "odd"/"even" effect could as far as the author can see, to a certain extent substantiate the "impregnation hypothesis". If significant scoring is supposed to depend entirely upon precognition, the subject should have performed his matching in relation to the final order of items ~~a f t e r~~ the "intervention" was carried out.

PART THREE

A PILOT-STUDY WITH THE TRACER-TECHNIQUE

INTRODUCTION

In this part of the paper a brief presentation will be given for the first series of experiments with the tracer technique. For practical reasons the number of experiments or "runs" had to be limited to eight Blind-Matching-sessions (B-M) in which the subject had to carry out the matching of sixteen target-items against four "clue-items" related to four "target-persons".

The eight sessions took place between December 4 and December 10.1967.

During the last two days, four experiments were carried out-one in the morning, and one in the evening.

Notes on the procedure

Three weeks in advance of of the test-sessions four target persons had been asked to take care of five empty glass tubes put into a bag of polyethylene. They were asked to have the bags in as close bodily contact as possible during the time. As target persons two males and two females functioned. All of the persons can, for common sense reasons, be looked upon as highly profiled people with strong personalities, but having quite different background characteristics.

Notes on the Target Persons

One of the female subjects - the widow of a world famous Swedish astronomer, is 81 years old. She has travelled much and met many distinguished people, but she originates from the countryside of northern Sweden.

The other female subject - a very active woman with a Ph.D. in literature, keenly interested in, among other things, parapsychological matters.

The other female subject is a very active woman with a Ph. D. in literature, keenly interested in, among other things, parapsychological matters. She has also played an important role in the Swedish feminist movement and is one of the most distinguished producers of scientific and cultural programs at the Swedish Broadcasting Corporation. In addition, she is a M.P.

One of the male target persons (No. 3) is of Yugoslavian extraction; educated in Italy and the U.S.A. He took an M.S. in the U.S.A.; worked as a journalist for several years. During W.W.II he was one of the body-guards of General Patton. After the end of W.W.II. he returned to his native country where he functioned as an administrator of Tito's Atomic Power Program. Later on he defected from Yugoslavia to the U.S.A., and turned to sociological studies. He is now an expert on the sociology of science.

The other male subject is a rather young Swedish physician, who has had a hard upbringing; he has travelled much and is very interested in parapsychology. Actually he is a member of the P.A.

Some Notes on the people of the Department of Biochemistry, responsible for the "marking", recording and evaluation procedure of the experiment.

The biochemist who made this experiment possible is Dr. Ro Löfqvist of the Department of Biochemistry, Lund University. He is an expert on nutrition and has functioned as an advisor to the Swedish government on problems related to nutrition and aid to the underdeveloped countries. In addition he plays an important part in research administration at governmental level and is one of the persons in charge of the planning of the international meeting in Stockholm on environmental problems. He has been responsible for the "marking" of

the "target"- and "matching items" in our experiment and has functioned as supervisor of the evaluation procedure. In this work he has been assisted by Miss Ann-Maj Dahl at his sub-Department.

Tasks for the supervisors and assistants of the experiment.

The matching experiments have been carried out at the Department of Psychology of Lund University. Several rooms have been used for the experimental procedure; one is equiped with a TV-camera. The closed-circuit TV-system has been utilized. The rooms in which the subject performed her matchings against the clue-items appearing on the TV-screen is situated some 20 yards from the TV-camera-room, in which the target items were put on a table in front of the TV-camera.

Another room was used for the randomization procedure of the matching items. (The sixteen matching items, put into identical-looking containers have first been randomized according to a standardized procedure; later on the 16 items have been lined up on a table, from left to right of the supervisor responsible for the randomization procedure. Secondly, the positions of the items have been rearranged according to the order in which the numbers 1 to 16 have appeared in a random number booklet. The entry points have been determined by a multi-dice throwing procedure).

The following people from our Department have been involved as supervisors and assistants of the experiment:

Dr. Bertil Nordbeck,
Dr. Olof Rydén,
Mr. Bo Ericsson, instructor of psychology
and Mr. Peter Lundmark, also working at our
Department.

The subject has been Miss LKB., who in earlier experiments reported by Schmeidler & Johnson (20) and by Johnson & Nordbeck (3) has manifested extra-chance scoring. She usually

prefers ESP-experiments of the B-M-type.

