TOWARD A TYPOLOGY OF THE AGGRESSIVE PERSONALITY

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TOWARD A TYPOLOGY OF THE AGGRESSIVE PERSONALITY

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SUMMARY

Efforts to develop an empirically derived typology of a major component of the implicit aggressive personality are described. A variety of samples (from both student and work populations) completed the Conditional Reasoning Test for Aggression (CRT-A; James, McIntyre, Glisson, Bowler, & Mitchell, 2004; James et al., 2005). Individual scores on the CRT-A were analyzed utilizing cluster analytic methodology in order to develop a typology of the key defense mechanisms used by the implicit aggressive personality. The resulting clusters were analyzed using affirmation analysis (Feild & Schoenfeldt, 1975) to test the reliability of each. A useful system for classifying the implicit aggressive personality resulted from this endeavor. It is expected that both scientists and practitioners can use this typology as a means for classifying aggressive individuals. Implications include the development of an organizing framework facilitating scientific communication in research on the aggressive personality as well as a classification system for organizations to identify those applicants and incumbents that might be potentially detrimental to the well-being of their coworkers.

CHAPTER 1

INTRODUCTION

What research exists on the aggressive personality has primarily looked at aggression as a criterion, namely aggressive behavior (e.g., Citrome & Volavka, 2001; Kudryavtsev & Ratinova, 1999; Ramirez & Andreu, 2003). The unconscious causes underlying aggression have been overlooked by many personality theorists. The latent mental structures and processes that cause aggression – that is, the implicit[1] personality – have been largely ignored. Furthermore, the psychological community has given little attention to the task of identifying a meaningful and replicable typology of aggressive personalities if indeed such exists. Typologies of aggressive behavior have been developed (e.g., Citrome & Volavka, 2001; Kudryavtsev & Ratinova, 1999; Varela & Braña, 1991), but there are no known typologies of the unconscious mental structure and processes that cause aggression to occur. Related to this is the fact that no researchers have created a personality typology utilizing an implicit personality measure (e.g., Thematic Apperception Test [TAT]).

This paper details efforts to develop an empirically derived typology of a major component of the implicit aggressive personality in non-clinical, student and organizational populations. The reason for creating such a typology is to better understand how the implicit aggressive personality is structured. In the text that follows, the theory and methodology used to construct the typology is described, as is the classification system itself and its potential practical utility.

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[1] "Implicit" is operationally defined here as "not accessible to introspection" (see Greenwald & Banaji, 1995; McClelland, Koestner, & Weinberger, 1989; Nisbett & Wilson, 1977; Winter, John, Stewart, Klohnen, & Duncan, 1998). The terms implicit, unconscious, and latent will be used interchangeably throughout the paper.

The Implicit Aggressive Personality

Perhaps the lack of focus in studying aggression stems from the difficulty in measuring it as a personality construct. It is relatively easy to take a post-hoc look at an individual's behavior and determine whether or not it can be classified as aggressive. It is an entirely different thing to be able to measure the causes behind why people behave aggressively. I shall explore this issue by examining the implicit personality of aggressive individuals to see if there are patterns to the ways in which they justify their aggressive behaviors and, if so, to investigate how these patterns of justification both differ and correspond.

The motive to aggress. The motive to aggress has conventionally been defined as a desire to fight, to forcefully overcome opposition, to avenge a wrong, to punish another, and to attack another with the aim of hurting or killing them (Murray, 1938). Individuals with strong motives to aggress are predisposed to react to frustrating situations (e.g., solitary events like being rejected for a job as well as recurring conditions like not being accepted by peers) with anger and desire to exact harm on the alleged source of the frustration (Baron & Richardson, 1994; Berkowitz, 1993). This predisposition to respond to certain situations aggressively is often due to erroneous framing and reasoning that serves to justify one's aggressive behaviors (James & Mazerolle, 2002; James, McIntyre, Glisson, Bowler, & Mitchell, 2004).

Like many motives, the motive to aggress resides almost exclusively below the surface of consciousness (James & Rentsch, 2004), thus making it unavailable to introspection. Further, the motive to aggress is protected by defensive processes (see Westen, 1998). Another defining feature is the fact that it conflicts with the motive to hold a favorable view of the self (see Baumeister, Campbell, Krueger, & Vohs, 2003). This conflict is what oftentimes arouses the aforementioned unconscious defensive processes ["defense mechanisms" (see Baumeister, Dale,

& Sommer, 1998; Cramer, 2000)] that make possible the expression of aggression while concurrently protecting the individual's self-worth.

Defense mechanisms, rationalization, and aggression. Defense mechanisms are processes employed by individuals to defend against the threatening implications of events that endanger one's preferred view of the self (Baumeister, Dale, & Sommer, 1998). Freud is the most cited progenitor of defense mechanisms, despite the fact that he wasn't the first to propose the idea. Freud proposed a number of defense mechanisms throughout his life's work (e.g., 1915/1961a, 1923/1961c, 1926/1961d), although he never provided a definitive list. Anna Freud (1936) did endeavor to classify defense mechanisms by dividing them into four processes: displacement, projection, rationalization, and reaction formation. Aggressive individuals potentially employ each of these unconsciously, depending on both the situation and individual differences in the implicit aggressive personality. The key defense mechanism for individuals with an implicit aggressive personality is *rationalization* (James, 1998; James et al., 2004, 2005). Rationalization is defined as the use of presumably reasonable explanations to justify behaviors that are unknowingly caused by unconscious, unacceptable, and/or unwanted motives (Baumeister, Smart, & Boden, 1996; Westen & Gabbard, 1999).

