

This is to certify that the

thesis entitled


Spontaneous Visual Imagery and Free Association in Relation
to Drive Activation, Anxiety, Affects, and the
S's Conjugate Lateral Eye Movements

presented by

Ron Pekala

has been accepted towards fulfillment
of the requirements for

M.A. degree in Psychology


Major professor

Date 10/5/78



OVERDUE FINES ARE 25¢ PER DAY
PER ITEM

Return to book drop to remove
this checkout from your record.

~~DEC 14 1995~~
8/28/89
300 4229

**SPONTANEOUS VISUAL IMAGERY AND FREE ASSOCIATION IN RELATION
TO DRIVE ACTIVATION, ANXIETY, AFFECTS AND THE
S's CONJUGATE LATERAL EYE MOVEMENTS**

By

Ron Pekala

A THESIS

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

MASTER OF ARTS

Department of Psychology

1978

ABSTRACT

SPONTANEOUS VISUAL IMAGERY AND FREE ASSOCIATION IN RELATION
TO DRIVE ACTIVATION, ANXIETY, AFFECTS, AND THE
S's CONJUGATE LATERAL EYE MOVEMENTS

by

Ron Pekala

6108744
Spontaneous visual imagery and free association were compared across subject types of right and left movers as determined by their conjugate lateral eye movements. The subjects responded to stimulus words of sexual, aggressive, affective and neutral content.

As hypothesized, visual imagery produced greater anxiety than free association, but only for the neutral words. The unexpectedly low imagery content was hypothesized for the lack of significant results for the other word groups. For the neutral words, right movers were less anxious but verbalized greater sexual drive during free association, while left movers were less anxious but verbalized greater drive during visual imagery. This interaction and other results suggest that right and left movers do not differ in anxiety or drive but rather in how anxiety and drive are cognitively mediated.

The results cogently demonstrate that instructions to image are not necessarily followed by imagery. Moreover, imagery production and content appear to be affected by the nature of the procedures, the experimenter, the subject type, and the material to be imaged.

To Debbie and Smuggles - my life, my hope, my love:

"Du grosses Gestirn! Was wäre dein
Glück, wenn du nicht die hättest,
welchen du leuchtest!" - Nietzsche

ACKNOWLEDGEMENTS

From this piece of research I have learned more about myself and life, not to mention the how's and why's of research that I ever imagined. I wish to thank all of the following for the guidance and help that they have shown.

Dr. Joseph Reyher - who taught me not only how to be an excellent researcher, but opened my eyes to myself and others. The growth I've obtained through you has been invaluable.

Dr. Ralph Levine - who introduced me to computer data analysis, Tai Chi, and helped me see the light at the end of the tunnel.

Dr. Larry Van Egeren - who taught me the finer points of electrophysiology and first acquainted me with my megalomania.

Dr. Lauren Harris - whose advice and helpful comments have broadened my hemispheres.

Also thanks to Dave Whitman, Ron Winkler, Mark Ackley, Cheryl Rosenstein, Fenya Slatkin, and Lee Hill for running the Ss, and to Robin Reed, Jan Raffler, Leslie Popkin, Tom Weston, Mike Hull, and Martin Solomon for the data analysis.

TABLE OF CONTENTS

	Page
I. Introduction	
A. Spontaneous visual imagery	2
B. Differences in the cerebral hemispheres	3
C. Free imagery and free association	6
D. Eye movements as indicators of hemispheric activation	8
E. The present study	10
II. Method	
A. Subjects	12
B. Experimenters	12
C. Experimental setting, apparatus, and materials	13
D. Procedure	19
E. Scoring	22
III. Results	
A. Stimulus words: manipulation check	31
B. First session	32
C. Second session: experimental session	32
D. Summary of significant results	69
IV. Discussion	
A. Imagoic representation	75
B. Procedural differences	79
C. Major findings	84
D. Conclusions	97
V. References	99
VI. Appendix of Tables	103
VII. Appendices	
A. Handedness questionnaire	127
B. Eye movement questionnaire	128
C. Semantic differential (Mood questionnaire)	130
D. Questionnaire of imagery vividness	136
E. Word lists	138
F. Tapes	139
G. Drive activation scale	140
H. Analogic-synthetic thought processes	146
I. Imagoic scale	150
J. Departmental research consent form	151
K. Consent form	152
L. Final (debriefing) questionnaire	153

LIST OF TABLES

Table	Page
1. Comparison of the means of word lists A and B across the dependent variables of SNS activation, sexual and aggressive drives, analogical thought, and imagoic representation for FI and FA	33
2. Means per condition of definite imagoic representation across the four word groups	36
3. Number of subjects having a given percentage of imagery (definite imagoic scale) for FI and FA	38
4. Mean percentage of episodes with approximate, definite, and combined imagery for each of the four word groups across FA and FI	40
5. Comparison of the means for FA and FI for the SRR variables of frequency, duration, and amplitude for the four word groups using three Es	42
6. Comparison of the means for RMs and LMs in FA and FI for the SRR variables of frequency, duration, and amplitude for the four word groups using three Es	43
7. Mean sexual drive activation for the aggressive words for each experimenter for RMs and LMs	47
8. Mean aggressive drive activation for the aggressive words for each experimenter for RMs and LMs	47
9. Mean aggressive drive activation for the affective words for each experimenter for RMs and LMs	47
10. Comparison of the means for FA and FI for sexual and aggressive drive activation for the four word groups for three Es	48
11. Comparison of the means for RMs and LMs in FA and FI for sexual and aggressive drive activation for the four word groups using three Es	49
12. Comparison of the means for RMs and LMs in FA and FI for sexual and aggressive drive activation for the four word groups using two Es	51
13. Comparison of the means for RMs and LMs for the SRR variables of frequency, duration, and amplitude for the four word groups using three Es	60

LIST OF TABLES (cont'd.)

Table	Page
14. Comparison of the means for RMs and LMs for the sexual and aggressive drives for the four word groups for three Es	61
15. Comparison of the means for conditions (FA and FI) and also mover type (RMs and LMs) for syntonía and dystonia	65
16. Comparison of the means for RMs and LMs in FA and FI for syntonía and dystonia	65
17. Comparison of the means for conditions (FA and FI) and also mover type (RMs and LMs) for analogical thought processes for the four word groups using three Es	68
18. Comparison of the means for RMs and LMs in FA and FI for analogical thought processes for the four word groups using three Es	68
19. Summary of significant main effects	73
20. Summary of significant interactions	74

LIST OF FIGURES

Figure	Page
1. Interaction between mover type and experimenter for the approximate imagoic scale	35
2. Interaction between mover type and experimenter for the combined imagoic scale	35
3. Interaction between conditions and mover type for SRR frequency for the neutral words using three Es	44
4. Interaction between conditions and mover type for SRR frequency for the neutral words using two Es	44
5. Interaction between conditions and mover type for sexual drive activation for the sexual words using three Es	52
6. Interaction between conditions, mover type, and order for sexual drive activation for the neutral words using three Es	53
7. Interaction between conditions and mover type for sexual drive activation for the neutral words using two Es	54
8. Sexual drive activation for the four word groups	55
9. Aggressive drive activation for the four word groups	55
10. Interaction between conditions, mover type, and word type for sexual drive activation using three Es	57
11. Interaction between conditions, mover type, and word type for sexual drive activation using two Es	58
12. Interaction between mover type and word type for the SRR variable of duration	62
13. Interaction between mover type and word type for the SRR variable of amplitude	62
14. Interaction between mover type and word type for the SRR variable of amplitude	64
15. Interaction between conditions and order for syn- tonia	66
16. Interaction between conditions and order for dys- tonia	66

LIST OF TABLES IN APPENDIX

Table	Page
A. Analysis of variance F ratios comparing the means of word lists A and B for the dependent variables of SNS activation, sexual and aggressive drives, analogical thought, and imagoic representation	103
B. A conditions (C) by mover type (T) by experimenter (E) analysis of variance for imagoic representation	104
C. A conditions (C) by mover type (T) by order (O) analysis of variance for imagoic representation using three Es	105
D. A conditions (C) by mover type (T) by order (O) analysis of variance for imagoic representation using two Es	106
E. A conditions (C) by mover type (T) by experimenter (E) analysis of variance for the skin resistance response variables for the four word groups	107
F. A conditions (C) by mover type (T) by order (O) analysis of variance for the skin resistance response variables for the four word groups using three Es	109
G. A conditions (C) by mover type (T) by order (O) analysis of variance for the skin resistance response variables for the four word groups using two Es	111
H. A conditions (C) by mover type (T) by word type (W) analysis of variance of the skin resistance response variables	113
I. A conditions (C) by mover type (T) by experimenter (E) analysis of variance for sexual drive activation for the four word groups	114
J. A conditions (C) by mover type (T) by experimenter analysis of variance for aggressive drive activation for the four word groups	115
K. A conditions (C) by mover type (T) by order (O) analysis of variance for sexual drive activation for the four word groups using three Es	116

LIST OF TABLES IN APPENDIX (cont'd.)

Table	Page
L. A conditions (C) by mover type (T) by order (O) analysis of variance for aggressive drive activation for the four word groups using three Es	117
M. A conditions (C) by mover type (T) by order (O) analysis of variance for sexual drive activation for the four word groups using two Es	118
N. A conditions (C) by mover type (T) by order (O) analysis of variance for aggressive drive activation for the four word groups using two Es	119
O. A conditions (C) by mover type (T) by word type (W) analysis of variance for the sexual and aggressive drives using three Es	120
P. A conditions (C) by mover type (T) by word type (W) analysis of variance for the sexual and aggressive drives using two Es	121
Q. A conditions (C) by mover type (T) by word type (W) analysis of variance for the skin resistance response variables and drive comparing the sexual and aggressive words	122
R. A conditions (C) by mover type (T) by experimenter (E) analysis of variance for syntonia and dystonia	123
S. A conditions (C) by mover type (T) by order (O) analysis of variance for syntonia and dystonia	124
T. A conditions (C) by mover type (T) by experimenter (E) analysis of variance for analogic representation for the four word groups	125
U. A conditions (C) by mover type (T) by order (O) analysis of variance for analogic representation for the four word groups	126

INTRODUCTION

The investigation of visual imagery has recently experienced a rebirth among academic psychological circles, returning from its ostracism following the days of Titchner and others (Holt, 1964). It is now coming under greater experimental purview in an attempt to understand its nature, function, and development (Richardson, 1969; Horowitz, 1970; Sheehan, 1972) as the very recent publication of the Journal of Mental Imagery (1977) gives testimony.

Many investigators have suggested that visual imagery is connected or correlated with the symbolic manifestation of unconscious conflicts and drive-related affective states (Jellinek, 1949; Warren, 1961; Assagioli, 1965). In line with the greater exploration of imagery and its possible correlation with affect and drive, there has been a tremendous expansion of psychotherapeutic techniques utilizing imagery and fantasy with very little experimentation or theoretical explanation as to the reason for their effectiveness, if any (Singer, 1974). From psychosynthesis and Gendlin's "focusing," to systematic desensitization and Lazarus's emotive imagery, there are a variety of imagery approaches developed from the spectrum of psychology's

"schools."

Spontaneous Visual Imagery

A technique for using spontaneous visual imagery (free imagery) has been developed by Reyher (1963, 1977b, In press) who has found it to have powerful uncovering properties in psychotherapy. It has also been investigated via experimentation (Reyher and Smeltzer, 1968; Stern, 1974; Morishige and Reyher, 1975; Burns and Reyher, 1976) and the phenomena produced point to the use of free imagery, now called emergent uncovering psychotherapy, as a very effective psychotherapeutic technique.

In this procedure "the therapist asks the client to lean back in the chair, close his eyes, and report everything that crosses his mind, including images, feelings, and sensations" (Reyher, 1963, p.454). The psychotherapist then focuses the client's attention on indicators of anxiety, objective resistances (such as opening the eyes), and security operations to protect self-esteem. If the client can continue despite these reactions, representations of repugnant, anxiety-producing strivings can be experienced through the visual imagery produced. Primary process is almost always conspicuous. Unlike many of the imagery techniques to date, the imagery sequence and structure is not imposed on the client by the therapist, but is a spontaneous product of the client's unconscious strivings.

It seems that imagery and its organization "along

gradients of physical, functional, and qualitative similarity" (Reyher, In press, p.24) may be related to differences in the processing of information between the cerebral hemispheres, especially if one of the cerebral hemispheres is better organized for the processing of imagery or visual percepts. Evidence is accumulating which suggests that the right cerebral hemisphere is functionally different from the left cerebral hemisphere and more likely to be involved in imagery formation.

Differences in the Cerebral Hemispheres

Functional differences between the hemispheres was first proposed by Dax in 1830 (Von Bonin, 1962). Since then, some of the "earliest evidence for cerebral specialization (was) from analysis of the psychological deficits associated with lesions or injuries of the brain," (Harris, 1975a, p.3) in which lesions of the left hemisphere in such areas as Broca's or Wernicke's area caused disruption of the ability to articulate or understand speech, whereas right hemisphere injury had "negligible effects on language skills but has been associated with impairment of various nonlanguage skills" (Harris, 1975a, p.3).

The study of patients whose brains were severed at the corpus callosum (Sperry, 1964, 1967; Gazzaniga, 1967) demonstrated significant differences between the cerebral hemispheres, although generalization of such results to the functioning of unsevered hemispheres is somewhat suspect,

owing to the incongruity between an intact and a severed cerebrum. But the above, buttressed by analysis of the dichotic listening studies, anatomical, clinical, and electrophysiological activity studies, visual field effects, etc. suggest that there

are two distinct modes of coding operation, each specific to a single hemisphere; the left hemisphere operating in a more logical, analytic (manner) . . . ; the right hemisphere being primarily a synthesist, . . . and processing information in terms of gestalts or wholes" (Harris, In press, p.75).

Bogen has interpreted the data as showing that the left hemisphere is involved in logic, sequential, or propositional thought, whereas the other hemisphere "specializes in a different mode of thought, which may be called appositional" (Bogen, 1968, p.119). Ornstein has posited that the left hemisphere is predominately involved with analytic, logical thinking whose mode of operation is primarily linear, while the right hemisphere "seems specialized for holistic mentation," being more relational, and "the more simultaneous in its mode of operation" (Ornstein, 1972, pp.52-53).

Reyher (1977a) has proposed that two modes of information processing, a semantic-syntactic and an analogic-synthetic mode, govern mental events. The semantic-syntactic mode is used to understand written and spoken symbols and is mediated by the left cerebral hemisphere. It has independent receptive and expressive components. The receptive semantic-syntactic mode involves a digital-to-analog conversion of information and characterizes listening.

The expressive semantic-syntactic mode represents an analog-to-digital conversion and characterizes speech. On the other hand, the "right cerebral hemisphere subjects different sources of sensory input to synthesizing Gestalt principles . . . (and) is mediated by analogical functions along gradients of similarity" (Reyher, 1977a, p.69).

It is called the analogic-synthetic mode of information processing and synthesizes percepts while under the influence of the neural records of past perceptions. Thus the right hemisphere seems to be involved in the synthesizing of percepts and is also implicated in the plastic representation of thoughts via imagoic vehicles (Reyher, In press). Plastic representation is one of the three mechanisms, including condensation and displacement, that according to Freud (1950) is necessary for the development of the dream work.

It was Freud who regarded dreams as the royal road to the unconscious. Bakan (1976) has recently hypothesized that dreaming is a right hemispheric function: "during the stage of sleep known as REM (rapid eye movements) sleep, the right hemisphere becomes more active. It is then that most dreams occur, indicating the right brain is the dreamer" (p.66). Dreams are examples of primary process thought and as Freud demonstrated, use displacement and condensation as mechanisms of the dreamwork for the production of the manifest content from the latent thoughts (Freud, 1970). Displacement, according to Reyher (1976) is an example of the analogic; and condensation, an example of the

synthetic dimensions of cognitive functioning, which as previously noted, can be characterized as utilizing the analogic-synthetic mode mediated by the right cerebral hemisphere.

Free imagery and the primary process thinking that is demonstrated with it, may also, like dreaming, be characterized as a right hemispheric phenomena, mediated by the analogic-synthetic mode of information processing.

Free Imagery and Free Association: Different Modes of Information Processing

In comparing the free imagery of emergent uncovering psychotherapy (Reyher, 1963, 1977a, In press) and the free association of traditional psychoanalysis (Freud, 1963, 1970) important differences emerge that can be interpreted along the theoretical dimensions previously discussed. Free imagery involves the use of iconic vehicles or visual images which unlike words "are not symbols because they bear a palpable resemblance to the behavior required by the direct gratification of strivings" (Reyher, 1977b, p.258).

Free association, on the other hand, involves the verbalization of any and all thoughts which pass through the client's mind, and because such thoughts or words are usually conceptual and representational, they are symbols, standing for something other than themselves. As such, free association is basically an analogic-to-digital conversion involving the expressive semantic-syntactic mode, whereas

visual imagery involves the analogic-synthetic mode. A shift from a conceptual-verbal representation as semantic-syntactic to an iconic representation as analogic-synthetic can change the nature of the phenomena produced profoundly.

In comparing free association (FA) and free imagery (FI) across words of sexual, aggressive, familial, and neutral content, Reyher and Smeltzer (1968) found free imagery produced greater galvanic skin responses, more blatant drive representation, and a greater need for defense. In both the above study and another by Morshige and Reyher (1975), spontaneous visual imagery allowed for more direct expression of repressed material, producing more anxiety and psychopathology in the process.

Stern (1974) attempted to duplicate the results of Reyher and Smeltzer (1968) by employing three conditions: eyes opened free association, eyes closed free association, and eyes closed free imagery. The results, although different from Smeltzer's study, did corroborate the findings reported by Reyher and Smeltzer, owing to differences in procedures between the two studies. The findings pointed to the use of security operations in order to maintain self-esteem (Sullivan, 1953) in the free association condition. It seems that during free association, criteria are unavailable as to how well the subject thinks he is doing. This creates a lowering of self-esteem, the aversive psychic experience of dystonia, and the elicitation of offsetting security operations, e.g. asking questions, criticizing the

procedures, etc.

Such security operations prevent dystonia (painful and unpleasant affect generated by a lowering of self-esteem (Reyher, 1976)) and helps present a persona (Jung, 1966) to others that is syntonic to oneself. Such security operations are seldom depicted by visual imagery because "a security operation is mediated by the expressive semantic-syntactic mode of information processing" (Reyher, In press, p.54), which is the type of information processing that can also be said to characterize linguistically mediated meaning, including free association.

Thus free imagery and free association can be characterized as employing two different modes of information processing that tend to be mediated by different cerebral hemispheres.

Eye Movements as Indicators of Hemispheric Activation or Different Modes of Information Processing

A very simple technique has evolved to investigate the presumed activation of the cerebral hemispheres (Day, 1964, 1968; Kinsbourne, 1972; Gur, 1973). "The technique presupposes that the direction of orientation of the eyes and head indicates innervation or activation of the cerebral hemisphere contralateral to the direction of movement" (Gur, 1973, p.8).

By recording the initial eye movements of an individual in response to verbal and spatial questions in which the

individual is sitting vis-a-vis the experimenter, one can determine whether he tends to presumably activate one hemisphere preferentially in response to most of the questions. Those Ss who respond with most of their initial eye movements to the right are termed right movers (RMs), and those who respond with most of their initial eye movements to the left, left movers (LMs).

Bakan (1969) found that left movers have clearer visual imagery. He also found that left movers are more hypnotizable and are more likely to be enrolled in a humanistic major such as philosophy or psychology as opposed to majors such as engineering or the natural sciences. Raquel Gur and Reyher (1973) discovered that LMs are more deeply hypnotizable on an induction scale wherein the suggestions were phrased in an emotional style and called for the passive focusing of attention on internal experiences and subjective feelings, whereas right movers were more hypnotizable with a highly active and intellectual induction scale.

Raquel Gur and Reyher (1973) also reported that left movers reported a higher proportion of psychosomatic complaints and a higher use of Reversal as a defense (immediate reaction of denial of reality and repression of emotions provoked by external stress), while also seeming to be more aware of subjective feelings. Right movers, in turn, scored significantly higher in the use of Projection and Turning against Object (dealing with conflict via attack on a real or presumed externally frustrating object) as defenses.

Right movers were characterized as externalizing the conflict they experience and acting against the environment in such a way as to require additional cognitive or intellectual elaborations than LMs. This is consistent with Day's (1969, 1975) findings that whereas left movers localize anxiety internally, right movers tend to externalize than anxiety outwards.

Thus, the empirical studies suggest that left-movers are more spontaneous and emotional and localize anxiety and conflicts internally. Right movers, on the other hand, seem to be more verbal and intellectual and see the source of their anxiety and conflicts outside themselves (Gur, 1973, p.10).

It was also suggested (Gur, 1973, pp.36-37) than LMs may tend to defend more against anger and aggression than sexual strivings, whereas RMs may tend to defend more against libidinal or sexual drives.

The Present Investigation

As mentioned, free imagery (spontaneous visual imagery) is associated with the analogic-synthetic mode of information processing and its involvement with imagery and percepts. It has been found (Reyher and Smeltzer, 1968) to demonstrate significantly more anxiety and drive than free association. Free association, on the other hand, is associated with the semantic-syntactic mode involving linguistically-mediated meaning and symbols.

Based on the previously discussed theorizing and empirical research, free imagery was hypothesized to evince greater imagoic representation, anxiety, level of drive

activation, affect, and analogic-synthetic process functions than free association.

Concerning mover types, the aforementioned research found that left movers have clearer visual imagery, are more spontaneous and emotional, and tend to focus their attention on internal experiences and subjective feelings while internalizing anxiety more than right movers. On this basis, LMs were hypothesized to demonstrate greater anxiety, drive, affect, imagery vividness, and analogic-synthetic process functions than RMs.

Furthermore, left movers were found to become more deeply hypnotized with a passive, emotional induction scale, use repression and denial as defense mechanisms, and may tend to defend more against anger and aggression than sex. On the other hand, right movers are more deeply hypnotizable with an active, intellectual scale, use projection and intellectualization in defense against drive, and may be more defensive against libidinal strivings.

Interactions were thus posited between conditions (FI and FA) and mover type (LMs and RMs) for the dependent variables and also type of drive (sex or aggression), investigating the effects of these two differing conditions or psychotherapeutic techniques upon two purportedly differing subject types.

METHOD

Subjects

The initial subject pool consisted of 51 males recruited according to the Human Subjects Pool Procedures from introductory psychology classes who were given credits towards their final grade for participation in a study on "Handedness, imagery, and cognition." During the first session they completed a handedness questionnaire and then their eye directionality was determined. Only those Ss who passed the handedness questionnaire and evinced 70% of their initial eye movements to the right or left in response to spatial and verbal questions were asked to return for an additional session about two weeks later.

Thirty Ss passed the handedness and eye directionality test. All thirty Ss returned to take part in an additional session. Since two Ss were dropped from the statistical analysis due to incomplete data, 28 Ss were used in the final analysis. Of these 28, fourteen were classified as RMs and fourteen, LMs.

Experimenters (Es)

For the first session a male E greeted the S as he arrived for the experiment and had the S complete the handedness questionnaire. In a small room, one of two female undergraduates, ages 19 and 20, who were blind to the experimental hypotheses, asked the S the questions to determine eye directionality while the author monitored the S's eye

movements in another room. The female Es alternated on different days.

For the second session, three male undergraduates, ages 19, 21, and 23, who were trained in the use of the polygraph and blind to the experimental hypotheses, ran the Ss. The Es were randomly assigned to test the Ss.

Experimental Setting, Apparatus, and Materials

First session

The room for the first session was approximately six by seven by eight feet and contained two chairs on either side of a small table. The E sat approximately one yard from the S, the S being seated at the table opposite the E. A yellow curtain about six inches behind the E was parted three inches in the middle of the S's perceptual field. Through a one way mirror behind the curtain sat the author. A microphone in the room allowed the author on the other side of the mirror to monitor the conversation.

The handedness questionnaire was a slightly modified version of the one developed by Briggs and Nebes (1976). (See Appendix A.)

The test to determine direction of conjugate lateral eye movements consisted of thirty questions read to the S by the E. Fifteen were verbal proverbs and fifteen were spatial questions. They were partially adopted from Gur (1973). (See Appendix B.) The question types were arranged in fifteen pairs, the order of which type of question being first, being randomly determined. This test allowed only

Ss who evinced 70% of their initial eye movements to the right or left to take part in the second session.

Second session

The room for the second session was soundproof and tile-covered, having only a door and no windows. It contained a Grass #5 polygraph, a reclining chair in which the S sat, a bed in storage, two tape recorders, a stool, and another chair.

Anxiety (sympathetic nervous system (SNS) activation) was measured by recording the skin resistance responses (SRRs) of the S by means of a Grass #5 polygraph (Yellow Springs Equipment Company). Two silver/silver chloride electrodes were attached to the S's first phalange of the third and fourth fingers of his left hand, with a layer of electrode paste (made especially for skin resistance recording) between the electrode and the skin. Impressed current was fifty milliamperes, with each electrode having an area of approximately 4.41 square centimeters.

Affective state was determined by the Mood Questionnaire, a semantic differential developed by the author, being patterned after that of Block (1957). (See Appendix C.)

A modified version of the Betts QMI was used to determine imagery vividness. (See Appendix D.)

