

CANADIAN THESES ON MICROFICHE

I.S.B.N.

THESES CANADIENNES SUR MICROFICHE



National Library of Canada
Collections Development Branch

Canadian Theses on
Microfiche Service

Ottawa, Canada
K1A 0N4

Bibliothèque nationale du Canada
Direction du développement des collections

Service des thèses canadiennes
sur microfiche

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS RECUE

Canada

Social Influence in Humor: The Effects
of Canned Laughter and a Companion on
Field-Dependent and Field-Independent Females

by Eileen E. Donoghue

Thesis submitted to the School of Graduate Studies of the
University of Ottawa in partial fulfillment of the
requirements for the degree of Doctor of Philosophy

Ottawa, Canada, 1982.

© Eileen E. Donoghue, Ottawa, Canada, 1982.

Abstract

Although research has been sparse and results inconsistent in certain respects, there is evidence that canned laughter and a mirthful companion each enhance humor appreciation. However, relationships between individual differences and the effects of these two variables remain almost unexplored. Accordingly, predictions were made concerning the effects of canned laughter and a mirthful companion on field-dependent and field-independent people.

To test these hypotheses, 184 undergraduate females were administered the Portable Rod-and-Frame Test and were randomly assigned to one of four conditions defined by the presence or absence of canned laughter and by the presence or absence of a mirthful confederate. As they viewed and rated cartoons for funniness, subjects were videotaped and their overt mirth was subsequently scored. Five measures of overt mirth were obtained for each subject, visual behavior was also measured for subjects accompanied by the confederate.

Multivariate and univariate analyses of variance revealed that subjects accompanied by the confederate demonstrated more overt mirth and rated the cartoons funnier than did subjects who were alone. Although canned laughter failed to enhance measures of humor appreciation, the canned laughter and confederate manipulations interacted significantly: Subjects accompanied by the confederate, but not subjects alone, laughed less frequently when canned laughter

was present than when it was absent. The predicted interaction between field dependence-independence and the confederate manipulation was nonsignificant in the multivariate analysis but was significant on three measures involving laughter. Predictions relating field dependence-independence to canned laughter effects and to visual behavior were not supported.

Main effects of the mirthful confederate were tentatively attributed to motivational aspects of social facilitation; interaction effects involving canned laughter were interpreted in terms of psychological reactance. Concerning field dependence-independence, the two groups of subjects appeared to differ more in the manner rather than the overall extent to which they were influenced by the confederate. Specifically, field-dependent subjects laughed more in the presence than the absence of the confederate in an apparent attempt to promote sharing of the situation. Nonsignificant results for visual behavior were attributed to situational factors which reduced the likelihood that subjects would look at the confederate.

CURRICULUM STUDIORUM

Eileen Donoghue was born on March 30, 1946 in Winnipeg, Manitoba. She received the Bachelor of Arts degree with a major in Psychology from the University of Ottawa in 1968. In 1971, she received the Master of Psychology degree from the same university. The title of her 1976 Interim Report was The Relationship Between Pupils' Anxiety and French Immersion and Non-Immersion Grade 1 Programs.

ACKNOWLEDGEMENTS

This thesis was prepared under the supervision of Professor Michael McCarrey, Ph.D., of the School of Psychology of the University of Ottawa. His guidance and encouragement throughout the preparation of this thesis were sincerely appreciated. The author is also indebted to Associate Professor Richard Clément, Ph.D., of the School of Psychology who served as the interim supervisor during Dr. McCarrey's sabbatical leave. Dr. Clément's help with theoretical and statistical issues was particularly appreciated.

Sincere thanks are also extended to the following people at the University of Ottawa for their individual contributions to this research: Dr. Jim Carlson and Mrs. Anne Hurd for their advice on statistical issues and computer programming; Dr. Agatha Sidlauskas for her generosity in providing the room and equipment required to conduct the experimental sessions; Mr. Manuel Maples and Mr. Robert Schieman for their expertise in developing and assembling the technical equipment used in this study.

Mrs. Sylvia Paul's generous assistance in typing was also appreciated as was the word processing skill of Miss. Nicole Carrière.

The author would especially like to thank her parents, family, and friends for their enduring love and support during the completion of this research.

TABLE OF CONTENTS

Chapter		<u>Page</u>
I.	REVIEW OF THE LITERATURE.....	1
	Social Influence in Humor.....	2
	Field Dependence-Independence and Social Behavior.....	7
	Summary, Rationale, and Hypotheses.....	30
II.	METHOD.....	39
	Subjects.....	39
	Measurement of Field Dependence- Independence.....	42
	Selection of Stimulus Material.....	45
	Canned Laughter Manipulation.....	51
	Confederate Manipulation.....	53
	Apparatus.....	62
	Procedures During the Experimental Session.....	66
	Scoring of the Subjects' and Confederate's Behavior.....	72
	Dependent Variables.....	84
	Experimental Design and Statistical Analyses.....	87
III.	RESULTS.....	90
	Reliability.....	90
	Tests of the Research Hypotheses.....	96
	Postexperimental Interview.....	126
IV.	DISCUSSION OF RESULTS.....	131
	Restatement of the Study's Purpose.....	131
	Discussion of Results for the Research Hypotheses.....	131
	Suggestions for Future Research.....	164
	REFERENCES.....	168
	APPENDICES.....	188

LIST OF TABLES

Table	<u>Page</u>
1. Descriptive Statistics for PRFT Scores Obtained from the Final Sample of 184 Subjects.....	44
2. Means and Ranges for Confederate Behaviors During 13 Experimental Sessions.....	57
3. Instances of Confederate Errors in Exhibiting Overt Mirth.....	60
4. Interobserver Reliabilities for Measures of Humor Appreciation.....	91
5. Percent of Observer Agreement for Frequency of Eyeing, Looking, and Gazing at the Confederate's Face.....	94
6. Measurement of Duration (sec): Means, Standard Deviations, and Significance of Differences Between Means for Observers.....	97
7. Correlation Matrix of the Six Measures of Humor Appreciation.....	99
8. Summary of Multivariate Analyses of Variance of Measures of Humor Appreciation.....	101
9. Cell Means for the Six Measures of Humor Appreciation.....	102
10. <u>F</u> Ratios for the 2 X 2 X 2 X 3 Univariate Analysis of Variance Conducted on Each Measure of Humor Appreciation.....	105
11. Means for Five Measures of Humor Appreciation by Blocks of Cartoons.....	108
12. Tukey Ratios (<u>q</u>) for Differences Between Blocks of Cartoons on Five Measures of Humor Appreciation.....	109
13. Summary of the 2 X 2 Analysis of Variance for Frequency of Eyeing the Confederate's Face...	117
14. Summary of the 2 X 2 Analysis of Variance for Frequency of Looking at the Confederate's Face.....	118

Table

15.	Summary of the 2 X 2 Analysis of Variance for Frequency of Gazing at the Confederate's Face.....	119
16.	Total Frequency of Eyeing, Looking, and Gazing at the Confederate's Face.....	120
17.	Summary of the 2 X 2 Analysis of Variance for Duration of Gazing at the Confederate's Face.....	122

LIST OF FIGURES

Page

Figure

1.	Frequency of Laughter as a Function of the Canned Laughter and Confederate Manipulations.....	106
2.	Ratings of Overt Mirth as a Function of the Canned Laughter Manipulation and Blocks of Cartoons.....	111
3.	Duration of Laughter as a Function of the Canned Laughter Manipulation and Blocks of Cartoons.....	112
4.	Funniness Ratings as a Function of Field Dependence-Independence, the Confederate Manipulation, and Blocks of Cartoons:.....	114

LIST OF APPENDICES

	<u>Page</u>
Appendix	
A. PROCEDURE FOR THE PORTABLE ROD-AND-FRAME TEST (PRFT).....	188
B. INSTRUCTIONS, DEFINITIONS, AND EXAMPLES PROVIDED FOR THE INITIAL CATEGORIZATION OF CARTOONS ACCORDING TO PREDOMINANT THEME.....	191
C. INSTRUCTIONS FOR RATING CARTOONS FOR FUNNINESS AND DIFFICULTY.....	195
D. FINAL SAMPLE OF 18 CARTOONS.....	196
E. INSTRUCTIONS FOR RATING CARTOONS IN THE NO CANNED LAUGHTER CONDITION.....	214
F. INSTRUCTIONS FOR RATING CARTOONS IN THE CANNED LAUGHTER CONDITION.....	215
G. LEHIGH VALLEY MODULAR HUMAN TEST SYSTEM....	216
H. POSTEXPERIMENTAL INTERVIEW.....	217
I. INDIVIDUAL SCORING SHEET FOR OVERT MIRTH...	219
J. SUPPLEMENTARY DATA ON INTEROBSERVER AND INTRAOBSERVER RELIABILITY FOR MEASURES OF HUMOR APPRECIATION.....	220
K. INTEROBSERVER AGREEMENT AND TEMPORAL STABILITY OF HUMOR APPRECIATION MEASURES FOR SUBJECTS EXPOSED TWICE TO THE CARTOONS.....	221
L. PRINCIPAL FACTOR ANALYSIS WITH VARIMAX ROTATION OF THE SIX MEASURES OF HUMOR APPRECIATION.....	222
M. SUMMARIES OF THE UNIVARIATE ANALYSES OF VARIANCE ON THE SIX MEASURES OF HUMOR APPRECIATION.....	223
N. INSTRUCTIONS FOR CLASSIFYING SUBJECTS' REFERENCES TO THE CANNED LAUGHTER.....	229
O. INSTRUCTIONS FOR CLASSIFYING SUBJECTS' REFERENCES TO THE CONFEDERATE.....	230

INTRODUCTION

To study humour means that, from the start, one accepts remaining enclosed within a paradox: focussing on an undefined object; endeavouring to grasp it while it is essentially mobile; dissecting it while analysis kills it, imprisoning it in an experimental frame while it can only really exist without any constraint. We are conscious of the risks and limitations of such a venture and we present our work as a mere exploration which raises more questions ... than it provides answers. (Bariaud, 1977, p. 229)

Whether attracted by its many paradoxes, its prevalence in everyday life, or simply by its enjoyable nature, philosophers, psychologists, and even some humorists have attempted to come to an understanding of humor. In responding to this challenge, humor theorists have offered a number of explanations of the nature of humor and have discussed the factors which influence it. Considering humor as a response in the form of laughter or smiling, early theorists noted two factors, among others, relevant to an understanding of humor. These factors included situational variables, such as the presence of other people, and individual differences. With respect to situational variables, the view that laughter is a social phenomenon and a highly contagious behavior has come to be reflected in the adage: "Laugh, and the world laughs with you". With respect to individual differences, people are commonly viewed as varying in the extent of their disposition to laugh or smile.

Early humor theorists, however, provided little empirical evidence to support their speculations on the role of situational variables and individual differences in humor appreciation. Contributing further to this dearth of evidence is the fact that, until recently, behavioral scientists tended to neglect the study of humor. The last 10 years, however, have witnessed an increased interest in humor among a variety of academic disciplines, including psychology. As a result, the roles played by situational variables and individual differences in humor appreciation have received increased attention. For example, systematic research with children has begun to demonstrate the effects of a companion's presence and behavior on humor appreciation. With respect to individual differences, studies with a theoretical basis are being advocated in contrast to earlier humor research which focused on broad areas of individual difference (e.g., sex) or used samples of subjects selected with no apparent rationale.

As situational variables and individual differences begin to be explored, questions arise concerning their joint interaction. For example, does a companion's influence on humor appreciation vary across different types of people? The present study addresses itself to such questions.

More specifically, this study examines the effects of two situational variables, namely a mirthful companion and canned laughter, on humor appreciation. Although both variables have been the object of a limited amount of

research, no study with adults has examined their combined effects. In terms of individual differences, the effects of these two variables are examined in a sample of university students, each of whom was assessed on an individual difference dimension having theoretical and empirical relevance to susceptibility to social influence, namely field dependence-independence. Thus the present study examines the role of situational variables in humor appreciation and investigates whether the effects of such variables vary systematically along an individual difference continuum.

In terms of methodology, the present study uses a multioperational and multivariate approach in which several measures of humor appreciation are obtained and submitted to overall multivariate analyses prior to an examination of univariate results. Such an approach is in contrast to previous research which tended to involve one or two measures of humor appreciation and, in cases of multiple dependent measures, tended to restrict analysis of results to univariate approaches.

The contents of this thesis include a review of the literature and research hypotheses (Chapter I), a description of the method used to test the hypotheses (Chapter II), results of the statistical analyses (Chapter III), and a general discussion of the results (Chapter IV).

CHAPTER I

REVIEW OF THE LITERATURE

"There seems to be no lengths to which humorless people will not go to analyze humor" (Benchley, cited in Levine, 1977, p. 127). If this statement is true, psychologists, until recently, could not be considered humorless. The apparent aversion of psychologists to studying humor is suggested by the following contrast: In the 22-year period from 1950 to 1972, approximately 5,000 publications appeared dealing with the subject of anxiety (Spielberger, 1972); in the 71-year span from 1900 to 1971, approximately 400 articles or books were available on humor in the English language (Goldstein & McGhee, 1972). This dearth of interest shown by psychologists is in contrast to the importance accorded humor and laughter in most people's lives. Evidence of this importance is found in the reported frequency of laughter (Edgerly & Pollio [cited in Pollio & Edgerly, 1976]; Young, 1937), the value placed on a sense of humor (Allport, 1961; Hassett & Houlihan, 1979), and the income set aside for play and humor (Berlyne, 1969).

Within the last 10 years, however, psychologists have shown an increasing interest in the study of humor and laughter (Chapman & Foot, 1976, 1977; Goldstein & McGhee, 1972; Gruner, 1978; McGhee, 1979; McGhee & Chapman, 1980), particularly in the study of the social influence of humor

(McGhee, 1977). Two types of variables frequently cited as important in social influence are those involving individual differences and situational variables. To date, however, most studies on social influence in humor have examined individual difference and situational variables separately rather than in interaction. Two situational variables in particular have been shown to be important in influencing the appreciation of humorous materials such as jokes or cartoons. These variables involve situations in which social influence arises from the presence and behavior of live confederates and situations in which social influence arises from the recorded or canned laughter of a group of people.

Social Influence in Humor

The Influence of Confederates

Though limited in number, studies using confederates to influence humor appreciation in adults have produced fairly consistent results (Gadfield, 1977; Murphy, 1975; Osborne & Chapman, 1977; Young & Frye, 1966). Specifically, in dyadic situations, the presence of a mirthful confederate has been found to increase subjects' ratings of the funniness of the material presented and/or subjects' overt mirth relative to conditions involving a nonresponsive confederate (Gadfield, 1977; Osborne & Chapman, 1977). In situations involving more than one subject, overt mirth and funniness ratings have been highest when confederates laughed and smiled, lowest when confederates responded negatively, and

intermediate when confederates were absent (Murphy, 1975; Young & Frye, 1966). These confederate effects have occurred when overt mirth was measured in terms of frequency and/or duration of laughter or smiling (Murphy, 1975; Osborne & Chapman, 1977; Young & Frye, 1966) and when mirth was rated on a 5-point scale (Gadfield, 1977). Additionally, confederate effects have been observed with a variety of humorous materials including sexual and nonsexual cartoons (Gadfield, 1977), comedy albums (Murphy, 1975; Osborne & Chapman, 1977), and sexual and nonsexual jokes (Young & Frye, 1966).

Research by Osborne and Chapman (1977) is illustrative of studies involving both mirthful and nonresponsive confederates. In this study, young female adults listened to comedy albums either alone, in the presence of a nonresponsive confederate, or in the presence of a female confederate who matched her smiling and laughter to similar responses initiated by the subject. In terms of overt mirth, frequency and duration of laughter as well as frequency of smiling were lowest in the presence of the nonresponsive confederate, highest in the presence of the responsive confederate, and intermediate in the alone condition. However, data for laughter were not analyzed statistically due to the large number of subjects in the nonresponsive companion condition who did not laugh at all. No significant differences between conditions occurred for the funniness ratings of the material. The failure to find

significant differences on funniness ratings and the inability to analyze statistically the laughter data may be related to the limited sample size which consisted of 31 subjects divided among three treatment conditions.

Additionally, in common with similar studies involving confederates (Gadfield, 1977; Young & Frye, 1966), Osborne and Chapman (1977) failed to provide reliability data for any of the dependent measures.

In summary, studies with adults have indicated that mirthful confederates generally increase humor appreciation while nonresponsive or negatively responding confederates decrease humor appreciation relative, in both cases, to conditions in which confederates are absent (Murphy, 1975; Osborne & Chapman, 1977; Young & Frye, 1966). Studies involving children have also reported the enhancing effects of mirthful confederates on children's humor appreciation (Chapman, 1974, 1975b; Chapman & Wright, 1976). However, in contrast to studies with adults, nonresponsive confederates have increased rather than decreased children's responsiveness to humorous material relative to an alone condition (Chapman, 1974; Chapman & Wright, 1976).

As is evident from the foregoing review, the influence of confederates on adult's humor appreciation remains largely unexamined. For example, only one study with adults has compared humor appreciation in an alone condition to humor appreciation in a dyadic situation involving a confederate (Osborne & Chapman, 1977). More studies in this

5

area are needed not only to examine the effects of a confederate on the humor appreciation of another adult, but also to explore the role that individual difference variables may play in influencing confederate effects. A need for similar studies is also apparent in the area of canned laughter.

The Influence of Canned Laughter

In studies with adults, canned laughter has rather consistently enhanced overt mirth (Chapman, 1973; Cupchik & Leventhal, 1974; Fuller, 1977; Fuller & Sheehy-Skeffington, 1974; Nosanchuk & Lightstone, 1974; Smyth & Fuller, 1972). Its effect on funniness ratings, however, has been more varied (Chapman, 1973; Cupchik & Leventhal, 1974; Fuller, 1977; Fuller & Sheehy-Skeffington, 1974; Mielke [cited in Zillmann, 1977]; Nosanchuk & Lightstone, 1974; Smyth & Fuller, 1972). All studies have reported some increase in funniness ratings following the addition of canned laughter. However, this increase has not always been statistically significant (Chapman, 1973; Nosanchuk & Lightstone, 1974) nor has it applied to all combinations of subjects and humorous materials, varying according to the subjects' sex, instructional set, and cartoon quality (Cupchik & Leventhal, 1974). Compared to its consistent effects on the overt mirth of adults, canned laughter has less consistently enhanced the overt mirth of high school and elementary school students (Brodzinsky, Cundari, & Aiello [cited in McGhee, 1979]; Kosslyn & Henker, 1970; Leventhal & Mace, 1970).

Illustrative of studies using canned laughter with adults is Chapman's research (1973) in which male and female university students individually listened to 10 tape-recorded jokes preselected on the basis of content, length, funniness, and originality. Half the subjects heard group laughter following each joke; the other half listened to nondubbed versions of the jokes. As subjects rated the jokes for funniness, their overt mirth was unobtrusively rated by the experimenter. Analyses of variance revealed that overt mirth was significantly enhanced by the addition of canned laughter, although the difference in funniness ratings between the dubbed and nondubbed tapes was nonsignificant. Chapman (1973) failed, however, to provide reliability data for measures of overt mirth.

In summary, although canned laughter has rather consistently enhanced the overt mirth of adults, its effects on funniness ratings have varied. As in the case of confederates, the effects of canned laughter on humor appreciation should be considered within the context of individual differences. Unevenness in the observed results for these two forms of social pressure might be due to much intersubject variability of response. In this respect, one individual characteristic, field dependence-independence, has definite theoretical implications for susceptibility to social influence.

Field Dependence-Independence and Social Behavior

Nature of Field Dependence-Independence

Field dependence-independence is an aspect of the global-analytic cognitive style which has been described in some detail in a variety of sources (Witkin, 1965; Witkin, Dyk, Faterson, Goodenough, & Karp, 1962/1974; Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954/1972; Witkin, Moore, Goodenough, & Cox, 1977). Consistent individual differences in perception were originally conceptualized by Witkin et al. (1954/1972) in terms of a perceptual style labeled field dependence-independence which tapped the individual's ability to separate an item from a surrounding visual field. The uncovering of consistent relationships between this perceptual continuum and intellectual functioning led to the conceptualization of the global-analytic style. Witkin et al. (1962/1974) suggested that this style involved contrasting ways of approaching a field, whether the field was immediately present as in the case of perceptual functioning, or represented symbolically as in the case of intellectual functioning. Consistency of performance across perceptual, intellectual, emotional, motivational, defensive, and social areas was then conceptualized in terms of the differentiation hypothesis (Witkin et al., 1962/1974). According to this hypothesis, individuals manifesting relatively differentiated functioning in one psychological area (i.e., functioning characterized by specialization, specificity, increased internal determination, and complex

integration) were also likely to function in a relatively differentiated manner in other psychological areas.

As described by Witkin et al. (1962/1974), the experience of the relatively differentiated individual is articulated; that is, experience is analyzed and structured whether it stems from within the person or from the field outside. This means that the relatively differentiated individual "has the ability to perceive items as discrete from their background, to reorganize an unorganized field, and to impose structure on a field which has little inherent structure" (Witkin et al., 1962/1974, p. 14). The perceptual style of field independence thus represents a relatively differentiated mode of perception, characterized as it is by the ability to resist the surrounding visual framework and to separate an embedded item from its surrounding field. Field-dependent perception, in contrast, is characterized by the relative fusion of an item with its field, and represents a relatively undifferentiated mode of perception.

Since the differentiation hypothesis proposes that self-consistency across psychological areas is a function of differentiation, Witkin et al. (1962/1974) proposed that the field-dependence-independence dimension could "serve as a 'tracer element'" (p. 24) in identifying this general level of differentiation; that is, an individual's standing on the field-dependence-independence continuum could be considered

indicative of his level of differentiation in other areas of psychological functioning.

One aspect of differentiated functioning, namely sense of separate identity, holds definite implications for susceptibility to social influence in humor and laughter. As defined by Witkin et al. (1962/1974, p. 134), a sense of separate identity involves an awareness of one's own needs, feelings, and attributes as distinct from those of others; an experience of the self as segregated; and the availability of internal frames of reference for defining the self and for interacting with the environment. Since a well developed sense of separate identity is associated with differentiated functioning, Witkin et al. (1962/1974) suggested that relatively field-dependent people, compared to relatively field-independent people, are less aware of their own needs and feelings as distinct from those of others and more reliant on external frames of reference in defining themselves and in interacting with the environment. Since other people constitute one of the principal external reference points, it has been proposed that, compared to relatively field-independent people, relatively field-dependent people are more susceptible to social influence and more attentive to social information (Witkin & Goodenough, 1977). Such differences between field-dependent and field-independent subjects could be expected to play an important role in the social influence of humor appreciation.

Susceptibility to Social Influence

Two independent reviews dealing with differential susceptibility to social influence on the part of field-dependent and field-independent individuals have led to the same tentative conclusion that differences in response to social referents will likely appear when subjects interact with live or simulated group members (Karp, 1977; Witkin & Goodenough, 1977). Although results across such studies are not totally consistent, a trend for significant relationships between field dependence-independence and susceptibility to social influence is evident in studies involving interaction with live or simulated group members (Antler, 1965; Birmingham, 1974; Birnbaum, 1975; Boschi & Loprieno, 1968; Gabrenya & Arkin, 1979; Linton, 1954, 1955; Mausner & Graham, 1970; Oltman, Goodenough, Witkin, Freedman, & Friedman, 1975; Paeth, 1973; Rosner, 1957; Shulman, 1976; Simon, 1977; Solar, Davenport, & Bruehl, 1969; Wallach, Kogan, & Burt, 1967; Weinberg, 1970). Among these studies, generally consistent evidence of differential susceptibility to social influence has come from research involving face-to-face interaction with confederates during the performance of judgmental tasks (Antler, 1965; Boschi & Loprieno, 1968, Rosner, 1957; Shulman, 1976). Studies which have minimized face-to-face contact during judgmental tasks by preventing subjects from seeing their fellow participants have at times indicated (Linton, 1954, 1955; Paeth, 1973; Weinberg, 1970) and at other times failed to indicate

(Birmingham, 1974; Mausner & Graham, 1970; Simon, 1977) the expected significant relationships between field dependence-independence and yielding to social influence.

Although some studies which eliminated interaction with live or simulated group members nevertheless revealed the expected relationship between field dependence-independence and susceptibility to social influence (Weiss & Shaw, 1979), nonsignificant relationships have generally been observed in studies which eliminated interaction through the use of such social referents as tape-recorded voices (Balance, 1968; Busch & De Ridder, 1973), an absent group's bogus answers (Berry, 1967; Berry & Annis, 1974; Dawson, Young, & Choi, 1974; Rubin, 1969), video-taped group discussions (Colker, 1973), or an authoritative source's name, or written communication (Bernstein, 1976; Doktor & Hamilton, 1973; Gary, 1968; Glass, Lavin, Henchy, Gordon, Mayhew, & Donohoe, 1969; Goebel, 1967; Kumpf & Götz-Marchand, 1973).

The suggestion that interpersonal interaction is important for the appearance of differential susceptibility to social influence is congruent with the frequent finding of nonsignificant relationships between field dependence-independence and paper-and-pencil measures of acceptance of authority, acquiescent response set, approval motivation, and various aspects of dependency (Cowan, 1964; Farley, 1974; Fisk, 1970; Goldstein, Neuringer, Reiff, & Shelly, 1968; Halm, 1968; Lewis, 1968; Ohnmacht, 1968). Also congruent with the suggested importance of live interaction

are results of studies on interpersonal orientation which is defined as the favoring of interpersonal situations over impersonal ones (Witkin & Goodenough, 1977). When examined in relation to field dependence-independence, interpersonal orientation has been operationalized in a variety of ways including the production of social words (Birnbaum, 1975; Goldberger & Bendich, 1972; Kofman, 1977), solitary vs. social delinquent style (Papen, 1976), freedom from social distractibility (Beckerle, 1967), frequency of social contacts among the elderly (Tramer & Schludermann, 1974), and educational/vocational interests, choices, and achievements (Barrett & Thornton, 1967; Clar, 1971; De Cosmo, 1977; Heath, 1964; Hunt & Randhawa, 1973; Pierson, 1965; Scheibner, 1970; Sofman, Hajosy, & Vojtisek, 1976; Stein, 1968; Zytowski, Mills, & Paepe, 1969). Results across these various areas have indicated that evidence of a systematic relationship between field dependence-independence and interpersonal orientation "is often conflicting, though on balance positive" (Vernon, 1972, p. 386). For example, in studies on interpersonal distance in dyads, relatively field-dependent individuals assumed closer interpersonal distances than did relatively field-independent people when orally presenting a topic (Justice, 1970) and when engaging in conversation (Holley, 1972). In addition, physical closeness during clinical interviews differentially affected the behavior of field-dependent and field-independent people depending on

the nature of the interviewer's feedback (Greene, 1976). However, in contrast to the studies just cited which involved live interaction, studies using paper-and-pencil or other indirect measures of interpersonal distance failed to demonstrate systematic relationships between personal space and field dependence-independence (Evans, 1970; Wineman, 1974).

Although interpersonal interaction appears to be important in demonstrating the relationship between field dependence-independence and susceptibility to social influence, such interaction may not be sufficient for the emergence of this relationship. This suggestion is supported by the inconsistent results obtained in studies which examined the effects of positive social reinforcement and social punishment on field-dependent and field-independent people (Becker, Doctor, Miranda, & Wallace, 1971; Carrigan, 1967; Cooperman, 1977; Evans, 1970; Ferrell, 1971; Fitz, 1971; Gates, 1971; Gillies & Bauer, 1971; Konstadt & Forman, 1965; Paclisanu, 1970; Raab, 1974; Randolph, 1971; Ridge, 1965; Riemer, 1968; Wade, 1971). As noted by Witkin and Goodenough (1977), the element of ambiguity, absent in most of these studies, may be a necessary but not sufficient condition for differences to appear between field-dependent and field-independent subjects in susceptibility to social influence. Congruent with the suggested importance of ambiguity is the fact that studies which provide some of the strongest evidence for the

predicted relationships between field dependence-independence and susceptibility to social influence involved judgmental tasks in which there was no objectively correct response or in which the objectively correct response was difficult to determine (Antler, 1965; Boschi & Loprieno, 1968; Linton, 1954, 1955; Paeth, 1973; Rosner, 1957; Shulman, 1976; Weinberg, 1970).

That ambiguity alone may be insufficient to produce differences between field-dependent and field-independent subjects in susceptibility to social influence is suggested by the trend toward nonsignificant results in studies which attempted to influence subjects' judgments by such means as an authoritative source's name or communication (Bernstein, 1976; Doktor & Hamilton, 1973; Gary, 1968; Glass et al., 1969; Goebel, 1967; Kumpf & Götz-Marchand, 1973). Perhaps the joint use of subject interaction and a judgmental task is more likely to produce the expected differences between field-dependent and field-independent subjects than either subject interaction or ambiguity alone. It may be noted, however, that Witkin and Goodenough's (1977) use of the term "ambiguity" is itself somewhat ambiguous, since it is accorded such diverse meanings as: the absence of clear information for forming opinions, lack of instructions on what to expect, and insufficient guidance or feedback from the experimenter.

In addition to the elements of actual interaction and ambiguity, Witkin and Goodenough (1977) have suggested that,

for differential susceptibility to social influence to emerge, the person interacted with should be seen as a likely source of information for resolving the ambiguity. Congruent with this suggestion is the study by Mausner and Graham (1970) which raised the possibility that a subject's belief in the competence of his partner may influence the extent to which relatively field-dependent subjects are influenced by that partner. It should be noted, however, that in most of the studies cited in the present review, manipulation of the partner's competence as a source of information was not attempted. Perhaps it is simply necessary that those present with the subject be credible though not necessarily expert sources of information.

In summary, the literature reviewed generally appears to support the contention by Wilkin and Goodenough (1977) that differential susceptibility to social influence on the part of field-dependent and field-independent subjects is most likely to appear in situations involving interaction with live or simulated group members in ambiguous situations where the other is seen as a likely source of information for removing the ambiguity. There is also evidence which suggests that field-dependent and field-independent subjects differ in attentiveness to social information, a trait which like susceptibility to social influence has implications for humor appreciation.

Attentiveness to Social Information

Studies dealing with differential attentiveness to social information have centered around the behaviors of looking at others, recognizing faces, and recalling or recognizing incidental social stimuli other than faces. In general, results dealing with looking at others and recognizing faces have indicated that field-dependent people tend to look more at others in evaluative situations than do field-independent people (Konstadt & Forman, 1965; Mones, 1975; Nevill, 1974; Ruble & Nakamura, 1972), although they are not necessarily superior in correctly labeling facial affect (Pellegreno & Stickle, 1979; Sabatelli, Dreyer, & Buck, 1979) or in recognizing the faces of others (Adcock & Webberley, 1971; Baker [cited in Witkin & Goodenough, 1977]; Beijck-Docter & Elshout, 1969; Crutchfield, Woodworth, & Albrecht, 1958; Hoffman & Kagan, 1977; Lavrakas, Buri, & Mayzner, 1976; Messick & Damarin, 1964). Based on a series of studies relating field dependence-independence to looking at others, Karp (1977) concluded that field-dependent people looked more at others than did field-independent people when the situation involved self-evaluation or when success at a task required information which the subject lacked.

Attentiveness to social information has also been assessed in terms of the incidental recall and/or recognition of cues such as social words, speaker characteristics, social aspects of tasks, and names in a subject pool (Birnbaum, 1975; Brillhart, 1970; Colker, 1973; Eagle,

Fitzgibbons, & Goldberger, 1966; Eagle, Goldberger, & Breitman, 1969; Fitz, 1971; Fitzgibbons & Goldberger, 1971; Fitzgibbons, Goldberger, & Eagle, 1965; Oltman et al., 1975; Trego, 1972). The expected relationships between field dependence-independence and the recall or recognition of such social cues has not been consistently confirmed. In fact, there is evidence that field-independent subjects are superior to field-dependent subjects in the recall of differentiated aspects of social interaction when a set is given to focus on social interaction (Colker, 1973). In resolving these divergent results, it has been suggested that the superiority of field-dependent people in recognizing or recalling social cues (may be moderated by the relatedness of the distractors (De Boeck & Claeys, 1978) and may appear only when more potent social stimuli are not present (Eagle et al., 1966) and when subjects are free of experimentally induced sets influencing the direction of their attention (Witkin & Goodenough, 1977).

The following statement by Goodenough (1976) appears to summarize much of the data on the relationship between field dependence-independence and various aspects of attentiveness to social information:

Though not all studies are consistent, the finding that field-dependent people are better at the incidental learning of social material in some studies is particularly dramatic in the context of the slight but general superiority of field-independent subjects in similar tasks. Field-dependent people are not superior in the intentional learning of social information ... and they are not superior in the incidental

learning of nonsocial information. These facts suggest that field-independent people ordinarily pay less attention to social cues than do field-dependent people and, therefore, acquire less social information unless their attention is specifically focused on such cues by the examiner. (p.686)

Previously cited theory and research has indicated that field dependence-independence is related to social influence and attentiveness to social information. Additionally, as previously discussed, social variables are important in humor appreciation. However, the relationship between field dependence-independence and the social situation surrounding humor remains largely unexplored as is evident from a review of the few studies which have examined the relationship between field dependence-independence and various aspects of humor.

Humor Research Involving Field Dependence-Independence

Only five studies have been conducted relating field dependence-independence to humor and laughter. Of these five studies, three have focused on abilities or tendencies involved in perceiving humor (Lefcourt, Gronnerud, & McDonald, 1973; Lefcourt, Sordoni, & Sordoni, 1974; Overlade, 1954) while the remaining two have dealt with both the appreciation and creation of humor (Lefcourt, Antrobus, & Hogg, 1974; Mones, 1975). Both types of studies have produced evidence that field dependence-independence is relevant to the comprehension, covert appreciation, and creation of humor.

In terms of abilities related to the perception of humor, Overlade (1954) predicted that performance on a form of the Gottschaldt Figures Test would be related to the perception of humor since both types of performance involve the discovery of a hidden element, specifically a hidden figure in the Gottschaldt Figures Test and a hidden meaning in the case of humor perception. To test this prediction, Overlade constructed a multiple-choice humor test consisting of 50 jokes, each joke involving four alternative punchlines. This humor test, along with the Gottschaldt Figures Test, was administered to 65 university students, 56 male and 9 female. For the total group of subjects, a significant correlation was obtained between the humor test and the figures task, indicating that subjects who performed well on the figures task tended to select as funniest those punchlines which other subjects also considered funniest. However, for a subgroup of 37 students for whom intelligence test scores were available, the product-moment correlation between the humor test and the figures task was nonsignificant as was the partial correlation which controlled for intelligence. With respect to these latter nonsignificant findings, the subgroups of subjects involved did not represent a random sample of the total group. In addition, the reduction in the number of subjects could itself be responsible for the loss of significance.

Whereas Overlade (1954) examined the relationship between field dependence-independence and the preference for

popular joke punchlines, Lefcourt and his associates related field dependence-independence to a different aspect of humor perception. Specifically, Lefcourt et al. (1973) predicted that, compared to other subjects classified on the dimensions of field dependence-independence and locus of control, field-independent subjects with an internal locus of control would show both an earlier awareness of the dissonant elements in an experimental task and earlier signs of attitude change toward the task. This prediction was based on the contention that locus of control and field dependence-independence share similar behavioral referents such as degree of reliance on internal as opposed to external standards.

To test this prediction, 65 male undergraduates were designated as external or internal and as field dependent or field independent based on the Internal-External Control Scale and a Portable Rod-and-Frame Test (PRFT). Subsequently, each subject was asked to free-associate aloud to a list of words which, initially unbeknownst to the subject, contained an increasing number of sexual double entendres. Videotapes of word association sessions for 54 of the subjects were scored for signs of recognition of the sexual nature of the word list. Measures were also obtained for overt mirth as indicated by frequency of laughter and smiling. Lefcourt et al. (1973) suggested that these latter measures "denote a distance from the task, and an appreciation of the experimenter's 'joke'" (p. 165). However, the

operational definitions used for scoring laughter and smiling were not mentioned, scoring procedures were not described, and data on interjudge reliability were not provided.

The results obtained by Lefcourt et al. (1973) indicated that sexual responses to double entendres and signs of attitude change toward the task occurred significantly earlier among field-independent compared to field-dependent subjects. Differences between these two groups of subjects were not significant on other measures such as overt mirth, though some support was obtained for predictions involving internal-field independent subjects. In short, compared to field-dependent subjects, field-independent subjects indicated earlier awareness of the sexual nature of the words, though they did not evidence greater mirth while performing the task.

Since sexual and nonsexual double entendres or dual meanings are frequent elements in humor formats such as jokes and cartoons, the finding by Lefcourt et al. (1973) that field-independent subjects showed earlier signs of recognition of sexual double entendres is relevant to the relationship between field dependence-independence and the comprehension and/or covert appreciation of traditional humor forms. The nonsignificant findings for overt mirth reported by Lefcourt et al. (1973) may be partially explicable in terms of the set given subjects and the nature of the stimulus materials. Specifically, a serious set

toward performing the task coupled with performance of this task in the presence of a serious experimenter may have severely inhibited the expression of overt mirth by both field-dependent and field-independent subjects. Since means and standard deviations for measures of overt mirth were not provided by Lefcourt et al. (1973), this explanation of the nonsignificant results for overt mirth remains tentative. The sexual nature of the materials presented may also have contributed to these nonsignificant findings by evoking responses which overrode possible effects of field dependence-independence on overt mirth.