Personality researchers have theorized that defense mechanisms operate unconsciously to protect individuals from understanding the genuine causes of their aggressive behavior: the motive to aggress (Bersoff, 1999; Cramer, 2000; James & Mazerolle, 2002; Westen & Gabbard, 1999). Theorists have emphasized the importance of assessing these implicit processes via indirect measures (i.e., measures that assess the extent to which individuals rely on unconscious processes like defense mechanisms). Implicit measures must inherently be indirect because they are evaluating biases that operate unconsciously. To provide a contrast, most personality

measures (e.g., self-report) assess explicit processes. That is, the measures evaluate aspects of the personality that *are* accessible to awareness. One cannot fill out a self-report measure that assesses the extent to which they rely on the defense mechanism of rationalization in their normal, everyday reasoning. It will be a futile waste of time. It should be clear that to measure implicit processes such as defense mechanisms, "indirect measurements are theoretically essential" (Greenwald & Banaji, 1995, p. 5).

As a response to this need for valid indirect measures of the implicit personality and its inner workings, James (1998) proposed and developed a measurement system termed "conditional reasoning." One of the personality constructs for which James and colleagues developed a test was aggression (James & McIntyre, 2000; James et al., 2004, 2005).

Implicit Aggression and Conditional Reasoning

Conditional reasoning indirectly assesses the implicit cognitive processes that are involved as aggressive people attempt to justify behaving aggressively (James, 1998; James & Mazerolle, 2002). Individuals with an aggressive personality clearly do not view their aggressive actions objectively. Instead, they appear to rely on a unique set of implicit biases to justify their aggressive behavior.

Due to space constraints, I refer the reader to articles by James and colleagues (2004, 2005) for descriptions of the theoretical basis for conditional reasoning as well as empirical tests of the Conditional Reasoning Test for Aggression (CRT-A). To summarize briefly, the CRT-A is a psychometrically valid and reliable test for measuring an individual's implicit motive to aggress. Further description of the CRT-A will appear in the Method section.

Justification mechanisms. The conditional reasoning measurement system mainly focuses on the defense mechanism of rationalization. Specifically, James (1998) posited that

self-protective biases unconsciously shape reasoning so that individuals perceive their aggressive actions as justified. These implicit cognitive biases to reason in ways that enhance the rational appeal of alternative motivations (to act aggressively, for example) (James, 1998) are termed "justification mechanisms." They are the specific enablers behind aggressive individuals' self-deceptive thinking that their behavior is rational. An example will help to further elucidate the concept of justification mechanisms.

Relative to nonaggressive individuals, aggressive persons are more likely to frame social norms as repressive and restrictive of free will. This tendency to view social norms as restraining is referred to as the Social Discounting Bias (James et al., 2005; see also Finnegan, 1997; Loeber & Stouthamer-Loeber, 1998; Millon, 1990). This bias promotes the rationalization of aggression via a sense of reactance (James, 1998; see also James & Mazerolle, 2002). That is, a bias to frame social norms as restrictive of free will promotes a sense of opposition, which is then used by aggressive individuals to justify their aggressive behaviors as a means of liberating themselves from oppressive social customs and as ways to employ their innate right to freedom of expression.

If social norms were truly repressive and restrictive of free will, then the use of aggression in order to free oneself from the restrictive world would be rational. However, in general (at least in the U.S.), social norms are, on the average, established to be non-repressive and to allow freedom of expression. Thus, the feelings of reactance reflect an implicit (unconscious) predilection to see restriction when it is not present. The justification for aggressive behavior is therefore illusory and self-deceptive.

The Social Discounting Bias is one of six justification mechanisms (JMs) posited by James and colleagues as fundamental in creating an erroneous sense of rationality to aggressive

acts. Table 1 presents a brief description of each JM and how each promotes the rationalization of aggression. The conditional reasoning system attempts to measure the extent to which individuals tend to rely on these implicit biases to justify their motive-fulfilling behavior, thus increasing the perceived rationality of behaving aggressively (James, 1998).

The use of justification mechanisms. This study seeks to answer the following questions: Which justification mechanisms (JMs) do aggressive individuals tend to favor? Do different aggressive individuals favor different JMs? Are there identifiable patterns to the manner in which aggressive individuals employ JMs? Do these patterns help to identify empirically distinguishable clusters? If so, do these clusters make up a useful typology of the implicit aggressive personality? The goal of the current study is to answer each of these questions and, if possible, present a practical classification system for the implicit aggressive personality.

There exists no theory regarding the pattern of use of justification mechanisms, nor are there any theories regarding the organization or representation of JMs in the implicit personality. As a result, there is no extant literature pertaining to the salient research questions in the current paper. However, since JMs have their theoretical roots in defense mechanisms (e.g., rationalization), it might be advantageous to examine theories regarding the organization of defense mechanisms in the implicit personality. This could provide insight into the potential structure of the implicit aggressive personality.

Weinberger (1998) suggested that there are different patterns to the manner in which individuals employ defense mechanisms. He based this premise on theoretical work by Laughlin (1963), wherein the researcher argued that defense mechanisms often operate in concert and in a potentially endless variety of patterns. "Dozens of defense mechanisms have been proposed, and a host of different combinations may theoretically be employed *within* as well as *across*

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Table 1: Justification Mechanisms for Aggression (James et al., 2004, 2005)

