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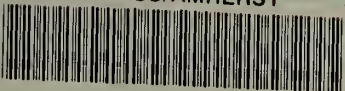
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PROPERTIES OF AN INSTRUMENT FOR ANALYZING
THE POTENTIAL FUNCTION OF PHYSICAL AGGRESSION
IN THE INSTITUTIONALIZED ELDERLY

A Thesis Presented

by

JEFFREY J. SKOWRON

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTERS OF SCIENCE

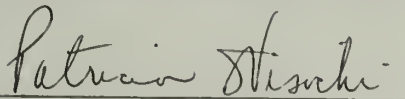
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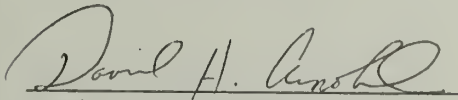
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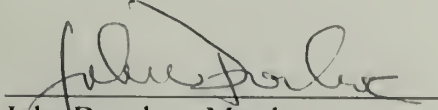
PROPERTIES OF AN INSTRUMENT FOR ANALYZING
THE POTENTIAL FUNCTION OF PHYSICAL AGGRESSION
IN THE INSTITUTIONALIZED ELDERLY


A Thesis Presented
by
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CHAPTER I

INTRODUCTION

Behavioral disturbances are common among the institutionalized elderly, particularly within populations of cognitively impaired elders, presenting problems to both residents and care-givers (Cohen-Mansfield & Billig, 1986; Ryden, Bossenmaier, & McLaehlan, 1991; Teri & Logsdon, 1994; Wisocki, 1991). Physical aggression has been cited as one of the most common and troublesome of these behavioral disturbances (Yudofsky, Silver, Hales, 1990; Zubenko, Rosen, Sweet, Mulsant, & Rifai, 1992; Haley, 1983; Hussian, 1981). In fact, aggression has been identified as a major factor leading to admission to geropsychiatric institutions (Vieweg, Blair, Tucker, & Lewis, 1995). There is, however, a noted absence in the behavioral and gerontological literature of studies which address assessment and treatment of aggression in the institutionalized elderly (Carstensen, 1988; Vaccaro, 1988, 1991; Wisocki, 1991). Much of the existing literature on the topic deals with pharmacological interventions (Cohen-Mansfield & Billig, 1986), despite the evidence which suggests that such interventions have limited efficacy (Devanand, Sackheim, & Mayeux, 1988), and often lead to troublesome side effects, such as sedation and increased frequency of falls (Yudofsky, Silver, & Hales, 1990).

As Carstensen (1988) and Wisocki (1991) have pointed out, the paucity of behavioral literature regarding the physically aggressive elderly has been linked to the mistaken belief that, because aggression in the elderly often occurs in conjunction with cognitive impairment, it not amenable through new learning (Carstensen, 1988), and not attributable to environmental variables (Wisocki, 1991). Several researchers have reported on the successful treatment of behavioral problems in the cognitively impaired elderly, including physical aggression, using behavioral interventions such as differential reinforcement (Rosberger & MacLean, 1983; Vaccaro, 1988), group social skills training (Vaccaro, 1991), and chaining (McEvoy & Patterson, 1986).

Not only have behavioral interventions with the elderly been shown to be effective, but studies have suggested they are desirable as well. In a series of studies, Burgio and Sinnot (1989;1990) found that both non-elderly and elderly raters identified a positive reinforcement procedure as more desirable than pharmaceuticals for treating physical aggression in cognitively impaired elders. A subsequent study using similar methods (Burgio, Sinnot, Janosky, & Hohman, 1992) found that physicians also rated the positive reinforcement procedure as more desirable than pharmaceutical interventions. O'Donohue, Fisher, and Krasner (1986) identify behavioral interventions with the elderly as desirable because they may serve to "empower the traditionally disempowered elderly client"(p.11).