In a reanalysis of the videotapes used by Lefcourt et al. (1973), Lefcourt, Sordoni, and Sordoni (1974) investigated the relationship between field dependence-independence, locus of control, and three types of overt mirth. Based on the contention that internal subjects are less at the mercy of immediate experience than external subjects, these researchers predicted that internals would make greater use of the types of overt mirth which indicated distancing from an evaluative task. No specific predictions were made in terms of field dependence-independence, possibly because this measure of cognitive style had produced nonsignificant results for overt mirth in the original study. In contrast to the previous analysis of the videotapes, the present study involved 48 as opposed to 54 subjects, operational definitions were provided for each dependent measure, scoring procedures were described, and

interjudge reliability data were presented. However, no significant main effects or interactions were obtained using the dimension of field dependence-independence. The possibilities discussed previously with respect to similar nonsignificant findings by Lefcourt et al. (1973) may apply to this study as well.

The two remaining studies dealing with field dependence-independence and humor focused on both humor appreciation and humor creation (Lefcourt, Antrobus, & Hogg, 1974; Mones, 1975). In the first of these studies, Lefcourt, Antrobus, and Hogg (1974) hypothesized that, compared to field-dependent subjects, field-independent subjects would laugh and smile more and make more humorous comments when role playing success and failure experiences in academic and social spheres with an experimenter who responded with serious or ludicrous comments. These predictions were based on the contention that overt mirth and humor creation are distancing mechanisms which field-independent subjects are more likely to use to cope with evaluative experiences. To test these predictions, the role-playing sessions of 64 males from senior high school and university were videotaped and scored. Interjudge reliability coefficients for overt mirth and humor creation were .86 or higher.

In terms of overt mirth, no significant main effects were obtained for field dependence-independence or for locus of control; laughter and smiling proved to be determined

more by role characteristics than by personality variables. In terms of humor creation, the results were more complex since significant three-way interactions were obtained on both social and academic roles between field dependence-independence, experimenter's comments, and success-failure. As predicted, there were indications of more humor creation by field-independent than by field-dependent subjects in failure situations.

The second study involving both humor creation and humor appreciation (Mones, 1975) was based on the general rationale that "individuals who have learned differentially to recognize and discriminate internal and external cues would differ in their ability to comprehend, appreciate, and create humor" (p. 14). Specifically, Mones predicted that, compared to field-dependent subjects, field-independent subjects would create funnier cartoon captions and would demonstrate greater speed of humor comprehension. In addition, based on evidence of greater social orientation on the part of field-dependent subjects, it was predicted that, in dyadic situations where spontaneous humor could occur, field-dependent subjects would exhibit more nonverbal humor communication than field-independent subjects and would also make more verbal attempts at humor. Male and female undergraduates were used to test these hypotheses.

Mones' first hypothesis was confirmed by significant relationships between students' scores on the Group Embedded Figures Test (GEFT) and their scores on a Cartoon Captions

Test. As predicted, field-independent subjects tended to create funnier captions than did field-dependent subjects.

With respect to Mones' hypothesis involving speed of humor comprehension, findings were nonsignificant, indicating that field-dependent and field-independent subjects did not differ in the time required to unscramble sequences of uncaptioned cartoons.

The remaining hypotheses were tested by in a situation which was presented to subjects as a test of problem-solving ability. In this situation, members of dyads, matched or mismatched on field dependence-independence, took turns guessing the nature of two humorous and two neutral pictures. Subjects from the upper and lower quartiles of the GEFT were used to form these dyads, though the sexual composition of the 30 pairs of subjects was not mentioned. Subjects were observed through a one-way mirror and measurements made of the number of 30-second intervals in which eye contact, laughter, smiling, and grinning occurred for each dyad. Subjects' verbalizations were tape-recorded and subsequently scored for verbal attempts at humor. Operational definitions for these dependent measures were not indicated and scoring procedures were minimally described. However, with the exception of grinning which was omitted from subsequent statistical analysis, interjudge reliabilities for dependent measures were +.94 or better.

Each of the dependent measures obtained in this problem-solving situation was initially analyzed by means of

a one-way analysis of variance. Results of these analyses were nonsignificant for smiling, laughing, and humor creation, though in each case, as predicted, homogeneous field-dependent dyads scored higher than homogeneous field-independent dyads. A subsequent chi-square test applied to the smiling data for dyads was significant: Homogeneous field-dependent dyads smiled more than homogeneous field-independent dyads. Supplementary t tests comparing the average scores for the total samples of field-dependent and field-independent subjects were also nonsignificant for laughing, smiling, and humor creation, though results were again in the predicted direction. Finally, in terms of eye contact, a significant main effect for dyads was obtained, though results were not in the predicted direction since more eye contact occurred in homogeneous than heterogeneous dyads. In explaining this latter result, Mones speculated that increased frequency of eye contact might reasonably be expected in homogeneous dyads since subjects in this situation would be "on the same 'wave length'" (1975, p. 56).

Three final points may be noted with respect to Mones' research. First, an exploratory component of this study investigated the relationship between scores on the GEFT and the IPAT Humor Test of Personality. Few significant correlations were obtained between these two measures, indicating that field dependence-independence may not be

strongly related to preferences for different types of humor.

Second, the extent to which the sex of the subjects may have influenced Mones' findings in the problem-solving situation is unclear since the sexual composition of the dyads was not specified. In addition, although significant differences were reported between male and female subjects on measures of laughing and smiling, results for field dependence-independence were not analyzed separately for each sex.

Finally, Mones' predictions for overt mirth and humorous comments were contrary to those made by Lefcourt, Antrobus, and Hogg (1974) who predicted that field-independent subjects would make more rather than less use of overt mirth and humorous comments compared to field-dependent subjects. Differences in the experimental situations used in these two studies may account for these divergent predictions. Specifically, while Lefcourt's study involved a highly structured interaction in which the subject enacted success and failure roles with an experimenter, Mones' study involved more spontaneous interaction between peers in a somewhat less evaluative setting. However, the point may be well taken that in situations which are not clearly intended to be humorous, the meaning of laughter and smiling becomes more ambiguous and relationships between field dependence-independence and overt mirth may then be more difficult to predict.

To draw general conclusions about the relationship between field dependence-independence and humor is perhaps unwarranted in view of the limited number of studies in the area and the differences among these studies in the experimental situations utilized and the dependent variables examined. However, a few general comments concerning the results of these studies may be made.

First, with the exception of a supplementary analysis of smiling in Mones' study (1975), relationships reported between field dependence-independence and overt mirth have been nonsignificant (Lefcourt, Antrobus, & Hogg, 1974; Lefcourt et al., 1973; Lefcourt, Sordoni, & Sordoni, 1974). However, in each of these studies, including Mones', subjects were required to perform tasks which were introduced as being of serious intent. The particular set given the subjects as well as the performance of these tasks may have detracted from humor appreciation and contributed to the consistent failure to find significant differences in overt mirth between field-dependent and field-independent subjects. Additionally, the humor stimuli used in these studies were perhaps not particularly potent for the audiences used, consisting as they did of singly presented sexual double-entendre words (Lefcourt et al., 1973; Lefcourt, Sordoni, & Sordoni, 1974), "cliche-like jokes" (Lefcourt, Antrobus, & Hogg, 1974, p. 650), and two pictures prerated as humorous by two independent judges (Mones, 1975).

A second point is that field dependence-independence appears theoretically related to humor comprehension and/or covert appreciation. Supporting this suggestion is the finding by Overlade (1954) of a significant relationship between field dependence-independence and preference for certain types of punchlines; the finding by Lefcourt et al. (1973) that field-independent people showed earlier signs of recognition of sexual double entendres than did field-dependent people; and the finding by Lefever and Ehri (1976) that relatively field-independent subjects were better able than field-dependent subjects to identify ambiguities in sentences. The elements involved in these latter two studies, namely the recognition of sexual double entendres and of ambiguities in sentences, are elements frequently found in jokes and cartoons. It should be noted, however, that Mones (1975) found indications that field dependence-independence may not be related to humor comprehension or to preference for specific types of humor.

Finally, of the five studies which related field dependence-independence to humor, only two systematically varied experimental conditions on a social dimension: Lefcourt, Antrobus, and Hogg (1974) varied the comments made by the role-playing experimenter, and Mones (1975) matched or mismatched his dyads on the dimension of field dependence-independence. In terms of these social manipulations, the results of Mones' (1975) study were in the predicted direction but nonsignificant for both overt

mirth and humor creation. Results of the former study were also nonsignificant for overt mirth but were significant for humor creation (Lefcourt, Antrobus, & Hogg, 1974). As noted previously, the use of a serious set and possibly weak humor stimuli may have contributed to the scarcity of significant differences on social dimensions in these two studies.

Summary, Rationale, and Hypotheses

The foregoing review has examined two types of variables relevant to social influence in humor appreciation, namely the individual difference variable of field dependence-independence and the situational variables of canned laughter and the presence and behavior of confederates. Concerning the effects of these particular situational variables, research has been rather sparse and the results contradictory in certain respects. For example, research with children has consistently demonstrated that the presence of a mirthful confederate of the same age as the subject enhances overt mirth relative to an alone condition (Chapman, 1974, 1975b, Chapman & Wright, 1976). However, of the two studies with adults which have examined the influence of a mirthful confederate in a dyadic situation (Gadfield, 1977; Osborne & Chapman, 1977), only one (Osborne & Chapman, 1977) has compared alone and mirthful confederate conditions. This comparison, involving approximately 10 subjects in each condition, revealed no significant difference in frequency or duration of smiling

between alone and mirthful confederate situations. Studies involving the effects of canned laughter on adults' humor appreciation have also been infrequent and have yielded results which have been inconsistent in certain respects. For example, although canned laughter has consistently enhanced the overt mirth of adults, its effects on funniness ratings have been more diverse, varying in certain instances according to the subjects' sex and instructional set (Cupchik & Leventhal, 1974).

These latter studies involving subject characteristics such as sex indicate the relevance of some individual difference variables to social influence in humor appreciation. However, as noted by Leventhal and Safer (1977), many studies relating individual difference variables to humor appreciation have been atheoretical, lacking hypotheses as well as a rationale for selecting particular groups of subjects. Additionally, little research has been done on the interacting effects of situational and individual difference variables relevant to social influence in humor appreciation. Given evidence of the complex social nature of humor responsiveness (Brisland, Castle, Dann, McGarry, Smith, & Snow, 1977; Chapman, Smith, & Foot, 1980; Chapman & Speck, 1977; Davis & Farina, 1970; Giles & Oxford, 1970; Kane, Suls, & Tedeschi, 1977; Malpass & Fitzpatrick, 1959; McGhee, 1973, 1979; Murphy & Pollio, 1975; Perl, 1933; Prerost, 1977; Wolosin, 1975), research on such interactions would help to disentangle key variables in humor apprecia-

tion and would contribute to an understanding of how such variables interact in humor and laughter. The present study thus examines the interaction between the individual difference variable of field dependence-independence and the situational variables of canned laughter and a mirthful confederate.

The theoretical relevance of field dependence-independence to the effects of canned laughter and a mirthful confederate on humor appreciation resides primarily in the theoretically and empirically established corollaries of a sense of separate identity. Possessing a more developed sense of separate identity than field-dependent people, field-independent individuals are more aware of their own needs, feelings, and attributes as distinct from those of other. Equipped with a more developed sense of separate identity, field-independent subjects are also more reliant on internal as opposed to external frames of reference in interacting with the environment. Since other people constitute one of the principal external referents, field-dependent people are more susceptible to social influence and more attentive to social information compared to field-independent people.

Accordingly, given social influence in the form of a mirthful confederate and/or canned laughter, field-dependent subjects, compared to field-independent subjects, would be less aware of their own feelings of amusement as distinct from the apparent feelings of the mirthful confederate

and/or the apparent feelings of the mirthful individuals contributing to the canned laughter. Compared to field-independent people, field-dependent individuals would also be more reliant on the mirthful confederate and/or the canned laughter for determining their own feelings of amusement and the funniness of the humor stimuli presented. Given less awareness of their own feelings of amusement as distinct from those of others and greater reliance on the confederate and/or canned laughter, field-dependent individuals would be more attentive to the confederate and/or canned laughter than field-independent subjects and more susceptible to the social facilitation and conformity effects frequently stated to underlie the effects of canned laughter and a mirthful confederate (Chapman, 1973, 1974, 1975b, 1976; Chapman & Wright, 1976; Foot & Chapman, 1976; Fuller & Sheehy-Skeffington, 1974; Gadfield, 1977; Nosanchuk & Lightstone, 1974; Osborne & Chapman, 1977; Smyth & Fuller, 1972).

With respect to informational social influence operative in conformity effects (Deutsch & Gerard, 1955), field-dependent subjects, more so than field-independent subjects, would use information from the canned laughter and/or the confederate's overt mirth as evidence about reality and thus judge and respond to the humorous material in a manner similar to that of the confederate and/or in a manner similar to that of the individuals contributing to the canned laughter. According to normative social

influence operative in conformity effects (Deutsch & Gerard, 1955), the confederate's presence and overt mirth would induce field-dependent subjects, more so than field-independent subjects, to behave in a manner similar to that of the confederate in order to avoid being seen as different, ridiculed, or negatively evaluated by the confederate.

With respect to social facilitation effects, a mirthful confederate would exert greater influence on the humor appreciation of field-dependent than field-independent subjects because field-dependent subjects would be more susceptible to arousal (Zajonc, 1965), evaluation apprehension (Cottrell, 1968, 1972), and social sharing processes (Chapman, 1974; Chapman & Wright, 1976) underlying the social facilitation effects of a mirthful confederate. Differences in susceptibility to social facilitation processes would also contribute to the differential effects of canned laughter on the humor appreciation of field-dependent and field-independent individuals. For example, according to the perceptual model of social facilitation, canned laughter would focus the subjects' attention on aspects of the humor stimuli they might otherwise have missed (Tolman, 1968). Being more susceptible to social facilitation effects, such a perceptual effect would be more marked for field-dependent subjects and accordingly, field-dependent subjects would find the humorous material more amusing than would field-independent subjects.

The theoretical corollaries of a sense of separate identity lead to the expectation that a mirthful confederate and canned laughter would both have greater effects on the humor appreciation of field-dependent compared to field-independent subjects. Additionally, there is research evidence suggesting that differences in responsiveness to social influence on the part of field-dependent and field-independent people are most likely to appear when subjects interact with live or simulated group members (Karp, 1977; Witkin & Goodenough, 1977). Accordingly, differences in the susceptibility of field-dependent and field-independent people to the influence of a physically present mirthful confederate would be greater than differences in the susceptibility of these two groups to the influence of canned laughter.

Additionally, considerations arising from the theoretical corollaries of a sense of separate identity and from research evidence concerning the importance of live interaction lead to the expectation that the joint presence of a mirthful confederate and canned laughter would have a greater effect on field-dependent than field-independent subjects. Being less attentive to social information and less susceptible to social influence than field-dependent subjects, field-independent subjects would be less responsive to differences between social situational variables. Accordingly, field-independent subjects would be more consistent in the extent of their responsiveness to

canned laughter and a mirthful confederate compared to field-dependent subjects who would differ more in the extent of their responsiveness to these two situational variables. Relevant to this suggestion is evidence that social influence is greater when the source of such influence is visible rather than out of sight (Deutsch & Gerard, 1955; Levy, 1960), and evidence that differences in responsiveness to social influences on the part of field-dependent and field-independent people are most likely to appear when subjects interact with live or simulated group members (Witkin & Goodenough, 1977). It would therefore be expected that field-dependent subjects would be more responsive to the effects of a mirthful confederate than to the effects of canned laughter and that this difference in responsiveness to these two situational variables would be greater for field-dependent than for field-independent people. Accordingly, compared to the effect of canned laughter in an alone condition, the presence of a mirthful confederate with canned laughter would enhance the effect of canned laughter for field-dependent subjects moreso than for field-independent subjects. In short, given a tendency to be more attentive to social information, more susceptible to social influence, and more responsive to differences between social situational variables, the effect of the joint presence of canned laughter and a mirthful confederate would be greater for field-dependent subjects than for field-independent subjects. For example, viewed in terms of social facilitation

tion processes, the presence of a mirthful confederate would produce a greater increase in arousal level among field-dependent than field-independent subjects compared to an alone condition. Given the joint presence of canned laughter and a mirthful confederate, the more highly aroused field-dependent subjects would be more susceptible than field-independent subjects to reflex processes in social facilitation and would be more likely to consider the canned laughter funny in itself. Thus, compared to field-independent subjects, field-dependent subjects would demonstrate a greater increase in humor appreciation from a mirthful confederate/no canned laughter condition to a mirthful confederate/canned laughter condition.

In view of the previously cited research concerning social influence in humor via the situational variables of a mirthful confederate and canned laughter and the theoretical relevance of field dependence-independence to the effects of these two variables, the following research hypotheses were formulated:

1. All measures of humor appreciation will be significantly greater for subjects accompanied by a mirthful confederate than for subjects in an alone condition.
2. All measures of humor appreciation will be significantly greater for subjects exposed to canned laughter than for subjects not so exposed.
3. There will be a significant interaction between field dependence-independence and the presence/absence of a

mirthful confederate, i.e., increases on all measures of humor appreciation from an alone to a mirthful confederate condition will be significantly greater for field-dependent people than for field-independent people.

4. There will be a significant interaction between field dependence-independence and the presence/absence of canned laughter, i.e., increases on all measures of humor appreciation from a no canned laughter condition to a canned laughter condition will be significantly greater for field-dependent people than for field-independent people.
5. There will be a significant interaction between field dependence-independence, the presence/absence of a mirthful confederate, and the presence/absence of canned laughter, i.e., the joint presence of a mirthful confederate and canned laughter will have a significantly greater effect on field-dependent people than on field-independent people for all measures of humor appreciation.
6. Field-dependent people will look at the confederate's face significantly longer and more frequently than will field-independent people.

CHAPTER II

METHOD

This chapter describes the method used to test the research hypotheses. The subject pool is described first followed by information on the measurement of field dependence-independence, the selection of the stimulus materials, the canned laughter manipulation, and the confederate manipulation. The apparatus used in the experimental sessions is described next followed by an outline of the procedures used in these sessions. Equipment and procedures used to score the subjects' and the confederate's behavior are described followed by a specification of the dependent variables. The chapter concludes with a description of the experimental design and a summary of the statistical techniques used.

Subjects

The subject pool for this study consisted of female students attending introductory psychology courses at the University of Ottawa in the fall of 1977. Males were excluded from the study in order to control the variable of sex and to increase the probability of obtaining an adequate representation of field-dependent subjects. Previous research has indicated a tendency for college students, particularly males, to score in the direction of field-

independence (Oltman, 1968; Pressey, 1968; Stuart & Murgatroyd, 1971; Vaught, 1968).

When recruited in their introductory psychology courses, potential subjects were informed that the study would focus on the relationship between visual perception and the appreciation of such varied humor formats as printed cartoons and films. As an incentive for participating, subjects were offered one mark credit toward their final course mark in introductory psychology.

A total of 292 women initially agreed to participate in the study. Of this number, 30 were used to select cartoons for the experimental sessions and 20 participated in a pilot study. Of the remaining 242 subjects, 187 participated in the experiment proper, completing both the Portable Rod-and-Frame Test (PRFT) and the experimental session which involved exposure to the preselected cartoons. However, data for 3 of these 187 subjects had to be eliminated. Of the three, one sneezed throughout the entire experimental session and thus had difficulty viewing the cartoons. One stated that she had seen almost all the cartoons before, and the experimental session of the third was interrupted by a bursting bulb in the slide projector. Thus, the final sample which completed both the PRFT and the experimental session totaled 184. The remaining 55 people who initially volunteered for the study were either unable or unwilling to attend the PRFT or the experimental session or were members

of ethnolinguistic groups whose skills in English were not typical of the majority of the subject pool.

Assignment of subjects to treatment conditions took place following the administration of the PRFT. In this assignment procedure, the PRFT scores of 200 subjects whose first language was English were rank ordered and divided into quartiles of 50 subjects each. Ten subjects were selected at random from each quartile to form a reserve group in the event of the failure of certain subjects to complete the experimental session. Following the removal of the 10 reserve subjects from each quartile, the remaining 40 subjects in each quartile were assigned at random to one of four treatment conditions: alone/no canned laughter, alone/canned laughter, with mirthful confederate/no canned laughter, with mirthful confederate/canned laughter.

In terms of descriptive characteristics, the final sample of 184 subjects ranged in age from 17 to 46 years with an average age of 21 years. Approximately 71% were 18, 19, or 20 years of age. The majority, 145, were enrolled in the first year of an undergraduate program. Approximately 43% were registered in the Faculty of Arts, 23% in the Faculty of Health Sciences, 14% in the Faculty of Science and Engineering, and the remainder in the Faculties of Social Science and Administration. As previously noted, the first language of all subjects was English. The typical participant was thus an anglophone female, 19 years of age,

enrolled in the first year of an undergraduate program in the Faculty of Arts.

A series of chi-square tests of independence were conducted in order to determine whether there was a significant relationship between field dependence-independence (2 categories) and each of the following variables: subjects' faculty (5 categories), years of study at university (3 categories), status as a part- or full-time student (2 categories), section of introductory psychology (6 categories), week of experimental session (6 categories), time of experimental session (3 categories), and week of scoring (5 categories). None of these tests yielded significant results. A one-way analysis of variance on age comparing field-dependent and field-independent subjects also yielded a nonsignificant result.

Measurement of Field Dependence-Independence

A PRFT marketed by Darrow Products of Lynnbrooke, New York, was used to measure field dependence-independence. In terms of the interior visual field presented to the subject, this apparatus was identical to that described by Oltman (1968). External details of construction were also identical with the exception of the base which was 8 inches (.2 m) narrower than Oltman's version, the curtain which was corduroy rather than velveteen, and the addition of a bubble-type level mounted to the base to ensure proper horizontal positioning of the apparatus.

Procedures and instructions for administering the PRFT matched those provided by Oltman (Breitman, 1976): These instructions and procedures are provided in Appendix A. The PRFT was administered by the experimenter and the score for each subject was the sum of the absolute deviations from the vertical over the eight trials given. Testing with the PRFT took place between January 3 and January 27, 1978.

Although the dimension of field dependence-independence represents a continuum, for purposes of statistical analysis subjects were identified as field-dependent or field-independent based on a median split on PRFT scores. In the final sample on which statistical analyses were conducted, the mean PRFT score for the 92 subjects designated as field-independent was 17.83. For the 92 subjects designated as field-dependent the mean PRFT score was 67.05. In keeping with the suggestion by Loo (1979), varied descriptive statistics for the PRFT obtained with the final sample are presented in Table 1. Compared to similar samples tested with a PRFT, the present sample appeared to be somewhat more field-independent. Thus, expressed as an average rather than a sum over eight trials, the overall mean of 5.31 obtained in the present study was lower than the means of 6.16, 6.55, 7.95, and 8.33 obtained in studies by Stuart and Murgatroyd (1971), Oltman (1968), Goldberger and Bendich (1972), and MacEachron (1977) respectively. However, other studies using similar samples have yielded mean PRFT scores lower than that obtained in the present study (Hoffman & .

Table 1

Descriptive Statistics for PRFT Scores Obtained
from the Final Sample of 184 Subjects

Mean	42.44	Maximum	211.00	Standard Error	2.66
Median	29.08	Minimum	8.00	Skewness	1.95
Range	203.00	Standard Deviation	36.02	Kurtosis	4.72

Kagan, 1977; Lyle, 1974). In terms of the median PRFT score, comparisons with other studies again indicate a tendency for the present sample to be more field-independent than similar samples tested with a PRFT (MacEachron, 1977), although exceptions can again be cited (Lyle, 1974; Stuart & Murgatroyd, 1971).

The PRFT used in the present study appears to be a valid substitute for the standard RFT. For example, Oltman (1968) reported a correlation of +.89 between scores on a portable and a standard RFT for a sample of 163 college students. Significant correlations have also been reported between portable versions of the RFT and various forms of the Embedded Figures Test (Breitman, 1976; Lyle, 1974; Oltman, 1968; Roy, 1970).

The reliability of the PRFT is relatively well established. In studies involving adults, corrected split-half reliabilities ranging from +.98 to +.82 have been reported (McCarrey, 1969; Oltman, 1968; Roy, 1970; Stuart & Murgatroyd, 1971; Weitz, 1971). Test-retest reliability coefficients based on periods from 2 weeks to 1 month have ranged from +.76 to +.85 (Lyle, 1974; McCarrey, 1969; Roy, 1970). Reliability data for the PRFT obtained in the present study are presented in chapter 3.

Selection of Stimulus Material

An attempt was made to obtain a sample of single frame cartoons which would be restricted in content as well as

considered amusing and understandable by the intended subjects. Particularly amusing cartoons were sought in order that canned laughter and confederate mirth might appear natural in response to such materials. Some ease of comprehension was sought in order to reduce possible effects of intelligence on the comprehension and/or appreciation of the cartoons. With respect to humor appreciation, however, such effects were not expected to be great given indications that the relationship between intelligence and humor appreciation is not particularly strong in a homogeneous population of normal subjects (Berlyne, 1969; Byrne, 1956; Flugel, 1954; Khoury, 1977; Koppel & Sechrest, 1970; Landis & Ross, 1933; Rouff, 1974, Wierzbicki & Young, 1978).

Restriction in the content of the cartoons was sought not only to control this variable, but also to maximize the funniness of the cartoons. In terms of the relationship between rated funniness and stimulus content, certain studies have indicated that funniness ratings by females were higher when the content of jokes or cartoons was sexual or aggressive than when it was whimsical or nonsensical (Godkewitsch, 1976; Gollob & Levine, 1967). Additionally, Malpass and Fitzpatrick (1959) reported that females rated sexual humor funnier than aggressive humor and aggressive humor funnier than whimsical humor. Although sexual cartoons thus appeared to be associated with the highest levels of funniness, the decision was reached to select cartoons with an aggressive theme. This decision was

based on the possibility that the repeated presentation of sexual cartoons might produce responses in subjects which would override the effects of field dependence-independence. Although whimsical cartoons appeared preferable to aggressive or sexual cartoons in this latter respect, the prevalence of sexual and aggressive themes in humor and the association of whimsical content with lower levels of funniness seemed to militate against obtaining a pool of whimsical cartoons large enough to result in a particularly funny subgroup which contained no elements of sex or aggression. Thus, only cartoons judged to be aggressive in content were used in the present study in order to maximize the funniness of the material and avoid overriding influences which might occur with a sexual theme. It was recognized, however, that strict control of the funniness, ease of comprehension, and content of the cartoons could only be approximated, given the complexity of the stimuli and subjects' responses to such material.

In selecting the cartoons used in this study, a pool of 132 captioned cartoons was collected from The New Yorker and Look magazines as well as from collections of varied cartoonists. According to the experimenter's judgment, 112 of these cartoons involved aggression, 10 involved sex, and 10 nonsense. The cartoons were also judged by the experimenter not to require the visual disembedding of items for their comprehension and appreciation. The presence of such disembedding in the cartoons would have favored field-

independent over field-dependent subjects in terms of both speed and level of comprehension of the cartoons.

This collection of 132 cartoons, arranged in one random order, was presented to five female students enrolled in a graduate psychology program. These students independently categorized each of the 132 cartoons according to its theme or content. The instructions, definitions, and examples provided these raters are included in Appendix B. Definitions for aggressive, sexual, and whimsical themes were based upon those used in previous studies. Specifically, an aggressive theme was described in terms of definitions used by Malpass and Fitzpatrick (1959) and Singer, Gollob, and Levine (1967). Godkewitsch's definition (1972) was used to describe a sexual theme, and the meaning of a whimsical theme was explained in terms of definitions used by Berlyne (1969) and Malpass and Fitzpatrick (1959).

Based on the categorizations made by the five raters, a collection of 65 cartoons was formed. For 33 of these cartoons, agreement among raters was 100% concerning the presence of an aggressive theme; for the remaining cartoons, agreement was 80% that the theme of the cartoon was aggressive. Cartoons with 80% agreement were included in the final collection since limiting the number of cartoons to the 33 on which there was 100% agreement might have restricted the range of funniness of the material.

Thirty females from the initial pool of subjects independently rated each of the 65 cartoons on a 7-point

scale for funniness and a 7-point scale for ease of comprehension. The funniness scale was adapted from that used by Cupchik and Leventhal (1974). Each subject, all of whom had English as a first language, rated the cartoons alone and in a different random order. The instructions provided each subject are included in Appendix C. Although it would have been preferable for these 30 subjects to have rated the cartoons in a situation similar to that of the experimental sessions (i.e., to have rated the cartoons in slide form while listening to the tape-recorded captions), the cost of such a procedure was found to be prohibitive, approximately \$600 for six random orders according to an estimate received from Marc Productions Limited of Ottawa.

Using the method suggested by Ebel (1951) for estimating reliability of ratings, the reliability for the 30 raters combined was +.89 for funniness and +.88 for ease of comprehension. Based on the ratings made by these 30 students, mean ratings for funniness and for ease of comprehension were determined for each of the 65 cartoons. Using these means, 18 cartoons rated as the easiest to understand were selected from among the 22 cartoons rated as most funny. Each of the 18 cartoons so selected was then photographed and slides were processed from the film. Captions were omitted from the slides in order to remove the possibility that subjects, reading the captions quickly, might respond before the tape-recorded captions were completed and the confederate mirth and/or canned laughter

had a chance to occur. A number was placed in the corner of each slide to assist subjects in maintaining their place on the funniness rating sheets during the experimental session.

The results of a pilot study using these 18 slides revealed that three slides were inadequate in terms of visual clarity. Since this problem seemed to stem from the nature of the cartoons rather than from the quality of the slides, these three cartoons were replaced with ones which had also been prerated as easiest to understand among the 22 cartoons prerated as most funny.

The final sample of 18 cartoons, arranged in the random order in which they were presented, is included in Appendix D. In terms of categorization according to content, this collection of 18 cartoons included 11 which had been unanimously categorized as aggressive and 7 on which agreement had been 80% as to the presence of an aggressive theme. In terms of preratings by the 30 undergraduate students, the mean funniness ratings of the 18 cartoons ranged from 3.7 to 5.1 with an overall average of 4.4 on a 7-point scale. Average ratings on the 7-point scale for ease of comprehension ranged from 5.6 to 6.6 with an overall average of 6.2. The 18 cartoons used in the present study were thus prerated as "somewhat" funny and "very easy" to understand. In terms of recency, 13 of the 18 cartoons had been published prior to 1975; the remainder had been published in 1977. The most recent date of publication was

August, 1977, 5 months prior to exposure of the cartoons in the present study.

Subjects viewed this final sample of 18 cartoons in the presence or absence of canned laughter and the presence or absence of a mirthful confederate. The specific procedures used to manipulate the independent variables of canned laughter and a mirthful confederate are described next.

Canned Laughter Manipulation

Tape recordings involving instructions for subjects and captions for the 18 cartoons were prepared for the canned laughter and no canned laughter conditions. All recording and dubbing operations were conducted by Marc Productions Limited.

Instructions for subjects in the canned laughter and no canned laughter conditions were recorded in the experimenter's voice. The two instructions differed in one respect, namely, the presence or absence of a reference to a group of people present during the recording of the captions. Thus, subjects in the canned laughter condition heard the following as part of the their instructions:

It has been found in earlier work that it is sometimes difficult to read the captions at the bottom of the cartoons because of the small print and occasional shifts in focus of the slides. To get around this problem, a tape recording has been made of parts of a session during which these same cartoons were shown to a larger group. An experimenter read the cartoon captions aloud for them:

For subjects in the no canned laughter condition, this part of the instructions was as follows:

It has been found in earlier work that it is sometimes difficult to read the captions at the bottom of the cartoons because of the small print and occasional shifts in focus of the slides. To get around this problem, a tape recording has been made of an experimenter reading the cartoon captions aloud.

The last sentence in the above instructions was spliced into the recording of the canned laughter instructions so that, with the exception of two sentences, the instructions were identical for subjects in the canned laughter and no canned laughter conditions. This particular method of manipulating the presentation of canned laughter was adapted from that used in previous studies (Cupchik & Leventhal, 1974; Leventhal & Cupchik, 1975). Instructions for the no canned laughter and canned laughter conditions are included in Appendices E and F respectively.

Canned laughter was obtained by recording the laughter of 10 adults, five male and five female, as they listened through headphones to comedy albums. Discrete laugh sequences were then selected from the hour of recorded laughter. An attempt was made to avoid sequences of laughter which sounded forced, unnatural, or particularly boisterous or hysterical. The laughter sequences which were selected varied in duration from 4.5 to 5 seconds.

Captions for the 18 cartoons were recorded by a male announcer and two tape recordings were prepared on 4-track tape. Track 1 of the canned laughter tape contained instructions, captions, and canned laughter while track 1 of the no canned laughter tape contained only instructions and captions.

Since the sound of laughter following every cartoon might have appeared somewhat unnatural to the subjects, only 12 of the 18 captions on the canned laughter tape were followed by the sounds of people laughing. In order to allow the possibility of analyzing the results according to blocks of cartoons, the 12 sequences of canned laughter were assigned at random to the 18 cartoons with the restriction that there be 4 canned laughs within each successive block of 6 cartoons. In the absence of references to latency in other studies on the effects of canned laughter (Chapman, 1973; Fuller & Sheehy-Skeffington, 1974; Kosslyn & Henker, 1970; Leventhal & Mace, 1970; Nosanchuk & Lightstone, 1974; Smyth & Fuller, 1972), the latency used by Cupchik and Leventhal (1974) and Leventhal and Cupchik (1975) was adopted. Thus, canned laughter followed the spoken captions by .2 seconds.

Confederate Manipulation

Half the subjects in the present study viewed the cartoons in the presence of a 22-year-old female who had several years experience working in varied theatre groups including the Theatre Young Company of the National Arts Centre. The confederate was paid for her participation in this study. Since the confederate did not attend courses at the University of Ottawa, it was considered unlikely that she would be recognized by subjects in the experiment. The confederate wore a variety of coats, dresses, slacks,

scarves, glasses, watches, and hair styles in different experimental sessions in order to reduce the possibility that subjects would discover that the same companion was present with different subjects. The confederate was unaware of the field-dependence-independence dimension of the study and thus was blind to subjects' standings on this variable.


Training of the confederate took place over the period of 1 day, using videotapes from the pilot study as examples of mirthful behavior. This training period was intended to ensure that the procedures involved in conducting the sessions were understood and well rehearsed, and that the confederate responded naturally to the cartoons. The confederate was provided with a script which specified the behaviors required of her prior to, during, and immediately after each experimental session.

While exposed to the cartoons, the confederate was instructed to smile and chuckle when cued by prerecorded tones which occurred on track 3 of the canned laughter and no canned laughter tapes immediately after selected captions. The confederate was to attempt to make these mirth responses as constant as possible in terms of latency, intensity, and duration. At no other time was she to show signs of humor appreciation. In addition, unless the subject spoke to her, the confederate was not to look at or speak to the subject while the cartoons were exposed. In making her funniness ratings of the cartoons, the

confederate was to unobtrusively keep her rating form from the subject's view and to make her own ratings in the center of the scale. Within the limitations described above, the confederate was instructed to behave as naturally as possible. To help ensure that the behavior of the confederate and the experimenter did not gradually deviate from the original instructions, three review sessions were held during the course of conducting the experimental sessions.

In attempting to minimize subjects' suspicions concerning the genuineness of the companion's mirth, it was considered inadvisable for the confederate to exhibit mirth to all 18 cartoons or to exactly the same subset of cartoons associated with canned laughter. However, if canned laughter and confederate mirth were to occur in response to totally different subsets of cartoons, fewer instances of canned laughter and confederate mirth would be possible, and subjects' suspicions might be aroused by such an arrangement. Thus, the decision was reached that the confederate would exhibit mirth in response to 12 of the 18 cartoons and that some of these responses would accompany canned laughter.

As in the case of canned laughter, the 12 occasions of confederate mirth were assigned at random to the 18 cartoons with the additional restriction that, within each successive block of 6 cartoons, there be 4 instances of confederate



mirth, and that 2 instances of the 4 in each block accompany canned laughter.

In order to determine the consistency of the confederate's responses across experimental sessions, the behavior of the confederate was scored in two ways. In the first approach, 13 (14%) of the 92 videotaped sessions involving the confederate were selected and the confederate's behaviour was scored in terms of frequency and duration of laughter and frequency and duration of smiling. Detailed descriptions of these scoring categories and the scoring procedures used are provided later in this chapter. The 13 sessions selected for such scoring were those during which the confederate was most consistently within the camera's range. (During the experimental sessions the camera had been placed such that the subject would be consistently in view unless she moved radically to the left and the confederate would be in view unless she moved forward). During the 13 sessions which were scored, the confederate moved temporarily out of view when responding to 17 of the 234 cartoon presentations. Table 2 presents descriptive data on the confederate's behavior during these 13 sessions.