(1) *Hostile Attribution Bias.* A propensity to sense hostility and perhaps even danger in the behavior of others (see Crick & Dodge, 1994; Dodge & Coie, 1987). The alarm and feelings of peril engendered by this heightened sensitivity to threat trigger a concern for self-protection (James & Mazerolle, 2002). Apprehension about self-preservation enhances the rational appeal of self-defense, thus promoting the self-deceptive illusion that aggression is justified (see James et al., 2005 for a model of this process).	(4) *Victimization by Powerful Others Bias.* A bias to see inequity and exploitation in the actions of powerful others (e.g., parents, teachers, supervisors, the Internal Revenue Service; see Averill, 1993; Finnegan, 1997; Toch, 1993). The ensuing perceptions of oppression and victimization stimulate feelings of anger and injustice. This sets the stage for rationalizing aggression as a legitimate strike against oppression and a justified correction of prejudice and injustice.
(2) *Potency Bias.* A proclivity to focus thoughts about social interactions on dominance versus submissiveness. The actions of others pass through a perceptual prism primed to distinguish (a) strength, assertiveness, dominance, daring, fearlessness, and power from (b) weakness, impotence, submissiveness, timidity, compliance, and cowardice (Anderson, 1994; Gay, 1993; James & Mazerolle, 2002; Millon, 1990). Fixations on dominance versus submissiveness generate rationalizations that aggression is an act of strength or bravery that gains respect from others. Failing to act aggressively shows weakness.	(5) *Derogation of Target Bias.* This bias consists of an unconscious tendency to characterize those one wishes to make (or has made) targets of aggression as evil, immoral, or untrustworthy (cf. Wright & Mischel, 1987). To infer or associate such traits with a target makes the target more deserving of aggression.
(3) *Retribution Bias.* A predilection to determine that retaliation is more rational than reconciliation (cf. Bradbury & Fincham, 1990; Dodge, 1986; Laursen & Collins, 1994). This bias is often stimulated by perceptions of wounded pride, challenged self-esteem, or disrespect (cf. Baumeister et al., 1996). Aggression in response to the humiliation and anger of being demeaned is rationalized as justified restoration of honor and respect.	(6) *Social Discounting Bias.* A proclivity to frame social norms as repressive and restrictive of free will (James et al., 2005; see also Finnegan, 1997; Loeber & Stouthamer-Loeber, 1998; Millon, 1990). Perceptions of societal restrictiveness promote feelings of reactance. These feelings furnish a foundation for justifying socially deviant behaviors such as aggression as ways to liberate oneself from repressive social customs and to exercise one's lawful right to freedom of expression.

situations" (Weinberger, 1998, p. 1062). This indicates that there might be a similar mechanism operating in the employment of justification mechanisms and lends credence to the necessity of looking for different patterns of JM employment by aggressive individuals.

No empirical research has been conducted that examines the patterns of how people favor JMs, which could lead to a better understanding of how JMs are represented or organized in the cognitive structure. As a result, the current research will explore an uninvestigated research domain by utilizing conditional reasoning (James, 1998) and its measure of aggression (James et al., 2004, 2005) to determine the patterns of how individuals classified as aggressive favor the use of justification mechanisms.

Toward a Typology

The psychological mechanism that drives an individual to commit an aggressive act at work (e.g., stealing office supplies, sabotaging a coworker's presentation, showing up late, lying to a boss) can be – and often is – quite different for different individuals. Put in broader terms, "superficially similar behaviors can have quite different psychological determinants and functions" (Weinberger, 1998, p. 1063). A typology of the major justification mechanisms operating in the implicit aggressive personality will provide a means to elucidate these differences.

Typologies of aggression have been developed for clinical populations (often using the DSM-IV classification as the criterion; e.g., Citrome & Volavka, 2001) as well as for criminal (Kudryavtsev & Ratinova, 1999) and delinquent populations (Varela & Braña, 1991), but this researcher failed to find any typologies that have been developed for non-clinical, non-criminal adult populations. Further, no studies have attempted to cluster aggressive personalities based on implicit processes such as justification mechanisms. However, as mentioned above, research by

James and colleagues (2004, 2005) has suggested that aggressive individuals employ certain justification mechanisms in order to rationalize their aggressive tendencies. These justification mechanisms provide an organized and concise method in which to examine and test a potential typology.

There are multiple possibilities regarding the organization of the key justification mechanisms in the implicit aggressive personality. One option is that the personality is clustered into five independent subtypes, each of which corresponds to a specific justification mechanism (see Table 1). In other words, the personality of aggressive individuals can be classified according to the extent to which individuals rely on a specific justification mechanism to rationalize their aggressive tendencies.

Each justification mechanism is represented in the above possibility *except* the Derogation of Target Bias. An exploratory factor analysis (EFA) of the conditional reasoning problems was conducted to determine their latent structure (James et al., 2005). The EFA revealed five factors. The Derogation of Target Bias was not represented in the five factors. As such, James and colleagues noted that they would likely drop this justification mechanism in the future. Thus, it is not expected to be an independent component in the personality structure of aggressive individuals.

Another possibility is that the same justification mechanisms work in concert for different clusters of aggressive individuals. For example, one cluster might consist of individuals that utilize theoretically related JMs (e.g., Potency Bias and Victimization by Powerful Others Bias), another might consist solely of individuals that utilize one JM (e.g., Social Discounting Bias), and yet another might consist of individuals that use three JMs (e.g., Hostile Attribution Bias, Potency Bias, and Retribution Bias). Thus, the typology could be composed of clusters that are

defined by a single JM working alone, two JMs operating jointly, and/or more than two JMs working together.

There might not be any differentiation among individuals that are characterized as implicitly aggressive. This will occur if individuals with an implicit aggressive personality all arrive at an aggressive score on the CRT-A via essentially the same path. Data analyses will thus not result in various unique clusters. Instead, there will likely be one large cluster that does not distinguish between subgroups of individuals with different implicit aggressive personalities.

A final alternative is that implicitly aggressive persons will not employ the justification mechanisms in a manner that will be captured by the classification techniques. Thus, there simply might not be any discernable pattern to the way individuals respond to the CRT-A. If this is the case, then cluster analysis will reveal a number of clusters that cannot be appropriately labeled because they do not indicate subgroups that coincide with theory. Consequently, the individuals will likely demonstrate use of various justification mechanisms, with essentially no pattern to their use.

The present research endeavor seeks to determine how the implicit aggressive personality is organized by analyzing the manner in which aggressive individuals use justification mechanisms to rationalize their engagement in aggressive behaviors. The objective is to develop a useful typology of the major component of the implicit aggressive personality (i.e., justification mechanisms) that can serve a variety of valuable functions, both scientific and practical.

CHAPTER 2

METHOD

Participants

Four samples (n = 1,603) from diverse populations (e.g., work and student) completed the Conditional Reasoning Test for Aggression (CRT-A; James et al., 2004, 2005). The samples are described in Table 2. Please note that sixty-four subjects did not complete the entire CRT-A. As a result, their responses and overall scores were removed from the analysis, thus leaving n = 1,539.