Experimental Procedure

The experimental procedure has closely followed the design of the experiment discussed in the second part of this paper. By a moderate reconstruction of a pursuit rotor a reliable and useful "intervention-apparatus" could be obtained. The general characteristics of this apparatus will easily be seen in Fig. 1.

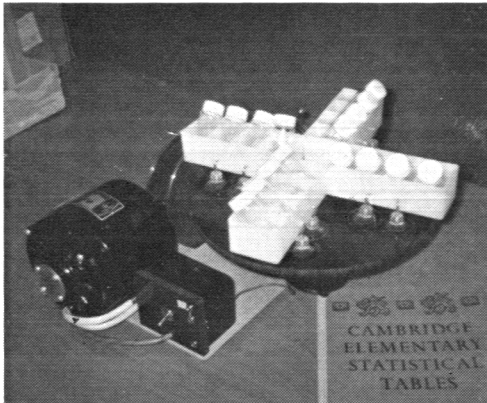


Fig. 1.

The general appearance of the Chicago Counter and its interior follows from Fig. 2 and 3.



Fig. 2

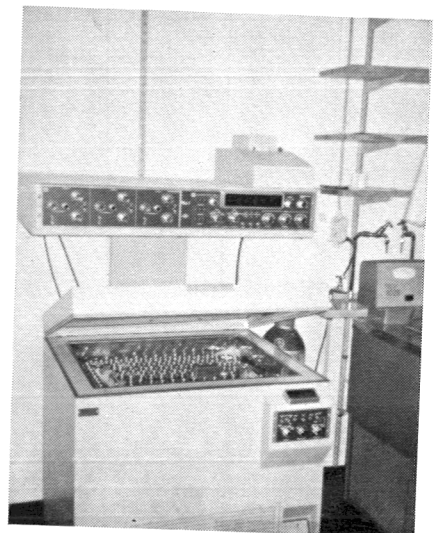


Fig. 3

Comments on "psychological" preparations prior to each of the experiments.

As a warming up procedure, Miss LKB. has been used to a pre-test of ESP of the GESp-type. The pre-test run has also been used as a "preferential" test of the "main-experimenter" (20) In most of the pre-test situations she obtained extra-chance scores on the sequence of symbols produced by the present author. In one of the experiments, Dr. Nordbeck acted as the "main experimenter"; in another Mr. Bo Ericson. In all the experiments at least two experimenters watched her matchings.

Summary of the Test Procedure.

1. two supervisors were responsible for
 - a) putting the glass tubes into the containers,
 - b) the randomization of the containers or "matching items",
2. the "warming up" or "preferential ESP-choice" of main experimenter for the session took place,
3. two of the supervisors brought the four clue-items (also put into containers) down to the TV-camera room.
4. By a random procedure the primarily established sequences or positions of the clue items were determined (by the use of dice-throwings and the use of the random number booklets).
5. The TV-system was put into operation.
6. At least two controllers who had been sitting with the subject in the room used for the pre-test while the time steps 3-5 were carried out, accompanied the subject up to room 208 - the room with the TV-test.
7. The subject was asked to take a chair in front of a table and in front of the TV-screen. On the table was a tray with the matching items (the 16 containers). On each side of the tray ther were two specially-made boxes with two stands in each, corresponding to the positions of the clue-

- items appearing on the TV-screen.
8. The subject was asked to start the matching procedure and was instructed to put 4 items in each of the four rows. During the matching procedure the main-experimenter and the supervisors were sitting a few metres behind the subject.
 9. When the matching was over, the subject was asked to put the items into appropriate stands of the two boxes. Then the subject had to leave the Department of Psychology.
 10. During the experiment at least one supervisor was sitting in the closed TV-camera room, and no one was permitted to enter the room during the experiment.
 11. The two boxes were carried down to the TV-camera room and placed in appropriate positions as to the "clue-items". The boxes were opened and the positions of the four items within each stand were changed according to a random procedure.
 12. The "clue-items" were then placed into appropriate positions in the two boxes.
 13. Then the containers were opened and the glass tubes were removed and put on the table according to a strict procedure, preventing the possibility of mixing items of the four sets established by the subject by her matching. The items from the "outermost" set were put into the "outermost" positions of the intervention apparatus.
 14. When all the matching items had been put into appropriate places in the four boxes, the apparatus was screened off.
 15. The rotation-time of the apparatus was determined by a random procedure.
 16. The motor was started and worked throughout the predetermined time, but the speed of the motor was randomly varied during the working time.
 17. The motor was out off and the "interventions" were performed according to discussion in Part Two, 17-19.

