

NARRATING HURRICANE KATRINA: IDENTIFYING LINGUISTIC PATTERNS
IN SURVIVORS' TRAUMA ACCOUNTS

by

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Abstract

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by

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An attempt was made to identify characteristic linguistic patterns within a sample of Katrina survivors. Meanwhile, an effort was made to assess the survivors' levels of Referential Activity (RA) and Unresolved Trauma. Though the RA measure has been utilized in several research studies, it has never before been applied to a non-clinical sample of traumatized individuals. This work also aimed to distinguish transcripts coded as "Unresolved" according to the Unresolved Trauma and Loss Scale of the Adult Attachment Inventory (AAI) from transcripts coded as "Resolved" on the basis of linguistic markers. With these multiple objectives in mind, an archival collection of 18 oral history interviews of Hurricane Katrina evacuees was subjected to narrative and linguistic analysis.

The evacuees received predominantly High RA scores (relative to their individual mean RA scores) as they provided their storm accounts. This indicates some degree of absorption in their traumatic recollections. The Unresolved individuals also received overwhelmingly High RA scores, which suggests that RA may play a unique role in

traumatized populations. Rather than serving as a signifier of mental health, High RA may reflect the presence of trauma-related pathology in a traumatized individual.

The evacuees' use of certain linguistic mechanisms also suggested a high degree of psychological immersion in the trauma. Though the extent of traumatic immersion differed between the Resolved and Unresolved evacuees, the linguistic devices used in both sets of transcripts were fundamentally similar. This suggests that the hard categorical distinction usually made between the Resolved and Unresolved classifications might be more fluid than previously thought.

Also, the results of this study demonstrated that attuned listening by clinicians might present a naturalistic method of identifying those survivors who may be at heightened risk for stress-related pathology following trauma. To this end, clinicians should pay special attention to patients' use of linguistic mechanisms (such as the use of sensory imagery, linguistic repetition, metaphors for the trauma, shifts into present tense, shifts into second-person pronouns, heavy use of dialogue, and inclusion of detail). Traumatized individuals who demonstrate excessive use of these mechanisms should be monitored closely for the development of stress-related symptomatology.

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Table of Contents

ABSTRACT	iv
ACKNOWLEDGMENTS	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	ix
CHAPTER I: Introduction	1
CHAPTER II: Review of the Literature	7
Traumatic Experiences	7
Risk Factors and Protective Factors for PTSD	11
Coping Strategies	14
Trauma and Narrative	18
Unresolved Trauma and Loss	26
Trauma and Memory	31
Multiple Code Theory	35
Summary	42
CHAPTER III: Methods	43
Data	44
Procedures	46
Measures	47
Plan for Data Analysis	50

CHAPTER IV: Results	55
Aim 1: Assessment of the Level of Referential Activity (RA) in this Sample of Katrina Survivors	55
Aim 2: Identification of Linguistic Patterns in Katrina Survivors	59
Aim 3: Level of Unresolved Trauma in Katrina Survivors	86
Aim 4: Unresolved Trauma and Language	87
CHAPTER V: Discussion	96
Levels of RA in this Sample of Katrina Survivors	97
Linguistic Patterns Observed in this Population	102
Levels of Unresolved Trauma in this Sample of Katrina Survivors	104
Distinguishing Unresolved and Resolved Transcripts Based on Linguistic Markers	105
Clinical Implications of the Current Findings	110
Limitations and Directions for Future Research	112
Conclusion	116
APPENDICES	119
Appendix A: DAAP Transcription Rules Version 2	117
Appendix B: Demographic Breakdown of the Sample	124
Appendix C: List of Eight Major Groupings and Three Umbrella Categories	125
Appendix D: Comparison of the “Resolved” versus “Unresolved” Transcripts: Breakdown of the Sample	126
REFERENCES	127

List of Tables

Table 1 -- List of Participants' Mean RA (MWRAD) scores	56
Table 2 -- List of Participants' Unresolved Scores	87
Table 3 -- List of Percentage Breakdowns of Exact, Variable, and Non-Contiguous Repetitions	91

Chapter I: Introduction

Trauma seems to be much more than a pathology, or the simple illness of a wounded psyche: it is always the story of a wound that cries out, that addresses us in the attempt to tell us of a reality or truth that is not otherwise available. The truth, in its delayed appearance and its belated address, cannot be linked only to what is known, but also to what remains unknown in our very actions and our language (Caruth, 1996, p. 4).

The Present Investigation

This dissertation examines how traumatic events can interfere with a survivor's ability to provide a coherent account of her experience. Research findings suggest that the ability to narrate a coherent story following a traumatic event is positively correlated with more effective coping and that the lack of this ability is linked to poorer mental health outcomes (e.g., Pennebaker & Susman, 1988; Pennebaker & Seagal, 1999). The chief aim of this study was to identify linguistic patterns in survivors' trauma accounts so that clinicians may provide more effective treatment to at-risk trauma survivors.