Table 2: Description of Samples

Sample	*n*	*Gender (%)*	*Race (%)*
Undergraduate students from a southeastern university (mean age N/A)	802	Male (56%) Female (44%)	White (95%) African American (5%)
New package handlers in an international organization that specializes in the rapid delivery of mail and packages (mean age 23.25)	105	Male (74%) Female (26%)	White (23%) African American (52%) Hispanic (24%)
Members of a pool for temporary, entry-level jobs in local businesses in a southern town (mean age 29.64)	111	Male (64%) Female (36%)	White (82%) African American (18%)
Employees of a major credit card company (mean age N/A)	585	N/A	N/A

Measures

The conditional reasoning measurement system. James (1998) developed an indirect

procedure for measuring the unconscious cognitive processes of individuals. This indirect

measurement system, labeled "conditional reasoning", taps into the latent, consistent reasoning

biases that individuals use to justify motive-based behaviors (e.g., aggression).

Conditional reasoning test for aggression (CRT-A). Designed to measure individual

differences in proclivities to use specific types of implicit biases in reasoning, the CRT-A (James

et al., 2004, 2005) serves as the measure of implicit readiness to aggress in the current study.

The aforementioned implicit biases of interest consist of unconscious attempts to justify behavior

engendered by the motive to aggress. These biases are what were referred to as justification

mechanisms in the Introduction section of this paper (see Table 1).

As noted, the CRT-A assesses whether an individual is unconsciously disposed to

rationalize behavior that is caused by the motive to aggress. To assess these implicit proclivities,

respondents are given premises (e.g., logical arguments, explanations, assumptions, events) built

around themes known to trigger justification mechanisms by aggressive individuals. They are

then provided with an inductive reasoning task in which they are asked to reason from the

provided premises to a reasonable conclusion. This task is quite similar to those found in

standardized tests of critical reasoning skills. Alternative conclusions are supplied, and

respondents are asked to identify which one of the conclusions most reasonably follows from the

premises, given that more than one conclusion may appear reasonable. To enhance the face

validity of the task, and to protect the indirect nature of measurement, the alternative conclusions

are embedded within a set of four conclusions. Two of the conclusions are clearly illogical and

almost always rejected by respondents. One conclusion is designed to appeal to aggressive respondents, and another is targeted at nonaggressive individuals.

The CRT-A contains 25 questions – 22 conditional reasoning problems that measure aggression, and three critical reasoning problems that are not scored. The critical reasoning problems are included only to create the impression of a critical reasoning test. Each conditional reasoning problem has four response options – one aggressive alternative, one nonaggressive alternative, and two illogical alternatives. Respondents are given a "+1" for every aggressive alternative they select, a "0" for every illogical alternative they select, and a "-1" for every nonaggressive alternative they select. These scores are then added up within subjects to provide a composite score for each individual. The composite scores are then linearly transformed (to maintain the between-subject distribution) into a scale that has a mean of 6.0 and a standard deviation of 1.67. High scores on the CRT-A are thus obtained by selecting a relatively large number of aggressive response alternatives to solve the conditional reasoning problems.

Scores on the CRT-A are interpreted in terms of individual differences in respondents' implicit cognitive readiness to aggress. Numerous validity studies conducted by James and colleagues have determined that individuals with high scores on the CRT-A have a significantly greater probability of engaging in aggressive acts than individuals with low or moderate scores (e.g., the average uncorrected validity for 11 studies is .44). An illustrative conditional reasoning problem is presented in Table 3.

Procedure

Please note that all aspects of the procedure are designed to maintain the guise that the Conditional Reasoning Test for Aggression is a measure of critical reasoning skills. It is of utmost importance that participants think that they are taking a reasoning test, not a personality

Table 3: Illustrative Conditional Reasoning Problem

The old saying, "an eye for an eye," means that if someone hurts you, then you should hurt that person back. If you are hit, then you should hit back. If someone burns your house, then you should burn that person's house.

Which of the following is the biggest problem with the "eye for an eye" plan?
   a. It tells people to "turn the other cheek."
   b. It offers no way to settle a conflict in a friendly manner.
   c. It can be used only at certain times of the year.
   d. People have to wait until they are attacked before they can strike.

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assessment. Recall that justification mechanisms (JMs) are, by definition, inaccessible to introspection. In order for the CRT-A to properly assess the JMs underlying an unconscious readiness to rationalize aggression, participants must think that they are taking a reasoning test. It is only under this condition that the measure is able to properly assess the salient components of the implicit aggressive personality.

All participants completed the CRT-A under supervision. Participants were given 25 minutes to complete the measure. While reading the directions, supervisors instructed the participants to identify the one answer that is most logical for each question.

Analyses

Cluster analysis served as the data analytic tool for the development of the typology of the implicit aggressive personality. Affirmation analysis (Feild & Schoenfeldt, 1975) was used to determine the reliability of the cluster solution.

Clustering techniques have shown to be effective in identifying natural groups in sets of psychological data. However, they have been criticized on many grounds (e.g., Aldenderfer & Blashfield, 1984; Milligan & Cooper, 1987; Gordon, 1999). The present research hoped to overcome the noted limitations of cluster analysis by applying a rigorous analytical strategy to

the data. This strategy entailed several steps. First, the final cluster solution was determined via two different clustering algorithms: (a) Ward's (1963) agglomerative hierarchical clustering method with squared Euclidean distance as the similarity measure and (b) k-means, an optimization partitioning method also with squared Euclidean distance. Next, affirmation analysis (Field & Schoenfeldt, 1975) was performed on the resulting clusters in order to check the reliability of the cluster analytic procedures. All analyses were conducted using SPSS 11.0 for Mac OS X.

