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Protocols
for
The Use of Human Subjects

Prepared by:

The Cognitive Sciences Laboratory

6 December 1991

Science Applications International Corporation

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Approved by:

The Institutional Review Board

Submitted by:

Science Applications International Corporation
Cognitive Sciences Laboratory
1010 El Camino Real, Suite 330
Menlo Park, California 94025

I. TARGET AND SENDER DEPENDENCIES IN ANOMALOUS COGNITION

A. General Information

(1) **Principal investigator:**	Nevin Lantz, Ph.D.
(2) **Contract in force:**	U.S. Government, Client Private.
(3) **Project title:**	Phenomenological Research and Analysis.
(4) **Responsible organization:**	SAIC
(5) **Begin date:**	2 January 1992.
(6) **Risk to human subjects:**	MINIMAL.
	Subjects write and draw their mental impressions of randomly chosen target material. This process requires no more mental effort than does authoring technical material in a relaxed environment.

B. Proposed Use of Human Subjects

(1) **Research—purpose, and anticipated results:** Previous research has suggested that some anomalous cognition (AC) targets are more easily perceived than are others. In particular, moving targets (e.g., video clips) are perceived significantly better than are static ones (e.g., photographs). This experiment will systematically vary the physical properties of targets to determine possible mechanisms responsible for the earlier results.

Other laboratories routinely use senders; the Cognitive Sciences Laboratory (CSL) rarely uses them. This experiment will attempt to determine if the AC data are enhanced by using a sender.

(2) **Human-use protocol:**

Each subject will participate in 40 AC trials—ten each for the four conditions shown in Table 1.

Table 1

Experiment Conditions

Condition	Target Type	Sender
1	Static	Yes
2	Static	No
3	Dynamic	Yes
4	Dynamic	No

During each trial, the subject will perform the following tasks:

- At a prearranged time, the subject will find a quiet and lighted room in his or her home and sit at a desk.
- For a period lasting no longer than 15 minutes, the subject will write and draw his or her impressions of the intended target material, which will be located in Lititz, PA.
- At the end of the AC trial, the subject will send the response by facsimile to the principal investigator (PI).
- By overnight mail, the subject will receive a copy of the actual target as feedback for the trial.

The 40 trials will occur at a rate of three per week (i.e., one every other day) during a five-month period beginning in January 1992. There will be significant breaks during this period for holidays and to allow the subjects to participate in other experiments. The PI will maintain frequent phone contact with the subjects during the experiment.

At the conclusion of the experiment, the subject will be informed about the statistical outcome of his or her contribution and will be told about the overall result in general terms.

(3) **Subject description:**

a. Number: 8 to 10 individuals.

b. Age range: 21 years and over.

c. State of health: All subjects will be in good health, as determined by a comprehensive medical history form completed by the subjects and reviewed by the physicians Palo Alto Medical Foundation, in consultation with the subject's own physician, where appropriate.

d. Special qualifications: It is possible that the PI might propose to use as a subject, a person having some health problem in their medical history. In this unlikely event, SAIC would ask the physicians of the Palo Alto Medical Foundation, in consultation with the subject's own physician, to rule on the participation of the subject in this research.

e. Source:

All subjects will be chosen from those that have participated in previous successful AC experiments. Their backgrounds will be reviewed during the IRB formal meeting.

f. Method of selection:

Self selection.

Those individuals who are in the above population will be invited to participate in this experiment, and acceptance is completely voluntary.

g. Compensation:

Yes.

All subjects are consultants to SAIC and receive compensation in accordance with their individual contracts.

(4) **Description of risk to the subjects:**

The methods used to conduct trials in this experiment do not expose subjects to procedures any more risky than the environment of an open-book school examination that is taken at home. However, two possible psychological risks should be noted. One risk stems from the opinion held by many scientists and laypersons that participation in studies of the paranormal indicates a belief in the occult and supernatural. Subjects in this study, if they voluntarily disclose their participation, have a small chance of losing the respect of colleagues who believe that these studies have no scientific merit. Another risk is the possibility that some persons may come to believe that they have skills which, in fact, they do not possess.

(5) **Deception:**

None.

(6) **Drugs or devices:**

None.

(7) **Safeguards against risks:**

The potential for psychological risk will be reduced by advising the subject of the potential risks involved in the experiment, and by protecting the subject's anonymity. Except for medical history, which will reside with a physician at Palo Alto Medical Foundation, personal information will remain in SAIC custody for the duration of the project (i.e., approximately five years). If studies in this area are continued beyond this time, the data will be archived in compliance with all applicable laws and federal regulations with federal policy for the protection of human subjects in research.

