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JUSTIFICATION MECHANISMS IN THE CONDITIONAL REASONING TEST FOR
AGGRESSION AND THEIR RELATION TO DEFENSE MECHANISMS

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the Doctor of Philosophy
Degree
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DEDICATION

This dissertation is dedicated to Dr. Michael William MacGregor, an individual who will forever occupy a unique and special place in my heart, mind, and life. His steady support – beginning before I had even considered applying to graduate school, enduring anything and everything in between, and culminating in the undertaking and completion of this dissertation – was instrumental in bringing me to where I am today, both personally and professionally.

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ABSTRACT

The Conditional Reasoning Test for Aggression (CRT-A; James, 1998; James & McIntyre, 2000) is an inductive reasoning test designed to assess the extent to which individuals use implicit reasoning biases – known as justification mechanisms (JMs) – to justify engaging in behavioral aggression. James and colleagues (James, 1998; James & Mazerolle, 2002; James et al., 2005) have consistently described the CRT-A as an indirect measure of these implicit cognitions, or JMs, but they recently reframed their discussion of the test to emphasize its theoretical grounding in the concept of defense mechanisms (A. Freud, 1936/1966). In particular, they indicated that the JMs for aggression are influenced by the defense mechanism known as Rationalization (James et al., 2005). However, a close examination of the JMs for aggression reveals that they may also be influenced by a number of additional defense mechanisms. The main purposes of this paper are: 1) To demonstrate the theoretical consistency between defense mechanisms and the CRT-A, and 2) to empirically evaluate the extent to which the CRT-A and its JMs for aggression are related to specific, theoretically relevant defense mechanisms. The theory of ego defense is reviewed, the CRT-A is integrated into the framework of that theory, the JMs for aggression are aligned with specific defense mechanisms that appear similar in function and form, and hypotheses are developed to guide empirical tests of the proposed relations between the JMs for aggression (as assessed with the CRT-A) and those specific defense mechanisms (as assessed with both the Defense-Q [Davidson & MacGregor, 1996] and the MacORDS [MacGregor, Olson, Langford, Meterson, & Lahti, 2003]). Results were largely non-supportive of the

hypotheses. In particular, none of the defense mechanisms under investigation (Rationalization, Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, Devaluation, and Neurotic Denial) showed any relation to the CRT-A at the item level. Furthermore, only Grandiosity showed a somewhat consistent relationship with CRT-A scale scores, and even this was exceptionally small. Implications include the possibility that JMs for aggression are not as implicit/unconscious as once believed, and that the CRT-A's predictive ability may be cogently explained in terms of the theory of threatened egotism (Baumeister, Smart, & Boden, 1996).

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CHAPTER 1

INTRODUCTION

In 1998, James introduced the Conditional Reasoning measurement technique as a new and innovative approach to personality assessment. Since that time, Conditional Reasoning has been the subject of a growing body of empirical research. To date, only two complete Conditional Reasoning Tests (CRTs) exist: The original test for achievement motivation and fear of failure, and a second test geared toward the assessment of aggression. Of late, research attention has focused mainly on the Conditional Reasoning Test for Aggression (CRT-A).

Since the introduction of the CRT-A (James, 1998; James & McIntyre, 2000), substantial amounts of data have been accumulated to support the reliability and validity of inferences drawn from the test. For example, a recent publication (James et al., 2005) presented evidence suggesting that the CRT-A shows reasonable internal consistency (e.g., the average item-total correlation was .76) and stability across alternative forms (e.g., there was an average of 81.4% agreement in responses across two versions of the test). Furthermore, results from eleven studies utilizing various kinds of samples (e.g., patrol officers, undergraduates, package handlers) and criterion measures (e.g., supervisory performance ratings, student conduct violations, theft) indicated an average uncorrected validity of .44 for predicting behavioral indicators of aggression (validity coefficients ranged from .32 to .64; James et al., 2005). In comparison to other single measures used to predict behavioral criteria, these numbers show great promise. For

example, personality measures have typically shown validities in the mid-.20s for predicting behavioral outcomes, and these validities are rarely seen to exceed .30 (e.g., Barrick & Mount, 1991; Hough & Furnham, 2003; Hurtz & Donovan, 2000).

One explanation for these higher-than-average validity coefficients stems from the theory and design of the CRT-A itself, which differs substantially from traditional self-report measures of personality. That is, whereas standard self-report personality inventories typically function as direct measures of explicit cognitions, the CRT-A is designed to function as an indirect measure of implicit cognitions. According to Greenwald and Banaji (1995), indirect measures are those, "...which neither inform the subject of what is being assessed nor request self-report concerning it" (p. 5), and they define implicit cognition as an "...introspectively unidentified (or inaccurately identified) trace of past experience that mediates [a response]" (p. 5). Because the CRT-A is presented as an inductive reasoning test (e.g., the test instructions ask respondents to read each item and choose the most logical response; the response set for each item includes both logical and illogical response options) as opposed to a traditional personality test (e.g., at no point in time is the CRT-A described to the respondent as a measure of personality; respondents answer questions by identifying what they believe to be the most logical response rather than by introspection into their own characteristics and/or behavior), it meets Greenwald and Banaji's (1995) definitional criteria for an indirect measure. Furthermore, because the targets of measurement with the CRT-A – justification mechanisms for aggression – are presumed to operate outside of an individual's awareness and therefore be unavailable to conscious introspection, it also

meets their criteria for a measure of implicit cognitions (for a full description of the development and structure of the CRT-A, see James, 1998; James et al., 2005).

In sum, the CRT-A differs from traditional self-report personality instruments in terms of both *what* is measured and *how* the measurement is accomplished, either of which could potentially lead to the surprisingly high validity coefficients observed with the CRT-A. For example, indirect measures may be less prone to intentional response distortion, or faking, than direct measures (LeBreton et al., 2007; Viswesvaran & Ones, 1999), which could plausibly affect observed validities. Furthermore, McClelland and colleagues (McClelland, Koestner, & Weinberger, 1989) summarized evidence indicating that implicit and explicit motives may relate differently to different types of behavioral criteria. Thus, it may be that the relatively high validity coefficients observed in relation to the CRT-A are due to a higher level of correspondence between the predictor and the criterion measures of interest.

James has consistently described the CRT-A as an indirect measurement system for the assessment of implicit cognitions that individuals use to justify or rationalize behavioral aggression (James, 1998; James & Mazerolle, 2002; James et al., 2005). The implicit cognitions, or *justification mechanisms*, to which he refers are the targets of measurement with the CRT-A. However, there has been a subtle and progressive change in the terminology James has employed in defining justification mechanisms (JMs) and in describing their purpose and function.

In his initial discussion of the CRT-A, James (1998) defines JMs as, "...reasoning processes whose purpose is to enhance the logical appeal of [an individual's] behavioral choices" (p. 131), and he notes that, "These *assumptions, inferences, and implicit*

theories are thought of as JMs because they involve *tacit attempts* to enhance the logical appeal of [motive-driven] behaviors” (p. 133, italics added). Inherent in these statements is the possibility that JMs may operate outside of an individual’s conscious awareness. However, it is only in his next major treatment of the CRT-A (James & Mazerolle, 2002) that the notion of unconscious processing is made explicit in defining JMs for aggression: “Justification mechanisms are defined as *nonconscious biases* whose purpose is to define, shape, and otherwise influence reasoning (i.e., framing and analysis) so as to enhance the rational appeal of behaving aggressively” (p. 11, italics added). In that same publication (James & Mazerolle, 2002), James underscores the unconscious nature of JMs by stating that individuals, “...*unknowingly* rely on different implicit assumptions to build rational cases for [their behavior]” (p. 16, italics added), and that JMs are, “...*unknowingly* engendered by differences in underlying personalities” (p. 17, italics added).

In their most recent work on the CRT-A, James and colleagues (James et al., 2005) take yet another step in explaining the unconscious functioning of JMs for aggression. Specifically, they draw an explicit link between JMs and the classical psychological concept of defense mechanisms, noting that, “Recent thinking and research on defense mechanisms, the unconscious, and implicit biases in social cognition ...” had been a driving force behind the development of the CRT-A (p. 70). Moreover, they reframe their discussion of the purpose and functioning of JMs for aggression to reflect their roots in defense mechanisms:

“The conditional reasoning system focuses on the degree to which conscious thinking is influenced by the defense mechanism of ‘rationalization’...What makes rationalization unique is that the true but unconscious intent of reasoning is

to enhance the rational appeal of behaviors that express aggressive individuals' desire to inflict harm. This intent is accomplished via the use of 'justification mechanisms,' which are self-protective biases that implicitly shape reasoning so as to enhance the rational appeal of behaving aggressively..." (p. 72-73).

It is the purpose of this dissertation to clarify and explore the relation between the CRT-A's JMs for aggression and defense mechanisms. In the following sections, the author will: 1) introduce the basic tenets of the theory of defense mechanisms, 2) review the theory and design of the CRT-A, 3) clarify the theoretical overlap between the CRT-A and the concept of ego defense, 4) illustrate the convergence of the JMs for aggression with specific defense mechanisms including, but not limited to, Rationalization, and 5) introduce research questions to guide an empirical investigation of the theoretical similarities that are put forth.

Defense Mechanisms

Freud's concept of defense mechanisms has made a deep and lasting impression in the field of psychology. Several recent authors have reviewed the resurgence or "(re)discovery" of defenses in a variety of research areas in psychology, including the fields of personality, social, cognitive, and developmental psychology (e.g., Cramer, 1998b, 2000). Furthermore, although defense mechanisms have been the subject of debate throughout the years since they were first described (for a review, see Cramer, 2000; Norem, 1998), the inclusion of a Defensive Functioning Scale as a proposed future diagnostic axis in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV*; American Psychiatric Association, 1994) aptly illustrates the importance of defenses in describing and explaining human behavior.

Conceptual Origins and Theory of Defense Mechanisms

In the late nineteenth century, Sigmund Freud originally described defense mechanisms as unconscious mental operations that protect an individual from aversive emotions or ideas. He postulated that defenses function by blocking, distorting, or screening mental content from conscious awareness in order to protect an individual from unpleasant affective states such as anxiety (e.g., S. Freud, 1894/1962, 1926/1959, as cited in A. Freud, 1936/1966; Vaillant, 1992). Freud's conceptualization of defense mechanisms varied throughout his career as he gradually identified a growing list of distinct defense mechanisms (Vaillant, 1992). However, it was only when his daughter, Anna Freud, published *The Ego and the Mechanisms of Defense* (1936/1966) that the theory of defense mechanisms was described in one cohesive work (MacGregor & Olson, 2005).

A. Freud (1936/1966) explained the theory of defense mechanisms by detailing the interplay between three hypothetical structures within the mind: The id, the superego, and the ego. According to A. Freud, the id is the seat of innate impulses and drives. She described the id as an entity whose contents are unavailable to conscious introspection, such that, "...we can only learn of its contents when impulses are aroused and invade the ego in search of gratification and there...produce feelings of tension and unpleasure..." (p. 5). Additionally, she indicated that the id operates under the "pleasure principle"; that is, when id impulses are aroused, the id's only concern is the gratification of those impulses, without heed for external constraints or implications. However, external constraints often do exist, and it is with those that the superego is concerned.

The superego is often described as the conscience, and it seeks to constrain behavior within learned ethical and moral boundaries. When id impulses arise that threaten to cross these boundaries, the superego, "...confronts the ego with hostility...or criticism...[resulting in a perceptible state of guilt within the ego]" (A. Freud, 1936/1966, p. 6). However, if an id impulse is not in conflict with the superego's dictates, the superego and the ego essentially coincide.

The ego, then, is the seat of action which must mediate between demands of the id and the superego. Operating under the "reality principle," it is the ego's responsibility to ensure that the id's impulses are satisfied while simultaneously respecting the constraints set forth by the superego. Failure to uphold either of these responsibilities would result in unpleasant affective reactions such as guilt or anxiety.

As A. Freud explained (1936/1966), when an id impulse is aroused, it enters the ego in search of gratification. If the impulse does not conflict with the superego's demands, the ego, "...puts its own energies at the [id's] disposal..." (p. 6) for the direct gratification of that impulse. However, if the impulse *does* conflict with the superego, the ego automatically (i.e., without an individual's conscious control or awareness) takes action to facilitate the *indirect* satisfaction of the impulse. For example, the ego may modify, redirect, distort, or completely block out the id impulse in such a way that the impulse is discharged without arousing the disapproval of the superego. In summary, when id impulses conflict with superego demands, the ego may enact mechanisms to defend against the unpleasant affective reactions of an unsatisfied id or a dissatisfied superego, hence the term *ego mechanisms of defense*.

Modern Conceptualizations of Defense Mechanisms

S. Freud's original thoughts on the topic of ego defense grew out of his work with patients experiencing various psychological disturbances. As a result, his descriptions of defense mechanisms were focused on their role in psychopathology. Although the gist of S. Freud's original conceptualization of defense mechanisms remains intact, the focus has been expanded in modern times to include a concern with normative psychological functioning. Defenses are no longer strictly bound to the tenets of psychoanalytic theory, and beliefs about their function have extended beyond the reactive warding off of unpleasant affect to include more proactive functions such as protection of the self-concept and the pursuit of well-being (Cooper, 1998; Cramer, 1998b). In a special issue of *The Journal of Personality* that was devoted entirely to the topic of defense mechanisms, Cramer (1998b) put forth a definition that reflected this change:

The term "defense mechanism" refers to a mental operation that occurs outside of awareness. The function of the defense mechanism is to protect the individual from experiencing excessive anxiety. According to the older, classical psychoanalytic theory, such anxiety would occur if the individual became aware of unacceptable thoughts, impulses, or wishes. In contemporary thinking about defenses, an additional function is seen to be the protection of the self – of self-esteem and, in more extreme cases, protection of the integration of the self. (p. 885)

In recognition of the difficulty researchers have encountered in their attempts to operationalize defense mechanisms, Davidson and MacGregor (1998) delineated six specific criteria implicit in Cramer's (1998b) definition. First, defense mechanisms are

unconscious; that is, defenses function outside of an individual's conscious control or awareness. As such, defense mechanisms are latent constructs which cannot be directly observed, but may only be inferred from their manifestation in defensive behavior (Cramer, 1991; Wallerstein, 1985). However, whereas ego defenses operate unconsciously, this aspect of the definition does not imply that defensive *behavior* is necessarily unconscious. On the contrary, an individual may be perfectly aware of a behavior that he or she is engaging in, but if defense mechanisms have been in operation, the individual will be unaware of the true motive or impulse behind that behavior.

The second definitional criterion for defense mechanisms (Davidson & MacGregor, 1998) is that they operate in response to psychic threat, which may take the form of unacceptable thoughts and impulses as in classical psychoanalytic theory, or of threats to the self-concept as in the more modern conceptualization. Third, defense mechanisms function to prevent and/or manage aversive affect which would result from the aforementioned psychic threat if not for the operation of the defense. Fourth, defense mechanisms function as part of the normal personality. As a result, although they may show patterns of change across the lifespan, defenses are seen as relatively stable and predictable aspects of psychological functioning. Fifth, defense mechanisms are adaptive, as they help individuals adjust to and function in the ever-changing social world. It should be noted, however, that while defense mechanisms may be adaptive for the individual (i.e., by aiding in the management of competing demands in their internal and external environments), this does not guarantee that the resultant defensive behavior will be adaptive for the individual in the long run. Furthermore, as Davidson and MacGregor (1998) note, excessive or rigid reliance on a limited repertoire of defenses may contribute

to the development of psychopathology, and therefore prove to be maladaptive for the individual. The sixth and final definitional criterion for defense mechanisms is that it should be possible to distinguish between the operation of different defenses.