Inspection of Table 2 reveals that, for the 13 sessions scored, the confederate's overt mirth was consistent across blocks of cartoons. This table also reveals that the confederate was more consistent across subjects in terms of her laughter than in terms of her smiling. Additionally,

Table 2
Means and Ranges for Confederate Behaviors During
13 Experimental Sessions

Dependent Variable	6 Sessions without Canned Laughter		7 Sessions with Canned Laughter		Total of 13 Sessions	
	Mean	Range	Mean	Range	Mean	Range
First Block of 6 Cartoons						
Frequency						
Laughter	3.8	3-4	4.0	a	3.9	3-4
Smiling	2.0	1-2	2.0	0-4	2.0	0-4
Duration						
Laughter	3.0	1.0-5.8	2.9	1.0-6.6	2.9	1.0-6.6
Smiling	4.4	3.1-6.7	4.4	2.7-8.8	4.4	2.7-8.8
Second Block of 6 Cartoons						
Frequency						
Laughter	3.8	3-4	4.0	a	3.9	3-4
Smiling	2.3	0-3	2.3	1-3	2.3	0-3
Duration						
Laughter	2.3	1.1-4.3	2.2	.9-4.2	2.2	.9-4.3
Smiling	4.5	3.1-6.1	3.8	2.6-5.7	4.1	2.6-6.1
Third Block of 6 Cartoons						
Frequency						
Laughter	3.8	3-4	3.7	3-4	3.8	3-4
Smiling	1.3	0-3	2.4	1-3	1.9	0-3
Duration						
Laughter	2.6	1.2-4.4	2.7	1.0-4.9	2.6	1.0-4.9
Smiling	4.8	1.8-8.3	3.8	1.6-6.0	4.1	1.6-8.3

^a The confederate consistently laughed on the four prescribed occasions.

the 12 laughs which the confederate was to exhibit with each subject were not consistently scored by the observer.

Rather on 5 of the 156 cartoon presentations the observers scored a smile for the confederate but no laugh. Of these five failures to laugh, three involved field-independent subjects and two involved field-dependent subjects.

Although the confederate may have smiled rather than laughed in these five instances, it is also possible that occasionally the sound of her laughter may not have been picked up by the microphone which was located closer to the subject than to the confederate. With respect to variability in the confederate's smiling, scoring of the subjects' visual behavior indicated that only six field-independent and eight field-dependent subjects gazed at the confederate's face while she exhibited overt mirth. The total duration of such gazing was also quite brief, 5.43 seconds for the field-independent subjects and 7.44 seconds for the field-dependent subjects. Thus, variability in the confederate's smiling may not have had a marked effect on results of the present study.

In the second approach to scoring the confederate's behavior, an observer noted the nature and sequence of the confederate's behavior during each of the 1,656 cartoon exposures to the 92 subjects who accompanied the confederate. Thus, for example, the observer might note that the confederate's initially blank facial expression gave way to a smile, then to a laugh, and then returned to


an impassive state. Any verbalizations made by the confederate were also noted.

According to the resulting behavioral descriptions, the confederate was generally, but not completely consistent across subjects in demonstrating overt mirth. Specifically, for 6 of the 18 cartoons, the confederate was requested to maintain a blank facial expression. According to the observer's notes, the confederate successfully maintained such an expression on 524 (95%) of the 552 occasions these six cartoons were exposed. On the remaining 28 exposures of these six cartoons, the confederate exhibited overt mirth, smiling on 25 occasions and laughing on 3. However, during none of these uncalled for instances of confederate mirth did subjects gaze at the confederate's face. As indicated in Table 3, these 28 instances of confederate mirth were rather evenly distributed across canned laughter and no canned laughter conditions (14 instances in each case), across field-dependent and field-independent subjects (16 and 12 instances respectively), and across blocks of cartoons (10, 8, and 10 instances in the first, second, and third blocks).

The confederate was requested to laugh at the remaining 12 cartoons and, according to the observer's notes, she did so on 1,075 (97%) of the 1,104 occasions these 12 cartoons were exposed. For the remaining 29 exposures of these 12 cartoons, the observer scored either a confederate smile (22 occasions) or a blank facial expression (7 occasions). As

Table 3

Instances of Confederate Errors in Exhibiting Overt Mirth

Experimental Condition	Block of Cartoons			Total
	1	2	3	
Failures to Inhibit Overt Mirth				
Field-Independent Subjects				
No Canned Laughter	2	4	1	7
Canned Laughter	2	0	3	5
Field-Dependent Subjects				
No Canned Laughter	4	1	2	7
Canned Laughter	2	3	4	9
Failures to Exhibit Laughter				
Field-Independent Subjects				
No Canned Laughter	3	1	3	7
Canned Laughter	2	2	2	6
Field-Dependent Subjects				
No Canned Laughter	4		3	11
Canned Laughter	3		2	5

indicated in Table 3, these failures in confederate laughter occurred 18 and 11 times respectively in the no canned laughter and canned laughter conditions, 16 and 13 times respectively with field-dependent and field-independent subjects, and 12, 7, and 10 times in each successive block of six cartoons.

Verbalization by the confederate were noted on 12 occasions, 5 involving field-independent subjects and 7 involving field-dependents. Of the 12 confederate verbalizations noted, 9 occurred with verbalizations by the subject. Five confederate verbalizations occurred in the first block of cartoons, four occurred in the second block, and three in the third. Such verbalizations occurred equally often in the no canned laughter and canned laughter conditions.

Instances of eye contact between the confederate and the subject were also noted by the observer. Only three such instances were reported across the 92 subjects who accompanied the confederate. Each instance involved a field-dependent subject and each occurred in the third block of cartoons.

In summary, although the confederate was not absolutely accurate in following the prescribed behavioral directions, she appeared to follow these directions quite closely and her behavior did not appear to differ systematically across field-dependent and field-independent subjects, across

blocks of cartoons, or across canned laughter and no canned laughter conditions.

Apparatus

Experimental sessions involving the presentation of the cartoons were conducted at the Child Study Centre on the University of Ottawa campus. The apparatus required to conduct these sessions was located in two areas: in an experimental room in which subjects viewed the cartoons and in an adjacent "control area" in which the experimenter operated the equipment required to present the cartoons and videotape the sessions.

Experimental Room

Subjects were exposed to the humorous material under standard physical conditions in a carpeted 10.5 ft. by 8 ft. (3.2 m by 2.4 m) room. The main feature in this room was a Lehigh Valley Modular Human Test System located on a table. Appendix G presents photographs of this modular unit, the dimension of which were 23.75 inches by 21.5 inches by 24 inches (.6 m by .55 m by .61 m). The subject, and confederate if present, sat facing the frontal panels of the unit.

Located inside the modular unit were two pieces of equipment: a slide projector and a videotape camera. The slide projector (Kodak model 800) rear-projected the cartoons onto the central frontal panel of the modular unit. The dimensions of this panel were 6 inches by 7 inches

(.15 m by .18 m). The video tape camera (Shibaden model HV-15) concealed inside the modular unit was equipped with a wide angle lens which formed a recess in the left central panel of the unit. This lens allowed the video-taping of both the subject and the confederate. The concealed lens was approximately 12 inches (.3 m) from the confederate's face and 24 inches (.61 m) from the face of the subject. Thus, as the subject, and confederate if present, sat in front of the modular unit, they viewed slides of the cartoons on the central frontal panel of the unit and were videotaped by the camera concealed inside the unit. Sounds in the experimental room were picked up by a microphone concealed on the subject's side of the modular unit approximately 30 inches (.76 m) from the subject's mouth.

As the subject, and confederate if present, viewed the cartoons on the central panel of the modular unit, they listened to the cartoon captions via open-air earphones (Beyer Dynamic model DT 302) which also allowed them to hear sounds in the experimental room. The earphones were inserted into plugs located in the bottom central panel of the modular apparatus. Only one set of earphones was present when the subject was alone.

In addition to the modular unit which housed the slide projector and concealed the videotape camera, the experimental room contained a second videotape camera stationed high in one corner of the room. This second camera, which was aimed toward the chair(s) to be occupied

by the subject, and confederate if present, was clearly visible to both the subject and confederate. Although it was plugged into an electrical wall outlet, this second camera was inoperative and was included in the room in order that subjects would not suspect that their behavior was actually being recorded by a camera concealed approximately 24 inches (.61 m) from their face.

Other equipment in the experimental room incidental to the presentation of the cartoons and the videotaping of the session included a 16-millimeter film projector (Kodak model AV-126-TR) and a speaker adjacent to the modular unit. This equipment was required for the presentation of a film following the completion of the projection of the slides. On the walls of the experimental room were two paintings by children and a piece of decorated material. This latter wall hanging covered a one-way mirror and served to prevent damage to the lens of the concealed videotape camera which faced the mirror.

Control Area

The control area located in an adjacent room contained equipment which the experimenter operated in order to control the presentation of the slides and the videotaping of the experimental sessions. Specifically, the control area contained a quarter track tape recorder (Revox model A77) used to pipe instructions and cartoon captions (with or without canned laughter) to both sides of the subject's earphones and to one side of the confederate's earphones.

(On the other side of her earphones the confederate heard the prerecorded cueing tones.)

Attached to the tape recorder in the control area was a device (Uher Dia Plot model F422) which controlled the pace of the slide presentation by sensing trigger tones previously recorded on track 4 of the canned laughter and no canned laughter tapes. When the experimenter in the control area activated the tape recorder, this device enabled the presentation of the slides in the experimental room to proceed automatically in phase with the spoken captions. The trigger tones sensed by the device were spaced such that each slide was exposed for approximately 2 seconds before the first word of the caption was heard and each slide remained exposed for 10 seconds following the last word of the caption. This procedure allowed the subjects to briefly view each cartoon prior to hearing its caption and permitted subjects sufficient time to make their funniness ratings. (The timing of the canned laughter and no canned laughter tapes differed by 6 seconds due to the previously noted difference in the tape-recorded instructions given in these two conditions.)

In addition to the tape recorder which presented the various audio elements of the experimental session, and the device attached to the tape recorder which controlled the pace of the slide presentation, the control area contained a videotape recorder (Hitachi model SV-510U) connected to the videotape camera concealed in the experimental room. The

control area was also equipped with a 9 inch (.23 m) videotape monitor (ITC model PM-9IT) which allowed the experimenter to view the ongoing experimental session. The experimenter was able to hear the session by means of an earplug attached to the videotape recorder. A microphone was used by the experimenter to record onto the videotape the subject's number as well as the number of each cartoon presented. A microphone mixer (Shure, model M68) located in the control area combined onto the audio portion of the videotape the sounds picked up by the experimenter's microphone in the control area and the sounds picked up by the concealed microphone in the experimental room.

Procedures During the Experimental Session

When solicited for participation in this research, subjects were informed that the study involved the relationship between visual perception and the appreciation of such humor formats as printed cartoons and films. As previously described, subjects who completed the PRFT were assigned at random to one of the four treatment conditions defined by the presence or absence of canned laughter and by the presence or absence of the mirthful confederate.

Due to difficulties involved in matching the schedules of the subject, confederate, and experimenter, the scheduling of the four treatment conditions was not randomized or counterbalanced. Appointments were made according to the demands of the subjects' academic timetables and the

availability of the confederate and experimenter. With few exceptions, all four treatment conditions occurred a minimum of once or twice a day using these scheduling procedures.

The experimental sessions took place between January 31 and March 31, 1978. On arriving in the lobby of the Child Study Centre, the subject was asked by the secretary to take a seat. The confederate, if scheduled to be present with the subject, was already seated in the lobby wearing a coat and boots and carrying books. A few seconds after the subject was seated, the experimenter entered the lobby and greeted the subject, and confederate if present. When introducing the subject and confederate, various names were used for the confederate who was said to be a volunteer for the study from a different section of the introductory psychology course. Proceeding to the third floor of the Centre, the experimenter mentioned the probable length of the session and the fact that the session would be videotaped in order to spare the experimenter from taking notes. No subject objected to the videotaping.

On arriving at the third floor, the subject, and confederate if present, were seated in a waiting area. The experimenter then explained that the current phase of the study involved a humorous film but that, prior to this film, cartoons from magazines would be presented in slide form. The experimenter explained that, based on the results of previous research in humor, viewing of the cartoons would serve as a warm-up period to help subjects relax and be

spontaneous in the experimental setting. Additionally, it was explained that subjects would rate the cartoons using a simple rating scale in order to become familiar with the procedure of rating humor stimuli.

Following this explanation, the experimenter led the subject to the experimental room. The confederate, when present, positioned herself to arrive at the room just behind the subject. Subjects who were alone were asked to take a seat in the single chair placed behind the table on which the modular unit was located. Subjects accompanied by the confederate were also asked to take that particular seat; which was the further of the two present, a request which seemed natural given the positioning of the subject and the confederate at the door to the room. When present, the confederate was thus seated 1 ft. (.3 m) to the subject's left.


Once the subject, and confederate if present, were seated, the experimenter indicated the panel on which the cartoons would be presented and noted that features on the other panels could be disregarded since they were used in other studies. The experimenter then asked that the subject, and confederate if present, put on their earphones in order to hear the instructions. The subject was then given a pencil and a four-page rating booklet, as was the confederate when present. The cover page of the booklet contained the verbatim script of the tape-recorded instructions for the canned laughter or no canned laughter

conditions. The next three pages contained 18, 7-point scales for funniness, one scale for each cartoon. The funniness scale used was identical to that employed in the preratings of the cartoons. The experimenter requested that the instructions be read silently as they were heard over the earphones. Explaining that she would be back when the slides were completed, the experimenter turned on the power for the slide projector, left the room, and proceeded to the control area.

Once in the control area, the experimenter immediately activated the tape recorder which was equipped with the appropriate canned laughter or no canned laughter tape. The experimenter activated the videotape equipment when the tape-recorded instructions ended. As a means of facilitating subsequent scoring of the subjects' behavior, the experimenter, equipped with a microphone, recorded onto the videotape the number of each cartoon as it was exposed. When the last cartoon was removed from view, the experimenter turned off all equipment in the control area and returned to the experimental room where she turned off the slide projector, indicated that earphones could be removed, and took the completed rating form(s). The experimenter then explained that the warm-up was over and that the film would now be shown. She then gave the subject, and confederate if present, a one-page rating form containing a single 7-point rating scale for funniness to be used to rate the film. Explaining that she would be back when the film

ended, the experimenter started the film projector and left the room. The film, Bambi Meets Godzilla (Marlin Motion Pictures Limited), played for approximately 2 minutes, at the completion of which the experimenter reentered the room, stopped the film projector, and took the completed rating form(s).

At this point, the confederate, if present, was asked to return for a few minutes to the waiting area outside the experimental room because the experimenter wished to ask a few questions of each subject individually. The experimenter then probed the subject for suspicions about the validity and purpose of the canned laughter and the companion. Questions were also asked about various characteristics of the cartoons and the film. The specific questions asked in this postexperimental interview are indicated in Appendix H. Prior to leaving the experimental room, subjects were asked not to describe the slides or the film to others or to mention to others how funny or unfunny they had found the material. Prior to the subject's departure, the experimenter also explained the purpose of the study in terms of a theoretically valid framework which was not, however, investigated in the present study. Specifically, this explanation involved Giles and Oxford's (1970) rationale for studying the relationship between field dependence-independence and the time span of a humor stimulus. The experimenter noted that the film Bambi Meets Godzilla represented an instance of visual short time-span



humor and that appreciation of such humor would be systematically related to the styles of visual perception measured by the PRFT. The experimenter avoided, however, mentioning which perceptual style would be associated with a greater preference for the film.

Following this debriefing, the subject was led back to the waiting area, where the confederate, if involved, was seated. The experimenter then said goodbye to the subject, and if the confederate was present led her back to the experimental room, apparently for her turn to be questioned.

For 50 of the subjects, this closing procedure was somewhat different. Instead of being given the rationale for the study at the end of the experimental session, 20 subjects were retested with the PRFT and then debriefed. This retesting was conducted in order to obtain data on the test-retest reliability of the PRFT. The 20 subjects so retested had been selected at random with the restriction that five were from each quartile of the distribution of PRFT scores.

The 30 remaining subjects for whom closing procedures were different were asked to return for a second session of viewing the humorous material. The purpose of these additional sessions was twofold: (a) to contribute to the sparse literature on the stability of responses to humor stimuli and, (b) to provide supplementary measures of interobserver agreement. The 30 subjects who returned for a second session were selected from among those who had viewed

the cartoons alone, without canned laughter. The selection of these 30 subjects was random with the restriction that field-dependent and field-independent subjects be equally represented. Subjects who had viewed the cartoons with the confederate and/or with canned laughter were not asked to return for a second session because it was feared that additional exposure to the canned laughter, and particularly to the same confederate, might make subjects more suspicious about the intent of the experiment.

Subjects who returned for the second experimental session received one extra mark toward their final mark in the introductory psychology course. When the request to return was made, it was explained that the second session would also involve the presentation of humorous material for approximately 15 minutes. On arriving for this second session, subjects were informed that the session would be identical to the first and that the longevity of the humor evoking potential of the film was being studied. After this second session, subjects were given the same rationale for the study as had been previously used with other subjects.

Scoring of the Subjects' and Confederate's Behavior

Scoring of the Subjects' Overt Mirth

Observer orientation and training. As previously described, all subjects, and the confederate if present, were videotaped during the experimental sessions. These videotapes were viewed and scored by two female students in

the third year of an undergraduate psychology program. Both were employed for 7 weeks and were paid for their services.

Prior to training, each observer received a typed description of the purpose of the study and the nature of the experimental sessions. The purpose of the study was said to be twofold: first, to collect a body of reliable empirical data on the behaviors involved in humor appreciation, and second, to study the relationship between these overt behaviors and subjects' judgments of the funniness of the related humorous materials. It was explained that, in the rarely studied area of humor appreciation, a body of reliable behavioral data was needed before more complex theoretical issues could be studied.

The description of the experimental sessions provided to the observers was accurate with the exception that no reference was made to the categorization of subjects according to cognitive style or to the canned laughter manipulation. With respect to the confederate manipulation, the observers were informed that subjects had viewed the cartoons either alone or with one other person. It was stated that these two situations were included in order that the study would be representative of two common humor appreciation situations, namely solitary appreciation and appreciation with someone else. It was further explained that the same companion was present with different subjects in order to standardize the situation somewhat.

In addition to these descriptions of the purpose of the study and the nature of the experimental sessions, each observer was provided with typed descriptions and definitions of the behaviors to be scored. Both observers were asked to familiarize themselves with these descriptions prior to training.

During the 4-day training period, the observers became proficient in using the scoring equipment and gained practice in applying the scoring categories and procedures. Videotapes of subjects from the pilot study were used as practice material. The exposure of each cartoon was treated as a separate scoring period during which the two observers independently scored the subject's behavior and then immediately compared their decisions. Disagreements were discussed and scoring categories revised in an attempt to reach consistency in the use of the scoring system. At the end of the training period, the scoring categories and procedures were finalized, and interobserver reliability assessed. These reliability data are reported in chapter 3.

Scoring equipment. Following training, the observers began to score the 26 reels of videotape containing the experimental sessions of the 184 subjects. The videotapes rather than sessions of the subjects were scored in a random order because a random order of sessions would have entailed considerable rewinding and rethreading of the videotapes with resultant wear and tear and possible damage to or breakage of the tapes. The observers independently scored

all experimental sessions, each week deciding between themselves which one would score during the morning and early afternoon and which one would score during the late afternoon and evening.

The equipment required to view the subjects' behavior included a Sony Solid State Videocorder (model AV-3650) and a Sony Solid State black and white videomonitor (model CVM-950) equipped with a 9 inch (.23 m) screen. A set of Koss earphones connected to the videomonitor allowed the observer to hear the sounds in the experimental room, exclusive of ~~the~~ canned laughter and cartoon captions which were audible only to the subject, and confederate, if present, over their own earphones.

Specially constructed equipment was used to measure the frequency and duration of the subjects' responses. A panel equipped with normally open microswitches was located on the observer's table in front of the videomonitor. Four colored buttons covered these switches and each of the four buttons represented a different subject response, namely blank facial expression, negative response, laugh, and smile. Attached to this panel was a Motorola D1 microcomputer which measured the frequency and duration of each button depression to the nearest one hundredth of a second. Connected to the microcomputer was a teletype machine (model 33T2) which, when activated by the observer, provided a printout indicating the frequency, duration, and sequence of the button depressions.

Scoring procedures. The exposure of each cartoon was treated as a separate scoring period. The beginning and end of each of these periods was signalled by a change in lighting as the slide projector presented and then removed each of the 18 slides.

Throughout the scoring of the subjects' behavior, half of the screen on the videomonitor was covered to prevent the observers from viewing the confederate. This concealment was not intended to hide the fact that different subjects were accompanied by the same person. Rather, the confederate was concealed in order that the observers would focus only on the subject's behavior. In this way, the scoring for all subjects would more readily be based on the overt behavior each demonstrated. In addition, the experimenter's experience in scoring videotapes from the pilot study indicated that scoring was facilitated when visible distractions from the confederate were eliminated.

The specific procedures followed in scoring the behavior of each subject were as follows. Prior to viewing the videotape for a given subject, the scorer completed the identifying information for that subject on an individual scoring sheet. A copy of this sheet is included in Appendix I. The observer then viewed the subject's behavior during the exposure of the first cartoon, stopping the tape when the first cartoon was removed from view. If the observer was certain that the subject had evidenced no signs of a laugh, smile, or negative response during the exposure of

the first cartoon, she wrote "blank" in the appropriate column of the scoring sheet adjacent to the first cartoon. She then immediately proceeded to view the subject's behavior during the exposure of the next cartoon.

If the observer had noticed signs of a laugh, smile, or negative response during the first cartoon, she indicated on the scoring sheet the particular response(s) observed. For example, if the subject shifted from an initially blank facial expression to a smile and then to a laugh, the observer recorded "blank-smile-laugh" in the appropriate column adjacent to the first cartoon. After indicating her initial decision about the subject's response(s), the observer rewound the videotape and reviewed the subject's behavior during the exposure of the cartoon. This review was intended to serve as a check on the observer's initial scoring decision. If the observer was not certain of the scoring of a subject's behavior during the exposure of the first cartoon, she repeated the process of rewinding and reviewing the videotape until she was able to reach a final decision about the subject's behavior.

Having reached a final decision on the subject's behavior, the observer prepared to measure the frequency, duration, and sequence of the subject's responses during the exposure of the first cartoon. This involved resetting the microcomputer, writing the subject's number and the number of the cartoon on the paper in the teletype, and typing the appropriate message on the teletype. The observer then

started the videotape and made the appropriate button depressions on the scoring panel to indicate the occurrence, duration, and sequence of each laugh, smile, or negative response. Following the depression of these buttons, the observer activated the teletype and obtained a printout which indicated the frequency, duration, and sequence of the subject's response(s) during the exposure of the first cartoon. The scoring procedure for each of the remaining 17 cartoons was identical to that for cartoon 1.

Descriptions of the scoring categories. During the 4-day training period, changes were made in the scoring categories initially provided to the observers. For example, the distinction between full smiles and half smiles was dropped when it was discovered that the observers could not reliably distinguish between the two. The definitions and descriptions of four scoring categories, finalized at the conclusion of the training period, were based on those used in other studies (Arthur, 1974; Foot & Chapman, 1976; Hopkins, 1968; Kosslyn & Henker, 1970; Murphy, 1975; Pollio, Mers, & Lucchesi, 1972; Wolosin, 1975), modified in certain instances by experience gained during the training period. The four behaviors scored for each subject included: negative response, no humor response, smile, and laugh.

A negative response was defined as an obvious sign of disliking a cartoon. Such a reaction could be signaled by a deep frown, a snarl, a deep sigh, or extreme rolling back of the eyes in the head. This category was thus reserved for

more obvious negative responses and was not used for minor facial contortions such as pursing the lips, raising one or both eyebrows, minor frowning of the brow, or protruding of the bottom lip. It was felt that such facial contortions could convey a variety of attitudes including perplexity, surprise, or indecisiveness as to the funniness of a cartoon.

Facial expressions which conveyed neither obvious dislike of a cartoon nor humor appreciation were categorized as no humor response. The most frequent behavior included in this category was a blank or neutral facial expression. In short, the category of no humor response was scored in the absence of a laugh, smile, or negative response by the subject.

A smile was defined in terms of uplifted corners of the mouth without the accompanying sound or movement characteristic of laughter. It was noted, however, that the simple presence of uplifted corners of the mouth did not necessarily signify a smile since the corners of a subject's mouth could be raised if, for example, she sniffed. Additionally, an open mouth or the visibility of teeth were not considered necessary or sufficient conditions for a smile.

During the training period it was discovered that evidence of a smile occasionally occurred when a subject lowered her head while making her funniness rating. In such situations, observers found it difficult to determine if a

smile had in fact occurred. To improve reliability of scoring, smiles were not scored in such doubtful situations. Similarly, scoring the duration of a smile was stopped as soon as a smiling subject lowered her head, provided that when the subject raised her head she was no longer found to be smiling.

A laugh was defined in terms of uplifted corners of the mouth accompanied by inarticulate vocal sounds and/or moderately active head, chest, or shoulder movements. The inarticulate vocal sounds included reiterated "ha-ha" sounds as well as short, strong exhalations of breath with or without such sounds as "tsk". The bodily movements involved in a laugh included evidence of convulsive, rhythmic breathing (palpitating upper torso movement), raising of both shoulders, or backward movement of the head and shoulders. It was noted, however, that not all bodily movements which occurred when the corners of the mouth were uplifted were laugh-related. For example, a subject might smile and matter-of-factly nod her head.

As a further guideline for scoring a laugh, it was noted that a subject's mouth could be open or closed during a laugh. In terms of duration, a given laugh was scored as long as the corners of the mouth were uplifted and laugh-like sound or movement occurred. During training, it was discovered that it was frequently difficult to determine if a given laugh was preceded or followed by a smile because both laughter and smiling involved uplifting of the corners

of the mouth. The decision was reached to score smiles before or after laughs only when such smiles were distinctly held by the subject. This decision was reflective of the conservative orientation the observers were asked to adopt when applying the scoring categories and procedures. For example, if an observer could not decide which of two scoring categories was more appropriate in a given instance, she was to score the category which indicated less humor appreciation. Thus, if she could not decide whether the subject was exhibiting a laugh or a smile, she would score a smile; if she could not decide between a smile and no humor response, she would score no humor response.

Using the procedures and scoring categories previously described, the observers spent 5 weeks viewing and scoring the overt mirth of the 184 experimental subjects. Following this, the confederate's overt mirth was scored and measures were obtained of the subjects' visual behavior.

Scoring of the Confederate's Overt Mirth

As previous described, two approaches were taken to measuring the consistency of the confederate's behavior. In the first approach, frequency and duration of confederate laughter and frequency and duration of confederate smiling were scored for the 13 experimental sessions in which the confederate was most consistently within the camera's range. The categories and procedures used to score these 13 sessions were identical to those used to score the subjects' overt mirth. The second approach to scoring the

confederate's behavior involved all 92 sessions in which the confederate was present. In this latter approach, the sequence of the confederate's behavior (e.g., blank-smile-laugh) was noted during the exposure of each cartoon.

A half-day training period preceded this latter approach to scoring the confederate's behavior. Using videotapes from the pilot study, both observers were trained to note the sequence of the confederate's behavior including any confederate verbalizations. The observers were not told that the confederate had been instructed to behave consistently with different subjects. Definitions of a laugh, smile, negative response, and no humor response were identical to those previously used to score the subjects' behavior. Verbalization was defined as any word or words spoken aloud, regardless of whether these words were specifically directed at the other person. This definition of verbalization was based upon that used by Murphy (1975). Although only one observer scored the confederate's behavior, interobserver agreement for such scoring was assessed on two occasions and intraobserver agreement was assessed as well. Data on observer agreement are presented in chapter 3.

Scoring of Visual Behavior

The subjects' visual behavior was assessed in order to obtain measures relevant to research Hypothesis 6 which stated that field-dependent subjects would look at the confederate's face significantly longer and more frequently

than would field-independent subjects. Based on initial viewing of the videotapes by the experimenter, two types of visual behavior were defined, namely, eyeing the confederate's face and looking at the confederate's face. Eyeing the confederate's face consisted of the subject moving her eyes but not her head in the direction of the confederate's face. Looking at the confederate's face consisted of the subject moving her eyes as well as her head in the direction of the confederate's face. During a half-day training period, both observers learned to score the subjects' behavior using these two categories. A third category, eye contact, was also scored when reciprocated looking occurred in the region of the eyes; that is, when both the subject and the confederate simultaneously engaged in looking at the face of the other. This definition of eye contact was similar to that used by Foot and Chapman (1976). Eye contact was measured as an additional check on the consistency of the confederate's behavior.

The procedure used in scoring eyeing, looking, and eye contact was as follows. The observer first noted the frequency with which any of these three responses occurred during the exposure of a given cartoon. Having recorded the frequency of such responses, the observer then measured the duration of eyeing or looking at the confederate's face using the same equipment used to score duration of overt mirth. Although both observers were trained to score visual behavior, only one did so for the 92 sessions involving the

confederate. However, interobserver agreement in scoring visual behavior was assessed on two occasions and intraobserver agreement was assessed as well. Data on observer agreement in scoring visual behavior are presented in chapter 3.

Dependent Variables

Humor Appreciation

Six dependent variables were derived in order to test the first five hypotheses. These six variables included five measures derived from observer scoring of subjects' overt mirth (viz., frequency of laughter, frequency of smiling, duration of laughter, duration of smiling, and ratings of overt mirth) and the self-reported funniness ratings which subjects assigned to the cartoons. In order to simplify the presentation and discussion of results these six variables are collectively referred to as measures of humor appreciation, although it is recognized that none of these six is a necessary or sufficient condition for feelings of amusement (Berlyne, 1972; Chapman & Foot, 1976; La Fave, 1972; McGhee, 1979).

Scores for each of the six measures of humor appreciation were derived by blocks of cartoons in order to examine the possible influence of warm-up and fatigue effects. Such effects have long been the subject of discussion and research in humor appreciation (Byrne, 1958; Chapman, 1975(a); Chapman & Speck, 1977; Clément, 1974; Cupchik &

Leventhal, 1974, Foot & Chapman, 1976; Hom 1966; Kirkland, 1974; Lee & Griffith, 1962; Martin, 1905; Murphy, 1975; Nosanchuk & Lightstone, 1974). In the present study, measures of humor appreciation were derived for each of three successive blocks of cartoons (viz., cartoons 1 to 6, 7 to 12, and 13 to 18).

Thus, for each block of cartoons, a subject's score for frequency of laughter consisted of an average of the total number of laughs scored by the two observers for that subject. Analogously, by obtaining a sum within each block of cartoons for each observer separately and averaging these two sums for each block, measures were obtained for each subject for frequency of smiling, duration of laughter, and duration of smiling.

The dependent variable, observer rating of subject's overt mirth, was based on the following 4-point scale: (1) negative response; (2) no response (blank face); (3) smile; (4) laugh. Except for the absence of a distinction between full and half smiles, this scale is virtually identical to those used by Leventhal and Cupchik (1975), Shultz (1972), and Zigler, Levine, and Gould (1967). Based on the scoring of overt mirth done by each observer separately, a rating of 1 to 4 was assigned to the behavior exhibited by a subject during each cartoon. These ratings were summed within each block of cartoons for each observer separately. The average of these two sums within each block constituted the subject's score for rating of overt mirth.

The dependent variable, self-reported funniness rating, was based on a 7-point scale used by subjects to rate the funniness of each cartoon. Within each block of cartoons, a subject's score on this variable consisted of the sum of the funniness ratings she had assigned to the six cartoons in that block.

A subsidiary variable, negative response, was reliably measured by the observers (99% interobserver agreement for 184 subjects) but was not treated as a separate dependent variable. The occurrence of this category was taken into account, however, in ratings of overt mirth. (Negative responses were infrequently observed. Of the total sample, only 18 subjects, 10 field-independent and 8 field-dependent were noted by either observer to have exhibited a negative response.)

Visual Behavior

Whereas measures of humor appreciation were derived to test the first five hypotheses, measures of visual behavior were derived to determine whether field-dependent subjects looked at the confederate's face significantly longer and more frequently than did field-independent subjects (Hypothesis 6). As previously described, two types of visual behavior were scored relevant to Hypothesis 6, namely eyeing the confederate's face and looking at the confederate's face. Although eyeing and looking at the confederate's face were not significantly correlated with each other, $\phi(1) = -.05$, $p > .05$, these two measures were

summed to form an index called gazing in order to examine the possibility that the sum of the two measures might relate more to field dependence-independence than either measure considered separately. By summing over the 18 cartoons, measures were thus obtained from observer scoring for frequency of eyeing the confederate's face, frequency of looking at the confederate's face, frequency of gazing at the confederate's face, and duration of gazing at the confederate's face.

Experimental Design and Statistical Analyses

The present study involved a 2 x 2 x 2 x 3 mixed design (Keppel, 1973, p. 423) comprising three between-subject effects each containing two levels and one within-subject effect containing three levels. Between-subject effects included field dependence-independence, the presence/absence of canned laughter, and the presence/absence of the confederate. The within-subject effect consisted of the three successive blocks of six cartoons. For each of the field-dependent and field-independent groups of subjects, a total of 23 subjects constituted the final sample in each of the four conditions defined by the presence or absence of canned laughter and by the presence or absence of the confederate.

As a preliminary step in testing the first five hypotheses, Pearson product-moment correlations were calculated to examine the magnitude of the relationships

among the six measures of humor appreciation. Because these correlations were considered to be of sufficient magnitude for the use of multivariate statistics, multivariate analyses of variance were then conducted on all six measures of humor appreciation. A $2 \times 2 \times 2 \times 3$ univariate analysis of variance was subsequently conducted on each measure of humor appreciation separately in order to determine which dependent variables yielded statistically significant results on effects which were significant in the multivariate analyses. Tests of simple main effects and simple interaction effects were conducted on significant interactions and Tukey ratios were calculated to determine which differences between blocks of cartoons were statistically significant.

To test Hypothesis 6 which involved looking at the confederate's face, 2×2 analyses of variance were conducted on frequency of eyeing, looking, and gazing at the confederate's face. Duration of gazing at the confederate's face was also subjected to a 2×2 analysis of variance. The two between-subject effects involved in all analyses for Hypothesis 6 were field dependence-independence and the presence/absence of canned laughter.

Prior to testing Hypotheses 1 to 6, reliability indices were computed for observer agreement and for the PRFT. For all analyses conducted in this study, the alpha level was set at .05.

Multivariate analyses of variance were conducted by means of the Multivariate VI computer program; Biomedical Computer Programs P - Series (BMDP) was used to conduct the $2 \times 2 \times 2 \times 3$ univariate analyses of variance. All other statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS).

CHAPTER III

RESULTS

This chapter contains the results of the present study. Reliability indices for the PRFT and for observers' scoring are presented first. The next section contains the results of the major statistical analyses used to test the research hypotheses. The chapter concludes with data obtained from the postexperimental interview.

Reliability

PRFT

Each subject's PRFT score consisted of the sum of the absolute deviations from the vertical over eight trials. A test-retest reliability coefficient of +.95 was obtained based on 20 subjects from the present study retested with the PRFT after an average of 34 days. Based on the final sample of 184 subjects, the Spearman-Brown split-half reliability coefficient for the PRFT was +.96.

Observer Reliability

Humor appreciation. Table 4 presents product-moment correlations computed to determine the extent of inter-observer agreement on five dependent variables, namely, frequency of laughter, frequency of smiling, rating of overt mirth, duration of laughter, and duration of smiling. Inspection of Table 4 reveals that interobserver reliabilities for these five measures ranged from +.43 to +.92. The

Table 4
 Interobserver Reliabilities
 for Measures of Humor Appreciation

Dependent Variable	Block, of Cartoons			
	1	2	3	Total ^a
Frequency of Laughter	.88	.81	.86	.90
Frequency of Smiling	.70	.61	.54	.70
Rating of Overt Mirth	.91	.84	.88	.92
Duration of Laughter	.88	.81	.86	.91
Duration of Smiling	.75	.43	.56	.67

Note. These correlations are based on the total sample of 184 subjects and all are significant at $p < .01$.

^a These correlations are based on sums obtained over the three blocks of cartoons.

median interobserver reliability coefficient was +.81 for the 15 coefficients involving separate blocks of cartoons. These reliability coefficients are generally consistent with previous research in which interobserver reliabilities for similar behaviors ranged from +.45 to +.98 with the majority in the +.70 to +.95 range (Arthur, 1974; Branch, Fine, & Jones, 1973; Doris & Fierman, 1956; Foot & Chapman, 1976; Gerber & Routh, 1975; Justin, 1932; Lefcourt, Antrobus, & Hogg, 1974; Leventhal & Cupchik, 1975; Murphy, 1975; Murphy & Pollio, 1975; Peterson [cited in Pollio & Edgerly, 1976]; Rosenfeld, 1966; Wolosin, 1975; Zigler, Levine, & Gould, 1966). Inspection of Table 4 also reveals that agreement between observers was higher for measures of laughter than for measures of smiling. Although certain studies have also reported higher interobserver reliabilities for laughing than for smiling (Peterson [cited in Pollio & Edgerly, 1976]), the reverse has been true in other studies (Arthur, 1974; Branch et al., 1973).