Cluster analysis. Profiles were sorted with the goal of achieving typological distinctiveness, replicability, and full coverage. Distinctiveness ensures that individuals within each cluster are maximally similar to one another and dissimilar to those in alternative clusters. High replicability for independent subsets of the sample reduces the possibility that clusters might emerge by chance, which in turn mitigates the likelihood that sampling error is influencing the cluster solution. Full coverage means that the typology is based on all representative cases in the population and does not arbitrarily exclude any profiles during cluster formation. Full coverage is important for a typology that is intended to be representative (see Aldenderfer & Blashfield, 1984; Blashfield & Draguns, 1976). Ward's (1963) agglomerative hierarchical procedure was determined to best satisfy these research goals (per Monte Carlo studies by Bayne, Beauchamp, Begovich, & Kane, 1980; Milligan, 1980; and Overall, Gibson, & Novy, 1993).

Recall that the exploratory factor analysis of the conditional reasoning problems (James et al., 2005) revealed a five-factor structure – each of the five factors loaded on a specific justification mechanism (except for the Derogation of Target Bias). This five-factor solution provided the basis for how the subjects' scores were to be used in the analyses. An overall score

for each justification mechanism was calculated for each subject. The cluster analysis based on an agglomerative hierarchical procedure developed by Ward (1963) was then performed on the 1,539 subject scoring profiles (i.e., each subject's overall score on each of the five justification mechanisms was used to cluster subjects into groups).

Ward's procedure uses distances as the metric. The procedure starts with a disjointed set of entities that are merged by certain rules into fewer yet more inclusive clusters until all are combined into a conjoined set. These rules are discussed in detail below.

Ward's method produces calculations for the mean of each cluster for all variables. The squared Euclidean distance to the cluster mean is calculated for each case. The distances are summed and the clusters that are merged at each step are those that produce the smallest increment in the sum of the squared within-cluster distances. A more extensive description of the procedure follows.

Squared Euclidean distance is geometric distance in multidimensional space. It is computed here as:

$$\text{distance} = \sum (x_{ik} - y_{jk})^2$$

where x is the score for subject i on justification mechanism k, and y is the score for subject j on justification mechanism k.

At the first step, when each case represented its own cluster, the distances between those cases were defined by the chosen distance measure (i.e., squared Euclidean distance). Once several cases had been linked together, the distances between the new clusters were calculated using Ward's method, which provided an amalgamation rule to determine when two clusters were sufficiently similar to be linked together. Ward's method is distinct from all other methods because it uses an analysis of variance approach to evaluate the distances between clusters. In

short, it attempts to minimize the sum of squares of any two (hypothetical) clusters that can be formed at each step.

It is necessary to determine the level that best reproduces the underlying structure. Because virtually every clustering procedure (including Ward's) provides little if any information with regard to the number of clusters present in the data, a stopping rule or procedure is required to select the optimal number of clusters. A vast number of stopping rules have been developed. Milligan and Cooper (1985) conducted a Monte Carlo evaluation of 30 such stopping rule procedures. Atlas and Overall (1994) later performed a comparative study of Overall and Magee's (1992) "higher-order clustering" stopping procedure with the stopping rule deemed best by Milligan and Cooper, the Calinski & Harabasz (1974) index. Results revealed that, when using "real data," the Overall and Magee stopping procedure is preferable. Therefore, "higher-order clustering" was used in the current study to determine the number of clusters present in the data.

Higher-order clustering (Overall & Magee, 1992) entailed a multi-stage process. First, the 1,539 profiles were randomly partitioned into three mutually exclusive blocks of 513. Ward's method (1963) was applied independently to the cases comprising each block and cluster mean profiles were calculated for two- through eight-cluster solutions for each block. Cluster means derived from the three independent first-stage analyses were pooled and subjected to second-stage clustering. Specifically, a similarity matrix was constructed to impart full first-stage history (cluster mean profiles, squared Euclidean distances, and within-cluster profile frequency) and Ward's method was reapplied. The highest cluster solution at which perfect replication was achieved was determined to be optimal. Furthermore, the solution was required to make psychological sense in terms of parsimonious coverage of the data.

After performing Ward's hierarchical procedure, a k-means analysis was conducted in which the number of clusters specified included the number obtained from the Ward procedure plus and minus one and two clusters (e.g., if Ward's procedure resulted in a five-cluster solution, then a three-cluster, four-cluster, five-cluster, six-cluster, and seven-cluster solution was specified for the k-means analysis). In general, the k-means method is designed to produce exactly k different clusters of greatest possible distinction. The method can be contrasted from Ward's (1963) procedure in that it is a divisive method (versus agglomerative).

Computationally, the k-means clustering method begins with k random clusters, and then moves objects between those clusters with the goal of minimizing variability within clusters and maximizing variability between clusters. The desired number of clusters was specified a priori. A first pass of the data was conducted and initial cluster centroids were chosen. The procedure then iterated through the entire sample of cases and it grouped observations based on nearest Euclidean distance to each cluster centroid. At each iteration, cluster centroids changed. The procedure continued until cluster centroids did not shift.

Affirmation analysis. Feild and Schoenfeldt (1975) noted that the groupings obtained via Ward's (1963) procedure are sometimes less than optimal. Thus, they developed a two-part procedure to be used in conjunction with Ward's in order to address the deficiency and achieve an optimal grouping of cases. Termed affirmation analysis, the method (see below) serves both as an estimate of the reliability of the cluster solutions obtained in the initial cluster analysis and as a means to obtain a "'cleaner', more optimal assignment of subjects to subgroups" (Feild & Schoenfeldt, 1975, p. 173).

Affirmation analysis entailed two steps. First, the procedure checked the assignments of the subjects to the groups and removed inappropriately classified subjects. A discriminant

analysis was then performed for the second step. Based on this analysis, the incorrectly

classified subjects were reassigned and these reassignments were confirmed. The objective was

to obtain a 100% correct classification of subjects to their appropriate groups.