A narrative analysis was conducted of an archival collection of 18 semi-structured interviews of individuals displaced by Hurricane Katrina. This sample was well suited for the purposes of this research project for several reasons. Since the interviewees were instructed to follow the leads of the interviewees, these transcripts capture a raw and spontaneous quality. Moreover, the semi-structured interviews were audiotaped and transcribed verbatim, and the unedited transcripts are representative of the evacuees' naturally occurring speech patterns.

My clinical work gave rise to the questions driving this research. For three years I

treated Amanda¹ in twice-weekly psychodynamic psychotherapy. When Amanda entered treatment, she had recently evacuated from New Orleans. Though Amanda was physically unharmed during the storm, her apartment and most of her possessions were destroyed. When treatment commenced, Amanda was exhibiting symptoms of posttraumatic stress disorder (PTSD). She reported trouble focusing and a lack of motivation. Amanda also complained of insomnia and frequent nightmares. Vivid images of rising water haunted her dream life. Amanda said that she felt “fragmented, incomplete, and inadequate.”

Early in the treatment, I was struck by Amanda’s inability to provide a meaningful and coherent account of the trauma. There were temporal gaps in her narrative and she would often remark, “It was all so surreal.” She described feeling numb in the days and weeks following the hurricane. Also, Amanda’s sense of herself as whole and coherent was disrupted; she felt as though a part of her had “died” in the hurricane. Throughout the treatment, Amanda and I mourned this part of herself that she felt to be irrevocably lost.

As the therapy progressed, Amanda’s narrative of the hurricane became markedly more vivid and articulated. She rendered in great detail the various colors of mold that covered her apartment walls following the storm. She also shared evocative images from New Orleans in the storm’s aftermath, such as her sighting of an abandoned boat in the middle of a cemetery. The shifts that I observed in Amanda’s storm-related narrative led me to wonder more generally about the effects of trauma on patients’ linguistic styles. I began to speculate about whether characteristic alterations in speech might serve as

¹ All identifying information has been altered.

prognostic indicators.

The Hurricane Katrina transcripts were examined in an attempt to identify characteristic linguistic patterns. Meanwhile, the Katrina survivors' levels of Referential Activity (RA) and Unresolved Trauma were assessed. This work also aimed to distinguish transcripts coded as "Unresolved" according to the Unresolved Trauma and Loss Scale of the Adult Attachment Inventory (AAI) from transcripts coded as "Resolved" on the basis of linguistic markers. This exploratory study relied on a mixed quantitative / qualitative design.

A Brief History of Hurricane Katrina

When Hurricane Katrina devastated the American Gulf Coast in August 2005, it left behind a disaster imprint as large as Great Britain (Galea, Brewin, Gruber, Jones, King, King, McNally, Ursano, Petukhova & Kessler, 2007) and resulted in the most costly natural disaster in United States history (Bacon, 2005). The toll that Katrina exacted cannot be measured only by the amount of dollars spent in rescue and repair (estimated at 100 billion dollars), but also by loss of life and by the psychological impact on its survivors (Grunfeld, 2006). Approximately 1,000 individuals died as a result of the storm, and 500,000 others were displaced (Rosenbaum, 2006). These displaced individuals displayed a high incidence of stress-related symptomatology in the aftermath of the trauma (Galea et al., 2007). PTSD was the most common form of psychopathology found in survivors of Hurricane Katrina, though many survivors presented with comorbid disorders (Galea et al., 2007).

Levees designed to protect the inhabitants of New Orleans failed and caused the city to flood. Close to 100 miles of coastal homes were destroyed and approximately 80% of New Orleans was flooded with up to 20 feet of water (Weems, Watts, Marsee, Taylor, Costa, Cannon, Carrion, & Pina, 2007). Hurricane Katrina prompted a diaspora of sorts; tight-knit families and communities were fragmented as individuals were forced to scatter to various locales around the country. While some individuals returned home, many permanently relocated to other areas. The United States has rarely seen such a massive exodus following a natural disaster (Tucker, Pfefferbaum, Khan, Young, Aston, Holmes, Coon, & Thompson, 2008).

Those who were able to evacuate headed north or towards Texas (Spence, Lachlan, & Burke, 2007). These displaced people were typically relocated for an uncertain length of time -- they did not know when they could return home or even whether their homes were still standing (Spence et al., 2007). The individuals who did not evacuate (either by choice or because they were unable to leave) congregated in the Superdome and Convention Center or were bussed to temporary relief shelters (Spence et al., 2007). Those who found themselves in harm's way were exposed to a wide range of stressors, including material losses, loss of employment, and disrupted social support networks (Galea et al., 2007). Numerous survivors saw dead bodies floating in the floodwaters.

The widely documented inept response of the federal government presented an additional stressor for those affected by the hurricane. Given that many survivors felt betrayed by the government, Katrina can be viewed not only as a disaster trauma but also as a relational trauma. Part of my motivation for embarking on the present investigation

was to provide survivors with an opportunity to have their voices heard.