The relatively low interobserver reliabilities obtained for smiling would not appear to be due to an inadequate definition of this behavior; Murphy (1975) obtained an interobserver reliability coefficient of +.91 using essentially the same definition for smiling. It is possible, however, that insufficient time was devoted to training the observers to score smiles. Relevant to this suggestion are data in Appendix J on indices of inter- and intraobserver agreement obtained immediately after observer training and

after the scoring for all experimental subjects had been completed. Inspection of this data reveals that immediately after training, interobserver agreement for frequency and duration of smiling was generally comparable to the acceptable levels of agreement for frequency and duration of laughter. These interobserver reliability coefficients were, however, based on a small sample of eight subjects from the pilot study. Diversity in smiling may have been considerably greater in the total sample of 184 subjects who participated in the experiment proper.

Supplementary data on interobserver agreement are contained in Appendix K. This appendix presents data on interobserver agreement based on 30 subjects who were exposed to the cartoons a second time, as well as data on the temporal stability of measures of humor appreciation.

Visual behavior. Measures of observer agreement for frequency of gazing, eyeing, and looking at the confederate are presented in Table 5. Indices of agreement rather than product-moment correlations were calculated for frequency of visual behavior due to the high incidence of zero scores and restriction of range. The formula used to calculate percentage of observer agreement was:

$$\frac{\text{no. of cartoons on which observers agreed the response did or did not occur}}{\text{total number of cartoon exposures}} \times 100$$

Inspection of Table 5 reveals that observer agreement for frequency of eyeing, looking, and gazing at the confederate's face ranged from 96% to 100%.

Table 5
Percent of Observer Agreement for Frequency of
Eyeing, Looking, and Gazing at the Confederate's Face

Type of Observer Agreement	Dependent Variable		
	Eyeing the Confederate's Face	Looking at the Confederate's Face	Gazing at the Confederate's Face
Interobserver Agreement			
After training ^a	97	99	96
Midway in scoring ^b	98	100	98
Intraobserver Agreement ^a			
	98	100	98

^aThese measures of observer agreement are based on the first five experimental subjects whose sessions with the confederate were on the videotape selected at random to be scored first. The visual behavior of these subjects was scored by both observers immediately after training and again after scoring of the visual behavior of the 92 subjects was completed.

^bThese measures of agreement are based on five experimental subjects selected at random from among those subjects whose behavior was observed midway through the scoring of visual behavior.

Product-moment correlations were used to measure observer agreement for duration of gazing at the confederate's face. Interobserver agreement was not statistically significant immediately after observer training, $r(3) = +.38$, $p > .05$ but was significant midway through scoring, $r(3) = +.87$, $p < .05$. Intraobserver agreement, calculated after scoring was completed, was also statistically significant, $r(3) = +.93$, $p < .05$. These measures of observer agreement for duration of gazing were based on the same subjects used to determine observer agreement for frequency of gazing at the confederate's face. Observer agreement for eye contact, also based on the same subjects, ranged from 99% to 100%.

Confederate behavior. Immediately after both observers had been trained to note the sequence of the confederate's behavior during each cartoon, five sessions involving the confederate were randomly selected from the pilot study to determine interobserver agreement for scoring the confederate's behavior. These same five sessions from the pilot study were also used to determine intraobserver agreement after scoring of the confederate's behavior had been completed. As an additional check that scoring remained consistent, interobserver agreement was also determined midway through scoring based on 11 sessions randomly selected from those comprising the actual experiment. An agreement was tallied each time both observers (interobserver agreement) or the same observer

(intraobserver agreement) scored a laugh, smile, or a blank expression for the confederate on the exposure of a given cartoon. Interobserver agreement in scoring the confederate's behavior was 91% immediately after observer training and 97% midway through scoring. Intraobserver agreement was 94%. With respect to confederate verbalizations, indices of interobserver and intraobserver agreement were consistently 99%.

Scoring Equipment Usage. As a final check on observer agreement, a comparison was made of the observers' accuracy in using the scoring panel. Each observer made a sequence of 100 button depressions, each depression lasting 5 seconds as timed by a stopwatch. A second sequence of 100 depressions each lasting 3 seconds was also obtained. As indicated in Table 6, measures of duration were quite accurate and observers did not differ significantly for durations of 5 or 3 seconds.

Tests of the Research Hypotheses

Humor Appreciation

As previously described, six dependent variables, collectively referred to as measures of humor appreciation, were derived to test the first five hypotheses. These six dependent variables included: frequency of laughter, frequency of smiling, rating of overt mirth, duration of laughter, duration of smiling, and funniness ratings. Pearson product-moment correlation coefficients were

Table 6

Measurement of Duration (sec): Means, Standard Deviations,
and Significance of Differences Between Means for Observers

Duration	Observer A		Observer B		t
	Mean	Standard Deviation	Mean	Standard Deviation	
5 seconds	4.96	.10	4.95	.14	.34
3 seconds	2.99	.11	2.98	.07	1.77

calculated to examine the magnitude of the relationships among the six dependent variables (Table 7). These inter-correlations, which were also factor analyzed (Appendix L), were considered to be of sufficient magnitude for the use of multivariate statistics. Given the experimental design of the present study, a $2 \times 2 \times 2 \times 3$ multivariate analysis of variance was selected for use. This analysis included three between-subject effects each containing two levels (viz., field dependence-independence, the presence/absence of the confederate, the presence/absence of canned laughter), and one within-subject effect containing three levels (viz., blocks of cartoons).

Due to the nature of available computer programs, a $2 \times 2 \times 2 \times 3$ multivariate analysis of variance could not be conducted in one stage. Therefore, two multivariate analyses of variance were conducted. In the first analysis, each of the six measures of humor appreciation was summed across the complete set of 18 cartoons for each subject, and the six measures were simultaneously subjected to a $2 \times 2 \times 2$ multivariate analysis of variance involving the three between-subject effects. This first multivariate analysis yielded results for main and interaction effects of the three between-subject variables. In the second analysis, the six measures of humor appreciation were again subjected to a $2 \times 2 \times 2$ multivariate analysis of variance involving all three between-subject effects but this time the analysis was based on two orthogonal contrasts between

Table 7
Correlation Matrix of the Six Measures of Humor Appreciation

Variable	1	2	3	4	5	6
<u>Observer Scored</u>						
1. Frequency of Laughter	1.00					
2. Frequency of Smiling	.43	1.00				
3. Rating of Overt Mirth	.95	.65	1.00			
4. Duration of Laughter	.92	.39	.87	1.00		
5. Duration of Smiling	.27	.85	.46	.24	1.00	
<u>Self-Reported</u>						
6. Funniness Ratings	.38	.30	.45	.32	.22	1.00

Note. All correlations are significant at $p < .001$.

blocks of cartoons for all dependent measures. This second multivariate analysis yielded results involving the main and interaction effects of blocks of cartoons. Results for both multivariate analyses of variance are summarized in Table 8. Cell means for each of the six measures of humor appreciation are presented in Table 9.

The multivariate analysis of variance yielded statistically significant results for two main effects, two two-way interactions, and one three-way interaction. Only one of these five significant effects had been hypothesized, namely the significant main effect for the confederate manipulation, $F(6, 171) = 12.90, p < .0001$, which revealed that subjects accompanied by the confederate evidenced greater humor appreciation than subjects who were alone. Hypothesis 1 concerning the main effect of the confederate was thus supported. The four remaining significant multivariate F ratios included a main effect for blocks of cartoons, $F(12, 165) = 9.34, p < .0001$; a two-way interaction between the canned laughter and confederate manipulations, $F(6, 171) = 2.21, p < .05$; a two-way interaction between blocks of cartoons and canned laughter, $F(12, 165) = 3.76, p < .0001$; and a three-way interaction between field dependence-independence, the confederate manipulation, and blocks of cartoons $F(12, 165) = 2.19, p < .01$.

In order to examine which dependent variables yielded statistically significant results on effects which were

Table 8
 Summary of Multivariate Analyses of Variance
 of Measures of Humor Appreciation

Source of Variance	df	Wilks' Lambda	Approximate F
Main Effects			
Field Dependence-Independence (A)	6,171	.97	.75
Canned Laughter (B)	6,171	.95	1.62
Confederate (C)	6,171	.69	12.90***
Blocks of Cartoons (D)	12,165	.60	9.34***
Two-Way Interactions			
A x B	6,171	.98	.71
A x C	6,171	.96	1.16
B x C	6,171	.93	2.21*
A x D	12,165	.91	1.36
B x D	12,165	.79	3.76***
C x D	12,165	.90	1.53
Three-Way Interactions			
A x B x C	6,171	.98	.46
A x B x D	12,165	.96	.57
A x C x D	12,165	.86	2.19**
B x C x D	12,165	.98	.27
Four-Way Interactions			
A x B x C x D	12,165	.89	1.63

* $p < .05$.
 ** $p < .01$.
 *** $p < .0001$.

Table 9

Cell Means for the Six Measures of Humor Appreciation

Experimental Condition	Variables						Self-Reported Funniness Ratings
	Frequency of Laughter	Frequency of Smiling	Observer Scored Rating of Overt Mirth	Duration of Laughter	Duration of Smiling		
Field-Independent Subjects							
Block 1							
Alone/No Canned Laughter	.50	.91	13.67	2.38	4.19	16.70	
Alone/Canned Laughter	.74	.78	13.83	2.75	2.31	15.96	
Confederate/No Canned Laughter	1.85	1.80	16.63	5.75	8.62	21.52	
Confederate/Canned Laughter	1.65	1.57	16.11	5.38	6.27	22.48	
Block 2							
Alone/No Canned Laughter	.93	.50	14.26	2.94	2.27	19.09	
Alone/Canned Laughter	1.17	.65	14.50	4.29	2.50	17.61	
Confederate/No Canned Laughter	1.76	1.74	16.54	4.72	7.91	22.13	
Confederate/Canned Laughter	1.15	1.09	15.02	4.56	4.72	20.00	
Block 3							
Alone/No Canned Laughter	.50	.96	13.80	1.67	4.17	20.61	
Alone/Canned Laughter	1.22	.76	14.98	4.75	3.04	21.35	
Confederate/No Canned Laughter	1.76	1.33	16.28	5.89	5.97	22.65	
Confederate/Canned Laughter	1.56	1.52	16.13	6.09	5.41	22.87	
Field-Dependent Subjects							
Block 1							
Alone/No Canned Laughter	.74	1.28	14.57	3.64	7.70	18.96	
Alone/Canned Laughter	.65	.74	13.59	1.69	2.77	19.91	
Confederate/No Canned Laughter	2.24	2.46	17.85	8.94	11.23	21.91	
Confederate/Canned Laughter	1.67	1.83	16.48	6.21	7.57	21.74	
Block 2							
Alone/No Canned Laughter	.72	1.04	14.17	1.87	5.04	18.70	
Alone/Canned Laughter	.54	.43	13.28	1.94	2.48	18.83	
Confederate/No Canned Laughter	2.37	1.50	17.54	6.93	6.05	21.65	
Confederate/Canned Laughter	1.52	1.43	16.02	5.30	5.88	22.52	
Block 3							
Alone/No Canned Laughter	.76	.87	14.28	2.67	4.58	20.74	
Alone/Canned Laughter	.91	.54	14.22	2.88	1.99	22.09	
Confederate/No Canned Laughter	2.61	1.65	17.89	7.97	6.79	23.26	
Confederate/Canned Laughter	2.37	1.24	17.65	8.98	6.99	25.83	

significant in the multivariate analyses, a $2 \times 2 \times 2 \times 3$ mixed design analysis of variance (Keppel, 1973, p. 423) was computed on each of the six dependent variables separately. A BMDP computer program was used to conduct these analyses. Several considerations prompted this approach rather than using univariate results available from the Multivariate VI computer program. A primary consideration was the fact that these latter univariate results for interactions involving blocks of cartoons differed depending on the particular combination of orthogonal comparisons used in the multivariate analysis. Additionally, orthogonal comparisons of blocks of cartoons conducted in the Multivariate program failed to yield univariate results for differences between each successive block of cartoons because only two orthogonal comparisons could be analyzed. Univariate results for differences between experimental conditions within a given block of cartoons were also unavailable from the Multivariate program.

In conducting the $2 \times 2 \times 2 \times 3$ mixed design univariate analyses of variance, the same between- and within-subject variables were used as in the case of the multivariate analyses of variance. Where possible, comparisons were made between the computer printout of results provided by the BMDP program and that provided by the Multivariate VI program. Such comparisons yielded identical results for sums of squares, degrees of freedom, and F ratios.

Table 10 presents F ratios for the univariate analyses of variance. Complete analysis of variance tables for these univariate results are presented in Appendix M. Because the test for compound symmetry was statistically significant for orthogonal contrasts on the dependent variables involving differences between blocks of cartoons, ($\chi^2(66) = 1701.65$, $p < .0001$; Pearson-Hartley $F_{\max} = 29.68$), Geisser-Greenhouse conservative F ratios were obtained for all univariate effects involving blocks of cartoons. Procedures described by Kirk (1968, p. 289) were used to make the required adjustments to the degrees of freedom.

As indicated in Table 10, all six univariate F ratios corresponding to the significant multivariate F ratio for the main effect of the confederate were statistically significant. Thus, compared to subjects who were alone, subjects accompanied by the mirthful confederate laughed and smiled longer and more frequently, received higher ratings of overt mirth, and rated the cartoons as funnier.

The significant multivariate F ratio for the two-way interaction between the canned laughter and confederate manipulations appeared to be due mainly to frequency of laughter, the sole dependent variable for which the corresponding univariate F ratio was significant, F (1, 176) = 3.92, $p < .05$. An analysis of the simple main effects of this interaction, plotted in Figure 1, revealed that the difference in frequency of laughter between the no canned laughter and canned laughter conditions was statistically

Table 10

F Ratios for the 2 x 2 x 2 x 3 Univariate Analysis
of Variance Conducted on Each Measure of Humor Appreciation

Source of Variance ^a	Variables					Self-Reported Funniness Ratings
	Frequency of Laughter	Frequency of Smiling	Observer Scored Rating of Overt Mirth	Duration of Laughter	Duration of Smiling	
Main Effects						
Field Dependence-Independence (A)	1.49	.62	2.34	1.00	.78	2.36
Canned Laughter (B)	.69	3.73	2.27	0.00	2.91	.14
Confederate (C)	48.29***	29.20***	67.23***	30.49***	9.26**	19.70***
Blocks of Cartoons (D)	3.38	9.95**	4.34*	3.99*	7.99**	22.85***
Two-Way Interactions						
A x B	1.07	.92	2.38	1.47	.13	.90
A x C	4.01*	.16	4.10*	4.19*	0.00	.10
B x C	3.92*	.01	1.72	.75	.06	.02
A x D	2.31	2.19	1.37	1.65	1.72	.53
B x D	3.36	.63	5.99*	4.86*	3.12	3.27
C x D	2.68	1.74	1.84	2.76	1.19	2.38
Three-Way Interactions						
A x B x C	.12	.25	.46	.20	.54	0.00
A x B x D	.01	.47	.22	.42	.85	.97
A x C x D	3.02	.66	2.19	.42	1.52	5.78*
B x C x D	.38	.37	.51	.17	.70	.02
Four-Way Interactions						
A x B x C x D	.33	3.46	.27	1.10	.71	1.51

^aConservative F ratio degrees of freedom for all effects involving blocks of cartoons were 1,176. Degrees of freedom for all other effects were also 1,176.

* $P < .05$.** $P < .01$.*** $P < .0001$.

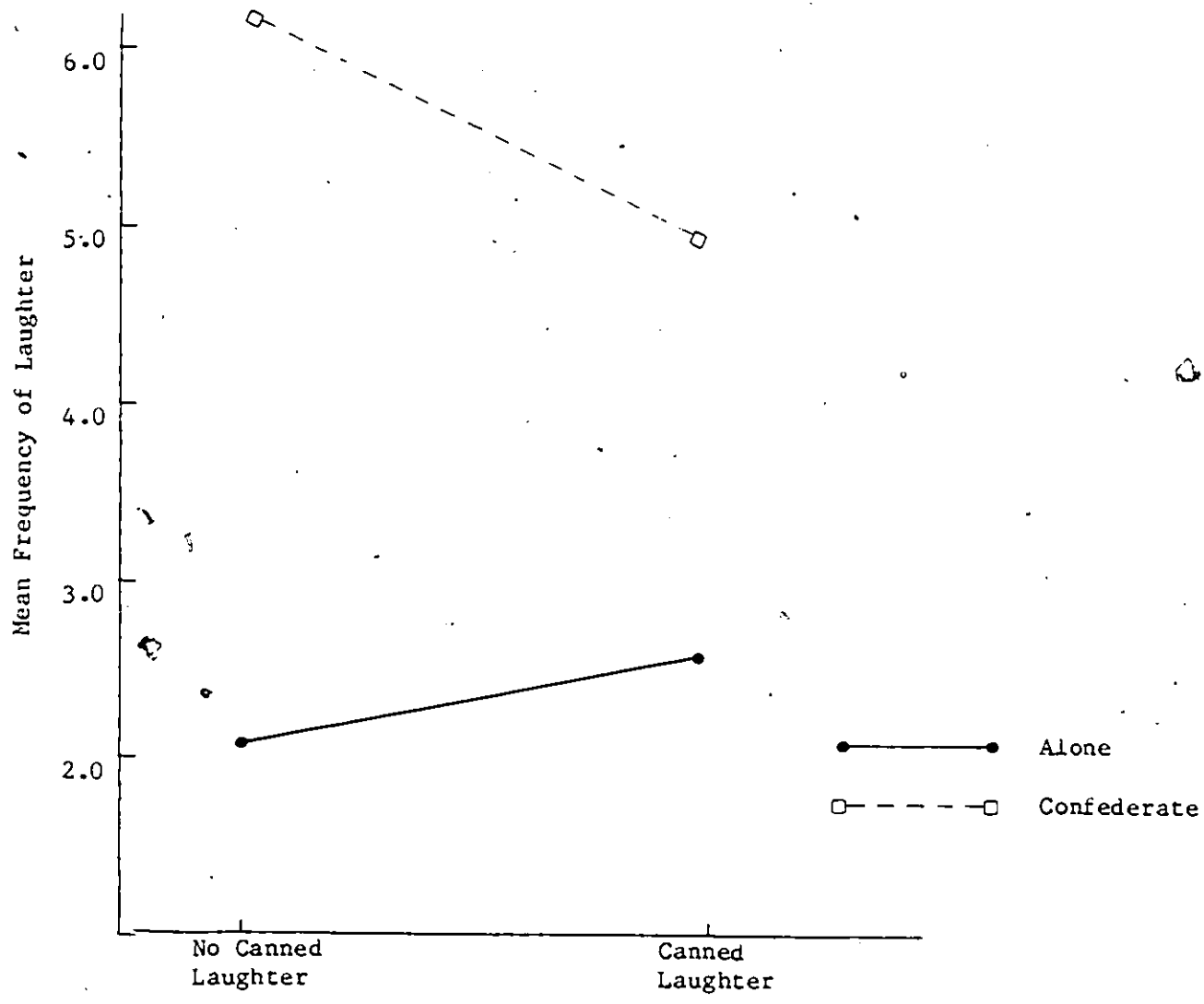


Figure 1. Frequency of Laughter as a Function of the Canned Laughter and Confederate Manipulations

significant for subjects accompanied by the confederate, $F(1, 176) = 17.82, p < .001$, but not for subjects who were alone, $F(1, 176) = 1.99, p > .05$. Subjects accompanied by the confederate laughed less frequently when canned laughter was present than when it was absent.

Three significant multivariate F ratios involved the effect of blocks of cartoons. As indicated in Table 10, five univariate F ratios corresponding to the significant multivariate F ratio for the main effect of blocks of cartoons were statistically significant. Means for these five measures of humor appreciation by blocks of cartoons are presented in Table 11. Since no hypothesis had been formulated concerning the main effect of blocks of cartoons, Tukey tests were used to determine which particular differences between blocks were statistically significant. Results of these Tukey tests, summarized in Table 12, indicate that frequency and duration of smiling decreased significantly between the first and second and the first and third blocks of cartoons. In contrast, all other measures of humor appreciation increased significantly across blocks. Specifically, ratings of overt mirth and duration of laughter increased significantly between the second and third blocks of cartoons, and funniness ratings increased significantly between the second and third and the first and third blocks of cartoons.

With respect to the statistically significant multivariate F ratio for the interaction between canned

Table 11
Means for Five Measures of Humor Appreciation
by Blocks of Cartoons

Dependent Variable	Cartoon Block		
	1	2	3
<u>Observer Scored</u>			
Frequency of Smiling	1.42	1.05	1.11
Rating of Overt Mirth	15.34	15.17	15.65
Duration of Laughter	4.59	4.07	5.11
Duration of Smiling	6.33	4.61	4.87
<u>Self-Reported</u>			
Funniness Ratings	19.90	20.07	22.42

Table 12

Tukey Ratios (q) for Differences Between Blocks of Cartoons
on Five Measures of Humor Appreciation

Dependent Variable	Difference		
	Block 1 - Block 2	Block 2 - Block 3	Block 1 - Block 3
<u>Observer Scored</u>			
Frequency of Smiling	5.87**	- .94	4.93**
Rating of Overt Mirth	1.45	-4.11**	-2.66
Duration of Laughter	2.01	-4.00*	-1.99
Duration of Smiling	5.24**	- .80	4.45**
<u>Self-Reported</u>			
Funniness Ratings	- .65	-9.12**	-9.77**

* $p < .05$.

** $p < .01$.

laughter and blocks of cartoons, two dependent variables yielded significant univariate F ratios for the corresponding interaction. Figures 2 and 3 present the interaction between canned laughter and blocks of cartoons for ratings of overt mirth and duration of laughter respectively. Analysis of the simple main effects of this interaction for ratings of overt mirth revealed that the only statistically significant difference between the no canned laughter and canned laughter conditions occurred in the second block of cartoons where ratings of overt mirth were lower when canned laughter was present than when it was absent, $F(1, 528) = 6.25, p < .05$. This analysis of the simple main effects of the interaction between canned laughter and blocks of cartoons also revealed a statistically significant effect of blocks of cartoons on ratings of overt mirth when canned laughter was present, $F(2, 352) = 10.22, p < .001$, but not when canned laughter was absent, $F(2, 352) = .12, p > .05$. Similar results were obtained for duration of laughter: The effect of blocks of cartoons was statistically significant when canned laughter was present, $F(2, 352) = 6.76, p < .01$, but not when it was absent, $F(2, 352) = 2.09, p > .05$. Tukey tests of the differences between blocks of cartoons in the canned laughter condition revealed that the difference between the second and third blocks of cartoons was statistically significant for ratings of overt mirth ($q = -6.20, p < .01$) and for duration of laughter ($q = -4.48, p < .01$). The

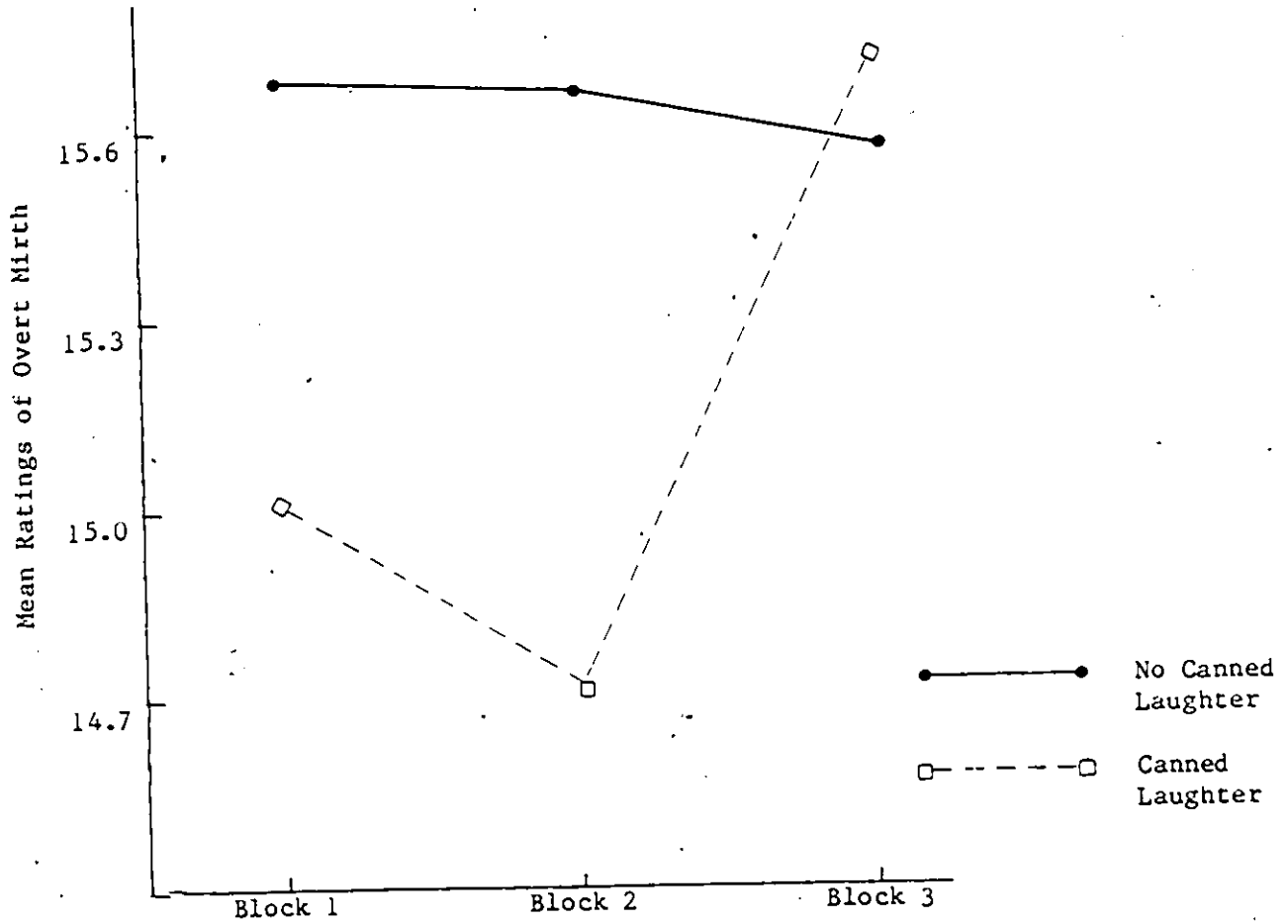


Figure 2. Ratings of Overt Mirth as a Function of the Canned Laughter Manipulation and Blocks of Cartoons

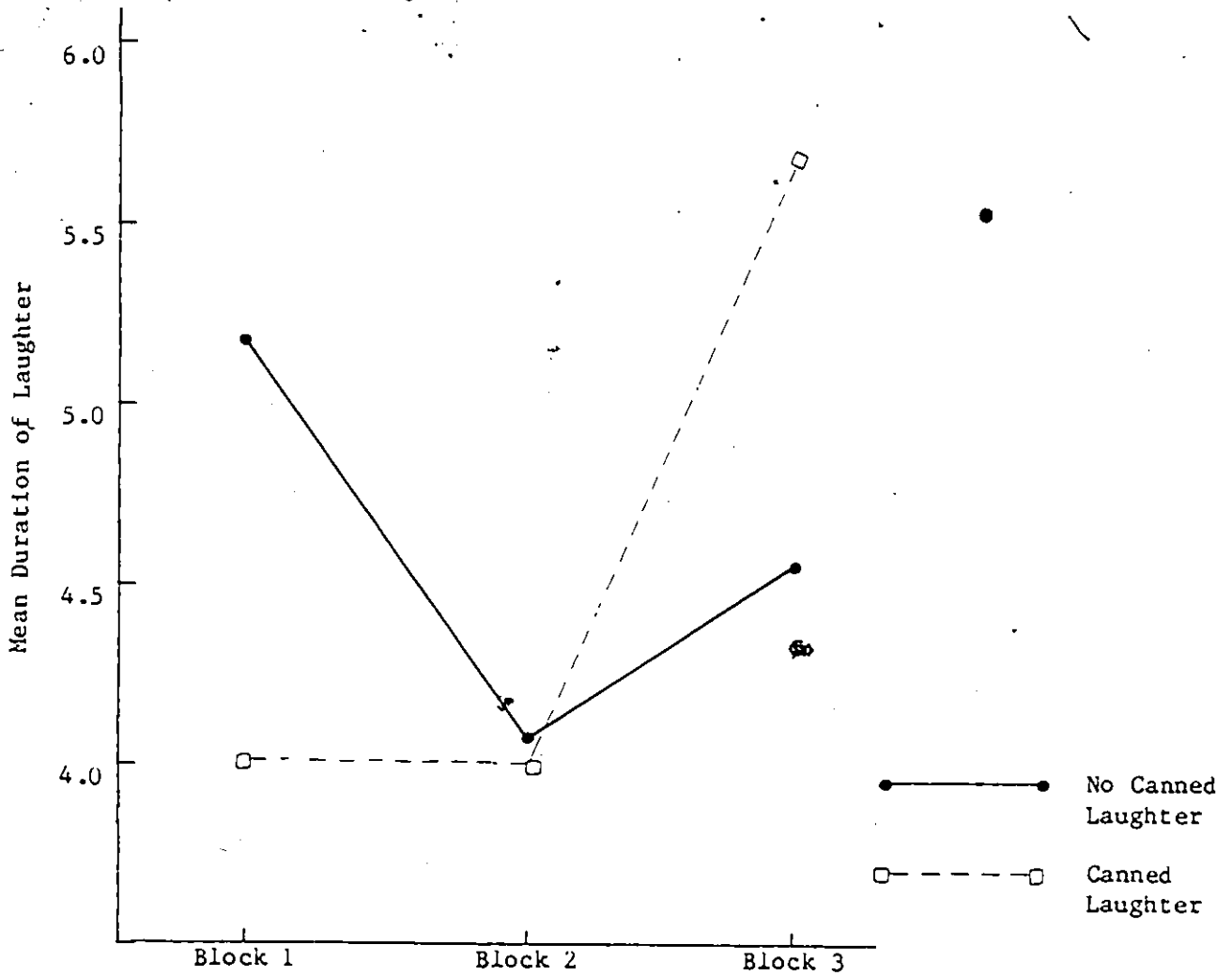


Figure 3. Duration of Laughter as a Function of the Canned Laughter Manipulation and Blocks of Cartoons

difference between the first and third blocks of cartoons was also statistically significant for ratings of overt mirth ($q = -4.45, p < .01$) and duration of laughter ($q = -4.52, p < .01$). In each case, means for ratings of overt mirth and duration of laughter increased across blocks of cartoons.

Another significant multivariate F ratio which involved blocks of cartoons was the three-way interaction between field dependence-independence, the confederate manipulation, and blocks of cartoons. With respect to univariate analyses of variance, the corresponding three-way interaction was significant only for self-reported funniness ratings, $F(1, 176) = 5.78, p < .05$. This three-way interaction for funniness ratings, plotted in Figure 4, was subjected to tests of simple interaction effects which revealed a statistically significant interaction between field dependence-independence and blocks of cartoons for subjects who were alone, $F(2, 352) = 4.49, p < .05$. As indicated by Tukey tests, field-dependent subjects who were alone rated the cartoons funnier in the third block of cartoons than in the first block ($q = -3.82, p < .05$) or the second block ($q = -5.13, p < .01$). In contrast, field-independent subjects who were alone demonstrated a consistent increase in their funniness ratings across all blocks of cartoons. These latter subjects rated the second block funnier than the first ($q = -3.91, p < .05$), the third block funnier than

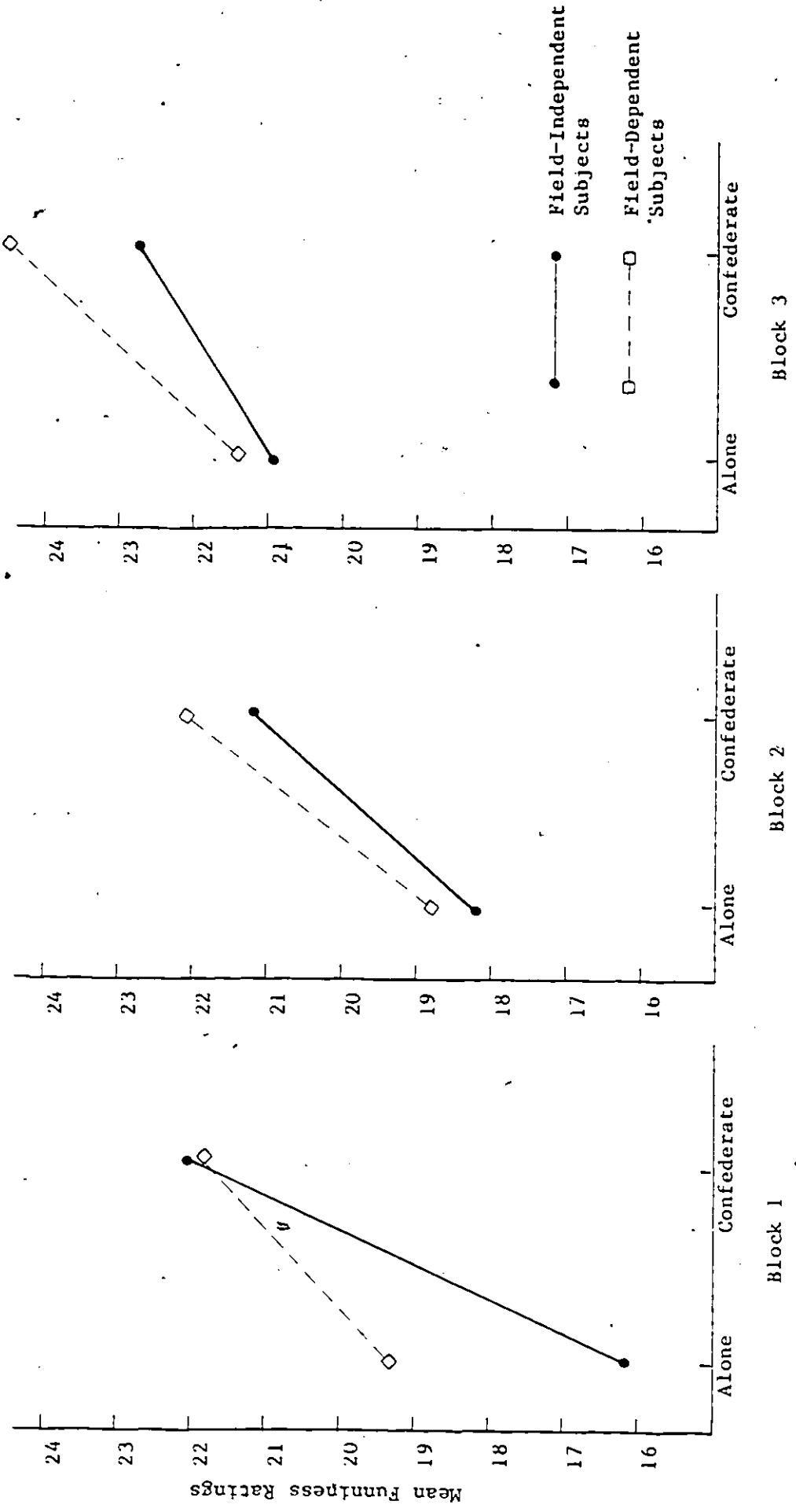


Figure 4. Funniness Ratings as a Function of Field Dependence-Independence, the Confederate Manipulation, and Blocks of Cartoons

the second ($q = -5.09$, $p < .01$), and the third block funnier than the first ($q = -8.99$, $p < .01$).

Analysis of the simple interaction effects of three-way interaction for funniness ratings also revealed a significant interaction between the confederate manipulation and blocks of cartoons for field-independent subjects, $F(2, 352) = 7.71$, $p < .001$. The increase in funniness ratings across blocks of cartoons for field-independent subjects was significant only when these subjects were alone, $F(2, 352) = 20.34$, $p < .001$. When field-independent subjects were accompanied by the confederate, their funniness ratings did not differ significantly across blocks of cartoons, $F(2, 352) = 2.70$, $p > .05$. Additionally, the difference in funniness ratings between alone and confederate conditions was significant for field-independent subjects in the first ($F(1, 528) = 23.37$, $p < .001$) and second ($F(1, 528) = 5.36$, $p < .05$) blocks of cartoons but not in the third ($F(1, 528) = 2.31$, $p > .05$). In contrast, for field-dependent subjects the difference in funniness ratings between alone and confederate conditions was consistently significant in all three blocks of cartoons: $F(1, 528) = 4.15$, $p < .05$ for the first block; $F(1, 528) = 8.03$, $p < .01$ for the second block; $F(1, 528) = 7.12$, $p < .01$ for the third block. However, the interaction between field dependence-independence and the confederate manipulation was statistically significant only in the first block of cartoons, $F(1, 528) = 3.91$,

$p < .05$. In this first block, contrary to Hypothesis 3, the difference between alone and confederate conditions was greater for field-independent than for field-dependent subjects. (Interestingly, however, as indicated in Table 10, the hypothesized two-way interaction between field dependence-independence and the confederate manipulation was statistically significant in the case of frequency of laughter, duration of laughter, and ratings of overt mirth, although the corresponding two-way multivariate interaction was not statistically significant.)