CHAPTER 3

RESULTS

A five-cluster solution was deemed most representative of the sample. Moreover, it satisfied all statistical requirements. The profile of the first cluster indicated that it consisted of the nonaggressive portion of the sample. The profile of the four remaining clusters appeared to correspond well with four of the five retained justification mechanisms (JMs) that are utilized by aggressive individuals to enhance the rational appeal of their aggressive behavior. This solution supports the idea that the implicit aggressive personality is organized by justification mechanism, and that individuals tend to rely on essentially one JM to rationalize their aggressive behavioral manifestations.

The five-cluster solution initially resulted from the analyses that employed Ward's (1963) hierarchical agglomerative technique. Further support for the robustness of this solution was provided via the higher-order clustering technique and a k-means analysis.

The k-means analysis specified a three-cluster, four-cluster, five-cluster, six-cluster, and seven-cluster solution. Results revealed a 72% replication of the five-cluster solution obtained from Ward's agglomerative hierarchical procedure, thus suggesting that five types comprise the optimal cluster solution.

Arguably the most important aspect of the data analyses was the affirmation analysis. This two-step procedure served to estimate the reliability of the typology as well as "clean" the typology by reassigning subjects considered to have initially been placed in the wrong subgroup. Tables 4 through 10 present the critical output from the affirmation (i.e., discriminant) analysis.

The discriminant analysis produced four significant discriminant functions, evidenced by the significant eigenvalues and percentage of variance explained by each of the functions (see Table 4). Table 5 demonstrates, with Wilks' Lambda and chi-square, that group differences are significant before *and* after derivation of the discriminant functions. Thus, all four of the discriminant functions that were derived are statistically significant and useful.

Table 4: Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.395	43.6	43.6	.763
2	.964	30.1	73.7	.701
3	.519	16.2	89.9	.584
4	.325	10.1	100	.495

Table 5: Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 4	.106	3445.6	20	.000
2 through 4	.253	2106.8	12	.000
3 through 4	.497	1072.1	6	.000
4	.755	431.4	2	.000

The Social Discounting Bias had the highest loading on function 1 ($c = .946$; see Table 6) and is by far the most important contributor to determining scores on that function. The structure coefficient for this JM on function 1 is .938 (see Table 7), providing further evidence that the bias and the function are closely related.

Inspection of the loadings for function 2 shows a high positive loading ($c = .871$) and a strong structure coefficient ($r = .802$) for the Victimization by Powerful Others Bias. The two

Table 6: Standardized Discriminant Function Coefficients

	Function			
	1	2	3	4
Hostile Attribution Bias	.295	.365	-.815	.371
Potency Bias	-.212	-.170	.147	-.024
Retribution Bias	.088	.360	.587	.726
Victimization by Powerful Others Bias	.050	.871	.118	-.496
Social Discounting Bias	.946	-.295	.175	-.165

Table 7: Structure Coefficients

	Function			
	1	2	3	4
Social Discounting Bias	.938	-.184	.198	-.170
Victimization by Powerful Others Bias	.127	.802	.174	-.542
Hostile Attribution Bias	.319	.315	-.744	.430
Potency Bias	-.001	-.049	.113	.025
Retribution Bias	.137	.344	.548	.749

Table 8: Canonical Discriminant Functions Evaluated at Group Centroids

Cluster	Function			
	1	2	3	4
1	-.931	-.676	.136	-.164
2	2.135	-.488	-.110	-.226
3	.390	1.103	1.890	.910
4	-.220	.642	-1.082	.812
5	-.365	2.595	-.125	-1.218

Table 9: Unstandardized Discriminant Function Coefficients

	Function			
	1	2	3	4
Hostile Attribution Bias	.448	.552	-1.234	.562
Potency Bias	-.344	-.276	.239	-.038
Retribution Bias	.152	.622	1.015	1.255
Victimization by Powerful Others Bias	.083	1.453	.196	-.828
Social Discounting Bias	1.379	-.430	.256	-.241
CONSTANT	-1.904	-1.134	-.023	-.266

other functions are controlled by different JMs: function 3 by the Hostile Attribution Bias and

function 4 by the Retribution Bias. Thus, four of the five justification mechanisms are

represented in the four discriminant functions. This provides additional support for the adequacy

of the five-cluster solution.

Lastly, the participants were classified on the basis of their scores on the four functions.

The results of this classification are presented in Table 10. These results indicated that the

typology produced by Ward's (1963) procedure was 87% correct in its classification of subjects

to their groups (i.e., 1,339 subjects' group membership was affirmed). Therefore, 13% of the

sample (200 subjects) required reclassification. These subjects were treated as "new" cases and

Table 10: Classification Results

		Cluster	Predicted Group Membership					TOTAL
			1	2	3	4	5	
Original	#	1	602	46	16	27	3	694
		2	11	268	15	10	23	327
		3	0	16	109	0	5	130
		4	2	0	16	247	2	267
		5	0	0	1	1	119	121
	%	1	86.7	6.6	2.3	3.9	.4	100
		2	3.4	82.0	4.6	3.1	7.0	100
		3	0	12.3	83.8	0	3.8	100
		4	.7	0	6.0	92.5	.7	100
		5	0	0	.8	.8	98.3	100
Cross-Validated	#	1	602	46	16	27	3	694
		2	11	267	15	11	23	327
		3	0	16	106	0	8	130
		4	2	0	16	246	3	267
		5	0	0	1	1	119	121
	%	1	86.7	6.6	2.3	3.9	.4	100
		2	3.4	81.7	4.6	3.4	7.0	100
		3	0	12.3	81.5	0	6.2	100
		4	.7	0	6.0	92.1	1.1	100
		5	0	0	.8	.8	98.3	100

Note. 87.4% of original grouped cases were correctly classified.

were classified to the appropriate groups until the procedure indicated that every subject was optimally assigned to a cluster.

Structure of the Typology

Each cluster is described in terms of the distinguishing features of its members (i.e., the scoring profiles for the individuals that reside in that cluster). As noted, the profiles of four of the five clusters tend to coincide with four of the five justification mechanisms that are instrumental in rationalizing the expression of aggression. Mean scores on each of the JMs for each cluster reveal that the JMs seem to work independently (see Tables 11 and 12). That is, aggressive individuals tend to employ one JM significantly more often than the others. Further support for this argument of independence can be seen in the fact that the justification mechanisms are not highly correlated (see Table 13). The results were not enough to justify arguing that individuals utilize one and only one JM, but they do seem to indicate that there is a tendency for most aggressive individuals to favor the use of one specific justification mechanism to rationalize their aggressive behaviors.