In *The Ego and the Mechanisms of Defense*, A. Freud (1936/1966) not only put forth the basic theory of defense mechanism, but she also provided a cumulative listing and explanation of all of the different defense mechanisms that had been identified by Sigmund Freud and herself at that time. In the years that have followed, theorists, researchers, and clinicians have identified and described a number of additional defenses. An examination of the literature reveals numerous lists that vary in their degree of overlap and inclusiveness (for a review, see Vaillant, 1992). Some defense mechanisms show up in virtually every list (e.g., repression, which "...forms the cornerstone upon which all other defense mechanisms are based..." [Davidson & MacGregor, 1998, p. 969]), whereas others are somewhat idiosyncratic. Although Vaillant (1992) has indicated a need for consensus in this matter, Schafer (1954) aptly noted that, "There cannot be any 'correct' or 'complete' list of defenses, but only lists of varying exhaustiveness, internal theoretical consistency, and helpfulness in ordering clinical observation and research findings" (p. 161)¹.

Issues in the Measurement of Defense Mechanisms

Although defense mechanisms have stood the test of time and have seen a resurgence of interest in many branches of psychology (e.g., Cramer, 1998b), there is still a substantial amount of resistance to the concept, particularly in more traditionally

¹ It is beyond the scope of this paper to provide a listing and description of all the distinct defense mechanisms that have been identified and defined in the literature. However, consistent with Schafer's (1954) comment, a select number of defenses that are theoretically relevant to the CRT-A and the JMs for aggression will be provided in a later section of this paper.

applied fields such as Industrial/Organizational psychology. There are several possible reasons for this resistance. For example, applied psychologists may be uncomfortable with aspects of the psychoanalytic theory from which defense mechanisms originated, and they may be unaware that the modern conceptualization of defenses no longer implies a strict focus on psychopathology (Cramer, 1998b). Furthermore, despite a growing body of literature describing the overlap between defense mechanisms and well-documented unconscious phenomena in other areas of psychology (e.g., the false consensus effect in social psychology [Ross, Greene, & House, 1977]; for a review, see Baumeister, Dale, & Sommer, 1998), there may be continued skepticism about the existence, usefulness, and/or practicality of research on a construct that is, by definition, unobservable. Although the first of these objections may be easily overcome by directing skeptics to the recent literature on defense mechanisms, the black-box problem of measuring the unobservable will likely be more difficult to overcome. However, developments in the methods used to assess defense mechanisms may help to alleviate this objection as well.

MacGregor and Olson (2005) provide a critical review of the most prominent methods that have been used to assess defense mechanisms. In this review, the authors note that while laboratory approaches (i.e., methods that require participants to make judgments based on the experimentally manipulated presentation of stimuli) have high reliability and are easily replicated, they may suffer from a lack of internal validity (i.e., differences in results may be due to factors other than differences in defense mechanisms [Cook & Campbell, 1979]; also see Perry & Ianni, 1998). Secondly, they state that while projective tests (e.g., the Thematic Apperception Test [Morgan & Murray, 1935]) offer a

theoretically consistent means of defense assessment and often show high inter-rater reliability (also see Perry & Ianni, 1998), they are not practical for large-scale testing due to time-consuming and labor-intensive testing and scoring procedures. Third, MacGregor and Olson discuss self-report methods for assessing defenses (e.g., the Defense Mechanisms Inventory [Gleser & Ihilevich, 1969; Ihilevich & Gleser, 1995]). They note that while such measures offer an efficient means of data collection, allow objective testing and scoring conditions, and show high test-retest reliability, they are subject to intentional response distortion (also see Cramer, 1991). Moreover, self-reports – which typically rely on introspective responses about one’s own behavior – have been criticized as theoretically inappropriate for the measurement of defense mechanisms which are, by definition, unconscious.

MacGregor and Olson (2005) wrap up their discussion by describing the strengths and weaknesses of observational methods for defense mechanism assessment (e.g., the Defense-Q [Davidson & MacGregor, 1996]). Specifically, they state that data collection with observational methods may be time-consuming, that inter-rater reliability tends to be lower than is seen with projective measures, and that scoring is more labor-intensive than that of self-reports. However, observational ratings are more theoretically appropriate for the measurement of defenses because they are based on samples of real behavior (e.g., they may consist of interviews that demonstrate how individuals actually react to stressful or challenging situations), they show reasonable convergence with clinician-ratings of defenses, they are less subject to the possibility of socially desirable responding, and unlike many projective measures, clinical training and experience may not be necessary for scoring (Perry & Ianni, 1998).

In summary, multiple methods exist for the measurement of defense mechanisms, and there are strengths and limitations associated with each method. To some extent, these strengths and limitations seem to balance each other out, such that there is no clear “best” method for the assessment of defenses. However, when considered from the perspective that a measurement method should, at the very least, be theoretically consistent with the construct it is designed to measure (e.g., Eid & Diener, 2005), ordinal relations begin to emerge. Namely, despite their ease of administration and scoring, self-report measures quickly fall to the bottom of the list. Whereas self-report instruments are clearly useful for assessing some aspects of personality (e.g., conscious, self-attributed and/or reputational characteristics; Hogan, Hogan, & Roberts, 1996), they are less appropriate than other types of measures for the assessment of unconscious defense mechanisms. Furthermore, although typical laboratory approaches and projective methods are amenable to the assessment of unconscious defense processes, they may suffer from threats to ecological validity because they are not based on samples of real-life behavior (Cook & Campbell, 1979; Perry & Ianni, 1998). In contrast, although observer-based methods may show lower reliability than other types of measures, they appear to side-step some of the theoretical problems which plague those other methods. From this perspective, observer-based methods may represent one of the most appropriate available means for the assessment of defense mechanisms.

The Conditional Reasoning Test for Aggression

Although the Conditional Reasoning Test for Aggression (CRT-A) is a paper-and-pencil test that respondents complete by themselves, it is not a self-report instrument in the traditional sense. As part of their reframing of the test and its JMs in terms of defense

mechanisms, James and colleagues (James et al., 2005) referred to the CRT-A as a projective measure. That is, when individuals complete the CRT-A, they are not asked to introspect on their own level of aggressiveness or their own tendency to engage in aggressive behavior. Rather, they respond to a series of inductive reasoning problems for which they are instructed to choose the most logical outcome or explanation from a set of response options that follows each item.

The projective aspect of the CRT-A lies in the set of response options from which individuals are asked to choose. In particular, each item on the test is followed by a multiple-choice set of four possible response options – two of which are blatantly illogical (i.e., distractor responses, included in the response set to enhance the face validity of the test as a measure of reasoning ability as opposed to a measure of personality), and two of which are inductively valid. Of the two inductively valid response options, one is imbued with justification mechanisms (JMs) for aggression whereas the other is based on neutral or prosocial reasoning. It is believed that aggressive individuals, or those who characteristically employ JMs for aggression, will confer logical priority to the response option that embodies one or more of those JMs for aggression. Thus, individuals reveal their implicit motive to aggress, without being aware that they have done so, through the projection of that motive or tendency into their reasoning about the truth or logic of the biased (yet inductively valid) response (James et al., 2005).

Aggressive Behavior and the Motive to Aggress

James cites classic work by Murray (1938) in defining the motive to aggress, noting that, “Aggressiveness evolves from a desire or motive to overcome opposition

forcefully, to fight, to revenge an injury, to attack another with intent to injure or kill, and to oppose forcefully or punish another” (James & Mazerolle, 2002, p. 8). Behavioral manifestations of the motive to aggress may include direct and active forms such as verbal or physical attack, or more indirect and passive forms such as withholding of effort or information. However, any type of behavior that is motivated by the intent to harm another entity – whether that entity is an individual or a group, such as an organization – can be considered aggressive behavior (Folger & Baron, 1996). Fortunately for society, James and McIntyre (2000) cite data indicating that only about 12% of the general population seems to possess a strong or moderately strong motive to aggress.

In their classic work on achievement motivation, McClelland and others (McClelland, Atkinson, Clark, & Lowell, 1953/1976) indicated that motives energize and direct behavior. However, research has shown that self-attributed motives or desires (i.e., those that are consciously espoused) rarely show significant correlations with implicit motives (i.e., those that are held unconsciously), and that the two types of constructs differ in terms of the kinds of behaviors they best predict (for a review, see McClelland et al., 1989). In particular, self-attributed motives appear most suited to the prediction of behaviors with external or social incentives, whereas implicit motives show better prediction of intrinsically rewarding behaviors.

Given that motives may have both implicit and explicit components, it follows that individuals may possess motives of which they are unaware. Aggressive individuals, in particular, may be unaware of their underlying motive to aggress because such a motive conflicts with predominant social norms and has the potential to threaten the

individual's sense of self-worth (Baumeister et al., 1998; Cramer, 1998b, 2000). It is this notion which led James to state that, "People like to believe that their behavior is sensible and rational, as opposed to foolish and irrational. A specific instance of this axiom is that people with strong motives to aggress tend to frame and analyze the world in ways that justify – that is, that enhance the rational appeal of – the expression of aggression" (James & Mazerolle, 2002, p. 9). In essence, the CRT-A was designed to capture this conflict between the motive to aggress and the motive to protect the sense of self-worth through the assessment of unconscious biases in the framing and analysis of the world.

Justification Mechanisms for Aggression

In developing the CRT-A, James (1998) scoured the academic and lay literatures to identify implicit reasoning biases that aggressive individuals employ to rationalize or justify their behavior. Theoretically, such implicit reasoning biases, or justification mechanisms (JMs), allow individuals to express an underlying motive to aggress while simultaneously protecting a favorable view of the self. James' search culminated in a list of six distinct JMs for aggression (James & Mazarolle, 2002; James et al., 2005): 1) Hostile attribution bias; 2) potency bias; 3) retribution bias; 4) victimization by powerful others bias; 5) derogation of target bias; and 6) social discounting bias. An explanation of these JMs for aggression will be provided in a later section of this paper; however, Figure 1 contains the definitions provided by James and colleagues (James et al., 2005).

Theoretical Overlap Between the CRT-A and Concept of Defense Mechanisms

The theoretical underpinnings of the CRT-A have a considerable degree of overlap with the concept and theory of defense mechanisms. The six definitional criteria

1.	<u>Hostile attribution bias</u> 's core is an implicit assumption that (like oneself) people tend to be motivated by a desire to harm others. This latent bias is instrumental in shaping conscious attempts to explain why others behave as they do. Such explanations show a strong predilection to attribute behavior to malevolent purpose and harmful intent. Even benign or friendly acts may be credited to hidden, hostile agendas designed to inflict harm. The attributions of hostile intent are central to the aggressive person's attempts to rationalize his or her own hostile behaviors as acts of self-defense intended to ward off physical or verbal attack.
2.	<u>Potency bias</u> is grounded in the implicit assumption that interactions with others are contests to establish dominance versus submissiveness. This bias unconsciously shapes framing; the actions of others pass through a perceptual prism primed to distinguish (a) strength, assertiveness, dominance, daring, fearlessness, and bravery from (b) weakness, impotence, submissiveness, timidity, compliance, and cowardice. Such framing promotes reasoning that the use of aggression to dominate others demonstrates strength, bravery, control, and fearlessness. Not acting aggressively is associated with weakness, fear, cowardice, and impotence. An aggressive person may thus rationalize aggression by reasoning (a) that aggression is an act of strength or bravery that gains respect from others and (b) that to show weakness is to invite powerful others to take advantage of you.
3.	<u>Retribution bias</u> centers on an implicit assumption that exacting retribution is of greater consequence than preserving or maintaining a relationship. This bias surfaces as a proclivity to favor retaliation as a more rational behavior than reconciliation. For example, aggression is seen as justifiable if it is intended to restore respect or to exact restitution for a perceived wrong. Retaliation is thus assumed to be more reasonable than forgiveness, vindication appears more reasonable than reconciliation, and obtaining revenge appears more reasonable than maintaining a relationship. This bias often underlies justifications for aggression engendered by wounded pride, challenged self-esteem, and perceived disrespect.
4.	<u>Victimization by powerful others bias</u> has as a nucleus an implicit assumption that the powerful will inflict harm on the less powerful. This assumption underlies a conscious proclivity to see oneself as the victim of inequity, exploitation, injustice, and oppression by those who are more powerful in one's life (e.g., parents, teachers, supervisors, employing organizations, or institutions such as the Internal Revenue Service). Framing of events, hypotheses about cause and effect, and confirmatory searches for evidence both engender and reinforce inferences that people are being victimized by powerful others. This reasoning furnishes the foundation for justifying acts of aggression as warranted corrections of inequities or legitimate strikes against oppression.

Figure 1. Justification Mechanisms for Aggression

NOTE: Definitions and explanations of the JMs for aggression detailed in this table were taken almost verbatim from James et al. (2005), "A Conditional Reasoning measure for aggression," *Organizational Research Methods*, 8, 69-99.

5. Derogation of target bias consists of an unconscious tendency to characterize those one wishes to make (or has made) targets of aggression as evil, immoral, or untrustworthy. To infer or associate such traits with a target makes the target more deserving of aggression.
6. Social discounting bias has at heart an implicit assumption that social customs restrict free will and the opportunity to satisfy needs. Reasoning shaped by this latent bias reflects disdain for traditional ideals and conventional beliefs. For example, attempts to identify the most logically plausible causes of social events typically lean toward the cynical and critical. Reasoning will further evidence a lack of sensitivity, empathy, and concern for social customs, often accompanied by the absence of rational prohibitions against behaving in socially unorthodox ways. Socially deviant behavior intended to harm others is rationalized by inferring that it allows one to attain freedom of expression, release from the shackles of social customs, and liberation from confining social relationships.

Figure 1. Continued.

Source: James et al. (2005).

for defense mechanisms (Davidson & MacGregor, 1998) discussed in an earlier section of this paper serves as a useful framework with which to illustrate this integration.

First, the CRT-A is based on the idea that possession of a strong implicit motive to aggress poses a threat to the maintenance of a favorable self-concept. Thus, the theory behind the CRT-A indicates that a strong motive to aggress sets the stage for internal conflict between opposing motives, such that conscious recognition of the implicit motive to aggress could potentially damage an individual's view of the self. This situation meets the criterion of *psychic threat* outlined by Davidson and MacGregor (1998).

The conflict between these opposing motives within an individual (i.e., the motive to aggress and the motive to see the self as a “good” person) creates a situation that – if not alleviated – would result in feelings of inadequacy, immorality, or lack of self-worth (i.e., the situation results in *aversive affect* which must be *managed*; Davidson & MacGregor, 1998). The theory underlying the CRT-A indicates that aggressive individuals manage this inherent conflict (i.e., *adapt* to the situation; Davidson & MacGregor, 1998) by employing implicit reasoning biases known as justification mechanisms (i.e., the JMs are *unconscious* and operate outside of an individual's awareness; Davidson & MacGregor, 1998).

James and colleagues (James, 1998; James & Mazerolle, 2002; James et al., 2005) have identified and differentiated between six JMs that aggressive individuals may employ to justify engaging in aggressive behavior (i.e., JMs are *distinct* from one another; Davidson & MacGregor, 1998). Furthermore, the use of JMs for aggression is assumed to be an aspect of normal personality functioning. That is, the CRT-A is predicated on the notion that aggressive individuals are equipped with an array of JMs,

and that inter-individual variance in the use of those JMs is a consistent and predictable individual difference variable (i.e., JMs show *stability*; Davidson & MacGregor, 1998).

In summary, when the theoretical underpinnings of the CRT-A are compared against modern criteria for recognizing and defining defense mechanisms, the degree of fit between the concepts becomes evident. This theoretical overlap clarifies and bolsters James and colleagues' (James et al., 2005) reframing of the CRT-A as a measure rooted in the theory of defense mechanisms. However, demonstrating consistency at the theoretical level is only the first step in evaluating the extent to which the CRT-A and its JMs for aggression are truly influenced by the operation of defense mechanisms. The second step involves demonstrating consistency at the operational level of the JMs themselves, and it entails a detailed content analysis of each JM for aggression, followed by a close comparison of each JM against specific defense mechanisms that have been described in the literature. Since James and colleagues (James et al., 2005) specifically note the importance of Rationalization in the conditional reasoning system, the following section will begin with a discussion of the operational similarity between Rationalization and the JMs for aggression in general. Next, a proposition about the nature of the relationship between the concepts of Rationalization and JMs for aggression will be offered. Finally, each individual JM for aggression will be discussed in greater detail and evaluated in terms of its operational similarity to other specific defense mechanisms.