Synopsis of the Literature Review

The relevant literature will be reviewed in the following chapter. The introductory part of this review will outline the diagnostic criteria for PTSD and will define the term, “trauma.” This section will also explain how an individual’s biological stress response system can become permanently altered as a result of chronic hyperarousal.

Common risk factors that have been linked to the development of PTSD will be identified in the second part of the review. These risk factors include the extent of disaster exposure, resource loss, and demographic variables. The third section of the review depicts coping styles that have been associated with resiliency, such as agentic and flexible coping. Maladaptive coping styles such as avoidance and rumination will also be discussed.

The fourth section of the review will focus on the ways that individuals’ narratives may be disrupted as a result of trauma. The potential role of dissociation in narrative disruption will also be explored. The fifth part of the review will briefly describe the origins of the Unresolved Trauma categorization. The linguistic indicators of Unresolved Trauma will be compared to the linguistic indicators of PTSD. The similarities between these two constructs will be underscored and the question of whether Unresolved Trauma is distinct from PTSD will be raised. Parallels between Unresolved Trauma and dissociative phenomena will also be highlighted.

The sixth section of the review will investigate the role of memory for traumatic events. The quality of traumatic memories will be examined and the integrative function of flashbacks will be explored. The final part of the review will describe Wilma Bucci's (1997) Multiple Code Theory, a theoretical framework for emotional information processing, as it relates to the processing of traumatic events.

Chapter II: Review of the Literature

Traumatic Experiences

Traumatic events tend to have wide-ranging and far-reaching effects. Van der Kolk and McFarlane assert that, “Trauma can affect victims on every level of functioning: biological, psychological, social, and spiritual” (2007, p. 16). Shortly following traumatic events, individuals may experience intense negative emotions, intrusive images, nightmares, helplessness, numbness, and alterations in consciousness (Litz & Roemer, 1996). These reactions tend to be brief, however, and most individuals recover within a short period of time. Some individuals develop more severe and persistent symptoms that may eventually qualify for a diagnosis of posttraumatic stress disorder (PTSD). These disturbance-causing symptoms have been clustered into three categories: 1) intrusive re-experiencing of the trauma; 2) symptoms of hyper-arousal; 3) avoidance of stimuli associated with the trauma and general emotional numbing. If these three symptom clusters persist for more than one month and cause significant distress or social impairment, a diagnosis of PTSD might be warranted according to the revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 2000).

Since traumatic experiences often remain unintegrated into the rest of the individual’s experience, traumatic memories can take the shape of intrusions. These can manifest as “flashbacks” (i.e., the experience of reliving the trauma), intense emotions, somatic sensations, and/or nightmares (van der Kolk & McFarlane, 2007). Years following traumatic experiences, many survivors report that their flashbacks are still as vivid as when the traumas first took place. This finding has led some to describe

traumatic experiences as being “frozen” in time (Herman, 1992). Traumatic experiences set off reverberations in the present that can result in future disturbances. The survivor finds that she is compelled to try to assign meaning to incomprehensible events and to assimilate the experience into her pre-existing views of the self. Caruth (1996) explains:

Trauma is not locatable in the simple violent or original event of the individual’s past, but rather in the way that its unassimilated nature -- the way it was precisely not known in the first instance -- returns to haunt the survivor later on (p. 3-4).

Once trauma victims are exposed to the intrusive recollections of a traumatic event, they often make significant adjustments to their lives in an attempt to avoid the intense emotions that tend to accompany the intrusions. Some individuals might avoid reminders of the trauma, some might begin to abuse substances to help numb their distress, while others might rely on dissociation to keep distressing emotions or memories at bay (van der Kolk & McFarlane, 2007). A trauma victim may also alternate between feeling as though she is reliving the traumatic experience and feeling emotional numbness (Herman, 1992). Herman states that, “The two contradictory responses of intrusion and constriction establish an oscillating rhythm.... [The trauma victim] finds herself caught between the extremes of amnesia or of reliving the trauma, between the floods of intense overwhelming feeling and arid states of no feeling at all” (1992, p. 47). For some, avoidance strategies can become all-encompassing and extend to the individual’s entire emotional life. Some individuals may experience a general numbing of emotional responsiveness so significant that all stimuli generate little response (van der Kolk & McFarlane, 2007). Krystal (1968) describes this reaction as being “dead to the world.”

PTSD may also result in alterations of individuals' stress response systems. Individuals who display PTSD symptomatology tend to show a "sensitized" hyperarousal response (Perry, Pollard, Toi, Baker & Vigilante, 1995). The individual's tolerance for intense affects is lowered and her stress sympathetic response system is triggered more frequently. Perry and colleagues explain that, "everyday stressors that previously may not have elicited any response now elicit an exaggerated reactivity" (1995, p. 278). In other words, even minor stimuli can activate an immediate, extreme reaction in a person with an altered stress response (van der Kolk & McFarlane, 2007). When the stress response has been triggered, the less advanced systems in the brain, such as the brainstem and limbic areas (rather than the frontal cortex systems) become dominant. As a result, abstract thought, concentration, and access to language becomes impaired (Perry et al., 1995).