In addition, the experiment shall be conducted in full compliance with all applicable laws and federal regulations. Subjects will be provided with information concerning their involvement in the experiment, and consent will be obtained in writ-

ing from each subject before research is undertaken. A subject may decline involvement at any time. Technical details of this experiment must be approved by the Scientific Oversight Committee of the Cognitive Sciences Laboratory.

(8) **Qualifications:** See attached curricula vitae.

(9) **Consent form:** See attached consent form.

Andrew Lantz — 12-16-91

Signature of Principal Investigator — Date

Edwin C. May — 12-17-91

Signature of Project Director — Date

Science Applications International Corporation
An Employee-Owned Company

CONSENT TO PARTICIPATE IN A PROPOSED STUDY OF
Target and Sender Dependencies in Anomalous Cognition

You are invited to participate in research intended to determine whether the quality of anomalous cognition (AC), if it occurs, depends upon the type of target and whether the quality is influenced by a sender. The results of this experiment may improve our understanding about the possible mechanisms of AC.

If you accept this invitation, you will be asked to participate in 40, 15-minute AC sessions from your home. You and the principal investigator (PI) will determine the exact schedule, but typically you will do one session on Monday, Wednesday, and Friday of each week.

The target material will be selected randomly from a set of 100 photographs of outdoor scenes and approximately 50 different thematically related scenes taken from popular video movies or documentaries. On a random basis, half of the targets will be photographs and half will be videos. Similarly, during half of the sessions, the PI will act as a sender, and during the remaining sessions, the PI will not know the specific target.

At the end of each session, you will send your written and drawn impressions of the target material by facsimile to the PI. He will send to you, by return overnight mail, a copy of the target material (i.e., either a photograph or a video tape) and an addressed envelope so that you can mail the material back the same day. This will be your feedback for the trial.

At the conclusion of the study, you will be told the details of the analysis, the statistical outcome of your contribution, and the overall outcome of the experiment. At all times, the confidentiality of your participation in this experiment will be protected. Your name will not be used. Reference to you in records of this experiment and in any published results will be coded or in consolidated form.

Similar research in other laboratories has shown that no health risks are involved in participating in this type of experiment. This field of research, however, is deemed by some to have no scientific foundation. Some friends or colleagues, therefore, may consider your participation to indicate a belief in the occult or paranormal. While, to the knowledge of the investigators, no one has suffered career damage from participating in scientific research of the type we are proposing, you should realize that your credibility with some persons might be damaged if you should chose to reveal your participation in this experiment.

In addition, there is no reason to believe that, having participated in studies such as this you will be able to use your abilities for specific personal gain. Occasionally, participants come to believe that they possess the capacity to use so-called psychic skills for personal profit in risk-taking situations (e.g., participating in games of chance or speculative investments). Some individuals who have participated in experiments of this kind have acted on such assumptions to their apparent disadvantage. Thus, the risk exists that you may come to believe that you have a skill that you may not possess. You are advised of this risk and warned that you assume responsibility for any assumptions which you make about your personal skills or capabilities.

Emergency medical care is available if the need arises during your participation in this study at the SAIC facilities in Menlo Park, California. However, no additional medical care or compensation is offered to participants in the experiment. For emergency medical assistance at the SAIC facilities in Menlo Park, California, we will call the Urgent Care Center of Palo Alto Medical Foundation at (415) 853-2959 and explain the nature of the emergency and take appropriate action.

If this explanation leaves you with any unanswered questions, please ask and obtain answers satisfactory to you before signing below. If you have questions later, please call Dr. Nevin Lantz at (717) 627-4834 or Dr. Edwin C. May at (415) 325-8292. An SAIC Institutional Review Board (IRB) composed of physicians and other knowledgeable

persons has reviewed the plan of this study to ensure that you are protected to the maximum extent possible from any health risks that may be associated with your participation in this study. Additional inquiries or comments may be addressed to the IRB Chairman, Dr. Garrison Rapmund, 6 Burning Tree Court, Bethesda, MD 20817, (301) 365-1419.

Your participation in the research is voluntary. You will be free to cease participation at any time. If you decide not to participate or you later withdraw from participation, there will be no adverse consequences for you.

After receiving the information provide above and the answers to my questions, I, _____, agree to participate as a subject in the activity described. I consent to the use and publication of any data or information resulting from my participation, provided that I am not personally identified. I further understand that additional information regarding the experiment will be available to me on request and that I may withdraw my consent to participate in this experiment at any time. I am an adult and am not presently under medication or treatment by a physician, except _____.