The Relation of JMs for Aggression to Specific Defense Mechanisms

As noted previously, James and colleagues (James et al., 2005) state that, "The conditional reasoning system focuses on the degree to which conscious thinking is influenced by the defense mechanism of 'rationalization'" (p. 72). Given that JMs for

aggression are the targets of measurement with the CRT-A, it follows from this statement that Rationalization influences conscious thinking through its influence on those JMs for aggression. However, James and colleagues do not hypothesize about the strength or the exact nature of this influence.

Rationalization and its Relation to the JMs for Aggression

Rationalization – which MacGregor and Davidson (1998) define as the transformation of a threatening or anxiety-provoking impulse into a rational-sounding and reassuring, yet distorted, explanation – shows strong parallels with the definition of JMs in general. Indeed, though James has only recently made explicit mention of this similarity, he has consistently defined JMs as tacit, implicit, or unconscious attempts to enhance the logical appeal of motive-driven behavior (i.e., aggressive behavior in this case), and he has always indicated that JMs serve a self-protective function (James, 1998; James & Mazerolle, 2002; James et al., 2005). Theoretically, then, JMs work in the same manner and toward the same general end as Rationalization (i.e., by distorting reality to make the expression of an anxiety-provoking motive or impulse seem justified and rational). However, whereas Rationalization – like any other defense mechanism – is defined only in terms of its function or process (i.e., *what* is done with a threatening impulse/motive), JMs for aggression are defined by three criteria: (a) their general function or process (i.e., *what* is done with a threatening impulse/motive – it is Rationalized), (b) their specific target (i.e., *which* threatening impulse/motive is being Rationalized – in this case, the motive to aggress), and (c) their specific operational characteristics (i.e., *how* the motive to aggress is being Rationalized – this will differ depending on the particular JM for aggression that is employed).

To summarize, JMs for aggression do not appear to be equivalent to defense mechanisms in general, nor do they appear to be equivalent to the specific defense mechanism known as Rationalization. However, just as James and colleagues (James et al., 2005) note, Rationalization does appear to be related – both theoretically and operationally – to the JMs for aggression assessed by the CRT-A. Specifically, use of defensive Rationalization may be one of several influential factors in the use of JMs for aggression, with other influential factors being the presence of a strong implicit motive to aggress, and the possession of some additional repertoire of defense mechanisms that assists in or directs the psychologically “safe” expression of that motive. In the remainder of this section, the various JMs for aggression will be examined in relation to additional defense mechanisms in an effort to shed light on this hypothetical defensive repertoire.

The Relation of Other Defense Mechanisms to the JMs for Aggression

As a first step toward identifying other specific defense mechanisms that may be related to the use of JMs for aggression (i.e., in addition to Rationalization), the author reviewed lists of defenses that had been compiled by various researchers and practitioners (for a review, see Vaillant, 1992). A choice was made to base the content analysis of the JMs for aggression on the list of 25 defense mechanisms assessed by Davidson and MacGregor’s (1996) observer-report measure, the Defense-Q (see Figure 2 for a list of these 25 defenses and their definitions). The Defense-Q was chosen because it represents a comprehensive list of the major defenses that have been described in the literature. Furthermore, the test manual for the Defense-Q (MacGregor & Davidson, 1998) provides complete, consistent definitions for each defense mechanism it is designed to assess, as well as clear examples that illustrate key distinguishing features of each defense.

1. Sublimation is the process by which a person deals with emotional conflict or stress by channelling feelings or impulses into socially acceptable and productive behaviours.
2. Reaction Formation is the process by which a person deals with emotional conflict or stress by substituting opposite thoughts, feelings, or behaviour. The thoughts, feelings, or behaviours substituted may be either positive or negative.
3. Displacement is the process by which a person deals with emotional conflict or stress by transferring anxiety-provoking feelings or responses from an object onto another object that is perceived as less threatening.
4. Dissociation is the process by which a person deals with emotional conflict or stress by temporarily breaking down the integration of the components of consciousness then detaching from and losing conscious contact with the environment and persons in the environment.
5. Isolation is the process by which a person deals with emotional conflict or stress by separating ideas and cognitions from emotions. At the time of the conflict, the person is able to experience the cognitions but unable to experience the emotions.
6. Splitting is the process by which a person deals with emotional conflict or stress by compartmentalizing the related affect states, objects, feelings, cognitions, etc., into contradictory components and then failing to integrate the components into a complete and cohesive whole.
7. Regression is the process by which a person deals with emotional conflict or stress by reverting to a previously developmentally appropriate way of responding.
8. Devaluation is the process by which a person deals with emotional conflict or stress by attributing exaggerated negative qualities to the object causing the conflict in order to mitigate the threat.
9. Humor is the process by which a person deals with emotional conflict or stress by making light of, or emphasizing the amusing or ironic aspects of the situation.
10. Identification with the Aggressor is the process by which a person deals with emotional conflict or stress by taking on the same characteristics of the person or object causing the anxiety.

Figure 2. Definitions of Defense Mechanisms Assessed with the Defense-Q.

NOTES: Definitional prerequisites for each of these defense mechanisms are that (a) there is a threatening or anxiety-provoking impulse that causes intrapsychic conflict, and (b) this conflict is at least temporarily relieved or resolved through the operation of the defense. These definitions were reprinted with permission from the test manual for the Defense-Q (MacGregor & Davidson, 1998).

11. Turning Against the Self is the process by which a person deals with emotional conflict or stress by attributing exaggerated negative qualities to and blaming the self for the cause of the conflict or anxiety.
12. Projection is the process by which a person deals with emotional conflict or stress by falsely attributing his or her own distressing thoughts feelings or impulses to others.
13. Pseudoaltruism is the process by which a person deals with emotional conflict or stress by helping others address an apparently similar conflict or stress rather than by helping oneself.
14. Acting Out is the process by which a person deals with emotional conflict or stress through potentially destructive actions where the negative consequences are not considered. The actions must be related to the conflict or stressor.
15. Rationalization is the process by which a person deals with emotional conflict or stress through distorted elaborations and explanations, which may be exaggerated.
16. Intellectualization is the process by which a person deals with emotional conflict or stress by using abstract thinking and language and by making abstract generalizations, thereby controlling or minimizing the related affect.
17. Fantasy is the process by which a person deals with emotional conflict or stress by fantasizing or daydreaming, often as a substitute for relationships with others.
18. Psychotic Denial is the process by which a person deals with emotional conflict or stress by breaking contact with and distorting external reality.
19. Undoing is the process by which a person deals with emotional conflict or stress by engaging in repetitive thoughts, works, or actions that are directly or symbolically related to the conflict.
20. Passive Aggression is the process by which a person deals with emotional conflict or stress by indirectly and unassertively expressing thoughts, words, or actions towards the object causing the conflict or stress. There is an overt appearance of general compliance or indifference masking a more covert resistance or disapproval.
21. Repression is the process by which a person deals with emotional conflict or stress by expelling wishes, thoughts, or experiences from conscious awareness, although traces of the conflict may remain, such as related affect.

Figure 2. Continued.

Source: MacGregor & Davidson (1998).

22. Neurotic Denial is the process by which a person deals with emotional conflict or stress by not acknowledging consequences of the conflict or stressor that are apparent to most others, such as related affect, action, or intentions. The conflict or stressor is recognized, but the consequences are not.
23. Grandiosity is the process by which a person deals with emotional conflict or stress by acting or thinking in a manner where exaggerated positive qualities or abilities are attributed to him- or herself in an attempt to make him- or herself better than others.
24. Turning Against Others is the process by which a person deals with emotional conflict or stress by blaming others for the conflict or for the outcome of one's behaviour or actions.
25. Idealization is the process by which a person deals with emotional conflict or stress by ascribing exaggerated positive qualities to an object related to the anxiety and then through their association to these positively ascribed characteristics they have an increase in self-esteem.

Figure 2. Continued.

Source: MacGregor & Davidson (1998).

Hostile Attribution Bias. James and colleagues (James & Mazerolle, 2002; James et al., 2005) list the hostile attribution bias among the JMs that aggressive individuals may use to rationalize aggressive behavior. The authors define the hostile attribution bias as an unconscious tendency for aggressive individuals to see malevolent intent in the actions of others, even when those actions are neutral or benign (see Figure 1). This illusion of provocation allows individuals to feel justified in behaving aggressively as a means of self-defense. As a result, an individual can engage in behavioral expression of his or her own implicit motive to aggress without experiencing a threat to the view of the self as a “good” member of society. Thus, in a general sense, the hostile attribution bias functions like a defensive Rationalization targeted at the expression of the motive to aggress. However, Rationalization alone does not account for the particular operational characteristics of the hostile attribution bias (i.e., *how* the motive to aggress is being rationalized).

When compared against MacGregor and Davidson’s (1998) listing of defenses assessed by the Defense-Q, it is evident that the hostile attribution bias bears an operational similarity to the defense mechanism known as Projection (see Figure 2). Projection is defined as the ejection of a threatening or anxiety-provoking impulse out of the self, and the unrealistic relocation of that impulse into another non-self object (MacGregor & Davidson, 1998). Projection, then, although not directly equivalent to the hostile attribution bias, may be seen as a contributing influence in the use of that particular bias as a JM for aggression. That is, the implicit motive to aggress is seen as a psychic threat which conflicts with the motive to hold a favorable view of the self, and as a means of managing that threat, the objectionable impulse (i.e., the motive to aggress) is

unconsciously attributed to someone or something other than the self. With the stage thus set by Projection, the hostile attribution bias can be effectively used like a Rationalization for behaving aggressively.

Potency Bias. The potency bias appears next in James et al.'s (2005) list of JMs for aggression. They define the potency bias as an unconscious tendency for aggressive individuals to view social interactions as, "...contests to establish dominance versus submissiveness" (p. 74; see Figure 1). This adversarial framing of social interactions allows individuals to feel justified in behaving aggressively as a means of proving their strength, and therefore their status as "better than" other individuals. Because of the importance conferred to being better than others, an individual may safely express his or her own implicit motive to aggress without experiencing a threat to the positive self-concept. Thus, in a general sense, the potency bias functions like a defensive Rationalization targeted at the expression of the motive to aggress. However, on its own, Rationalization does not account for the specific operational features of the potency bias (i.e., *how* the motive to aggress is being rationalized).

When considered alongside the list of defenses assessed with the Defense-Q, the potency bias shows overlap with the defense mechanism known as Grandiosity (see Figure 2). MacGregor and Davidson (1998) define Grandiosity as the transformation of a threatening or anxiety-provoking impulse into a continued sense or assumption of one's specialness and superiority, such that one does not have to acknowledge the impulse as threatening. Grandiosity, then, although not directly equivalent to the potency bias, may be seen as a contributing factor in the use of that bias as a JM for aggression. That is, the motive to aggress is seen as a psychic threat which conflicts with the motive to hold a

favorable view of the self, and in order to manage the conflict, the threat of the impulse (i.e., the motive to aggress) is attenuated by focusing on one's own superiority and ability to "best" any situation. With the stage thus set by Grandiosity, the potency bias can be effectively used like a Rationalization for engaging in aggressive behavior.

Retribution Bias. The retribution bias is third in James et al.'s (2005) list of JMs for aggression. Those authors define the retribution bias as an unconscious tendency for aggressive individuals to prioritize retaliation or "getting even" over forgiveness or reconciliation (see Figure 1). When faced with a perceived wrong, this implicit preference for retaliation over forgiveness allows individuals to feel justified in behaving aggressively as a means of punishing others to "teach them a lesson". As a result, an individual can engage in behavioral expression of his or her own implicit motive to aggress without experiencing a threat to the view of oneself as a good and just person. Thus, in a general sense, the retribution bias functions like a defensive Rationalization targeted at the expression of the motive to aggress. However, Rationalization on its own does not account for the particular operational characteristics of the retribution bias (i.e., *how* the motive to aggress is being rationalized).

Considered in tandem with the list of defenses in the Defense-Q, the retribution bias is similar to the defense mechanism known as Turning Against Others. Turning Against Others is defined as the transformation of a threatening or anxiety-provoking impulse into an exaggerated level of blame, which is then turned out of the self and attributed to an object other than the self (MacGregor & Davidson, 1998). Turning Against Others, then, although not directly equivalent to the retribution bias, may be seen as a contributing factor in the use of that bias as a JM for aggression. That is, the implicit

motive to aggress is seen as a psychic threat which conflicts with the motive to hold a favorable view of the self, and in order to manage that threat, the impulse (i.e., the motive to aggress) is transformed into a desire to seek (vigilante) justice through the punishment of wrong-doers. Thus, with the groundwork laid by Turning Against Others, the retribution bias can be effectively used like a Rationalization for behaving aggressively.

Victimization by Powerful Others Bias. A fourth JM for aggression discussed by James and colleagues (James et al., 2005) is the victimization by powerful others bias. This bias is defined as an unconscious tendency for aggressive individuals to assume that people in positions of power intend to purposefully harm less powerful individuals (see Figure 1). This implicit belief allows individuals to feel justified in behaving aggressively as a means of protecting the self or others from oppression by preemptively “turning the tables” on would-be aggressors. As a result, an individual can engage in behavioral expression of his or her own implicit motive to aggress without experiencing a threat to the positive self-concept. In a general sense, then, the victimization by powerful others bias functions like a defensive Rationalization targeted at the expression of the motive to aggress. However, Rationalization alone does not account for the particular operational features of the victimization by powerful others bias (i.e., *how* the motive to aggress is being rationalized).

When the victimization by powerful others bias is considered in relation to the defenses assessed with the Defense-Q, there is a degree of overlap with the defense mechanism known as Identification with the Aggressor (see Figure 2). Identification with the Aggressor is defined as a change in values, beliefs, or behavior to match those of the object which caused a threatening impulse, and then an identification with that object

(MacGregor & Davidson, 1998). Identification with the Aggressor, then, although not directly equivalent to the victimization by powerful others bias, may be seen as a contributing factor in the use of that bias as a JM for aggression. That is, the implicit motive to aggress is seen as a psychic threat that conflicts with the motive to hold a favorable view of the self. In order to adapt to and manage that threat, the individual transforms his or her perception of the objectionable impulse (i.e., the motive to aggress) and identifies with that impulse to preemptively victimize the would-be victimizer. With the stage thus set by Identification with the Aggressor, the victimization by powerful others bias can be effectively used like a Rationalization for behaving aggressively.

Derogation of Target Bias. The derogation of target bias appears fifth in James et al.'s (2005) list of JMs for aggression. They define the derogation of target bias as an unconscious tendency for aggressive individuals to characterize intended targets of aggression as, "...evil, immoral, or untrustworthy...[and therefore] more deserving of aggression" (p. 74; see Figure 1). This demonizing of an intended target allows individuals to feel justified in behaving aggressively toward that target because "bad people deserve bad things". As a result, an individual can express his or her implicit motive to aggress without realizing a threat to the favorable view of the self. Thus, in a general sense, the derogation of target bias functions like a defensive Rationalization targeted at the expression of the motive to aggress. However, Rationalization on its own does not account for the particular operational characteristics of the derogation of target bias (i.e., *how* the motive to aggress is being rationalized).

The derogation of target bias bears a strong resemblance to the defense mechanism known as Devaluation, as defined in the Defense-Q (see Figure 2).