Cluster 1: Nonaggressive individuals. It was important for this cluster to encompass the majority of the sample because prior validity studies of the CRT-A (James et al., 2004, 2005) have demonstrated that there is a low base-rate for high scores on the measure (e.g., 12-15%). Consistent with this notion, this cluster consisted of 45% of the sample (n = 694). The overall mean score on the CRT-A for this cluster was nearly 3/4 of a standard deviation lower than the overall mean score for the entire sample. Their scores on each of the JMs were also significantly lower than the mean scores for the entire sample.

Cluster 2: Social discounting bias. This cluster, comprising approximately 21% of the sample (n = 327), consists of aggressive individuals (mean score on CRT-A = 5.25) who tended

Table 11: Cluster Mean Scores and Standard Deviations on Justification Mechanisms

Cluster	n	Justification Mechanism Score (M / SD)				
		Social Discounting	Retribution	Hostile Attribution	Victim Powerful Others	Potency
(1) Not Aggressive	694	.647 / .680	.273 / .449	.370 / .486	.333 / .481	.447 / .609
(2) Social Discounting	327	2.57 / .714	.449 / .648	1.16 / .923	.651 / .822	.422 / .678
(3) Retribution	130	1.38 / .968	1.75 / .648	.461 / .531	1.12 / .737	.531 / .612
(4) Hostile Attribution	267	.659 / .498	.629 / .742	1.67 / .616	.577 / .517	.337 / .599
(5) Victim Powerful Others	121	.686 / .633	.429 / .545	1.00 / .866	2.26 / .496	.314 / .500

Table 12: Overall Cluster Mean Scores and Standard Deviations

Cluster	n	Overall Justification Mechanism Score (M / SD)
(1) Not Aggressive	694	2.07 / 1.40
(2) Social Discounting	327	5.25 / 1.99
(3) Retribution	130	5.25 / 1.71
(4) Hostile Attribution	267	3.87 / 1.50
(5) Victim Powerful Others	121	4.69 / 1.60

Table 13: Correlations Between Scores on Justification Mechanisms

Justification Mechanism	1	2	3	4	5
	n = 1,539				
1. Hostile Attribution	-				
2. Potency	.088**	-			
3. Retribution	.083**	.090*	-		
4. Victimization by Powerful Others	.071*	.050*	.112**	-	
5. Social Discounting	.159*	.111*	.101**	.092*	-

Note. **p < .01 *p < .05

to endorse the aggressive response option on those items designed to appeal to individuals that

possess the Social Discounting Bias. These individuals tend to interpret and analyze social

norms as restricting their free will, which in turn promotes reactionary feelings that justify

socially deviant behaviors as ways to exercise their right to freedom of expression.

Cluster 3: Retribution bias. This cluster constitutes about 8% of the sample (n = 130).

These individuals appear to rely most frequently on the Retribution Bias to justify their

unconscious predilection toward retaliatory responses to situations that entail challenged self-

esteem or potential loss of honor, pride, and/or respect.

Cluster 4: Hostile attribution bias. The fourth type, constituting 17% of the sample (n =

267), is individuals that have a propensity to see malevolent intent in the actions of others. This

group is predisposed to employ the Hostile Attribution Bias as a means of rationalizing the

appeal of self-defense (and thus aggressive behavior, as a way to ensure self-defense).

Cluster 5: Victimization by powerful others bias. This cluster is comprised of

approximately 8% of the sample (n = 121). The Victimization by Powerful Others Bias

underlies much of the justification for these individuals' aggressive actions. They are

predisposed to see the actions of powerful others as causes of inequity and attempts at exploitation. This generates rationalizations that aggressive behavior is permissible as it is a legitimate strike against oppression and a means to correct prejudice and injustice that is engendered by powerful others.

Alternative cluster solutions were examined to determine if there was perhaps a better fit with a different solution. Inspection of three-, four-, six-, and seven-cluster solutions that were obtained via the same data analytic process described above indicated that the five-cluster solution provided the optimal representation of the typology. The alternative solutions did not satisfy all of the statistical criteria for an acceptable cluster solution. Furthermore, the three-, four-, and six-cluster solutions were simply variants of the five-cluster solution. The only difference was the point at which each group was divided. For example, the six-cluster solution contained the exact same four clusters (same individuals, same size) represented by the four previously noted JMs, but the cluster of non-aggressive individuals (Cluster 1) was divided into two clusters. Lastly, the groups in the three- and four-cluster solutions overlapped too much with regard to scores on the justification mechanisms, thus preventing the ability to draw any substantive conclusions.

CHAPTER 4

DISCUSSION

Analyses revealed a typology of the major component of the implicit aggressive

personality that, in meeting the demands of established statistical criteria, appears to be valid and

reliable. The typology now provides the field of personality with a significant first step towards

the establishment of a systematic framework for organizing the focal components underlying the

unconscious aggressive personality.

It appears that those individuals who score high on the CRT-A (i.e., receive an

"aggressive" score) tend to arrive at their high scores via simple pathways that are defined by the

justification mechanism (JM) that each person tends to rely on to rationalize their aggressive

behavior. This suggests that specific justification mechanisms are employed as a function of

cluster membership. It also suggests that the justification mechanisms tend to operate

independently. An implication of this last point is the fact that an individual's score on one JM

cannot be used to predict their score on another.

Two auxiliary noteworthy findings emerged during examination of the cluster solution.