Your signature indicates that you have read and understood the above information, that your questions have been answered to your satisfaction, and that you have decide to participate based on the information provided. A copy of this form will be furnished to you.

_____	_____
Signature of Subject	Signature of Witness
_____	_____
Signature of Principal Investigator	Date

II. ANOMALOUS COGNITION IN LUCID DREAMS

A. General Information

(1) **Principal investigator:**	Stephen LaBerge, Ph.D.
(2) **Contract in force:**	U.S. Government, Client Private.
(3) **Project title:**	Phenomenological Research and Analysis.
(4) **Responsible organization:**	SAIC.
a. Performing organization:	The Lucidity Institute.
b. Relation to SAIC:	Subcontractor.
(5) **Begin date:**	2 January 1992.
(6) **Risk to human subjects:**	MINIMAL. Risks due to dream experiences are no different from those experienced every night. Subjects will be exposed to flashing lights during sleep, but these will present risks no more serious than occasional loss of sleep.

B. Proposed Use of Human Subjects

(1) **Research—purpose, and anticipated results:** Previous work has suggested that REM sleep is conducive to anomalous cognition (AC). This pilot experiment is designed to explore the potential for using the REM lucid dreaming state (i.e., dreaming while knowing that one is dreaming) for enhancing AC. Once an individual is aware of his or her dream, we expect that the dreamer will be able to identify AC target material, and be able to separate it from other dream images. Thus, we expect that the lucid dream state will reduce the "noise" content of a response.

(2) **Human-use protocol:**

The general strategy of this pilot study calls for subjects to induce lucid dreams in which they will view AC targets (e.g., *National Geographic* magazine photographs) that have been sealed in opaque envelopes. To implement this strategy, we must train individuals to induce a lucid dream.

Training in Lucid Dreaming

All subjects will receive two forms of training in lucid dreaming: (1) They will complete a lucid dreaming home-study course developed by the Lucidity Institute, and (2) they will attend two weekend seminars, one at the beginning and one at the end of the proposed three-month pilot study. The first seminar, to be held in December, 1991, will introduce subjects to lucid dreaming skills and the the use of the DreamLight, a lucid dream induction device. In previous studies, the DreamLight has been shown to enhance the frequency of lucid dreaming. The DreamLight consists of a sleep mask equipped with lights and eye movement sensors, which are attached to a small battery-operated computer. When the computer detects the eye movements of dreaming (i.e., REM) sleep, it causes the lights in the mask to flash briefly (i.e., either one or two flashes per second). The dreamer frequently incorporates the flashes into the ongoing dream, and thus experiences a cue to indicate that he or she is dreaming. Subjects will have free access to DreamLights during the duration of the study.

Lucid Dreaming AC Trials

During the study, each subject will attempt to provide six AC trials in a lucid dream state according to the following procedure: At the first seminar each subject will receive a sealed opaque envelope containing a target photograph chosen randomly from a predetermined set of 100. Subjects will place the target envelope in the room in which they are sleeping. Using the DreamLight, they will attempt, while dreaming, to open the envelope, memorize its content, and awaken as soon as possible. In the waking state, they will write and draw their impressions in detail. During the next day, they will mail the unopened envelope and their response to the principal investigator (PI) for analysis. Upon receipt, the PI will send back a copy of the target photograph as feedback and an additional sealed envelope for the next trial. This procedure will be repeated until six trials are obtained from each subject.

AC Baseline Measures

Each subject will be asked to contribute eight trials in a waking state in the Cognitive Sciences Laboratory as an AC baseline series. The targets for this series will be chosen at random from a standardized target set that was developed from an earlier program. Each trial will be conducted as follows: After the subject and an experimenter (i.e., called a monitor) enter the AC laboratory (i.e., an office with a single desk and two chairs), an assistant will use a computer random number generator to select a target from the baseline target pool. Both the subject and the monitor will be blind to this specific choice. At a pre-arranged time, the monitor will encourage the subject to draw and write his or her impressions of the target material, which is located approximately 50 meters away. After approximately 15 minutes of casual questioning, the trial will end; the data will be copied; the originals will be secured; and the actual target will be presented as feedback to the subject.

(3) **Subject description:**

a. Number: 8 to 10 Individuals.

b. Age range: 21 years and over.

c. State of health: All subjects will be in good health, as determined by a comprehensive medical history form completed by the subjects and reviewed by the physicians Palo Alto Medical Foundation, in consultation with the subject's own physician, where appropriate.

d. Special qualifications: It is possible that the PI might propose to use as a subject, a person having some health problem in their medical history. In this unlikely event, SAIC would ask the physicians of the Palo Alto Medical Foundation, in consultation with the subject's own physician, to rule on the participation of the subject in this research.

e. Source: All subjects will be chosen from those that have participated in previous successful AC experiments, or have reported success in lucid dreaming to the Lucidity Institute. Their backgrounds will be reviewed during the IRB formal meeting.

f. Method of selection: Self selection.