The autonomic nervous system, mediated by the amygdala, is supposed to alert the individual to the present of a threat (Yehuda, 2002). The brain is able to communicate the magnitude of the threat by releasing excitatory neurotransmitters and firing neurons that correspond to the perceived level of threat (Siegel, 1999). However, when the autonomic nervous system is constantly being set off by minor stimuli, the individual is no longer able to rely on his bodily cues to be an accurate alarm system (van der Kolk, 2007). According to Siegel, "Repeated patterns of intense emotional experiences may engrain chronic alterations in the degree of sensitivity" (1999, p. 248). As a result of this chronic hypersensitivity, the individual may even begin to dread her own physical sensations since these sensations are coupled with fear (van der Kolk & McFarlane, 2007). For van der Kolk & McFarlane (2007), one of the primary treatment

goals for survivors of trauma is to help the individual rediscover a sense of safety within her own body.

Evidence suggests that the longer PTSD symptoms persist, the less important the role of the original trigger becomes when trying to understand the underlying symptomatology (McFarlane & Yehuda, 2007). Once the neurophysiological alterations in the brain become established, the disorder seems to become entrenched. The “kindling model” suggests that affective destabilization leaves a “biological memory” that leaves the individual more vulnerable to future episodes of destabilization (McFarlane & Yehuda, 2007; Yehuda, 2002). The traumatic event sets off a domino effect of biological consequences that are difficult to modify once they become ingrained. Van der Kolk & McFarlane explain, “This new organization of experience is thought to be the result of iterative learning patterns, in which trauma-related memories become kindled; that is, repetitive exposure etches them more and more powerfully into the brain” (2007, p. 8).

What constitutes a “traumatic event”?

The term “trauma” has been defined in various ways, but most definitions emphasize the manner in which noxious experiences overwhelm individuals’ ordinary coping strategies and render them ineffective. The meaning assigned to these events will differ according each person and to the particular traumatic circumstances, but a subjective sense of helplessness and terror tends to be central. Carlson and colleagues (Carlson & Dalenberg, 2000; Carlson, Furby, Armstrong, & Shalae, 1997) argue that the following three components need to be present in order to define an event as “traumatic”: lack of control over the event; perception of the event as highly negative; and the suddenness of the event. (Hurricane Katrina clearly fits these criteria, as it represents an

uncontrollable, sudden event that was experienced as highly negative by the majority of affected individuals.) For the purposes of this paper the term “traumatic experience” will refer to any event that meets the criteria outlined by Carlson and colleagues (1997, 2000).

Risk Factors and Protective Factors for PTSD

According to epidemiological studies, most adults are exposed to at least one potentially traumatic event in their lifetimes (Kessler, Sonnega, Bromet, & Hughes, 1995). Not everyone who is exposed to a traumatic event develops PTSD, however. While the majority of individuals may experience transient symptoms in response to trauma, only a small subset develops severe enough symptomatology to meet criteria for PTSD (Kessler et al., 1995; Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Shalev, 2002). In fact, Bonanno et al. (2006) assert that the majority of individuals display resilience (i.e., little or no symptomatology) in the aftermath of a trauma. There is no consensus among researchers to explain why some individuals exhibit resilience in the face of horrific traumas while others develop stress-related psychopathology in response to seemingly minor events. Vogt, King, & King argue, “There is no ‘magic bullet’ to explain who will and will not develop PTSD” (2007, p.99). However, researchers have succeeded in identifying a number of variables that appear to place an individual at greater risk for PTSD.

Demographic Variables

Many studies have shown that female gender, lack of education, low socioeconomic status (SES), racial minority status, and younger age may predispose an

individual to developing PTSD in response to trauma (Vogt et al., 2007; Bonanno, Galea, Bucciarelli, & Vlahov, 2007; King, Vogt & King, 2004). A recent study suggests that these same demographic factors correlate to susceptibility to PTSD among those affected by Hurricane Katrina (Galea et al., 2007). Minority and low SES individuals are often less prepared for disasters relative to high SES and non-minority individuals. Minority and low SES individuals are more likely to lack financial resources and/or access to transportation, which may place them at greater risk for exposure to natural disasters (Vogt et al., 2007).

The Impact of Disaster Exposure

Several studies conclude that heightened disaster exposure, including physical injury, losses, and threat to life, has been tied to a greater incidence of psychological distress following disasters (Norris & Uhl, 1993; Simeon, Greenberg, Nelson, Schmeidler & Hollander, 2005). Research demonstrates that these same factors held true for individuals affected by Hurricane Katrina (Galea et al., 2007). Also, while the rate of PTSD following the 9/11 attacks was estimated at approximately 6% for the New York metropolitan area, the rates of PTSD were considerably higher among people most directly exposed to the attacks (Bonanno et al., 2006). Bonanno et al. (2006) found that someone who was in the World Trade Center at the time of the attacks was almost twice as likely to develop PTSD compared to those individuals who witnessed the attacks from outside the towers. As direct exposure has been associated with a higher prevalence of stress reactions in response to trauma, the greater incidence of PTSD symptomatology among minority and low SES individuals can be better contextualized.