Physical aggression in the elderly was found to be related to environmental factors, such as demand situations (Hamel, Pushkar Gold, Andres, Reis, Dastoor, Grauer, & Bergman, 1990) and physical intrusion (Ryden, Bossenmaier, & McLaehlan, 1991), and was suggested to be a means of gaining attention (Hussian & Davis, 1985). There is support for this functional analysis approach in the developmental disabilities research (Axelrod, 1987; Day, Horner, & O'Neil, 1994;; Wacker, Steege, Northrup, Sasso, Berg, Reimers, Cooper, Cigrand, & Donn, 1990;), where aggressive behavior has been shown to have many potential environmental functions, including gaining access to social and tangible reinforcers, escaping aversive environments, and avoiding future aversive stimuli (Lavigna & Donnellan, 1986; Mace, Lalli, & Lalli, 1988). The identification and analysis of the function of behavior has been identified as an essential component in the development of any behavioral treatment plan which seeks to change that behavior (Lundervold & Bourland, 1988; Lavigna & Donnellan, 1986; Sulzer-Azaroff & Mayer, 1991).

As noted above, the evidence clearly supports the benefits of and need for functional analysis when developing treatment protocols for the physically aggressive elderly, yet there is no easy, quick, and reliable instrument for primary caregivers to use to

analyze these functional behavior/environment relationships. Teri and Logsdon's (1994) extensive review of geriatric behavioral assessment instruments indicates that many include few or no items pertaining to physical aggression. When items are included, they focus on factors such as frequency, severity, and topography, rather than on the functional relationship between the behavior and the environment in which it occurs. Instruments which do allow for analysis of the function of the behavior require narrative descriptions (Teri, 1991; Ryden, Bossenmaier, & McLaehlan, 1991) which may be subject to inaccurate reader interpretations or require the behavior to be displayed repeatedly before analysis can take place (Fisher, 1995).

The purpose of the current study was to test the properties of an instrument designed to identify the potential function of physical aggression displayed by institutionalized elderly. The instrument under study was designed with five specific properties in mind: 1) it should be quick and easy to complete; 2) completion of the instrument should not require any special knowledge of functional analysis or of the behavioral problems of the institutionalized elderly; 3) it should be able to be used to analyze the potential function of single incidents of physical aggression; 4) it should be geared toward specific antecedent-consequent relationships likely to occur in the long-term care environment; and 5) it should be able to be completed by individuals who have personally witnessed the incident or who have read written descriptions of the. It is anticipated that participants will be able to use the instrument to reliably and accurately identify the operant functions of the physically aggressive behaviors, as well as identify key features of the antecedent and consequent environments described in each situation.

CHAPTER II

METHOD

Participants

Participants were recruited from two populations. A total of 36 undergraduate students at the University of Massachusetts (31 female, 5 male) participated in the experiment to receive extra-credit in psychology courses. Students with experience working in geriatric care facilities or who have had coursework in applied behavior analysis were excluded. An additional 14 participants (all female) were recruited at an inservice training for long-term care workers that the experimenter conducted at the Center for Extended Care, a residential geriatric care facility in Amherst, MA. The occupational breakdown of these 14 participants was: 8 registered nurses, 1 licensed practical nurse, and 5 certified nursing assistants. They had been working in long term care an average of 11.77 years. These workers indicated that they had not had previous training or coursework in functional analysis.

Materials

Stimuli- Stimuli consisted of six written descriptions of incidents of physical aggression based on actual events recorded in the nurses' shift notes of a geriatric long term care facility. Situations 1 and 2 were selected to depict incidents where physical aggression is positively reinforced; situations 3 and 4 were selected to depict incidents where the physical aggression is negatively reinforced by escape from an already present aversive stimuli; and situations 5 and 6 were selected to depict incidents where the

physical aggression is negatively reinforced by avoidance of an anticipated aversive stimuli. The incidents were reviewed by 6 individuals (5 graduate students, 1 professor) with training in operant behavior analysis, and it was universally agreed that the situations depicted incidents of physical aggression with the intended operant function. The written situations are provided in appendix A.