Those individuals who are in the above populations will be invited to participate in this experiment, and acceptance is completely voluntary.

g. Compensation: Yes.

Those subjects who are consultants to SAIC will receive compensation in accordance with their individual contracts. Those subjects who are from the lucid dreaming population will be uncompensated volunteers.

(4) **Description of risk to the subjects:** The methods used to conduct trials in this experiment do not expose subjects to procedures any more risky than the environment of an open-book school examination that is taken at home. However, two possible psychological risks should be noted. One risk stems from the opinion held by many scientists and laypersons that participation in studies of the paranormal indicates a belief in the occult and supernatural. Subjects in this study, if they voluntarily disclose their participation, have a small chance of losing the respect of colleagues who believe that these studies have no scientific merit. Another risk is the possibility that some persons may come to believe that they have skills which, in fact, they do not possess.

(5) **Deception:** None.

(6) **Drugs or devices:** None.

(7) **Qualifications:** See attached curricula vitae.

(8) **Consent form:** See attached consent form.

S C Boyer — Signature of Principal Investigator — 12/10/91 — Date

Edwin C. Moog — Signature of Project Director — 12/12/91 — Date

Science Applications International Corporation
An Employee-Owned Company

CONSENT TO PARTICIPATE IN A PROPOSED STUDY OF
Anomalous Cognition in Lucid Dreaming

You are invited to participate in research intended to determine if the lucid dream state can improve anomalous cognition (AC), it it occurs. A lucid dream is one in which the dreamer becomes aware that he or she is dreaming, and AC is a form of information transfer in which all known sensory stimuli are supposedly absent.

If you decide to accept this invitation, you will be asked to attend a DreamLight training seminar during which you will learn about the lucid dream state and be instructed on ways to become lucid in your dreams. The initial seminar will last six hours a day for two days; will be conducted in a group; and will include lectures, demonstrations, and exercises that teach lucid dreaming with the aid of the DreamLight. A subsequent seminar will be less formal and will serve as discussion forums to help solidify your knowledge about optimal use of the DreamLight and lucid dream techniques.

The experiment will be conducted by you, in your own home. On specified days, a target photograph, which will be randomly selected from a pool of 100 photographs of outdoor scenes, will be sent to you in a sealed envelope. Your task is to generate a lucid dream in which you actively investigate the contents of the sealed envelope. Following a successful dream, you awaken and record your dream experience in written and drawn form. You then mail the unopened target envelope along with your impressions to the principal investigator. By return mail you will receive a copy of the target photograph so that you will be able to compare your response with the target material. There will be six such trials during the study, which will last through May 1991.

At the conclusion of the study, you will be told the details of the analysis, the statistical outcome of your contribution, and the overall outcome of the experiment. At all times, the confidentiality of your participation in this experiment will be protected. Your name will not be used. Reference to you in records of this experiment and in any published results will be coded or in consolidated form.

Similar research in other laboratories has shown that no health risks are involved in participating in this type of experiment. This field of research, however, is deemed by some to have no scientific foundation. Some friends or colleagues, therefore, may consider your participation to indicate a belief in the occult or paranormal. While, to the knowledge of the investigators, no one has suffered career damage from participating in scientific research of the type we are proposing, you should realize that your credibility with some persons might be damaged if you should chose to reveal your participation in this experiment.

In addition, there is no reason to believe that, having participated in studies such as this you will be able to use your abilities for specific personal gain. Occasionally, participants come to believe that they possess the capacity to use so-called psychic skills for personal profit in risk-taking situations (e.g., participating in games of chance or speculative investments). Some individuals who have participated in experiments of this kind have acted on such assumptions to their apparent disadvantage. Thus, the risk exists that you may come to believe that you have a skill that you may not possess. You are advised of this risk and warned that you assume responsibility for any assumptions which you make about your personal skills or capabilities.

Emergency medical care is available if the need arises during your participation in this study at the SAIC facilities in Menlo Park, California. However, no additional medical care or compensation is offered to participants in the experiment. For emergency medical assistance at the SAIC facilities in Menlo Park, California, we will call the Urgent Care Center of Palo Alto Medical Foundation at (415) 853-2959 and explain the nature of the emergency and take appropriate action.