18. After the act of intervention, the motor was started another time following the same randomized procedure.
19. The motor was cut off, and the box put up-side down over the apparatus was removed.
20. The containers were placed in appropriate rows (or stands) of the two boxes.
21. The boxes were transported to the Department of Biochemistry and handed over to people in charge of the recording procedure.
22. The personnel from the Department of Psychology were not allowed to follow the recording procedure.

C o m m e n t s

For motivational reasons the subject was not informed about the intervention procedure which rearranged 50 % of her matched items. It may be unnecessary to state that the subject was not allowed to be present in the room where the first randomization of the items took place.

The Chicago-counter was programmed to perform three measurements per item. At each of the measurements the following data were automatically typed on the strip:

- Position on the conveyor of the item that was measured.
- Counts of H^3 -decay
- Counts of C^{14} -decay
- Time of measurements

When the counter device was started it worked automatically, and the supervisor did not look at the strips during the period of analysis. At the beginning of each of the eight strips from the eight experiments the supervisor wrote a signature and the date of the analysis. Furthermore the strips were sealed with the stamp of the Department.

Decay-Characteristics of clue-items related to the four target persons.

The H^3 -isotope was used as indicator of the "clue-items" (the "nominal marking").

The counts per minute were as follows:

Target person A	7000	counts/minute		
,,	,,	B	15000	,,
,,	,,	C	24000	,,
,,	,,	D	40000	,,

The markings for the 16 "matching items" are summarized in Table I.

Table I. Decay characteristics of matching-items, "nominal" and "serial" markings.

Matching items related to TP _A			Matching items related to TP _B		
(counts/min)			(counts/min)		
H^3	C^{14}		H^3	C^{14}	
a ₁	7600	1500	b ₁	15600	1500
a ₂	8000	2800	b ₂	15600	2800
a ₃	7800	5000	b ₃	15400	5800
a ₄	7600	11600	b ₄	15500	1500
Matching items related to TP _C			Matching items related to TP _D		
(counts/min)			(counts/min)		
H^3	C^{14}		H^3	C^{14}	
c ₁	23500	30	d ₁	40000	25
c ₂	23700	1500	d ₂	40100	2900
c ₃	23600	2900	d ₃	40300	5780
c ₄	23500	5800	d ₄	40120	11500

RESULTS OF THE EXPERIMENT

Table 2. The table gives the distribution of matched items against target persons. The letter H, within the brackets, indicates a hit.

No of Exp.	Target person A	Target person B	Target person C	Target person D	No of Hits
1.	a ₃ (H)	d ₁	b ₂	a ₄	4
	a ₂ (H)	a ₁	c ₂ (H)	d ₃ (H)	
	c ₄	c ₁	b ₃	b ₁	
	c ₃	d ₂	d ₄	b ₄	
2.	a ₃ (H)	b ₁ (H)	c ₃ (H)	b ₃	8
	a ₄ (H)	b ₂ (H)	d ₂	d ₃ (H)	
	d ₄	c ₂	c ₄ (H)	a ₁	
	c ₁	a ₄	b ₄	d ₁ (H)	
3.	c ₃	b ₂ (H)	b ₁	d ₂ (H)	6
	c ₁	a ₂	a ₃	d ₃ (H)	
	c ₂	a ₁	b ₃	d ₁ (H)	
	a ₄ (H)	b ₄ (H)	d ₄	c ₄	
4.	b ₂	a ₃	b ₄	c ₁	3
	b ₃	c ₃	d ₁	d ₃ (H)	
	a ₁ (H)	c ₄	a ₂	d ₄ (H)	
	b ₁	d ₁	a ₄	c ₂	

No. of Exp.	Target person A	Target person B	Target person C	Target person D	No of Hits
5.	a ₂ (H) d ₂ b ₁ c ₃	d ₂ c ₁ a ₃ b ₃ (H)	b ₄ d ₃ a ₁ d ₄	b ₂ c ₄ c ₂ a ₄	2
6.	c ₄ d ₁ b ₁ d ₄	a ₄ b ₂ (H) a ₂ c ₄	c ₃ (H) a ₃ c ₁ (H) b ₃	d ₃ (H) b ₄ a ₁ d ₂ (H)	5
7.	d ₂ a ₄ (H) c ₂ a ₁ (H)	d ₄ b ₂ (H) b ₄ (H) c ₁	d ₂ b ₃ a ₃ d ₃	c ₄ b ₁ c ₃ a ₂	4
8.	a ₃ (H) a ₁ (H) b ₁ b ₄	c ₁ c ₂ d ₃ d ₂	a ₂ c ₃ (H) b ₃ c ₄ (H)	d ₄ (H) d ₁ (H) a ₄ b ₂	6

The total number of hits is 38 which exceeds the MCE by only +6. The second experiment was the most successful. Here we find a score of 8 hits. The probability for obtaining 8 hits in such a case ($p = 1/4$; $q = 3/4$; $N = 16$) is,

$p = .0271$ (Fisher exact probability test; one-tailed).