The words to which the subjects free associated and free imaged were from four categories, the words being partially adopted from Smeltzer (1966). The categories and the words were:

<u>Sex</u>	<u>Aggression</u>	<u>Affect</u>	<u>Neutrals</u>
prostitute	fight	joy	T-V
penis	attack	disgust	table
fag	murder	anger	skiing
orgasm	torture	grief	travel
nipples	slaughter	envy	earth
masturbate	hurt	hate	flower
genitals	bloodbath	shame	temperature
intercourse	massacre	love	candy
whore	violence	guilt	potato
vagina	pillage	fear	lightbulb

The forty words were randomly divided into two lists (List A and B) each consisting of five of the ten words per category, making two different lists of twenty words each. (See Appendix E.) The words within each list were randomly arranged although the order of the different stimulus words was the same according to stimulus word category across both lists.

Because each S was to free image to one word list and free associate to the other, four tapes were made by the author. Two tapes had the FA instructions and then the FI instructions, and the other two had the reverse. Within each pair of tapes having the same first condition, word list A was first for one, and word list B, first for the other. Thus the tapes were counterbalanced for order of instructions (FA and FI) and order of word lists (A and B). (See Appendix F.)

To eliminate experimenter biasing effects, the word lists were each taped once and this tape was rerecorded onto the four instructional tapes so that the word lists were exactly the same across all four tapes. Each instructional tape consisted of instructions to free associate for

for five minutes and then instructions to free associate to twenty words (list A or B) presented 40 seconds apart, and also instructions to free image for five minutes and instructions to free image to twenty words presented 40 seconds apart.

The instructions for the five minute free association period consisted of the following:

Hello. This is an experiment in free association. I would like you to keep your eyes open. While your eyes remain open, I want you to report any thoughts that pass through your mind, no matter how faint or elusive the thoughts may be. Also, I want you to report any feelings and physical sensations that come to your attention. Be sure not to leave out a thing. Try to remain still so as not to affect the electrodes on your hand.

Let me repeat that. While your eyes remain open, I want you to report any thoughts that pass through your mind, no matter how faint or elusive the thoughts may be. Also, I want you to report any feelings and physical sensations that come to your attention. Be sure not to leave out a thing. Try to remain still so as not to affect the electrodes on your hand. Do you have any questions? O.K. Now I would like you to begin describing everything that passes through your mind.

This was followed (after five minutes) by instructions to free associate to twenty words presented forty seconds apart, along with two neutral words to allow for habituation of the orienting response, and the twenty words.

Instructions for this part of the tape were as follows:

Stop please. Very good. Please keep your eyes open and try to remain still. Now I'm going to pronounce individual words, each spaced about 40 seconds apart. I will say each word once. After I say each word, I want you to describe whatever thoughts come into your mind, no matter how faint or elusive they may be. Also, please describe any

feelings and sensations that you notice. Be sure not to leave out a thing. I want you to do this for each word until I say the phrase "please stop." Then I will say the next word, with you describing everything that comes to mind.

Let me repeat that. Please keep your eyes open and try to remain still. I'm going to pronounce individual words, each spaced about 40 seconds apart. I will say each word once. After I say each word, I want you to describe whatever thoughts come into your mind, no matter how faint or elusive they may be. Be sure not to leave out a thing. I want you to do this for each word until I say the phrase "please stop." Then I will say the next word, with you describing everything that comes to mind. Do you have any questions? O.K. Let's begin.

The instructions for the five minute free imagery period were as follows:

Hello. This is an experiment in visual imagery. I would like you to close your eyes. While your eyes remain closed, I want you to report any images that you see in your mind's eye, no matter how faint or elusive the images may be. Also, I want you to report any feelings and physical sensations that come to your attention. Be sure not to leave out a thing. Try to remain still so as not to affect the electrodes on your hand.

Let me repeat that. While your eyes remain closed, I want you to report any images that you see in your mind's eye, no matter how faint or elusive the images may be. Also, I want you to report any feelings and physical sensations that come to your attention. Be sure not to leave out a thing. Try to remain still so as not to affect the electrodes on your hand. Do you have any questions? O.K. Now I would like you to begin describing everything that you see in your mind's eye.

This was followed (after five minutes) by instructions to free image to twenty words presented forty seconds apart, along with two neutral words to allow for habituation of the orienting response, and the twenty words.

Instructions for this part of the tape were:

Stop please. Very good. Please keep your eyes closed and try to remain still. Now I'm going to pronounce individual words, each spaced about 40 seconds apart. I will say each word once. After I say each word, I want you to describe whatever images come into your mind's eye, no matter how faint or elusive they may be. Also, please describe any feelings and sensations that you notice. Be sure not to leave out a thing. I want you to do this for each word until I say the phrase "please stop." Then I will say the next word, with you describing everything that you see in your mind's eye.

Let me repeat that. Please keep your eyes closed and try to remain still. I'm going to pronounce individual words, each spaced about 40 seconds apart. I will say each word once. After I say each word, I want you to describe whatever images come into your mind's eye, no matter how faint or elusive they may be. I want you to do this for each word until I say the phrase "please stop." Then I will say the next word, with you describing everything that you see in your mind's eye. Do you have any questions? O.K. Let's begin.

A tape recorder was used to record the S's verbalizations to the stimulus words. The tapes were transcribed and the protocols content analyzed.

To determine the degree of drive activation evident in the associations of the Ss for sexual and aggressive drives, the Drive Activation Scale (Reyher, 1974) was used, being slightly modified to accomodate verbal associations. (See Appendix G.)

Two other scales were added for the data analysis. One scale, the Analogic-Synthetic Scale (Reyher, 1977) monitored the degree of analogic and synthetic component functions upon which visual imagery may vary. Developed for visual imagery, it was used as is in the scoring of the FI and FA sections of the protocols. (See Appendix H.)

The other scale, called the Imagoic Scale, and developed by the author, assessed the degree to which imagery was present in the S's protocols and consisted of three scales: an approximate imagoic, a definite imagoic, and a combined imagoic scale. (See Appendix I.)

The approximate scale monitored the amount of imagery that was not self-evident from the protocols, but could reasonably be assumed to be taking place. The definite scale assessed the amount of imagery that the S was sure to be experiencing (because a word like "see," "image," etc. was in the protocol), and the combined scale was simply the sum of the approximate and definite scales. The combined scale assessed the probable total amount of imagery the S was experiencing.

Procedure

First session

During the first session the S was greeted by a male experimenter and seated. He was given a consent form to sign (See Appendix J.) and then the handedness questionnaire to complete. He was told:

I'd like you to read this consent form which is the department requirement for everyone participating in research and if you agree to the conditions please sign it. Then complete this handedness questionnaire.

If the S passed the handedness questionnaire, he was greeted by the female E and taken into a small room. After being seated he was told the following:

In this experiment we are studying how different people respond to certain questions. I'm going to be asking you a series of short questions, which I want you to answer. The microphone here is connected to a tape recorder in another room to record what we say. (It allows the author in another room to hear the conversation.) I'm going to begin reading the questions one at a time. I would like you to concentrate on the questions and try to answer within fifteen seconds. Are you ready? O.K. Let's begin.

Thirty questions were presented to him by the E to determine eye directionality and his eye movements and answers were recorded. The person in the adjacent room also recorded the S's initial eye movements. At the end of the session the S was thanked for his participation and told he may be contacted and asked to participate in a second session. He was also told that he may contact the E at the end of the term for feedback as to the nature of the study and the results. The E's name and phone number were furnished, if wanted.

Second session

Only those Ss who evinced 70% of their initial eye movements to the right or left were called upon to participate in the second experimental session which was held approximately two weeks later. After being greeted by the E, the S was seated in the recliner chair and was told the following:

I'm interested in your responses to a set of instructions that are recorded on this tape recorder. The polygraph there will record your skin responses by means of two electrodes I'll attach to your left hand. In a little while I'm going to turn on the tape recorder and I'd like

you to do what the person on the tape asks of you. This will involve reclining in the chair and talking. You will also be asked to respond to some words on the tape. I will record what you say on another tape recorder and your responses will remain confidential.

The S was given two consent forms to sign. (See Appendices J and K.) The E answered any questions and then said:

Before we begin I have to attach two electrodes to your left hand. Because the electrodes are very sensitive to movement, I'd like you to try not to move your left hand while the tape is playing. Just rest it comfortably on the arm of the chair.

The E attached the electrodes and had the S recline in the chair. He then handed the S the Mood questionnaire, form A to complete. After the S completed the questionnaire, the E took it and set it aside. Five minutes after electrode attachment, the E calibrated the polygraph telling the S:

I have to calibrate the polygraph now. It will only take a few minutes. (When the polygraph was ready, the E said:) In a minute I'm going to turn on the tape recorders and will sit behind you. I want you to pay attention to the tape and do what it asks of you. It will play for about 20 minutes. I will be monitoring the polygraph. Disregard any sounds you hear coming from me or the machine. Do you have any questions? O.K. Let's begin.

One of the four instructional tapes made by the author was randomly chosen and played. The E monitored the polygraph. After the completion of the first half of the tape (which would be either instructions to free associate for five minutes followed by instructions to free associate to twenty words and the stimulus words, or identical instructions to free image) the tape recorders were turned off

and the S given the Mood questionnaire, form B to complete. He was then told to relax for about five minutes. After this time the tape recorders were turned on and the second half of the tape was played. If the S experienced free association first, he now experienced free imagery, or vice versa.

After the tape was over, the polygraph and tape recorders were turned off and the S completed the Mood questionnaire, form C, an imagery questionnaire, and a final or debriefing questionnaire. (See Appendix L.) He was then asked how he felt about the experiment and any questions were encouraged and answered. If the S or E felt that there were any untoward effects, these were brought up and talked over. The S was debriefed as to the general nature of the study and was told that he could contact the author at the end of the term for feedback as to the results. If at any time after the session the S felt he must talk about what had transpired, he was to be referred to the author or the study's supervisor. No Ss requested this.

Scoring

Handedness questionnaire

The handedness questionnaire was scored so that only right-handed males who were almost certain to have language lateralized in the left cerebral hemisphere could take part in the study. To "pass" the handedness test the S had to score "12" or above on the first twelve questions (receiving a two for "always right" and a one for "usually right")

and answered questions 13 and 14 (which made sure neither of the S's parents were left handed nor had the S had any head injuries) "Nb."

Skin resistance responses (SRRs)

The skin resistance response variable was scored by the author by determining the number of responses that were 500 ohms or greater. The number, duration, and amplitude of such responses were tabulated for each S in each condition. This was done for each of the four word categories and across all the word categories. Thus if two responses of 500 ohms or greater were given by the S in FI to two of the five sexual words, and no responses were recorded for the other three words, the total number of responses for frequency for the S in FI was for the sexual words, four. The mean duration and the mean amplitude of such responses were also computed.

Thus the three measures of physiological anxiety (SNS activation) were SRR frequency (number of responses of 500 ohms or greater), the average duration of the responses, and the average amplitude. This was computed for each S for each condition for each of the four word categories and across all four word categories.

Content analysis

The verbalized free association and imagery protocols of the Ss were transcribed from the tapes and broken into episodes; an episode being determined by a change in objects.

or setting or a pause in the S's verbalizations. The content was then analyzed for imagoic content, drive presence, and analogic-synthetic processes.

Imagoic representation

Imagoic content was assessed with the Imagoic Scale, which consisted of three subscales: a definite, approximate, and combined subscale. Three undergraduates, two males and one female, scored the protocols for imagery. Each scorer was randomly assigned to score ten Ss with the author doing a 10% random sample to determine reliability. As mentioned, the S's protocols were first broken into episodes.

Each episode was scored for definite and approximate imagery. An episode was scored definite imagoic if the protocol contained evidence that the S was experiencing imagery by saying so. Thus when the episode contained a verb or phrase that the S was explicitly experiencing imagery, by saying something such as: I see, visualize, image, get an image of, etc., the episode was scored definite imagoic. Each episode that was judged definite imagoic was designated by putting a "2" in the appropriate column of the scoring sheet.

A definite imagoic score for each S for each condition was computed for each of the four word groups, and also across all four word groups. This was done as follows: The number of episodes per stimulus word were found and recorded. If the S had three episodes to the stimulus word

"penis", it was recorded as "3". The number of these units that contained definite imagery as designated by a "2" was also counted and recorded. If the S had three episodes in his associations to "penis", of which one was scored definite imagoic, the S's score for that word was expressed as $1/3$. The scores for all twenty words were found and grouped according to the four word categories. The numerators and denominators were each added for the four different word groups to give a fraction which expressed the number of episodes that contained definite imagery.

Thus if the S had scores of $1/5$, $0/5$, $1/4$, $0/3$, and $0/7$ for the five stimulus words of the sexual word category for FI, his total definite imagoic score for the sexual words in FI was $2/24$, or .083. This was the number used in the ANOVA analysis. The same was done for the other three word groups.

In order to arrive at a definite imagoic score across all four word groups for a given S, the numerators and denominators of the fraction expressing the definite imagoic score for each word group were added. Thus if the S had definite imagoic scores for the sexual, aggressive, affective, and neutral words of $2/24$, $0/16$, $0/19$, and $4/20$, respectively, his definite imagoic score across all four word groups was the sum of the numerators and denominators, i.e. in this case, $6/79$, or .076. The definite imagoic scores for each S for each condition thus expressed the fraction of the number of episodes that contained definite

imagery. In the above case, six out of the S's 79 episodes contained definite reference by the S to imagery.

By changing the fraction into a decimal and multiplying by 100 one can also compute the percentage of episodes that contain definite reference to imagery, i.e. in this case 7.6% of the S's episodes across all the words contained definite imagery as judged by the scoring criteria.

If an episode was not scored definite imagoic, it could still be scored approximate imagoic, although both a rating of definite imagoic and approximate imagoic for a given episode could not be done. (An episode that was not scored definite or approximate imagoic was scored a "0", designating no indication of imagoic content.) If the episode was a phrase, clause, or sentence in which a scene, image, or visual representation was reasonably assumed to be taking place in the S's mind's eye, the episode was scored approximate imagoic and was designated by a "1".

Examples of episodes scored approximate imagoic would be: he is laying on her in bed, a bright blue streak in the backround, now he's in the kitchen, men and women fighting and screaming, etc. Single words were not scored approximate imagoic since there was not enough information to tell whether the episode was an image or a thought.

An approximate imagoic score per S for each condition for each of the four word groups and across all four word groups was computed as was the scores for the definite imagoic scale. The approximate imagoic score represented the

fraction of the episodes that contained approximate imagery, ideation which appeared to be imagoic but of which the scorer could not be sure. This was the score used in the data analysis. By changing the fraction into a decimal and multiplying by 100, one would also have the percentage of episodes that contained approximate imagery.

The S's combined imagoic score was simply the sum of the definite and approximate scores for each of the four word categories and a score across all the word categories. Thus if the S had 50 episodes in response to all the sexual words in FI, five of which were judged approximate and five, definite, his combined imagoic score was 10/50, or .20.

Drive activation score

The Drive Activation Scale was used to assess the presence of sexual and aggressive drive in the S's protocols. Three undergraduates, two females and one male, who were trained in the use of the scale, scored the protocols. Each scorer was randomly assigned to score ten Ss, with the author doing a ten percent random sample to determine reliability. Each episode was scored for sex and aggression, the degree to which it was represented in awareness, and whether the images or thoughts were kinetic and interactive. (See Appendix G.) The scores obtained for each of these dimensions were multiplied together to give a total score for sex and aggression for each episode in accordance with the instructions of the Drive Activation Scale.

A drive activation score for each S for each condition for each of the four word categories and across all four word categories was computed as follows: As mentioned, a drive activation score for sex and aggression was computed for each episode according to the instructions. The number of episodes per stimulus word was recorded. The drive activation scores for each episode were summed to give a total drive activation score per stimulus word and was recorded. The score per stimulus word was expressed as a fraction.

For example, if there were two episodes for the S's associations to the word "joy", and each unit received a sexual drive activation score of two, the sexual drive activation score was expressed as $4/2$. The scores for all twenty words were found and grouped according to the four word categories. The numerators and denominators for the scores to the five words of each word category were summed (as with the imagaic scales) to give the total amount of drive activation scored divided by the total number of episodes for each word category for each condition. The fraction obtained gave the amount of drive activation per episode and was expressed as a decimal.

A score was obtained for the sexual and aggressive drives for each S in each condition for each of the four word groups and across all the words. The score was the measure of the sexual and aggressive drive activation verbalized by each S per episode and was used as the S's

sexual and aggressive drive activation score in the data analysis.

Analogic and synthetic functions

The degree of analogic and synthetic process functions in the S's protocols were scored with the Analogic-Synthetic Scale (ASS). Three undergraduates, two males and a female, who were trained in the use of the scale, scored the protocols. Each scorer was randomly assigned to score ten Ss, with the author doing a ten percent random sample. Each episode was scored for analogic or synthetic functions along the dimensions of intactness, functional deviations, clarity and plausibility; and intactness, functional and formal deviations, clarity and plausibility, respectively. (See Appendix H.)

The scores obtained were then multiplied together to give a score for each episode. The analogic and synthetic scores per S were then computed for each of the four word categories according to the procedures used in computing the imagoic scores. The score, expressed as a decimal, was the amount of analogic or synthetic thought processes per episode. This analogic and synthetic score was computed for each S for each condition for each of the four word groups.

Mood questionnaire

Activation of affect was determined by the Mood questionnaire. Although this questionnaire was to be used to tap several affects, when a small validation study was

done, only two affects, syntonía and dystonia, were found to be adequately tapped by the questionnaire. (See Appendix C.) By counting the scores for the ten best descriptors for the affects of syntonía and dystonia, as rated by the S himself on the twenty different word pair dimensions, his score for syntonía and dystonia was found. By taking the differences of the scores between forms A and B, and forms B and C of the questionnaire for syntonía and dystonia, the change in affective state of the S after each condition was found.

RESULTS

All analyses of variance and other data analyses done in this study utilized a two-tailed rejection region. This was done in order to be conservative, owing to the large number of dependent variables assessed.

Stimulus Words: Manipulation Check

The stimulus words were randomly divided into two groups of twenty words each, each group containing five words of sexual, aggressive, affective, and neutral content, and were counterbalanced across conditions and Ss.

Thus 14 of the Ss experienced FI first and an equal number experienced FA first. Likewise, 14 Ss experienced list A first while an equal number experienced list B first. Seven LMs experienced FI first while an equal number experienced FA first. The same held for RMs.

Of the 14 LMs, eight experienced FI with word list A while six had FI with list B; six LMs experienced FA with list A while eight had FA with list B. Of the 14 RMs, six experienced FI with list A, while eight had FI with list B; and eight RMs had FA with list A, while six had FA with list B.

In addition, however, in order to determine if the two word lists (A and B) were equivalent, a single factorial analysis of variance was performed for FA and FI for the dependent variables of SNS activation, sexual and aggressive drive activation, analogical thought processes, and imagoic representation. (Table A in Appendix), testing for

significant differences between the means of the two word lists for FI and FA for the dependent variables (Table 1).

As can be seen from the table, no significant differences were found between the means in list A and B for SNS activation, sexual and aggressive drive, analogical thought processes, and imagoic representation. Of the over seventy post hoc comparisons made, only two dependent variables approached significance, $p < .10$; these being analogical thought processes for FA for the sexual words and sexual drive activation for FI for the neutral words, and this could be expected from chance alone. It is thus concluded that the four word groups of the two word lists (A and B) were not found significantly different from each other.

First Session

Reliability was computed between the two female Es and the author for the S's initial eye movements. Mean reliability was 92.4%, being computed by the number of agreements divided by agreements plus disagreements times one hundred (percentage agreement method).

Second Session: Experimental Session

Imagoic representation

The imagoic scale was used to assess the amount of definite, approximate, and combined imagery evident in the S's protocols. Reliability was computed between the three scorers and the author for the imagoic scale by the percentage method. Mean reliability was 86%.

Table 1

Comparison of the means of word lists A and B across the dependent variables of SNS activation, sexual and aggressive drives, analogical thought and imagoic representation for FI and FA

Dependent variables	Word groups							
	sexual		aggressive		affective		neutral	
	lists A	lists B	lists A	lists B	lists A	lists B	lists A	lists B
SNS activation								
FI								
frequency	10.3	9.0	8.1	7.3	8.3	7.6	7.1	6.2
duration	2.7	2.8	2.2	2.8	2.2	2.4	3.8	2.6
amplitude	1830	3720	1540	1210	1800	1500	2630	1540
FA								
frequency	9.5	10.8	6.9	8.1	7.9	8.0	6.4	8.6
duration	2.2	5.1	1.8	3.1	1.8	3.1	1.7	2.2
amplitude	1960	1930	1980	1260	1500	1760	1440	1190
Sexual drive								
activation								
FI	1.5	1.5	2.4	4.3	4.1	2.9	4.3	8.4
FA	1.7	1.8	.08	.19	1.3	1.9	3.6	6.0
Aggressive drive								
activation								
FI	.29	.05	3.0	2.8	1.0	0.8	.04	.07
FA	.27	.13	3.6	3.1	.72	.68	.16	.10
Analogical								
thought								
FI	5.2	4.9	5.2	4.4	5.9	5.3	7.6	4.5
FA	5.1	6.2	10.0	6.0	5.7	6.4	5.3	5.6
Imagoic represen-								
tation								
FI								
approximate	.08	.13	.06	.13	.06	.09	.14	.14
definite	.11	.09	.12	.10	.11	.12	.14	.12
combined	.20	.23	.18	.23	.17	.21	.24	.25
FA								
approximate	.10	.07	.09	.06	.12	.06	.16	.07
definite	.08	.07	.03	.08	.05	.06	.07	.06
combined	.17	.13	.11	.14	.17	.11	.22	.14

None of the means are significantly different at
 $p \leq .05$, $df = 1/26$

A three factorial, conditions by mover type by experimenter ANOVA was computed to assess for experimenter effects (Table B in Appendix). Unexpectedly, significant main effects were found for Es for the approximate imagoic, (E#1: \bar{X} =.045, E#2: \bar{X} =.249, E#3: \bar{X} =.043), $F(2/22) = 7.33$, and the combined imagoic scale, (E#1: \bar{X} =.133, E#2: \bar{X} =.425, E#3: \bar{X} =.083), $F(2/22) = 9.25$, both significant at $p < .005$. Significant interactions were also found between mover type and experimenter for the approximate, $F(2/22) = 3.47$ (Figure 1), and the combined scale, $F(2/22) = 3.50$ (Figure 2), which were just within significance.

Because of the unusual means for the Ss of E#2, a conditions by mover type by order ANOVA was computed with and without the Ss run by E#2 (Tables C and D in Appendix), testing for a significant main effect for conditions.

Across all three Es, for the definite imagoic scale, FI (\bar{X} =.125) was found to produce significantly more verbalized imagery than FA (\bar{X} =.069), $F(1/24) = 4.89$, $p < .05$, pooling across all the words. Without E#2, FI (\bar{X} =.115) was again found to produce significantly more imagery than FA (\bar{X} =.066), $F(1/16) = 4.70$, $p < .05$, pooling across all the words. FI was found effective in producing more definite or verbalized imagery than FA.

Paired t-tests were then computed between FI and FA for each of the four word categories for the definite imagoic scale (Table 2). As can be seen from the table, free imagery produced significantly more imagery for the neutral, aggressive,

Figure 1

Interaction between mover type and experimenter for the approximate imagoic scale

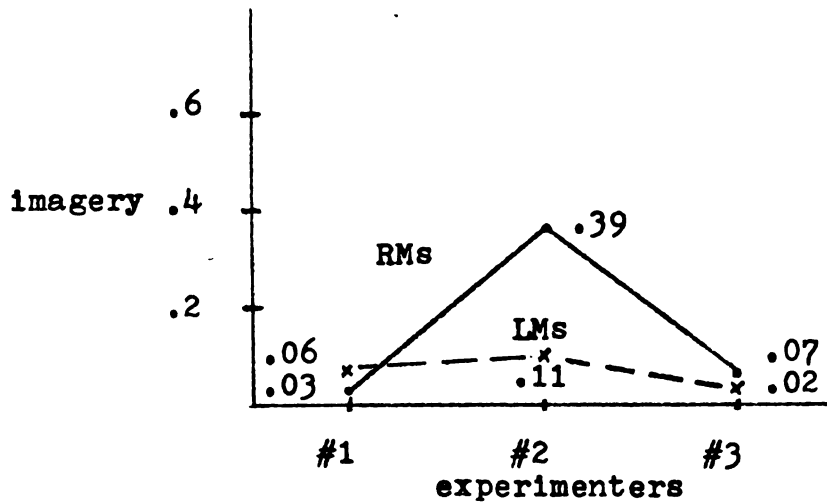


Figure 2

Interaction between mover type and experimenter for the combined imagoic scale

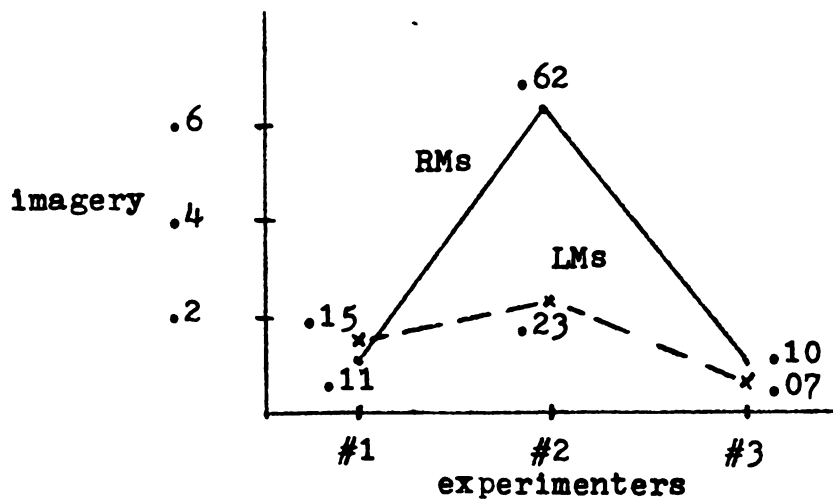


Table 2

Means per condition for definite imagaic representation
across the four word groups

Word group	Conditions		t	df	p
	FI	FA			
sexual	.10	.07	1.03	27	.31 .05
aggressive	.11	.05	2.27	27	.03 .05
affective	.11	.05	2.23	27	.03 .05
neutral	.12	.06	2.60	27	.01 .05

and affective words, but not the sexual words.