If this explanation leaves you with any unanswered questions, please ask and obtain answers satisfactory to you before signing below. If you have questions later, please call Dr. Stephen LaBerge at (415) 325-4297 or Dr. Edwin C. May at (415) 325-8292. An SAIC Institutional Review Board (IRB) composed of physicians and other knowl-

edgeable persons has reviewed the plan of this study to ensure that you are protected to the maximum extent possible from any health risks that may be associated with your participation in this study. Additional inquiries or comments may be addressed to the IRB Chairman, Dr. Garrison Rapmund, 6 Burning Tree Court, Bethesda, MD 20817, (301) 365-1419.

Your participation in the research is voluntary. You will be free to cease participation at any time. If you decide not to participate or you later withdraw from participation, there will be no adverse consequences for you.

After receiving the information provide above and the answers to my questions, I, _____, agree to participate as a subject in the activity described. I consent to the use and publication of any data or information resulting from my participation, provided that I am not personally identified. I further understand that additional information regarding the experiment will be available to me on request and that I may withdraw my consent to participate in this experiment at any time. I am an adult and am not presently under medication or treatment by a physician, except _____.

Your signature indicates that you have read and understood the above information, that your questions have been answered to your satisfaction, and that you have decide to participate based on the information provided. A copy of this form will be furnished to you.

_____	_____
Signature of Subject	Signature of Witness
_____	_____
Signature of Principal Investigator	Date

III. ENHANCING DETECTION OF ANOMALOUS COGNITION WITH BINARY CODING

A. General Information

(1) **Principal investigator:** Wanda L. W. Luke.

(2) **Contract in force:** U.S. Government, Client Private.

(3) **Project title:** Phenomenological Research and Analysis.

(4) **Responsible organization:** SAIC.

(5) **Beginning date:** 2 January 1992.

(6) **Risk to human subjects:** MINIMAL

Risks due to anomalous cognition (AC) are no different from those that might result from "normal" daily cognitive processes. Subjects will be exposed to static photographs of mundane subjects (e.g., natural scene from a *National Geographic* magazine, collages of photographic elements). Past experience indicates that risks associated with this kind of activity are no more serious than temporary minor fatigue due to mental effort.

B. Proposed Use of Human Subjects

(1) **Research—purpose, and anticipated results:** Previous research has shown that AC provides only a slight statistical advantage over chance. Successful attempts have been made to increase the detection of AC and thus, increase this advantage; however, they have not involved complex target material. This pilot experiment, which will use complex targets, is designed to explore a binary coding technique that may enhance the detection of AC. An increased AC reliability will allow more productive investigations of AC mechanisms.

(2) **Human-use protocol:**

In this pilot study, subjects will be asked to use AC to provide information about an unknown target. Before the experiment begins, each subject will be provided with the dates on which a target will be located in a prearranged location. That target will remain there for one week. Subjects may attempt to describe this target at their convenience at any time within the week. During the experiment, each subject will attempt to provide six to twelve AC trials according to the following procedure:

- A target, which will be generated randomly either from a set of *National Geographic* magazine photographs or from a collage of photographic elements, will be placed in a designated location in the Cognitive Sciences Laboratory at SAIC.
- For a period lasting no longer than 15 minutes, the subject will write and draw, in detail, his or her impressions of this target.
- Afterward, the subject will send the response by facsimile to the principal investigator (PI) in Menlo Park.
- Upon receiving the response, the PI will send back a five-point "yes/no" questionnaire about the target (e.g., Is a box part of the target?).
- The subject will answer the questions and returns them to the PI.
- As feedback, the PI then sends the subject a color copy of the target by overnight mail.

From the subject's perspective, the total effort that is required for each trial is less than 30 minutes, not counting the feedback period, which may be delayed by as much as 24 hours. There will be significant breaks during the experiment period (i.e., January to May 1992) for holidays and to allow the subjects to participate in other experiments. The PI will maintain frequent phone contact with the subjects during the experiment.

At the conclusion of the experiment, the subject will be informed about the statistical outcome of his or her contribution and will be told about the overall result in general terms.

(3) **Subject description:**

a. Number:	4 to 8 individuals.
b. Age range:	21 years and over..
c. State of health:	All subjects will be in good health, as determined by a comprehensive medical history form completed by the subjects and reviewed by the physicians Palo Alto Medical Center.
d. Special qualifications:	It is possible that the PI might propose to use as a subject, a person having some health problem in their medical history. In this unlikely event, SAIC would ask the physicians of the Palo Alto Medical Foundation, in consultation with the subject's own physician, to rule on the participation of the subject in this research.
e. Source:	All subjects will be chosen from those that have participated in previous successful AC experiments. Their backgrounds will be reviewed during the IRB formal meeting.

f. Method of selection:

Self selection.