Visual Behavior

As described in chapter 2, frequency of looking at the confederate's face was operationalized in terms of eyeing, looking, and gazing, gazing being defined as the sum of eyeing and looking. To test Hypothesis 6 that field-dependent subjects would look at the confederate's face more frequently than would field-independent subjects, each of these three measures for frequency of looking was subjected to a 2 x 2 analysis of variance involving two between-subject effects (viz., field dependence-independence and the presence/absence of canned laughter). The results of these analyses, presented in Tables 13, 14, and 15, were not statistically significant. Data on actual frequencies of eyeing, looking, and gazing at the confederate's face are presented in Table 16.

Table 13

Summary of the 2 x 2 Analysis of Variance for Frequency
of Eyeing the Confederate's Face

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Field Dependence-Independence (A)	1.57	1	1.57	1.65
Canned Laughter (B)	.17	1	.17	.18
A x B	.00	1	.00	.00
Exp. Error	83.74	88	.95	

Table 14
 Summary of the 2 x 2 Analysis of Variance for Frequency
 of Looking at the Confederate's Face

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Field Dependence-Independence (A)	.10	1	.10	.12
Canned Laughter (B)	.10	1	.10	.12
A x B	.10	1	.10	.12
Exp. Error	72.17	88	.82	

Table 15

Summary of the 2 x 2 Analysis of Variance for Frequency
of Gazing at the Confederate's Face

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Field Dependence-Independence (A)	2.45	1	2.45	1.43
Canned Laughter (B)	.53	1	.53	.31
A x B	.10	1	.10	.06
Exp. Error	150.61	88	1.71	

Table 16

Total Frequency of Eyeing, Looking, and Gazing
at the Confederate's Face

Group	Eyeing	Looking	Gazing
No Canned Laughter Condition			
Field-Independent	11 (5)	14 (10)	25 (13)
Field-Dependent	5 (2)	14 (8)	19 (10)
Canned Laughter Condition			
Field-Independent	9 (3)	14 (8)	23 (10)
Field-Dependent	3 (3)	11 (10)	14 (12)

Note. Numbers in parentheses indicate the number of subjects who engaged in the behavior in question.

Hypothesis 6 also predicted that field-dependent subjects would look at the confederate's face longer than would field-independent subjects. To test this aspect of Hypothesis 6, measures for duration of gazing at the confederate's face were subjected to a 2 x 2 analysis of variance involving the between-subject effects of field dependence-independence and the presence/absence of canned laughter. As indicated in Table 17, no significant results were obtained. For field-independent subjects, the total duration of gazing at the confederate's face was 39.70 seconds; for field-dependent subjects the corresponding figure was 28.27 seconds. Thus, Hypothesis 6 received no support in terms of either frequency or duration of looking at the confederate's face.

Supplementary analyses. Chi-square tests were applied to the number of field-dependent and field-independent subjects who engaged in or failed to engage in eyeing, looking, or gazing at the confederate's face. Results of these chi-square analyses were not statistically significant for eyeing, $\chi^2(1) = .81$, $p > .05$, for looking, $\chi^2(1) = 0$, $p > .05$, or for gazing, $\chi^2(1) = .04$, $p > .05$. Thus, field-dependent and field-independent subjects did not differ significantly in the proportion of each group which eyed, looked, or gazed at the confederate's face.

Summary of Results Regarding the Research Hypotheses

The first five hypotheses in the present study involved humor appreciation. Results of the multivariate analyses of

Table 17

Summary of the 2 x 2 Analysis of Variance for Duration
of Gazing at the Confederate's Face

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Field Dependence-Independence (A)	1.50	1	1.50	1.03
Canned Laughter (B)	.16	1	.16	.11
A x B	.66	1	.66	.46
Exp. Error	128.33	88	1.46	

variance used to test these five hypotheses provided support for the first hypothesis which predicted that: All measures of humor appreciation will be significantly greater for subjects accompanied by a mirthful confederate than for subjects in an alone condition.

All six univariate analyses of variance also supported Hypothesis 1. Specifically, compared to subjects who were alone, subjects accompanied by the mirthful confederate laughed and smiled longer and more frequently, received higher ratings of overt mirth, and rated the cartoons as funnier.

Results of the multivariate analyses of variance provided no support for the remaining four hypotheses dealing with humor appreciation. These hypotheses involved the main effect of canned laughter (Hypothesis 2), the two-way interaction between field dependence-independence and the confederate manipulation (Hypothesis 3), the two-way interaction between field dependence-independence and the canned laughter manipulation (Hypothesis 4), and the three-way interaction between field dependence-independence, the confederate manipulation, and the canned laughter manipulation (Hypothesis 5).

Although the multivariate analyses conducted on measures of humor appreciation failed to support Hypotheses 2, 3, 4, or 5, significant results were obtained on four effects. One such effect involved a two-way interaction between the canned laughter and confederate manipulations.

At the univariate level, this two-way interaction was significant for frequency of laughter: Subjects accompanied by the mirthful confederate, but not subjects alone, laughed less frequently when canned laughter was present than when it was absent.

The three remaining significant multivariate results involved blocks of cartoons. These significant results included the main effect of blocks of cartoons, the two-way interaction between blocks and the canned laughter manipulation, and the three-way interaction between blocks of cartoons, field dependence-independence, and the confederate manipulation.

Inspection of univariate results corresponding to significant multivariate effects revealed that the main effect of blocks of cartoons was statistically significant for five measures of humor appreciation. Tukey tests applied to these univariate means for blocks of cartoons revealed significant decreases across blocks for frequency and duration of smiling and significant increases across blocks of cartoons on the remaining three measures of humor appreciation.

Analyses of univariate results for the two-way interaction between canned laughter and blocks of cartoons indicated that ratings of overt mirth and duration of laughter increased significantly across blocks of cartoons when canned laughter was present but not when it was absent.

Univariate results for the three-way interaction between blocks of cartoons, field dependence-independence, and the confederate manipulation were significant only in the case of self-reported funniness ratings. Analysis of this three-way interaction for funniness ratings indicated that, whereas field-dependent subjects rated the cartoons increasingly funny across successive blocks of cartoons regardless of whether they were alone or with the confederate, field-independent subjects rated the cartoons increasingly funny only when they were alone. Additionally, whereas the enhancing effect of the mirthful confederate on funniness ratings was significant for field-dependent subjects in all three blocks of cartoons, for field-independent subjects this effect was significant only in the first two blocks. However, the interaction between field dependence-independence and the mirthful confederate was statistically significant only in the first block of cartoons. In this first block, contrary to Hypothesis 3, the difference between alone and confederate conditions was greater for field-independent subjects than for field-dependent subjects. As previously noted, however, the hypothesized two-way interaction between field dependence-independence and the confederate manipulation was statistically significant and differences between means were in the predicted direction for frequency of laughter, duration of laughter, and ratings of overt mirth, although

the corresponding two-way interaction in the multivariate analysis was not statistically significant.

The sixth hypothesis in the present study involved visual behavior and was tested by means of univariate analyses of variance. The results of these analyses as well as of supplementary analyses failed to provide support for the hypothesis which stated that: Field-dependent people will look at the confederate's face significantly longer and more frequently than will field-independent people.

Postexperimental Interview

Following the experimental session, each subject was questioned about the inclusion of the canned laughter and/or the presence and behavior of the confederate. Additional questions were asked about the cartoons, the film, and the subject's feelings during the experimental session. Some of these latter questions were included to reduce subjects' suspicions concerning the intent of the experiment. All subjects' comments and answers in the postexperimental interview were transcribed by the experimenter.

Subjects' suspicions concerning the inclusion of canned laughter were assessed by the question: "Did the sounds of the audience on the tape distract you?". Subjects who responded to this question in the affirmative were asked to explain how the audience had distracted them. Also used to assess suspicions were spontaneous comments about the canned

laughter made by subjects at any time during the postexperimental interview.

Of the 92 subjects exposed to the canned laughter, 61 commented on its presence. Of these 61 subjects, 33 had been classified as field-independent and 28 as field-dependent. The numbered comments of these 61 subjects were read by two females, both of whom had undergraduate degrees. Neither had been involved in the experiment in any capacity. The two judges were instructed to indicate for each comment whether the subject who made the comment knew or even suspected that the canned laughter had been included to influence her in some way. The judges were also asked to indicate whether the subject who made the comment guessed or even suspected that the study was aimed at examining the effects of canned laughter on different types of people. Instructions provided to the judges are included in Appendix N.

Agreement between the judges was 85% as to which comments indicated suspiciousness about the presence of the canned laughter. Of the 61 comments referring to the canned laughter, 15(25%) were classified by both judges as indicating that the subject knew or suspected that the canned laughter had been included to influence people. Of the 15 comments so classified, 8 had been made by field-independent subjects and 7 by field-dependents. None of the 15 subjects, however, was classified by either judge as having guessed or suspected that the study was intended to

examine the effects of canned laughter on different types of people. Accordingly, none of these 15 subjects was eliminated from the study. An additional reason for retaining these subjects was the destruction of randomness which would have resulted from their loss (Keppel, 1973, p. 79).

Subjects' suspicions concerning the confederate were assessed by the question: "Did you find it distracting being with someone else in the session?". If subjects responded in the affirmative to this question they were also asked: "How was it distracting?". Also used to assess subjects' suspicions were spontaneous comments about the confederate made at any time during the postexperimental interview.

Of the 92 subjects exposed to the confederate, 33(36%) commented on her in the postexperimental interview. Twenty-three of these comments were made by field-independent subjects and 10 by field-dependents. Two females, both with undergraduate degrees and previously uninvolved in the study, read each of the 33 numbered comments and indicated for each comment whether the subject knew or even suspected that the confederate was there to influence her in some way. The judges were also asked to indicate whether the subject who made the comment guessed or even suspected that the study was intended to examine the effects of a companion on different types of people. Instructions provided to the judges are included in Appendix O.

Agreement between judges was 82% as to which comments indicated suspiciousness about the confederate. Of the 33 comments which referred to the companion, one comment made by a field-independent subject was classified by both judges as indicating that the subject knew or suspected that the companion had been there to influence her. Neither judge indicated, however, that this subject guessed or suspected that the study was intended to examine the effects of a companion on different types of people. Accordingly, this subject was not eliminated from the study.

During the postexperimental interview, subjects were also questioned about the cartoons which had been presented. Of the 184 subjects, 11 mentioned that they had had difficulty seeing some of the cartoons. Of these 11 subjects, seven mentioned specific cartoons as being difficult to see; three mentioned the bright illumination of the slides. Five of the 184 subjects stated that they had seen one or more of the cartoons before. Of the seven cartoons so identified, all but two had been published prior to 1974, a minimum of 4 years before the cartoons were presented in this study.

Subjects were also asked during the postexperimental interview if they had felt relatively relaxed or relatively tense during the experimental session. The relationship between stated feelings of relaxation and field dependence-independence was not statistically significant, $\chi^2(1) = 3.67$, $p > .05$. Additionally, stated feelings of relaxation were not significantly related to the presence/absence of

the confederate, $\chi^2(1) = 1.29, p > .05$, or to the presence/absence of canned laughter, $\chi^2(1) = .10, p > .05$. In their general comments at the end of the experimental session, 15 subjects (8 field-independent and 7 field-dependent) noted that there had been a theme in the cartoons. Of these 15 subjects, 12 identified that theme as aggressive; 9 (5 field-independent and 4 field-dependent) stated that they disliked such a theme in humor.

CHAPTER IV

DISCUSSION OF RESULTS

Following a brief restatement of the purpose of the study, this chapter presents a discussion of the results obtained for each of the research hypotheses. This discussion is followed by suggestions for improving and expanding on the present research.

Restatement of the Study's Purpose

The present study attempted to clarify the role of situational and individual difference variables in the impact of social influence on humor appreciation. Specifically, this study examined the effects of a mirthful confederate and canned laughter on overt mirth and funniness ratings and explored the interaction of these two situational variables with the individual difference variable of field dependence-independence.

Discussion of Results for the Research Hypotheses

Hypotheses involving the humor appreciation of field-dependent and field-independent subjects were based on predictions that the confederate and canned laughter would each enhance measures of overt mirth and funniness ratings. Therefore, the outcomes for these situational variables are examined first, prior to a discussion of results in terms of field dependence-independence.

With respect to the main effect of the confederate, the following hypothesis was formulated:

Hypothesis 1. All measures of humor appreciation will be significantly greater for subjects accompanied by a mirthful confederate than for subjects in an alone condition.

The multivariate test of Hypothesis 1 provided clear support for the expectation that the mirthful confederate would enhance measures of humor appreciation relative to an alone condition. Inspection of univariate results for this main effect indicated that this increase was significant for all six measures of humor appreciation.

The present results are not only congruent with previous research on the effects of a mirthful confederate but also extend such research with adults by demonstrating strong confederate effects on several dependent variables in a dyadic situation. In previous research with adults, significant confederate effects have been reported in settings with six or more people (Murphy, 1975; Young & Frye, 1966). In dyads, significant differences have been reported only between mirthful and nonresponsive confederate conditions. (Gadfield, 1977, Osborne & Chapman, 1977). In the one previous study with adults which examined differences between alone and mirthful confederate conditions (Osborne & Chapman, 1977), the mirthful confederate enhanced subjects' overt mirth. However, these results were not statistically significant for frequency of smiling and were not statistically analyzed for frequency or duration of laughter. In contrast, the mirthful confederate in the

present study produced significant increases on all measures of overt mirth as well as on self-reported funniness ratings relative to the alone condition.

The possibility cannot be discounted, however, that confederate effects in the present study, as well in previous research, were partially due to observers' awareness that certain subjects were alone whereas others were accompanied by a companion. Given the tendency of subjects to occasionally talk to or look at their companion, the effect of such awareness on the part of observers may be difficult to eliminate totally. However, several factors argue against the likelihood that confederate effects in the present study were due largely to the observers' awareness of subjects' social conditions. These factors include: the orientation given observers to focus only on the subjects' behavior; the covering of the companion's image on the videotape monitor during scoring; and the presence of significant confederate effects on funniness ratings which were made by the subjects themselves independent of the observers' scoring.

Confederate effects were as predicted for all dependent variables. The meaning of these effects is, however, somewhat unclear with respect to underlying psychological processes. Although conformity and imitation as well as reflex, perceptual, and disinhibitory processes in social facilitation may have been simultaneously involved, various considerations support the suggestion that the confederate

effects obtained may be attributable largely to motivational aspects of social facilitation.

With respect to conformity, normative social influence may be ruled out as the principal explanation of the confederate effects obtained in this study: Had subjects accompanied by the confederate sought mainly to avoid her ridicule or negative evaluation, it is unlikely that they would have rated the cartoons funnier than did subjects who were alone. Informational social influence may also be considered a minor rather than a major process underlying confederate effects: Had the humor appreciation of subjects accompanied by the mirthful confederate been due principally to an acceptance of her behavior as evidence of the funniness of the material, subjects would not have demonstrated significant increases in laughter and funniness ratings across blocks of cartoons since the confederate's behavior was consistent across these blocks.

Imitation may also be considered of minor rather than major importance in producing the confederate effects. As indicated in the presentation of results, frequency and duration of eyeing, looking, and gazing at the confederate's face were somewhat limited. Additionally, the majority of subjects did not look at the confederate's face. Thus, particularly in the case of smiling, it is unlikely that confederate effects were due principally to imitation, that is, to subjects directly matching their behavior to that of the confederate.

Reflex, perceptual, and disinhibitory processes in social facilitation may also be regarded as secondary rather than primary contributors to the confederate effects obtained. In the case of reflex processes, the confederate's behavior and overt mirth did not appear to be particularly amusing and were not described as such by any subject in the postexperimental interview. Perceptual processes may be considered of secondary importance because the cartoons used were preselected as easy to understand. Thus, it is unlikely that the confederate served mainly to direct subjects' attention to parts of the humor stimuli they would otherwise have missed. Disinhibiting effects of the mirthful confederate appear to have been minimal: In the postexperimental interview, approximately 84% of subjects who were alone reported that they had felt "relatively relaxed" during the experimental session compared to 87% of subjects with the confederate who made this same report.

Motivational aspects of social facilitation may be considered more likely to have played a major role in producing the observed confederate effects. As described by Tolman (1968), a motivational interpretation of social facilitation proposes that the companion's behavior decreases the subject's reaction threshold to the stimuli of interest. In the present study, subjects accompanied by the mirthful confederate may have been made more reactive to the cartoons as a result of evaluation apprehension (Cottrell,

1968, 1972) and/or arousal (Zajonc, 1965). Although evaluation apprehension may have contributed to the confederate's effect in enhancing overt mirth, such apprehension would not have been expected to contribute to the significantly higher funniness ratings produced by the mirthful confederate.

Compared to evaluation apprehension, arousal may have been of greater importance in the confederate's enhancement of humor appreciation, particularly in the case of smiling. As suggested by previous researchers, smiling may be considered a less intense and less inhibited form of humor appreciation than laughter (Chapman, 1976; Flugel, 1954; Giles & Oxford, 1970; McGhee, 1971; Nerhardt, 1976; Pollio et al., 1972).

Smiling may also be considered a well learned response in the presence of humor stimuli and particularly in the joint presence of other people and humor stimuli. Thus, the presence of the confederate may have increased subjects' arousal level and enhanced the emission of the dominant response of smiling. The smile facilitory effect (Arthur, 1974) may then have contributed to the emission of enhanced laughter. According to this hypothesized effect, "smiling which is a relatively uninhibited response seems to have a facilitory effect on laughing which is a relatively inhibited response" (p. 80). Given enhanced overt mirth, subjects, through self-observation, (Bem, 1965) may have rated the cartoons funnier. As noted previously, however, this discussion of processes underlying the confederate's

effects is speculative because the present study was not designed to examine specific influence processes.

The second hypothesis in the present study, like the first, involved the main effect of a situational variable on humor appreciation. In this instance the situational variable was canned laughter. Specifically, Hypothesis 2 stated:

Hypothesis 2. All measures of humor appreciation will be significantly greater for subjects exposed to canned laughter than for subjects not so exposed.

The multivariate test of the main effect of canned laughter provided no support for Hypothesis 2. However, the canned laughter manipulation entered into two significant multivariate interactions, one with the confederate manipulation and one with blocks of cartoons. With respect to the former interaction, canned laughter by confederate, the corresponding univariate analysis was significant for frequency of laughter: Subjects who were alone laughed with equal frequency in the presence and absence of canned laughter; subjects accompanied by the mirthful confederate laughed significantly less often when canned laughter was present than when it was absent. With respect to the latter interaction, canned laughter by blocks of cartoons, univariate analyses were significant for duration of laughter and ratings of overt mirth: In the presence but not the absence of canned laughter, ratings of overt mirth and duration of laughter increased significantly across blocks

of cartoons, with the greatest increases occurring between the second and third blocks.

Psychological reactance appears to provide the most appropriate and parsimonious explanation of these significant interactions. As defined by Brehm (1976) psychological reactance is a motivational state which "consists of pressure directed toward re-establishing whatever freedom has been threatened or eliminated" (p. 55). Given the enjoyable nature of humor as a discretionary activity and the recognition that individuals differ in their sense of humor, people may have a strong need to feel free not to laugh as well as to laugh. Viewed in the context of reactance, canned laughter may thus have constituted a threat to subjects' freedom not to laugh. As a result, subjects may have attempted to restore this very freedom by exercising it and on several occasions not laughing. That subjects may have experienced a threat to their freedom not to laugh is supported by data from the postexperimental interview: Approximately 25% of the subjects' comments concerning the canned laughter were judged to indicate that subjects knew or suspected that the canned laughter was intended to influence them.

The foregoing interpretation appears to explain the two-way interaction between the confederate and canned laughter manipulations. For subjects who were alone, the reactance aroused by canned laughter may have counterbalanced the positive effects of this manipulation with the

net result that canned laughter had no significant effect. In contrast, subjects exposed to both the mirthful confederate and canned laughter may have experienced a stronger threat to their freedom not to laugh. As a result, reactance effects for these latter subjects may not simply have counterbalanced but in fact overpowered the positive effects of canned laughter: Experiencing greater reactance than those who were alone, subjects accompanied by the mirthful confederate laughed significantly less frequently when canned laughter was present than when it was absent.

Examining more closely the situation for subjects who were alone, the canned laughter used may have constituted a rather weak influence attempt. This suggestion is supported by an examination of the characteristics of the canned laughter used. This laughter was produced by 10 adults. Particularly boisterous or hysterical laugh sequences were eliminated on the basis that such laughter might sound unnatural or forced in response to the cartoons presented. For the same reasons, canned laughter followed 12 of the 18 cartoons rather than all cartoons. In contrast, the canned laughter used in previous studies was produced by 18 to 20 people (Chapman, 1973; Fuller & Sheehy-Skeffington, 1974; Smyth & Fuller, 1972), or was described as "boisterous" (Cupchik & Leventhal, 1974, p. 431). Additionally, canned laughter in previous studies followed every humor stimulus when different subjects served in the no canned laughter and canned laughter conditions (Chapman, 1973; Cupchik &

Leventhal, 1974). Thus, the canned laughter used in the present study may have lacked force in terms of its robustness and frequency of presentation.

An additional factor may have further weakened positive effects of canned laughter for subjects who were alone, namely the realism of the canned laughter. To date, the one study conducted in this area indicated that canned laughter used on I Love Lucy television programs differed from the recorded laughter of live theatre audiences in such respects as the latency and variety of laughter (Pollio et al., 1972). Given scant reference in previous research to the characteristics of the canned laughter used, the latency of canned laughter in the present study was identical to that used by Cupchik & Leventhal (1974) and, as in Chapman's study (1973), all laughs were of approximately equal duration. Although these particular characteristics differ from the laughter of live audiences, previous studies using such characteristics obtained positive effects for canned laughter. Thus, it is difficult to determine the extent to which realism is necessary to significantly enhance humor appreciation and the extent to which deficits in realism may have contributed to the present failure of canned laughter to produce the expected effects. It is possible, however, that the canned laughter in this study was less realistic than that used in previous studies, despite efforts to achieve realism by conducting all recording and dubbing

sessions at a professional studio with the services of professional sound engineers.

Whereas the characteristics of the canned laughter used (viz., its robustness, frequency, and realism) may have contributed to weakening its positive effects for subjects who were alone, the context in which this laughter was presented may have contributed to arousing a reactance effect. In the present study, subjects were informed that the cartoon presentation constituted a warm-up for the humor stimulus of interest, the film, and in the prerecorded instructions the experimenter expressed the hope that subjects would "enjoy this warm-up period by simply sitting back, relaxing, and looking at the cartoons". This warm-up set was created in order to foster a relaxed atmosphere, promote natural as opposed to forced responding, and help reduce the "'I'm a guinea pig' attitude" (Campbell, 1957, p. 308) during the exposure of the cartoons. However, subjects may have felt that they were being pressured to relax, warm up, and show signs of humor appreciation and may have viewed the canned laughter as the experimenter's way of facilitating their warm-up. Thus subjects who were alone may have felt that their freedom not to laugh was being threatened not only by the presentation of canned laughter but also by the warm-up instructions.

Examining the situation for subjects exposed to both the canned laughter and the mirthful confederate, the juxtaposition of canned laughter with the live laughter of

the subject and confederate may have further weakened the positive effect of canned laughter, such a juxtaposition perhaps drawing attention to deficiencies in the realism of this laughter. As noted by Clee and Wicklund (1980), when an influence attempt lacks credible and attractive features, reactance effects may lead to an overall negative outcome for the influence attempt.

Canned laughter as a source of positive influence may thus have been further weakened for subjects accompanied by the mirthful confederate compared to subjects who were alone. However, reactance appears to have been strengthened for the former group. For subjects exposed to both the mirthful confederate and canned laughter, the freedom not to laugh may have been threatened not only by the canned laughter and warm-up set but also by the simultaneous presence of the mirthful confederate. Additionally, the freedom not to laugh may have been more salient for subjects with the confederate than for subjects who were alone. With respect to this latter point, it has often been noted that people rarely laugh when alone (Berlyne, 1969; Foot & Chapman, 1976; Keith-Spiegel, 1972). In contrast, people frequently laugh when accompanied by others. This tendency to laugh more frequently in a group situation than when alone is apparent as early as nursery school age (Brackett, 1933; Ding & Jersild, 1932; Kenderdine, 1931; McGhee, 1976). Thus, the freedom to laugh or not to laugh may be more

salient in social situations and hence more liable to threat and the arousal of reactance.

In summary, as noted by Brehm (1976), "a social influence attempt threatening freedom can simultaneously contain a sizable force toward positive social influence" (p. 58). For subjects who were alone, varied weaknesses in the canned laughter itself may have diminished its strength as a source of positive influence with the net result that positive effects of canned laughter were canceled by reactance aroused by the presentation of canned laughter and by the warm-up set. For subjects exposed to both the confederate and canned laughter, the positive influence of canned laughter may have been further weakened by its juxtaposition with live laughter whereas reactance may have increased given the joint presence of two sources of influence and the salience of the freedom not to laugh. Thus, for subjects accompanied by the confederate, reactance may have outweighed the positive influence effects of canned laughter and produced a negative effect for this variable.

The foregoing explanation has focused on a reactance interpretation of the interaction between the canned laughter and confederate manipulations. Such an interpretation may also be applied to the significant interaction between canned laughter and blocks of cartoons in which ratings of overt mirth and duration of laughter increased significantly across blocks of cartoons in the presence but not the absence of canned laughter. With repeated exposure

to the canned laughter, subjects may have become habituated to it with the result that they experienced decreased threat to their freedom not to laugh and reactance effects correspondingly diminished across blocks of cartoons. Reactance may also have diminished across blocks because subjects exercised their freedom not to laugh and thus experienced reduced reactance towards the end of the sequence of cartoons. Supportive of a reactance interpretation of this interaction is the fact that in the first two blocks of cartoons, means for ratings of overt mirth and duration of laughter were lower when canned laughter was present than when canned laughter was absent whereas the reverse was observed in the final block of cartoons. Also congruent with a reactance interpretation is the fact that for five of the six dependent variables, the increases observed between the second and third blocks of cartoons were greater for subjects in the confederate/canned laughter condition than for subjects in the alone/canned laughter condition, the former subjects having experienced more reactance than the latter.

Although the present effects involving canned laughter appear explicable in terms of a reactance effect, the question arises as to why a reactance effect would be statistically significant only for measures of laughter. (Ratings of overt mirth may be considered measures of laughter in the sense that laughter took precedence over any other response in scoring this variable.) Possibly,

subjects may have experienced a more direct threat to their freedom of laughter than to freedoms involving smiling or funniness ratings because of the similarity between the response of laughter and the independent variables threatening the freedom of laughter (viz., the laughing confederate and canned laughter). Additionally, freedoms involving smiling and funniness ratings may have been threatened less than freedom of laughter because the former responses were more private in nature. Funniness ratings represented subjects' subjective judgments and were not shown to the confederate. Smiling was also a more private response than laughing in view of the side-by-side seating orientation and the fact that the confederate rarely looked at the subject.

As a final comment on canned laughter effects, the fact that most previous studies have reported positive rather than negative or nonsignificant results may be attributable to the paucity of research in this area as well as to the design of such research. In the one previous study which manipulated both canned laughter and the presence/absence of others, the subjects involved were 4- to 6-year old boys, results were minimally described, and no reference was made to an interaction between canned laughter and social conditions (Kosslyn & Henker, 1970). In terms of design, previous studies using canned laughter have either failed to describe the social conditions surrounding the manipulation of canned laughter (Fuller & Sheehy-Skeffington, 1974; Smyth

& Fuller, 1972), or manipulated this laughter under social conditions which may have influenced the effects attributed to canned laughter. For example, in Chapman's study (1973), the experimenter's presence during the presentation of canned laughter may have contributed to the observed increase in subjects' overt mirth. In the case of other studies, the nature of the experimental situations ruled out a reactance effect involving the joint presence of canned laughter and a mirthful companion or the juxtaposition of canned laughter with live laughter because: (a) subjects were tested alone or in pairs in which they could not see or hear each other (Cupchik & Leventhal, 1974); or (b) subjects believed that the laughter was not "canned" but emanated from other subjects (Nosanchuk & Lightstone, 1974).

To this point, the discussion of results has focused on outcomes involving the main and interaction effects of the confederate and canned laughter with no reference to the hypothesized effects of these independent variables on field-dependent and field-independent subjects. Before examining outcomes in terms of cognitive style, an additional effect, not previously discussed, is noted. Statistically significant in the multivariate analysis as well as in five univariate analyses was the main effect of blocks of cartoons. Although interest in this significant main effect is reduced by the presence of the canned laughter by block interaction, one aspect of this main effect requires comment, namely, that measures of laughter

increased, principally between the second and third blocks of cartoons, whereas measures of smiling decreased mainly between the first and second blocks. That smiling decreased whereas laughter increased across blocks of cartoons was not unexpected in view of previous evidence that laughter and smiling are not necessarily affected by the same variables (Chapman & Wright, 1976; Mones, 1975) and that laughter and smiling can be affected in opposite ways by the same variables (Chapman, 1976; Foot, Chapman, & Smith, 1977). However, in terms of explaining the present results for blocks of cartoons, Arthur's (1974) "smile facilitory effect" (p. 80) appears particularly relevant. As previously described, in this process the relatively uninhibited response of smiling has a facilitory effect on the relatively inhibited response of laughter. Thus, in the present study, the uninhibited response of smiling occurred at a higher rate than the more inhibited response of laughing early in the sequence of cartoons. The occurrence of smiling may thus have served to facilitate the occurrence of laughter which became the predominant response during the later stages of the cartoon presentation.

Turning now to a discussion of results concerning field dependence-independence, the first of four hypotheses dealing with this cognitive style was as follows:

- Hypothesis 3. There will be a significant interaction between field dependence-independence and the presence/absence of a mirthful confederate, i.e., increases on all

measures of humor appreciation from an alone to a mirthful confederate condition will be significantly greater for field-dependent people than for field-independent people.

Multivariate results failed to support this predicted two-way interaction between field dependence-independence and the confederate manipulation. In explaining this nonsignificant multivariate result, consideration must be given to the extent to which this study established conditions similar to those under which field-dependent and field-independent subjects have previously been shown to differ in susceptibility to social influence. As suggested by Witkin and Goodenough (1977), such differences in susceptibility to social influence appear when subjects interact with live or simulated group members in ambiguous situations where the other person is seen as a likely source of information for removing the ambiguity. In the present study, interaction took place with a live confederate in a situation which was ambiguous in the sense that there were no objective cues as to what constituted the humor in the cartoons and there were no objectively correct responses. The confederate was a likely source of information for removing the ambiguity to the extent that her mirthful responses indicated that the cartoons were amusing and deserving of overt mirth. Thus, the failure to support Hypothesis 3 would not appear to be due to a failure to approximate conditions previously shown to be conducive to demonstrating differential susceptibility to social

influence on the part of field-dependent and field-independent subjects.

Although the finding of a nonsignificant multivariate interaction between field dependence-independence and the confederate manipulation discourages a discussion of univariate results for this interaction, these univariate findings are sufficiently consistent to require a qualification to the nonsignificant multivariate interaction. Specifically, for three of the six dependent variables (viz., frequency and duration of laughter and ratings of overt mirth), the hypothesized two-way interaction between field dependence-independence and the confederate manipulation was statistically significant. These three variables were similar in a number of respects. Specifically, each of these measures involved laughter; intercorrelations among these three variables were the highest of the six dependent variables; interobserver reliabilities were approximately +.90 for all three measures; and these three evidenced the highest temporal stability in the retest. In contrast, the hypothesized two-way interaction between field dependence-independence and the confederate manipulation was not statistically significant for frequency or duration of smiling or for funniness ratings. Although the two measures of smiling were almost as highly intercorrelated as the three other measures of overt mirth, interobserver reliabilities were considerably lower for measures of smiling than

for measures of laughing and duration of smiling was the least stable measure over time.

Although the unreliability of measures of smiling may have contributed to the nonsignificant multivariate interaction between field dependence-independence and the confederate manipulation, the systematic split on the dependent variables for this interaction may indicate that field-dependent and field-independent subjects differed more in the manner rather than the overall extent to which they were influenced by the mirthful confederate. As noted by Witkin et al. (1977), field dependence-independence is related more to the "how" than the "how much" of functioning. For example, results of a study by Nebelkopf and Dreyer (1973) indicated that although field-dependent and field-independent subjects did not differ significantly in the number of trials required to correctly attain a concept, the two groups appeared to use different concept attainment strategies. Thus, in the present study, although field-dependent and field-independent subjects did not differ in the overall extent to which they were influenced by the confederate, the psychological processes which produced the responses may have differed for these two groups (Allen, 1965). Such considerations give rise to questions concerning the functions of laughing and smiling in the present study.

With respect to the distinction between laughter and smiling, there is a general consensus among humor

researchers that both responses may reflect humor appreciation, and as such, laughter may be considered a more intense response than smiling (Chapman, 1976; Flugel, 1954; Giles & Oxford, 1970, McGhee, 1971; Nerhardt, 1976, Pollio et al., 1972). Researchers in humor also note that the meaning and function of laughter and smiling are not invariant in a given situation or across different situations (Murphy & Pollio, 1975, Wolosin, 1975). In a given situation, laughter and smiling may each serve several functions (e.g., inducing or reducing arousal, conveying information) and may differ from each other in the function(s) which each serves and/or in the extent to which each serves a given function. Additionally, the function which a given response serves for different groups of people may vary depending on the nature of the situation. For example, Murphy and Pollio (1975) reported that the meaning of laughter and smiling appeared to vary depending on whether these responses were made by groups of friends or strangers and whether the group was listening to the humor of Bill Cosby or that of Don Rickles. Similarly, Foot et al. (1977) reported that the functions of laughter and smiling appeared to differ depending on whether the responses were made by boys or by girls and whether the social situation was one of high or low intimacy. More specifically, Foot et al. (1977) suggested that in situations low in intimacy, girls used laughter to gain and maintain their companion's attention whereas boys used

laughter to break attention in situations experienced as too high in intimacy.

Thus, previous research suggests that the functions of laughter and smiling may differ and such differences may depend on situational and individual difference variables. In the present study, such research is relevant to the fact that the hypothesized interaction between field-dependence and the confederate manipulation was significant only for measures of laughter. In this study, the confederate may not only have enhanced arousal levels, but also may have made subjects more reactive to the humor stimuli by promoting feelings and expectations of sharing the social situation. Such expectations may have been particularly strong among socially oriented field-dependent subjects. The experimental situation, however, did not prove to be conducive to such sharing, given the side-by-side seating orientation, the requirement that subjects look at and rate visual material presented at a brisk pace, and the general failure of the confederate to look at subjects. Thus, socially oriented field-dependent subjects may have experienced the confederate condition as insufficiently intimate and, relative to the alone condition, may have laughed significantly longer and more frequently than field-independent subjects in an attempt to promote greater sharing of the situation with the confederate by first gaining and maintaining her attention. In the present experimental situation, funniness ratings and smiling were

more private in nature and, compared to laughter, were less suitable for attracting and maintaining the companion's attention.

Congruent with the foregoing interpretation is the observation that, if subjects' laughter was strictly a function of how amusing they considered the material, the interaction between field dependence-independence and the confederate manipulation for measures of laughter might have been expected to be nonsignificant as was the case for the corresponding interaction for funniness ratings. Laughter thus appeared to serve other functions besides indicating how funny the subjects considered the material. Given the nature of the experimental situation and the audible character of laughter, this response may have represented a better way-of gaining the confederate's attention than did the other dependent variables.

As an additional point concerning the interaction between field dependence-independence and the confederate manipulation, the desire of field-dependent subjects to share the social situation is not considered to be indicative of emotional dependence, defined as seeking emotional sustenance and attention from other. Rather, the desire to gain the confederate's attention and thus increase sharing of the situation is considered to be an aspect of the "turning-toward-others orientation" (Witkin & Goodenough, 1977, p. 668) which unlike emotional dependence has been shown to relate to field dependence-independence.

Compared to field-independent people, field-dependent people prefer greater physical and emotional closeness with others. These latter people also prefer interpersonal situations over impersonal ones. Such preferences appear to be based on a desire to gain and maintain access to one of the principal external sources of reference useful for structuring ambiguous situations, namely, other people. In the present experimental situation which lacked objectively correct responses, field-dependent subjects may have sought an increased sharing of the situation in order to gain and maintain more detailed and subtle cues as to the extent of the confederate's enjoyment of the humor stimuli.

The foregoing explanation of the interaction between field dependence-independence and the confederate manipulation must be considered tentative, however, in view of the fact that the two groups of subjects did not differ significantly in frequency of verbalizations or in frequency or duration of visual behavior directed at the confederate's face. Possible reasons for the nonsignificant results for visual behavior are discussed presently.

An additional finding relevant to the influence of the confederate on field-dependent and field-independent subjects is the statistically significant multivariate interaction between field dependence-independence, the confederate manipulation, and blocks of cartoons. In the univariate analyses, the corresponding three-way interaction was significant only in the case of self-reported funniness

ratings. Differences between this dependent variable and the five others in terms of the phenomenon measured and the method of measurement may be responsible for the fact that this three-way interaction was significant only for funniness ratings. More specifically, whereas funniness ratings were self-reported and represented a more covert aspect of humor appreciation, the five other dependent variables were scored by the observers and represented overt behavioral responses involved in humor appreciation.

Analysis of this three-way interaction for funniness ratings revealed a significant interaction between field dependence-independence and the confederate manipulation in the first block of cartoons. Contrary to Hypothesis 3, however, field-independent subjects were more responsive to the confederate during the first block of cartoons than were field-dependent subjects.