Resource Loss: Hobfoll's Conservation of Resources Theory

Many theorists and researchers have argued that social and material resources serve as buffers against stress reactions and that the loss of such resources tends to aggravate stress (Lazarus and Folkman, 1984; Holohan & Moos, 1991; Hobfoll 1989, 2002). Studies on the impact of Hurricane Hugo found that resource loss accounted for a higher proportion of psychological stress variance than factors such as anxiety and coping style (Freedy, Shaw, Jarrell, and Master, 1992; Kaiser, Sattler, Bellack & Dersin, 1996). Also, Sattler, Preston, Kaiser, Olivera, Valdez, & Schlueter (2002) found that financial and social resource loss was highly related to acute stress symptoms in individuals affected by Hurricane Georges.

According to Hobfoll's (1989, 2002) "conservation of resources" theory, losses of resources augment stress reactions while gains of resources have a palliative effect on stress. Hobfoll (1989, 2002) uses the term "resources" to refer to material resources, interpersonal resources, and employment resources. Several research studies support Hobfoll's central premise that conservation of resources may lessen the negative impact of disaster (e.g., Koopman, Classen & Spiegel, 1994; Hardin, Weinrich, Weinrich, Hardin & Garrison, 1994; Freedy, Saladin, Kilpatrick & Resnick, 1994; Freedy et al., 1992).

Individuals respond in various ways to environmental stressors that threaten resources. Some may mobilize resources, some may practice avoidance, some may employ effective coping strategies, while others may prove vulnerable to psychological distress and psychopathology (Hobfoll, Johnson, Ennis & Jackson, 2003). According to Hobfoll's theory, individuals who are able to mobilize their resources in the wake of a

disaster are better equipped to manage the disaster's fallout. Individuals who are able to develop new coping skills or experience a greater sense of self-efficacy may exhibit lower levels of distress following trauma (Hobfoll et al., 2003).

Peritraumatic Dissociation

Peritraumatic dissociation -- dissociation during or immediately after a traumatic event -- is also associated with greater trauma-related pathology. Several studies have found that peritraumatic dissociation inhibits recovery and predicts later psychopathology (Koopman et al., 1994; Foa & Rothbaum, 1998; Zoellner, Alvarez-Conrad & Foa, 2002). Peritraumatic dissociation can manifest in a variety of ways. For example, trauma victims frequently report alterations in their perception of time, altered pain perception, out-of-body experiences, and a sense of unreality at the time of the trauma (Zoellner et al., 2002). This disturbance in the encoding and processing of trauma-related memories may hinder later recovery (Zoellner et al., 2002; Krystal, Southwick, and Charney, 1995).

Coping Styles

Maladaptive Coping Styles

Individuals cope in a variety of ways in response to trauma. One common coping strategy is "avoidance" or "distancing," in which individuals "psychologically remove themselves from the event" by avoiding emotions, thoughts, images, and/or sensations tied to the trauma (Hayes, Wilson, Gifford, Follette & Strosahl, 1996). Other avoidant strategies include the following: resignation, distraction, denial, suppression, repression, substance abuse, self-harm, disengagement, dissociation, and suicide (Ottenbreit &

Dobson, 2004). While adaptive at times, a reliance on avoidant strategies becomes problematic when it creates too great a distortion in experience or when it outlives its utility (Hayes et al., 1996).

An individual's choice of language can reveal her preferred coping strategy. For example, people with an avoidant coping strategy tend to use longer words, a greater number of articles, as well as a reduced number of present tense and first-person singular words (Wiener & Mehrabian, 1968; Cohn, Mehl & Pennebaker, 2004). These characteristic language preferences may result in abstract or intellectualized speech -- the immediacy of experience becomes lost or obscured.

Research has found that individuals who rely heavily on avoidance tend to suffer from increased health problems (Pennebaker & Susman, 1988), poorer psychological adjustment (Lutgendorf, Antoni, Ironson, & Klimas, 1997; Workman & La Via, 1987), and longer recoveries from PTSD (Ehlers, Mayou, & Bryant, 1998). In contrast, writing or talking about a traumatic event has been tied to improved physical health (Greenberg, Wortman & Stone, 1996; Pennebaker, 1993, 1997, 2000). Avoidance is not the only coping strategy that is considered largely maladaptive. Over-engagement with traumatic events through ruminations or worry has also been tied to worse psychological and physical health outcomes (Gross, 2002; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002).

Avoidance and over-engagement represent two sides of the same coin. The same thoughts that are vigorously warded off may return to haunt the victim with an even greater intensity (Beevers, Wenzlaff, Hayes & Scott, 1999; Brewin, Dalgleish & Joseph, 1996). The avoided material may ironically re-emerge in the form of intrusive thoughts

and reinforce what Beevers et al. (1999) term the “avoidance-intrusion rumination cycle.” An unrelenting rotation between avoidance and rumination may hinder an individual’s ability to create a meaningful narrative (Beevers et al., 1999). Therapists have been encouraged to help in the creation of meaning rather than reinforce an unproductive, ruminatory cycle (Brewin et al., 1996).