Those individuals who are in the above population will be invited to participate in this experiment, and acceptance is completely voluntary.

g. Compensation:

Yes.

All subjects are consultants to SAIC and receive compensation in accordance with their individual contracts.

(4) **Description of risk to the subjects:**

The methods used to conduct trials in this experiment do not expose subjects to procedures any more risky than the environment of an open-book school examination that is taken at home. However, two possible psychological risks should be noted. One risk stems from the opinion held by many scientists and laypersons that participation in studies of the paranormal indicates a belief in the occult and supernatural. Subjects in this study, if they voluntarily disclose their participation, have a small chance of losing the respect of colleagues who believe that these studies have no scientific merit. Another risk is the possibility that some persons may come to believe that they have skills which, in fact, they do not possess.

(5) **Deception:**

None.

(6) **Drugs or devices:**

None.

(7) **Safeguards against risks:**

The potential for psychological risk will be reduced by advising the subject of the potential risks involved in the experiment, and by protecting the subject's anonymity. Except for medical history, which will reside with a physician at Palo Alto Medical Foundation, personal information will remain in SAIC custody for the duration of the project (i.e., approximately five years). If studies in this area are continued beyond this time, the data will be archived in compliance with all applicable laws and federal regulations with federal policy for the protection of human subjects in research.

In addition, the experiment shall be conducted in full compliance with all applicable laws and federal regulations. Subjects will be provided with information concerning their involvement in the experiment, and consent will be obtained in writing from each subject before research is undertaken. A subject may decline involvement at any time. Technical details of this experiment must be approved by the Scientific Oversight Committee of the Cognitive Sciences Laboratory.

(8) **Qualifications of principal investigator:** See attached curricula vitae.

(9) **Consent form:** See attached consent form.

Wanda L. W. Lukee — 12/17/91
Signature of Principal Investigator — Date

Edwin C. Moy — 12/17/91
Signature of Project Director — Date

Science Applications International Corporation
An Employee-Owned Company

CONSENT TO PARTICIPATE IN A PROPOSED STUDY OF
Enhancing Detection of Anomalous Cognition with Binary Coding

You are invited to participate in research intended to enhance the detection of anomalous cognition (AC) if it occurs. We anticipate that a successful study will lead to more efficient experiments to understand the possible mechanisms of AC.

If you accept this invitation, you will be asked to participate in six to twelve trials from January to May 1992. There will be only one trial during a week and it will last approximately 15 minutes.

Before the experiment begins, you will be given a list of dates on which a target will be located in a prearranged location in our laboratory in Menlo Park, California. Each target will remain in that location for the duration of one week, so that you may conduct your AC session at any time during that period. During your session, you will be asked to write and draw in detail your impressions of the target material. The targets will be randomly selected from prearranged sets of either photographs of outdoor scenes or from collages of unrelated picture elements. When you are finished, you will send your response material by facsimile to the principal investigator (PI) in Menlo Park.

When the PI receives your response, you will be sent a five-point, "yes/no" questionnaire about the target. When the PI receives your answers, a copy of the target photograph will be sent to you via overnight mail as feedback. Your answers to the questions and your AC response will be used to test the detection enhancement procedures.

At the conclusion of the study, you will be told the details of the analysis, the statistical outcome of your contribution, and the overall outcome of the experiment. At all times, the confidentiality of your participation in this experiment will be protected. Your name will not be used. Reference to you in records of this experiment and in any published results will be coded or in consolidated form.

Similar research in other laboratories has shown that no health risks are involved in participating in this type of experiment. This field of research, however, is deemed by some to have no scientific foundation. Some friends or colleagues, therefore, may consider your participation to indicate a belief in the occult or paranormal. While, to the knowledge of the investigators, no one has suffered career damage from participating in scientific research of the type we are proposing, you should realize that your credibility with some persons might be damaged if you should chose to reveal your participation in this experiment.

In addition, there is no reason to believe that, having participated in studies such as this you will be able to use your abilities for specific personal gain. Occasionally, participants come to believe that they possess the capacity to use so-called psychic skills for personal profit in risk-taking situations (e.g., participating in games of chance or speculative investments). Some individuals who have participated in experiments of this kind have acted on such assumptions to their apparent disadvantage. Thus, the risk exists that you may come to believe that you have a skill that you may not possess. You are advised of this risk and warned that you assume responsibility for any assumptions which you make about your personal skills or capabilities.