In interpreting this outcome in the three-way interaction, certain aspects of the present data support the suggestion that subjects may have required time to "settle into" the experimental setting before demonstrating their characteristics modes of behavior. Specifically, for field-independent subjects, differences between alone and confederate conditions were statistically significant in the first block of cartoons, significant but at a lower level in the second block, and nonsignificant in the third block of cartoons. In contrast, for field-dependent subjects, differences between alone and confederate conditions were.

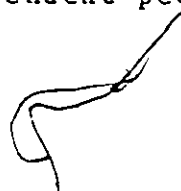
statistically significant in all three blocks of cartoons and the level of statistical significance consistently increased across blocks. Additionally, differences between alone and confederate conditions were greater for field-dependent than for field-independent subjects on four of the six dependent variables in the second block of cartoons and on all six dependent variables in the third block. Thus, field-dependent and field-independent subjects may have presented their characteristic modes of behavior only towards the end of the sequence of cartoons.

A second aspect of the three-way interaction also requires comment. Namely, field-independent subjects self-reported significantly higher funniness ratings across blocks of cartoons only when they were alone; when accompanied by the confederate, their funniness ratings showed no such increase across blocks. Field-dependent subjects in contrast evidenced the same pattern of increased funniness ratings across blocks of cartoons whether they were alone or with the mirthful confederate. Thus, for field-independent subjects, the confederate may have suppressed an increase in funniness ratings across blocks of cartoons. This effect may have been due to an attempt by field-independent subjects to actively discount the presence and behavior of the confederate when making their funniness ratings. In contrast, field-dependent subjects accompanied by the confederate may have made their funniness ratings in

a less analytic manner with no active attempt to discount or counteract the influence of the confederate.

In summary, multivariate results failed to support the hypothesized two-way interaction between field dependence-independence and the confederate manipulation. Although statistical considerations involving the reliability of measures of smiling may have contributed to this nonsignificant multivariate interaction, the systematic split on dependent variables for this two-way interaction may reflect the fact that field-dependent and field-independent subjects differed more in the manner rather than the overall extent to which they were influenced by the confederate. Further suggestive of differences in the manner of influence were indications in the three-way interaction that subjects may have required time to settle into the experimental session and that the confederate tended to suppress an increase in funniness ratings across blocks of cartoons for field-independent subjects but not for field-dependent subjects.

The present study contained two additional hypotheses involving the differential responsiveness of field-dependent and field-independent subjects to social influence in humor appreciation. These hypotheses were as follows:

- Hypothesis 4. There will be a significant interaction between field dependence-independence and the presence/absence of canned laughter, i.e., increases on all measures of humor appreciation from a no canned laughter condition to a canned laughter condition will be significantly greater for field-dependent people than for field-independent people.
- 

Hypothesis 5. There will be a significant interaction between field dependence-independence, the presence/absence of a mirthful confederate, and the presence/absence of canned laughter, i.e., the joint presence of a mirthful confederate and canned laughter will have a significantly greater effect on field-dependent people than on field-independent people for all measures of humor appreciation.

Results of the statistical analyses provided no support for Hypotheses 4 or 5. In the multivariate analysis and in all univariate analyses, the interactions in question were not statistically significant. A major factor in the lack of support for Hypotheses 4 and 5 was the overall failure of canned laughter to enhance humor appreciation. In fact, not only was the overall main effect of canned laughter not statistically significant but canned laughter significantly depressed frequency of laughter for subjects accompanied by the confederate. This effect of canned laughter has been discussed earlier in terms of psychological reactance. The negative effect of canned laughter in the presence of the confederate directly contradicted the prediction that, at least for field-dependent subjects, the presence of the confederate would enhance the positive effect of canned laughter on humor appreciation. In short, results failed to support the hypothesized interactions involving field dependence-independence and canned laughter because canned laughter did not enhance humor appreciation and the mirthful confederate did not enhance the positive effects predicted for canned laughter.

The sixth and final hypothesis involved visual behavior rather than humor appreciation. This hypothesis stated:

Hypothesis 6. Field-dependent people will look at the confederate's face significantly longer and more frequently than will field-independent people.

Statistical analyses failed to support Hypothesis 6. The theoretical proposition may thus be incorrect that field-dependent people look more at others in evaluative situations than do field-independent people. Alternatively, a number of situational factors may have contributed to producing the nonsignificant results for visual behavior. Firstly, in view of the visual nature of the cartoons, the pace with which they were presented, and the side-by-side seating arrangement, the experimental situation may not have been conducive to looking at the confederate. Supportive of this suggestion are data indicating that only 14% of the subjects eyed the confederate and 39% looked at her. The average duration of gazing at the confederate was 1.5 seconds. Visual demands of the humor stimuli and physical arrangements in the experimental setting thus seem to have contraindicated visual interaction with the confederate.

The fact that the confederate laughed in response to 12 (67%) of the 18 cartoons may also have contributed to the nonsignificant differences in visual behavior between field-dependent and field-independent subjects. Previous research has indicated that field-dependent people look more at another's face than field-independent people when they lack information essential to success on a task (Karp, 1977). In

the present situation, the confederate's audible laughter in response to the majority (67%) of cartoons precluded the need to look at her face in order to determine whether she considered the material funny. As noted in previous research, lower levels of visual behavior appear to characterize situations involving a lower need to monitor the other person's actions (Coutts & Schneider, 1975; Goffman, 1963; Kendon, 1967). Additionally, the confederate rarely returned subjects' glances. Her behavior would thus have served to extinguish glances which subjects directed at her in the hopes of sharing the situation and/or finding cues to an acceptable reaction. In short, nonsignificant differences in visual behavior between field-dependent and field-independent subjects may have been due to a variety of factors including: the visual nature of the humor stimuli and the pace of their presentation; a reduced need to look at the confederate given the informational value of her laughter; and the failure of the confederate to reinforce visual behavior directed at her face.

Interpretative Summary

The psychological situation wherein social influence is exerted on overt mirth and self-reported funniness ratings appears to be a complex one involving the interaction of several underlying processes. In the present study, the mirthful confederate appeared to increase subjects' arousal level and enhance the emission of laughter and smiling.

Given enhanced overt mirth, subjects, possibly via the process of self-observation, rated the cartoons funnier.

Under certain conditions, however, a mirthful confederate can be associated with inhibitory effects on humor appreciation. Specifically, given the joint presence of the mirthful confederate and canned laughter, subjects in the present study may have experienced psychological reactance. Such subjects may have felt that their freedom not to laugh was being threatened not only by the canned laughter and the warm-up set but also by the simultaneous presence of the mirthful confederate. The canned laughter may have been perceived as insufficiently boisterous, frequent, or realistic and thus this laughter failed to produce positive effects strong enough to overcome such reactance. However, following the subjects' initial assertion of their freedom not to laugh, reactance appeared to diminish over time.

Individual differences also appear to be relevant to social influence in humor appreciation. In the present study, field-dependent subjects appeared to use laughter to promote greater sharing of the situation with the confederate by first gaining her attention. Such an increased sharing would have permitted field-dependent subjects to further structure the situation by gaining more detailed and subtle cues as to the extent of the confederate's enjoyment of the humor stimuli. That field-dependent subjects did not look at the confederate more

frequently or longer than did field-independent subjects may be partly attributed to the experimental situation which was not conducive to looking at the confederate and to a reduced need to look at the confederate given her audible laughter.

The foregoing interpretative summary has a number of theoretical and practical implications. First, and perhaps rather obviously, the arousal effects of the confederate, the social sharing motives of field-dependent subjects, and the reactance effects of canned laughter indicate the centrality of motivational processes in humor appreciation. This implication is congruent with the tenets of psychoanalytic, arousal, incongruity, and superiority theories of humor which stress the motivational aspects of the content of humor stimuli as well as motivational processes involved in understanding and appreciating such material. The present study contributes to an understanding of motivational aspects of humor appreciation by pointing to the need to consider the impact of psychological reactance, a process which has received scant attention in attempts to understand social influence in humor appreciation.

Results of the present study also provide evidence of the dynamic character of social influence in humor appreciation. Not only may a variety of motivational processes be involved, but such processes appear to influence each other and to change over time. For example, in the interaction between canned laughter and blocks of cartoons, the reactance effect evoked by the canned laughter manipulation

appeared to decrease after subjects exercised their threatened freedom; following this exercise of freedom, subjects appeared to react more positively to the canned laughter.

The present study also suggests that field dependence-independence is related to social influence in humor appreciation in a manner more complex than suggested in the original hypotheses. In understanding the role of this cognitive style, consideration must be given to ways in which a number of environmental conditions may simultaneously interact to: (a) create conditions under which field-dependent subjects will demonstrate their turning-toward-others orientation, and (b) determine the ways in which field-dependent subjects will demonstrate this orientation. For example, although the ambiguity inherent in humor appreciation situations would appear to be conducive to field-dependent subjects seeking access to external referents, factors such as the nature of the task at hand (e.g., visual vs. auditory), and the behavior of others present appear to influence the extent to which field-dependent subjects demonstrate this turning-toward-others orientation and the manner in which they do so.

A practical implication of the present study is that people may be becoming more sensitive to the presence and realism of canned laughter. Such an increased sensitivity may be reflected in, as well as produced by, the growing use in television of cue-controlled live audiences instead of

canned laughter. As noted by Fuller (1977), there is a need for systematic research on the characteristics of canned laughter and until such research is undertaken "dubbing editors ... have to rely largely on their own intuitions" (Fuller, 1977, p. 397).

Suggestions for Future Research

Building on evidence that field dependence-independence is related to the "how" of social influence in humor appreciation, future studies should focus on the specific influence processes underlying the effects of a mirthful confederate on field-dependent and field-independent subjects. As indicated by Underwood (1957), "differences in behavior related to subject variables only start research, for in the typical case these differences must be related to more fundamental behavioral processes" (p. 114). In comparison with the present study, a more clear cut interpretation of social influence processes could be made if social conditions were established in closer accordance with conformity or social facilitation paradigms. For example, social conformity processes should be studied in situations in which cartoons pre-rated as high or low in funniness were responded to by a confederate with levels of overt mirth of varying appropriateness.

Social influence processes theoretically operative in field-dependent and field-independent subjects should also be studied in greater depth by means of a postexperimental

questionnaire. In this self-report method, a questionnaire could assess subjects' perceptions of the way(s) in which they were influenced by the confederate. In the present study, the postexperimental interview omitted such detailed questioning in order to avoid arousing subjects' suspicions concerning the true purpose of the experiment, particularly in view of the fact that experimental sessions extended over a period of 2 months. Conducting the sessions over a shorter time span would increase the feasibility of administering such a detailed postexperimental questionnaire.

The tendency of field-dependent and field-independent subjects to differ in their use of internal and external referents in humor appreciation should be studied using an experimental manipulation of stimulus conditions that are both consistent with and contrary to the styles of these two groups of people on a priori theoretical grounds. Given environmental conditions conducive to the use of external referents, field-dependent subjects would be expected to rely on such referents more than field-independent subjects who, given conditions conducive to reliance on internal referents would rely on these latter sources. Such a study would contribute to understanding the role of field dependence-independence in humor appreciation and would serve as a test of the theoretical proposition that field-dependent and field-independent people differ in the extent of their reliance on internal and external referents.

A variable which has theoretical as well as practical relevance to future research on canned laughter and/or confederate manipulations with field-dependent and field-independent people is subjects' knowledge of being observed or videotaped. Objective self-awareness, or the "state in which the person takes himself to be an object" (Wicklund, 1975, p. 234), has been shown to affect a variety of behaviors. However, only one study has specifically investigated the influence on overt mirth of subjects' awareness of being observed (Chapman, 1976). In that study, childrens' knowledge of the nature of a one-way mirror inhibited their laughter but facilitated their smiling and eye contact. The role of objective self-awareness in the humor appreciation of adults may be no less complex. For example, in a study unrelated to humor appreciation, Duval (1976) reported that subjects' knowledge of being videotaped led to an increase in conformity to others. With respect to field dependence-independence, Lefcourt, Hogg, and Sordoni (1975) obtained evidence that field dependence-independence may be relevant to the effects of objective self-awareness. However, another previous study reported that cues to objective self-awareness (viz., a mirror and/or an unplugged videotape camera) had no significant effects on the induction of elation and depression in field-dependent and field-independent subjects (Wolfe, 1975). In short, the effects of objective self-awareness appear to represent a complex

but theoretically and practically relevant area for future
research on individual differences in humor appreciation.

REFERENCES

- Adcock, C.J., & Webberley, M. Primary mental abilities. Journal of General Psychology, 1971, 84, 229-243.
- Allen, V.L. Situational factors in conformity. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 2). New York: Academic Press, 1965.
- Allport, G.W. Pattern and growth in personality. New York: Holt, Rinehart, & Winston, 1961.
- Antler, L. Relative effects of field dependence, need for social approval and stimulus clarity upon conformity (Doctoral dissertation, Columbia University, 1964). Dissertation Abstracts, 1965, 25, 7403-7404. (University Microfilms No. 65-4569)
- Arthur, R.E. A serious look at laughing and smiling (Doctoral dissertation, University of Tennessee, 1974). Dissertation Abstracts International, 1974, 35, 1013B. (University Microfilms No. 74-17, 716)
- Balance, W.D.G. Acquiescence: Acquiescent response style, social conformity, authoritarianism, and visual field dependency (Doctoral dissertation, University of Alabama, 1967). Dissertation Abstracts, 1968, 28, 3458B. (University Microfilms No. 68-1027)
- Bariaud, E. Comprehension and emotional adhesion in the genetics of humour. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Barrett, G.V., & Thornton, C.L. Cognitive style differences between engineers and college students. Perceptual and Motor Skills, 1967, 25, 789-793.
- Becker, J., Doctor, R.M., Miranda, M., & Wallace, J. Analytic-perceptual style and verbal conditioning. Perceptual and Motor Skills, 1971, 32, 631-636.
- Beckerle, G.P. Behavioral traits related to psychological differentiation in pre-adolescent boys (Doctoral dissertation, Michigan State University, 1966). Dissertation Abstracts, 1967, 28, 336B. (University Microfilms No. 67-7519)
- Beijk-Docter, M.A., & Elshout, J.J. [Field-dependency and memory with reference to socially and not-socially relevant material.] Nederlands Tijdschrift voor de Psychologie en Haar-Grensgebieden, 1969, 24(5), 267-279. (Psychological Abstracts, 1970, 44, No. 5141.)

- Bem, D.J. An experimental analysis of self persuasion. Journal of Experimental Social Psychology, 1965, 1, 199-218.
- Berlyne, D.E. Laughter, humor, and play. In G. Lindzey & E. Aronson (Eds.), The handbook of social psychology (2nd ed.), Vol. 3. Reading, Mass.: Addison-Wesley, 1969.
- Berlyne, D.E. Humor and its kin. In J.H. Goldstein & P.E. McGhee (Eds.), The psychology of humor: Theoretical perspectives and empirical issues. New York: Academic Press, 1972.
- Bernstein, B.L. Immediate responses to personal confirmation and refutation: Psychological differentiation and feedback discrepancy-level effects (Doctoral dissertation, University of California, 1975). Dissertation Abstracts International, 1976, 36, 5818A. (University Microfilms No. 76-6571)
- Berry, J.W. Independence and conformity in subsistence-level societies. Journal of Personality and Social Psychology, 1967, 7, 415-418.
- Berry, J.W., & Annis, R.C. Ecology, culture and psychological differentiation. International Journal of Psychology, 1974, 9, 173-193.
- Birmingham, D.L. Situational and personality factors in conformity (Doctoral dissertation, Saint Louis University, 1974). Dissertation Abstracts International, 1974, 35, 2421B. (University Microfilms No. 74-24, 042)
- Birnbaum, A.S.G. Social correlates of field articulation in adolescents: The effect upon productivity in the presence of others (Doctoral dissertation, Hofstra University, 1975). Dissertation Abstracts International, 1975, 36, 1959B-1960B. (University Microfilms No. 75-23, 103)
- Boschi, F., & Loprieno, M. [Group behavior of retarded children with global and articulated cognitive styles.] Rivista di Neurobiologia, 1968, 14(3), 404-408. (Psychological Abstracts, 1970, 44, No. 19193.)
- Brackett, C.W. Laughing and crying of preschool children. Journal of Experimental Education, 1933, 2, 119-126.
- Branch, A.Y., Fine, G.A., & Jones, J.M. Laughter, smiling, and rating scales: An analysis of responses to tape-recorded humor. Proceedings of the 81st Annual Convention of the American Psychological Association, 1973, 8, 189-190.

- Brehm, J.W. Responses to loss of freedom: A theory of psychological reactance. In J.W. Thibaut, J.T. Spence, & R.C. Carson (Eds.), Contemporary topics in social psychology. Morristown, N.J.: General Learning Press, 1976.
- Breitman, K.E. Relationships of field dependence and selected personality characteristics to successes and drop-outs in a short-term psychotherapeutic intervention. Unpublished doctoral dissertation, University of Ottawa, 1976.
- Brilhart, B.L. Relationships of speaker-message perception to perceptual field-independence. Journal of Communication, 1970, 20, 153-166.
- Brisland, S.G., Castle, R.A., Dann, J.W., McGarry, D., Smith, R.N., & Snow, A.J. Laughter in the basement. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Busch, J.C., & De Ridder, L.M. Conformity in preschool disadvantaged children as related to field-dependence, sex, and verbal reinforcement. Psychological Reports, 1973, 32, 667-673.
- Byrne, D. The relationship between humor and the expression of hostility. Journal of Abnormal and Social Psychology, 1956, 53, 84-89.
- Byrne, D. Drive level, response to humor, and the cartoon sequence effect. Psychological Reports, 1958, 4, 439-442.
- Campbell, D.T. Factors relevant to the validity of experiments in social settings. Psychological Bulletin, 1957, 54, 297-312.
- Carrigan, W.C. Stress and psychological differentiation (Doctoral dissertation, State University of New York at Buffalo, 1967). Dissertation Abstracts, 1967, 28, 1185B-1186B. (University Microfilms No. 67-10, 120)
- Chapman, A.J. Funniness of jokes, canned laughter and recall performance. Sociometry, 1973, 36, 569-578.
- Chapman, A.J. An experimental study of socially facilitated "humorous laughter". Psychological Reports, 1974, 35, 727-734.
- Chapman, A.J. Eye contact, physical proximity and laughter: A re-examination of the equilibrium model of social intimacy. Social Behavior and Personality, 1975, 3, 143-156. (a)

- Chapman, A.J. Humorous laughter in children. Journal of Personality and Social Psychology, 1975, 31, 42-49. (b)
- Chapman, A.J. Social aspects of humorous laughter. In A.J. Chapman & H.C. Foot (Eds.), Humour and laughter: Theory, research and applications. London: Wiley, 1976.
- Chapman, A.J., & Foot, H.C. (Eds.). Humor and laughter: Theory, research and applications. London: Wiley, 1976.
- Chapman, A.J., & Foot, H.C. (Eds.). It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Chapman, A.J., Smith, J.R., & Foot, H.C. Humour, laughter, and social interaction. In P.E. McGhee & A.J. Chapman (Eds.), Children's humour. London: Wiley, 1980.
- Chapman, A.J., & Speck, L.J.M. Birth order and humour responsiveness in young children. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Chapman, A.J., & Wright, D.S. Social enhancement of laughter: An experimental analysis of some companion variables. Journal of Experimental Child Psychology, 1976, 21, 201-218.
- Clar, P.N. The relationship of psychological differentiation to client behavior in vocational choice counseling (Doctoral dissertation, University of Michigan, 1971). Dissertation Abstracts International, 1971, 32, 1837B. (University Microfilms No. 71-23, 723)
- Clee, M.A., & Wicklund, R.A. Consumer behavior and psychological reactance. Journal of Consumer Research, 1980, 6, 389-405.
- Clément, R. Ethnicity, deservedness and contextual formality in humor. Unpublished Master of Arts thesis, University of Western Ontario, 1974.
- Colker, R.L. Social perception and influence as a function of field dependence-independence (Doctoral dissertation, University of Pittsburgh, 1972). Dissertation Abstracts International, 1973, 34, 407B-408B. (University Microfilms No. 73-16, 349)
- Cooperman, E.W. Cognitive style and social reinforcement as related to the expectancy effect (Doctoral dissertation, St. John's University, 1976). Dissertation Abstracts International, 1977, 37, 4113B. (University Microfilms No. 77-1565)

- Cottrell, N.B. Performance in the presence of other human beings: Mere presence, audience, and affiliation effects. In E.C. Simmel, R.A. Hoppe, & G.A. Milton (Eds.), Social facilitation and imitative behavior. Boston: Allyn & Bacon, 1968.
- Cottrell, N.B. Social facilitation. In C.G. McClintock (Ed.), Experimental social psychology. New York: Holt, Rinehart, & Winston, 1972.
- Coutts, L.M., & Schneider, F.W. Visual behavior in an unfocused interaction as a function of sex and distance. Journal of Experimental Social Psychology, 1975, 11, 64-77.
- Cowan, G.A. Response style and independent-perceptual behavior (Doctoral dissertation, Rutgers University, 1964). Dissertation Abstracts, 1964, 25, 2641-2642. (University Microfilms No. 64-10, 905)
- Crutchfield, R.S., Woodworth, D.G., & Albrecht, R.E. Perceptual performance and the effective person (WADC-TN-58-60). Lackland Air Force Base, Tex.: Personnel Laboratory, Wright Air Development Center, Air Research and Development Command, April 1958. (NTIS No. AD-151 039). In H.A. Witkin, R.B. Dyk, H.F. Fatterson, D.R. Goodenough, & S.A. Karp. Psychological differentiation. Potomac, Md.: Erlbaum, 1974. (Originally published, 1962.)
- Cupchik, G.C., & Leventhal, H. Consistency between expressive behavior and the evaluation of humorous stimuli: The role of sex and self-observation. Journal of Personality and Social Psychology, 1974, 30, 429-442.
- Davis, J.M., & Farina, A. Humor appreciation as social communication. Journal of Personality and Social Psychology, 1970; 15, 175-178.
- Dawson, J.L.M., Young, B.M., & Choi P.P.C. Developmental influences in pictorial depth perception among Hong Kong Chinese children. Journal of Cross-Cultural Psychology, 1974, 5, 3-22.
- De Boeck, P., & Claeys, W. Field independence and recognition of trait names in an incidental learning paradigm. Perceptual and Motor Skills, 1978, 47, 307-311.
- De Cosmo, R.D. A study of field dependence-independence selected curricular choices and preferred guidance strategies of adult, evening community college students (Doctoral dissertation, Loyola University of Chicago, 1977). Dissertation Abstracts International, 1977, 38, 112A; (University Microfilms No. 77-10, 727)

- Deutsch, M., & Gerard, H.B. A study of normative and informational social influences upon individual judgement. Journal of Abnormal and Social Psychology, 1955, 51, 629-636.
- Ding, G.F., & Jersild, A.T. A study of the laughing and crying of preschool children. Journal of Genetic Psychology, 1932, 40, 452-472.
- Doktor, R.H., & Hamilton, W. Cognitive style and the acceptance of management science recommendations. Management Science, 1973, 19, 884-894.
- Doris, J., & Fierman, E. Humor and anxiety. Journal of Abnormal and Social Psychology, 1956, 53, 59-62.
- Duval, S. Conformity on a visual task as a function of personal novelty on attitudinal dimensions and being reminded of the object status of self. Journal of Experimental Social Psychology, 1976, 12, 87-98.
- Eagle, M., Fitzgibbons, D., & Goldberger, L. Field dependence and memory for relevant and irrelevant incidental stimuli. Perceptual and Motor Skills, 1966, 23, 1035-1038.
- Eagle, M., Goldberger, L., & Breitman, M. Field dependence and memory for social vs. neutral and relevant vs. irrelevant incidental stimuli. Perceptual and Motor Skills, 1969, 29, 903-910.
- Ebel, R.L. Estimation of the reliability of ratings. Psychometrika, 1951, 16, 407-424.
- Evans, J.R. Relationships of psychological differentiation, emotional distance from reinforcing agent, emotional arousal, and responsiveness to social reinforcement (Doctoral dissertation, George Peabody College for Teachers, 1969). Dissertation Abstracts International, 1970, 31, 411B-412B. (University Microfilms No. 70-10, 902)
- Farley, F.H. Field dependence and approval motivation. Journal of General Psychology, 1974, 91, 153-154.
- Ferrell, J.G. The differential performance of lower class, preschool, negro children as a function of the sex of E, sex of S, reinforcement condition, and level of field dependence (Doctoral dissertation, University of Southern Mississippi, 1971). Dissertation Abstracts International, 1971, 32, 3028B. (University Microfilms No. 71-28, 831)

- Fisk, C.B. Psychological dependence, perceptual dependence and the establishment of a treatment relationship among male alcoholics (Doctoral dissertation, Boston University, 1970). Dissertation Abstracts International, 1970, 31, 2981B. (University Microfilms No. 70-22, 385)
- Fitz, R.J.: The differential effects of praise and censure on serial learning as dependent on locus of control and field dependency (Doctoral dissertation, Catholic University of America, 1970). Dissertation Abstracts International, 1971, 31, 4310B. (University Microfilms No. 71-1457)
- Fitzgibbons, D.J., & Goldberger, L. Task and social orientation: A study of field dependence, "arousal", and memory for incidental material. Perceptual and Motor Skills, 1971, 32, 167-174.
- Fitzgibbons, D., Goldberger, L., & Eagle, M. Field dependence and memory for incidental material. Perceptual and Motor Skills, 1965, 21, 743-749.
- Flügel, J.C. Humor and laughter. In G. Lindzey (Ed.), Handbook of social psychology (Vol. 2). Reading, Mass.: Addison-Wesley, 1954.
- Foot, H.C., & Chapman, A.J. The social responsiveness of young children in humorous situations: In A.J. Chapman & H.C. Foot (Eds.), Humour and laughter: Theory, research and applications. London: Wiley, 1976.
- Foot, H.C., Chapman, A.J., & Smith, J.R. Friendship and social responsiveness in boys and girls. Journal of Personality and Social Psychology, 1977, 35, 401-411.
- Fuller, R. Uses and abuses of canned laughter. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing; humour. Oxford: Pergamon Press, 1977.
- Fuller, R.G.C., & Sheehy-Skeffington, A. Effects of group laughter on responses to humorous material: A replication and extension. Psychological Reports, 1974, 35, 531-534.
- Gabrenya, W.K., & Arkin, R.M. Motivation, heuristics, and the psychology of prediction. Motivation and Emotion, 1979, 3, 1-17.
- Gadfield, N.J. Sex differences in humour appreciation: A question of conformity? In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.

- Gary, M.L. Field dependence and susceptibility to social influence (Doctoral dissertation, Ohio State University, 1967). Dissertation Abstracts, 1968, 28, 5190B-5191B. (University Microfilms No. 68-8824)
- Gates, D.W. Verbal conditioning, transfer and operant level "speech style" as functions of cognitive style (Doctoral dissertation, City University of New York, 1971). Dissertation Abstracts International, 1971, 32, 3634B. (University Microfilms No. 71-30, 719)
- Gerber, W.S., & Routh, D.K. Humor response as related to violation of expectancies and to stimulus intensity in a weight judgment task. Perceptual and Motor Skills, 1975, 41, 673-674.
- Giles, H., & Oxford, G.S. Towards a multidimensional theory of laughter causation and its social implications. Bulletin of the British Psychological Society, 1970, 23, 97-105.
- Gillies, J., & Bauer, R. Cognitive style and perception of success and failure. Perceptual and Motor Skills, 1971, 33, 839-842.
- Glass, D.C., Lavin, D.E., Henchy, T., Gordon, A., Mayhew, P., & Donohoe, P. Obesity and persuasibility. Journal of Personality, 1969, 37, 407-414.
- Godkewitsch, M. The relationship between arousal potential and funniness of jokes. In J.H. Goldstein & P.E. McGhee (Eds.), The psychology of humor: Theoretical perspectives and empirical issues. New York: Academic Press, 1972.
- Godkewitsch, M. Physiological and verbal indices of arousal in rated humour. In A.J. Chapman & H.C. Foot (Eds.), Humour and laughter: Theory, research and applications. London: Wiley, 1976.
- Goebel, M. Cognitive styles and opinion change (Doctoral dissertation, Catholic University of America, 1966). Dissertation Abstracts, 1967, 27, 4337A-4338A. (University Microfilms No. 67-6849)
- Goffman, E. Behavior in public places: Notes on the social organization of gatherings. New York: Free Press, 1963.
- Goldberger, L., & Bendich, S. Field-dependence and social responsiveness as determinants of spontaneously produced words. Perceptual and Motor Skills, 1972, 34, 883-886.

- Goldstein, G., Neuringer, C., Reiff, C., & Shelly, C.H. Generalizability of field dependency in alcoholics. Journal of Consulting and Clinical Psychology, 1968, 32, 560-564.
- Goldstein, J.H., & McGhee, P.E. (Eds.). The psychology of humor: Theoretical perspectives and empirical issues. New York: Academic Press, 1972.
- Gollob, H.F., & Levine, J. Distraction as a factor in the enjoyment of aggressive humor. Journal of Personality and Social Psychology, 1967, 5, 368-372.
- Goodenough, D.R. The role of individual differences in field dependence as a factor in learning and memory. Psychological Bulletin, 1976, 83, 675-694.
- Greene, L.R. Effects of field dependence on affective reactions and compliance in dyadic interactions. Journal of Personality and Social Psychology, 1976, 34, 569-577.
- Gruner, C.R. Understanding laughter: The workings of wit and humor. Chicago: Nelson-Hall, 1978.
- Halm, J. The relationship of field articulation and affective placebo reaction (Doctoral dissertation, Yeshiva University, 1967). Dissertation Abstracts, 1968, 28, 4283B-4284B. (University Microfilms No. 68-5575)
- Hassett, J., & Houlihan, J. A report on PT's humor survey: Different jokes for different folks. Psychology Today, January 1979, pp. 64-71.
- Heath, R.W. Curriculum, cognition, and educational measurement. Educational and Psychological Measurement, 1964, 24, 239-253.
- Hoffman, C., & Kagan, S. Field dependence and facial recognition. Perceptual and Motor Skills, 1977, 44, 119-124.
- Holley, M. Field-dependence-independence, sophistication-of-body-concept, and social distance selection (Doctoral dissertation, New York University, 1972). Dissertation Abstracts International, 1972, 33, 296B. (University Microfilms No. 72-20, 635)
- Hom, G.L. Threat of shock and anxiety in the perception of humor. Perceptual and Motor Skills, 1966, 23, 535-538.
- Hopkins, B.L. Effects of candy and social reinforcement, instructions, and reinforcement schedule learning on the modification and maintenance of smiling. Journal of Applied Behavior Analysis, 1968, 1, 121-129.

- Hunt, D., & Randhawa, B.S. Relationship between and among cognitive variables and achievement in computational science. Educational and Psychological Measurement, 1973, 33, 921-928.
- Justice, M.T. Field dependency, intimacy of topic and interperson distance (Doctoral dissertation, University of Florida, 1969). Dissertation Abstracts International, 1970, 31, 395B-396B. (University Microfilms No. 70-12, 243)-
- Justin, F. A genetic study of laughter provoking stimuli. Child Development, 1932, 3, 114-136.
- Kane, T.R., Suls, J.M., & Tedeschi, J. Humour as a tool of social interaction. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Karp, S.A. Psychological differentiation. In T. Blass (Ed.), Personality variables in social behavior. Hillsdale, N.J.: Erlbaum, 1977.
- Keith-Spiegel, P. Early conceptions of humor: Varieties and issues. In J.W. Goldstein & P.E. McGhee (Eds.), The psychology of humor: Theoretical perspectives and empirical issues. New York: Academic Press, 1972.
- Kenderdine, M. Laughter in the pre-school child. Child Development, 1931, 2, 228-230.
- Kendon, A. Some functions of gaze-direction in social interaction. Acta Psychologica, 1967, 26, 22-63.
- Keppel, G. Design and analysis: A researcher's handbook. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.
- Khoury, R.M. Sex and intelligence differences in humor appreciation: A re-examination. Social Behavior and Personality, 1977, 5, 377-382.
- Kirk, R.E. Experimental design: Procedures for the behavioral sciences. Belmont, Calif.: Brooks/Cole, 1968.
- Kirkland, J. Warm-up and fatigue effects in jokes rated by concrete and abstract persons. Social Behavior and Personality, 1974, 2, 161-165.
- Koifman, S. The role of cognitive style in word association (Doctoral dissertation, New York University, 1976). Dissertation Abstracts International, 1977, 37, 4688B-4689B. (University Microfilms No. 77-5420)

- Konstadt, N., & Forman, E. Field dependence and external directedness. Journal of Personality and Social Psychology, 1965, 1, 490-493.
- Koppel, M.A., & Sechrest, L. A multitrait-multimethod matrix analysis of sense of humor. Educational and Psychological Measurement, 1970, 30, 77-85.
- Kosslyn, S.M., & Henker, B.A. Social influences on children's humor responses. Paper presented at the California State Psychological Association, Monterey, Calif., 1970. (ERIC Document Reproduction Service No. ED 039 933)
- Kumpf, M., & Götz-Marchand, B. Reduction of cognitive dissonance as a function of magnitude of dissonance, differentiation, and self-esteem. Journal of Social Psychology, 1973, 3, 255-270.
- La Fave, L. Humor judgments as a function of reference groups and identification classes. In J.H. Goldstein & P.E. McGhee (Eds.), The psychology of humor: Theoretical perspectives and empirical issues. New York: Academic Press, 1972.
- Landis, C., & Ross, J. Humor and its relation to other personality traits. Journal of Social Psychology, 1933, 4, 156-175.
- Lavrakas, P.J., Buri, J.R., & Mayzner, M.S. A perspective on the recognition of other-race faces. Perception and Psychophysics, 1976, 20, 475-481.
- Lee, J.C., & Griffith, R.M. Time error in the judgment of humor. Psychological Reports, 1962, 11, 410.
- Lefcourt, H.M., Antrobus, P., & Hogg, E. Humor response and humor production as a function of locus of control, field dependence and type of reinforcements. Journal of Personality, 1974, 42, 632-651.
- Lefcourt, H.M., Gronnerud, P., & McDonald, P. Cognitive activity and hypothesis formation during a double entendre word association test as a function of locus of control and field dependence. Canadian Journal of Behavioral Science, 1973, 5, 161-173.
- Lefcourt, H.M., Hogg, E., & Sordoni, C. Locus of control, field dependence and the conditions arousing objective vs. subjective self-awareness. Journal of Research in Personality, 1975, 9, 21-36.
- Lefcourt, H.M., Sordoni, C., & Sordoni, C. Locus of control and the expression of humor. Journal of Personality, 1974, 42, 130-143.

- Lefever, M.M., & Ehri, L.C. The relationship between field independence and sentence disambiguation ability. Journal of Psycholinguistic Research, 1976, 5, 99-106.
- Leventhal, H., & Cupchik, G.C. The informational and facilitative effects of an audience upon expression and the evaluation of humorous stimuli. Journal of Experimental Social Psychology, 1975, 11, 363-380.
- Leventhal, H., & Mace, W. The effect of laughter on evaluation of a slapstick movie. Journal of Personality, 1970, 38, 16-30.
- Leventhal, H., & Safer, M.A. Individual differences, personality and humour appreciation: Introduction to symposium. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Levine, J. Humour as a form of therapy: Introduction to symposium. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Levy, L. Studies in conformity behavior: A methodological note. Journal of Psychology, 1960, 50, 39-41.
- Lewis, L.H. Acquiescence response set: Construct or artifact? Journal of Projective Techniques and Personality Assessment, 1968, 32, 578-584.
- Linton, H.B. Rorschach correlates of response to suggestion. Journal of Abnormal and Social Psychology, 1954, 49, 75-83.
- Linton, H.B. Dependence on external influence: Correlates in perception, attitudes, and judgement. Journal of Abnormal and Social Psychology, 1955, 51, 502-507.
- Loo, R. The need to report distribution characteristics of scores on field-dependence measures. Perceptual and Motor Skills, 1979, 48, 424.
- Lyle, R.C. Psychological differentiation and strategy choice in Bruner's concept attainment tasks. Unpublished doctoral dissertation, University of Ottawa, 1974.
- MacEachron, A.E. Two interactive perspectives on the relationship between job level and job satisfaction. Organizational Behavior and Human Performance, 1977, 19, 226-246.
- Malpass, L.F., & Fitzpatrick, E.D. Social facilitation as a factor in reaction to humor. Journal of Social Psychology, 1959, 50, 295-303.