MacGregor and Davidson (1998) define Devaluation as the ascription of exaggerated negative characteristics to the object of an anxiety-provoking impulse. Devaluation, then, although not directly equivalent to the derogation of target bias, may be seen as a contributing factor in the use of that bias as a JM for aggression. That is, the implicit motive to aggress is seen as a psychic threat that conflicts with the motive to hold a favorable view of the self. In order to manage that threat, the objectionable impulse (i.e., the motive to aggress) is unconsciously transformed into the characterization of others in extremely negative terms. With the stage thus set by Devaluation, the derogation of target bias can be used effectively like a Rationalization for aggressive behavior.

Social Discounting Bias. The final JM for aggression that James and colleagues discuss is the social discounting bias. The social discounting bias is defined as an unconscious tendency for aggressive individuals to discount or “write off” social norms and customs that conflict with their own latent needs, motives, or desires (see Figure 1). This disdain for and refusal to acknowledge social conventions allows the free and justifiable expression of aggressive or antisocial behavior that would otherwise be restricted by the accepted rules of social interaction. As a result, an individual can express his or her implicit motive to aggress without experiencing a threat to the positive self-concept. In general, then, the social discounting bias functions like a defensive Rationalization targeted at the expression of the motive to aggress. However, Rationalization in isolation does not account for the specific operational features of the social discounting bias (i.e., *how* the motive to aggress is being rationalized).

In a final comparison against the list of defenses assessed with the Defense-Q, the social discounting bias appears to incorporate the defense mechanism known as Neurotic

Denial (see Figure 2). Neurotic Denial is defined as the division of a threatening or anxiety-provoking impulse by banishing from awareness all thoughts and knowledge of the consequences or implications of that impulse (MacGregor & Davidson, 1998).

Neurotic Denial, then, although not directly equivalent to the social discounting bias, may be seen as a contributing factor in the use of that bias as a JM for aggression. That is, the implicit motive to aggress is seen as a psychic threat that conflicts with the motive to hold a favorable view of the self. In order to adapt to this threat, the impulse itself (i.e., the motive to aggress) is split off from the anxiety-provoking consequences (i.e., what would normally be seen as the logical outcomes of aggressive or antisocial behavior), and those consequences are kept out of conscious awareness. With the stage thus set by Neurotic Denial, the social discounting bias can be effectively used like a Rationalization for behaving aggressively.

Summary

James and colleagues (James et al., 2005) state that the conditional reasoning system, and therefore the JMs for aggression, are influenced by the defense mechanism known as Rationalization. In an effort to clarify the nature of this relationship, Rationalization and JMs for aggression were defined, and those definitions were reduced to their most elemental levels and then compared. This comparison resulted in the proposal that Rationalization is not equivalent to JMs for aggression, but that it appears to be one of several factors related to their use – with other influential factors being the presence of a strong motive to aggress and the existence of a repertoire of additional defense mechanisms that help to determine the features and form of the various JMs for aggression.

To gain insight into the hypothetical defensive repertoire that may shape the JMs for aggression, each JM was content-analyzed and compared against a representative list of defense mechanisms that have been described in the literature. This comparison resulted in a list of six specific defense mechanisms – one that matched up with each of the six JMs for aggression – that may work in tandem with Rationalization when an individual employs the various JMs for aggression: Projection (for the hostile attribution bias); Grandiosity (for the potency bias); Turning Against Others (for the retribution bias); Identification with the Aggressor (for the victimization by powerful others bias); Devaluation (for the derogation of target bias); and Neurotic Denial (for the social discounting bias). Although these defense mechanisms are not posited to be directly equivalent to their corresponding JMs for aggression, they appear to be contributing factors in the use of each particular bias as a means of rationalizing aggressive behavior.

General Summary

James and colleagues (James et al., 2005) recently reframed their presentation of the CRT-A and the JMs that it was designed to assess by grounding their discussion in the theory of defense mechanisms. Furthermore, they explicitly noted that JMs for aggression are rooted in the defense mechanism known as Rationalization. In an effort to clarify and expand this notion, a review of the theory and definition of defense mechanisms was provided. This background information was used to demonstrate the theoretical consistency between defense mechanisms, the conditional reasoning system, and the concept of JMs in general. Next, the nature of the relationship between Rationalization and the CRT-A's JMs for aggression was explored, resulting in the proposition that Rationalization and JMs are not equivalent constructs, but that JMs for

aggression are influenced by the combined operation of Rationalization and other defense mechanisms directed toward expression of an implicit motive to aggress. Finally, to gain insight into other defense mechanisms that might play a role in the use of JMs for aggression, each of the six JMs for aggression was content-analyzed and matched with a specific defense mechanism that appeared relevant to its functioning.

Current Investigation

Despite the theoretical links that have been established between defense mechanisms, the CRT-A, and the JMs for aggression, to date these relations have not been examined empirically. A growing body of research exists to demonstrate the predictive value of the CRT-A, but few published studies have examined issues related to the construct(s) assessed with the test. Furthermore, no existing studies have investigated the extent to which use of the JMs for aggression, and therefore scores on the CRT-A, are actually influenced by the use of defense mechanisms, as the test's developers (e.g., James et al., 2005) and the current author have theorized. Thus, although the CRT-A is gaining acceptance as a tool for predicting aggressive behavior, there is still no documented empirical research to explain *why*. The CRT-A rests on a solid theoretical foundation, but the lack of empirical testing of that foundation represents a critical gap in the literature.

The current study was conceived as an initial step toward filling this gap in the literature on Conditional Reasoning in general, and the CRT-A in particular. As Cronbach and Meehl (1955) note, "Determining what psychological constructs account for test performance is desirable for almost any test" (p. 282). This proposed investigation was designed as a preliminary exploration of the extent to which

theoretically relevant defense mechanisms account for use of the JMs for aggression and for performance on the CRT-A. As a result, although no attempt will be made to propose and validate a full model of the origin and function of the JMs for aggression, this demonstration represents a useful and necessary foray into untested areas of the CRT-A's nomological network.

Development of Hypotheses

As noted previously, the defense mechanism known as Rationalization is presumed to have an influence on the use of JMs for aggression in general. To the extent that this presumption is valid, individuals who make greater use of Rationalization as a defense mechanism should also show greater overall use of those JMs for aggression. Individuals who Rationalize, then, should endorse a greater number of "aggressive" (i.e., JM-laden) responses on the CRT-A. That is:

Hypothesis 1a: Use of Rationalization as a defense mechanism will be significantly positively related to overall scale scores on the CRT-A.

Moreover, since Rationalization is believed to influence the JMs for aggression in general, it should also relate to the use of each specific JM. The keyed item responses to CRT-A items are often based on more than one JM for aggression, so clear and unequivocal JM-based subscales are not available for the CRT-A. However, because the aggressive response option for each item is built on at least one of the JMs, individuals who Rationalize should also show higher means on each item of the CRT-A as compared to individuals who do not engage in defensive Rationalization. That is:

Hypothesis 1b: Use of Rationalization as a defense mechanism will be significantly and positively related to scores on each keyed CRT-A item.

Each of the additional defense mechanisms discussed in this paper (i.e., Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, Devaluation, and Neurotic Denial) is presumed to influence the use of a particular JM for aggression (i.e., hostile attribution bias, potency bias, retribution bias, victimization by powerful others bias, derogation of target bias, and social discounting bias, respectively). However, as mentioned above, multidimensional response options to the CRT-A items preclude the creation of clean JM-based subscales. Nevertheless, to the extent that each defense mechanism is, indeed, related to its corresponding JM for aggression, use of that defense mechanism should also be related to overall CRT-A scores. Stated formally:

Hypothesis 2a: Use of each of the following defense mechanisms will be significantly positively related to overall scale scores on the CRT-A: Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, Devaluation, and Neurotic Denial.

Furthermore, although exact JM-based subscales are not available in the CRT-A, a recently published factor analysis (James et al., 2005) provides a useful framework for a preliminary item-level assessment of these defense mechanism-JM pairs. Specifically, James and colleagues' analysis of CRT-A data from over 1,600 respondents yielded a five-factor solution that was complex (e.g., several items had cross-loadings), yet interpretable (i.e., one factor was derived for each of the JMs for aggression *except* the derogation of target bias, which the authors noted would likely be eliminated in future treatments of the CRT-A). To the extent that the aforementioned defense mechanism-JM relationships hold, each defense mechanism should show a stronger relationship with the

items that load on the corresponding JM-based factor (see Figure 3 for pattern of item loadings for each factor). However, to reiterate, none of the CRT-A items appeared to tap the derogation of target bias. As a result, no predictions are made about the use of Devaluation (i.e., the defense mechanism that was shown to correspond to the derogation of target bias). To summarize, it is expected that:

Hypothesis 2b: Use of each of the following defense mechanisms will be significantly related to scores on the CRT-A items that tap the corresponding JM for aggression: Projection (for the hostile attribution bias), Grandiosity (for the potency bias), Turning Against Others (for the retribution bias), Identification with the Aggressor (for the victimization by powerful others bias), and Neurotic Denial (for the social discounting bias).

Factor 1 – Social Discounting Bias		Factor 3 – Retribution Bias	
<u>Item</u>	<u>Loading</u>	<u>Item</u>	<u>Loading</u>
3	+	4	+
9	+	5	+
10	+	7	+
11	+	13	+
12	+	17	+
14	+	24	+
18	+		
20	+		
24	+		
25	+		
Factor 2 – Victimization by Powerful Others		Factor 4 – Hostile Attribution Bias	
<u>Item</u>	<u>Loading</u>	<u>Item</u>	<u>Loading</u>
7	+	3	-
8	-	13	-
15	+	16	+
16	+	17	+
22	+	19	+
23	+		
24	+		
25	+		
		Factor 5 – Potency Bias	
		<u>Item</u>	<u>Loading</u>
		8	+
		11	+
		21	+

Figure 3. Factor Loading Pattern for Items on the CRT-A.

NOTE: Information on the full factor analysis can be found in James et al. (2005), “A Conditional Reasoning measure for aggression,” *Organizational Research Methods*, 8, 69-99.

CHAPTER 2

METHODS

Data for this study were drawn from an archival source at a major research university in Western Canada. In addition to the CRT-A, the measures of defense mechanisms chosen for inclusion in this study – the Defense-Q (Davidson & MacGregor, 1996) and the MacORDS (MacGregor et al., 2003) – are all contained in a single dataset to which the author was granted access.

Participants

Data were collected from a total of 285 students from a large introductory psychology class at a major Western Canadian university. Participants were predominantly Caucasian (85%) and female (75%). As part of their course curriculum, students were required to complete a number of measures and participate in various research protocols. Measures were distributed and research participation was completed at various times during the academic semester. Throughout the data collection period, participants were treated in accordance with prevailing ethical guidelines (Canadian Psychological Association, 2000). Furthermore, before the current author was granted access to the data, all identifying information was removed from the dataset, and participants were assigned research identification numbers. All data were treated in accordance with APA Ethical Guidelines (American Psychological Association, 2002).

Measures

The Conditional Reasoning Test for Aggression (CRT-A). The Conditional Reasoning Test for Aggression (CRT-A) is a 22-item² inductive reasoning test designed to assess the implicit reasoning biases, or justification mechanisms, that individuals use to rationalize engaging in aggressive or unreliable behaviors as opposed to socially adaptive or reliable behaviors (James, 1998; James & Mazerolle, 2002; James et al., 2005). Response options for the CRT-A are based, in part, on the JMs for aggression described in Chapter 1. Specifically, each item on the CRT-A consists of a set of four multiple-choice response options. Of those four options, two are inductively valid and two are inductively invalid. The invalid, or illogical, response options are included in the response set to enhance the face validity of the CRT-A as a test of reasoning ability. Furthermore, these “distractor” responses were designed to be clearly illogical to individuals with at least a seventh grade reading level, and they are very rarely chosen by respondents (James & McIntyre, 2000; James et al., 2005; LeBreton et al., 2007). As a result, endorsement of five or more illogical responses by any respondent is interpreted as an indicator of an invalid assessment (e.g., the respondent is either incapable of reading at a seventh grade level, or s/he did not take the test seriously by paying careful attention to each question), and that respondent’s data are excluded from future analyses. Of the two inductively valid response options, one is based on reasoning biased by a JM for aggression, whereas the other is based on neutral or prosocial reasoning (see Figure 4 for a sample item from the CRT-A).

² The CRT-A is actually composed of 25 items, but only 22 of those items are true conditional reasoning problems (i.e., the response options consist of two illogical responses, one logical response based on JMs for aggression, and one logical response based on neutral/prosocial reasoning). The remaining three items (i.e., items 1, 2, and 6) are pure, or non-conditional, reasoning problems that are included in the CRT-A to enhance the face validity of the test as a measure of reasoning ability.

3. Joe is usually on time for work and for meetings with his boss and clients. He is also on time for appointments with his doctor, dentist, and priest. However, Joe is always five or more minutes late for meetings with Bill.

Which of the following is the most logical explanation for Joe being late for meetings with Bill?

- a. Bill gets up later than Joe.
- b. Joe is usually on time for people he respects, so he must not respect Bill.
- c. Joe and Bill are both self-employed.
- d. Joe and Bill are friends, so they don't care about being on time for each other.

Response options a and c are not inductively valid, as they do not follow logically from any information presented in the stem of the item. Response option b is an inductively valid conclusion, and it is considered the 'aggressive' response because it is based on an implicit assumption that tardiness is a way to intentionally show disrespect to others. Response option d is also an inductively valid conclusion, but it is considered the 'non-aggressive' response because it does not indicate an assumption of intent to do harm to another individual.

Figure 4. Sample CRT-A Item and Explanation of Response Options.

SOURCE: James, L. R., & McIntyre, M. D. (2000). *Conditional Reasoning Test of Aggression test manual*. Knoxville, TN: Innovative Assessment Technology.

The twenty-two conditional reasoning problems on the CRT-A are scored dichotomously with “aggressive” responses coded as 1 and “non-aggressive” responses coded as 0. The aggressive responses are summed to arrive at an overall aggression scale score. As a result, the potential range of the scale is from 0 to 22, with higher scores indicating a greater propensity to rely on the JMs for aggression, and therefore to endorse as “logical” those response options associated with rationalizing aggressive behavior. (Reliability and validity information for the CRT-A were discussed in Chapter 1.)

The Defense-Q. The Defense-Q (Davidson & MacGregor, 1996) is an observer-rated idiographic Q-sort measure of defense mechanisms. Trained coders use the Defense-Q to assess individuals’ relative use of 25 defense mechanisms (see Figure 2). In the Defense-Q methodology, defenses are coded from a videotaped sample of behavior from a 15-minute structured interview designed to pose interpersonally stressful and challenging questions (Rosenman, 1978). Coders then use the Q-sort method (Stephenson, 1953) to assess participants’ defense use, sorting each of the 25 defenses into one of seven categories. Specifically, one of the 25 defense mechanisms is classified as *most uncharacteristic* of an individual’s typical defense use (rank = 1), two are classified as *quite uncharacteristic* (rank = 2), five as *somewhat uncharacteristic* (rank = 3), nine as *neither characteristic nor uncharacteristic* (rank = 4), five as *somewhat characteristic* (rank = 5), two as *quite characteristic* (rank = 6), and one as *most characteristic* (rank = 7). Assessment with the Defense-Q, then, yields a profile of relative defense use for each participant assessed (see Appendix A for the coding sheet used to generate Defense-Q profiles).

Davidson and MacGregor (1996) have presented evidence that the Defense-Q can be used to reliably assess the use of individual defense mechanisms. Using Cronbach's alpha and treating coders as items, they reported the average reliability for all 25 defense mechanisms as .73. Although reliability coefficients for the individual defense mechanisms showed a substantial range (i.e., from a low of .28 to a high of .92), the majority of specific defenses to be examined in this study showed acceptable reliabilities (Rationalization, .76; Projection, .75; Grandiosity, .83; Turning Against Others, .87; Identification with the Aggressor, .49; Devaluation, .82; Neurotic Denial, .73). Additionally, Davidson and MacGregor (1996) note that these numbers compare favorably with other existing measures of defense mechanisms, such that even those defenses with lower reliabilities (e.g., Identification with the Aggressor) are assessed with the Defense-Q as well as, or better than, with other available measures.