Coping Styles Associated with Resilience

Successful trauma management requires access to a diverse set of coping strategies. Flexible coping responses have been associated with resilience (Mancini & Bonanno, 2006; Bonanno, Papa, Lalande, Westphal, & Coifman, 2004). It does not matter whether an individual relies on avoidance or over-engagement at times, so long as she can adapt her coping responses to the demands of the situation (Mancini & Bonanno, 2006). A study on the impact of the 9/11 terrorist attacks found that flexibility in coping strategies was the best predictor of positive psychological adjustment post-trauma (Bonanno et al., 2004).

Agentic Coping

Research has shown consistently that a diminished sense of control or mastery is linked to psychological disturbance. Conversely, an agentic coping style may buffer the negative psychological effects of traumatic exposure (Kessler, Turner & House, 1988). For example, Capps & Bonanno (2000) found that bereaved individuals who referred to themselves in agentic roles suffered from lower levels of distress. Like avoidant coping styles, passive styles may also be inferred through individuals’ choice of language. Passive style may be communicated in the following manner:

One may use grammatical forms that convey diminished agency, such as *negatives* (“I just couldn’t seem to do it”), *passive constructions* (“the fighting overwhelmed me”), *nominalization of emotions* (“the feelings of betrayal and deceit started up again”), *ellipses* (in which the actor is omitted from the construction: “there was the alcoholism”), and *verbs of necessity* (e.g., “had to” and “got to”) that render behavior as compelled by external forces rather than volition (Capps & Bonanno, 2000, p. 4-5).

Clinical observers have noted that dissociative individuals frequently employ these types of narrative constructions (Capps & Bonanno, 2000).

Positive Emotion

The expression of positive emotion in response to tragedy was once dismissed as a form of denial, but is now viewed as a protective factor that fosters resiliency (Bonanno, 2004; Fredrickson, 1998, 2001; Tugade & Fredrickson, 2004). Smiling and laughter tend to counteract negative emotions (Fredrickson & Levenson, 1998) and are tied to the lessening of distress (Bonanno & Keltner, 1997; Folkman & Moskowitz, 2000; Fredrickson, 1998, 2001). The demonstration of positive emotions post-trauma may also help boost interpersonal resources, as other people may be more likely to aid an openly positive individual (Fredrickson, 2001).

Social Support

Following a trauma, individuals typically turn to others for emotional support and tend to prefer the company of other people who have experienced a similar situation (Gump & Kulik, 1997). This finding helps explain the popularity of support groups for people dealing with illness, the death of a spouse, etc. Individuals with a more substantial network of friends tend to recover more quickly than those lacking in this domain (Cohen & Wills, 1985). At especially high risk for PTSD are those individuals

who refrain from talking to others about a traumatic event while continuing to think about it (Pennebaker & Harber, 1993). Spence et al. (2007) found that Katrina survivors who talked with others following the hurricane experienced less psychological distress compared with people who employed alternative coping strategies. Trauma narratives of individuals who rely heavily on affiliative coping may contain more frequent references to others and include a higher number of second, third, and first person plural pronouns (Pennebaker, Mehl, & Niederhoffer, 2003).

Trauma and Narrative

Why narrative analysis?

Many social philosophers recognize that individuals narrate their life experiences in unique ways (e.g., MacIntyre, 1981; Ricoeur, 1984; McAdams, 2006). According to McAdams, “People make sense of their own lives in terms of self-defining life stories -- integrative narratives of self that reconstruct the past and anticipate the future in such a way as to provide life with identity, meaning and coherence” (2006, p. 109-110). Personal narratives are as distinctive as fingerprints; the form and content of an individual’s life-narrative provides clues to her emotional and mental state. Capps & Bonnanno state the following:

Although narrators may use lexicon to depict the character of an experience, they may simultaneously use grammar that constructs a particular view of themselves in relation to it. Such constructions may not be foregrounded in tellers’ self-concepts and world-views or may even conflict with those articulated in the message content of the narrative. It is crucial to employ analysis of narrative form as well as content to capture perspectives that might not be fully accessible to narrators themselves (2000, p. 18).

A healthy individual is able to weave a coherent and meaningful narrative of her life experiences. On the other hand, psychopathology is often reflected by a person's inability to create a life story that is coherent, meaningful, and/or dynamic in nature (Tuval-Mashiach, Freedman, Bargai, Boker, Hadar, & Shalev, 2004). Immediately following a traumatic event, many people show difficulty in creating a coherent and meaningful story. During natural recovery processes, however, stories become better articulated in the weeks and months following trauma. When the natural recovery process is hindered, more coherent and elaborated narratives may fail to emerge (Tuval-Mashiach et al., 2004).