- Martin, L.J. Psychology of aesthetics: Experimental prospecting in the field of the comic. American Journal of Psychology, 1905, 16, 35-118.
- Mausner, B., & Graham, J. Field dependence and prior reinforcement as determinants of social interaction in judgment. Journal of Personality and Social Psychology, 1970, 16, 486-493.
- McCarrey, M.W. Attitude shift, approval need and extent of psychological differentiation. Unpublished doctoral dissertation, University of Ottawa, 1969.
- McGhee, P.E. Development of the humor response: A review of the literature. Psychological Bulletin, 1971, 76, 328-348.
- McGhee, P.E. Birth order and social facilitation of humor. Psychological Reports, 1973, 33, 105-106.
- McGhee, P.E. Sex differences in children's humor. Journal of Communication, 1976, 26, 176-189.
- McGhee, P.E. Children's humour: A review of current research trends. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- McGhee, P.E. Humor: Its origin and development. San Francisco: Freeman, 1979.
- McGhee, P.E., & Chapman, A.J. (Eds.). Children's humour. Chichester: Wiley & Sons, 1980.
- Messick, S., & Damarin, F. Cognitive styles and memory for faces. Journal of Abnormal and Social Psychology, 1964, 69, 313-318.
- Mones, A.G. Humor and its relation to field dependence-independence and open mindedness-closed mindedness (Doctoral dissertation, Long Island University, 1974). Dissertation Abstracts International, 1975, 35, 4657B-4658B. (University Microfilms No. 75-1782)
- Murphy, B.P. Mood development and change in a humorous setting (Doctoral dissertation, University of Tennessee, 1975). Dissertation Abstracts International, 1975, 36, 1480B. (University Microfilms No. 75-18, 978)
- Murphy, B., & Pollio, H.R. The many faces of humor. Psychological Record, 1975, 25, 545-558.

Nebelkopf, E.B., & Dreyer, A.S. Continuous-discontinuous concept attainment as a function of individual differences in cognitive style. Perceptual and Motor Skills, 1973, 36, 655-662.

Nerhardt, G. Incongruity and funniness: Towards a new descriptive model. In A.J. Chapman & H.C. Foot (Eds.), Humour and laughter: Theory, research and applications. London: Wiley, 1976.

Nevill, D. Experimental manipulation of dependency motivation and its effects on eye contact and measures of field dependency. Journal of Personality and Social Psychology, 1974, 29, 72-79.

Nosanchuk, T.A., & Lightstone, J. Canned laughter and public and private conformity. Journal of Personality and Social Psychology, 1974, 29, 153-156.

Ohnmacht, F.W. Note on the validity of the Sixteen Personality Factor Questionnaire measure of field independence. Perceptual and Motor Skills, 1968, 27, 564.

Oltman, P.K. A portable rod-and-frame apparatus. Perceptual and Motor Skills, 1968, 26, 503-506.

Oltman, P.K., Goodenough, D.R., Witkin, H.A., Freedman, N., & Friedman, F. Psychological differentiation as a factor in conflict resolution. Journal of Personality and Social Psychology, 1975, 32, 730-736.

Osborne, K.A., & Chapman, A.J. Suppression of adult laughter: An experimental approach. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.

Overlade, D.C. Humor perception as abstraction ability (Doctoral dissertation, Purdue University, 1954). Dissertation Abstracts, 1954, 14, 2136. (University Microfilms No. A54-3191)

Paclisanu, M.I. Interacting effects of stimulus deprivation, field dependence and two types of reinforcement upon problem-solving in elementary school children (Doctoral dissertation, Temple University, 1970). Dissertation Abstracts International, 1970, 31, 2290B-2291B. (University Microfilms No. 70-19, 763)

Paeth, C.A. A Likert scaling of student value statements, field independence-field dependence, and experimentally induced change (Doctoral dissertation, Oregon State University, 1973). Dissertation Abstracts International, 1973, 34, 2288B-2289B. (University Microfilms No. 73-25, 368)

- Papen, J.H. The differential effects of field orientation and maturity of moral judgment on preferred delinquent style in a seriously delinquent population (Doctoral dissertation, Rosemead Graduate School of Psychology, 1976). Dissertation Abstracts International, 1976, 37, 3527A-3528A. (University Microfilms No. 76-29, 231)
- Pellegrino, D., & Stickler, F. Field-dependence/field-independence and labeling of facial affect. Perceptual and Motor Skills, 1979, 48, 489-490.
- Perl, R.E. The influence of a social factor upon the appreciation of humor. American Journal of Psychology, 1933, 45, 308-312.
- Pierson, J.S. Cognitive styles and measured vocational interests of college men (Doctoral dissertation, University of Texas at Austin, 1965). Dissertation Abstracts, 1965, 26, 875-876. (University Microfilms No. 65-8082)
- Pollio, H.R., & Edgerly, J.W. Comedians and Comic Style. In A.J. Chapman & H.C. Foot (Eds.), Humor and laughter: Theory, research and applications. London: Wiley, 1976.
- Pollio, H.R., Mers, R., & Lucchesi, W. Humor, laughter, and smiling: Some preliminary observations of funny behaviors. In J.H. Goldstein & P.E. McGhee (Eds.), The psychology of humor: Theoretical perspectives and empirical issues. New York: Academic Press, 1972.
- Prerost, F.J. Environmental conditions affecting the humour response: Developmental trends. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.
- Pressey, A.W. A reply to comments on "Figural aftereffects, illusions and the dimension of field dependence". Psychonomic Science, 1968, 11, 364.
- Raab, T.J. An experimental study exploring the relationship between various types of reinforcement, cognitive style and learning among sixth grade students (Doctoral dissertation, Rutgers University, 1973). Dissertation Abstracts International, 1974, 34, 3473B. (University Microfilms No. 73-32, 235)
- Randolph, L.C. A study of the effects of praise, criticism, and failure on the problem solving performance of field-dependent and field-independent individuals (Doctoral dissertation, New York University, 1971). Dissertation Abstracts International, 1971, 32, 3014B-3015B. (University Microfilms No. 71-28, 555)

- Ridge, B.B. The effect of focal stimuli, background stimuli, and person variables on verbal conditioning (Doctoral dissertation, Temple University, 1964). Dissertation Abstracts, 1965, 25, 5389. (University Microfilms No. 65-1698)
- Riemer, H.H. Relationship of cognitive style and reinforcement learning in counseling (Doctoral dissertation, Ohio State University, 1967). Dissertation Abstracts, 1968, 28, 5211B. (University Microfilms No. 68-3059)
- Rosenfeld, H.M. Instrumental affiliative functions of facial and gestural expressions. Journal of Personality and Social Psychology, 1966, 4, 65-72.
- Rosner, S. Consistency in response to group pressures. Journal of Abnormal and Social Psychology, 1957, 55, 145-146.
- Rouff, L.L. The relation of personality and cognitive structure to humor appreciation (Doctoral dissertation, Bryn Mawr College, 1973). Dissertation Abstracts International, 1974, 34, 5174B-5175B. (University Microfilms No. 74-8956)
- Roy, R. Extent of psychological differentiation as related to verbal skills. Unpublished master's thesis, University of Ottawa, 1970.
- Rubin, S.S. An investigation of experimentally-based measures of conformity and independence (Doctoral dissertation, Johns Hopkins University, 1969). Dissertation Abstracts International, 1969, 30, 2936B. (University Microfilms No. 69-21, 070)
- Ruble, D.N., & Nakamura, C.Y. Task orientation versus social orientation in young children and their attention to relevant social cues. Child Development, 1972, 43, 471-480.
- Sabatelli, R.M., Dreyer, A.S., & Buck, R. Cognitive style and sending and receiving of facial cues. Perceptual and Motor Skills, 1979, 49, 203-212.
- Scheibner, R.M. Field dependence-independence as a basic variable in the measurement of interest and personality (Doctoral dissertation, Temple University, 1969). Dissertation Abstracts International, 1970, 30, 3375B-3376B. (University Microfilms No. 69-16, 291)
- Shulman, E. Conformity in a modified Asch-type situation (Doctoral dissertation, City University of New York, 1976). Dissertation Abstracts International, 1976, 36, 6455B. (University Microfilms No. 76-11, 971)

- Shultz, T.R. The role of incongruity and resolution in children's appreciation of cartoon humor. Journal of Experimental Child Psychology, 1972, 13, 456-477.
- Simon, G.R. Field articulation and task behaviors under controlled social environments (Doctoral dissertation, University of Cincinnati, 1976). Dissertation Abstracts International, 1977, 37, 5846B-5847B. (University Microfilms No. 77-11, 232)
- Singer, D.L., Gollob, H.F., & Levine, J. Mobilization of inhibitions and the enjoyment of aggressive humor. Journal of Personality, 1967, 35, 562-569.
- Smyth, M.M., & Fuller, R.G.C. Effects of group laughter on responses to humorous material. Psychological Reports, 1972, 30, 132-134.
- Sofman, R.J., Hajosy, R.C., & Vojtisek, J.E. Psychology of scientist: XXXIII. Cognitive style differences between science and non-science faculty and students. Perceptual and Motor Skills, 1976, 43, 851-854.
- Solar, D., Davenport, G., & Bruehl, D. Social compliance as a function of field dependence. Perceptual and Motor Skills, 1969, 29, 299-306.
- Spielberger, C.D. (Ed.). Anxiety: Current trends in theory and research. New York: Academic Press, 1972.
- Stein, F. Consistency of cognitive, interest and personality variables with academic mastery: A study of field-dependence-independence, verbal comprehension, self-perception, and vocational interest in relation to academic performance among male juniors attending an urban university (Doctoral dissertation, New York University, 1968). Dissertation Abstracts, 1968, 29, 1429A. (University Microfilms No. 68-11, 809)
- Stuart, I.R., & Murgatroyd, D. Field research model of the rod-and-frame test. Perceptual and Motor Skills, 1971, 32, 671-674.
- Tolman, C.W. The role of the companion in social facilitation of animal behavior. In E.C. Simmel, R.A. Hoppe, & G.A. Milton (Eds.), Social facilitation and imitative behavior. Boston: Allyn & Bacon, 1968.
- Tramer, R.R., & Schludermann, E.H. Cognitive differentiation in a geriatric population. Perceptual and Motor Skills, 1974, 39, 1071-1075.

- Trego, R.E. An investigation of the rod and frame test in relation to emotional dependence and social cue attentiveness (Doctoral dissertation, Texas Christian University, 1971). Dissertation Abstracts International, 1972, 32, 4910B. (University Microfilms No. 72-7617)
- Underwood, B.J. Psychological research. New York: Appleton-Century-Crofts, 1957.
- Vaught, G.M. Expected scores in the rod-and-frame test: Fuel for the Immergluck-Pressey fire. Psychonomic Science, 1968, 13, 248.
- Vernon, P.E. The distinctiveness of field independence. Journal of Personality, 1972, 40, 366-391.
- Wade, E.B. Field-independence, authoritarianism, and verbal reinforcement in anagram solution (Doctoral dissertation, Columbia University, 1971). Dissertation Abstracts International, 1971, 32, 3625B-3626B. (University Microfilms No. 72-1397)
- Wallach, M.A., Kogan, N., & Burt, R.B. Group risk taking and field dependence-independence of group members. Sociometry, 1967, 30, 323-338.
- Weinberg, H.J. Changing perceptions on the RFT by conditioning subjects to relieve dissonance and/or escape from the anxiety in a new manner (Doctoral dissertation, University of Nebraska, 1970). Dissertation Abstracts International, 1970, 31, 1637A. (University Microfilms No. 70-17, 768)
- Weiss, H.M., & Shaw, J.B. Social influences on judgments about tasks. Organizational Behavior and Human Performance, 1979, 24, 126-140.
- Weitz, J.M. Cultural change and field dependence in two native Canadian linguistic families. Unpublished doctoral dissertation, University of Ottawa, 1971.
- Wicklund, R.A. Objective self-awareness. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 8). New York: Academic Press, 1975.
- Wierzbicki, M., & Young, R.D. The relation of intelligence and task difficulty to appreciation of humor. Journal of General Psychology, 1978, 99, 25-32.
- Wineman, J.H. Projected utilization of interpersonal distance as a function of psychological differentiation (Doctoral dissertation, University of Utah, 1973). Dissertation Abstracts International, 1974, 34, 5698B-5699B. (University Microfilms No. 74-11, 431)

- Witkin, H.A. Psychological differentiation and forms of pathology. Journal of Abnormal Psychology, 1965, 70, 317-336.
- Witkin, H.A., Dyk, R.B., Faterson, H.F., Goodenough, D.R., & Karp, S.A. Psychological differentiation. Potomac, Md.: Erlbaum, 1974. (Originally published, 1962.)
- Witkin, H.A., & Goodenough, D.R. Field dependence and interpersonal behavior. Psychological Bulletin, 1977, 84, 661-689.
- Witkin, H.A., Lewis, H.B., Hertzman, M., Machover, K., Meissner, P.B., & Wapner, S. Personality through perception. Westport, Conn.: Greenwood Press, 1972. (Originally published, 1954.)
- Witkin, H.A., Moore, C.A., Goodenough, D.R., & Cox, P.W. Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47, 1-64.
- Wolfe, G.R. The role of objective self awareness and field-independence-dependence in the induction of elation and depression (Doctoral dissertation, University of Texas at Austin, 1974). Dissertation Abstracts International, 1975, 35, 4205B. (University Microfilms No. 75-4482)
- Wolosin, R.J. Cognitive similarity and group laughter. Journal of Personality and Social Psychology, 1975, 32, 503-509.
- Young, P.T. Laughing and weeping, cheertfulness and depression: A study of moods among college students. Journal of Social Psychology, 1937, 8, 311-334.
- Young, R.D., & Frye, M. Some are laughing; some are not - Why? Psychological Reports, 1966, 18, 747-754.
- Zajonc, R.B. Social facilitation, Science, 1965, 149, 269-274.
- Zigler, E., Levine, J., & Gould, L. Cognitive processes in the development of children's appreciation of humor. Child Development, 1966, 37, 507-518.
- Zigler, E., Levine, J., & Gould, L. Cognitive challenge as a factor in children's humor appreciation. Journal of Personality and Social Psychology, 1967, 6, 332-336.
- Zillmann, D. Humour and communication: Introduction. In A.J. Chapman & H.C. Foot (Eds.), It's a funny thing, humour. Oxford: Pergamon Press, 1977.

Zytowski, D.G., Mills, D.H., & Paepe, C. -Psychological
differentiation and the Strong Vocational Interest Blank.
Journal of Counseling Psychology, 1969, 16, 41-44.

APPENDIX A

PROCEDURE FOR THE PORTABLE ROD-AND-FRAME TEST (PRFT)

Note: The apparatus must be on a sturdy table and must be level. Before the subject enters the room, be sure the frame is not tilted and that the curtain is closed.

Before seating the subject in front of the apparatus say:

"In this test we want to find out how well you can determine the upright - the vertical - under various conditions."

"In this box (PRFT) you will see a square frame and within this frame you will see a rod."

"It is possible for me to tilt the frame to the left or the right. I can also tilt the rod to the left or right. I can tilt the frame alone or the rod alone; or I can tilt them both at the same time, either to the same side or to opposite sides."

"When I lower the curtain at the beginning of each trial, I want you to tell me whether the rod and frame are straight up and down - i.e. vertical - or whether they are tilted. In other words, tell me whether the rod and frame are straight with the walls of this room or whether they are tilted."

"Are there any questions?"

Seat the subject in front of the apparatus and adjust the head rest. The subject's hands must be in her lap, not touching the table. Tell the subject to keep her head in the rest at all times.

Trial 1: Adjust the frame to 28L and the rod to 28L. Open the curtain. Say:

"What is the position of the rod and frame?"

Record the subject's response.

- A. If the subject says the rod is not vertical, say to her:

"I will now turn the rod slowly until you think it is straight with the walls of this room. As I said, I will turn it slowly, and after each turn, tell me whether it has been turned enough or whether you want it turned some more. Just say 'more' or 'enough' after each turn. Please make your decisions quickly and don't be too finicky. Which way shall I move the rod to make it vertical - clockwise or counterclockwise?"

Now move the rod about 3° at a time opposite to the direction in which the subject says it is tilted, until she reports "enough". Ask the subject after she reports the rod vertical:

"Is the rod now vertical - that is, is it straight with the walls of this room? In other words, is it straight up the way a flagpole outside is?"

If the subject should now say that she wants the rod moved some more in either direction, do so. Close the curtain and record the position of the rod.

- B. If on this first trial, the subject reports the rod to be straight at the outset, ask her the question:

"In other words, is the rod straight with the walls of the room we are in? That is, is it straight up and down like a flagpole?"

1. If she now says the rod is tilted, give the instructions under "A" above.
2. If she repeats that the rod is vertical, close the curtain and proceed to Trial 2. Give the instructions concerning the straightening of the rod (as in "A" above) on the first trial on which she says that the rod is tilted.

Trial 2: Leave the frame at 28L and adjust the rod 28R.

Open the curtain and say to the subject:

"Would you tell me now and at the beginning of all subsequent trials whether the rod and frame are straight with the walls of this room, or tilted; and if the rod is tilted, whether the rod should be moved clockwise or counterclockwise to be made straight."

If the subject asks you to turn the rod, do so until she says "enough".

Ask her again: "Is the rod now vertical - that is, is it straight with the walls of this room?"

Do not ask this question on subsequent trials. Close the curtain. Record the adjustment. Proceed to the next trials.

Trial 3:	Frame 28R	Rod 28R
Trial 4:	Frame 28R	Rod 28L
Trial 5:	Frame 28L	Rod 28L
Trial 6:	Frame 28L	Rod 28R
Trial 7:	Frame 28R	Rod 28R
Trial 8:	Frame 28R	Rod 28L

If at any time after the rod has been adjusted on a given trial the subject should say that she wants it moved some more in either direction, do so.

If the subject should take more than 5 seconds on any trial before saying "more" or "enough", tell her: "Please make your decisions quickly."

If the subject should repeatedly say "more" or "enough" before the turn of the rod is completed, say to her:

"Please wait until I have completed the turn."

Check from time to time to determine whether the subject's head is in the proper position in the head rest.

APPENDIX B

INSTRUCTIONS, DEFINITIONS, AND EXAMPLES PROVIDED FOR THE
INITIAL CATEGORIZATION OF CARTOONS ACCORDING TO
PREDOMINANT THEME

Using the definitions provided below, indicate for each cartoon which theme is predominant.

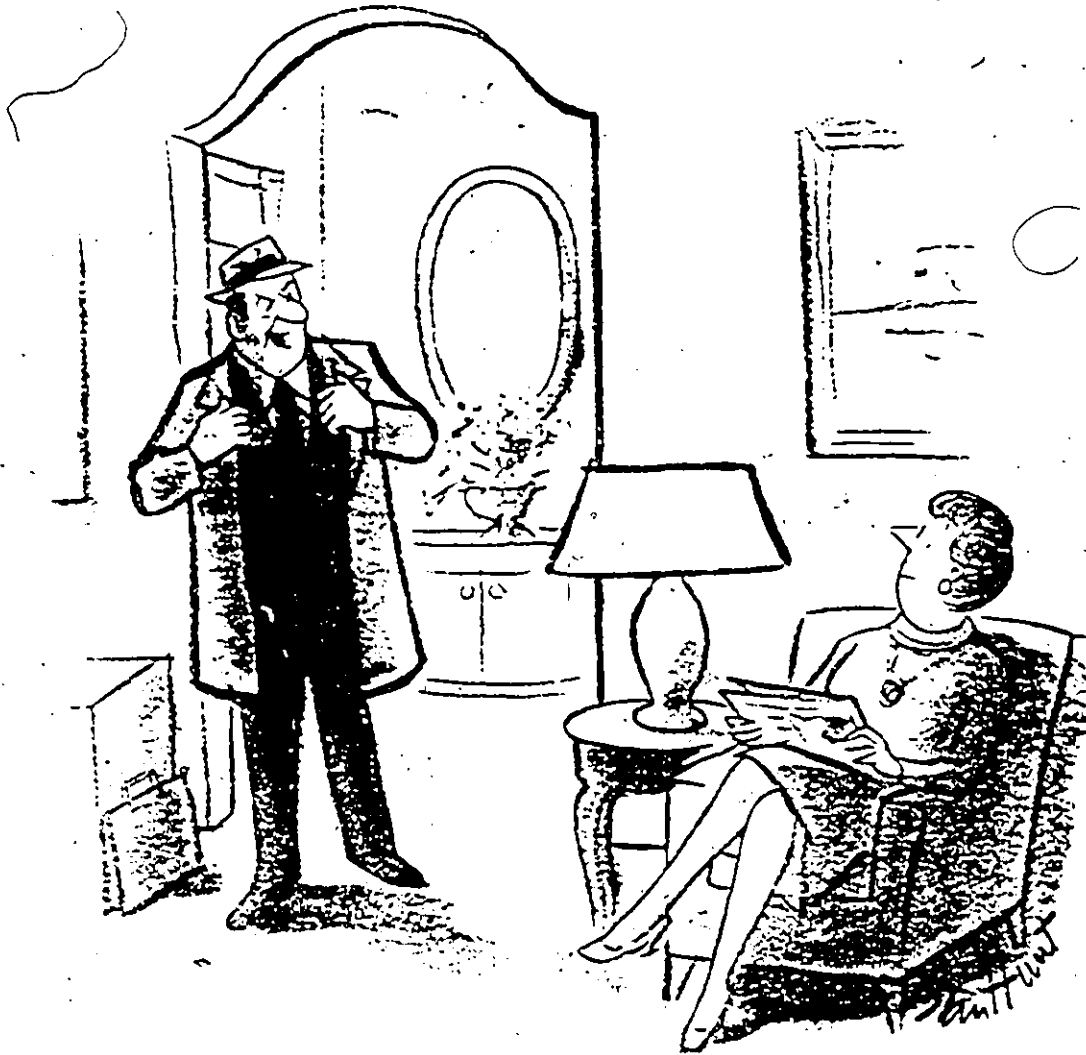
Aggressive theme: The cartoon's humor potential depends primarily on: a) an implied or overt attack on or criticism of some person, group, institution or event; b) the destruction or suffering of some person or group. (See attached cartoon illustrative of an aggressive theme.)

Sexual theme: The cartoon's humor potential depends primarily on clear allusions to, implications of, talk about, or descriptions of heterosexual or homosexual acts. (See attached cartoon illustrative of a sexual theme.)

Whimsical (non-sensical) theme: The cartoon's humor potential depends on illogicalities and absurdities without essential reference to sex or aggression. (See attached cartoon illustrative of a whimsical theme.)

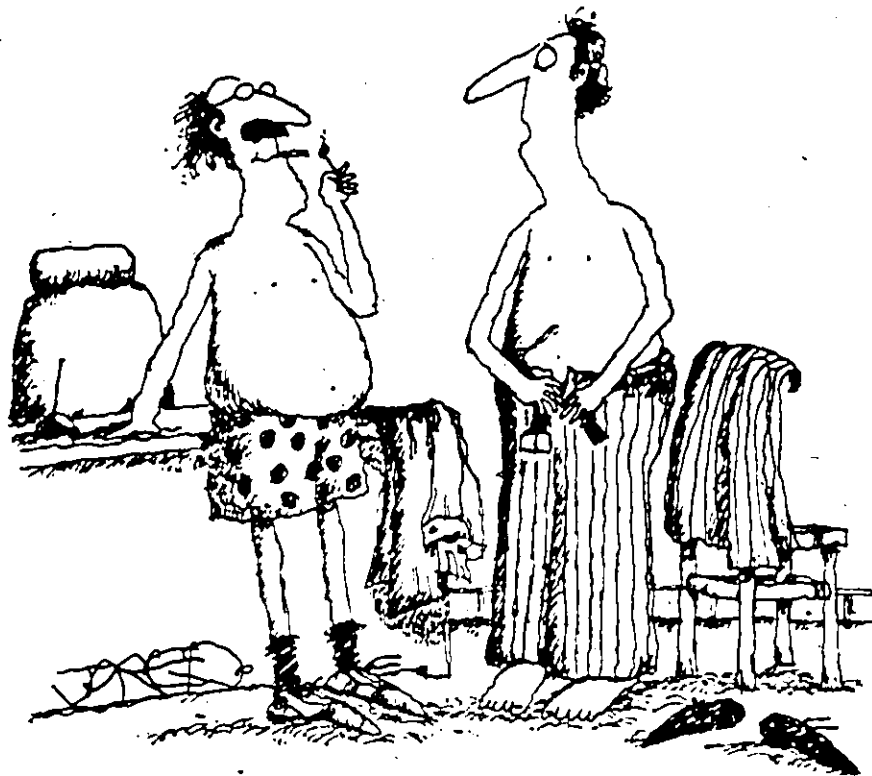
Noting the number of each cartoon, and using the sheet provided, write "A" in the appropriate space if the cartoon's theme is predominantly aggressive, "S" if the cartoon's theme is predominantly sexual, and "W" if the cartoon's theme is predominantly whimsical. These three themes need not be equally represented in your final categorizations.

Important: Indicate only one theme for each cartoon. If two or more themes appear to be present in a cartoon and if both appear to be equally important, write "?" in the appropriate space.



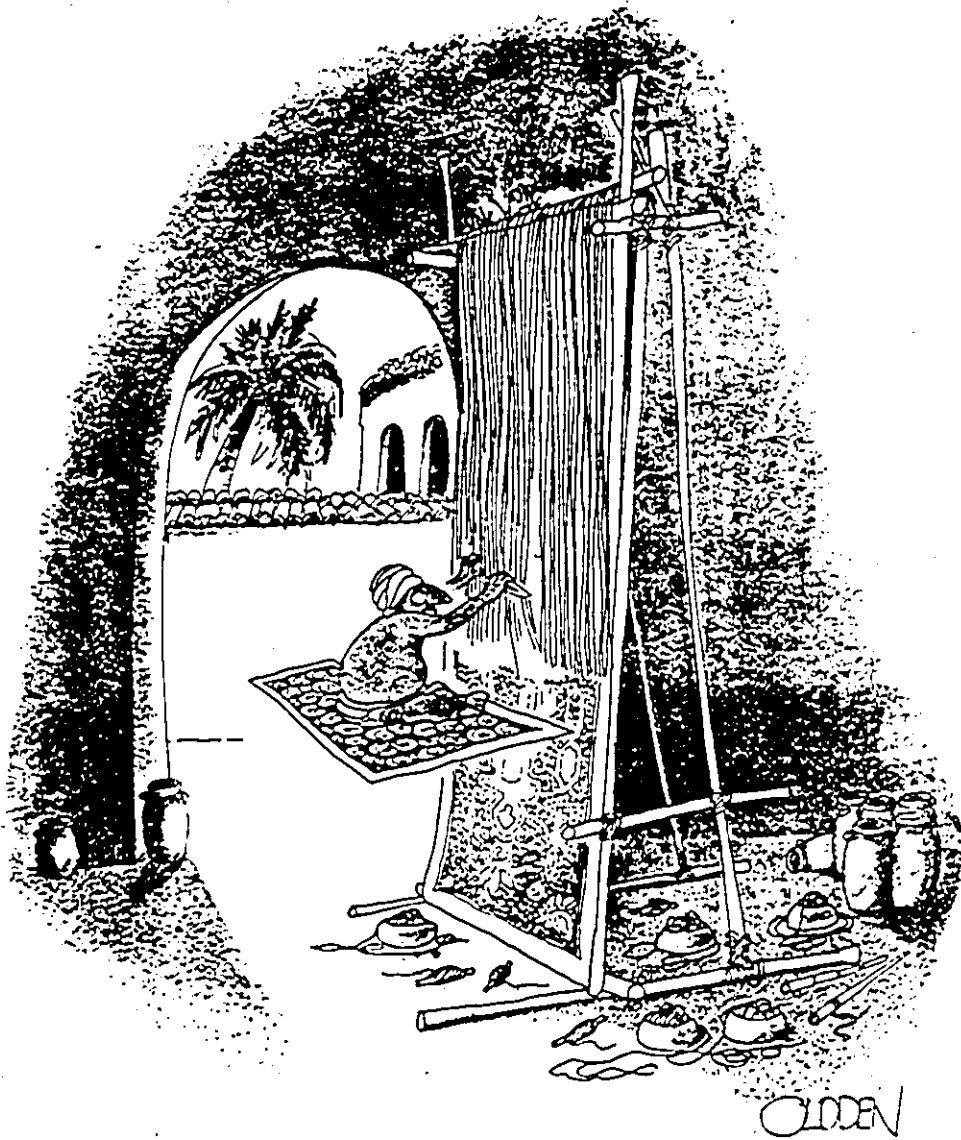
*"Well, that bastard Hepplewether wished me a Happy New Year,
but I was ready for him. I told him to go to hell."*

AGGRESSIVE THEME



"Was that the only reason you wanted to see me, warden?"

SEXUAL THEME



WHIMSICAL THEME

APPENDIX C

INSTRUCTIONS FOR RATING CARTOONS FOR
FUNNINESS AND DIFFICULTY

You will be rating this series of 65 cartoons. I hope you will enjoy this session by simply sitting back, relaxing, and looking at the cartoons. As you do this you are asked to answer the following questions for each cartoon:

First

How FUNNY was the cartoon?

not at all	very little	a little	somewhat	much	very much	extremely
1	2	3	4	5	6	7

Second

How DIFFICULT was the cartoon to understand?

impossible	extremely difficult	very difficult	somewhat difficult	somewhat easy	very easy	extremely easy
1	2	3	4	5	6	7

For each cartoon you are to first circle the number which best indicates how funny the cartoon was to you and then circle the number which best indicates how difficult it was for you to understand the "point" of the cartoon.

When answering the two questions about each cartoon, keep in mind that there is no necessary relationship between your answers to the two questions. For example, a cartoon you consider extremely funny may be either extremely difficult or extremely easy to understand.

You are to indicate your responses to the cartoons on the attached sheets. Please take a look at the next page.

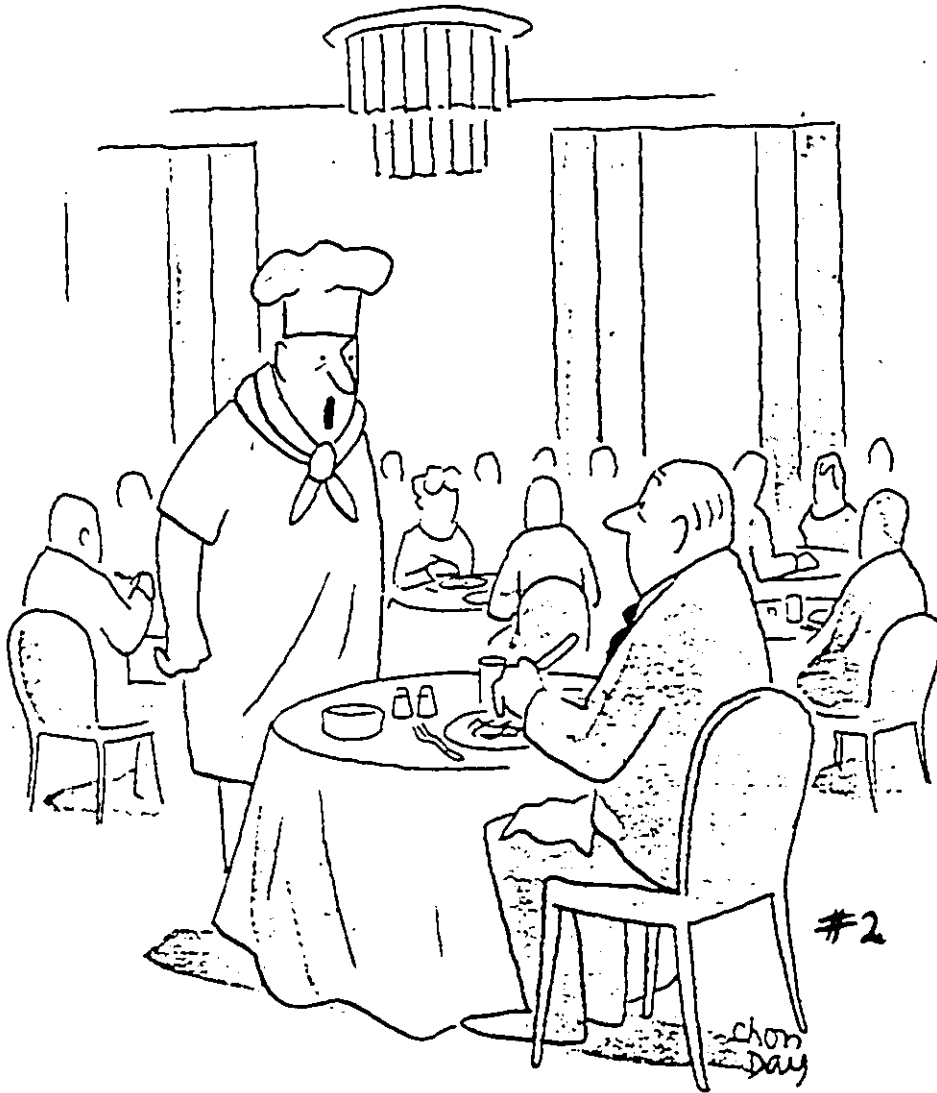
APPENDIX D

FINAL SAMPLE OF 18 CARTOONS



"Let me see if I have it correctly, sir. To hell with the appetizer. A chopped sirloin that damn well better be rare. No goddam relish tray. Who cares which salad dressing, since they all taste like sludge?"

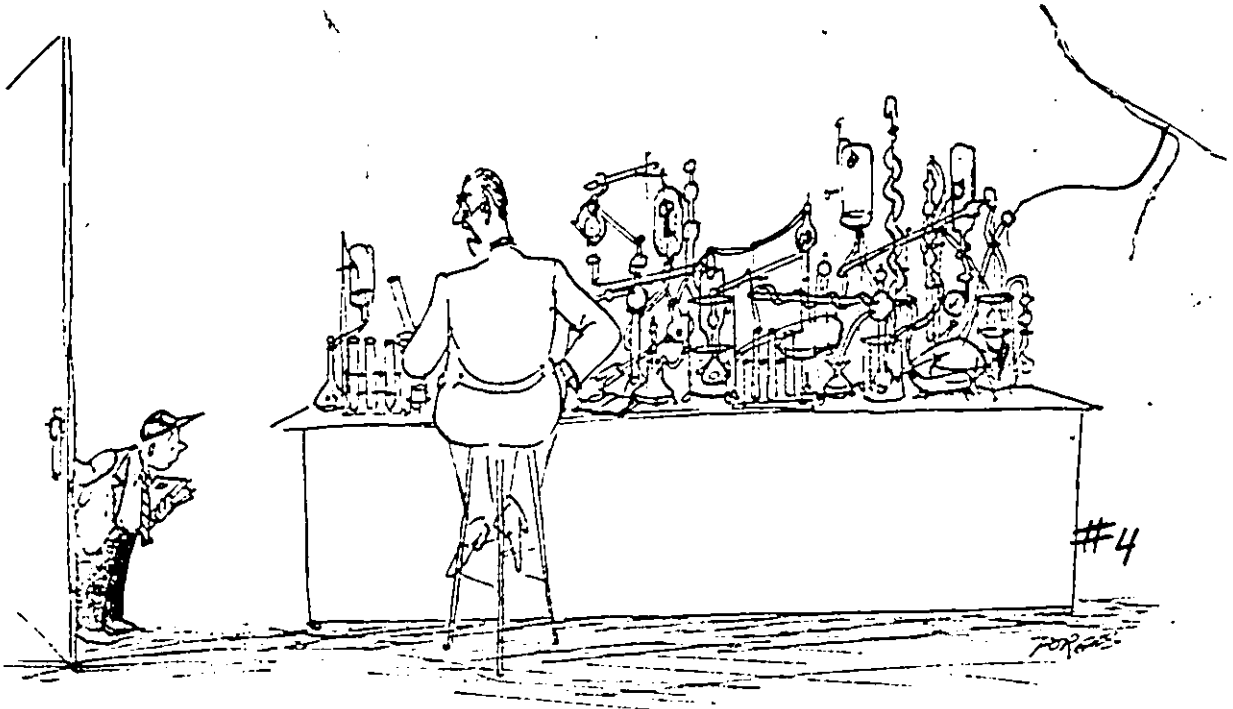
CARTOON 1



"For God's sake, stop picking at it!"



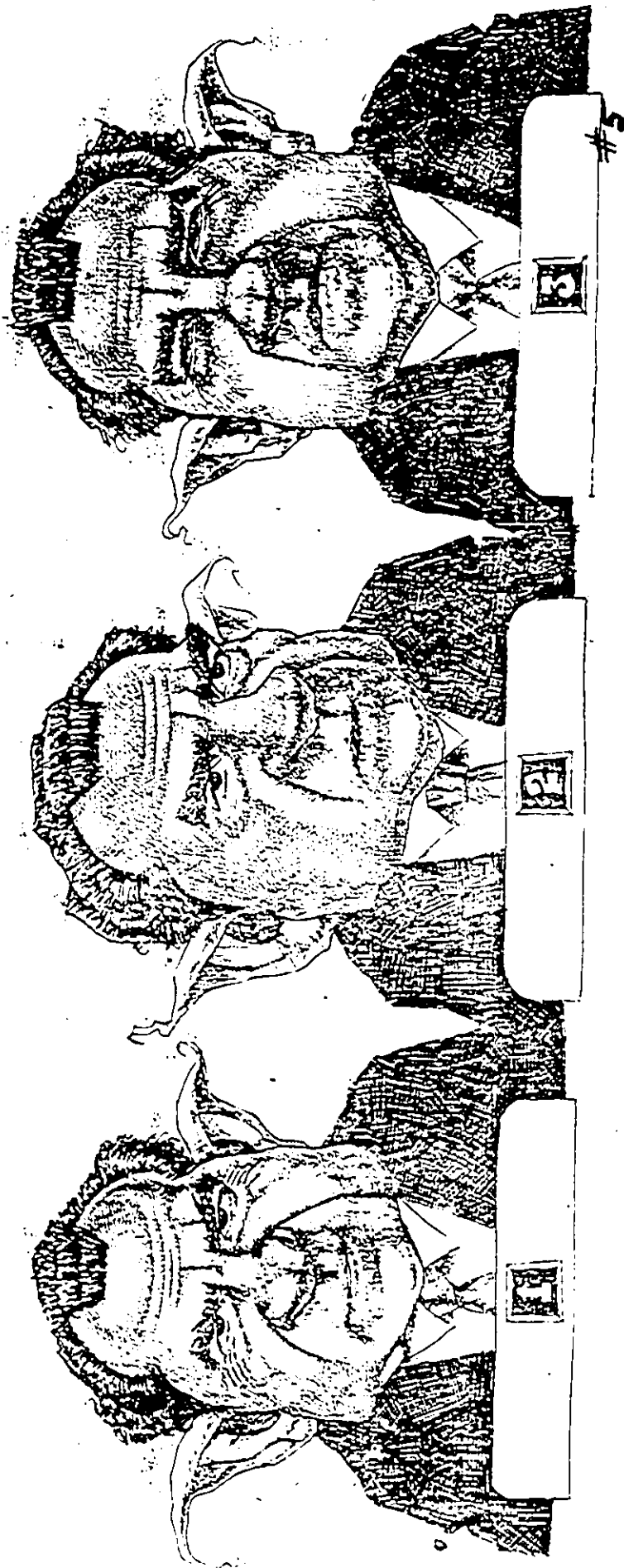
"I suppose you think that little crack about recycling eaves was very amusing, too."