Emergency medical care is available if the need arises during your participation in this study at the SAIC facilities in Menlo Park, California. However, no additional medical care or compensation is offered to participants in the experiment. For emergency medical assistance at the SAIC facilities in Menlo Park, California, we will call the Urgent Care Center of Palo Alto Medical Foundation at (415) 853-2959 and explain the nature of the emergency and take appropriate action.

If this explanation leaves you with any unanswered questions, please ask and obtain answers satisfactory to you before signing below. If you have questions later, please call Wanda L. W. Luke or Dr. Edwin C. May at (415) 325-8292. An SAIC Institutional Review Board (IRB) composed of physicians and other knowledgeable persons has reviewed the plan of this study to ensure that you are protected to the maximum extent possible from any health

risks that may be associated with your participation in this study. Additional inquiries or comments may be addressed to the IRB Chairman, Dr. Garrison Rapmund, 6 Burning Tree Court, Bethesda, MD 20817, (301) 365-1419.

Your participation in the research is voluntary. You will be free to cease participation at any time. If you decide not to participate or you later withdraw from participation, there will be no adverse consequences for you.

After receiving the information provide above and the answers to my questions, I, _____, agree to participate as a subject in the activity described. I consent to the use and publication of any data or information resulting from my participation, provided that I am not personally identified. I further understand that additional information regarding the experiment will be available to me on request and that I may withdraw my consent to participate in this experiment at any time. I am an adult and am not presently under medication or treatment by a physician, except _____.

Your signature indicates that you have read and understood the above information, that your questions have been answered to your satisfaction, and that you have decide to participate based on the information provided. A copy of this form will be furnished to you.

_____ _____

Signature of Subject Signature of Witness

_____ _____

Signature of Principal Investigator Date

IV. ENHANCING ANOMALOUS COGNITION OF BINARY TARGETS

A. General Information

(1) **Principal investigator:** Edwin C. May, Ph.D.

(2) **Contract in force:** U.S. Government, Client Private.

(3) **Project title:** Phenomenological Research and Analysis.

(4) **Responsible organization:** SAIC.

(5) **Begin data:** 2 January 1992.

(6) **Risk to human subjects:** MINIMAL.

Subjects are asked to sit comfortably in front of a computer monitor and occasionally press a mouse button. This process requires no more risk than any other type of computer activity.

B. Proposed Use of Human Subjects

(1) **Research—purpose, and anticipated results:** Previous research has suggested that anomalous cognition (AC) of binary targets can be significantly enhanced using a sophisticated statistical averaging technique known as sequential sampling. The chance probability of guessing a binary digit correctly is 0.50. In one pilot study, AC was observed to increase this probability from 0.55 to 0.60. Using sequential analysis, these probabilities were increased further to 0.60 and 0.70, respectively.

The purpose of this pilot study is to improve the techniques reported earlier. If AC of binary targets could be made more reliable, then other AC research would be more efficient, and limited applications of binary AC are more likely.

(2) **Human-use protocol:**

For each trial in this experiment, a computer will randomly generate a binary one or zero that will be used as an AC target. A subject will attempt multiple guesses of the same target using AC abilities. We will use a sophisticated statistical averaging technique, which is called sequential analysis (SA), to arrive at a single "guess" for that trial.

A subject will be asked to contribute 200 such AC trials over a period of five months beginning in January 1992. The trial rate will be limited to no more than ten per day and no more than two days per week.

During each trial, the subject will perform the following tasks:

- At a prearranged time, the principal investigator (PI) will initiate a computer program on a Sun Microsystems SPARC 2 computer and invite the subject to sit comfortably in front of the monitor.
- The subject will press a computer mouse button when he or she feels that in doing so, the correct sample bit will be selected.

  Note: Internally, the computer uses a random number generator to chose a binary target, which is fixed for each trial. When the session begins, the computer oscillates a potential sample bit at high speed (i.e., greater than 1,000 per second). When the subject presses the mouse button, the state of this oscillator is taken as the sample (i.e., either one or zero), which is analyzed by SA.
- The subject will repeat the above process until ten decisions have been made or until the time exceeds 30 minutes.
- At each decision, the computer will display the result as feedback.

There will be significant breaks during the experiment period for holidays and to allow the subjects to participate in other experiments. The PI will maintain frequent contact with the subjects during the experiment.

At the conclusion of the experiment, the subject will be informed about the statistical outcome of his or her contribution and will be told about the overall result in general terms.