The means of table 2 multiplied by 100 expresses the percentage of episodes that contained definite reference to imagery. One sees that a small percentage of imagery, five to seven percent, was evident in FA and that order effects $F(1/24) = 1.58$, $p \leq .3$, were not responsible for this. The percentage of episodes that contained reference to imagery in FI, although approximately double FA, was still surprisingly low, ranging between ten and twelve percent.

An examination of table 3 expresses the low definite imagery content for free imagery more lucidly. The figures represent the number of Ss in FI and FA that demonstrated a given percentage of definite imagery. Although 22 Ss in FA had five percent or less of the episodes that contained definite imagaic depiction, thirteen, or almost half of the Ss in FI verbalized five percent or less definite imagery.

A perusal of the Ss's actual transcribed protocols supports the above. During free imagery, three Ss did not verbalize anything and five Ss gave only single word associations. An examination of the protocols for many of the other Ss reveals that verbalization to free imagery was very similar to verbalization to free association. However, since a S can experience imagery without verbalizing such words as see, image, etc., the actual imagery experienced may have been much higher.

In order to attempt to tap this dimension, the approximate imagaic scale was used. By tapping the imagery that seemed to be taking place but was not explicitly verbalized as such

Table 3

Number of subjects having a given percentage of imagery
(definite imagoic scale) for FI and FA

Definite imagoic percentage	Conditions	
	FI	FA
0 - 5%	13	22
6 - 10%	3	0
11 - 20%	7	2
21 - 50%	4	3
51 - 100%	1	1
	N = 28	28

(the approximate scale) and adding this to the definite imagoic scale, one could arrive at an upper limit of the imagery probably contained in the protocols (the combined scale). Table 4 shows the mean percentage of imagery for the three scales for each of the four word groups across FA and FI.

Paired t-tests were computed comparing the total imagery score (the combined scale) for each of the four word groups for FI and FA. Only for the neutral words did the FI condition ($\bar{X}=.27$) produce significantly combined imagery than the FA condition ($\bar{X}=.18$), $t=2.28$, $df=27$, $p < .05$. Also, use of the Newmann-Keuls test at $\alpha=.01$ found that the neutral words produced significantly more combined imagery in FI than any of the other three word groups.

Anxiety (SNS (sympathetic nervous system) activation)

A three way analysis of variance, conditions by mover type by experimenter, was performed for the skin resistance response (SRR) variables of frequency, duration, and amplitude for all the word groups to assess any experimenter effects (Table E in Appendix). No significant main effects for Es or significant interactions between Es and the other variables were found. However, because of the peculiar experimenter effects for imagoic representation, the data was evaluated first with all three Es ($N=28$) and then without E#2 ($N=20$).

A three way analysis of variance, conditions by mover type by order (Table F in Appendix), was performed for the SRR variables of frequency, duration and amplitude for all

Table 4

Mean percentage of episodes with approximate, definite, and combined imagery for each of the four word groups across FA and FI

Approximate scale		
word groups	conditions	
	FA	FI
sexual	8.3	10.9
aggressive	9.8	9.9
affective	8.9	7.7
neutral	11.6	14.4

Definite scale		
word groups	conditions	
	FA	FI
sexual	7.1	10.3
aggressive	5.4	11.2 *
affective	5.4	10.9 *
neutral	6.4	12.5 *

Combined scale		
word groups	conditions	
	FA	FI
sexual	15.4	21.2
aggressive	15.2	21.1
affective	14.3	18.7
neutral	18.0	26.9 *

* = $p < .05$,
df = 1/27

word groups with all three Es. In comparing the means between FA and FI (Table 5), significant differences between conditions was found for only the neutral words for the dependent measures of amplitude (FA: $\bar{X}=1320$, FI: $\bar{X}=2080$), $F(1/24)=4.88$ and duration (FA: $\bar{X}=1.92$, FI: $\bar{X}=3.2$), $F(1/24)=5.37$, both significant at $p \leq .05$.

Another three way analysis of variance, conditions by mover type by order (Table G in Appendix), was performed for the same SRR variables, but only using the Ss run by E#1 and E#3. Again, a significant difference between conditions was found for only the neutral words for the dependent measures of amplitude (FA: $\bar{X}=1095$, FI: $\bar{X}=1940$), $F(1/16)=4.68$, and duration (FA: $\bar{X}=1.78$, FI: $\bar{X}=3.17$), $F(1/16)=4.82$, both significant at $p \leq .05$.

FI aroused greater alleged sympathetic nervous system activation than FA for the neutral words, but not the sexual, aggressive, or affective words.

When analyzing the data with all three Es for significant interactions between conditions and mover type for the four word groups (Table 6), a very significant interaction ($p \leq .005$) between conditions and mover type was found for frequency for the neutral words, $F(1/24)=9.77$ (Figure 3). Analyzing the data without E#2 yielded the same: a significant interaction ($p \leq .02$) between conditions and mover type for frequency for the neutral words, $F(1/16)=6.64$ (Figure 4) of the same spatial arrangement.

Examination of the graphs shows that LMs demonstrated a greater number of SRR responses in FA while RMs demonstrated

Table 5

Comparison of the means for FA and FI for the SRR variables of frequency, duration, and amplitude for the four word groups using three Es

SRR frequency (#)		
word groups	conditions	
	FA	FI
sexual	10.3	9.7
aggressive	7.5	7.7
affective	8.0	8.1
neutral	7.5	6.7

SRR duration (sec.)		
word groups	conditions	
	FA	FI
sexual	3.6	2.8
aggressive	2.9	2.6
affective	2.5	2.4
neutral	1.9	3.2 *

SRR amplitude (ohms)		
word groups	conditions	
	FA	FI
sexual	1940	2770
aggressive	1620	1380
affective	1630	1650
neutral	1300	2080 *

* = $p < .05$, $df = 1/24$

Table 6

Comparison of the means for RMs and LMs in FA and FI for the SRR variables of frequency, duration, and amplitude for the four word groups using three Es

SRR frequency					
word groups	FA		conditions		FI
	RMs	LMs	RMs	LMs	
sexual	10.3	10.0	10.4		8.9
aggressive	7.5	7.4	9.2		6.2
affective	8.4	7.5	9.0		7.1
neutral	6.9	8.1	8.1		5.2 **

SRR duration					
word groups	FA		conditions		FI
	RMs	LMs	RMs	LMs	
sexual	5.0	2.2	2.5		3.1
aggressive	1.5	4.4	1.7		3.4
affective	2.6	2.3	2.0		2.7
neutral	1.5	2.4	3.0		3.4

SRR amplitude					
word groups	FA		conditions		FI
	RMs	LMs	RMs	LMs	
sexual	2160	1730	3810		1730
aggressive	1430	1810	1260		1500
affective	1500	1760	1220		2080
neutral	1060	1570	1340		2820

** = $p < .005$, $df = 1/24$

Figure 3

Interaction between conditions and mover type for SRR frequency for the neutral words using three Es

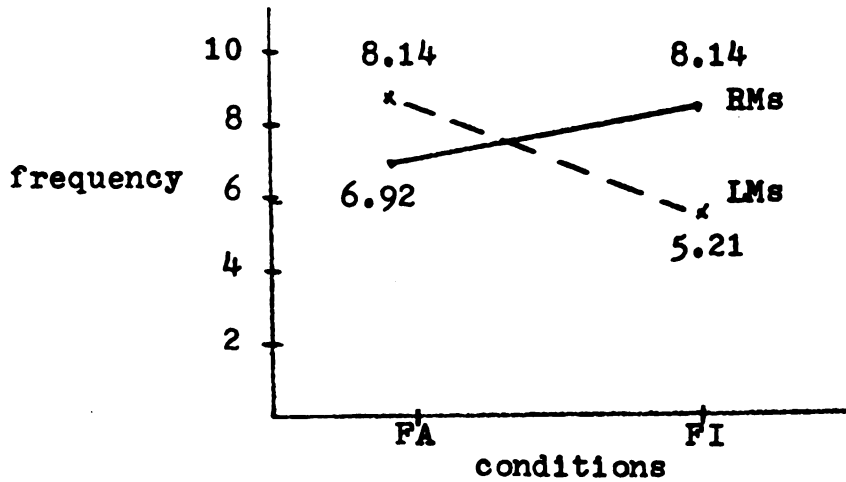
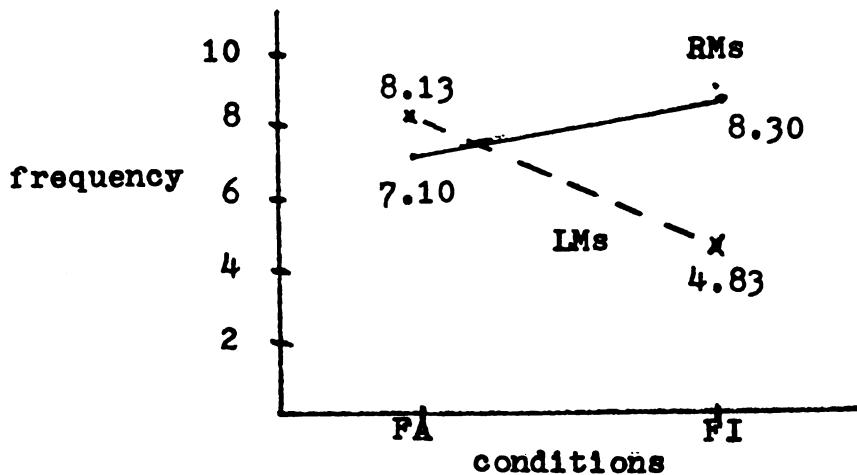


Figure 4

Interaction between conditions and mover type for SRR frequency for the neutral words using two Es



a greater number of such responses in FI.

A $2 \times 2 \times 4$ ANOVA was performed corresponding to conditions, mover type, and word type for the three SRR variables across all three Es looking for a main effect for word type (Table H in Appendix). A significant main effect for word type ($p < .0005$) was found only for frequency, $F(3/78)=8.88$. The Newmann-Keuls test was applied and the sexual words ($\bar{X}=9.91$) were found to produce significantly more responses than the affective ($\bar{X}=8.01$), aggressive ($\bar{X}=7.37$), and neutral words ($\bar{X}=7.1$); and the affective words significantly more responses than the aggressive and neutral words, but the neutrals were not significantly different from the aggressive words at $\alpha = .01$.

This suggests that the neutral words, although innocuous, were anxiety arousing, or at least as anxiety-arousing as the aggressive words.

Drive activation

Reliability was computed between the three undergraduates who scored the protocols for sexual and aggressive drive and the author by the percentage agreement method. Reliability for the three scorers was 80.4, 79.6, and 78.6% for a mean reliability of 80% which was deemed adequate.

A three way analysis of variance, conditions by mover type by experimenter, was performed for sexual (Table I in Appendix) and aggressive (Table J in Appendix) drive activation for each of the four word groups. Surprisingly, a significant main effect was found for Es for sexual drive

activation for the neutral words (E#1: \bar{X} =.58, E#2: \bar{X} =.89, E#3: \bar{X} =.27), $F(2/22)=14.51$, $p < .0005$, and a significant interaction between mover type and experimenter for the aggressive words, $F(2/22)=3.82$ (Table 7).

Concerning the aggressive drive, there occurred significant interactions between mover type and experimenter for the aggressive words, $F(2/22)=3.93$ (Table 8), and for the affective words, $F(2/22)=6.17$ (Table 9), $p < .05$. Because of these peculiar experimenter effects, especially with E#2, the following data analysis was performed with all three Es and then without E#2.

A three way factorial, conditions by mover type by order ANOVA, was computed for each of the four word groups for the sexual (Table K in Appendix) and aggressive (Table L in Appendix) drives for all three Es. In comparing the means between FI and FA for the aggressive drive (Table 10), FI was not significantly different from FA. With the sexual drive (Table 10) a main effect was found for only the aggressive words, (FI: \bar{X} =.33, FI: \bar{X} =.14), $F(1/24)=4.47$, $p < .05$.

A three way factorial, conditions by mover type by order ANOVA, was then computed for each of the four word groups for the sexual (Table M in Appendix) and the aggressive (Table N in Appendix) drives for only the Ss of E#1 and E#3. Neither for the sexual of the aggressive drive was FI found to evince greater verbalized drive activation than FA.

Interactions between conditions and mover type were not significant for the aggressive drive for all three Es (Table 11)

Table 7

Mean sexual drive activation for the aggressive words
for each experimenter for RMs and LMs

Mover type	Experimenters		
	#1	#2	#3
RMs	.06	.48	.27
LMs	.33	.16	.08

Table 8

Mean aggressive drive activation for the aggressive
words for each experimenter for RMs and LMs

Mover type	Experimenters		
	#1	#2	#3
RMs	3.46	3.86	2.40
LMs	3.77	2.02	3.83

Table 9

Mean aggressive drive activation for the affective words
for each experimenter for RMs and LMs

Mover type	Experimenters		
	#1	#2	#3
RMs	.95	1.17	.39
LMs	1.21	.31	1.04

.Table 110

.Comparison of the means for FA and FI for sexual and aggressive drive activation for the four word groups for three Es

sexual drive activation		
word group	conditions	
	FA	FI
sexual	1.51	1.76
aggressive	0.39	0.14 *
affective	0.34	0.25
neutral	0.49	0.63

aggressive drive activation		
word group	conditions	
	FA	FI
sexual	0.20	0.17
aggressive	3.34	2.94
affective	0.70	0.91
neutral	0.13	0.06

* = $p < .05$, $df = 1/24$

Table 11

Comparison of the means for RMs and LMs in FA and FI for sexual and aggressive drive activation for the four word groups using three Es

sexual drive activation					
word groups	FA		conditions		FI
	RMs	LMs	RMs	LMs	
sexual	1.40	2.10	1.58	1.41	*
aggressive	.17	.11	.38	.29	
affective	.20	.11	.29	.40	
neutral	.65	.32	.61	.67	

aggressive drive activation					
word groups	FA		conditions		FI
	RMs	LMs	RMs	LMs	
sexual	.24	.19	.05	.29	
aggressive	3.28	3.40	3.00	2.92	
affective	.61	.80	.94	.88	
neutral	.15	.11	.07	.04	

* = $p < .05$, $df = 1/24$

or without E#2 (Table 12).

However, for the sexual drive, with three Es (Table 11) a significant interaction was found for the sexual words, $F(1/24)=4.41$ (Figure 5), and a double interaction of conditions by mover type by order was found for the neutral words, $F(1/24)=4.84$ (Figure 6), both significant at $p \leq .05$.

Dropping the Ss of E#2 from the data analysis and looking for interactions between conditions and mover type for sexual drive (Table 12) yielded a significant interaction only for the neutral words, $F(1/16)=7.662$, $p \leq .025$. Thus the significant interaction for sexual drive for the sexual words using three Es disappeared when the Ss of E#2 were dropped, and the double interaction between conditions, mover type, and order using three Es, became a single interaction between conditions and mover type that was even more significant. In this interaction with the neutral words, LMs had higher sexual drive activation in FI, while RMs had higher drive activation in FA. (Figure 7).

A $2 \times 2 \times 4$ analysis of variance was performed with regard to conditions, mover type, and word type for the aggressive and sexual drives with all three Es (Table 0 in Appendix), assessing for a main effect for word type. As would be expected, there was a main effect for word type for the sexual drive, $F(3/78)=39.86$, $p \leq .0005$ (Figure 8), and the aggressive drive, $F(3/78)=118.4$, $p \leq .0005$ (Figure 9).

Use of the Newmann-Keuls test found that the aggressive words ($\bar{X}=3.13$) produced significantly larger aggressive drive

Table 12

Comparison of the means for RMs and LMs in FA and FI for sexual and aggressive drive activation for the four word groups using two Es

sexual drive activation					
word groups	conditions				
	RMs	FA	LMs	RMs	FI
sexual	1.38		2.26	1.52	1.57
aggressive	.14		.07	.26	.30
affective	.16		.13	.19	.52
neutral	.60		.34	.37	.61 *

aggressive drive activation					
word groups	conditions				
	RMs	FA	LMs	RMs	FI
sexual	.26		.20	.04	.17
aggressive	3.56		4.06	2.71	3.23
affective	.65		.80	.85	1.03
neutral	.06		.13	.05	.04

* = $p < .05$, $df = 1/16$

Figure 5

Interaction between conditions and mover type for sexual drive activation for the sexual words using three Es

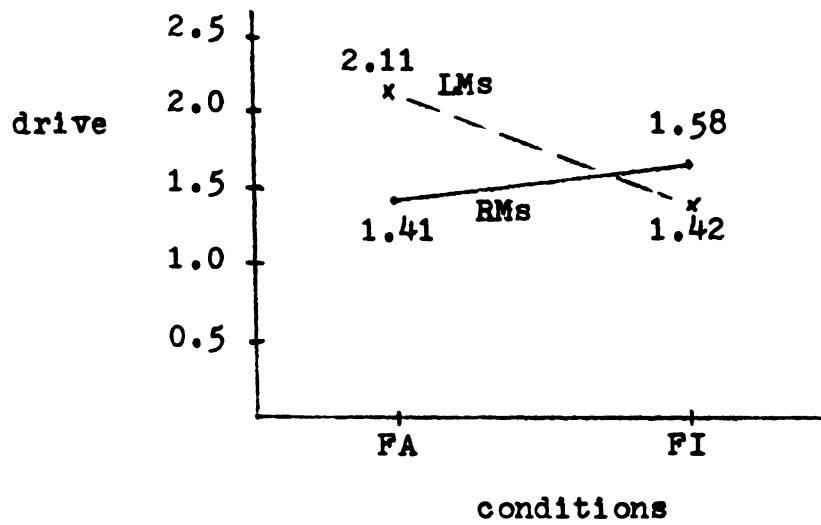


Figure 6

Interaction between conditions, mover type, and order
for sexual drive activation for the neutral words
using three Es

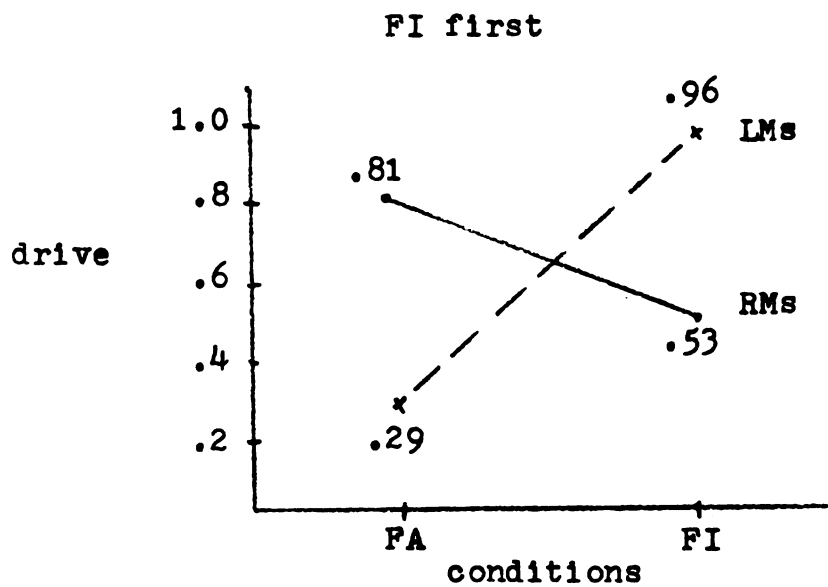
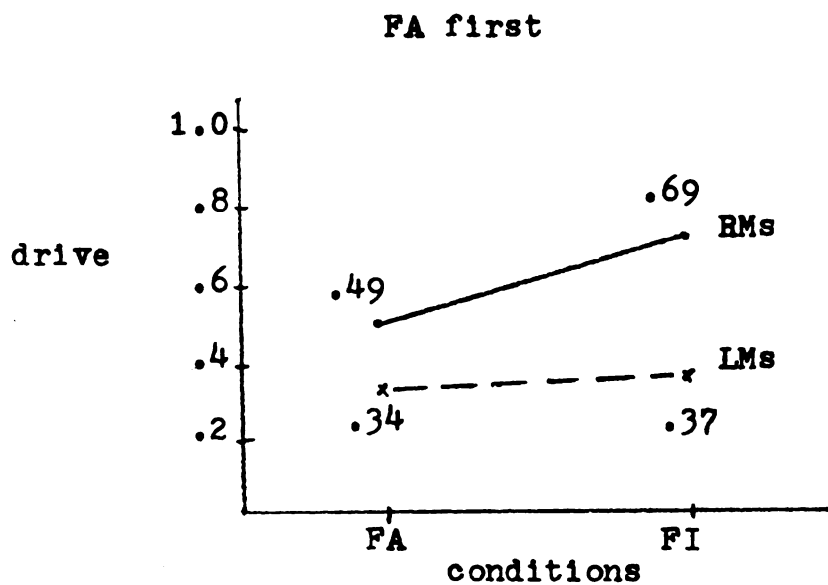


Figure 7

Interaction between conditions and mover type for sexual drive activation for the neutral words using two Es

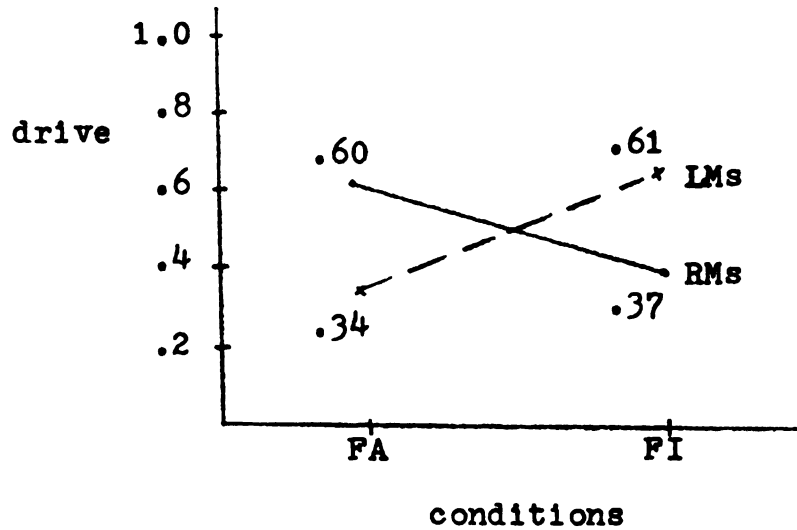


Figure 8

Sexual drive activation for the four word groups

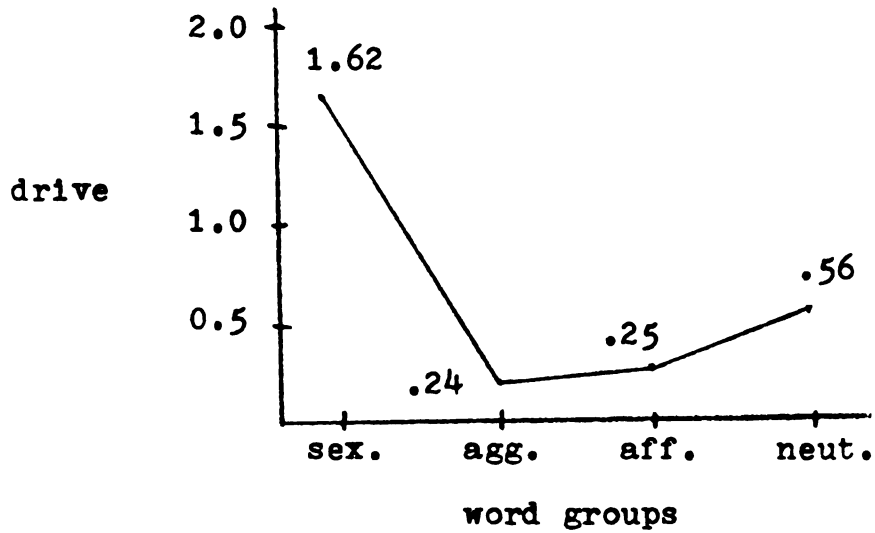
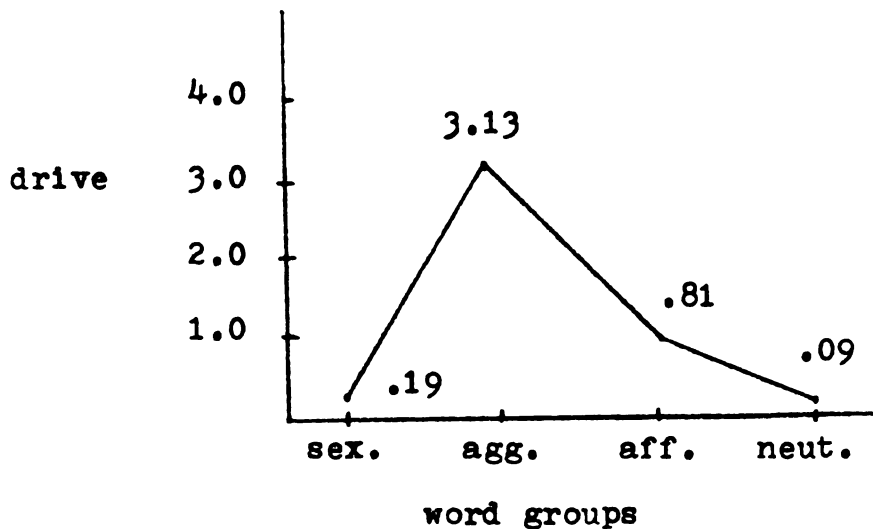


Figure 9

Aggressive drive activation for the four word groups



activation than the affective ($\bar{X}=.81$), sexual ($\bar{X}=.19$), and the neutral words ($\bar{X}=.09$) at $\alpha = .01$. The affective words were also found to produce significantly greater aggressive drive activation than the sexual and neutral words.