Only in experiment No 2, something suggestive occurred.

In four experiments (No. 2, 3, 5 and 6) the number of hits are in excess of MCE. In experiments No. 4 and 5 the number of hits are below.

It may be of some interest to examine the distribution of hits for the 16 matching items. This distribution is given in Table III.

Table 3.1. Distribution of Hits for the 16 Matching Items.

$a_1 = 4$	$b_1 = 1$	$c_1 = 1$	$d_1 = 3$	
$a_2 = 2$	$b_2 = 4$	$c_2 = 1$	$d_2 = 2$	
$a_3 = 2$	$b_3 = 1$	$c_3 = 3$	$d_3 = 5$	
$a_4 = 3$	$b_4 = 2$	$c_4 = 2$	$d_4 = 2$	
<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	
= 11	= 8	= 7	= 12	Sum total:
				38;
				MCE = 32

The subject evidently has been more successful on two of the target series, but the differences are not significant.

The next step will be to examine the "split-half" distributions within the 8 runs.

Table 4. Split-Half Distribution of Hits
within the 8 Runs.

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No. of Run	1	2	3	4	5	6	7	8	Sum of Hits
N of "Odd" Hits	1	4	3	2	1	3	1	2	17
"Even"	3	4	3	1	1	2	3	4	21
									38

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The number of observations are very restricted. We may, however, observe that in Exp. 2, where the number of hits are marginally significant, the hits on "odds" and "evens" are identical. One could perhaps conclude, that if this marginally significant outcome was due to a psi-process, the act of "intervention" did evidently not affect the result.

DISCUSSION

The purpose of this study was almost entirely methodological. The experimental procedure was however adjusted on one hand according to certain preferences expressed by a selected subject; on the other hand according to the use of existing technical equipment and facilities.

As regards **the outcome of the experiment**, nothing remarkable was substantiated. No over-all extra-chance scoring occurred. It should be recognized that a rather high level of scoring should have been needed to yield an overall significant result, since the number of trials was rather small. The author feels, however,

that the procedure deserves to be repeated both with the same subject and with new ones as well as by other investigators and under varied conditions. The method has great potential: in no other known quantitative token-object test can so many challenging problems be studied under such a high degree of inter-subjectivity in the test-situation and during the phase of evaluation of the results. From a strict methodological point of view this technique could be of a considerable interest when it comes to studies of the very challenging phenomenon, described as the focusing effect. This phenomenon has been investigated during the last decade by Ryzl and Pratt (18), Pratt (7), Pratt and Roll (10), Pratt and al., (9) and by Keil and Pratt (4). One should also observe that the method could also and preferable be used in more ordinary "psychometric" experiments, when the "sensitive" is supposed to give his "impressions" by verbal statements. In such a situation, more spontaneity and "imagery", on the part of the subject, will be brought into the test-situation, than in the case when a rather monotonous forced-choice technique is utilized.

The method has also its limitations: the outcome of a paranormal experiment seems to be related to a certain extent to a number of known and unknown psychological parameters, of which "motivation" and the experimenter-subject relationship are said to be very important ones. It is questionable how many experimenter-subject teams would emotionally accept to work under the conditions described in this pilot-study. Another of the limitations of the method seems to be that it is a rather expensive and time-consuming one. Therefore, it should in principle be used in studies with well-motivated selected subjects, who in previous explanatory experiments with a somewhat simpler procedure, have obtained suggestive results. Finally it should be mentioned, that in the end of the last session of this experiment, the subject was asked to report the "impressions" she got in relation to the four target-persons associated to the four clue-items.

In the near future the results from this more "qualitative" investigation will be reported. In the evaluation of these data the statistical technique for the appraisal of "free verbal response material" will be used, which has been developed by research-workers like Pratt (6), Pratt and Birge (8), Roll (10, 14) and Roll and Burdick (16).

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