Instrument- The Instrument for Rating the Function of Aggression in the Institutionalized Elderly consists of 15 statements. The individual completing the instrument rates his/her level of agreement with each of the statements on a 1-5 scale, with 1= disagree and 5=strongly agree.. It is divided into three sections: 6 antecedent conditions items (e.g., “prior to the aggressive behavior, the environment the resident was in was loud”), 6 consequent conditions items (e.g. “following the aggressive behavior, the resident received previously wanted attention for a staff person or another resident”), and 3 function items (e.g., “the resident displayed the aggressive behavior to escape from an undesired event which was already occurring”). It was designed to be completed by individuals who have read a description of such an incident written in the format commonly used in nurses’ shift notes. The instrument requires no knowledge of operant behavior analysis to complete. Time to complete the instrument should not exceed 5 minutes. A copy of the instrument is provided in Appendix B.

Procedure

Participants were given a packet containing a brief description of the study, an experimental participation consent form, the stimulus materials, and copies of the instrument. The packet for the long term care staff included a form for indicating their job

title and years of experience working in long term care. Undergraduate participants read all 6 situations, completing an instrument for each. Due to time constraints, each participant in the long-term-care population read only randomly 3 situations, one depicting positive reinforcement, one escape, and one avoidance operant functions, and completed only 3 instruments. Within each function, the situation read was randomly determined. In both populations the order in which the situations were read was randomly determined. Participants were instructed to read each situation and then complete the instrument before reading the next situation. They were permitted to look back at the written situation while completing the instrument. Upon completion of the experiment, participants were given a debriefing sheet and a form to complete if they wanted to receive a copy of the results of the study.

CHAPTER III

RESULTS

Differences Between Populations- Means and standard deviations on each of the items for each of the situations are given in Table 1. The only significant difference in the patterns of responding between the two populations was for situation 3B ($F_{(1,40)} = 6.437$, $p < .02$). F and p values for each of these tests are given in Table 2.

Reliability Testing- To measure the extent to which participants reliably responded on the instrument when rating the same written situation, reliability (r_{11}) coefficients were calculated on the overall data and for each of the situations. This approach is derived from the analysis of variance and uses ω^2 as an index of reliability (Myers & Well, 1991). For the overall data, $r_{11} = .46$. The reliability coefficients for the individual situations were: situation 1A, $r_{11} = .44$; situation 1B, $r_{11} = .30$; situation 2A, $r_{11} = .41$; situation 2B, $r_{11} = .15$; situation 3A, $r_{11} = .27$; and situation 3B, $r_{11} = .37$.

Validity Testing- To test the ability of the instrument to validly assess the antecedent, consequent, and functional characteristics of the physical aggression, 18 planned contrast were performed to determine if the participants responded as predicted given the depictions of the physical aggression in situations that they read. The hypothesized patterns of responding and the corresponding planned contrasts that were tested are given in appendix D. Using a Bonferroni adjustment for 18 planned contrasts, all the contrasts proved significant at at least $p < .05$. The results of these contrasts are provided in Table 3.