For sexual drive activation, the sexual words ($\bar{X}=1.62$) were found to produce significantly greater sexual drive than the neutral ($\bar{X}=.56$), the affective ($\bar{X}=.25$), and the aggressive ($\bar{X}=.24$) words at $\alpha = .01$. The neutral words were also found to demonstrate greater sexual drive activation than the affective and aggressive words, also significant at $\alpha = .01$.

The neutral words were not significantly different from the sexual words with regard to aggressive drive, and most importantly, the neutral words demonstrated significantly more sexual drive than the affective and aggressive words. This suggests they possibly may have functioned as remote derivatives of sexual strivings.

A conditions by mover type by word type analysis of variance for sexual drive activation with three Es (Table O in Appendix) or only two Es (Table P in Appendix) also uncovered a significant double interaction between these three variables found to be significant with three Es, $F(3/78)=3.91$, $p \leq .02$ (Figure 10) or with only two Es, $F(3/54)=3.4$, $p \leq .025$ (Figure 11).

In looking at figure 10 (three Es), in the FA condition, LMs had higher sexual drive activation for the sexual words than RMs, whereas RMs had higher scores for the affective and neutral words than LMs. In the FI condition, this was exactly

Figure 10

Interaction between conditions, mover type, and word type for sexual drive activation using three Es

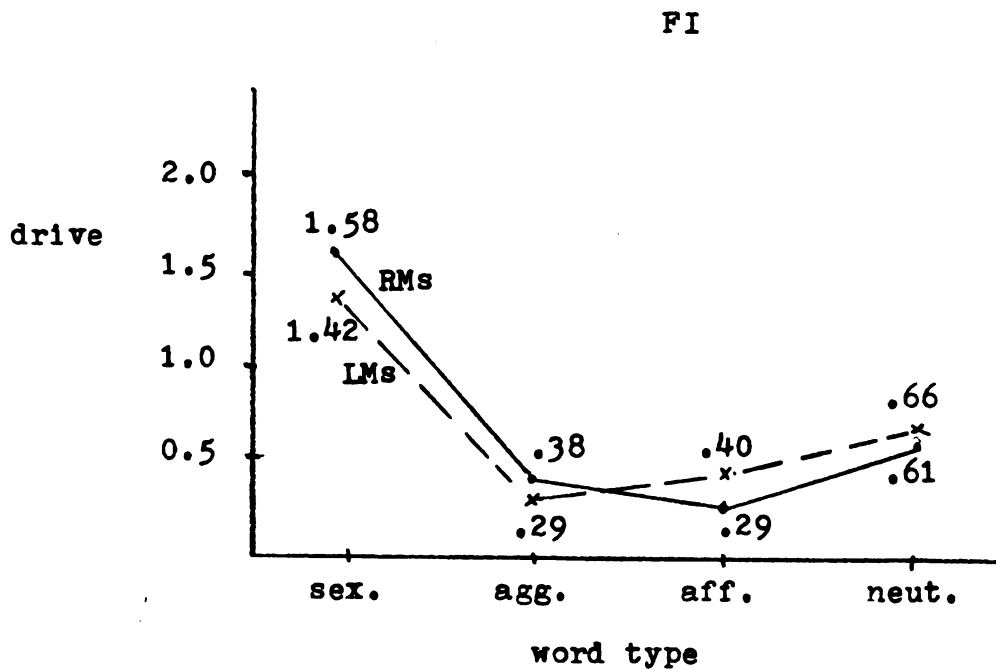
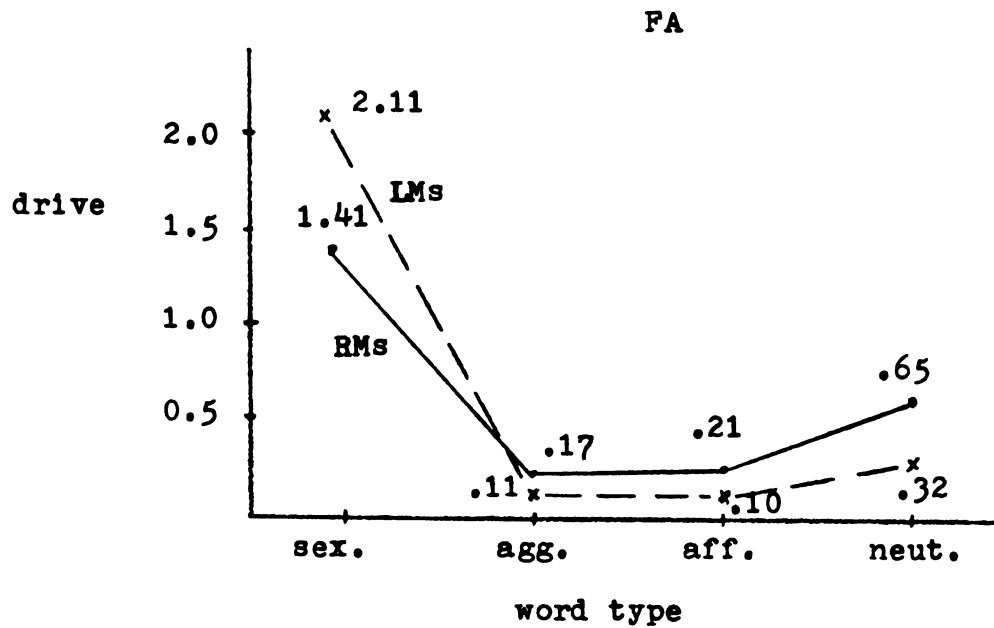
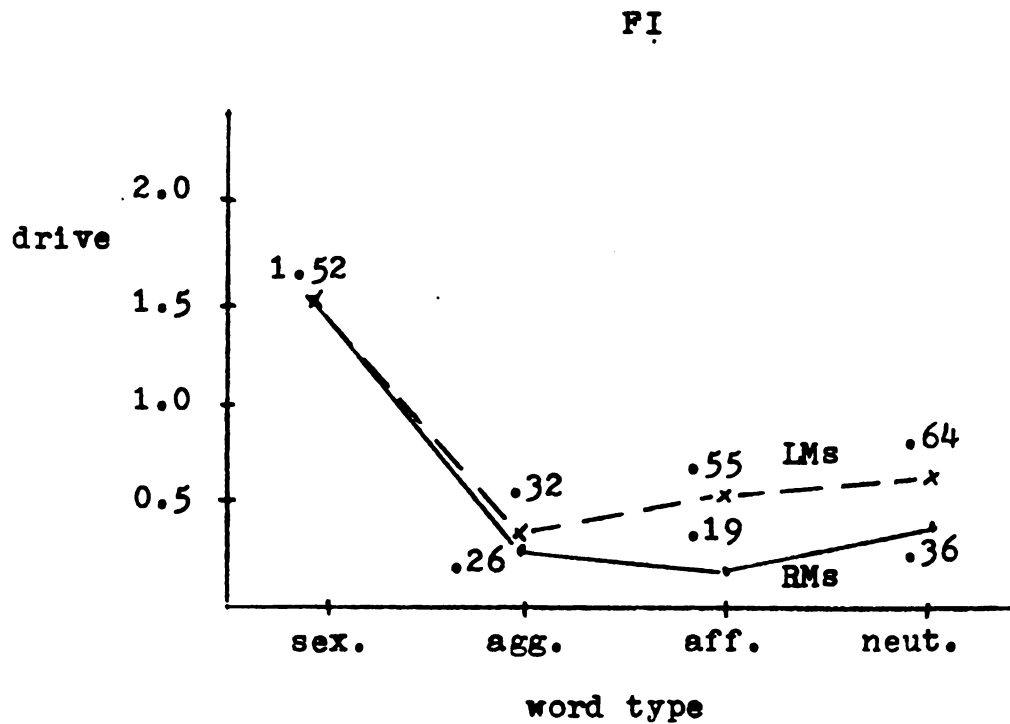
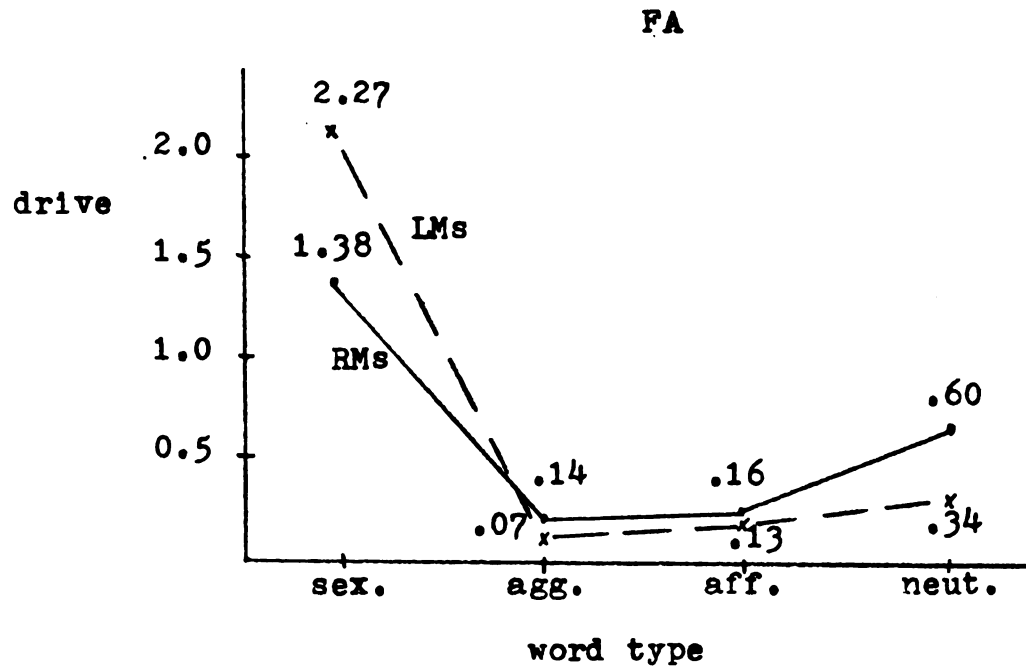


Figure 11

Interaction between conditions, mover type, and word type for sexual drive activation using two Es



reversed, the RMs now scoring higher on the sexual words than LMs, with the LMs scoring higher on the affective and neutral words for sexual drive activation. With only the Ss of E#1 and E#3 taken into account (Figure 11), the graph is about the same, except in FI, RMs and LMs have the same drive score for the sexual words.

Mover type

The main effects for mover type for the three SRR dependent variables of a conditions by mover type by order ANOVA were not significant whether including all three Es (Table F in Appendix) of only two Es (Table G in Appendix). LMs did not significantly differ from RMs on the three SRR variables for the four word groups (Table 13).

The main effects for mover type for a conditions by mover type by order ANOVA for sexual drive with three (Table K in Appendix) or two Es (Table M in Appendix) and aggressive drive with three (Table L in Appendix) or two Es (Table N in Appendix) were not significant. LMs did not significantly differ from RMs for the sexual and aggressive drives for the four word groups (Table 14).

Type of drive: sex and aggression versus RMs and LMs

A 2 x 2 x 2 ANOVA was run: conditions by mover type by sexual versus aggressive words with all three Es (Table Q in Appendix), testing for a significant interaction between mover type and word type. Although there were no significant interactions, the interaction regarding SRR duration, $F(1/26)=3.47$ (Figure 12), and SRR amplitude, $F(1/26)=3.06$ (Figure 13)

Table 13

Comparison of the means for RMs and LMs for the SRR variables of frequency, duration, and amplitude for the four word groups using three Es

SRR frequency (#)		
word type	mover type	
	RMs	LMs
sexual	10.4	9.5
aggressive	8.4	6.8
affective	8.7	7.3
neutral	7.5	6.7

SRR duration (sec.)		
word type	mover type	
	RMs	LMs
sexual	3.7	2.7
aggressive	1.6	3.9
affective	2.3	2.5
neutral	2.2	2.9

SRR amplitude (ohms)		
word type	mover type	
	RMs	LMs
sexual	2990	1730
aggressive	1340	1650
affective	1360	1920
neutral	1200	2190

None of the means are significantly different at
p < .05

Table 14

Comparison of the means for RMs and LMs for the sexual and aggressive drives for the four word groups for three Es

sexual drive activation		
word group	mover type	
	RMs	LMs
sexual	1.50	1.76
aggressive	.27	.20
affective	.25	.25
neutral	.63	.49

aggressive drive activation		
word group	mover type	
	RMs	LMs
sexual	.13	.24
aggressive	3.12	3.16
affective	.77	.84
neutral	.11	.07

None of the means are significantly different at
p < .05

Figure 12

Interaction between mover type and word type for the SRR variable of duration

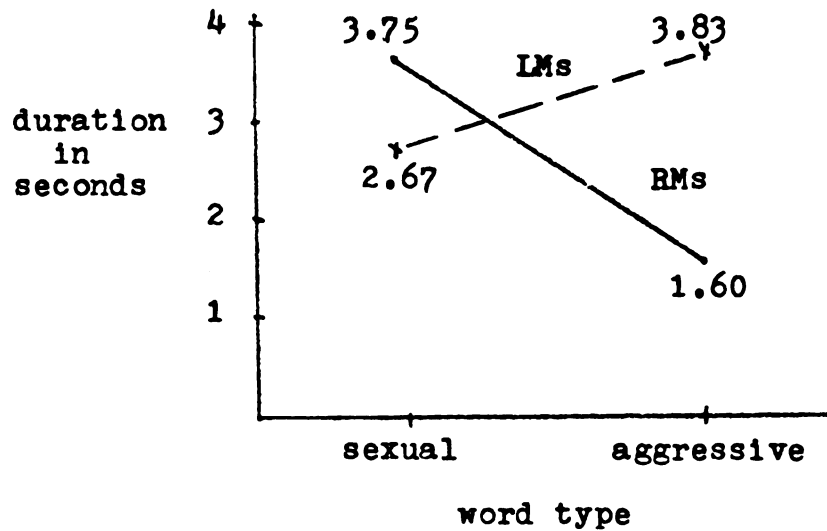
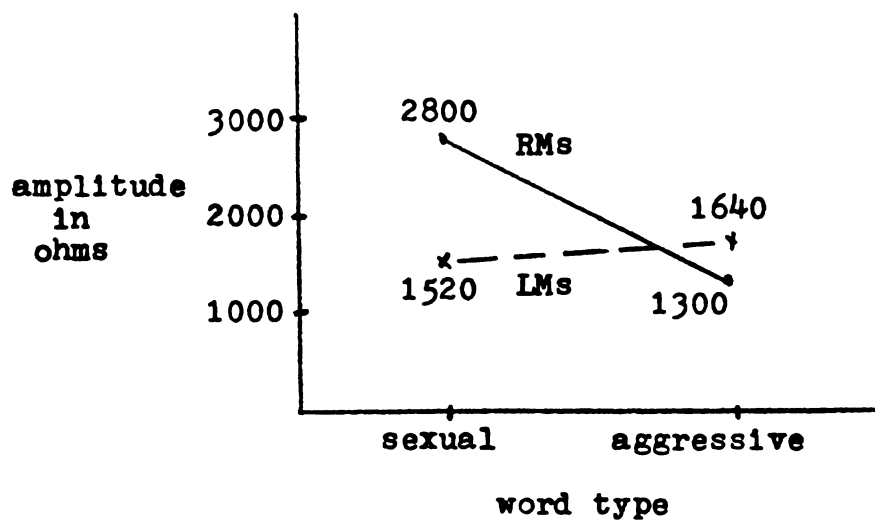


Figure 13

Interaction between mover type and word type for the SRR variable of amplitude



approached significance: $p \leq .10$ and $p \leq .08$, respectively.

A very significant interaction between mover type and word type ($p \leq .005$) for all four word groups in regards to SRR amplitude, $F(3/78)=4.8$ (Figure 14), as computed by a conditions by mover type by word type ANOVA with three Es (Table H in Appendix), supports such a conclusion. Examination of the graph reveals RMs were greatly affected by the sexual words, with hardly any differences between the aggressive, affective, and neutral words; whereas LMs were more affected by the aggressive, affective, and neutrals than the sexual words.

Affect

A three factorial, conditions by mover type by experimenter ANOVA was computed to determine if there were any experimenter effects or interactions for syntonia or dystonia (Table R in Appendix). No main effects or interactions were evident.

A conditions by mover type by order ANOVA was then computed for syntonia and dystonia (Table S in Appendix). No significant main effects for conditions or mover type (Table 15) or interactions between conditions and mover type (Table 16) were found.

However, significant interactions were found between conditions and order for both syntonia, $F(1/23)=4.75$, $p \leq .05$ (Figure 15) and dystonia, $F(1/23)=24.94$, $p \leq .0005$ (Figure 16). If FI was experienced first, both FA and FI aroused only a slight decrease in syntonia. However, with FA first, FI was

Figure 14

Interaction between mover type and word type for the SRR
variable of amplitude

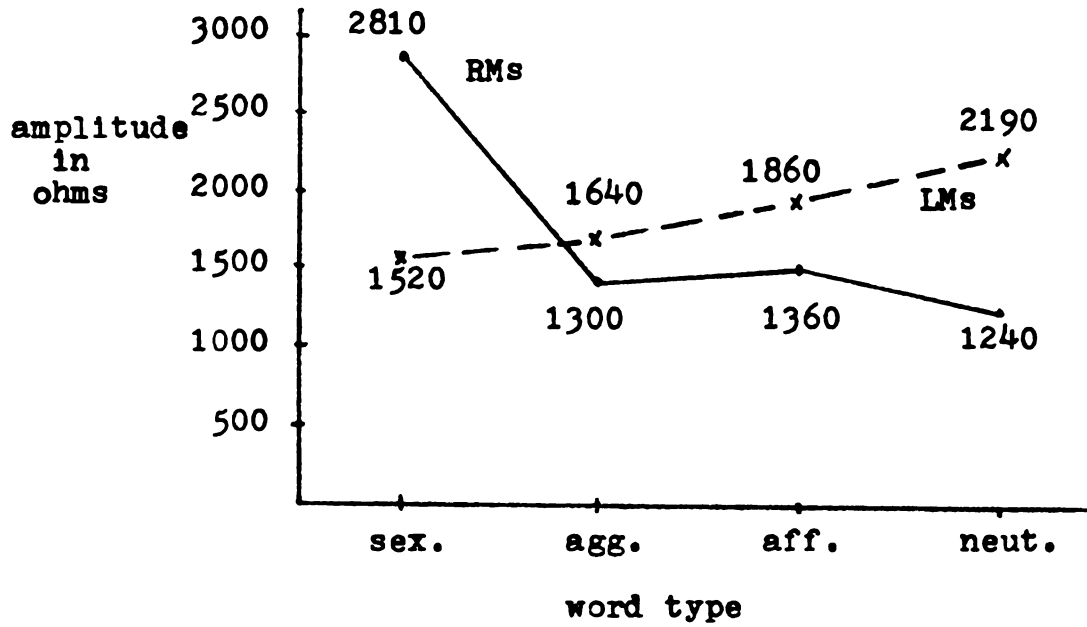


Table 15

Comparison of the means for conditions (FA and FI) and also mover type (RMs and LMs) for syntonia and dystonia

	conditions		mover type	
	FA	FI	RMs	LMs
syntonia	-3.2	-2.1	-3.3	-1.9
dystonia	1.4	2.4	2.2	1.6

None of the means are significantly different
at $p < .05$, $df = 1/23$

Table 16

Comparison of the means for RMs and LMs in FA and FI for syntonia and dystonia

	conditions			
	FA		FI	
	RMs	LMs	RMs	LMs
syntonia	-3.4	-3.0	-3.4	-0.8
dystonia	1.3	1.6	3.2	1.5

None of the interactions are significant at
 $p < .05$, $df = 1/23$

Figure 15

Interaction between conditions and order for syntonia

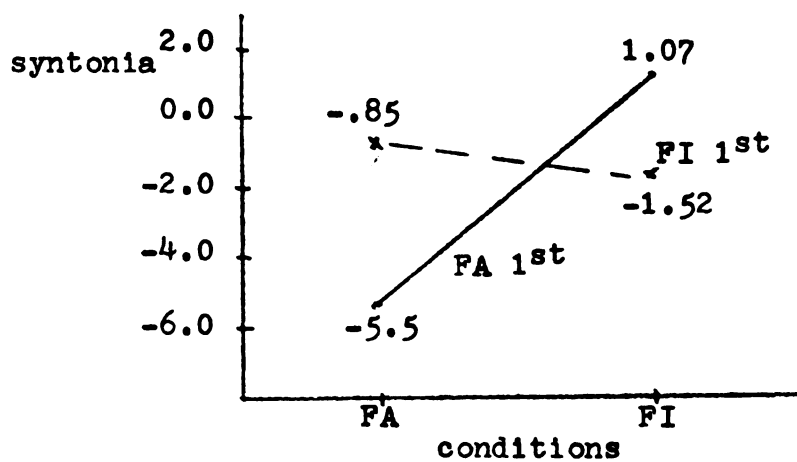
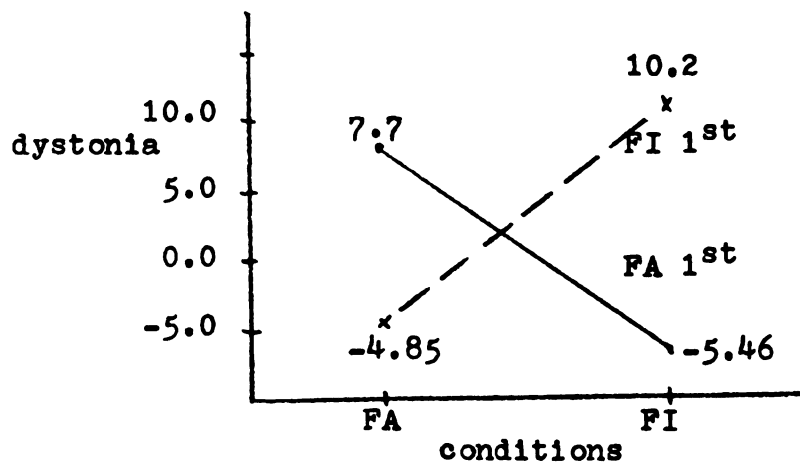


Figure 16

Interaction between conditions and order for dystonia



found to be somewhat pleasing, whereas FA was very displeasurable. For dystonia, these findings are even more significant, there now being a vast difference between FI and FA when FI was experienced first; FI was now also very displeasurable.

Mode of information processing

Reliability between the three scorers who scored the Analogic-Synthetic Scale and the author averaged 81% by the percent agreement method, which was deemed adequate.

Because of the sparsity of data for the synthetic scale, this scale was dropped from the data analysis and analysis was only performed on the analogic scale.

A three way ANOVA, conditions by mover type by experimenter, was computed for analogic thought processes to determine if any experimenter main effects or interactions were evident (Table T in Appendix). No main effects or interactions were found.

A three way ANOVA, conditions by mover type by order, was then computed for analogic thought processes (Table U in Appendix). No significant main effects for conditions or mover type (Table 17) or interactions between conditions and mover type (Table 18) were found.

Imagery

A t-test comparing the imagery vividness scores of RMs and LMs as measured by a modified version of the Betts QMI was not significant, $t=.092$, $df=27$.

Table 17

Comparison of the means for conditions (FA and FI) and also mover type (RMs and LMs) for analogical thought processes for the four word groups using three Es

word groups	conditions		mover type	
	FA	FI	RMs	LMs
sexual	5.7	5.0	5.1	5.6
aggressive	8.0	4.8	7.4	5.4
affective	6.0	5.6	5.6	6.1
neutral	5.4	6.0	4.8	6.7

None of the means are significantly different at
 $p < .05$, $df = 1/24$

Table 18

Comparison of the means for RMs and LMs in FA and FI for analogical thought processes for the four word groups using three Es

word groups	conditions			
	FA		FI	
	RMs	LMs	RMs	LMs
sexual	5.5	5.8	4.7	5.4
aggressive	10.5	5.6	4.3	5.2
affective	5.8	6.3	5.3	5.9
neutral	5.2	5.6	4.3	7.6

None of the interactions are significant at
 $p < .05$, $df = 1/24$

Debriefing questionnaire

The Ss were given a final questionnaire that compared their subjective experiences over the two conditions of FA and FI. Twenty-two of the 27 Ss liked free imagery best (significant with the sign test at $p \leq .008$), nineteen out of 24 found it most interesting ($p \leq .01$), and seventeen out of 22 said they were most honest with FI ($p \leq .02$).