The Defense-Q has been validated against other measures of defense mechanisms, and it has been used to predict major health and psychosocial outcome variables. Research that compares the Defense-Q to other observational measures of defense mechanisms is not yet available (Davidson & MacGregor, 1996). However, studies suggest that scores derived from measurement with the Defense-Q relate significantly, and in the expected directions, with two commonly used self-report measures of defense mechanisms (i.e., the Defense Style Questionnaire [DSQ; Bond, 1992, 1995] and the Defense Mechanisms Inventory [DMI; Gleser & Ihilevich, 1969; Ihilevich & Gleser, 1995]; MacGregor & Olson, 2005). Furthermore, scores derived from the Defense-Q have been shown to significantly predict aspects of mental health, physical health, and psychosocial adjustment (e.g., Davidson, MacGregor, Johnson, Woody, & Chaplin, 2004;

MacGregor, Davidson, Barksdale, Black, & MacLean, 2003; MacGregor, Davidson, Rowan, Barksdale, & MacLean, 2003; MacGregor & Olson, 2005).

The MacGregor Observer Report Defense Scale (MacORDS). The MacGregor Observer Report Defense Scale (MacORDS; MacGregor et al., 2003) is an observer-rated normative measure of 26 defense mechanisms (i.e., it is used to assess the 25 defenses defined in relation to the Defense-Q, plus a twenty-sixth defense known as Somatization³). As with the Defense-Q, the MacORDS is used to code defenses from a videotaped sample of behavior from an interpersonally stressful 15-minute structured interview (Rosenman, 1978). However, instead of using Q-sort methodology to classify and rank the defenses, trained coders use a 5-point Likert-type scale to rate each participant on their use of each defense mechanism included in the measure (see Appendix B for the coding sheet used to generate MacORDS ratings).

Although the MacORDS is a new measure, MacGregor and colleagues (MacGregor et al., 2003; Olson, MacGregor, et al., 2004) have conducted initial investigations into the reliability and validity of the test. For example, treating coders as items, they reported reliabilities for the assessment of individual defenses ranging from .17 to .85 (average reliability across all defenses was .58). Although this overall reliability is somewhat low, it is within acceptable range for measures in development (MacGregor et al., 2003). Additionally, the MacORDS has shown significant and theoretically expected relations with other measures of defenses (e.g., the DSQ) and with

³ Vaillant (1992) provided several appendices detailing other authors' "assessment schemes" for defense mechanisms, including definitions for the defenses assessed. He notes that the American Psychiatric Association (1987) defines Somatization as, "A mechanism in which the person becomes preoccupied with physical symptoms disproportionate to any actual physical disturbance", whereas Meissner (1980) defines Somatization as, "Defensive conversion of psychic derivatives into bodily symptoms".

various psychosocial outcomes (e.g., anxiety, depression, drug use, etc.; Olson et al., 2004).

Procedure

Hypothesis 1a. Hypothesis 1a predicted that use of Rationalization as a defense mechanism would be significantly positively related to overall scale scores on the CRT-A. This hypothesis was tested with two different strategies. First, the average Defense-Q ranking for Rationalization was dichotomized such that: (a) Values greater than 4 (i.e., indicating that the defense was previously classified as either *somewhat characteristic*, *quite characteristic*, or *most characteristic*) were set equal to 1, indicating the presence of Rationalization in an individual's typical repertoire of defense mechanisms; and (b) values less than 4 were set equal to 0 (i.e., indicating that the defense was previously classified as either *most uncharacteristic*, *quite uncharacteristic*, *somewhat uncharacteristic*, or *neither characteristic nor uncharacteristic*), indicating that Rationalization was not present in an individual's typical defensive repertoire. With groups thus established based on the presence or absence of Rationalization in the Defense-Q profile, an ANOVA was performed to test for significant between-group differences in overall CRT-A scores. Next, in a second test of Hypothesis 1a, data from the MacORDS were used to assess the degree to which use of Rationalization would predict overall CRT-A scores. Specifically, the average MacORDS score for Rationalization was used as the independent variable in a linear regression analysis, where total CRT-A score was the dependent variable.

Hypothesis 1b. Hypothesis 1b predicted that use of Rationalization as a defense mechanism would be significantly and positively related to scores on each keyed CRT-A

item. This hypothesis was also tested with two different strategies. First, the average Defense-Q ranking for Rationalization was dichotomized as described above to create groups based on the presence or absence of Rationalization in the Defense-Q profile. With groups thus established, a MANOVA was performed to test for significant between-group differences in item-level means for the 22 keyed CRT-A items. Second, the average MacORDS score for Rationalization was used in a standard correlation analysis to assess the strength and direction of its relationship with each keyed item on the CRT-A.

Hypothesis 2a. Hypothesis 2a predicted that use of each of the following defense mechanisms would be significantly positively related to overall scale scores on the CRT-A: Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, Devaluation, and Neurotic Denial. This hypothesis was tested with two different strategies. First, the average Defense-Q ranking for each defense mechanism under investigation was dichotomized just as Rationalization was dichotomized in tests of Hypotheses 1a and 1b. With groups thus established based on the presence or absence of each particular defense mechanism in the Defense-Q profile, a series of ANOVAs was performed to test for significant between-group differences in overall CRT-A scores for each specific defense mechanism. Next, in a second test of Hypothesis 2a, data from the MacORDS were used to assess the degree to which use of each of those defense mechanisms would predict overall CRT-A scores. Specifically, the average MacORDS scores for Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, Devaluation, and Neurotic Denial, were each used in turn as the independent

variable in a series of linear regression analyses, where total CRT-A scores were the dependent variables.

Hypothesis 2b. Hypothesis 2b predicted that use of each of the following defense mechanisms would be significantly related to scores on the CRT-A items that tap the corresponding JM for aggression: Projection (for the hostile attribution bias), Grandiosity (for the potency bias), Turning Against Others (for the retribution bias), Identification with the Aggressor (for the victimization by powerful others bias), and Neurotic Denial (for the social discounting bias). This hypothesis was also tested with two different strategies. First, the average Defense-Q ranking for each defense mechanism in question was dichotomized as described above to create groups based on its presence or absence in the Defense-Q profile. With groups thus established for each defense mechanism, a series of MANOVAs was performed to test for significant between-group differences in item-level means for the CRT-A items that have been shown to load on the corresponding JM-based factors (see Figure 3 for the pattern of item loadings on each JM-based factor). Second, the average MacORDS score for each of those defense mechanisms was used in a standard correlation analysis to assess the strength and direction of the relationship between use of each defense and the CRT-A items that load on the corresponding JM-based factor (see Figure 3).

CHAPTER 3

RESULTS

Of the 285 participants who completed the CRT-A, 15 individuals (5.26%) endorsed five or more of the illogical response options and were thus excluded from all analyses. The overall mean score on the CRT-A was 3.789 ($sd = 2.010$). Although the mean score for males (mean = 4.088, $sd = 2.086$) was slightly higher than the mean score for females (mean = 3.688, $sd = 1.979$), this difference was not statistically significant ($F[1, 268] = 2.023, p = .156$).

Of the 270 participants with valid CRT-A data, 189 had their defense mechanism use rated with the Defense-Q, and 187 had their defense mechanism use rated with the MacORDS. For both the Defense-Q and the MacORDS, Cronbach's alpha was calculated, treating coders as items, to estimate the reliability with which each defense mechanism was assessed. The following reliabilities were observed for the seven defense mechanisms under investigation, as assessed with the Defense-Q: Rationalization (.78), Projection (.44), Grandiosity (.82), Turning Against Others (.68), Identification with the Aggressor (.80), Devaluation (.83), and Neurotic Denial (.72). For the MacORDS, the following reliabilities were observed: Rationalization (.54), Projection (.35), Grandiosity (.74), Turning Against Others (.48), Identification with the Aggressor (.68), Devaluation (.67), and Neurotic Denial (.54). See Table 1 for intercorrelations among defense mechanisms assessed with both the Defense-Q and the MacORDS.

Table 1. Intercorrelations Among Defense Mechanisms Assessed with the Defense-Q and the MacORDS.

	Rationalization	Projection	Grandiosity	Turning Against Others	Identification with the Aggressor	Devaluation	Neurotic Denial
Rationalization	<i>.700***</i>	-.080	.019	.082	-.061	.027	-.222**
Projection	-.080	<i>.443***</i>	.069	.224**	-.103	.065	-.144*
Grandiosity	.150*	.163*	<i>.800***</i>	.233**	.041	.278**	-.116
Turning Against Others	.004	.104	.241**	<i>.638***</i>	-.083	.419**	-.201**
Identification with the Aggressor	.015	-.014	.070	.118	<i>.523***</i>	-.081	.003
Devaluation	.146*	.120	.416**	.473**	.103	<i>.740***</i>	-.053
Neurotic Denial	-.112	-.137	.080	.055	.003	-.095	<i>.721***</i>

Notes: (1) * indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$. (2) Correlations for the Defense-Q are located above the diagonal and are calculated with Spearman's ρ for rank-order data. (3) Correlations for the MacORDS are located below the diagonal and are calculated with Pearson's r . (4) Correlations between Defense-Q and MacORDS data are located on the diagonal, are italicized for greater emphasis, and are calculated with Spearman's ρ .

Hypothesis 1a

Hypothesis 1a, which indicated that use of Rationalization as a defense mechanism would be significantly positively related to overall scale scores on the CRT-A, was not supported. In a first test of Hypothesis 1a, an ANOVA using dichotomized Defense-Q data for Rationalization as the independent variable and total CRT-A scores as the dependent variable was performed. This analysis yielded non-significant results ($F [1, 187] = .668, p > .10, \eta^2 = .004$), indicating that when participants were grouped based on the presence or absence of Rationalization in their typical defense repertoire, there was no statistically or practically significant between-group difference in CRT-A scores. Due to vastly unequal group sizes in this analysis, Welch's approximation of F was also examined, but the results remained non-significant ($F [1, 75.258] = .659, p > .10$). Furthermore, although a slight mean difference was observed in mean CRT-A scores between groups, it was in the direction opposite of what was expected, such that those individuals who *did not* have Rationalization in their Defense-Q profiles showed slightly higher mean scores on the CRT-A (see Table 2 for summary of descriptive and inferential statistics).

In a second test of Hypothesis 1a, a linear regression analysis was performed, using Rationalization scores from the MacORDS as the independent variable and overall CRT-A scores as the dependent variable. This analysis also failed to show support for Hypothesis 1a, as the standardized regression weight for Rationalization was non-significant ($\beta = -0.015, p > .10$) and accounted for essentially none of the observed variance in CRT-A scores ($R^2 = .00$; see Table 3 for summary of all regression analyses).

Table 2. Summary of Descriptive Statistics and ANOVA Results for Defense-Q Data Analyzed for Hypotheses 1a and 2a.

Defense Mechanism		n	CRT-A Mean (sd)	Test of Mean Difference	Effect Size η^2	Observed Power ($\alpha = .05$)
Rationalization						
	Present	143	3.706 (1.957)	F [1, 187] = .668, p = .415	.004	.129
	Absent	46	3.978 (1.983)	Welch's F [1, 75.258] = .659, p = .420		
Projection						
	Present	49	3.918 (2.405)	F [1, 187] = .365, p = .547	.002	.092
	Absent	140	3.721 (1.788)	Welch's F [1, 67.482] = .275, p = .602		
Grandiosity						
	Present	81	4.086 (2.026)	F [1, 187] = 3.683, p = .056	.019	.480
	Absent	108	3.537 (1.887)	Welch's F [1, 165.541] = 3.609, p = .059		
Turning Against Others						
	Present	60	3.867 (2.303)	F [1, 187] = .202, p = .654	.001	.073
	Absent	129	3.729 (1.789)	Welch's F [1, 93.362] = .168, p = .683		
Identification with the Aggressor						
	Present	50	4.320 (1.867)	F [1, 187] = 5.422, p = .021	.028	.639
	Absent	139	3.576 (1.963)	Welch's F [1, 90.625] = 5.686, p = .019		
Devaluation						
	Present	98	4.031 (2.132)	F [1, 187] = 3.574, p = .060	.019	.468
	Absent	91	3.495 (1.728)	Welch's F [1, 183.702] = 3.629, p = .058		
Neurotic Denial						
	Present	134	3.873 (1.901)	F [1, 187] = 1.214, p = .272	.006	.195
	Absent	55	3.527 (2.098)	Welch's F [1, 92.285] = 1.118, p = .293		

Table 3. Summary of Regression Analysis Results for MacORDS Data Analyzed for Hypotheses 1a and 2a.

Defense Mechanism	N	β	p	R^2
Rationalization	187	-.015	.836	.000
Projection	187	.019	.794	.000
Grandiosity	187	.182	.013	.033
Turning Against Others	187	.108	.142	.012
Identification with the Aggressor	187	.125	.087	.016
Devaluation	187	.072	.329	.005
Neurotic Denial	187	-.020	.789	.000

Hypothesis 1b

Hypothesis 1b, which indicated that use of Rationalization as a defense mechanism would be significantly and positively related to scores on each keyed CRT-A item, was not supported. In a first test of Hypothesis 1b, a MANOVA was performed using dichotomized Defense-Q data for Rationalization as the independent variable and scores on the 22 keyed CRT-A items as the dependent variables. Results of this multivariate test were not statistically significant ($F [22, 164] = 1.061, p > .10; \eta^2 = .125$). Univariate tests for each item were also examined, revealing only two items with between-group means that were significantly different at the .05 level (i.e., items 4 and 16); however, these between-group differences in item-level means were in the direction opposite of that hypothesized, such that individuals *without* Rationalization in their Defense-Q profiles showed significantly higher means on those items (see Table 4 for item descriptives and univariate tests).

In a second test of Hypothesis 1b, MacORDS scores for Rationalization were correlated with scores from the 22 individual keyed CRT-A items. This analysis also failed to show support for Hypothesis 1b. Of the 22 correlations examined, only two were at or near significance at the $\alpha = .05$ level (i.e., items 3 and 13); however, one of those significant correlations was in the direction *opposite* of what was expected (i.e., item 13 was significantly negatively correlated with use of Rationalization; see Table 5 for summary of relevant correlations).

Hypothesis 2a

Hypothesis 2a, which predicted that use of each defense under investigation (i.e., Projection, Grandiosity, Turning Against Others, Identification with the Aggressor,

Table 4. Summary of MANOVA results for Defense-Q Data Analyzed for Hypotheses 1b and 2b.