First, the Potency Bias is not represented anywhere in the typology. The aggressive subjects did

endorse the responses designed to measure this justification mechanism. It just appears that they

did not do so with enough frequency for the JM to be represented in any of the five types. Does

this indicate that the Potency Bias does not play an active role in the unconscious personality of

aggressive individuals? The answer is very likely no. In fact, the discriminant function

produced by the Potency Bias in the six-cluster solution was significant; it simply did not

provide enough explanatory power to justify keeping it. Questions regarding the role of the

Potency Bias in the implicit aggressive personality need to be considered in subsequent investigations.

The second noteworthy finding is the fact that the third cluster and the fifth cluster were both relatively small in size. This suggests that the justification mechanisms that characterize each group (Retribution Bias and Victimization by Powerful Others Bias, respectively) do not play as important an overall role as the Social Discounting Bias or the Hostile Attribution Bias. This might indicate that the latter two JMs serve more prevalent roles in aggressive individual's rationalization processes. Further exploration of this issue is needed.

Implications of the Typology

The typology has important implications for both scientists and practitioners. The first notable implication concerns theory development. Theoretical considerations of the unconscious personality have waned when compared to the considerable work that has been done and continues to be done on the explicit (conscious) personality. The Conditional Reasoning Measurement System (James, 1998) opens up an abundance of opportunities for theory development and testing in the domain of the implicit (unconscious) personality. It is hoped that the CRT-A is only the beginning of a long line of implicit measures of latent personality constructs. As more measures are developed, additional typologies can be developed as well.

The concept of justification mechanisms is still relatively brand new in the field of personality psychology. This highlights the importance of using the current research as a basis for developing theory and establishing unifying themes (if indeed any exist) that tie these apparently disparate concepts together.

The typology also has direct implications for intervention/early identification, both in the clinical domain and the organizational/work domain. The unique clusters suggest that an

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intervention designed for one type of aggressive individual (e.g., one who primarily employs the Social Discounting Bias) might not be effective for another (e.g., one who predominantly utilizes the Victimization by Powerful Others Bias). That is, although specific dimensions may be important points of intervention for some, they are likely less important for others.

There are also salient implications for individuals' total scores on the CRT-A. Low (e.g., zero to two) and moderate (e.g., three to six) overall scores on the CRT-A indicate that JMs are not instrumental or are only sporadically instrumental in shaping and guiding reasoning. These people tend to lack a significant implicit readiness to engage in aggressive behaviors and are therefore not as likely to engage in these types of behaviors. Research supports this contention (James et al., 2004, 2005). Results from this study support the argument as well, indicating that the majority of these individuals fell into the first cluster (Nonaggressives).

High overall scores on the CRT-A (e.g., seven and above) suggest that individuals utilize justification mechanisms to reason in ways that permit them to engage in aggressive behaviors without seeing their actions as illogical or inappropriate. Research (James et al., 2004, 2005) indicates that these people have the highest probability of acting aggressively. The current research suggests that these individuals achieved their scores mainly via high scores on one JM (e.g., five or six) and a moderate score (e.g., one or two) on another JM. This provides validity to the arguments of Laughlin (1963) and Weinberger (1998), who maintained that defense mechanisms often operate in concert and through an innumerable variety of patterns. It also implies that James and colleagues were on the right track when theorizing about the operation of justification mechanisms. Burroughs and James (2005) posited, "several of the justification mechanisms may operate in unison, such as the hostile attribution bias and the victimization by powerful others bias" (p. 134).

Thus, while these researchers seem to be partially correct in their theorizing, their arguments should likely be amended based on what was found here. One defense mechanism or justification mechanism appears to act as the principal justifier, while others seem to play more minor roles in guiding the reasoning of aggressive individuals.

Limitations

The limitations associated with the primary data analytic technique used to develop the typology (i.e., cluster analysis) have been noted since the advent of the methodology. Cluster analysis has been criticized as intractable by a number of prominent research methodologists and statisticians (see Aldenderfer & Blashfield, 1984; Milligan & Cooper, 1987; Gordon, 1999, for overviews of these criticisms). Nonetheless, the purpose of this endeavor was to explore an area in which no substantial theory has been developed and which it is hoped new theory will be developed soon. Given the available methods, cluster analysis was deemed most appropriate. Another limitation is that the typology might vary if applied to a wider spectrum of aggressive individuals or to aggressive individuals differing in sociodemographic characteristics.

Directions for Future Research

Since the current research was designed to be an exploratory investigation into the possible structure of the implicit aggressive personality, there are a myriad of areas in which research on this topic may proceed. Firstly, replication is imperative. New samples need to complete the CRT-A as well as be measured on valid aggression-related criteria. Concurrent validity studies then need to be conducted to measure the extent to which the typology accurately classifies aggressive individuals.

As noted in the previous section, after the typology is successfully replicated and potentially refined, future work can delve into the task of using it as a classification system for

the identification of aggressive individuals. Improved discriminant functions can be developed for the purpose of identifying which group an individual might reside based on their scoring profile on the CRT-A.

In closing, meaningful replications and extensions are now possible and are especially necessary. Perhaps the typology will not hold up when used with a different sample, or perhaps the implicit aggressive personality is more complicated than a parsimonious five-cluster typology. The exhaustiveness of the typology is thus still to be determined. A final issue to consider is this: How likely are the clusters to be replicated in other well-established aggression inventories? These are all questions that need to be addressed in future research endeavors involving the CRT-A. Much work remains to be done before any real conclusions can be drawn.

Conclusion

The typology presented here indicates a rather simple mechanism for the manner in which implicit biases affect the reasoning processes of aggressive individuals.   In short, the development of the typology began with a theory rooted in the concept of justification mechanisms. The resulting product was essentially the same theory regarding justification mechanisms: JMs tend to operate independently while they unconsciously shape the reasoning of aggressive individuals by enhancing the rational appeal of aggression.

It is hoped that the empirically derived typology in the current paper provides a systematic and relatively comprehensive framework for classifying the major component parts of the implicit aggressive personality. While drawn from the results of only one study and only four samples, the structure of the typology suggests that researchers should remain optimistic regarding future endeavors toward the classification of the unconscious dimensions of the personality.

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