Breaking the Ss into right and left movers yielded no significant differences for RMs on the above three questions. However, LMs preferred visual imagery overwhelming in the three subjective report measures: twelve out of thirteen LMs liked FI better ($p \leq .001$), eleven out of twelve found it more interesting ($p \leq .001$), and ten out of eleven said they were more honest with it ($p \leq .002$) than FA. These results suggest that the significant results across all Ss for the three subjective report questions were due to the very significant results for left movers.

Summary of Significant Results (Tables 19 and 20 present the following graphically.)

Imagistic representation

FI produced significantly more definite or explicitly verbalized imagery than FA for the aggressive, affective, and neutral words. When using a less rigorous but more inclusive criterion (the combined imagistic scale), only the neutral words were found to produce significantly more imagery in FI than FA. In both conditions the imagery was much lower than expected, averaging about eleven percent in FI using the

definite criterion and about 21 percent in FI when using the more inclusive criterion.

Interestingly, imagery was also reported in the eyes-opened FA condition about six percent of the time when employing the definite criterion.

Anxiety (sympathetic nervous system activation)

FI produced significantly greater skin resistance responses (amplitude and duration) than did FA, but only for the neutral words.

A very significant interaction between conditions (FI and FA) and mover type (RMs and LMs) was found for the neutral words for SRR frequency. RMs showed a greater number of SRRs to the neutral words in FI than FA, while LMs demonstrated greater responsivity to the neutrals in FA than FI.

An interaction between LMs and RMs and word type was also found for the SRR amplitude variable. LMs showed greater amplitude responses to the neutral words and showed the smallest amplitude response to the sexual words. On the other hand, RMs showed the greatest amplitude response to the sexual words and were least responsive to the neutral words.

The sexual words were found to be associated with significantly more SRRs than the other word groups, and the affective words were associated with significantly more responses than the aggressive or neutral words.

Drive activation

For sexual drive activation, LMs produced greater drive activation to the neutral words in FI than FA, while

RMs showed greater sexual drive to the neutral words in FA than FI.

A significant double interaction between conditions, mover type and word type was found for sexual drive activation. In the FA condition LMs demonstrated greater drive than RMs to the sexual words, whereas RMs demonstrated greater drive than LMs to the affective and neutral words. In the FI condition this was now reversed. The RMs evinced greater sexual drive than LMs to the sexual words, whereas LMs demonstrated greater drive than RMs to the affective and neutral words.

The sexual words were associated with significantly greater sexual drive than the neutral, affective, or aggressive words, and the neutral words were associated with significantly greater sexual drive than the affective or aggressive words. Also, the aggressive words were associated with significantly more aggressive drive activation than the other word groups, and the affective words were associated with significantly more aggressive drive than the sexual or neutral words.

Type of drive

Near significant interactions ($p < .10$) were found between mover type and the sexual and aggressive words for the SRR variables of duration and amplitude. RMs showed higher amplitude and longer duration responses to the sexual than the aggressive words, whereas LMs showed higher amplitude and longer duration responses to the aggressive than the sexual words.

Experimenters

Several unexpected experimenter results were found. Significant main effects were found for the three Es for the approximate imagoic scale, the combined (or inclusive) imagoic scale, and the neutral words for sexual drive activation, with E#2 having Ss who scored highest on all three dependent variables.

Significant interactions were also found between mover type and experimenter for the approximate and combined imagoic scales, the aggressive and affective words for the aggressive drive, and the aggressive words for the sexual drive.

Debriefing questionnaire

All but one of the left movers said that they liked FI better than FA, found it more interesting, and said they were more honest in reporting what they saw in FI than FA.

Table 19

Summary of significant main effects

(Entries in the table are abbreviations for the independent variables of conditions (FI and FA), word type (S, Ag, Af, N), and experimenters (E#1, E#2, E#3) significant at $p < .05$ for the dependent variables of SNS activation, drive activation, and imagoic representation.)

Dependent variables	Independent variables		
	Conditions	Word type	Experimenters
SNS activation			
frequency		S > Af, Ag, N Af > Ag, N	
duration	FI > FA ⁴		
amplitude	FI > FA ⁴		
Drive activation			
sexual drive		S > N, Af, Ag N > Af, Ag	E#2 > E#1, E#3 ⁴
aggressive drive		Ag > Af, S, N Af > S, N	
Imagoic representation			
approximate			E#2 > E#1, E#3
definite	FI > FA ^{2,3,4}		
combined	FI > FA ⁴	N > S, Ag, Af	E#2 > E#1, E#3

Footnote:

- ¹only the sexual words
- ²only the aggressive words
- ³only the affective words
- ⁴only the neutral words

Table 20

Summary of significant interactions

(Entries in the table are abbreviations for the independent variables of mover type (RMs and LMs), conditions (FA and FI), word type (S, Ag, Af, N), and experimenters (E#1, E#2, E#3) significant at $p < .05$ for the dependent variables of SNS activation, drive activation, and imagoic representation.)

Dependent variables	Independent variables		
	Conditions	Word type	Experimenters
SNS Activation			
frequency	RMs:FI \triangleright FA ⁴ LMs:FA \triangleright FI		
duration			
amplitude		RMs:S \triangleright Af, Ag, N LMs:N \triangleright Af, Ag, S	
Drive activation			
sexual drive	RMs:FA \triangleright FI ⁴ LMs:FI \triangleright FA	RMs:FI \triangleright FA ^{1*} FA \triangleright FI ^{4,3} LMs:FA \triangleright FI ¹ FI \triangleright FA ^{4,3}	RMs:E#2 \triangleright E#1&3 ² LMs:E#3 \triangleleft E#1&2
aggressive drive			RMs:E#2 \triangleright E#1&3 ^{2,3} LMs:E#2 \triangleleft E#1&3
Imagoic representation			
approximate			RMs:E#2 \triangleright E#1&3 LMs:E#2 \triangleleft E#1&3
definite			
combined			RMs:E#2 \triangleright E#1&3 LMs:E#2 \triangleleft E#1&3

Footnote:

- 1 only for sexual words
- 2 only for aggressive words
- 3 only for affective words
- 4 only for neutral words
- *double interaction

DISCUSSION

Because of the nature of the imagoic scale findings, these will be discussed first, along with the procedures of this study as compared to that of Smeltzer (1966) and Stern (1974), since their investigations were similar in many respects. Then will begin a discussion of the specific results.

Imagoic Representation: Manipulation Check

By assessing the amount of imagery evident in the protocols via the three imagoic scales, it was thought to definitively determine if the experimental manipulations for the two conditions were effective. However, the conclusions to be drawn for the results of the three scales are not unambiguous and the effectiveness of the FI condition at fostering imagery is questionable.

With the definite scale FI was effective at generating significantly more imagery across all the word groups. In breaking the words into word categories, FI produced significantly more imagery than FA for the aggressive, affective, and neutral words, but not the sexual. Thus the experimental manipulations were successful, but not completely so.

However, the imagery content was surprisingly low. Only ten to twelve percent of all episodes contained definite reference to imagery and almost half of the Ss in FI had little or no imagery present in their protocols (0 - 5%). Several Ss said nothing or little at all in the FI condition

and for many others the protocols read like free associations. This suggests that the FI condition was not very effective at eliciting visual imagery from the Ss. It seems as if imagery either was not produced or if it was, it tended not to be verbalized.

The nature of the instructions for FI were such that the S was asked to report any images, feelings, and sensations that came to mind without omitting a thing. The instructions were repeated twice, the S had five minutes to "practice" free imagery before imaging to the stimulus words, and he was asked if he had any questions before the presentation of the stimulus words occurred. This suggests that he did know what to do or could ask questions if he did not. Although the instructions were such that the S could give feelings or sensations besides images, an examination of the protocols shows that feelings and sensations did not take up a large part of the S's verbalizations.

The possibility exists that the Ss may not have had the ability to visualize imagery and hence it was not produced and verbalized in the FI condition. However, in FA five to seven percent of the episodes were scored definite imagoic, which means the S had verbalized having imagery while his eyes were opened! This suggests that if imagery was able to be seen and verbalized with eyes opened, the Ss had the ability to engage in spontaneous visual imagery with eyes closed.

The fact that the Ss imaged very little to the stimulus words or reported little of what they imaged suggests that

imagery to the stimulus words may have been aversive and hence resisted, or if the imagery was visualized, it was aversive to verbalize it. This low definite imagoic content in the FI condition, although unexpected, is not without an explanation or precedent.

It is a common observation that clients undergoing emergent uncovering psychotherapy are many times unable to keep their eyes closed when first asked to close their eyes and report any imagery they see. They are also unable to "revisualize hot images, key individuals, or emotionally laden scenes from their lives" (Reyher, 1977, p.264). A recent study by Moses (1977) came up with similar findings. Forty Ss were tested with three types of stimulus narratives (low aggression, high aggression, and implausible imagery). High aggressive narratives produced a greater number of failures to image than low aggressive narratives and 92% of the Ss indicated interference of some type with the ability to visualize the required stimulus scene.

He concluded by suggesting that the "experimental findings fully verify the clinical observations that the client's/subject's imagery is not a passive point-for-point reproduction of the therapist's/experimenter's stimulus narrative" (Moses, 1977, p.20), but is influenced by the nature of the material and the anxiety attendant with visualizing such material. Thus the low definite imagoic content for the Ss of this study may have been a function of the nature of the material and the anxiety attendant with its

visualization.

As mentioned, only the definite scale gave an objective and certain evaluation of imagoic content. But the S may be experiencing imagery without specifically including a verb such as see, visualize, etc., which is where the combined scale can be suggestive of imagoic content not specifically verbalized as such. As an example, the several Ss who did have imagery generally did not verbalize a word such as see or visualize to every episode, but would tend to verbalize such a word once and then would continue into the following episodes describing related imagery. In one clear-out example, S#3's imagery to one of the stimulus words was:

I picture the penis in the vagina/ and ah, there it's just a, similar to a picture in color that you would find in a biology book/ ah, it's very plain and lacking pubic hair, it's just a torso.

Clearly, episodes two and three are imagoic but because they did not contain one of the criterion words, they were scored approximate imagoic.

The fact that significant results for several of the dependent variables were found mainly for the neutral words may relate in part to the significantly greater combined imagoic content elicited by them. Even with the neutrals however, the combined imagery content was low, amounting to a little more than a quarter of all the episodes.

What then took up the vast majority of the S's protocols in FI? A glance at the S's protocols suggests that a lot of the episodes appear to be verbal associations, in some of which security operations (Sullivan, 1953; Reyher, In press)

were not absent. As an example, S#11 "free imaged" to only one of the twenty stimulus words in FI and this was his "images";

Strangely enough I think of a prof teaching a psych class now, psychoanalytic theory/ and this guy's obviously Freudian and he must spend so much time talking about masturbation/ you might say that word about ten times an hour/ some of Freud's theories were ridiculous.

His "images" suggest the use of disparagement as a security operation to offset a decrease in self-esteem, especially since he said nothing to the other words.

"If spontaneous visual imagery is to be observed, the interpersonal situation must be structured in such a way as to prevent or offset security operations" (Reyher, In press, p.3). The low imagery content, the nature of the protocol material, and the above suggests that the interpersonal situation was not structured so as to best demonstrate visual imagery. The nonsignificant results for many of the dependent variables for the sexual, aggressive, and affective words may relate in part to the low imagery content of the FI condition, caused by the interpersonal situation in which the S found himself.

Procedural Differences in the Present Study and that of Smeltzer (1966) and Stern (1974)

The results of the present study are in striking contrast to the results of Smeltzer in which FI was found to be more anxiety-provoking and generated greater drive expression across all word groups. However, the interpersonal situation

between Smeltzer's study and the present one were vastly different.

In Smeltzer's study the S was in a face-to-face encounter with the experimenter. Before each stimulus word, either the word "associate" or "image" was spoken. For "associate" the S was to "sit with your eyes open and verbalize the first thought that comes into your mind." For "image" he was told: "you will close your eyes . . . and describe any images, feelings, or sensations you may experience. The image may or may not be related to the word you hear" (Smeltzer, 1966, p.5).

In the present study all the main instructions were on tape and the S reclined in a chair and responded to the instructions on tape while an experimenter in the background monitored the polygraph and the tape recorders. Although the E was in the room, he did not interact with the S besides the initial instructions and procedural matters, such as attaching electrodes, starting and stopping tapes, etc. Thus the S did not have an "interpersonal relationship" with the E as in Smeltzer's study.

The S in the face-to-face encounter with the E in Smeltzer's study probably was able to discriminate much more easily as to what was expected of him than in the present study. Maintenance of self-esteem could be best insured by following instructions as best he could, especially since the maintenance of self-esteem and its use against feelings of dystonia are very important. The protection of such

self-esteem and the reduction of tension associated with such protection usually override all other concerns. In the words of Sullivan (1953):

This tension and the activities required for its reduction and relief, which we call security operations because they can be said to be addressed to maintaining a feeling of safety in the esteem reflected to one from the other person concerned, always interfere with whatever other tensions and energy transformations they happen to coincide with (p.373).

Most likely, Ss could best maintain self-esteem in Smeltzer's study by following instructions and providing the required association or image to the stimulus word. In the present study, on the other hand, the S had no experimenter or authority figure on which to rely. The S had then to rely on his own initiative, and if his self-esteem may have been threatened, security operations would be generated to offset the decrease in self-esteem while concomitantly reducing visual imagery. Thus some Ss said nothing or very little, single words, or engaged in operations such as that of S#11. However, because the security operations of the two conditions were not compared, it is not known to what extent these operations were activated in FI and hence how much self-esteem was threatened, in this study or in Smeltzer's.

Stern's (1974) study was also similar to this one. He compared free association eyes opened, free association eyes closed, and free imagery eyes closed. The results indicated that "the two free association conditions were equally pathogenic (anxiety-producing), and surprisingly, both were significantly more pathogenic than free imagery"

(Reyher, In press, p.16). This was unexpected since the free imagery condition was hypothesized to be associated with a higher degree of primary process and drive. The results suggested that because the S in free imagery had a task demand to satisfy, i.e. see an image, his self-esteem was less threatened than in FA, in which the S lacked criteria for making an evaluation of his own performance.

The procedures between Stern's study and the present one were different. Stern's study had no stimulus words, and no content analysis was done on the imagery of Stern's study. Hence it is not known to what extent imagery was demonstrated across conditions in Stern's study. The fact that so little imagery was produced in the present study suggests that if the S had a task demand to satisfy, i.e. image to the stimulus words, this was not adequately attained. Although the S's self-esteem in the FA condition of the present study may have been more threatened than in FI, and the final questionnaire suggests that the Ss in FA were more defensive and "on guard" than in FI, the procedures of the present study seem to have created enough anxiety or dystonia to allow only a small percentage of imagery to be produced in FI, with the possibility that imagery to the neutral words was less inhibited than with the other three word groups.

If the dystonia associated with the maintenance of self-esteem was greater in FA than FI, this may have tended to equate the anxiety associated with maintenance of self-esteem in FA with the anxiety attendant with attempting to

visualize sexual, aggressive, and affective material, and so the differences between FI and FA were not significant. However, with the neutral words, self-esteem in FA should not be so threatened when associating to such innocuous words, and yet visualization to such words in FI would be more anxiety-provoking, especially if they functioned as sexual derivatives.

Thus the lack of significant results for the sexual, aggressive and affective words for the dependent variables across conditions may have been due to the low imagoic content in FI, caused in part by dystonia and the appearance of security operations and defenses. These were probably activated more with the sexual, aggressive, and affective words, tending to reduce and/or confound differences between conditions for all but the neutral words. Also, the three experimenters used in the present study in contrast to a single experimenter in Smeltzer's study may have added to the variance, decreasing significant differences.

In conclusion, comparing the present study with that of Smeltzer (1966) and Stern (1974) suggests that the nature of the procedures and the interaction between the subject and experimenter have profound effects upon the nature of the results and future studies must carefully take into account the extent to which imagery and security operations are activated. The fact that FI did not generate greater drive or anxiety than FA across all word groups as in Smeltzer's study, or that FA was not more pathogenic than FI as in Stern's

study, attests to the extent to which procedural variables and the interpersonal relationship between experimenter and subject can influence drive manifestation and anxiety.

Major Findings

Anxiety: sympathetic nervous system activation

The neutral words were found to produce significantly more sympathetic nervous system (SNS) activation for FI than FA on two of the three dependent SRR variables. They were also found not to be significantly different from the other word groups for SRR duration or amplitude and were not significantly different from the aggressive words for SRR frequency. These results imply that the neutral words were not innocuous but somewhat anxiety-arousing, at least as much as the aggressive words. The interesting finding that the neutral words allowed for more sexual drive activation than the affective and aggressive words suggests that they may have functioned as remote sexual derivatives.

If the neutral words were sexual derivatives, i.e. "associatively connected ideas that are less objectionable to the conscious ego," (Fenichel, 1972, p.17) the greater SNS activation for the neutrals in FI is consistent with the fact that "drive-related affect and impulses achieve more direct expression via imagoic derivatives than conceptual-verbal representation" (Reyher, In press, p.32). The greater SNS activation in FI is probably the result of the greater activation of impulses and affect associated with the neutral words and their possible derivative functions.

However, since the derivative function of the neutrals can only be inferred, an alternative explanation may be that the greater combined imagoic representation of the neutrals aroused greater SNS activation in FI, a condition which would tend to foster the greater depiction of these words, and hence, possibly greater SNS activation. The fact that the sexual, aggressive, and affective words evinced significantly less combined imagery does suggest, however, that imagery was inhibited for these other word groups, possibly because of anxiety, in which case the neutrals, via drive displacement (Reyher, In press) would be a likely candidate for derivatives. Since the stimulus words were not equated for imagery vividness, the extent of inhibition across word groups is uncertain. Future research should take this into account.

The greater SNS activation in FI for the neutrals is further complicated by an interaction between mover type and conditions for SRR frequency. Right movers had the greater number of SRR responses in FI while left movers had almost double the number of SRR responses in FA than FI. This interaction is consistent with the previous work on right and left movers and their respective personality characteristics (Raquel Gur and Reyher, 1973; Bakan, 1969, 1971; Reyher, 1977a). LMs, who are more hypnotizable with a passive, emotional induction scale and tend to have clearer visual imagery were much less anxious (less SNS activation) in the free imagery condition. RMs, who tend to be more

hypnotizable with an active, intellectual scale and tend to use intellectualization and projection as defenses, were less anxious in FA.

Speculating in terms of mode of information processing, left movers, who may be characterized as employing cognitive processes and ego defenses mediated by the analogic-synthetic mode, were less anxious in a condition also characteristic of that mode of information processing. Right movers, who may be characterized as employing processes and ego defenses mediated via the semantic-syntactic mode, were less anxious in a condition (FA) also characteristic of that mode of information processing, at least for words of "neutral content."

Drive activation

The results concerning drive activation are much harder to evaluate, owing to the peculiar main effects and interactions for Es, which was not the case for the SRR variables. Since it seemed E#2 was the experimenter who added perturbations to the data, the analyses performed without him are probably more indicative of the true nature of the phenomena although the N was smaller. These will be evaluated first.

Without E#2, the only significant result concerning sexual and aggressive drive was a significant interaction between conditions and mover type for sexual drive for the neutral words. LMs had greater verbalized sexual drive activation in FI, whereas RMs had greater drive activation in FA. This is exactly opposite the interaction between mover type

and conditions for SRR frequency for the neutral words.

Incorporating the results of both SNS activation and sexual drive yields the following interpretation. RMs were less anxious with the neutral words in the FA condition and the active, intellectual mode it entails. Being less anxious in FA than FI, they were able to verbalize greater sexual strivings than if they were more anxious and would have tended to inhibit such verbalization. The low sexual drive score (in comparison to that of the sexual words) suggests that the verbalizations were derivatives. Such derivatives would arouse less anxiety than more blatant material, and less anxiety was what was found with greater sexual verbalization for the neutral words in FA. The results with the LMs were exactly reversed for the neutral words, presumably for being less anxious in FI.

Explaining the previous in a more theoretical and speculative framework, LMs were less anxious and so verbalized more sexual drive in FI, a condition characterized as employing the same mode of information processing by which LMs may be characterized. Alternatively, RMs were less anxious and so verbalized greater sexual drive to innocuous material in FA, the condition characteristic of the same informational mode presumably characteristic of RMs.

In evaluating sexual drive activation with the Ss of all three Es, one finds a double interaction between conditions, mover type, and order for sexual drive for the neutral words, a single interaction between conditions and mover.

type for the sexual words, and a main effect for conditions for the aggressive words. Because these interactions and main effects disappeared without the Ss of E#2, the meaning of these results is questionable. It is reasonable to assume that the double interaction for the neutral words is better understood as a single interaction previously discussed between mover type and conditions for the neutral words.

Because of the nature of the interesting interaction between conditions and mover type for the sexual words with three Es, which disappeared when the eight Ss of E#2 were dropped, the meaning of such an interaction will be speculatively entertained. In this interaction RMs had greater verbalized sexual drive in FI while LMs had greater sexual drive in FA, exactly opposite the interaction with the neutral words for sexual drive activation. It should also be remembered that FI did not produce significantly more definite imagery than FA for the sexual words, although FI was greater than FA.

If the neutral words represent remote sexual derivatives while the sexual words, blatant sexual strivings, and the data support such an hypothesis; then RMs verbalized sexual derivatives better with FA, a condition mediated by the informational mode presumably characteristic of themselves, yet inhibited blatant sexual verbalization in the same informational mode. LMs, on the other hand, verbalized sexual derivatives better with FI than FA; FI being the condition

mediated by the informational mode presumably characteristic of themselves, yet inhibited blatant sexual verbalization in the same mode of information processing.

The previous theorizing can be seen more definitively in the double interaction between conditions, mover type, and word type for sexual drive activation (Figures 10 and 11). Regardless of the number of Es, RMs verbalized lesser sexual drive for the sexual words in FA than FI, FA being the condition characteristic of the informational mode presumed to be characteristic of RMs, and yet RMs verbalized more sexual drive activation in FA than FI to the neutral words, which were not blatantly sexual. On the other hand, again regardless of the number of Es, LMs verbalized lesser sexual drive for the sexual words in FI than FA, FI being the condition characteristic of the informational mode presumed to be characteristic of LMs, and yet LMs verbalized more sexual drive in FI than FA to the neutral words. The fact that the drive activation was much less for the neutral words than the sexual words, supports the hypothesis that the neutral words allowed for more remote or "derivative" verbalization of sexual drive than the blatant sexual words.

Although needing further experimental support, this suggests that blatant, unacceptable drive-related material is defended against, while more innocuous, remote derivatives are allowed expression through the informational mode characteristic of the subject type. Because the nature of defenses is to defend against blatant material and yet

allow derivatives of such material expression, as in the form of symptoms, dreams, parapraxes, etc., the results are consistent with Freudian theory (Freud, 1970; Fenichel, 1972).

Differential defenses by mover type has already been suggested by Gur (1973) and delineated by Reyher (1977, In press). However, the results also point to the possibility that the condition mediated by the mode of information processing characteristic of a given subject type is better at uncovering or verbalizing derivatives of such strivings.

The work of Shapiro (1965) suggests that the defenses of a particular clinical type, i.e. hysterical as compared to obsessive-compulsive, are the expression of more fundamental cognitive styles that underlie such defenses. The inhibition of blatant sexual material in the cognitive mode characteristic of a subject type and yet its expression in derivative form more easily with the same cognitive mode attests to differences in cognitive style across subject types that is consistent with Shapiro's investigations.

The meaning of such results, if replicated, has important clinical implications. The particular cognitive style or informational mode of the subject may allow remote derivatives to be expressed and yet inhibit blatant material through the particular defenses of that informational mode. But the uncovering of remote derivatives, which may be more easily accomplished in one cognitive mode or another, should lead to the uncovering of less remote derivatives as the nature of these derivatives become understandable and

acceptable to the client. This in turn leads to the uncovering of less and less remote derivatives, until the repressed strivings and the resistances against such strivings are uncovered. This may be more easily accomplished by using the informational mode characteristic of a particular subject type, the blatant strivings being uncovered by working through less and less remote derivatives.

However, the interaction may be even more complicated, and it seems that the nature of the drive, whether sexual or aggressive, tends also to be mediated by a particular informational mode (c.f. Reyher, In press; Type of drive, following pages).

Mover type

No significant main effects were found for mover type for any of the dependent variables. This suggests that the differences between mover types may be very subtle or even non-existent. This goes against previous findings by Bakan (1969, 1971), Raquel Gur and Reyher (1973), and others, although it does agree with the recent findings of Berg (1978) and Olsen (1978) in which very little differences were found between mover types for several dependent variables. According to Berg, "lateral eye movement is a fragile phenomenon and all the significant task, subject, and environmental variables may have not been identified and brought under control" (1978, p.18).

Although this comment was directed more at the nature

of the eye movement phenomenon itself and not so much the relevant personality characteristics which accompany certain eye movement types, it does highlight the fact of the subtleness of the phenomenon and suggests that much more research is needed to identify relevant variables and replicate previous findings of personality differences between right and left movers and the modes of information processing that are presumed to be characteristic of mover type.

In this experiment three different Es tested the Ss, and the peculiar experimenter effects, especially for E#2, may have tended to reduce any significant differences for mover type. However, the interactions between conditions and mover types on SNS activation and drive do suggest differences between mover types that are not blatant but subtle, and have modulating influences.