Defense Mechanism	Item	CRT-A Item Mean (sd) Defense Present n = 142	CRT-A Item Mean (sd) Defense Absent n = 45	Mean Difference Test	Effect Size η^2	Observed Power ($\alpha = .05$)
Rationalization	3	.465 (.501)	.356 (.484)	F [1, 185] = 1.653, p = .200	.009	.249
	4	.162 (.370)	.333 (.477)	F [1, 185] = 6.341, p = .013	.033	.707
	5	.049 (.217)	.111 (.318)	F [1, 185] = 2.176, p = .142	.012	.312
	7	.028 (.166)	.044 (.208)	F [1, 185] = .289, p = .592	.002	.083
	8	.063 (.245)	.022 (.149)	F [1, 185] = 1.138, p = .287	.006	.186
	9	.324 (.470)	.356 (.484)	F [1, 185] = .153, p = .697	.001	.067
	10	.106 (.308)	.067 (.252)	F [1, 185] = .592, p = .443	.003	.119
	11	.247 (.432)	.244 (.435)	F [1, 185] = .001, p = .978	.000	.050
	12	.451 (.499)	.422 (.499)	F [1, 185] = .111, p = .739	.001	.063
	13	.190 (.394)	.156 (.367)	F [1, 185] = .272, p = .602	.001	.081
	14	.296 (.458)	.267 (.447)	F [1, 185] = .140, p = .709	.001	.066
	15	.092 (.289)	.133 (.344)	F [1, 185] = .649, p = .422	.003	.126
	16	.063 (.245)	.178 (.387)	F [1, 185] = 5.513, p = .020	.029	.646
	17	.162 (.370)	.133 (.344)	F [1, 185] = .212, p = .646	.001	.074
	18	.042 (.202)	.022 (.149)	F [1, 185] = .377, p = .540	.002	.094
	19	.239 (.428)	.244 (.435)	F [1, 185] = .005, p = .946	.000	.051
	20	.190 (.394)	.244 (.435)	F [1, 185] = .618, p = .433	.003	.122
	21	.007 (.084)	.000 (.000)	F [1, 185] = .316, p = .575	.002	.086
	22	.014 (.118)	.022 (.149)	F [1, 185] = .142, p = .707	.001	.066
	23	.331 (.472)	.378 (.490)	F [1, 185] = .329, p = .567	.002	.088
	24	.127 (.334)	.200 (.405)	F [1, 185] = 1.480, p = .225	.008	.227
	25	.070 (.257)	.067 (.252)	F [1, 185] = .007, p = .932	.000	.051
	Multivariate F [22, 164] = 1.061, p = .395				.125	.785

Table 4. Continued.

Defense Mechanism	Item	CRT-A Item Mean (sd) Defense Present	CRT-A Item Mean (sd) Defense Absent	Mean Difference Test	Effect Size η^2	Observed Power ($\alpha = .05$)
Projection		n = 49	n = 139			
	3	.429 (.500)	.439 (.498)	F [1, 186] = .015, p = .901	.000	.052
	13	.184 (.391)	.180 (.385)	F [1, 186] = .004, p = .953	.000	.050
	16	.061 (.242)	.101 (.302)	F [1, 186] = .682, p = .410	.004	.130
	17	.184 (.391)	.144 (.352)	F [1, 186] = .436, p = .510	.002	.101
	19	.286 (.456)	.230 (.422)	F [1, 186] = .599, p = .440	.003	.120
				Multivariate F [5, 182] = .301, p = .912	.008	.124
Grandiosity		n = 81	n = 108			
	8	.074 (.264)	.046 (.211)	F [1, 187] = .647, p = .422	.003	.126
	11	.296 (.459)	.204 (.405)	F [1, 187] = 2.157, p = .144	.011	.309
	21	.000 (.000)	.009 (.096)	F [1, 187] = .749, p = .388	.004	.138
				Multivariate F [3, 185] = 1.093, p = .354	.017	.292
Turning Against Others		n = 60	n = 129			
	4	.150 (.360)	.225 (.419)	F [1, 187] = 1.422, p = .235	.008	.220
	5	.100 (.303)	.047 (.211)	F [1, 187] = 1.970, p = .162	.010	.287
	7	.050 (.220)	.023 (.151)	F [1, 187] = .948, p = .332	.005	.162
	13	.117 (.324)	.209 (.408)	F [1, 187] = 2.387, p = .124	.013	.336
	17	.167 (.376)	.155 (.363)	F [1, 187] = .041, p = .840	.000	.055
	24	.150 (.360)	.147 (.356)	F [1, 187] = .002, p = .961	.000	.050
				Multivariate F [6, 182] = 1.117, p = .354	.036	.434

Table 4. Continued.

Defense Mechanism	Item	CRT-A Item Mean (sd) Defense Present	CRT-A Item Mean (sd) Defense Absent	Mean Difference Test	Effect Size η^2	Observed Power ($\alpha = .05$)
Identification with the Aggressor		n = 50	n = 139			
	7	.020 (.141)	.036 (.187)	F [1, 187] = .302, p = .583	.002	.085
	8	.080 (.274)	.050 (.219)	F [1, 187] = .585, p = .445	.003	.119
	15	.100 (.303)	.101 (.302)	F [1, 187] = .000, p = .989	.000	.050
	16	.080 (.274)	.094 (.292)	F [1, 187] = .081, p = .776	.000	.059
	22	.000 (.000)	.022 (.146)	F [1, 187] = 1.091, p = .298	.006	.180
	23	.380 (.490)	.324 (.470)	F [1, 187] = .516, p = .474	.003	.110
	24	.180 (.388)	.137 (.345)	F [1, 187] = .542, p = .462	.003	.113
	25	.060 (.240)	.072 (.259)	F [1, 187] = .081, p = .776	.000	.059
				Multivariate F [8, 180] = .450, p = .889	.020	.207
Neurotic Denial		n = 132	n = 55			
	3	.417 (.495)	.491 (.505)	F [1, 185] = .864, p = .354	.005	.152
	9	.303 (.461)	.400 (.494)	F [1, 185] = 1.644, p = .201	.009	.247
	10	.106 (.309)	.073 (.262)	F [1, 185] = .492, p = .484	.003	.107
	11	.227 (.421)	.291 (.458)	F [1, 185] = .842, p = .360	.005	.150
	12	.462 (.500)	.400 (.494)	F [1, 185] = .602, p = .439	.003	.121
	14	.288 (.455)	.291 (.458)	F [1, 185] = .002, p = .967	.000	.050
	18	.038 (.192)	.036 (.189)	F [1, 185] = .002, p = .961	.000	.050
	20	.227 (.421)	.146 (.356)	F [1, 185] = 1.602, p = .207	.009	.242

Table 4. Continued.

Defense Mechanism	Item	CRT-A Item Mean (sd) Defense Present	CRT-A Item Mean (sd) Defense Absent	Mean Difference Test	Effect Size η^2	Observed Power ($\alpha = .05$)
Neurotic Denial, continued	24	.152 (.360)	.127 (.336)	F [1, 185] = .183, p = .669	.001	.071
	25	.068 (.253)	.073 (.262)	F [1, 185] = .012, p = .912	.000	.051
				Multivariate F [10, 176] = .615, p = .800	.034	.314

Table 5. Summary of Correlation Results for MacORDS Data Analyzed for Hypotheses 1b and 2b.

CRT-A Item	Defense Mechanism					
	Rationalization r (p)	Projection r (p)	Grandiosity r (p)	Turning Against Others r (p)	Identification with the Aggressor r (p)	Neurotic Denial r (p)
3	.138 (.061)	.120 (.103)				.023 (.755)
4	-.069 (.350)			.048 (.510)		
5	-.084 (.253)			.114 (.120)		
7	-.040 (.585)			.079 (.281)	-.027 (.717)	
8	.038 (.606)		.073 (.322)		-.059 (.423)	
9	.106 (.149)					-.077 (.297)
10	-.037 (.615)					-.081 (.268)
11	.012 (.872)		.083 (.258)			-.014 (.845)
12	.007 (.922)					.061 (.406)
13	-.168 (.021)	-.082 (.262)		-.112 (.127)		
14	-.008 (.908)					.023 (.754)
15	-.007 (.925)				.004 (.960)	
16	-.052 (.477)	-.011 (.878)			.040 (.590)	
17	.044 (.551)	-.080 (.274)		-.014 (.848)		
18	-.040 (.585)					-.070 (.338)
19	-.017 (.813)	-.015 (.833)				
20	-.073 (.319)					-.023 (.760)
21	.057 (.439)		-.134 (.067)			
22	.099 (.177)				-.089 (.225)	
23	-.087 (.236)				.083 (.261)	
24	.022 (.762)			.040 (.586)	-.017 (.813)	-.027 (.712)
25	.112 (.128)				.137 (.061)	-.090 (.220)

Devaluation, and Neurotic Denial) would be significantly positively related to CRT-A scale scores, was only partially supported. In a first test of Hypothesis 2a, a series of six ANOVAs was performed, with dichotomized Defense-Q data for each defense mechanism used as the independent variable (i.e., forming groups based on presence or absence of the defense in an individual's Defense-Q profile) and overall CRT-A scores used as the dependent variable. For all six defense mechanisms under examination, there were slight between-group differences in mean CRT-A scores in the expected direction (see Table 2 for summary of descriptive and inferential statistics). However, only three of those six defenses showed between-group differences that approached or attained statistical significance, and even those accounted for only a miniscule portion of the variance in CRT-A scores: Grandiosity ($F [1, 187] = 3.683, p = .056, \eta^2 = .019$); Devaluation ($F [1, 187] = 3.574, p = .06, \eta^2 = .019$); Identification with the Aggressor ($F [1, 187] = 5.422, p < .05, \eta^2 = .028$). Between-group differences in CRT-A scores for the remaining three defense mechanisms did not approach statistical or practical significance: Projection ($F [1, 187] = .365, p > .10, \eta^2 = .002$); Turning Against Others ($F [1, 187] = .202, p > .10, \eta^2 = .001$); Neurotic Denial ($F [1, 187] = 1.214, p > .10, \eta^2 = .006$).

In a second test of Hypothesis 2a, a series of linear regression analyses was performed, using MacORDS scores for each relevant defense mechanism as the independent variable and overall CRT-A scores as the dependent variable. This set of analyses also yielded only partial support of Hypothesis 2a, as only one of the six defense mechanisms under examination – Grandiosity – showed a significant standardized regression weight ($\beta = 0.182, p = .01, R^2 = .033$). Results were non-significant for each of

the other five defense mechanisms: Projection ($\beta = 0.019, p > .10, R^2 = .000$); Turning Against Others ($\beta = 0.108, p > .10, R^2 = .012$); Identification with the Aggressor ($\beta = 0.125, p > .05, R^2 = .016$); Devaluation ($\beta = 0.072, p > .10, R^2 = .005$); Neurotic Denial ($\beta = -0.020, p > .10, R^2 = .000$; see Table 3 for summary of all regression analyses).

Hypothesis 2b

Hypothesis 2b, which indicated that use of each defense mechanism in question (i.e., Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, and Neurotic Denial) would be significantly and positively related to scores on CRT-A items that tapped the corresponding JMs for aggression, was not supported. In a first test of Hypothesis 1b, a series of MANOVAs was performed, using dichotomized Defense-Q data for each defense mechanism as the independent variable and scores on the relevant CRT-A items as the dependent variables (see Figure 3 for factor loading pattern from James et al., 2005, factor analysis). None of the results were statistically significant, either at the multivariate level or the univariate level (see Table 4): Projection (for items 3, 13, 16, 17, and 19; $F [5, 182] = .301, p > .10, \eta^2 = .008$); Grandiosity (for items 8, 11, and 21; $F [3, 185] = 1.093, p > .10, \eta^2 = .017$); Turning Against Others (for items 4, 5, 7, 13, 17, and 24; $F [6, 182] = 1.117, p > .10, \eta^2 = .036$); Identification with the Aggressor (for items 7, 8, 15, 16, 22, 23, 24, and 25; $F [8, 180] = .450, p > .10, \eta^2 = .020$); and Neurotic Denial (for items 3, 9, 10, 11, 12, 14, 18, 20, 24, and 25; $F [10, 176] = .615, p > .10, \eta^2 = .034$).

In a second test of Hypothesis 2b, MacORDS scores for Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, and Neurotic Denial, were correlated with scores on the CRT-A items that have been shown to tap each

corresponding JM-based factor. Of the thirty-two correlation coefficients examined, none were significant at the .05 level. Thus, Hypothesis 2b also received no support from this second series of analyses (see Table 5 for summary of relevant correlations).

CHAPTER 4

DISCUSSION

Overall, results of this study were not largely supportive of the hypotheses that were presented. Although the CRT-A was shown to align neatly with the theory behind defense mechanisms, the data presented in this paper do not provide a great deal of support for the specific relationships between defense mechanisms and JMs for aggression that have been posited by James and colleagues (James et al., 2005) and by the current author. In particular, the defense mechanism known as Rationalization was not shown to relate meaningfully to scale scores on the CRT-A, or to individual items on the CRT-A. Furthermore, of the remaining six defense mechanisms that were examined, only three (i.e., Grandiosity, Identification with the Aggressor, and Devaluation) showed any hint of a relation to CRT-A scale scores, and none of them related meaningfully to theoretically relevant CRT-A items.

Reconsidering the Role of Defense Mechanisms in the CRT-A

Rationalization

James and colleagues (James et al., 2005) have indicated that the defense mechanism known as Rationalization is influential in the use of JMs for aggression. Additionally, the current author attempted to clarify the nature of this influence through a careful comparison of the defining characteristics of each concept. The presumed relationship between Rationalization and the JMs for aggression is well grounded in

theory – a fact that makes the lack of empirical support from this study all the more surprising.

The hypothesized Rationalization–JM link was examined with two different kinds of data and two different analytical strategies (i.e., scale-level and item-level). First, data from the Defense-Q were used to group individuals based on the presence or absence of Rationalization in their typical defensive repertoire. Mean CRT-A scores for each group were then compared, with the expectation that individuals who tended to use defensive Rationalization would also show a greater tendency to use the JMs for aggression, and therefore have higher overall scores on the CRT-A. A one-way ANOVA showed no significant between-group differences. Due to the severely unequal group sizes (i.e., 143 individuals had Rationalization present in their Defense-Q profile, whereas only 46 were in the Rationalization-absent group), Welch’s approximation of F was also examined; however, the results still indicated an inability to reject the null hypothesis of no between-group differences in CRT-A mean scores. Moreover, the slight mean difference that was observed was in the direction opposite of that which was hypothesized, with Rationalizers averaging slightly lower on the CRT-A (mean = 3.706, sd = 1.957) than non-Rationalizers (mean = 3.978, sd = 1.983).

Following this scale-level analysis of CRT-A scores, data from the Defense-Q were also used to determine whether individuals who show characteristic use of defensive Rationalization would show higher CRT-A item-level means as compared to their non-Rationalizing counterparts. Once again, results indicated that the null hypothesis could not be rejected. That is, there were no statistically significant between-group differences in item-level means on the set of CRT-A items as a whole, or on any of the individual

items. Furthermore, although the power to detect a significant mean difference was somewhat low in the first of the aforementioned analyses (i.e., power at the $\alpha = .05$ level was only .129), it was reasonably strong in the multivariate portion of the second analysis (.785).

The second round of tests for the hypothesized Rationalization—JM relationship utilized data from the MacORDS, a normative instrument used to rate the extent to which individuals tend to employ each of several defense mechanisms. To test the scale-level hypothesis that users of defensive Rationalization would show higher mean scores on the CRT-A, overall CRT-A scores were regressed onto MacORDS ratings for Rationalization. Results of this analysis were non-significant ($\beta = -.015$, $p = .836$), and indicated that use of Rationalization as rated with the MacORDS accounted for virtually none of the observed variance in overall CRT-A scores ($R^2 = .00$).

Following this second scale-level analysis of CRT-A scores, data from the MacORDS were used to assess whether individuals who use Rationalization to a greater extent also showed higher CRT-A item-level means. MacORDS scores for Rationalization were correlated with scores on each of the 22 keyed CRT-A items. It was expected that all 22 correlation coefficients would be significant and positive. However, only two of the correlations approached or attained significance at the $\alpha = .05$ level, and of those, one was in the direction opposite of that hypothesized (i.e., item 13 showed a significant negative correlation, indicating that use of Rationalization was inversely related to choice of the JM-laden response option for that item). Furthermore, only 12 of the 22 correlations were in the expected positive direction. Thus, for the fourth time, the

general hypothesis that Rationalization would relate significantly and positively to use of the JMs for aggression was not supported.