CHAPTER IV

DISCUSSION

The statistical analyses indicated that the Instrument for Rating the Function of Aggression in the Institutionalized Elderly is a valid measure of the antecedent, consequent, and functional properties of incidents of physical aggression. Participants with no special knowledge of functional analysis were able to use the instrument to accurately identify whether the function of an aggressive incident was to gain a positive reinforcer or to escape or avoid an aversive event. The lack of a significant difference between undergraduate and long term care workers' patterns of responding for 5 of the situations suggests that the ratings were not influenced by experience working with the institutionalized elderly. The significant difference in the patterns of responding for situation 3A is interesting. The populations differed most on their mean scores for item A6 ("prior to the aggressive incident the resident wanted attention from a staff member or another resident"). There was a corresponding difference in their patterns of responses on the function items. Undergraduate participants endorsed avoidance (the intended function of aggression in the situation) as the most likely function (mean F3= 4.36, mean F1 = 2.31, mean F2 = 2.28), while long term care staff rated avoidance as the least likely function (mean F3 = 2.63) and positive reinforcement and escape as equally likely (means F1 and F2 = 3.75). Something about the experiences of long term care staff with similar situations may cause more of an endorsement of positive reinforcement (gaining attention from a staff member?). However, the strength of any of the population effect conclusions are limited by the small number of long term care participants who read each question (ranging from 4-10). Further research with more participants with long term care experience is needed.

The reliability coefficients were in the moderate to low range, indicating a higher than expected variance in responding to some of the items. The overall standard deviation

for the mean item ratings was 1.19, which is high for a 5 point scale. Revising the scale so that raters could make finer distinctions in their agreement with the statements (such as making it a 9 point scale) may cut down on some of this variability. Reliability scores were lowest for situations 2B and 3A, where participants varied greatest in their responses to item A3 ("prior to the aggressive behavior a staff member was attempting to perform a medical procedure on, give medication to, or otherwise provide direct care to the resident"). Reviewing the details of situations 2B and 3A, this variance is understandable. In both situations a staff member is present, but there are no situational cues given as to what s/he is doing. A revised version of the instrument should include an antecedent item sensitive to the mere presence of a staff member or other resident who is not the physical target of the aggression. For situation 3A there was high variance in responses to items F2 ("the resident displayed the aggressive behavior to escape from an undesired event which was already occurring") and F3 ("the resident displayed the aggressive behavior to avoid an undesired event which was going to occur"). It is plausible that participants had difficulty decided whether or not the function of the aggression was to avoid going to the recreational activity (the function the experimenter intended the situation to depict) or to escape from the situation in the elevator, and this may have contributed to the high variability in the ratings.

While the instrument proved valid for distinguishing the function of aggression, the means and standard deviations for the function items (F1, F2, F3- listed in Table 1) show that participants were better able to distinguish between positive reinforcement and negative reinforcement situations than between the two types of negative reinforcement. For example, for situation 1A and 1B, high means for item F1 and lower means for items F2 and F3 indicate that participants were relatively certain the situation depicted positive reinforcement and not escape or avoidance. However, for situations 2A and 3A, low means for item F1 and similarly high means for items F2 and F3 indicate that participants were relatively certain that the situation did not depict positive reinforcement, but were

less sure of which of the types of negative reinforcement was depicted. This is understandable, as there is a fine conceptual distinction between escape and avoidance, and avoidance may even be seen as an escape from the cues which signal an impending aversive event (Thomas, 1983). Whereas the distinction between escape and avoidance may be interesting and can aid in treatment planning, it is not necessary for the development of effective applied behavior analytic interventions for reducing the frequency of physical aggression (Lavigna & Donnellan, 1986; Sulzer-Azaroff & Mayer, 1991).

The instrument was designed to provide institutional staff with a quick and easy way of analyzing single incidents of physical aggression. It took participant less than 5 minutes to read each situation and complete the instrument. Long term care participants told the experimenter that they felt the device was straightforward and easy to complete. While the instrument is not meant to be a substitution for more detailed functional analyses (i.e. Iwata, Dorsey, Slifer, Baumann, & Richman, 1982; Mace, Lalli, & Lalli, 1988), it represents an easier, quicker, more practical, and more economical means for long term care staff to assess the functions of behavior. Information gained from the instrument is meant to be a starting point for developing behavioral interventions, with the realization that functional analysis should be an ongoing component of any behavioral treatment plan.