Self-report questionnaires and narrative analysis can provide access to a person's consciously held beliefs, but only narrative analysis can reveal a person's unconsciously held beliefs. In other words, while self-report questionnaires are often useful in determining the "what" of the person's subjective experience, narrative analysis can also help shed light on the "how" and the "why." When the ways that an individual remembers and constructs her experiences are attended to, both the content of her subjective experience and the ways in which she processes her experience are revealed.

Disruption in the Self-Narrative

Neimeyer defines the self-narrative as an "overarching cognitive-affective-behavioral structure that organizes the 'micro-narratives' of everyday life into a 'macro-narrative' that consolidates our self-understanding, establishes our characteristic range of emotions and goals, and guides our performance on the stage of the social world" (2004, p. 53-4). Individuals lend meaning to their lives by organizing their daily, mundane experiences around recurrent themes (Kelly, 1991). This organizing principle forms the

scaffolding for people's lives and provides them with a sense of continuity (Neimeyer, 2000).

Self-narratives also provide the basic structure for interpersonal relationships; an individual relies on her ability to provide a self-narrative when she shares the events of her day with a loved one or when she tries to uncover the meaning of a distressing event with her therapist. Adherents of the relational school of psychoanalysis (as well as post-modern constructivist theorists) suggest that when people share their self-narratives with others, they are electing them to act as co-authors of their stories (Neimeyer, Herrero & Botella, 2006).

A self-narrative also helps to shape an individual's identity and to transform her sense of self (Bruner, 1990). An individual's self-narrative is not static -- it is constantly being edited and altered, expanded upon and censored. The relationship between an individual and her self-narrative is bidirectional and acts as a feedback loop. Tuval-Mashiach et al. argues:

On the one hand, the story expresses the identity of the narrator; on the other it shapes and influences the transformations of that identity. This is because it is through their stories that individuals come to know themselves or to reveal themselves to others (2004, p. 281).

Trauma disrupts not only the individual's narrative of a traumatic event, but also the narrative of the individual's life story (Wigren, 1994). Disruption in the individual's self-narrative can also result from a dissociative process. According to Neimeyer et al., "The defining impact of the [traumatic] event can install a 'traumatic self' as the nucleus around which the self-narrative develops elaborating subsequent life experiences that are emotionally congruent with it" (2006, p. 132). As a result of this dissociative process, the most disturbing aspects of the traumatic memory may be forgotten. Aspects of the self

that are inconsistent with the dominant self-narrative might also be dissociated, or else an individual might adopt a prevailing view of the self as defective and damaged (Neimeyer et al., 2006).

By excluding facets of the traumatic experience, part of the story is pushed underground. Neimeyer et al. (2006) call this a “silent story” -- one that contains portions of the trauma narrative that contradict aspects of the person’s dominant self-narrative and thus are not easily integrated. For example, a person who viewed her self as invulnerable prior to a traumatic event may show greater disturbance following the trauma in comparison to a victim who previously held no such views. Traumatic events can challenge the belief that the world is a good place and that the self is unassailable (Janoff-Bulman, 1992). It follows that the person who views the world as benign and her self as invulnerable will have more difficulty integrating the traumatic event with her pre-trauma beliefs (Zoellner, Fitzgibbons & Foa, 2001). In these cases, a therapist can promote integration of the traumatic event and encourage the patient to entertain alternative views of the self. By elaborating on aspects of the trauma, the traumatic event may be woven into a new narrative that makes room for unforeseen possibilities as well as a greater degree of coherence (Neimeyer et al., 2006).

The therapist may also aid in recovery by serving as a witness to the patient’s trauma. The therapist as witness may help the patient to contain her painful affect, as well as to properly encode and integrate the traumatic memory (Blum, A. & Pftzing, V., 1997). Jody Davies warns that survivors may be especially likely to split off aspects of the trauma in the absence of such a witness. She says that, “The most powerful testament I can offer [is] to the essential importance of an observing other who bears witness to the

traumatic events and helps to modulate affect states, process information, and verbally encode experience” (1996, p. 206).

Narrative Disorganization and Fragmentation

Over one hundred years ago, psychoanalyst Pierre Janet noted the unique characteristics of trauma narratives. He observed that the traumatic memories told by his patients lacked the logical structure usually found in other types of narratives (Janet, 1925). Many clinical observers since Janet have noticed how traumatic experience can disrupt the predictable grammar of storytelling (Tuval-Mashiach et al., 2004; Foa & Riggs, 1993; Amir, Stafford, Freshman & Foa, 1998).

Moreover, research suggests that individuals with disorganized narratives of traumatic events are more likely to exhibit psychopathology (e.g., Foa & Riggs, 1993; Tuval-Maschiach et al., 2004; Pennebaker & Seagal, 1999). Several studies by Pennebaker and colleagues have shown that the ability to write a coherent story following a traumatic event is positively correlated with better coping and recovery and that the lack of this ability is associated with poorer mental and physical health outcomes (e.g., Pennebaker & Susman, 1988; Pennebaker & Seagal, 1999).