"You flunked what?"

CARTOON 4

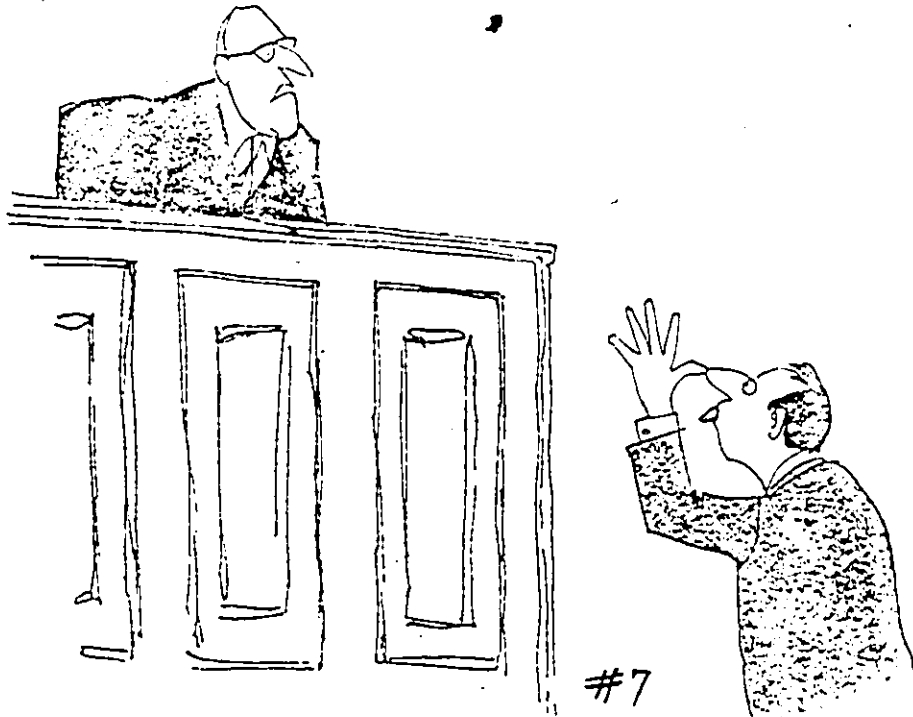
'Will the real bugger please stand up?'





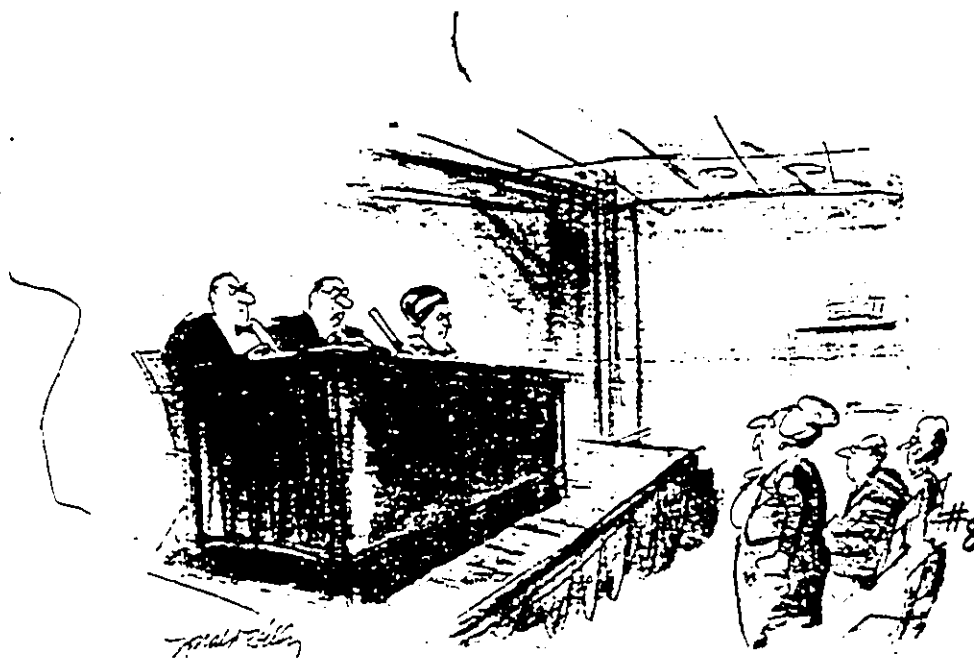
I'll show you just how far I can trust you...

CARTOON 6



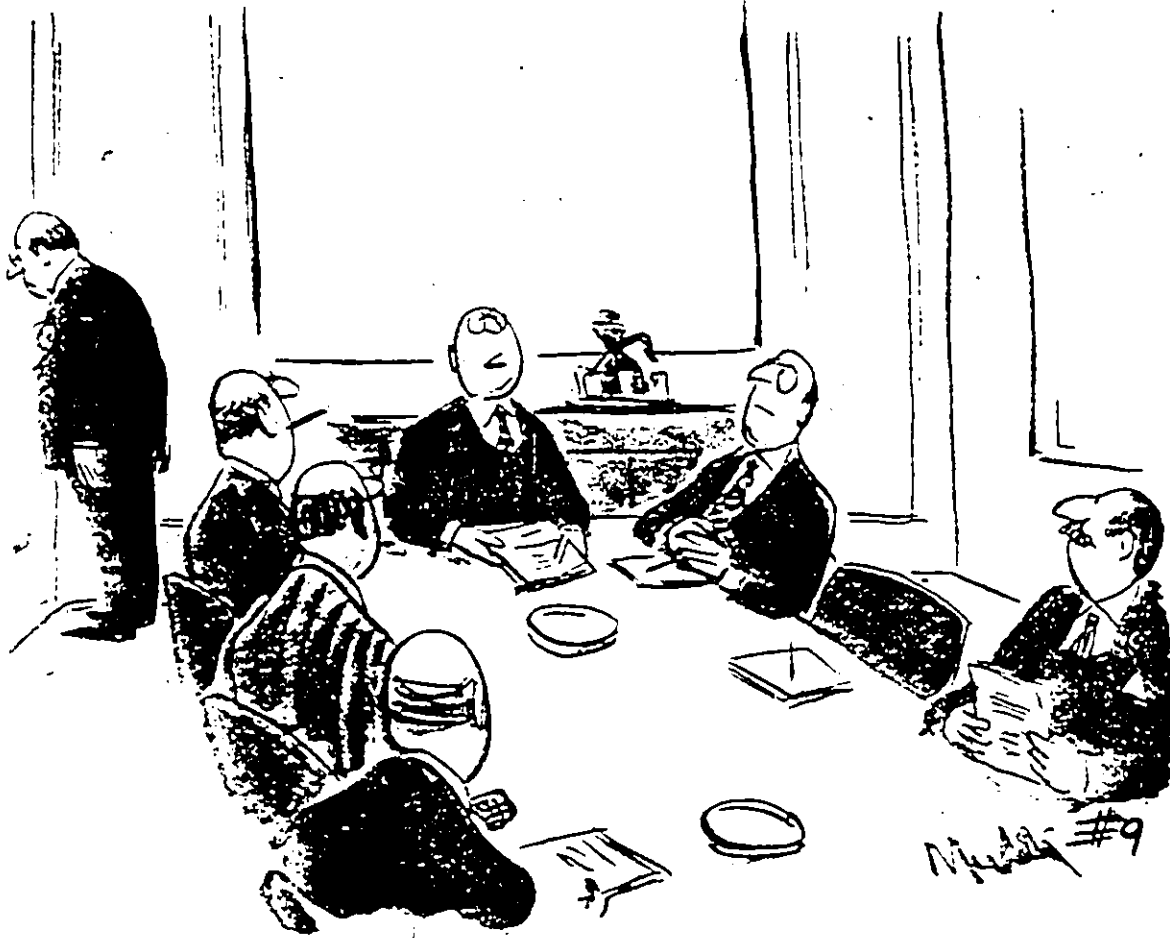
"Mister, you're really asking for justice!"

CARTOON 7



"We who serve as your Zoning Board of Appeals ask neither thanks nor compensation, but would greatly appreciate not being addressed as, 'You swine up there!'"

CARTOON 8



*"And now, gentlemen, before this meeting gets under way,
are there any more smart-alecky remarks?"*

CARTOON 9

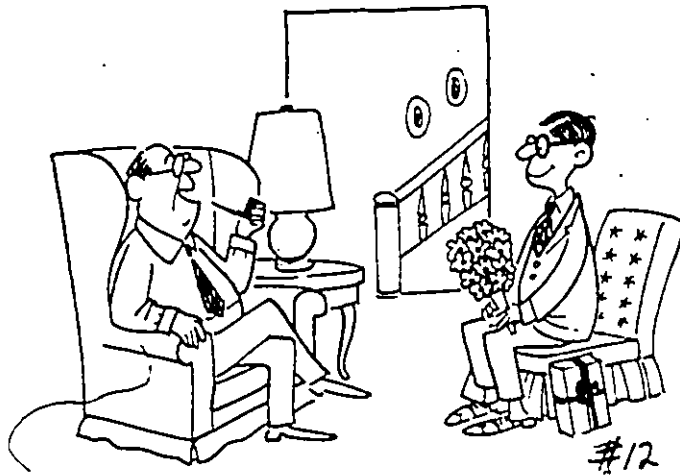


*"Howard, this is one of the toughest decisions
I've ever had to make."*



"Now, don't you start complaining."

CARTOON 11



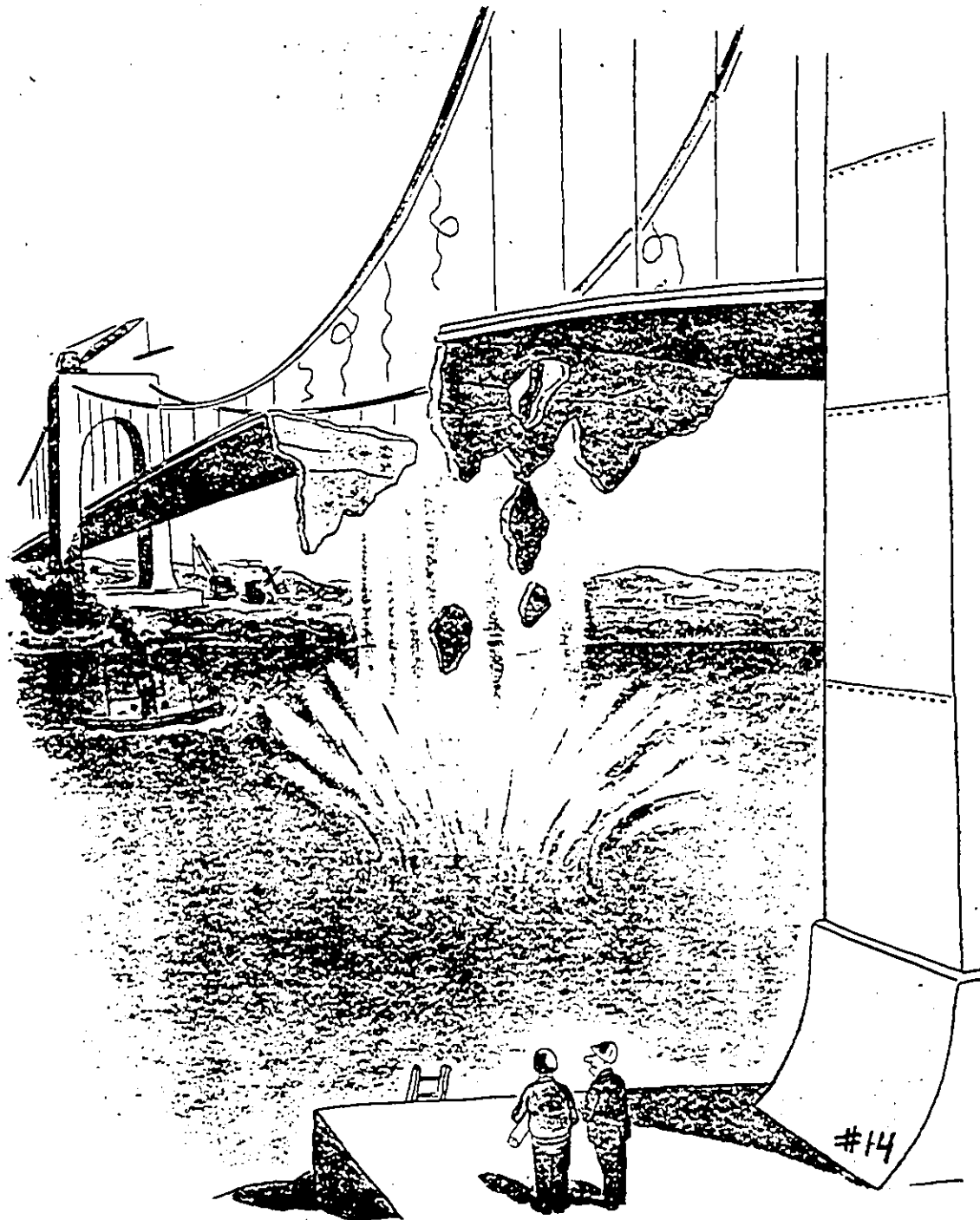
"My daughter tells me you're
from Dullsville."

CARTOON 12



"If you withdraw or deposit your damn five dollars one more time this year, Mrs. Babcock, I'm going to shoot you!"

CARTOON 13

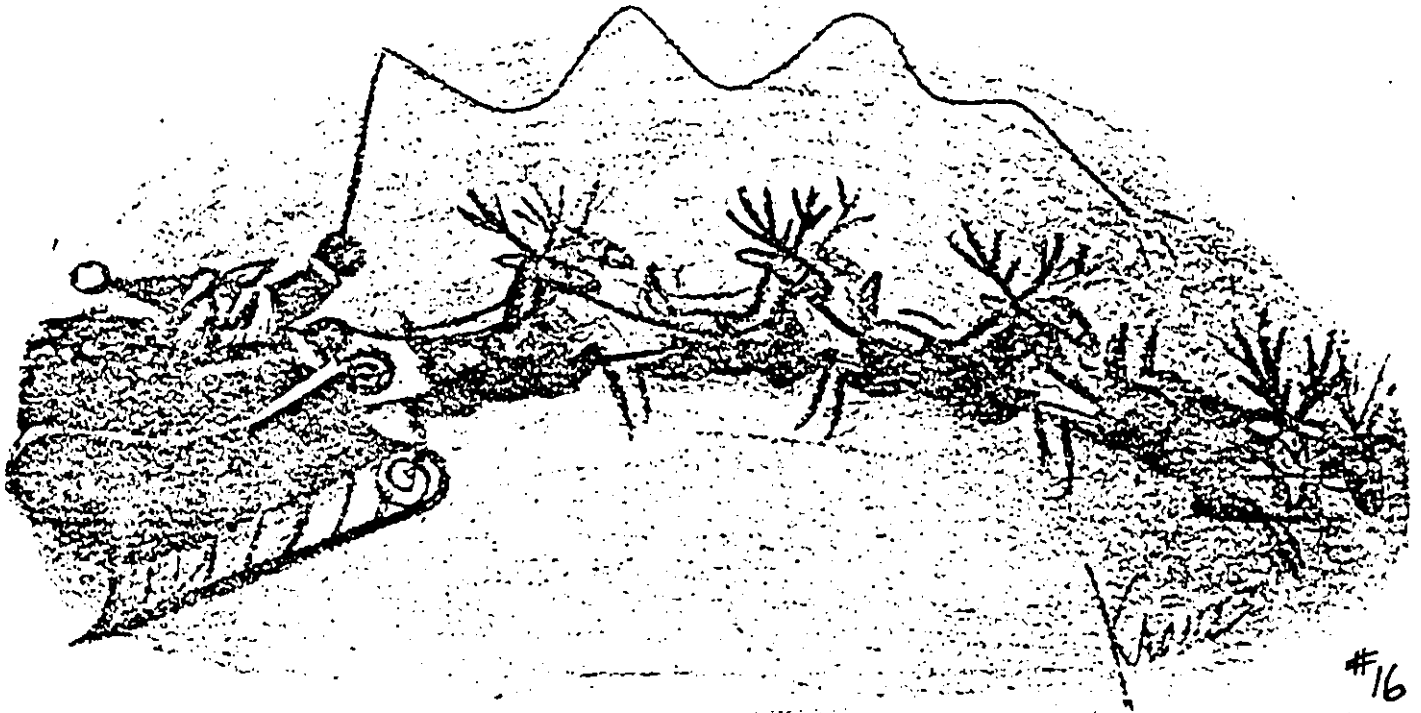


"Well, so much for the new math."



*"This new, more positive self-image of yours,
Clarkson—get rid of it."*

CARTOON 15



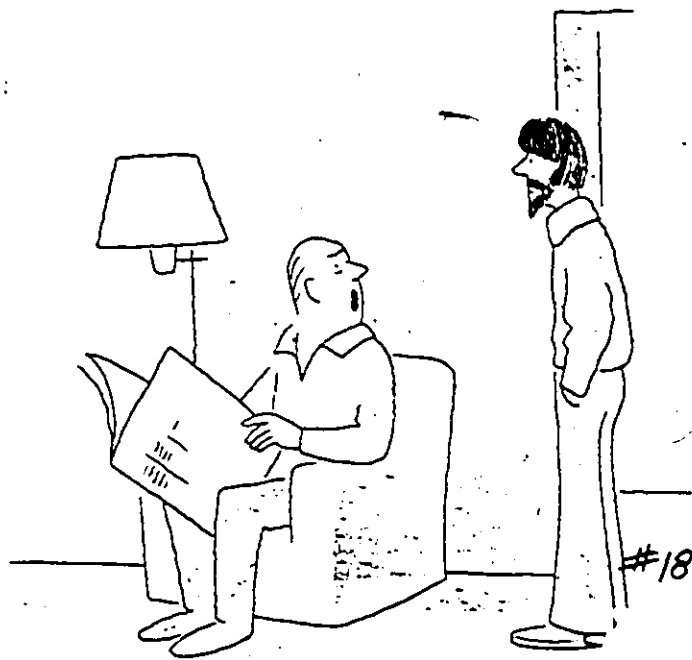
"For a kindly old man, he's mighty quick with the whip."

CARTOON 16



*"Suppose he doesn't get the best marks
in his class. Do you get the highest salary in your office?"*

CARTOON 17



*"I know we don't communicate. It's
one of my few pleasures."*

CARTOON 18

APPENDIX E

INSTRUCTIONS FOR RATING CARTOONS IN THE
NO CANNED LAUGHTER CONDITION

You will be viewing a sequence of 18 cartoons. I hope you will enjoy this warm-up period by simply sitting back, relaxing, and looking at the cartoons. As you do this, you are asked to answer the following question for each cartoon:

How FUNNY was the cartoon?

not at all	very little	a little	somewhat	much	very much	extremely
1	2	3	4	5	6	7

For each cartoon you are to answer this question by circling the number which best indicates how funny the cartoon was. Each cartoon will be displayed on the screen for several seconds.

It has been found in earlier work that it is sometimes difficult to read the captions at the bottom of the cartoons because of the small print and occasional shifts in focus of the slides. To get around this problem, a tape recording has been made of an experimenter reading the cartoon captions aloud.

So now, just sit back, relax, and make yourself comfortable. The cartoons will begin shortly.

APPENDIX F

INSTRUCTIONS FOR RATING CARTOONS IN THE
CANNED LAUGHTER CONDITION

You will be viewing a sequence of 18 cartoons. I hope you will enjoy this warm-up period by simply sitting back, relaxing, and looking at the cartoons. As you do this, you are asked to answer the following question for each cartoon:

How FUNNY was the cartoon?

not at all	very little	a little	somewhat	much	very much	extremely
1	2	3	4	5	6	7

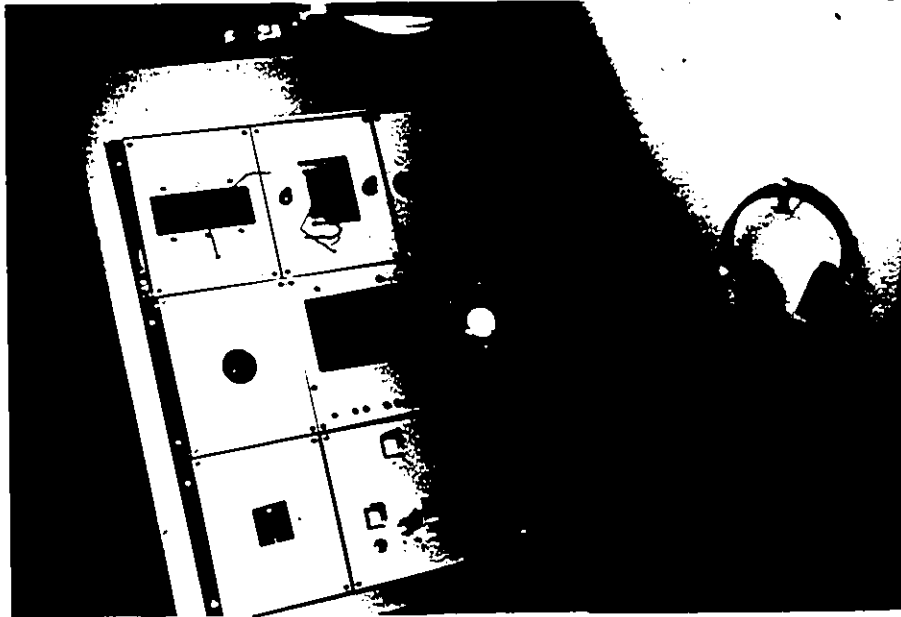
For each cartoon you are to answer this question by circling the number which best indicates how funny the cartoon was. Each cartoon will be displayed on the screen for several seconds.

It has been found in earlier work that it is sometimes difficult to read the captions at the bottom of the cartoons because of the small print and occasional shifts in focus of the slides. To get around this problem, a tape recording has been made of parts of a session during which these same cartoons were shown to a larger group. An experimenter read the cartoon captions aloud for them.

So now, just sit back, relax, and make yourself comfortable. The cartoons will begin shortly.

APPENDIX G

LEHIGH VALLEY MODULAR HUMAN TEST SYSTEM



APPENDIX H

POSTEXPERIMENTAL INTERVIEW

Subject # _____ Date _____

Exp. Condition _____

1. Were there any cartoons you had difficulty seeing? _____ yes _____ no

If "yes", which ones? (Show subject photocopies of cartoons.) _____

2. Had you seen any of the cartoons before? _____ yes _____ no

If "yes", which ones? (Show subject photocopies of cartoons.) _____

3. As you watched the cartoons did you feel _____ relatively relaxed _____ relatively tense?

If "relatively tense", can you say why? _____

4. (If canned laughter had been presented) Did the sounds of the audience on the tape distract you? _____ yes _____ no

If "yes", how did they distract you? _____

5. By the time the cartoons were over did you have a clear idea of how to use the funniness rating scale? _____ yes _____ no

Now, about the film...

6. In terms of visual clarity was the film _____ totally blurred, _____ blurred in parts, _____ clear enough to make out the details?

7. Did you have any trouble hearing the sound track? _____ yes _____ no

8. (If the confederate had been present) Did you find it
distracting being with someone else in the session? _____ yes _____ no

If "yes", how was it distracting? _____

9. Do you like slapstick humor? _____ yes _____ no

10. Do you have any comments about the session? _____
-
-

APPENDIX I

INDIVIDUAL SCORING SHEET FOR OVERT MIRTH

Scorer _____ Tape # _____ S # _____ Date _____

Time Begin _____

Cartoon #	Footage	Scoring	Latency
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

Time End _____

Comments:

APPENDIX J

SUPPLEMENTARY DATA ON INTEROBSERVER AND
INTRAOBSERVER RELIABILITY FOR MEASURES OF HUMOR APPRECIATION

Dependent Variable	Block of Cartoons	Interobserver Reliability		Intraobserver Reliability ^a	
		After Training	After Scoring	Observer A	Observer B
Frequency of Laughter	1	.93	.95	.85	.83
	2	.77	.81	.96	.93
	3	.92	.82	.96	1.00
	Total	.90	.90	.97	.94
Frequency of Smiling	1	.87	.92	.72	.94
	2	.73	.54	.89	.89
	3	.54	.78	.87	.83
	Total	.90	.94	.90	.94
Rating of Overt Mirth	1	.92	.97	.94	.90
	2	.90	.87	.98	.98
	3	.90	.87	.94	.95
	Total	.91	.90	.96	.95
Duration of Laughter	1	.99	.87	.91	.63
	2	.68	.80	.96	.85
	3	.78	.89	.98	.96
	Total	.91	.96	.96	.86
Duration of Smiling	1	.99	.97	.98	.98
	2	.64	.42	.89	.88
	3	.97	.79	.75	.83
	Total	.97	.93	.97	.99

Note: These correlations are based on eight subjects from the pilot study selected at random with the restriction that four were alone and four were with the confederate. All correlations .71 or higher are significant at $p < .05$.

^a Intraobserver reliabilities are based on the same eight subjects from the pilot study whose behavior was scored on two occasions: immediately after observer training and again 5 weeks later, after the scoring of all experimental subjects had been completed.

APPENDIX K

INTEROBSERVER AGREEMENT AND TEMPORAL STABILITY OF
HUMOR APPRECIATION MEASURES FOR SUBJECTS
EXPOSED TWICE TO THE CARTOONS^a

Dependent Variable ^b	Session				Correlation Between Sessions	
	First		Second		Same Observer ^c	Different Observer ^d
	\bar{x}	σ	\bar{x}	σ		
Frequency of Laughter	2.60	2.37	1.30	2.09	.70**	.72**
Frequency of Smiling	2.67	2.23	1.93	1.98	.51**	.62**
Rating of Overt Mirth	43.17	5.50	40.47	5.35	.60**	.63**
Duration of Laughter	8.27	9.30	3.72	6.76	.70**	.69**
Duration of Smiling	9.29	9.09	5.65	7.99	.33	.71**
Funniness Ratings	58.33	13.36	57.33	16.17	.47**	

^a $n = 30$

^b For each dependent variable, subjects' scores consisted of sums obtained over 18 cartoons.

^c For the five measures of overt mirth, Pearson product-moment correlations between sessions are based on scoring done by the same observer for both sessions.

^d For the five measures of overt mirth, Pearson product-moment correlations between sessions are based on scoring of the two sessions by different observers.

** $p < .01$.

APPENDIX L

PRINCIPAL FACTOR ANALYSIS WITH VARIMAX ROTATION
OF THE SIX MEASURES OF HUMOR APPRECIATION

Variables	Factor I	Factor II
Frequency of Laughter	.986	.147
Frequency of Smiling	.295	.951
Rating of Overt Mirth	.914	.395
Duration of Laughter	.906	.121
Duration of Smiling	.145	.842
Funniness Ratings	.359	.208
Percent of Variance	75.6	24.4

APPENDIX M

SUMMARIES OF THE UNIVARIATE ANALYSES OF
VARIANCE ON THE SIX MEASURES OF
HUMOR APPRECIATIONSummary of the 2 x 2 x 2 x 3 Analysis of
Variance on Frequency of Laughter

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between-Subjects				
Field Dependence-Independence (A)	5.089	1	5.089	1.49
Canned Laughter (B)	2.348	1	2.348	.69
Confederate (C)	165.225	1	165.225	48.29**
A x B	3.668	1	3.668	1.07
A x C	13.712	1	13.712	4.01*
B x C	13.399	1	13.399	3.92*
A x B x C	.408	1	.408	.12
Subjects within cells	602.145	176	3.421	
Within-Subjects				
Blocks of Cartoons (D)	4.851	2	2.426	3.38*
A x D	3.319	2	1.659	2.31
B x D	4.826	2	2.413	3.36*
C x D	3.851	2	1.926	2.68
A x B x D	.011	2	.005	.01
A x C x D	4.337	2	2.168	3.02*
B x C x D	.547	2	.274	.38
A x B x C x D	.467	2	.234	.33
D x Subjects within cells	252.790	352	.718	

Note. For effects involving repeated measures, the degrees of freedom reported here are for conventional rather than conservative F tests.

* $p < .05$.
** $p < .0001$.

Summary of the 2 x 2 x 2 x 3 Analysis of
Variance on Frequency of Smiling

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between-Subjects				
Field Dependence-Independence (A)	1.913	1	1.913	.62
Canned Laughter (B)	11.450	1	11.450	3.73
Confederate (C)	89.685	1	89.685	29.20**
A x B	2.827	1	2.827	.92
A x C	.493	1	.493	.16
B x C	.022	1	.022	.01
A x B x C	.761	1	.761	.25
Subjects within cells	540.551	176	3.071	
Within-Subjects				
Blocks of Cartoons (D)	14.709	2	7.355	9.95**
A x D	3.240	2	1.620	2.19
B x D	.932	2	.466	.63
C x D	2.566	2	1.283	1.74
A x B x D	.691	2	.346	.47
A x C x D	.981	2	.490	.66
B x C x D	.550	2	.275	.37
A x B x C x D	5.120	2	2.560	3.46*
D x Subjects within cells	260.210	352	.739	

Note. For effects involving repeated measures, the degrees of freedom reported here are for conventional rather than conservative F tests.

* $P < .05$.

** $P < .0001$.

Summary of the 2 x 2 x 2 x 3 Analysis of
Variance on Ratings of Overt Mirth

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between-Subjects				
Field Dependence-Independence (A)	32.045	1	32.045	2.34
Canned Laughter (B)	31.089	1	31.089	2.27
Confederate (C)	920.958	1	920.958	67.23***
A x B	18.848	1	18.848	1.38
A x C	56.116	1	56.116	4.10*
B x C	23.544	1	23.544	1.72
A x B x C	6.306	1	6.306	.46
Subjects within cells	2411.130	176	13.700	
Within-Subjects				
Blocks of Cartoons (D)	22.403	2	11.202	4.34*
A x D	7.077	2	3.539	1.37
B x D	30.887	2	15.443	5.99**
C x D	9.485	2	4.742	1.84
A x B x D	1.133	2	.567	.22
A x C x D	11.278	2	5.639	2.19
B x C x D	2.628	2	1.314	.51
A x B x C x D	1.414	2	.707	.27
D x Subjects within cells	907.696	352	2.579	

Note. For effects involving repeated measures, the degrees of freedom reported here are for conventional rather than conservative F tests.

* $p < .05$.

** $p < .01$.

*** $p < .0001$.

Summary of the 2 x 2 x 2 x 3 Analysis of
Variance on Duration of Laughter

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between-Subjects				
Field Dependence-Independence (A)	58.572	1	58.572	1.00
Canned Laughter (B)	.290	1	.290	.00
Confederate (C)	1792.045	1	1792.045	30.49***
A x B	86.624	1	86.624	1.47
A x C	246.067	1	246.067	4.19*
B x C	44.376	1	44.376	.75
A x B x C	11.464	1	11.464	.20
Subjects within cells	10344.653	176	58.776	
Within-Subjects				
Blocks of Cartoons (D)	99.862	2	49.931	3.99*
A x D	41.243	2	20.622	1.65
B x D	121.651	2	60.825	4.86**
C x D	69.005	2	34.502	2.76
A x B x D	10.596	2	5.298	.42
A x C x D	10.387	2	5.194	.42
B x C x D	4.196	2	2.098	.17
A x B x C x D	27.578	2	13.789	1.10
D x Subjects within cells	4403.973	352	12.511	

Note. For effects involving repeated^o measures, the degrees of freedom reported here are for conventional rather than conservative F tests.

* $p < .05$.

** $p < .01$.

*** $p < .0001$.

Summary of the 2 x 2 x 2 x 3 Analysis of
Variance on Duration of Smiling

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between-Subjects				
Field Dependence-Independence (A)	130.806	1	130.806	.78
Canned Laughter (B)	489.667	1	489.667	2.91
Confederate (C)	1561.090	1	1561.090	9.26**
A x B	22.454	1	22.454	.13
A x C	.231	1	.231	.00
B x C	9.389	1	9.389	.06
A x B x C	91.777	1	91.777	.54
Subjects within cells	29657.929	176	168.511	
Within-Subjects				
Blocks of Cartoons (D)	318.162	2	159.081	7.99***
A x D	68.631	2	34.315	1.72
B x D	124.174	2	62.087	3.12*
C x D	47.326	2	23.663	1.19
A x B x D	33.990	2	16.995	.85
A x C x D	60.655	2	30.328	1.52
B x C x D	27.959	2	13.979	.70
A x B x C x D	28.473	2	14.237	.71
D x Subjects within cells	7010.822	352	19.917	

Note. For effects involving repeated measures, the degrees of freedom reported here are for conventional rather than conservative F tests.

- * $p < .05$.
 ** $p < .01$.
 *** $p < .0001$.

Summary of the 2 x 2 x 2 x 3 Analysis of
Variance on Funniness Ratings

Source of Variance	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between-Subjects				
Field Dependence-Independence (A)	166.32	1	166.32	2.36
Canned Laughter (B)	10.19	1	10.19	.14
Confederate (C)	1387.00	1	1387.00	19.70***
A x B	63.35	1	63.35	.90
A x C	6.74	1	6.74	.10
B x C	1.74	1	1.74	.02
A x B x C	8.88	1	8.88	.00
Subjects within cells	12394.00	176	70.42	
Within-Subjects				
Blocks of Cartoons (D)	734.68	2	367.34	29.85***
A x D	12.95	2	6.47	.53
B x D	80.42	2	40.21	3.27*
C x D	58.66	2	29.33	2.38
A x B x D	23.76	2	11.88	.97
A x C x D	142.33	2	71.17	5.78**
B x C x D	.59	2	.30	.02
A x B x C x D	37.13	2	18.57	1.51
D x Subjects within cells	4332.10	352	12.31	

Note. For effects involving repeated measures, the degrees of freedom reported here are for conventional rather than conservative F tests.

* $p < .05$.
 ** $p < .01$.
 *** $p < .0001$.

APPENDIX N

INSTRUCTIONS FOR CLASSIFYING SUBJECTS'
REFERENCES TO THE CANNED LAUGHTER

Note: Read all the instructions, background information, and comments before marking the answer sheet.

Background Information

Female students in first year university participated in an experiment^o in which they viewed single frame cartoons taken from magazines. They listened to the captions of the cartoons through earphones. The sounds of people laughing followed the reading of some of the captions. The subjects rated each cartoon for funniness using a paper-and-pencil rating scale. Subjects were videotaped as they viewed the cartoons. Subjects were either alone or with one other female student as they viewed the cartoons.

At the end of the experimental session, subjects were asked the following question: "Did the sounds of the audience on the tape distract you?". Subjects responded "Yes" or "No" to this question and then elaborated.

Instructions

Read each of the comments. Place a (1) beside the comment number on the answer sheet if the comment indicates that the subject knew or even suspected that the canned laughter was included to influence her in some way. Place a (*) beside the (1) if the comment indicates that the subject guessed or even suspected that the study was aimed at examining the differential effect of canned laughter on different types of people.

APPENDIX O

INSTRUCTIONS FOR CLASSIFYING SUBJECTS'
REFERENCES TO THE CONFEDERATE

Note: Read all the instructions, background information, and comments before marking the answer sheet.

Background Information

Female students in first year university participated in an experiment in which they viewed single frame cartoons taken from magazines. They listened to the captions of the cartoons through earphones. Each student viewed cartoons along with another female who had been introduced as a fellow subject in the experiment. The subjects rated each cartoon for funniness using a paper-and-pencil rating scale. Subjects were videotaped as they viewed the cartoons.

At the end of the experimental session, the subject (alone with the experimenter) was asked the following question: "Did you find it distracting being with someone else in the session?". Subjects responded "Yes" or "No" to this question and then elaborated.

Instructions

Read each of the comments. Place a (1) beside the comment number on the answer sheet if the comment indicates that the subject knew or even suspected that the companion was there to influence her in some way. Place a (*) beside the (1) if the comment indicates that the subject guessed or even suspected that the study was aimed at examining the differential effect of a companion on different types of people.