Overall the findings indicate that the instrument is appropriately reliable and valid to be used as an aid to behavioral planning in geriatric care institutions. In these applied settings, staff who complete the instrument for an incident of physical aggression usually have the opportunity to meet and discuss any discrepancies in their ratings. While it can be useful to distinguish between escape- and avoidance maintained-aggression, the interventions for these types of behaviors would be similar. Thus the lowered reliability stemming from difficulties of raters to distinguish between these two functions would not have a drastic effect on behavioral treatment decisions. However, the moderate to low reliability indicates that if the instrument were to be used as is for research purposes where

independent ratings were necessary, reliability training should be conducted. Some of these problems in reliability may be remedied through the revisions to the instrument mentioned above.

APPENDIX A SITUATIONS

Situation 1A (Positive Reinforcement)-

I was sitting in the dining room, at the table with Joe and his roommate. The residents were eating supper and the room was relatively quiet. Joe had finished all of his food and drinks. Then he started pointing the coffee pot, while he asked me for a cup of coffee. I informed him that the rule was that he could only have what was served to him on his meal tray, and that he shouldn't eat so fast anyway. At that point, Joe grabbed his roommate's arm, started to shake it violently, and yelled "Nobody gives you anything in this stupid place." At that point I physically separated Joe and his roommate. I informed Joe that his behavior was inappropriate and that hitting was not allowed. I gave him a small cup of coffee, which seemed to help calm him down.

Situation 1B (Positive Reinforcement)-

I entered Joe's bedroom, where he was sitting quietly in the chair next to his bed. As I walked past him, he started to repeatedly kick me in the leg. Because he was so upset, I knelt down next to him and rubbed his back a little bit. I reassured him that everything would be O.K. and asked him if there was anything I could do for him.

Situation 2A (Escape)-

Joe was sitting quietly in a chair in the hallway. I explained to him that it was time for me to change the bandages on the cut he has on his right arm. As I was removing the tape from the bandages, Joe punched me in the shoulder. I told him his behavior was inappropriate. Because of his behavior, I had to stop changing his bandages. It will have to be done later when he is calmer.

Situation 2B (Escape)-

I was in the sitting room at the end of the hall, where Joe and his roommate were sitting next to each other on the sofa. Joe's roommate was singing that song "Take Me Out to the Ballgame" over and over again. Joe turned to him and told him to "shut up." I told Joe that it was O.K. for his roommate to sing, and that he (Joe) should leave if he didn't like it. At that point, Joe reached over and began choking his roommate, yelling "I'll teach you not to sing." I physically separated the two residents, and then escorted Joe's roommate out of the sitting room and told him that it would be better if he went to his own room to sing his songs.

Situation 3A (Avoidance)-

Joe was sitting quietly in his wheelchair in the hallway. I told him it was time to go downstairs for the daily recreational activities. He said he didn't think he wanted to go today. Because he hadn't gone to activities all week, and because he usually has a good time when he does go, I started to push him in his wheelchair onto the elevator. I reminded him that it was BINGO day and he should go because it's his favorite game. He then started to punch and kick at me. I took him off the elevator and told him that he

didn't have to behave that way, and I was just trying to help him make a decision. He ended up not going to the recreational activities today.

Situation 3B (Avoidance)-

The other nurse and I went into Joe's bedroom, where he was standing quietly looking at the pictures on the wall. I informed Joe that it was shower time and he needed to walk down to the shower room at the end of the hall. Joe began yelling "like hell I will" and started to punch at me and the other nurse. We told him to calm down and that he could take his shower later. We then left the room.

APPENDIX B
INSTRUMENT

Instrument for Rating the Function of Aggression in the Institutionalized Elderly

INSTRUCTIONS: For each of the statements below, please circle the number which best corresponds to your level of agreement with the statement, using the following key:

1	2	3	4	5
Disagree	Slightly Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

ANTECEDENT CONDITIONS ITEMS

PRIOR TO THE AGGRESSIVE BEHAVIOR...

A1. ...the environment the resident was in was quiet.