(3) **Subject description:**

a.	Number:	3 to 5 individuals.
b.	Age range:	21 years and over.
c.	State of health:	All subjects will be in good health, as determined by a comprehensive medical history form completed by the subjects and reviewed by the physicians Palo Alto Medical Center.

e. Source: All subjects will be chosen from those that have participated in previous successful AC experiments. Their backgrounds will be reviewed during the IRB formal meeting.

f. Method of selection: Self selection.
Those individuals who are in the above population will be invited to participate in this experiment, and acceptance is completely voluntary.

g. Compensation: Yes.
All subjects are consultants to SAIC or staff and receive compensation in accordance with their individual contracts.

(4) **Deception:** None.

(5) **Drugs or devices:** None.

(6) **Qualifications:** See attached curricula vitae.

(7) **Safeguards against risks:** The potential for psychological risk will be reduced by advising the subject of the potential risks involved in the experiment, and by protecting the subject's anonymity. Except for medical history, which will reside with a physician at Palo Alto Medical Foundation, personal information will remain in SAIC custody for the duration of the project (i.e., approximately five years). If studies in this area are continued beyond this time, the data will be archived in compliance with all applicable laws and federal regulations with federal policy for the protection of human subjects in research.

In addition, the experiment shall be conducted in full compliance with all applicable laws and federal regulations. Subjects will be provided with information concerning their involvement in the experiment, and consent will be obtained in writing from each subject before research is undertaken. A subject may decline involvement at any time. Technical details of this experiment must be approved by the Scientific Oversight Committee of the Cognitive Sciences Laboratory.

(8) **Consent form:** See attached consent form.

Edwin C. Moy — 12/17/91
Signature of Principal Investigator — Date

Edwin C. Moy — 12/17/91
Signature of Project Director — Date

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CONSENT TO PARTICIPATE IN A PROPOSED STUDY OF
Enhancing Anomalous Cognition of Binary Targets

You are invited to participate in research intended to enhance anomalous cognition (AC), if it occurs, of binary (i.e., the numbers one or zero) targets. The experiment is conducted with a computer that randomly selects a binary number, which is the target for the trial. It then rapidly oscillates a test number between one and zero. You press a button when you feel that the test number matches the target.

If you accept this invitation, you will be asked to participate in two, 30-minute sessions per week over a period of five months beginning in January 1992. During a session, you will press the button no faster than one every few seconds, and there will be two or three minute rest periods approximately every five minutes. All sessions will be conducted in the Cognitive Sciences Laboratory in Menlo Park, California. You and the principal investigator (PI) will determine the exact schedule with considerable flexible.

At the end of each trial, the computer will display the current and accumulated results. This will be your feedback for the trial.

At the end of each session, you will send your written and drawn impressions of the target material by facsimile to the PI. He will send to you, by return overnight mail, a copy of the target material (i.e., either a photograph or a video tape) and an addressed envelope so that you can mail the material back the same day. This will be your feedback for the trial.

At the conclusion of the study, you will be told the details of the analysis, the statistical outcome of your contribution, and the overall outcome of the experiment. At all times, the confidentiality of your participation in this experiment will be protected. Your name will not be used. Reference to you in records of this experiment and in any published results will be coded or in consolidated form.

Similar research in other laboratories has shown that no health risks are involved in participating in this type of experiment. This field of research, however, is deemed by some to have no scientific foundation. Some friends or colleagues, therefore, may consider your participation to indicate a belief in the occult or paranormal. While, to the knowledge of the investigators, no one has suffered career damage from participating in scientific research of the type we are proposing, you should realize that your credibility with some persons might be damaged if you should chose to reveal your participation in this experiment.

In addition, there is no reason to believe that, having participated in studies such as this you will be able to use your abilities for specific personal gain. Occasionally, participants come to believe that they possess the capacity to use so-called psychic skills for personal profit in risk-taking situations (e.g., participating in games of chance or speculative investments). Some individuals who have participated in experiments of this kind have acted on such assumptions to their apparent disadvantage. Thus, the risk exists that you may come to believe that you have a skill that you may not possess. You are advised of this risk and warned that you assume responsibility for any assumptions which you make about your personal skills or capabilities.

Emergency medical care is available if the need arises during your participation in this study at the SAIC facilities in Menlo Park, California. However, no additional medical care or compensation is offered to participants in the experiment. For emergency medical assistance at the SAIC facilities in Menlo Park, California, we will call the Urgent Care Center of Palo Alto Medical Foundation at (415) 853-2959 and explain the nature of the emergency and take appropriate action.

If this explanation leaves you with any unanswered questions, please ask and obtain answers satisfactory to you before signing below. If you have questions later, please cal Dr. Edwin C. May at (415) 325-8292. An SAIC Institu-