The nonsignificant main effects for anxiety, drive, and affect imply that right and left movers do not differ in amount of anxiety, drive, or affect, and yet the significant interactions suggest that RMs and LMs do differ in how the drive or anxiety is cognitively mediated, i.e. via a informational mode that is characteristically more analogic-synthetic or semantic-syntactic (Reyher, 1977b). This in turn agrees with Gur's findings that left movers do not "differ from right movers in strength of drives, emotions, or conflicts, but rather in the preferred modes of approaching or defending against them" (Gur, 1973, p.38).

Type of drive: right and left movers

Interesting near significant findings were also demonstrated in which LMs displayed greater SNS activation with the aggressive words, while RMs displayed greater SNS activation with the sexual words on two out of the three SRR variables. This tends to support the hypothesis suggested by Gur (1973, pp.36-37) that LMs tend to defend against anger and aggression, whereas RMs tend to defend against libidinal conflicts. This may also be related to differential processing of information.

In a recent paper (Reyher, In press) the sexual drive was hypothesized as an endopsychic drive specific to the right cerebral hemisphere and its mediation by the analogic-synthetic mode, while aggression was labeled an intrapsychic drive specific to the left cerebral hemisphere.

If sex is an endopsychic drive specific to the right hemisphere and its mediation by the analogic-synthetic mode and LMs are characterized as employing that mode of information processing, one would expect them to be less anxious with a drive characteristic of the mode of information processing which also characterizes them, and this was found to be nearly significant.

Likewise, with anger as an intrapsychic drive more characteristic of the semantic-syntactic mode mediated through the left hemisphere, one would expect RMs, who seem characterized by the semantic-syntactic mode, to be less anxious with the aggressive words and more anxious (having

greater SNS activation) with the sexual words and again, this is what was found to approach significance. Clearly replication on a larger sample is required.

Affect

No significant main effects were found for syntonia or dystonia although a significant interaction between order and conditions suggests that the change from one mode of information processing to another can affect the self-esteem of the subject.

The Mood Questionnaire, used to assess affect, was a novel questionnaire created by the author in an attempt to monitor affects that was seemingly valid for only two affects, syntonia and dystonia. Much more research and refinement is needed to make it a viable instrument for tapping affect.

Imagery

LMS were not found to have more vivid imagery than RMs. The findings reported by Bakan (1969) were not supported. According to the final questionnaire, however, almost all of the left movers found FI more interesting, liked it better, and were more honest with it. This agrees with the theorizing that LMS tend to be characterized by the use of the analogic-synthetic mode and so would be expected to prefer a mode that mediates visual and sensory imagery. LMS may not have more vivid imagery but rather attend to it better owing to being characterized by the mode of information processing that mediates such imagery.

Another interpretation may be that LMs do have more vivid imagery, but because the Ss were given the modified Betts QMI after the experience of both FI and FA, practice effects associated with the conditions may have masked significant differences.

Mode of information processing

No significant main effects or interactions were found for analogic-synthetic process functions. Because it was found that the scoring of the verbalizations according to the scale did not allow for adequate differentiation of intactness and completeness between FA and FI, the nonsignificant results of this scale may be a function of how the data was scored rather than the nature of the thought processes involved.

Alternatively, the conditions may have been equivalent in this respect, just as it generally was for drive activation, and may be related to the small differences in imagic content between conditions or to the fact that FI and FA or RMs and LMs do not differ significantly in regards to analogic-synthetic process functions.

Other results

Some very peculiar experimenter effects were demonstrated with the data for several dependent variables. Because it was thought that experimenter effects would not be significant, especially with the little interaction they had had with the Ss, no assessment was done on them. Thus any

type of interpretation is post hoc and conjecture.

Of the three Es, E#2 seemed to be the most discrepant. He tended to be more aloof, quiet, and distant, and was simply not as sociable or friendly as E#1 and E#3.

A very significant main effect was found for approximate and combined imagery with the Ss of E#2 having much greater imagoic representation. Since there was not a significant interaction between conditions and Es, it seems E#2 did not follow instructions, such as making sure the Ss got imagery in FI, for imagery was much greater in both conditions, and besides that, a main effect was not found for the definite imagoic scale. The significant main effect for sexual drive activation for the neutral words with the Ss of E#2 scoring highest, is inexplicable. Possibly E#2 had Ss who just tended to react that way, i.e. it was a chance phenomenon.

However, the several significant interactions between Es and mover types for several of the dependent variables suggests that the Es may have interacted in subtle ways with the Ss that had differential effects upon the Ss depending whether they were left or right movers. The RMs of E#2 tended to score much higher on several variables than the LMs of E#2. Since E#2 ran four RMs and four LMs, an unequal number of Ss was not responsible in any way for the interaction. The possibility exists that this study used instruments that were sensitive enough to pick up differences that might have been missed by other instruments, although this

does not explain the nature of the results, only the fact that they are there.

In any event, the interactions imply that different Es may have different effects upon subject types. This in turn may have important implications for interactions in psychotherapy between therapist and client that may be related to differences in mode of information processing.

A final interesting finding was the fact that FA evinced from five to seven percent definite imagoic representation across the four word groups. This suggests that some imagery may be a natural concomitant of everyday cognitive functioning. It also agrees with the findings of Paivio and Bugelski (1974) that imagery and imagoic vehicles are an important, albeit not necessarily an insignificant portion of mental functioning.

Conclusions

Much more research is needed to assess the relationship between free imagery (imagoic vehicles) and its mediation by the analogic-synthetic mode, and free association (conceptual-verbal vehicles) and its mediation by the semantic-syntactic mode. The previous research and clinical findings attest to the use of imagoic vehicles as a better means for uncovering sexual material via derivatives.

The present study gave support to that as concerns the neutral words while also suggesting that the use of such imagery has differential effects for anxiety and drive upon subject types, at least for words of "neutral" content.

The finding of a relationship between subject type, conditions, and the nature of the material (blatant or remote) also speculatively suggests that the particular mode of information processing of a subject type may inhibit blatant strivings via defenses and yet allow expression of remote derivatives that has important implications for clinical technique. The results also imply that sex and aggression may be mediated by different informational modes indigenous to the different cerebral hemispheres.

The interactions between conditions (FI and FA), mover type (RMs and LMs), the nature of the drive (sex or aggression), and the expression or defense against drive (for derivative or blatant material) are intriguing findings that warrant further study and replication when controlling for imagic representation and the interpersonal situation.

The results also imply that the request to image something or even to "free" image is not necessarily followed by the requisite image or any imagery for that matter, and is complicated and/or confounded by the nature of the procedures, the person or experimenter who asks for the imagery, the nature of that which is to be imaged, and the person who is himself attempting to image.

REFERENCES

REFERENCES

- Assagioli, R. Psychosynthesis: A Manual of Principles and Techniques. New York: The Viking Press, Inc., 1965.
- Bakan, P. Hypnotizability, laterality of eye movement, and functional brain asymmetry, Perceptual and Motor Skills. 1969, 28, 927-932.
- Bakan, P. The right brain is the dreamer, Psychology Today. Nov. 1976, 66-67.
- Berg, M. Conjugate lateral eye movements as a measure of hemispheric activation, the effect of anxiety and the relationship to personality variables, Unpublished manuscript. Michigan State University, 1977.
- Block, J. Studies in the phenomenology of emotions, Journal of Abnormal and Social Psychology. 1957, 54, 358-363.
- Bogen, J.E. The other side of the brain: an appositional mind, In R.E. Ornstein (Ed.) The Nature of Human Consciousness. San Francisco: W.H. Freeman and Company, 1973, 101-125.
- Briggs, C.G. and Nebes, R.D. Patterns of hand preference in a student population, Cortex. 1975, 11, 230-238.
- Day, M.E. An eye movement indicator of type and level of anxiety: some clinical observations, Journal of Clinical Psychology. 1969, 23, 433-441.
- Day, M.E. An eye movement phenomenon relating to attention, thought, and anxiety, Perceptual and Motor Skills. 1975, 41, 87-94.
- Dershowitz, H.K. On connotative meaning of emotional terms to the blind: a contribution to the study of the phenomenology of emotion, Perceptual and Motor Skills. 1975, 41, 110-115.
- Fenichel, O.F. The Psychoanalytic Theory of Neurosis. New York: W.W. Norton and Company, Inc., 1972.

Freud, S. A General Introduction to Psychoanalysis. New York: Simon and Schuster, 1970.

Freud, S. The Interpretation of Dreams. New York: Modern Library Books, Inc., 1950.

Gazzaniga, M. The split brain in man, In R.E. Ornstein (Ed.) The Nature of Human Consciousness. San Francisco: W.H. Freeman and Company, 1973, 87-100.

Gur, R. Experimental validation and personality correlates of conjugate lateral eye movements as an index of contralateral hemispheric activation. PhD. Dissertation, Michigan State University, 1973.

Gur, R. and Reyher, J. Relationship between style of induction and direction of lateral eye movements, Journal of Abnormal Psychology. 1973, 82, 499-505.

Harris, L.J. Functional specialization of the cerebral hemispheres in infants and children: New experimental and clinical evidence, Introduction to symposium at the Biennial Meetings of the Society for Research in Child Development. Denver, Colorado, April 1975a.

Harris, L.J. Interaction of experimental and neurological factors in the patterning of human abilities: The question of sex differences in 'right hemisphere' skills. Unpublished manuscript, Michigan State University, 1975b.

Harris, L.J. Sex differences in spatial ability: possible environmental, genetic, and neurological factors, In M. Kinsbourne (Ed.) Hemispheric Asymmetries of Function. Cambridge, England: Cambridge University Press, In press.

Holt, R.R. Imagery: the return of the ostracized, American Psychologist. 1964, 19, 254-264.

Horowitz, M.J. Image Formation and Cognition. New York: Appleton-Century-Crofts, 1970.

Jellinek, A. Spontaneous imagery, American Journal of Psychotherapy. 1949, 3, 372-391.

Jung, C.G. Two Essays on Analytical Psychology. Princeton: Princeton University Press, 1966.

Kinsbourne, M. Eye and head turning indicates cerebral lateralization, Science. 1972, 176, 539-541.

Morishige, H.H. A psychophysiological investigation of anxiety, and repression during free imagery recall, dream recall, and emergent uncovering. PhD. Dissertation, Michigan State University, 1971.

- Morishige, H.H. The occurrence of rapid eye movements during free imagery and dream recall. M.A. Thesis, Michigan State University, 1968.
- Morishige, H.H. and Reyher, J. Alpha rhythm during three conditions of visual imagery and emergent uncovering psychotherapy: the critical role of anxiety, Journal of Abnormal Psychology. 1975, 84, 531-538.
- Moses, I. Problems in directed imagery-interference in visualizing imagery as a function of thematic content. PhD. Dissertation, Michigan State University, 1977.
- Ornstein, R.E. The Psychology of Consciousness. San Francisco: W.H. Freeman and Company, Inc., 1972.
- Osgood, C.E. The nature and measurement of meaning, Psychological Bulletin. 1952, 49, 197-237.
- Reyher, J. Clinical and experimental hypnosis: implications for theory and methodology, Annals of the New York Academy of Sciences. 1977a, 296, 69-85.
- Reyher, J. Emergent uncovering psychotherapy: the use of imagoic and linguistic vehicles in objectifying psychodynamic processes, In J.L. Singer and K.S. Pope (Eds.) The Power of Human Imagination, In press.
- Reyher, J. Free imagery: an uncovering procedure, Journal of Clinical Psychology. 1963, 19, 454-459.
- Reyher, J. Spontaneous visual imagery: implications for psychoanalysis, psychopathology, and psychotherapy, Journal of Mental Imagery. 1977b, 2, 253-294.
- Reyher, J. The presentation and representation of repressed strivings in awareness, the functional organization of the brain, psychopathology, and psychotherapy. Paper presented at the Downstate Series of Research in Psychiatry. State University of New York, New York, Jan. 1976.
- Reyher, J. and Smeltzer, W. The uncovering properties of visual imagery and verbal association: a comparative study, Journal of Abnormal Psychology, 1968, 73, 218-222.
- Richardson, A. Mental Imagery. New York: Springer Publishing Company, Inc., 1972.
- Shapiro, D. Neurotic Styles. New York: Basic Books, Inc. 1965.

- Sheehan, P.W. A shortened form of the Betts Questionnaire upon Mental Imagery, Journal of Clinical Psychology. 1967, 23, 386-389.
- Sheehan, P.W. The Function and Nature of Imagery. New York: Academic Press, 1972.
- Singer, J.L. Imagery and Daydream Methods in Psychotherapy and Behavior Modification. New York: Academic Press, 1974.
- Smeltzer, W.E. A comparative study of visual imagery and verbal association. M.A. Thesis, Michigan State University, 1966.
- Sperry, R.W. The great cerebral commissure, Scientific American. Jan 1964, 210, 42-52.
- Sperry, R.W. Split brain approach to learning problems, In G.C. Quartin, T. Melnechuck, and F.C. Schmitt (Eds.) The Neurosciences: A Study Program. New York: Rockefeller University Press, 1967.
- Stern, D. The uncovering properties of visual imagery, verbal association with eyes closed, and verbal association with eyes open: a comparative study. M.A. Thesis, Michigan State University, 1974.
- Sullivan, H.S. The Interpersonal Theory of Psychiatry. New York: W.W. Norton and Company, Inc., 1953.
- Venables, P.H. and Martin, I. (Eds.) A Manual of Psychophysiological Methods. New York: John Wiley and Sons, Inc., 1967.
- Von Bonin, G. Anatomical asymmetries of the cerebral hemispheres, In V.B. Mountcastle (Ed.) Interhemispheric Relations and Cerebral Dominance. Baltimore: John Hopkins Press, 1962, 1-6.
- Warren, M. The significance of visual images during the analytic session, Journal of the American Psychoanalytic Association, 1961, 19, 504-518.

APPENDIX OF TABLES

Table A

Analysis of variance F ratios comparing the means of word lists A and B for the dependent variables of SNS activation, sexual and aggressive drives, analogical thought, and imagoic representation

Dependent variables	Word groups			
	sexual	aggressive	affective	neutral
SNS activation				
FI				
frequency	.240	.095	.038	.143
duration	.028	.219	.135	1.231
amplitude	1.456	.406	.193	1.669
FA				
frequency	.230	.314	.061	.986
duration	1.461	.841	2.761	1.633
amplitude	.002	1.115	.154	.366
Sexual drive activation				
FI	.000	1.455	.361	3.799
FA	.001	1.485	.542	2.276
Aggressive drive activation				
FI	2.135	.085	.392	.547
FA	.741	.609	.040	.539
Analogical thought				
FI	.263	1.001	.635	1.331
FA	3.701	.753	1.223	.248
Imagoic representation				
FI				
approximate	.345	.799	.418	.000
definite	.130	.158	.006	.098
combined	.081	.181	.142	.042
FA				
approximate	.219	.197	.642	1.509
definite	.008	.764	.123	.008
combined	.100	.056	.244	.639

None of the F ratios are $p \leq .05$, $df = 1/26$

Table B

A conditions (C) by mover type (T) by experimenter (E)
analysis of variance for imagaic representation

Approximate scale			
Source	df	SS	F ratios
C	1	.56E-4	.012
CT	1	.18E-2	.408
CE	2	.10E-1	1.108
CTE	2	.53E-2	.057
CS	22	.10	
T	1	.13	3.826*
E	2	.51	7.333**
TE	2	.24	3.473*
S	22	.77	
TOTAL	55	.18E+1	

Definite scale			
Source	df	SS	F ratios
C	1	.53E-1	5.634*
CT	1	.14E-2	.143
CE	2	.60E-2	.317
CTE	2	.30E-1	1.582
CS	22	.21	
T	1	.12E-1	.331
E	2	.17	2.500
TE	2	.42E-1	.610
S	22	.76	
TOTAL	55	.13E+1	

Combined scale			
Source	df	SS	F ratios
C	1	.57E-1	4.197
CT	1	.65E-4	.005
CE	2	.29E-1	1.089
CTE	2	.48E-1	1.754
CS	22	.30	
T	1	.22	3.347
E	2	.12E+1	9.251**
TE	2	.47	3.504*
S	22	.15E+1	
TOTAL	55	.38E+1	

* = $p < .05$

** = $p < .005$

Table C

A conditions (C) by mover type (T) by order (O) analysis
of variance for imagaic representation using three
Es

Approximate scale

Source	df	SS	F ratios
C	1	.39E-4	.010
CT	1	.36E-2	.871
CO	1	.48E-2	1.174
CTO	1	.16E-1	3.908
CS	24	.98E-1	
T	1	.95E-1	1.870
O	1	.18	3.547
TO	1	.60E-1	1.179
S	24	.12E+1	
TOTAL	55	.17E+1	

Definite scale

Source	df	SS	F ratios
C	1	.43E-1	4.894*
CT	1	.64E-3	.073
CO	1	.27E-1	2.987
CTO	1	.31E-2	.352
CS	24	.21	
T	1	.28E-2	.072
O	1	.61E-1	1.583
TO	1	.14E-3	.004
S	24	.92	
TOTAL	55	.13E+1	

Combined scale

Source	df	SS	F ratios
C	1	.42E-1	3.079
CT	1	.13E-2	.094
CO	1	.54E-1	3.956
CTO	1	.51E-2	.381
CS	24	.32	
T	1	.13	1.214
O	1	.45	4.153
TO	1	.55E-1	.511
S	24	.26E+1	
TOTAL	55	.37E+1	

* = p < .05

Table D

A conditions (C) by mover type (T) by order (O) analysis
of variance for imagaic representation using two
Es

Approximate scale

Source	df	SS	F ratios
C	1	.38E-3	.099
CT	1	.65E-3	.168
CO	1	.13E-1	3.411
CTO	1	.84E-2	2.178
CS	16	.62E-1	
T	1	.10E-1	.569
O	1	.17E-1	.874
TO	1	.83E-2	.439
S	16	.30	
TOTAL	39	.42	

Definite scale

Source	df	SS	F ratios
C	1	.23E-1	4.701*
CT	1	.38E-2	.764
CO	1	.12E-1	2.449
CTO	1	.19E-1	3.891
CS	16	.80E-1	
T	1	.16E-1	.544
O	1	.34E-1	1.127
TO	1	.82E-3	.027
S	16	.48	
TOTAL	39	.67	

Combined scale

Source	df	SS	F ratios
C	1	.18E-1	1.696
CT	1	.78E-2	.731
CO	1	.50E-1	4.081
CTO	1	.21E-2	.200
CS	16	.17	
T	1	.52E-3	.007
O	1	.97E-1	1.365
TO	1	.14E-1	.197
S	16	.11E+1	
TOTAL	39	.15E+1	

* = $p < .05$

Table E

A conditions (C) by mover type (T) by experimenter(E)
analysis of variance for the skin resistance response
variables for the four word groups

Sexual words				Aggressive words			
frequency				frequency			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.15E+1	.197	C	1	.15E+1	.097
CT	1	.95E+1	1.233	CT	1	.38E+2	2.425
CE	2	.30E+2	1.920	CE	2	.28E+2	.908
CTE	2	.82E+1	.530	CTE	2	.20E+2	.639
CS	22	.17E+3		CS	22	.34E+3	
T	1	.11E+2	.101	T	1	.23E+2	.393
E	2	.10E+2	.047	E	2	.54E+2	.468
TE	2	.93E+2	.426	TE	2	.63E+2	.542
S	22	.24E+4		S	22	.13E+4	
TOTAL	55	.27E+4		TOTAL	55	.19E+4	
duration				duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.49E+1	.193	C	1	.38	.014
CT	1	.27E+2	1.061	CT	1	.39E+1	.148
CE	2	.43E+2	.841	CE	2	.71E+2	1.342
CTE	2	.19E+2	.381	CTE	2	.87E+2	1.648
CS	22	.56E+3		CS	22	.58E+3	
T	1	.82E+1	.409	T	1	.73E+2	2.794
E	2	.26E+2	.646	E	2	.22E+2	.423
TE	2	.61E+2	1.519	TE	2	.19E+2	.370
S	22	.44E+3		S	22	.58E+3	
TOTAL	55	.12E+4		TOTAL	55	.14E+4	
amplitude				amplitude			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.64E+7	.718	C	1	.46E+6	.240
CT	1	.74E+7	.837	CT	1	.32E+6	.168
CE	2	.21E+7	.118	CE	2	.46E+7	1.198
CTE	2	.10E+8	.565	CTE	2	.23E+7	.602
CS	22	.19E+9		CS	22	.43E+7	
T	1	.12E+8	1.172	T	1	.24E+7	.720
E	2	.34E+8	1.616	E	2	.61E+7	.880
TE	2	.27E+8	1.276	TE	2	.15E+7	.213
S	22	.23E+9		S	22	.76E+8	
TOTAL	55	.53E+9		TOTAL	55	.14E+9	

Table E (cont'd.)

Affective words				Neutral words			
frequency				frequency			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.71	.059	C	1	.71E+1	1.243
CT	1	.46E+1	.377	CT	1	.66E+2	11.475**
CE	2	.15E+2	.613	CE	2	.20E+2	1.717
CTE	2	.59E+1	.245	CTE	2	.17E+2	1.519
CS	22	.27E+3		CS	22	.13E+3	
T	1	.26E+2	.348	T	1	.13E+2	.167
E	2	.35E+2	.283	E	2	.89	.005
TE	2	.36E+2	.291	TE	2	.13E+3	.829
S	22	.14E+4		S	22	.17E+4	
TOTAL	55	.17E+4		TOTAL	55	.21E+4	
duration				duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.28E-1	.009	C	1	.23E+2	5.855*
CT	1	.25E+1	.762	CT	1	.69	.173
CE	2	.49E+1	.732	CE	2	.81E+1	1.017
CTE	2	.17E+2	2.330	CTE	2	.10E+2	1.365
CS	22	.73E+2		CS	22	.88E+2	
T	1	.42	.106	T	1	.48E+1	.768
E	2	.33E+1	.419	E	2	.78E+1	.522
TE	2	.26E+1	.322	TE	2	.24E+1	.191
S	22	.88E+2		S	22	.14E+3	
TOTAL	55	.19E+3		TOTAL	55	.28E+3	
amplitude				amplitude			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.31E+6	.233	C	1	.82E+7	3.677
CT	1	.10E+7	.761	CT	1	.29E+7	1.300
CE	2	.82E+6	.310	CE	2	.27E+6	.061
CTE	2	.11E+8	4.393	CTE	2	.20E+5	.005
CS	22	.29E+8		CS	22	.49E+8	
T	1	.54E+7	1.151	T	1	.13E+8	2.391
E	2	.38E+7	.403	E	2	.19E+7	.211
TE	2	.42E+7	.446	TE	2	.38E+7	.431
S	22	.10E+9		S	22	.98E+8	
TOTAL	55	.16E+9		TOTAL	55	.17E+9	

* = $p < .05$ ** = $p < .005$

Table F

A conditions (C) by mover type (T) by order (O) analysis
of variance for the skin resistance response variables
for the four word groups using three Es

Sexual words				Aggressive words			
frequency				frequency			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.30E+1	.408	C	1	.88	.055
CT	1	.52E+1	.698	CT	1	.30E+2	1.892
CO	1	.64E+1	.872	CO	1	.14E+1	.091
CTO	1	.24E+2	3.307	CTO	1	.94E+1	.595
CS	24	.18E+3		CS	24	.38E+3	
T	1	.11E+2	.111	T	1	.33E+2	.597
O	1	.90E+2	.894	O	1	.54E+2	.977
TO	1	.88	.009	TO	1	.13E+2	.235
S	24	.24E+4		S	24	.13E+4	
TOTAL	55	.27E+4		TOTAL	55	.18E+4	
duration				duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.10E+2	.423	C	1	.20E+1	.068
CT	1	.42E+2	1.716	CT	1	.52E+1	.177
CO	1	.89E+1	.368	CO	1	.23E+2	.765
CTO	1	.41E+2	1.690	CTO	1	.14E+2	.462
CS	24	.58E+3		CS	24	.71E+3	
T	1	.16E+2	.738	T	1	.77E+2	3.310
O	1	.87E+1	.395	O	1	.43E+2	1.836
TO	1	.11E+1	.051	TO	1	.25E+2	1.088
S	24	.53E+3		S	24	.56E+3	
TOTAL	55	.12E+4		TOTAL	55	.15E+4	
amplitude				amplitude			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.96E+7	1.238	C	1	.82E+6	.408
CT	1	.96E+7	1.247	CT	1	.75E+6	.037
CO	1	.31E+7	.405	CO	1	.17E+7	.846
CTO	1	.20E+8	2.559	CTO	1	.14E+6	.069
CS	24	.19E+9		CS	24	.48E+8	
T	1	.22E+8	1.943	T	1	.13E+7	.416
O	1	.22E+8	1.952	O	1	.14E+7	.433
TO	1	.75E+7	.661	TO	1	.37E+7	1.115
S	24	.27E+9		S	24	.79E+8	
TOTAL	55	.55E+9		TOTAL	55	.14E+9	

Table F (cont'd.)