1	2	3	4	5
----------	----------	----------	----------	----------

A2. ...the environment the resident was in was loud.

1	2	3	4	5
----------	----------	----------	----------	----------

A3. ...a staff member was attempting to perform a medical procedure on, give medication to , or otherwise provide direct care to the resident.

1	2	3	4	5
----------	----------	----------	----------	----------

A4. ...the resident had reason to believe that an unwanted event was going to occur.

1	2	3	4	5
----------	----------	----------	----------	----------

A5. ...the resident wanted an object (such as food, a beverage, activity materials, etc.).

1	2	3	4	5
----------	----------	----------	----------	----------

A6. ...the resident wanted attention from a staff member or another resident.

1	2	3	4	5
----------	----------	----------	----------	----------

CONSEQUENT CONDITIONS ITEMS-

FOLLOWING THE AGGRESSIVE BEHAVIOR...

C1. ...the environment the resident was in was quieter.

1	2	3	4	5
----------	----------	----------	----------	----------

C2. ...the environment the resident was in was louder.

1 2 3 4 5

C3. ... a staff person stopped performing a medical procedure on, giving medication to, or otherwise providing care to the resident.

1 2 3 4 5

C4. ... the resident had reason to believe that an unwanted event, which s/he previously thought was going to occur, was no longer going to occur.

1 2 3 4 5

C5. ...the resident was given or gained access to an object which s/he previously wanted (such as food, beverage, activity materials, etc.).

1 2 3 4 5

C6. ...the resident received previously wanted attention from a staff person or another resident.

1 2 3 4 5

FUNCTION ITEMS

F1. The resident displayed the aggressive behavior to get or gain access to an object (such as food, a beverage, activity materials, etc.), or to get attention from a staff member or another resident.

1 2 3 4 5

F2. The resident displayed the aggressive behavior to escape from an undesired event which was already occurring.

1 2 3 4 5

F3. The resident displayed the aggressive behavior to avoid an undesired event which was going to occur.

1 2 3 4 5

APPENDIX C
DATA TABLES

Table 1- Means (and standard deviations) on each of the items for each of the situations

Item	Situations					
	1A	1B	2A	2B	3A	3B
A1	3.68 (1.10)	4.09 (0.81)	3.87 0.84	1.95 1.02	3.76 0.98	4.16 0.834
A1	2.00 (1.09)	1.67 (0.87)	1.89 0.96	3.41 1.10	1.86 0.95	1.82 1.02
A3	1.95 (1.26)	2.33 (1.33)	4.33 1.21	2.05 3.32	2.62 1.56	3.57 1.39
A6	1.93 (1.21)	2.52 (1.26)	3.13 1.24	2.39 1.22	3.31 1.26	3.57 1.30
A5	4.63 (0.54)	1.93 (1.02)	1.56 0.92	1.63 0.89	1.62 0.94	1.86 1.23
A6	3.08 (1.31)	3.72 (1.13)	2.29 1.31	2.88 1.23	2.12 1.19	2.11 1.21
C4	2.88 (1.20)	3.15 (1.19)	3.00 0.93	3.37 1.30	3.00 1.23	3.14 1.11
C2	2.90 (1.08)	2.37 (1.20)	2.43 0.99	2.32 1.39	2.55 1.25	2.45 1.19
C3	1.78 (1.00)	1.89 (1.14)	4.38 1.09	1.98 1.15	2.93 1.37	3.57 1.35
C4	2.43 (1.24)	2.59 (1.33)	3.67 1.17	2.85 1.30	3.61 1.22	3.63 1.25
C5	4.43 (1.08)	2.22 (1.15)	1.76 1.03	2.07 1.19	1.86 1.07	1.88 1.07
C5	3.33 (1.21)	3.93 (0.98)	2.44 1.23	2.80 1.30	2.21 1.16	2.36 1.20
F1	4.33 (0.97)	3.72 (1.22)	2.23 1.34	2.9 1.43	2.40 1.25	2.36 1.28
F2	2.20 (1.38)	2.15 (1.26)	3.84 1.35	3.83 1.28	3.66 1.48	2.50 1.39
F3	2.00 (1.04)	2.33 (1.12)	3.31 1.26	2.32 1.27	3.93 1.42	4.34 0.65