In summary, analyses based on data from both the Defense-Q and the MacORDS indicated that use of the defense mechanism known as Rationalization was not related to use of the JMs for aggression as assessed with the CRT-A – either at the overall scale level or at the item level. These null results are surprising given that the JMs for aggression are, by definition, strategies aimed at enhancing the logical or rational appeal of engaging in aggressive behavior. One possible explanation for this lack of significant results is that as a group, the individuals in this sample did not possess a strong motive to aggress. Although James and McIntyre (2000) note that about 12% of the general population seem to possess at least a moderately strong motive to aggress, only 7.7% of the participants in this sample scored in the “aggressive” range on the CRT-A (i.e., 21 out of 270 people selected 7 or more of the JM-laden responses). As noted in an earlier section of this paper, Rationalization may be one of several factors that influence the use of JMs for aggression. An additional factor, and one of perhaps greater importance, is the presence of a strong implicit motive to aggress. Recall that Rationalization, like any other defense mechanism, can operate to help an individual adapt to *any* anxiety-provoking motive or impulse; thus, the use of defensive Rationalization does not in any way imply that an individual is possessed of a strong motive to aggress. Indeed, in the absence of such a motive, one would have no reason to expect that Rationalization would relate empirically to CRT-A scores or individual items.

A second possible explanation for this seemingly antithetical outcome, however, is that JMs may not be influenced by truly *defensive* Rationalization. Although JMs for

aggression clearly involve the creation of excuses to justify engaging in aggressive behavior, these rationalizations may not be as implicit or unconscious as once believed. That is, JM's for aggression may be more closely akin to coping strategies than to defense mechanisms.

Defense mechanisms versus coping strategies. Researchers and scholars in the area of defense mechanisms have tended, at times, to blur the lines between defense mechanisms and coping strategies. This problem is somewhat understandable given that both defense mechanisms and coping strategies are adaptational processes that share a similar goal: "...to relieve stress and perceived adversity" (Cramer, 1998a, p. 919-920). Nevertheless, several characteristics have been proposed to help distinguish between the two concepts, including: 1) Conscious versus unconscious; 2) intentional versus nonintentional; 3) situational versus dispositional; 4) nonhierarchical versus hierarchical; and 5) normal versus pathological. However, Cramer (1998a; 2000) notes that it is only the first two of these features that are critical for making the distinction between defense and coping. In particular, she makes the following defining observations based on those two criteria:

"Coping mechanisms involve a conscious, purposeful effort, while defense mechanisms are processes that occur without conscious effort and without conscious awareness (i.e., they are unconscious). Also, coping strategies are carried out with the intent of managing or solving a problem situation, while defense mechanisms occur without conscious intentionality; the latter function to change an internal psychological state but may have no effect on external reality..." (Cramer, 1998a, p. 921).

To summarize, then, coping strategies may occur when some stressor is recognized (e.g., some conflict, anxiety, or psychological disequilibrium) and a choice is made to change something in the external environment (i.e., outside of the mind) in order to alleviate that stress. Defense mechanisms, on the other hand, occur when the ego acts automatically and unconsciously to alleviate an unrecognized conflict by changing something in the internal environment (i.e., inside the mind).

The finding that defensive Rationalization did not relate empirically to use of JMs for aggression raises the possibility that JMs may not be completely unconscious or implicit, as has been assumed. Rather, JMs for aggression may be conscious means of rationalizing, or making excuses for, aggressive behavior. That is, JMs for aggression may be coping strategies for approaching recognized anxiety or conflict situations (e.g., being insulted by others), as opposed to implicit cognitive strategies for dealing with an unrecognized internal conflict between competing motives (i.e., the motive to aggress versus the motive to see the self and be seen by others as a good and worthy individual).

Examining Additional Defense Mechanism—JM Links

Rationalization was the only specific defense mechanism that James and colleagues (James et al., 2005) mentioned as influential in the general use of JMs for aggression. However, the current author identified several additional defenses that appeared similar in definition and function to the specific JMs for aggression. In particular, one type of ego defense was shown to have parallels with each distinct JM, resulting in the following defense mechanism—JM pairs: Projection—hostile attribution bias; Grandiosity—potency bias; Turning Against Others—retribution bias; Identification

with the Aggressor—victimization by powerful others bias; Devaluation—derogation of target bias; and Neurotic Denial—social discounting bias.

These additional hypothesized relationships were examined with the same pattern of analyses that was used for Rationalization, as discussed above. That is, hypotheses about each defense mechanism—JM pair were tested with two different kinds of data and two different analytical strategies (i.e., scale-level and item-level). However, whereas the scale-level analyses were straightforward, as they simply employed overall CRT-A scale scores as dependent variables, the item-level analyses were somewhat equivocal for two reasons. First, the “aggressive” response options for CRT-A items are not necessarily unidimensional, so any one of those keyed item responses may be based on multiple JMs for aggression. As a result, clean JM-based CRT-A subscales do not exist, and ideal tests of these item-level hypotheses were not possible. Nevertheless, James et al.’s (2005) factor analysis of the CRT-A was used as a proxy guide for examining item-level relationships. Second, the aforementioned factor analysis identified only five latent factors to account for the CRT-A’s data structure, whereas there are six JMs for aggression. Specifically, a factor was identified for each of the six JMs except for the derogation of target bias. As a result, item-level hypotheses were not examined for Devaluation, the defense mechanism that was shown to be similar to the derogation of target bias. In short, the item-level analyses examined in this study were a bit of a long shot to begin with; however, given the preliminary and exploratory nature of this study, it seemed appropriate to examine the data from this perspective, regardless of the less-than-optimal analytic situation.

As mentioned above, the six defense mechanism—JM pairs were examined in a manner identical to the analyses used for Rationalization. That is, Defense-Q data were used to dichotomize individuals based on the presence or absence of each defense mechanism in their typical defensive repertoire, and analyses were conducted to test for mean differences between groups at both the overall scale level and at the item level. Additionally, for the second set of scale-level analyses, CRT-A scores were regressed onto MacORDS scores for each defense mechanism, and for the second set of item-level analyses, correlations were computed between each defense mechanism and the relevant items from the CRT-A, as indicated by the James et al. (2005) factor analytic results.

No significant results were observed for the defense mechanisms known as Projection, Turning Against Others, and Neurotic Denial. ANOVAs with groups based on Defense-Q data indicated that there were no mean differences in CRT-A scores between users and non-users of each of these defenses. Additionally, because there were sizeable differences in cell sizes for those groups, Welch's mean difference test was examined for each analysis; however, none of these tests showed results that differed from the standard F-statistic, and all mean differences – although in the expected direction – were deemed statistically insignificant. Similarly, MANOVAs with groups based on Defense-Q data indicated that there were no significant mean differences at the item level, from the omnibus multivariate perspective or from the individual item perspective. It is noteworthy to add, however, that statistical power was quite low for all of these mean difference tests (power at the $\alpha = .05$ level for detecting a mean difference in overall CRT-A scores was .092 for Projection, .073 for Turning Against Others, and .195 for

Neurotic Denial; for the multivariate tests of item-level means, power was .124 for Projection, .434 for Turning Against Others, and .314 for Neurotic Denial).

Hypothesis tests for Projection, Turning Against Others, and Neurotic Denial also yielded null results when data from the MacORDS were analyzed. Specifically, when CRT-A scale scores were regressed onto MacORDS scores, standardized regression weights were statistically insignificant for all three defense mechanisms. Additionally, in all three cases, the defense mechanism accounted for almost none of the variance in overall CRT-A scores (Projection, $R^2 = .000$; Turning Against Others, $R^2 = .012$; Neurotic Denial, $R^2 = .000$). Furthermore, correlations between the defense mechanism scores and the relevant CRT-A items also failed to support the hypotheses. For Projection, the following pattern of significant item-correlations was expected: Item 3 (negative), item 13 (negative), item 16 (positive), item 17 (positive), and item 19 (positive); however, none of these item-level correlations were statistically significant, and only one of them was in the expected direction (i.e., item 13 showed a non-significant negative correlation with MacORDS scores for Projection, but the other correlations were in the direction opposite of what was hypothesized). For Turning Against Others, the following pattern of significant item-level correlations was expected: Items 4, 5, 7, 13, 17, and 24 (all positive); however, none of these correlations were statistically significant, and only four of the six were in the hypothesized direction (i.e., items 13 and 17 showed non-significant negative correlations with MacORDS scores for Turning Against Others, but the remaining correlations were in the expected direction). For Neurotic Denial, the following pattern of significant item-level correlations was expected: Items 3, 9, 10, 11, 12, 14, 18, 20, 24, and 25 (all positive); however, none of

those correlations were statistically significant, and the majority were in the direction opposite of what was hypothesized (i.e., items 3, 12, and 14 showed non-significant positive correlations with MacORDS scores for Neurotic Denial, while the remaining items showed non-significant negative correlations).

For both Identification with the Aggressor and Devaluation, only a hint of support was attained for the hypothesized relationships. ANOVAs with groups based on Defense-Q data indicated that there was a statistically significant mean difference in CRT-A scores between users and non-users of Identification with the Aggressor ($p = .021$ for the standard F-statistic, and $p = .019$ for Welch's approximation of F), and that the mean difference between users and non-users of Devaluation approached significance ($p = .06$ for the standard F-statistic, and $p = .058$ for Welch's approximation of F); however, the effect size in both cases was exceptionally small (i.e., $\eta^2 = .028$ and $.019$, respectively), despite a moderate amount of power to detect mean differences at the $\alpha = .05$ level (i.e., estimates of statistical power were $.639$ and $.468$, respectively). Nevertheless, a MANOVA with groups based on Defense-Q data for Identification with the Aggressor⁴ indicated that there were no significant mean differences at the item level, from the omnibus multivariate perspective or from the individual item perspective (power at the $\alpha = .05$ level for the multivariate test of item-level means was $.207$).

Similarly, hypothesis tests for Identification with the Aggressor and Devaluation yielded null results when data from the MacORDS were analyzed. Specifically, when CRT-A scale scores were regressed onto MacORDS scores, standardized regression weights were statistically insignificant for both of these defense mechanisms.

⁴ Recall that no item-level hypotheses were made concerning Devaluation, as James et al. (2005) failed to identify a factor in the CRT-A's data structure that corresponded to the derogation of target bias.

Additionally, in both cases, the defense mechanism accounted for almost none of the variance in overall CRT-A scores (Identification with the Aggressor, $R^2 = .016$; Devaluation, $R^2 = .005$). Furthermore, correlations between the MacORDS scores for Identification with the Aggressor and the relevant CRT-A items also failed to support the hypothesized relationship. Specifically, the following pattern of significant item-correlations was expected: Item 7 (positive), item 8 (negative), items 15, 16, 22, 23, 24, and 25 (all positive); however, only one of these item-level correlations even approached significance (for item 25, $r = .137$, $p = .061$), and three of them were in the direction opposite of what was hypothesized (i.e., items 7, 22, and 24 showed non-significant negative correlations MacORDS scores for Identification with the Aggressor, but the other correlations were in the expected directions).

Of all the defense mechanisms under investigation in the current study, Grandiosity is the only one that showed any kind of consistent support for the hypothesized relationships; however, even this degree of support was far from strong and unequivocal. An ANOVA with groups based on Defense-Q data indicated a mean difference in CRT-A scores between users and non-users of Grandiosity that approached statistical significance ($p = .056$ for the standard F-statistic, and $p = .059$ for Welch's approximation of F); however, the effect size was incredibly small (i.e., $\eta^2 = .019$), despite a moderate amount of power to detect a mean difference at the $\alpha = .05$ level (i.e., the estimates of statistical power was .480). Similarly, when overall CRT-A scale scores were regressed onto MacORDS scores for Grandiosity, the standardized regression weight was small, but statistically significant ($\beta = .182$, $p = .013$); however, the defense mechanism accounted for very little of the variance in overall CRT-A scores ($R^2 = .033$).

Despite the slight degree of support from the scale-level analyses with Grandiosity, item-level analyses again failed to show support for the hypothesized relationship. A MANOVA with groups based on Defense-Q data indicated that between users and non-users of Grandiosity, there were no significant mean differences at the item level, from either the omnibus multivariate perspective or from the individual item perspective (power at the $\alpha = .05$ level for the multivariate test of item-level means was .292). Furthermore, when MacORDS scores for Grandiosity were correlated with relevant CRT-A items, results did not show the following pattern of expected item-correlations: Items 8, 11, and 21 (all positive). Of the three correlations examined, none was statistically significant, and only two were in the expected direction; additionally, the one correlation that approached significance was in the direction opposite of what was hypothesized (item 21, $r = -.134$, $p = .067$).

To summarize, analyses of data from both the Defense-Q and the MacORDS showed little support for the notion that use of certain theoretically relevant defense mechanisms would be related to use of corresponding JMs for aggression. In particular, no support was garnered for the item-level hypotheses that use of the defense mechanisms known as Projection, Grandiosity, Turning Against Others, Identification with the Aggressor, and Neurotic Denial, would be related to endorsement of the “aggressive” responses on items from the CRT-A that appear to tap the corresponding JMs for aggression (i.e., hostile attribution bias, potency bias, retribution bias, victimization by powerful others bias, and social discounting bias, respectively). Furthermore, very little support was demonstrated for the hypothesis that use of the defense mechanisms known as Projection, Grandiosity, Turning Against Others,

Identification with the Aggressor, Devaluation, or Neurotic Denial, would be related to total scale scores on the CRT-A (i.e., the total number of JM-laden responses that were endorsed). Although analysis of Defense-Q data showed a slight indication that users of three of those specific defense mechanisms (i.e., Identification with the Aggressor, Devaluation, and Grandiosity) might make more frequent use of the JMs for aggression overall, analysis of MacORDS data only replicated this result for the defense known as Grandiosity. These results are preliminary and equivocal, and they should be interpreted with caution. However, they tentatively point to an alternative explanation of how and why the CRT-A has done such a good job of predicting aggressive behavior.

The CRT-A and the Theory of Threatened Egotism

It was surprising, yet interesting, that Grandiosity was the only defense mechanism examined in this study that showed a somewhat consistent relationship with the CRT-A. Although a traditional and long-held view of aggressive behavior has stated that aggression stems from low self-esteem, a different point of view has emerged over the past decade or so. In particular, Baumeister and colleagues (Baumeister, Smart, & Boden, 1996) provided an exhaustive review of studies on self-esteem and aggressive/violent behavior, and they concluded that there was very little empirical evidence to support the view of low self-esteem as a major cause of aggression. Rather, most evidence seemed to converge on the notion that it is individuals with high levels of self-esteem who are more likely to engage in aggressive or violent behavior. In their theory of threatened egotism, however, Baumeister and others (Baumeister et al., 1996; Bushman & Baumeister, 1998) explicitly note that the link between high self-esteem and aggression is neither simple nor direct.

Baumeister et al. (1996) define egotism as "...favorable appraisals of self and...the motivated preference for such favorable appraisals, regardless of whether they are valid or inflated," and they note that, "Any assumption or belief that one is a superior being, or any broadly favorable assessment of self (especially in comparison with other people), is relevant" (p. 6). The theory of threatened egotism states that individuals with an egotistical view of the self which is unstable, inflated, or tenuous/uncertain, are (a) more likely to encounter, and (b) more likely to be sensitive to, negative evaluations from others. These negative evaluations can take virtually any form and pertain to anything that calls into question or undermines the individual's favorable self-appraisal and/or sense of superiority, resulting in a discrepancy or conflict between internal-/self-evaluations and external-/other-evaluations. In the presence of such a discrepancy, the individual is said to experience threatened egotism, and s/he is faced with a choice of whether to accept the negative evaluation (and be forced to revise and lower the self-appraisal) or to reject the negative evaluation (and therefore maintain the current self-appraisal). In the case of the former, the individual would likely experience negative emotions toward the self, resulting in withdrawal from the situation. However, in the case of the latter, the individual would likely experience negative emotions toward the source of the unfavorable evaluation, resulting in aggression or violence toward that source in an effort to re-assert (i.e., prove) his/her superiority.