Affective words				Neutral words			
frequency				frequency			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.16	.014	C	1	.10E+2	1.692
CT	1	.30E+1	.257	CT	1	.60E+2	9.884**
CO	1	.51E+1	.439	CO	1	.71E+1	1.175
CTO	1	.12E-1	.002	CTO	1	.86E+1	1.422
CS	24	.28E+3		CS	24	.15E+3	
T	1	.27E+2	.461	T	1	.10E+2	.142
O	1	.21E+1	.037	O	1	.69E+2	.944
TO	1	.21E+2	.371	TO	1	.14E-11	.000
S	24	.14E+4		S	24	.17E+4	
TOTAL	55	.18E+4		TOTAL	55	.21E+4	
duration				duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.19	.055	C	1	.22E+2	5.374*
CT	1	.34E+1	.990	CT	1	.75	.187
CO	1	.12E+2	3.548	CO	1	.62	.155
CTO	1	.31	.091	CTO	1	.80E+1	1.981
CS	24	.82E+2		CS	24	.96E+2	
T	1	.44	.127	T	1	.65E+1	1.100
O	1	.61E+1	1.784	O	1	.21E+1	.350
TO	1	.51E+1	1.479	TO	1	.41E+1	.687
S	24	.83E+2		S	24	.14E+3	
TOTAL	55	.19E+3		TOTAL	55	.28E+3	
amplitude				amplitude			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.34E+4	.002	C	1	.82E+7	4.879*
CT	1	.13E+7	.792	CT	1	.33E+7	1.953
CO	1	.32E+7	1.964	CO	1	.51E+7	3.061
CTO	1	.14E+6	.085	CTO	1	.41E+7	2.453
CS	24	.38E+8		CS	24	.40E+8	
T	1	.43E+7	1.035	T	1	.14E+8	3.292
O	1	.51E+7	1.213	O	1	.15E+7	.351
TO	1	.74E+7	1.766	TO	1	.19E+7	.469
S	24	.10E+9		S	24	.99E+8	
TOTAL	55	.16E+9		TOTAL	55	.18E+9	

* = $p < .05$ ** = $p < .005$

Table G

A conditions (C) by mover type (T) by order (O) analysis
of variance for the skin resistance response variables
for the four word groups using two Es

Sexual words					Aggressive words				
frequency					frequency				
Source	df	SS	F	ratios	Source	df	SS	F	ratios
C	1	.74	.095		C	1	.14E+2	.735	
CT	1	.22E+1	.284		CT	1	.16E+2	.840	
CO	1	.67E+1	.857		CO	1	.78E+1	.400	
CTO	1	.32E+1	.416		CTO	1	.36	.019	
CS	16	.12E+3			CS	16	.31E+3		
T	1	.34E+2	.255		T	1	.25E+2	.337	
O	1	.58E+2	.427		O	1	.62E+2	.813	
TO	1	.30	.002		TO	1	.15E+2	.191	
S	16	.22E+4			S	16	.12E+4		
TOTAL	39	.24E+4			TOTAL	39	.17E+4		
duration					duration				
Source	df	SS	F	ratios	Source	df	SS	F	ratios
C	1	.11E+2	.344		C	1	.29E+2	.862	
CT	1	.41E+2	1.294		CT	1	.38E+2	1.134	
CO	1	.26E+2	.814		CO	1	.68E+2	2.061	
CTO	1	.71E+2	2.223		CTO	1	.60E+2	1.823	
CS	16	.51E+3			CS	16	.53E+3		
T	1	.23E+2	.770		T	1	.67E+2	2.181	
O	1	.26E+2	.865		O	1	.37E+2	1.184	
TO	1	.14E+1	.045		TO	1	.20E+2	.637	
S	16	.48E+3			S	16	.49E+3		
TOTAL	39	.11E+4			TOTAL	39	.13E+4		
amplitude					amplitude				
Source	df	SS	F	ratios	Source	df	SS	F	ratios
C	1	.19E+8	1.872		C	1	.23E+6	.203	
CT	1	.85E+7	.842		CT	1	.45E+6	.399	
CO	1	.10E+8	1.067		CO	1	.76E+6	.677	
CTO	1	.21E+8	2.062		CTO	1	.26E+5	.023	
CS	16	.16E+9			CS	16	.18E+8		
T	1	.21E+8	1.421		T	1	.21E+7	1.260	
O	1	.13E+8	.895		O	1	.70E+5	.043	
TO	1	.86E+7	.545		TO	1	.60E+6	.367	
S	16	.23E+9			S	16	.26E+8		
TOTAL	39	.50E+9			TOTAL	39	.48E+8		

Table G (cont'd.)

Affective words				Neutral words			
frequency				frequency			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.18E+2	1.842	C	1	.10E+2	1.440
CT	1	.10E+2	1.053	CT	1	.49E+2	6.641**
CO	1	.22E+2	2.170	CO	1	.66E+1	.887
CTO	1	.46E+1	.461	CTO	1	.59E+1	.799
CS	16	.16E+3		CS	16	.12E+3	
T	1	.17E+2	.209	T	1	.15E+2	.155
O	1	.37E+2	.471	O	1	.11E+3	1.164
TO	1	.24E+2	.297	TO	1	.29E-1	.000
S	16	.13E+4		S	16	.15E+4	
TOTAL	39	.16E+4		TOTAL	39	.18E+4	
duration				duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.30E+1	1.135	C	1	.19E+2	4.818*
CT	1	.26E+1	.952	CT	1	.33E+1	.846
CO	1	.15E+2	5.599	CO	1	.46E+1	1.183
CTO	1	.69E+1	2.549	CTO	1	.73E+1	1.872
CS	16	.43E+2		CS	16	.63E+2	
T	1	.27	.070	T	1	.88	.113
O	1	.12E+2	3.217	O	1	.61E+1	.778
TO	1	.84	.217	TO	1	.22E+1	.281
S	16	.62E+2		S	16	.12E+3	
TOTAL	39	.15E+3		TOTAL	39	.23E+3	
amplitude				amplitude			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.11E+6	.077	C	1	.70E+7	4.681*
CT	1	.97E+5	.067	CT	1	.27E+7	1.776
CO	1	.16E+7	1.098	CO	1	.14E+7	.908
CTO	1	.67E+6	.463	CTO	1	.94E+6	.629
CS	16	.23E+8		CS	16	.24E+8	
T	1	.67E+5	.034	T	1	.23E+7	.711
O	1	.79E+4	.004	O	1	.67E+5	.021
TO	1	.59E+6	.303	TO	1	.10E+6	.032
S	16	.31E+8		S	16	.52E+8	
TOTAL	39	.58E+8		TOTAL	39	.91E+8	

* = $p < .05$ ** = $p < .02$

Table H

A conditions (C) by mover type (T) by word type (W) analysis of variance of the skin resistance response variables

frequency				duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.68E+1	.254	C	1	.69E+1	1.238
CT	1	.79E+2	2.958	CT	1	.56E+1	.996
CS	26	.69E+3		CS	26	.15E+3	
T	1	.81E+2	.331	T	1	.12E+2	1.111
S	26	.64E+4		S	26	.28E+3	
W	3	.27E+3	8.882***	W	3	.11E+2	1.650
TW	3	.67E+1	.221	TW	3	.14E+2	2.123
WS	78	.79E+3		WS	78	.17E+3	
CW	3	.71E+1	.530	CW	3	.13E+2	1.419
CTW	3	.25E+2	1.895	CTW	3	.77E+1	1.845
CWS	78	.35E+3		CWS	78	.24E+3	
TOTAL	223	.87E+4		TOTAL	223	.91E+3	

amplitude			
Source	df	SS	F ratios
C	1	.47E+7	1.406
CT	1	.22E+6	.006
CS	26	.87E+8	
T	1	.89E+6	.065
S	26	.36E+9	
W	3	.15E+8	1.778
TW	3	.40E+8	4.801**
WS	78	.22E+9	
CW	3	.85E+7	.834
CTW	3	.17E+8	1.659
CWS	78	.27E+9	
TOTAL	223	.10E+10	

** = $p \leq .005$ *** = $p \leq .0005$

Table I

A conditions (C) by mover type (T) by experimenter (E)
analysis of variance for sexual drive activation for
the four word groups

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.77	1.181	C	1	.53	4.213
CT	1	.28E+1	4.561*	CT	1	.12E-1	.094
CE	2	.53	.429	CE	2	.13	.519
CTE	2	.42	.344	CTE	2	.11	.447
CS	22	.14E+2		CS	22	.28E+1	
T	1	.81	.392	T	1	.91E-1	.791
E	2	.30E+1	.728	E	2	.23	1.015
TE	2	.89E+1	2.155	TE	2	.88	3.824*
S	22	.45E+2		S	22	.25E+1	
TOTAL	55	.76E+2		TOTAL	55	.73E+1	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.42	3.026	C	1	.32	1.143
CT	1	.93E-1	.657	CT	1	.44	1.549
CE	2	.38	1.346	CE	2	.39	.676
CTE	2	.25	.911	CTE	2	.37E-1	.065
CS	22	.31E+1		CS	22	.63E+1	
T	1	.11E-1	.065	T	1	.61	5.117
E	2	.66	1.916	E	2	.35E+1	14.512**
TE	2	.37	1.077	TE	2	.49	2.058
S	22	.38E+1		S	22	.26E+1	
TOTAL	55	.91E+1		TOTAL	55	.15E+2	

* = $p < .05$ ** = $p < .0005$

Table J

A conditions (C) by mover type (T) by experimenter (E)
analysis of variance for aggressive drive activa-
tion for the four word groups

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.88E-2	.061	C	1	.19E+1	1.053
CT	1	.31	2.121	CT	1	.77E-1	.042
CE	2	.98	3.376	CE	2	.66	.180
CTE	2	.22	.781	CTE	2	.16E+2	4.452
CS	22	.32E+1		CS	22	.40E+2	
T	1	.14	.396	T	1	.16E-1	.005
E	2	.61	1.332	E	2	.45E+1	.699
TE	2	.25	.549	TE	2	.25E+2	3.927*
S	22	.50E+1		S	22	.70E+2	
TOTAL	55	.11E+2		TOTAL	55	.16E+3	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.74	1.993	C	1	.83E-1	2.005
CT	1	.30	.797	CT	1	.84E-1	.020
CE	2	.17	.224	CE	2	.45E-1	.543
CTE	2	.63	.850	CTE	2	.45E-2	.055
CS	22	.82E+1		CS	22	.91	
T	1	.28E-2	.006	T	1	.44E-1	1.145
E	2	.15E+1	1.657	E	2	.17	2.192
TE	2	.56E+1	6.167*	TE	2	.72E-1	.940
S	22	.10E+2		S	22	.84	
TOTAL	55	.27E+2		TOTAL	55	.22E+1	

* = $p < .05$

Table K

A conditions (C) by mover type (T) by order (O) analysis of variance for sexual drive activation for the four word groups using three Es

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.93	1.561	C	1	.54	4.471*
CT	1	.26E+1	4.412*	CT	1	.39E-2	.032
CO	1	.24	.408	CO	1	.53E-2	.044
CTO	1	.24E-2	.004	CTO	1	.11	.914
CS	24	.14E+2		CS	24	.29E+1	
T	1	.99	.425	T	1	.75E-1	.546
O	1	.17E+1	.745	O	1	.11	.828
TO	1	.12	.054	TO	1	.14	1.003
S	24	.56E+2		S	24	.33E+1	
TOTAL	55	.77E+2		TOTAL	55	.72E+1	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.50	3.429	C	1	.34	1.476
CT	1	.14	.991	CT	1	.54	2.321
CO	1	.25	1.732	CO	1	.20E-1	.086
CTO	1	.86E-2	.059	CTO	1	.11E+1	4.842*
CS	24	.35E+1		CS	24	.55E+1	
T	1	.95E-4	.001	T	1	.27	1.043
O	1	.45	2.530	O	1	.42	1.644
TO	1	.66E-2	.036	TO	1	.13	.503
S	24	.43E+1		S	24	.62E+1	
TOTAL	55	.92E+1		TOTAL	55	.15E+2	

* = $p < .05$

Table L

A conditions (C) by mover type (T) by order (O) analysis
of variance for aggressive drive activation for the
four word groups using three Es

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.15E-1	.095	C	1	.22E+1	.960
CT	1	.23	1.476	CT	1	.10	.044
CO	1	.58E-1	.365	CO	1	.14	.059
CTO	1	.44	2.744	CTO	1	.76	.326
CS	24	.38E+1		CS	24	.56E+2	
T	1	.17	.709	T	1	.22E-1	.006
O	1	.17E-1	.069	O	1	.32E+1	.835
TO	1	.10	.416	TO	1	.66E+1	.722
S	24	.58E+1		S	24	.92E+2	
TOTAL	55	.11E+2		TOTAL	55	.16E+3	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.61	1.631	C	1	.78E-1	1.994
CT	1	.22	.603	CT	1	.19E-3	.005
CO	1	.18E-1	.048	CO	1	.23E-1	.603
CTO	1	.48E-1	.130	CTO	1	.15E-2	.039
CS	24	.89E+1		CS	24	.93	
T	1	.59E-1	.089	T	1	.22E-1	.522
O	1	.29	.424	O	1	.23E-1	.553
TO	1	.15E+1	2.183	TO	1	.46E-1	1.076
S	24	.16E+2		S	24	.10E+1	
TOTAL	55	.28E+2		TOTAL	55	.21E+1	

Table M

A conditions (C) by mover type (T) by order (O) analysis
of variance for sexual drive activation for the four
word groups using two Es

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.74	1.012	C	1	.30	2.172
CT	1	.17E+1	2.280	CT	1	.30E-1	.213
CO	1	.84	1.146	CO	1	.15E-1	.110
CTO	1	.26E-3	.000	CTO	1	.42E-1	.301
CS	16	.12E+2		CS	16	.22E+1	
T	1	.21E+1	1.020	T	1	.12E-2	.009
O	1	.33E+1	1.580	O	1	.17	1.331
TO	1	.11E+1	.528	TO	1	.3-E-1	.236
S	16	.33E+2		S	16	.20E+1	
TOTAL	39	.55E+2		TOTAL	39	.49E+1	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.44	2.394	C	1	.30E-2	.037
CT	1	.34	1.863	CT	1	.62	7.662**
CO	1	.25	1.372	CO	1	.15E-1	.190
CTO	1	.12E-1	.057	CTO	1	.19	2.462
CS	16	.29E+1		CS	16	.13E+1	
T	1	.23	1.412	T	1	.24E-3	.002
O	1	.18	1.118	O	1	.76E-3	.006
TO	1	.10E-2	.006	TO	1	.27	1.985
S	16	.26E+1		S	16	.22E+1	
TOTAL	39	.69E+1		TOTAL	39	.46E+1	

** = $p < .02$

Table N

A conditions (C) by mover type (T) by order (O) analysis
of variance for aggressive drive activation for the
four word groups using two Es

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.15	1.225	C	1	.68E+1	2.636
CT	1	.92E-1	.762	CT	1	.18E-2	.001
CO	1	.89E-2	.074	CO	1	.34	.130
CTO	1	.12	1.032	CTO	1	.51	.196
CS	16	.19E+1		CS	16	.42E+2	
T	1	.14E-1	.068	T	1	.26E+1	.736
O	1	.22E-1	.109	O	1	.23E+1	.662
TO	1	.42	2.043	TO	1	.65E+1	1.846
S	16	.33E+1		S	16	.55E+2	
TOTAL	39	.60E+1		TOTAL	39	.11E+3	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.45	1.112	C	1	.24E-1	1.085
CT	1	.62E-3	.002	CT	1	.18E-1	.783
CO	1	.32E-1	.080	CO	1	.21E-2	.093
CTO	1	.55E-1	.135	CTO	1	.40E-1	1.771
CS	16	.65E+1		CS	16	.36	
T	1	.28	.355	T	1	.76E-2	.271
O	1	.47E-1	.059	O	1	.17E-1	.510
TO	1	.16E+1	1.970	TO	1	.62E-1	2.207
S	16	.13E+2		S	16	.45	
TOTAL	39	.21E+2		TOTAL	39	.99	

Table 0

A conditions (C) by mover type (T) by word type (W) analysis
of variance for the sexual and aggressive drives using
three Es

sexual drive activation

Source	df	SS	F ratios
C	1	.27	1.090
CT	1	.85E-1	.334
CS	26	.66E+1	
T	1	.10E-1	.011
S	26	.25E+2	
W	3	.73E+2	39.862***
TW	3	.13E+1	.731
WS	78	.47E+2	
CW	3	.20E+1	2.457
CTW	3	.32E+1	3.906*
CWS	78	.21E+2	
TOTAL	223	.18E+3	

aggressive drive activation

Source	df	SS	F ratios
C	1	.27	.262
CT	1	.31E-1	.029
CS	26	.27E+2	
T	1	.13	.066
S	26	.51E+2	
W	3	.34E+3	118.381***
TW	3	.16	.058
WS	78	.74E+2	
CW	3	.25E+1	1.498
CTW	3	.57	.347
CWS	78	.43E+2	
TOTAL	223	.54E+3	

* = $p < .05$ *** = $p < .0005$

Table P

A conditions (C) by mover type (T) by word type (W) analysis
of variance for the sexual and aggressive drives using
two Es

sexual drive activation			
Source	df	SS	F ratios
C	1	.48E-1	.267
CT	1	.20E-1	.111
CS	18	.33E+1	
T	1	.94	1.091
S	18	.15E+2	
W	3	.57E+2	34.659***
TW	3	.13E+1	.775
WS	54	.29E+2	
CW	3	.17E+1	1.915
CTW	3	.31E+1	3.400*
CWS	54	.16E+2	
TOTAL	159	.13E+3	

aggressive drive activation			
Source	df	SS	F ratios
C	1	.14E+1	1.224
CT	1	.14E-1	.012
CS	18	.21E+2	
T	1	.19E+1	1.047
S	18	.33E+2	
W	3	.29E+3	105.331***
TW	3	.18E+1	.653
WS	54	.49E+2	
CW	3	.52E+1	3.071
CTW	3	.88E-1	.052
CWS	54	.31E+2	
TOTAL	159	.43E+3	

* = $p < .05$ *** = $p < .0005$

Table Q

A conditions (C) by mover type (T) by word type (W) analysis of variance for the skin resistance response variables and drive comparing the sexual and aggressive words

SRR frequency				SRR duration			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.26E+1	.132	C	1	.11E+2	.412
CT	1	.33E+2	1.694	CT	1	.70E+1	.250
CS	26	.51E+3		CS	26	.73E+3	
T	1	.45E+2	.339	T	1	.92E+1	.408
S	26	.35E+4		S	26	.59E+3	
W	1	.18E+3	9.984*	W	1	.67E+1	.300
TW	1	.39E+1	.221	TW	1	.77E+2	3.424
WS	26	.46E+3		WS	26	.58E+3	
CT	1	.72	.197	CT	1	.13E+1	.052
CTW	1	.65E+1	1.772	CTW	1	.42E+2	1.699
CWS	26	.96E+2		CWS	26	.64E+3	
TOTAL	111	.48E+4		TOTAL	111	.27E+4	

SRR amplitude				drive activation			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.13E+7	.303	C	1	.29E+1	1.992
CT	1	.42E+7	.972	CT	1	.20E+1	1.387
CS	26	.11E+9		CS	26	.38E+2	
T	1	.46E+7	.479	T	1	.73	.156
S	26	.25E+9		S	26	.12E+3	
W	1	.18E+8	3.897	W	11	.64E+2	44.610**
TW	1	.14E+8	3.063	TW	1	.31	.215
WS	26	.12E+9		WS	26	.37E+2	
CT	1	.61E+7	.992	CT	1	.11	.085
CTW	1	.26E+7	.422	CTW	1	.77	.602
CWS	26	.16E+9		CWS	26	.33E+2	
TOTAL	111	.69E+9		TOTAL	111	.29E+3	

* = $p < .005$ ** = $p < .0005$

Table R

A conditions (C) by mover type (T) by experimenter (E)
analysis of variance for syntonia and dystonia

syntonia			
Source	df	SS	F ratios
C	1	.32E+2	.330
CT	1	.22E+1	.023
CE	2	.97E+2	.497
CTE	2	.22E+3	1.113
CS	21	.20E+4	
T	1	.43E+2	1.570
E	2	.62E+2	1.143
TE	2	.79E+2	1.457
S	21	.57E+3	
TOTAL	53	.32E+4	

dystonia			
Source	df	SS	F ratios
C	1	.42	.002
CT	1	.64E+1	.030
CE	2	.65E+1	.015
CTE	2	.75E+3	1.757
CS	21	.45E+4	
T	1	.84E+1	.159
E	2	.19E+2	.180
TE	2	.62E+2	.590
S	21	.11E+4	
TOTAL	53	.64E+4	

Table S

A conditions (C) by mover type (T) by order (O) analysis
of variance for syntonia and systonia

 syntonia

Source	df	SS	F ratios
C	1	.17E+2	.202
CT	1	.17E+2	.202
CO	1	.40E+3	4.753*
CTO	1	.49E+2	.580
CS	23	.20E+4	
T	1	.28E+2	.977
O	1	.86E+1	.299
TO	1	.25E+2	.882
S	23	.65E+3	
TOTAL	53	.32E+4	

dystonia

Source	df	SS	F ratios
C	1	.11E+2	.103
CT	1	.14E+2	.129
CO	1	.27E+4	24.935**
CTO	1	.79E+1	.073
CS	23	.25E+4	
T	1	.58E+1	.117
O	1	.31E+2	.619
TO	1	.95E+1	.189
S	23	.11E+4	
TOTAL	53	.64E+4	

* = $p \leq .05$ ** = $p \leq .0005$

Table T

A conditions(C) by mover type (T) by experimenter (E)
analysis of variance for analogic representation
for the four word groups

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.45E+1	3.138	C	1	.11E+3	1.444
CT	1	.62	.432	CT	1	.83E+2	1.125
CE	2	.21	.075	CE	2	.90E+2	.613
CTE	2	.23E+1	.817	CTE	2	.70E+2	.475
CS	22	.32E+2		CS	22	.16E+4	
T	1	.63E+1	1.268	T	1	.27E+2	.300
E	2	.29E+2	2.897	E	2	.13E+3	.734
TE	2	.30E+1	.299	TE	2	.85E+2	.468
S	22	.11E+3		S	22	.19E+4	
TOTAL	55	.19E+3		TOTAL	55	.42E+4	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.27E+1	1.408	C	1	.40E+1	.158
CT	1	.40E-1	.020	CT	1	.28E+2	1.118
CE	2	.22	.057	CE	2	.27E+2	.542
CTE	2	.44E+1	1.134	CTE	2	.42E+2	.838
CS	22	.43E+2		CS	22	.56E+3	
T	1	.48E+1	1.017	T	1	.53E+2	2.181
E	2	.14E+2	1.523	E	2	.83E+2	1.709
TE	2	.15E+2	1.605	TE	2	.64E+2	1.304
S	22	.10E+3		S	22	.54E+3	
TOTAL	55	.19E+3		TOTAL	55	.14E+4	

Table U

A conditions (C) by mover type (T) by order (O) analysis
of variance for analogic representation for the
four word groups

sexual words				aggressive words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.53E+1	3.863	C	1	.15E+3	2.128
CT	1	.77	.559	CT	1	.12E+3	1.765
CO	1	.71E-1	.051	CO	1	.95E+2	1.352
CTO	1	.82	.593	CTO	1	.35E+2	.506
CS	24	.33E+2		CS	24	.17E+4	
T	1	.40E+1	.783	T	1	.56E+2	.657
O	1	.17E+2	3.325	O	1	.14E+3	1.647
TO	1	.33E+1	.646	TO	1	.52E+2	.606
S	24	.12E+3		S	24	.20E+4	
TOTAL	55	.18E+3		TOTAL	55	.44E+4	

affective words				neutral words			
Source	df	SS	F ratios	Source	df	SS	F ratios
C	1	.22E+1	1.208	C	1	.52E+1	.217
CT	1	.71E-2	.004	CT	1	.33E+2	1.366
CO	1	.24E+1	1.325	CO	1	.28E+2	1.145
CTO	1	.98	.528	CTO	1	.25E+2	1.031
CS	24	.45E+2		CS	24	.58E+3	
T	1	.32E+1	1.592	T	1	.50E+2	1.791
O	1	.62E+1	1.159	O	1	.26E+1	.092
TO	1	.57E-1	.001	TO	1	.17E+2	.619
S	24	.13E+3		S	24	.68E+3	
TOTAL	55	.19E+3		TOTAL	55	.14E+4	

APPENDICES

APPENDIX A

Appendix A

Handedness questionnaire

Your name: _____

Please complete the following questionnaire by placing an X on the line that corresponds to your hand preference on the following items.

Indicate hand preference in order to	Always right	Usually right	No preference	Usually left	Always left
1. Write a letter legibly.	_____	_____	_____	_____	_____
2. Throw a ball to hit a target.	_____	_____	_____	_____	_____
3. Play a game requiring the use of a racket.	_____	_____	_____	_____	_____
4. To sweep dust from the floor by holding your hand at the top of the broom.	_____	_____	_____	_____	_____
5. To move sand, holding the top of a shovel.	_____	_____	_____	_____	_____
6. Hold a match when striking it.	_____	_____	_____	_____	_____
7. Hold scissors to cut paper.	_____	_____	_____	_____	_____
8. Hold thread to guide through the eye of a needle.	_____	_____	_____	_____	_____
9. Deal playing cards.	_____	_____	_____	_____	_____
10. Hammer a nail into wood.	_____	_____	_____	_____	_____
11. Hold a toothbrush while brushing your teeth.	_____	_____	_____	_____	_____
12. Unscrew the lid of a jar.	_____	_____	_____	_____	_____
13. Are either of your parents left handed? _____ If yes, which?					
14. Have you ever suffered from any severe head wound? _____ If yes, please explain. _____					

APPENDIX B

Appendix B

Eye Movement Questionnaire

S's Name:

Phone Number:

Date:

E's Name:

Time:

Questions:

1. Explain: He that lies on the ground cannot fall.
2. Imagine a map of the United States. Where is Chicago relative to Minneapolis?
3. Visualize sitting in front of a typewriter. Where is the letter "R" relative to "B"?
4. Explain: One may ride a free horse to death.
5. Imagine a square rotating 360 degrees around its axis. What shape would you get?
6. Explain: All the glitters is not gold.
7. Explain: A drowning man will clutch at a straw.
8. Imagine that you're traveling from Las Vegas to Dallas. Which states do you pass through?
9. Visualize the map of the United States. What are the states that border Nebraska?
10. Explain: What saddens a wise man gladdens a fool.
11. Imagine the Liberty Statue in the Columbia movies. Is it facing right or left?
12. Explain: A poor worker blames his tools.
13. Explain: Call no man happy until he is dead.
14. Visualize a crescent moon at sunset. Does its horns face upwards or downwards?
15. Explain: Where there is a will, there is a way.
16. Imagine George Washington on a nickel. Which direction does he face, right or left?
17. Imagine the Great Lakes area. What state is below the upper peninsula of Michigan?