Table 2- F and p values for effects of population on ratings for each situation

Situation	F value	p
1A	$F_{(1,38)} = 0.343$	<.56
1B	$F_{(1,44)} = 0.569$	<.46
2A	$F_{(1,42)} = 0.009$	<.92
2B	$F_{(1,39)} = 3.212$	<.08
3A	$F_{(1,38)} = 0.203$	<.66
3B	$F_{(1,40)} = 6.437$	<.02

Table 3- F values for the planned contrasts to test validity

Contrast #	F Value *
1	$F_{(1,39)} = 165.00$
2	$F_{(1,39)} = 67.45$
3	$F_{(1,39)} = 75.36$
4	$F_{(1,45)} = 113.87$
5	$F_{(1,45)} = 68.61$
6	$F_{(1,45)} = 36.78$
7	$F_{(1,43)} = 49.76$
8	$F_{(1,43)} = 103.29$
9	$F_{(1,43)} = 18.57$
10	$F_{(1,40)} = 32.68$
11	$F_{(1,40)} = 15.73$
12	$F_{(1,40)} = 16.10$
13	$F_{(1,39)} = 89.38$
14	$F_{(1,39)} = 36.66$
15	$F_{(1,39)} = 10.75$
16	$F_{(1,41)} = 70.07$
17	$F_{(1,41)} = 77.73$
18	$F_{(1,41)} = 72.78$

* Following Bonferroni adjustment for 18 planned contrasts all F values are significant at $p < .01$, except for contrast # 15, which is significant at $p < .05$

APPENDIX D LIST OF HYPOTHESES

For each of the six descriptions, three separate hypotheses regarding patterns of responding on the questionnaire will be tested. The hypotheses are as follows:

For Situation 1A-

Hypothesis 1-Subjects will agree more with items A1, A5, and A6 than with the other Antecedent Conditions items

Hypothesis 2- Subjects will agree more with items C5 and C6 than with the other Consequent Conditions items.

Hypothesis 3- Subjects will agree more with item F1 than with the other Function Items.

For Situation 1B-

Hypothesis 4-Subjects will agree more with items A1 and A6 than with the other Antecedent Conditions items

Hypothesis 5- Subjects will agree more with item C6 than with the other Consequent Conditions items.

Hypothesis 6- Subjects will agree more with item F1 than with the other Function Items.

For Situation 2A-

Hypothesis 7-Subjects will agree more with items A1, A3, and A5 than with the other Antecedent Conditions items

Hypothesis 8- Subjects will agree more with item C3 than with the other Consequent Conditions items.

Hypothesis 9- Subjects will agree more with item F2 than with the other Function items.

For Situation 2B-

Hypothesis 10-Subjects will agree more with items A2 and A6 than with the other Antecedent Conditions items

Hypothesis 11- Subjects will agree more with items C1 and C6 than with the other
Consequent Conditions items.

Hypothesis 12- Subjects will agree more with item F2 than with the other Function Items.

For Situation 3A-

Hypothesis 13-Subjects will agree more with items A1, and A4 than with the other
Antecedent Conditions items

Hypothesis 14- Subjects will agree more with item C5 than with the other Consequent
Conditions items.

Hypothesis 15- Subjects will agree more with item F3 than with the other Function Items.

For Situation 3B-

Hypothesis 16-Subjects will agree more with items A1, and A4 than with the other
Antecedent Conditions items

Hypothesis 17- Subjects will agree more with item C5 than with the other Consequent
Conditions items.

Hypothesis 18- Subjects will agree more with item F3 than with the other Function Items.

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