Research with the theory of threatened egotism has, thus far, been supportive of the theory and has underscored the notion that it is not high self-esteem in general, but the inflated, unstable high self-esteem characteristic of narcissism that is most strongly associated with aggression. Baumeister and colleagues (Baumeister, Bushman, &

Campbell, 2000) cite the American Psychiatric Association in stating that narcissism is defined by, "...grandiose views of personal superiority, an inflated sense of entitlement, low empathy toward others, fantasies of personal greatness, a belief that ordinary people cannot understand one, and the like..." (p. 27). Thus narcissism, as a more narrowly defined facet of "favorable self-appraisal," helps to emphasize the unrealistically inflated aspect of self-esteem that is believed to be involved in aggression due to threatened egotism. Indeed, a number of empirical studies now exist that have linked narcissism to various kinds of aggressive behavior (e.g., Bushman & Baumeister, 1998; Penney & Spector, 2002; Twenge & Campbell, 2003).

The finding from the current study that the defense mechanism known as Grandiosity showed a significant relationship with the CRT-A is less surprising when considered through the lens of the theory of threatened egotism. Grandiosity as a defense mechanism was defined by MacGregor and Davidson (1998) as the transformation of a threatening or anxiety-providing impulse into a continued sense or assumption of one's own specialness and superiority. As noted in the definition of narcissism provided above, a grandiose self-view is one of the defining characteristics of narcissism, as is a sense of entitlement and specialness that sets an individual apart from (i.e., above) other people. From this point of view, the Grandiosity—CRT-A relationship can be seen to fit with the theory of threatened egotism. Indeed, the theory of threatened egotism may provide a succinct explanation of how and why the CRT-A works to predict aggressive behavior.

Individuals who tend to use Grandiosity as a defense mechanism appear to have a favorable view of self that fits Baumeister et al.'s (1996) criteria for proneness to threatened egotism (i.e., a favorable self-appraisal that is unstable, inflated, and/or

uncertain). Because their self-appraisals tend to be unrealistically inflated, those individuals are likely to be highly sensitive to negative appraisals from others, so that even a slight challenge to their tenuous, yet passionately-held, sense of superiority and dominance – such as the situations encountered in items on the CRT-A – may result in a state of threatened egotism. The frequency with which individuals endorse the JM-laden responses on the CRT-A may be seen as an index of this sensitivity to negative appraisals, such that individuals whose reasoning is more seriously biased by the JMs for aggression are more likely to perceive a discrepancy between internal and external evaluations and thus experience threatened egotism. When faced with threatened egotism, an individual who engages in defensive Grandiosity would be expected to reject the negative external evaluation, experience negative emotions toward the source of the unfavorable evaluation, and engage in aggressive behavior to reaffirm – to the self and to others – that s/he is, indeed, the superior being.

In summary, the theory of threatened egotism (Baumeister et al., 1996) may be a useful framework for explaining and understanding the Grandiosity—CRT-A relationship discovered in the current study, and it may point to an alternative explanation for how and why the CRT-A predicts aggressive behavior. Under James and colleagues' (James, 1998; James & Mazerolle, 2002; James et al., 2005) theoretical conceptualization, the CRT-A predicts aggressive behavior because it indexes the strength of an individual's implicit motive to aggress. That is, the frequency with which an individual endorses the JM-laden responses on the CRT-A is seen as an indicator of how often that individual's motive to aggress is activated and comes into conflict with the motive to see the self as a good and just individual (i.e., how often the individual needs to engage in defensive

processes similar to Rationalization in order to allow expression of his or her motive to aggress without experiencing the stress and anxiety that might accompany conscious knowledge of that motive). However, the lack of a discovered relationship between the CRT-A and Rationalization, coupled with its reasonably consistent relationship with Grandiosity, may indicate that a different sort of process is at work and that the JMs for aggression serve a different purpose. In particular, when considered in terms of the theory of threatened egotism, it is plausible that the CRT-A predicts aggressive behavior because it indexes an individual's sensitivity to discrepancies between self- and other-evaluations. In this conceptualization, endorsement of the JM-laden responses on the CRT-A may be seen as an indicator of an individual's vulnerability to threatened egotism. From this point of view, the role of the JMs for aggression is no longer to facilitate the psychologically "safe" expression of the implicit motive to aggress. On the contrary, for the narcissistic or grandiose individual, the motive to aggress is unlikely to cause a great deal of anxiety, even if it is consciously recognized; instead, it would likely be viewed as further evidence of one's strength and superiority. Rather, from this perspective, the role of the JMs for aggression may be to heighten the grandiose individual's sensitivity to negative evaluations by others, alerting them to the presence of threatened egotism and the need for a definitive – or even proactive – response to prevent a revision or reduction of the self-appraisal.

General Discussion

The main purposes of this paper were to explain the theoretical overlap between defense mechanisms and the CRT-A, and to provide empirical tests of the extent to which the use of various theoretically relevant defense mechanisms is related to use of the JMs

for aggression. The first aim was achieved by providing an overview of both the theory behind defense mechanisms and the theory on which the CRT-A was built. Following this overview, a set of modern definitional criteria for defense mechanisms was used as a framework for integrating the CRT-A with the theory of defense mechanisms. The second aim was achieved through several steps. First, James et al.'s (2005) notion about the impact of defensive Rationalization on the use of JMs for aggression was expanded and explained. Next, each JM for aggression was shown to align with a specific defense mechanism, in addition to Rationalization, that has been described in the literature. Finally, formal hypotheses about these relationships were proposed and tested, allowing tentative conclusions to be drawn about the relationship between a small set of theoretically relevant defense mechanisms and the CRT-A.

Strengths and Limitations

A major strength of this study is that it begins to fill a critical gap in conditional reasoning research by pursuing one of the fundamental goals of scientific psychology: Theory testing. James and colleagues (James, 1998; James & Mazerolle, 2002; James et al., 2005) have published several major works about the CRT-A, and they have refined their theory along the way, making increasingly specific statements about the nature and function of the JMs for aggression it was designed to assess. In particular, these changes culminated in the explicit recognition of the CRT-A's roots in the classical psychological concept of defense mechanisms (James et al., 2005). However, this study represents the first attempt to provide empirical tests of these theoretical relationships by examining the links between defense mechanisms and the JMs for aggression.

A second strength of this study is that it employed two different types of defense mechanism measures. Specifically, defense mechanisms were measured from an idiographic perspective with the Defense-Q, and from a normative or nomothetic perspective with the MacORDS. As a result, the author was able to test each hypothesis twice, which amounted to a built-in replication of each analysis. This two-sided attack essentially allowed a wider empirical net to be cast for the hypothesis tests, which was particularly beneficial in this study given the complete lack of existing research linking the CRT-A with defense mechanisms.

A third strength of this study is that both of the defense mechanism measures employed consisted of observer-reports from multiple trained coders. As discussed in a previous section of this paper, observer-reports may represent one of the most appropriate and theoretically sound methods for measuring defense mechanisms. That is, observer-report instruments tend to side-step the problems that arise when participants are asked to introspect and self-report on mental processes that are believed to be unconscious.

In contrast with the aforementioned strengths, there were also several limitations associated with this study. First, the study employed data from a Canadian student sample. To the current author's knowledge, CRT-A data have never been collected from an entire sample of Canadian participants. Furthermore, no criterion measure was available in the current study, so the author was unable to ascertain whether the CRT-A showed the same degree of predictive validity as is typically seen in U.S. samples (i.e., whether a given score "means" the same thing in a different sample). Although Canada and the U.S. share a border, there are aspects of their respective cultures that differ in ways that could be relevant to beliefs about, perceptions of, and engagement in

aggressive behavior (e.g., frequency of firearm ownership, homicide rates, acceptability of capital punishment – all of which could be seen as outcomes of a society that is more tolerant of violence/aggression, and all of which are higher in the U.S. than in Canada). As a result of these and other cultural differences, there is a possibility that U.S. and Canadian respondents might view items on the CRT-A differently for reasons unrelated to the level of their respective motives to aggress. Nevertheless, the CRT-A mean and standard deviation observed in this study (mean = 3.79, sd = 2.01) was similar to that reported by other researchers reporting data from a comparable sample from the United States (e.g., mean = 3.62, sd = 2.02; LeBreton et al., 2007).

A second weakness of this study is that most of the between-group analyses were based on vastly unequal group sizes. When this occurs, ANOVA is less robust to violations of the assumption of homogeneity of variance. Thus, although there were only two incidents of serious heteroscedasticity (i.e., Levene's test was only significant for Projection and for Turning Against Others), Welch's mean difference test was always performed in addition to the standard ANOVA. However, there were no cases in which Welch's approximation of F led to a different conclusion than the standard F-statistic. This seems to indicate that, while the unequal cell sizes were certainly sub-optimal from an analytic point of view, this issue may not have been the biggest problem with the dataset used in this study.

A third and much more critical weakness in this study was that both defense mechanism instruments showed unacceptably low reliabilities for the measurement of some defenses. As indicated in the Results section, the following reliabilities (calculated with Cronbach's alpha, treating coders as items) were observed with the Defense-Q and

the MacORDS for each defense mechanism included in this study: Rationalization (.78, .54); Projection (.44, .35); Grandiosity (.82, .74); Turning Against Others (.68, .48); Identification with the Aggressor (.80, .68); Devaluation (.83, .67); Neurotic Denial (.72, .54). Perhaps more than anything else, these reliabilities could explain the pattern of results that was seen in the hypothesis tests. Specifically, of all seven defense mechanisms examined, only Grandiosity showed acceptably reliable measurement with both instruments. It cannot be coincidental that Grandiosity was also the only defense for which relatively consistent results were seen. It is likely that measurement error contributed to the null results found for all of the other defense mechanisms.

Directions for Future Research

Future research in this area should aim to correct some of the limitations seen in this study. In particular, it would be useful to utilize measures of defense mechanisms that were not so contaminated with measurement error. Beyond this basic remedial issue, one area for future research is the determination of whether JMs for aggression are truly implicit/unconscious as opposed to conscious and intentional – that is, whether JMs function in a manner that is more similar to defense mechanisms or to coping strategies.

Another potentially fruitful area for future research would be to test the propositions put forth in this paper concerning the theory of threatened egotism (Baumeister et al., 1996). This post-hoc reconceptualization of the CRT-A and the JMs for aggression marks a significant departure from the original theory put forth by James and colleagues (James, 1998; James & Mazerolle, 2002; James et al., 2005). However, it dovetails neatly with recent work in the area of narcissism and aggression (e.g., Bushman & Baumeister, 1998; Penney & Spector, 2002; Salmivalli, 2001; Twenge & Campbell,

2003), and it is therefore difficult – and unnecessary – to dismiss the current findings as pure coincidence, despite the methodological limitations associated with this study.

Conclusion

In conclusion, this study represents the first known attempt to assess the empirical relationships between the CRT-A and various defense mechanisms that appeared to be theoretically relevant to the development and/or use of the JMs for aggression. Although the preliminary nature of this investigation combined with weaknesses in the dataset prevent strong and unequivocal conclusions from being drawn, two tentative conclusions did emerge. First and foremost, despite James and colleagues' (James et al., 2005) statement that the defense mechanism known as Rationalization is influential in the use of JMs for aggression, this relation was not borne out empirically. The lack of a significant discovered relationship between Rationalization and the CRT-A calls into question the means by which the JMs for aggression actually operate and the requisite means by which the CRT-A has been able to predict aggressive behavior. That is, whereas the published theoretical statements about the CRT-A indicate that JMs for aggression are unconscious rationalizations for engaging in aggressive behavior, the current set of findings casts an initial shadow of doubt on this conceptualization. Additionally, the discovery of a relationship between defensive Grandiosity and the CRT-A suggests that Baumeister's theory of threatened egotism (Baumeister et al., 1996) may be able to fill this explanatory gap.

Although this study did not uphold the theoretical proposition that the JMs for aggression are unconscious defensive Rationalizations, the results should not be interpreted as a death knell for the CRT-A. It is important to note that the CRT-A is still a

useful and valid instrument for identifying and screening out aggression-prone job applicants. By bearing the concept of defense mechanisms in mind while developing the CRT-A, James and colleagues were able to create a subtle and innovative indirect measure that predicts aggressive behavior better than many other measures that are available today. For the time being, this is the only statement that can be conclusively made.

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APPENDICES

APPENDIX A

Coding Sheet for the Defense-Q

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Defense-Q Coding

Coder ID number and name	
Coder sex	
Interviewer ID number	
Interviewer sex	
Participant ID number	
Participant sex	
Tape number	

Instructions

Q-sort the 25 defense mechanisms into seven piles with 1, 2, 5, 9, 5, 2, 1, cards in each pile. The cards are sorted according to whether they are characteristic of the individual you are assessing. Once you are finished, record the number of the defense mechanisms in the appropriate spaces below the category headings.

Uncharacteristic	Neither Characteristic nor Uncharacteristic	Characteristic
Most (1), Quite (2)	(9)	Somewhat (5)
Somewhat (5)		Quite (2), Most (1)

Next rate the individual's overall defensiveness, in terms of : 1) how effective the defenses are (in quelling anxiety), 2) the individual's need for defenses (i.e., how much unresolved anxiety is present), and 3) how active are the individual's defenses typically (i.e., is the person generally "defensive" or "non-defensive").

	Low			Medium		High	
Typical effectiveness	1	2	3	4	5	6	7
Typical need for defenses	1	2	3	4	5	6	7
Typical activation	1	2	3	4	5	6	7

Indicate the degree of confidence you have in the accuracy of the ratings you made of this individual at this time.

	Low			Medium		High	
Confidence in rating	1	2	3	4	5	6	7

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APPENDIX B

Coding Sheet for the MacORDS

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MacORDS
(MacGregor Observer Rated Defense Scale)

Coder's ID number and name	
Coder's sex	
Interviewer's ID number	
Interviewer's sex	
Participant's ID number	
Participant's sex	
Study number	
Tape number	

Normative Ratings

	Absent/ Almost Never		Present/ Almost Always	
Sublimation	1	2	3	4
Reaction formation	1	2	3	4
Displacement	1	2	3	4
Dissociation	1	2	3	4
Isolation	1	2	3	4
Splitting	1	2	3	4
Regression	1	2	3	4
Devaluation	1	2	3	4
Humor	1	2	3	4
Identification with the Aggressor	1	2	3	4
Turning against self	1	2	3	4
Projection	1	2	3	4
Pseudoaltruism	1	2	3	4
Acting Out	1	2	3	4
Rationalization	1	2	3	4
Intellectualization	1	2	3	4
Fantasy	1	2	3	4
Psychotic Denial	1	2	3	4
Undoing	1	2	3	4
Passive Aggression	1	2	3	4
Repression	1	2	3	4
Neurotic Denial	1	2	3	4
Grandiosity	1	2	3	4
Turning against others	1	2	3	4
Idealization	1	2	3	4
Somatization	1	2	3	4

VITA

Cheryl Delaine Barksdale was born in Fort Payne, Alabama, on October 11, 1976. She was raised in Section, Alabama, along with her brother Garrett, by her parents Clyde and Donna Barksdale. She attended Section High School in Section, Alabama, and upon her graduation in 1995, she received a full four-year academic scholarship to the University of Alabama in Tuscaloosa, Alabama. She earned her B.S. in Psychology from the University of Alabama in 1999, graduating with Summa Cum Laude distinction. Notably, while completing her baccalaureate degree in Alabama, she worked closely with the individual who would eventually inspire her doctoral dissertation – Dr. Michael Wm. MacGregor. Cheryl enrolled in the Industrial and Organizational Psychology program at the University of Tennessee in Knoxville, Tennessee, in August of 2000. While completing the program and working toward her Ph.D., she put down roots in Knoxville – at least for the time being – and reveled in what the city had to offer. Although she began her dissertation work with Dr. Lawrence R. James, she received her doctorate in December of 2007 under the guidance of Dr. Michael C. Rush. Currently, Cheryl is heavily involved in the Leadership Development Program for the Center for Executive Education at the University of Tennessee, Knoxville. Curiously enough, despite her graduation from two of the biggest football schools in the Southeastern U.S., she has never enjoyed football, and she believes she never will.