18. Explain: All's well that ends well.
19. Explain: Too many cooks spoil the broth.
20. Visualize your social security card. Where is your number on it relative to your name?
21. Visualize sitting in front of a typewriter. Where is the letter "L" in relation to "K"?
22. Explain: Better happy than wise.
23. Explain: Strike while the iron is hot.
24. Imagine a map of the U.S. Where is Detroit relative to Chicago?
25. Imagine Lincoln on a penny. Which direction does he face, to the right or the left?
26. Explain: Don't count your chickens before they're hatched.
27. Visualize the map of the United States. What are the states that border Illinois?
28. Explain: A watched pot never boils.
29. Explain: He who is rich has few desires.
30. Imagine a circle rotating around its diameter. What form do you get?

E's R:___

E's L:___

S's R:___

S's L:___

APPENDIX C

Appendix C

Mood Questionnaire

A factor basic to psychotherapy is the extent to which emotion or affect is activated, consciously or unconsciously, with or without reference to specific drives. Although so very basic, the study of affects has received little theoretical consideration or empirical research by academic psychologists or analytical therapists. The present study is, in part, an attempt to assess the activation of drive-related affect by means of a semantic differential.

The measurement of emotional states has been hampered by the difficulty of assessing affect in an empirical manner. Except for physiological studies, present methods of measuring emotional mood are almost non-existent. A method has been developed by Block (1957) for assessing the phenomenology of emotions via the semantic differential.

The semantic differential, as developed by Osgood (1952) is a technique, such that by means of "a standardized connotative description of various objects or concepts, the meaning of meaning is given what seems to be quite an appropriate quantification" (Block, 1957, p.358). Some preliminary work by Block suggested "that the semantic differential could quantify affective qualities in an unstereotyped way" (Block, 1957, p.358). This resulted in his study in which fifteen affective states were described

by Ss according to twenty connotative dimensions. Block found that male and female college students described the affective states in highly similar ways. Not only were they described similarly, but by rank ordering the connotative dimensions for each emotion, one comes up with criteria describing in connotative terms, the different affects.

It is the contention of Block and Dershowitz (1975) that "the semantic differential scales tap, not learned associations to the emotion-names, but instead, the phenomenological states for which the terms are referents. Thus the similarity in rating is interpreted as similarity in underlying subjective experience" (p.93).

Both Block and Dershowitz only showed how emotions could be defined by connotative scales that give "considerable support for the underlying hypothesis of universality in emotional experience" (Dershowitz, 1975, p.92). A person's emotional state was not tapped at a particular point in time via the connotative scales.

But if emotional experience is universal, and the connotative scales can define affects such that most Ss define a given affect in terms of certain connotative scales, and the work of Block and Dershowitz demonstrate that this is possible; then these scales can be used to monitor a person's affective mood at a particular moment in time. As an example, Block found that most Ss defined anger in terms of the words: active, tense, rough, strong, ferocious, and

red. By measuring the extent to which the S is subjectively experiencing himself in terms of the above words, one has a means of tapping the emotional state to which the above words refer, i.e. the person's affective mood at the moment.

Block's semantic differential consisted of twenty word-pairs by which each emotion was evaluated. Each word-pair was a continuum mapping two poles, as an example: the word-pair "high - low". The connotative scales were then rank ordered for each of the affects, according to the first word of the word-pair. If one takes the highest five rankings (which classify a given affect in terms of one end of the dimension) and the five lowest rankings (which classify an affect in terms of the other end of the dimension), one arrives at ten connotative dimensions which best describe a given affect.

By having the S rate himself as to his subjective experience of himself at a given point in time on the twenty connotative dimensions, one has the means, via the ten best descriptors or connotative dimensions corresponding to a given affect, for assessing the S's subjective mood at the moment across the different affects.

Although the above method is somewhat crude, and will be expanded and improved through research in the future, it gives one a means of measuring the extent to which a given emotion is activated.

One can question the validity of the above semantic

differential. Does it really assess the affects that it purports to assess? In order to test the validity of the differential, the following simple study was conducted.

Twenty Ss were given the semantic differential consisting of the 20 connotative dimensions and asked to rate themselves on the scales according to their present subjective mood. The S was then told to imagine himself as experiencing a given affect, and to rate the connotative dimensions as if he were experiencing the given affect at the moment. In other words, he would imagine himself as, for example, angry, and asked to rate his subjective mood as angry on the scales. This allows one to validate the rankings as arrived by Block, with the ratings of the Ss as if they were experiencing the given affect at the moment through imagination.

After the Ss had rated ten different affects, which were: love, anger, envy, shame, fear, boredom, grief, contentment, joy, and guilt, the semantic differential rating of each of the 20 word pairs per given affect were pooled and averaged. Only those word pairs that averaged an extreme rating (between one and two or six and seven) and had a standard deviation of less than 2.0 were chosen and tabulated.

Six of the ten affects had the above criterion scores on at least 10 word pairs, these being: love, contentment, and joy, and shame, grief, and guilt. When the best descriptors of the word pairs chosen were tabulated, almost the

exact same descriptors were chosen for love, contentment, and joy; and shame, grief, and guilt.

The best descriptors which love, contentment and joy had in common were: clear, beautiful, fresh, full, good, happy, healthy, high, and soft. The best descriptors for shame, grief, and guilt were: bad, empty, hazy, low, passive, sad, small, tense, ugly, and weak. Thus according to this classification, the connotative dimensions did not differentiate between affects.

However, the two groups of descriptors correspond very nicely to the descriptors listed in the drive activation scale for syntonia and dystonia, respectively. Hence the semantic differential in the form of the Mood questionnaire was found to validly tap and differentiate syntonia and dystonia. (Although a much better analysis of the data is planned, the above crude analysis was deemed satisfactory for use in this study.)

By taking the scores of the Ss on the Mood questionnaire that correspond to the above descriptors, the S's rating on syntonia and dystonia were obtained. Since the questionnaire was administered before the first condition, between conditions, and after the second condition; the difference between the first and second, and the second and third presentations, gave a score which showed the degree of activation of syntonia and dystonia for the two conditions of free imagery and free association.

APPENDIX D

Appendix D

Questionnaire for Assessment of Imagery Vividness

The Betts QMI as modified by Sheehan (Sheehan, 1967) has been shown to be an effective evaluator of a person's imagery in terms of the vividness of that imagery. It is used here to measure a person's imagery vividness.

It has been modified by adding eleven items in visual imagery since free imagery employs the visual modality for its effect, and by choosing two items from each of the other sensory modalities to produce an extensive and yet easily experienced spectrum of imagery. The test itself was put in its present form so as to eliminate the pattern of all the questions of a specific sense modality being grouped together, as it was in the previous format.

This questionnaire is composed of twelve questions concerning visual imagery and twelve questions, consisting of two each from the sense modalities of audition, gustation, tactition, olfaction, kinesthesia, and organic awareness. All questions were randomly arranged.

Questionnaire of Imagery Vividness

Instructions:

The aim of this questionnaire is to determine the vividness of your imagery. The items of the questionnaire will bring certain images to mind. Please read each item and then imagine it in your mind. You are to rate the vividness of each image you have by using the accompanying rating scale.

For example, if in imagining a 'fire truck on the road,' your image of it is 'vague and dim' you would give it a rating of "5". Please put the number of your rating on the line beside the statement.

Rating Scale:

An image aroused by an item of this questionnaire may be:

- Rating 1: Perfectly clear and as vivid as the actual experience.
- Rating 2: Very clear and comparable in vividness to the actual experience.
- Rating 3: Moderately clear and vivid.
- Rating 4: Not clear or vivid, but recognizable.
- Rating 5: Vague and dim.
- Rating 6: So vague and dim as to be hardly discernable.
- Rating 7: No image present at all, you only know that you are thinking it.

Rating:

- ___ 1. Imagine smelling new leather.
- ___ 2. Imagine feeling fatigue.
- ___ 3. Imagine seeing a yellow neon sign that says: "Hello".
- ___ 4. Imagine the clapping of hands in applause.
- ___ 5. Imagine seeing the face of a friend.
- ___ 6. Imagine feeling fur.
- ___ 7. Imagine hearing the honk of a horn of an automobile.
- ___ 8. Imagine seeing clear blue sky.
- ___ 9. Imagine drawing a circle on paper.
- ___ 10. Imagine seeing the ocean shore.
- ___ 11. Imagine the sun as it is sinking below the horizon.
- ___ 12. Imagine feeling sand.
- ___ 13. Imagine being hungry.
- ___ 14. Imagine seeing fireworks in the sky.
- ___ 15. Imagine a garden all in bloom.
- ___ 16. Imagine smelling roast beef.
- ___ 17. Imagine tasting oranges.
- ___ 18. Imagine tasting salt.
- ___ 19. Imagine reaching up to a high shelf.
- ___ 20. Imagine seeing a beautiful red rose.
- ___ 21. Imagine seeing a full moon at night.
- ___ 22. Imagine seeing yourself in a mirror.
- ___ 23. Imagine seeing a rocket blast off.
- ___ 24. Imagine seeing a rainbow arching the sky.

Your name: _____

APPENDIX E

Appendix E

The following two word lists were prepared by dividing the 40 words into two lists of 20 words each, each consisting of five words per four word categories, plus an additional two words at the beginning to allow for habituation of the orienting response.

Word list A:

sky
moon
joy
prostitute
T-V
disgust
penis
table
skiing
fag
fight
attack
orgasm
bloodbath
anger
earth
murder
grief
envy
nipples
travel
torture

Word list B:

air
star
hate
masturbate
flower
shame
genitals
temperature
candy
intercourse
pillage
violence
vagina
massacre
love
lightbulb
hurt
fear
guilt
whore
potato
slaughter

APPENDIX F

Appendix F

Tapes

Four tapes were made by the author, counterbalancing conditions (FI and FA) and word lists (A and B) with respect to order. The following are the formats of those tapes:

Tape A

FI general instructions
Five minutes FI by S
FI instructions for
word associations
22 words (list A)
Break (5 minutes)
FA general instructions
Five minutes FA by S
FA instructions for
word associations
22 words (list B)

Tape B

FA general instructions
Five minutes FA by S
FA instructions for
word associations
22 words (list A)
Break (5 minutes)
FI general instructions
Five minutes FI by S
FI instructions for
word associations
22 words (list B)

Tape C

FI general instructions
Five minutes FI by S
FI instructions for
word associations
22 words (list B)
Break (5 minutes)
FA general instructions
Five minutes FA by S
FA instructions for
word associations
22 words (list A)

Tape D

FA general instructions
Five minutes FA by S
FA instructions for
word associations
22 words (list B)
Break (5 minutes)
FI general instructions
Five minutes FI by S
FI instructions for
word associations
22 words (list A)

APPENDIX G

Appendix G

Drive Activation Scale

(Modified by the author for the present investigation.)

The psychotherapist's request for the client to describe only visual images, sooner or later is followed by indications of anxiety, symptoms and/or resistance. This is particularly true as the images become more blatantly depictive of repressed strivings. The same phenomena, greatly attenuated, often is observed in research Ss (Morishige and Reyher, 1975). Since visual imagery readily lends itself to scoring because of its depictive nature, a scale of drive activation was modified by Burns and Reyher (1975) scoring Oedipal strivings, and its present form represents a modification by Reyher and Maria Della Corte for general application.

In their scale, Burns and Reyher weighted the component drives of the Oedipal complex (a constellation of strivings) in accordance with their presumed pathogenicity. These were Sex (16), Anger (8), Dystonia (a lowering of self-esteem; feelings of inadequacy) (4), Guilt (2), and Anxiety (1). We thought that we could widen its applicability by giving each drive equal weight and by adding a rise in self-esteem (syntonía) and love. Anxiety was relegated from its status as a drive to a symptom, albeit a response-producing symptom, because it is the result of conflict involving a drive.

In its present form, the Drive Activation Scale is sensitive to a wider range of strivings (the aims and objects of drives) beginning with inferred drives and ending with their imagined gratification, without sacrificing the ability of the scale to reflect the activation of oedipal strivings. Each striving is assessed on five dimensions: drive (D), the degree of drive representation (R), the remoteness of derivatives (Dr), whether or not the images (or thoughts) are kinetic (K), and whether or not the images (or thoughts) interact (I) with each other or with other objects. Each of these factors receives a score which is combined multiplicatively to produce a drive activation score (A) for each episode of imagery (or thought). A drive is defined as the affective component of a striving. Sex can have a variety of aims and objects, e.g. exhibitionism and fetishism. A pathogenic drive is defined as any response-producing affective disposition that can generate sufficient anxiety to impair cue functions and organized, adaptive behavior.

Scoring

Episode

An episode is simply a period of imagery or free association delimited by a change in either setting or objects (or a pause in the S's verbalizations). When postdicting electrophysiological activation, it became apparent that objects (like a large lathe and a tornado) could be very activating and must be taken into account by a refined definition of an episode.

Drive presence (D)

If an episode cannot be scored for the presence of a drive, it is assumed that the derivatives are very remote. These nonscorable episodes (NS) are weighted by a factor of 1.

Drive representation (R)

Each scorable drive is evaluated on dimensions defining its degree of representation in the episode.

A drive may be inferred (di) or implicit in the S's imagery or thoughts or it may be depicted quite explicitly (dp) with the S recognizing its nature. Then again the S may recognize the nature of the drive (dr) (i.e., subject says, "I must be angry" in response to aggressive imagery) or s/he might even experience it as an affect (de) (i.e., subject says, "I feel angry."). Consequently, each scorable drive is weighted according to the degree it is represented in awareness: di=1, dp=2, dr=4, de=8.

These four degrees of drive representation are weighted in a geometrical series to insure that the product of lower degrees of drive representation is never larger than the value of the next higher degree of drive representation. Since dr and de are objective in the S's frame of reference, scoring is no problem; however, this is not the case for di and dp for which criteria are needed for determining what is explicit or implicit (inferred). The criteria for the sexual and aggressive drives are:

Sex (S)

Any genital or pregenital expression of the sexual drive is scored. Since images (or thoughts) depicting physical expressions of love (affection and tenderness) cannot be differentiated from sex, these should be scored as sex only when they are immediately preceded or followed by implicit or explicit sexual imagery.

Implicit depiction (di):

1. penis: any protuberance or long slim object, either animate (anteater, snake, goose, etc.) or inanimate; any object that grows bigger, dots, pellets, rain or aggregates of small objects denoting sperm, particularly if they are mobile; anything that rises such as a bird, helicopter, sun, balloon, objects in groups of three.
2. vagina: any hole or enclosed space such as a vase, purse, tunnel, cave, entrance, hallway, a small furry animal such as a pussy cat and a beaver. Also allusions to sex as "virgin", "romance", etc.
3. castration: any crippled or incomplete animal or human.
4. breast: any rounded object or rounded feature or terrain.
5. intercourse: ascending steps; swimming or similar physical, rhythmical activity, more vigorous than walking.
6. additional criteria: incidental physical contact, a pleasant exciting or sensual, physical sensation; bed, bedroom, bathroom, underwear, tight fitting clothes.

Explicit depiction (dp):

nude body(ies), genitals, two figures dancing, kissing, embracing, seductive expressions or poses.

Anger-Aggression (AA)

Implicit depiction (di):

an accident or mishap resulting in harm befalling an object, including subject; contact sports, the situation depicted by the imagery (or thoughts) implying anger-aggression (i.e., being splashed with dirty water by a passing car); any human

that threatens to do harm or injure another person; an object (i.e., gun, tank, bomb) that has the potential of hurting, doing harm or destroying. Also allusions to "war", "murder", robbery, natural catastrophies, etc.

Explicit depiction (dp):

an intentional act that physically or psychologically hurts some object (inanimate or animate), or the subject; person or organism marring, defacing or destroying inanimate objects; angry or disagreeable facial expressions.

Kinesis (K) and Interaction (I)

For a drive to be "satisfied" in terms of its aim and object, the S's visual imagery (or thoughts) must be kinetic rather than static, and the images (or thoughts) must be embedded in an interpersonal relationship. Kinetic images (or thoughts) indicate that a drive has achieved motility and is closer to being gratified; therefore, the drive activation score (A) is multiplied by a factor of 2.

Since drives can be gratified only in an interpersonal relationship or encounter, images (or thoughts) that interact have greater significance. Therefore, the drive activation score is multiplied again by a factor of 2. An interaction may involve either animate or inanimate objects such as, lightning hitting a tree, a dog shaking a collar, a man shooting a gun, and two people talking. Thus, images (or thoughts) that are both kinetic and interactive receive a combined additional weight of 4 ($2 \times 2 = 4$).

Drive activation score ($A = D \times R \times K \times I$)

The activation score (A) for sex or aggression is the product of the drive (D), its degree of representation (R),

kinesis (K), and interaction (I). The product of the numbers assigned for D, R, K, and I for a given episode is the drive activation score for that episode for sex or aggression. Each episode is scored both for sex and aggression.

APPENDIX H

Appendix H

Analogic-Synthetic Scale

(Taken from Analogic and Synthetic Functions or Primary process Thinking by Dr. Joseph Reyher and Maria Della Corte, 4/77)

This scale was developed to quantify the degree to which analogic and synthetic functions are involved in an episode of visual imagery. When the semantic-syntactic mode is operative, either overtly or covertly, as a defense against repressed strivings, visual images are iconic and the events depicted are actual replays of past experiences or they are highly plausible. With a cessation of the semantic-syntactic mode, noniconic or fanciful images are produced by the synthetic function.

The Analogic-Synthetic Scale is divided into its analogic and synthetic component functions and the common and unique dimensions on which visual imagery may vary. The unit of analysis is the episode which is delimited by a change in objects and/or scenes. Common to both scales are the dimensions of Intactness and Functional Deviations (departures from expected behavior). Unique to the analogic function is the scoring of episodes for Plausibility, and unique to the synthetic function is the scoring of images for Formal Deviations (departures from expected form).

Analogic function, scoring images

Intactness: Complete (Cmp) imagoic duplicates (icons) of real objects or conventional forms (i.e. geometrical

forms) are scored 1 while incomplete (Inc) images, such as a headless person and fragmentary (Frg) images, such as an ear are scored 2 and 3 respectively. This progression of weights is based on the presumption that complete objects would be too blatant expressions (derivatives) of repressed strivings.

Functional deviations: These categories include the ways in which the synthetic function influences iconic images. Idiosyncratic behavior (IB) is scored whenever the behavior of a particular person or animal is uncharacteristic; Violations of specie specific behavior (SB) are self-evident; Violations of biological principles (BP) are self-evident; and Violations of natural law (NL) are self-evident. An instance of each is scored 5. An inorganic entity involved in a biological function (i.e., a breathing, pulsating basket ball) is by definition a violation of both biological principles and physical laws and is scored as nonrepresentational (NR) under Formal Deviations.

Formal deviations: This is not scored because images so characterized are noniconic, by definition, and therefore, a synthetic function.

Analogic function, scoring episodes

Clarity: The degree to which the nature of that which is being depicted in the episode is clear and the course of events can be ascertained.

1. Have no doubt as to what is involved and what is happening.

2. Have doubt as to what is involved and what is happening.
3. Have no idea as to what is involved and what is happening.

Plausibility: This refers to the degree to which the events depicted in the episode are probable or could realistically happen.

1. Episode is a replay of past experience.
2. Episode appears realistic but is not true as in many heroic daydreams.
3. Episode is unrealistic or improbable (i.e., see self in a three-way egg fight with one's parents).

Synthetic function

Intactness: This dimension is scored the same as for the analogic function except that the progression of scoring weights is reversed because image formation is impaired by anxiety.

Functional deviations: This dimension is scored the same as for the analogic function.

Formal deviations: These categories include the ways in which images depart from normal or realistic form. Transformation (Trn) is scored when one form emerges from another; Distortion (Dis) is scored whenever some aspect of an otherwise iconic image is distorted; Fantasy (Fan) is scored whenever there are fantasy figures such as witches, ghosts, goblins, etc.; Composite (Com) is scored whenever an image combines features of the two sexes or across

species (i.e., a man with well-developed breasts, a horse with wings, a mermaid). Nonrepresentational (NR) is scored whenever the image is not a duplication of anything in the natural world, in art or in mythology (i.e., an amorphous glob, a pulsating line, a meaningless spot). Each is scored 10.

Synthetic function, scoring episodes

Clarity: See analogic function.

Plausibility: Noniconic images are patently implausible.

The Analogic-Synthetic Scale

The score for each dimension is the product of the weights of the component categories scored. Only one category can be checked for Intactness, Clarity and Plausibility; but more than one category can be scored for both Functional and Formal Deviations. The total score is the product of the scores of all the dimensions, which is four for both the analogic and synthetic functions.

When iconic and noniconic images co-exist in an episode, only the synthetic function is scored. A transformation is not to be construed as the beginning of another episode.

APPENDIX I

Appendix I

Imagoic Scale

The imagoic scale was used to assess the amount of imagery evident in the S's protocols. It consisted of three subscales: a definite, an approximate, and a combined scale.

A protocol was scored definite imagoic when it contained evidence that the S was experiencing imagery by saying so. Thus when an episode contained a verb or phrase denoting that the subject was definitely experiencing imagery, i.e. I see, visualize, imagine, get an image of, etc., the episode was scored definite imagoic. If such a verb or phrase was not evident in the S's protocol, it was not scored definite imagoic, although it would be scored approximate imagoic by the following criteria.

If there was not a verb or phrase like the above, but the episode was a phrase, sentence, or clause in which a scene, image, or visual representation was reasonably assumed to be taking place in the S's mind's eye, the protocol was scored approximate imagoic. Examples are: a girl in a yellow bathing suit, he is laying on her in bed, a bright blue streak, people shooting and killing each other, etc. Single words were not scored approximate imagoic since there was not enough information to tell whether it was an image or a thought.

The composite imagoic scale was simply the sum of the approximate and definite imagoic scales, it monitored the number of episodes scored approximate and definite imagoic.

APPENDIX J

Appendix J

Michigan State University
Department of Psychology

DEPARTMENTAL RESEARCH CONSENT FORM

1. I have freely consented to take part in a scientific study being conducted by _____ under the supervision of _____ Academic Title: _____
2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.
3. I understand that I am free to discontinue my participation in the study at any time without penalty.
4. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request.
5. I understand that my participation in the study does not guarantee any beneficial results to me.
6. I understand that, at my request, I can receive additional explanation of the study after my participation is completed.

Signed _____

Dated _____

APPENDIX K

Appendix K

CONSENT FORM

I, _____, hereby agree to permit an audiotape recording of this experimental session in which I am taking part to be used for research purposes for up to two years from the date noted below. I understand that I may withdraw my permission for use of this material in general, or for any specific purpose or situation, at any time, by making a written request to Michigan State University or the Department of Psychology. I understand that the confidentiality of the material presented will be protected.

The material recorded by the process noted above will be stored and protected as confidential material by the researcher. The specific method for maintaining confidentiality and storage are determined by the professional supervisor and the student. When the material is not longer needed for research purposes, or at my written request, it will be withdrawn from use, mechanically erased, or destroyed.

Signed: _____

Dated: _____

Witness: _____

APPENDIX L

Appendix L

Final Questionnaire

Your name: _____

1. Now that this experiment is over, what do you think it was all about, and what do you think we were trying to prove?

2. Which of the two sessions that you experienced today, the free association or the visual imagery, did you like best? Why?

3. Which of the two session, the free association or the visual imagery, did you find the most interesting? Why?

4. Of the two sessions, which do you think you were most honest, saying everything that passed through your mind? Why?

5. Which of the two sessions do you think you experienced more emotionally? Why?

6. Which of the two sessions, did you find most disturbing? Why?

7. How vivid, on the average, was your imagery during the free imagery session? Put an x in front of that statement that best corresponds to how vivid your imagery was.

- ___ Perfectly clear and as vivid as an actual experience.
- ___ Very clear and comparable in vividness to an actual experience.
- ___ Moderately clear and vivid.
- ___ Not clear and vivid, but recognizable.
- ___ Vague and dim.
- ___ So vague and dim as to be hardly discernable.
- ___ No images present at all, you only know that you were thinking it.

If you have any other comments, concerning the imagery, please write them here.

8. Did you experience anything unusual during either of the two sessions? If so, please explain.

9. During each session, what percentage of the material that passed through your mind, did you vocalize?

Free association: _____

Visual imagery: _____

10. If you have any other comments to make concerning the experiment, please write them here. Thank-you.

MICHIGAN STATE UNIV. LIBRARIES



31293100642481