In their studies of rape victims, Amir et al. (1998) found that poorly articulated trauma narratives were associated with worse recoveries and that narrative coherence was linked to a decrease in anxiety and depression. The finding that rape-related memories tend to be poorly articulated is consistent with the hypothesis that trauma memories are less well organized than non-trauma memories. Amir et al.’s (1998) finding also suggests that recovery hinges not only on the creation of a more organized, unfragmented narrative, but also on the creation of a more complex, articulated narrative.

Narrative therapy practitioners have long recognized the importance of repairing a life story that has been disrupted. These clinicians tend to view therapy as a process in which the patient uses the therapeutic space to create a more coherent and meaningful life story (Schafer 1981). Narrative therapists are not the only ones who believe that transformation of the self-narrative should be a major goal of treatment; reformulation of the patient's self-narrative has been considered to be one of the common factors that unify many different schools of psychotherapy (Botella, Herrero, Pacheco & Corbella, 2004).

Clinical studies of PTSD have found that trauma narratives tend to become more organized and coherent as therapy progresses (Foa, Molnar, & Cashman, 1995). According to Foa & Riggs (1993), the recovery process involves organizing and streamlining the traumatic memory; those individuals who do not successfully organize the memory may be more vulnerable to trauma-related difficulties (Feeny & Foa, 2006). On the basis of the available clinical evidence, Zoellner and colleagues conclude that, "The degree to which the trauma victim engages the trauma memory, organizes it and articulates it, and maintains a balanced view about the world and self determine whether natural recovery or therapeutic recovery will take place" (2001, p. 168).

Many researchers have sought to account for this disorganization in trauma narratives. One theory addresses the manner in which autobiographical memories of traumatic events are processed. There is support for the view that autobiographical memories are organized around narrative-like structures (Robinson & Taylor, 1998) and that autobiographical memories for traumatic events are fragmented (i.e., not organized in a coherent manner) (Reisberg & Hertel, 2004). Traumatic memories that are stored in a

fragmented fashion likely hamper an individual's ability to organize and later retrieve the memory (Harvey & Bryant, 1999).

Dissociation may also be tied to disrupted narratives. An individual might dissociate aspects of the traumatic memory in order to manage the intense emotions associated with the memory (Harvey & Bryant, 1999). Studies have demonstrated a relationship between the severity of dissociative symptoms and the level of disorganization of the trauma narrative (Moulds & Bryant, 2005). As treatment progresses and the trauma narrative becomes more coherent and organized, references to dissociation tend to decrease (Moulds & Bryant, 2005; Harvey & Bryant, 1999; van der Kolk & Fisler, 1995).

From a neurological perspective, dissociation is believed to result from a malfunction of Broca's area, a section of the brain that plays a large role in language processing, speech production, and comprehension (Neimeyer et al., 2006). The breakdown of Broca's area creates a rupture between the implicit and explicit memory systems and often leads to the sense of "speechless terror" (Siegel, 1999) that has been reported by many survivors of trauma. More generally speaking, traumatic stress may impair the limbic system of the brain and obstruct the integrative role of the orbitofrontal cortex; these neurological alterations may damage an individual's ability for narrative organization. Once the ability for narrative organization is lost, it becomes difficult for the individual to make sense of the traumatic event as well as to maintain a stable sense of self (Neimeyer et al., 2006).

Distinct Qualities of Trauma Narratives

One way to study the organization and processing of traumatic memories is to analyze verbal accounts of traumatic events by victims. Many studies support the notion that there exist unique trauma narrative characteristics that are indicative of psychological adjustment (Beaudreau, 2007; O’Kearney & Perrott, 2006). For instance, clinical studies have found that during the initial stage of treatment for chronic PTSD, narrative accounts of trauma are characterized by “an abundance of speech fillers, repetitions, incomplete sentences, disorientation of time and space, and general confusion” (Alvarez-Conrad, Zoellner, & Foa, 2001, p. 160).

There is considerable debate about the relationship between traumatic memories and trauma narrative characteristics. Some researchers hypothesize that traumatized individuals will provide shorter narratives about the traumatic event because the toxic effects of stress have rendered them speechless (van der Kolk & Fisler, 1995). Beaudreau (2007) asserts that short trauma narratives may also reflect the use of avoidance or be indicative of an idiosyncratic storytelling style. Other researchers speculate that greater arousal, salience, and rehearsal will result in longer or more detailed trauma narratives compared to narratives of non-traumatic events. Studies of non-clinical populations consistently support this hypothesis (Thompson, Morton & Fraser, 1997; Gray & Lombardo, 2001; Pennebaker, Kiecolt-Glaser & Glaser, 1988; Porter & Birt, 2001). For example, several studies have shown that undergraduate students tend to write significantly longer narratives about a traumatic event relative to narratives about non-traumatic events (Gray & Lombardo, 2001; Pennebaker et al., 1988; Porter & Birt, 2001). It is probable that those who provide an obsessive level of detail

(and provide very long narratives), as well as individuals who are rendered speechless (and provide very short narratives), are more likely to develop PTSD symptomatology.

There is also evidence that trauma narratives often involve a confused sense of time. In a meta-review on trauma narratives and PTSD, O’Kearney & Perrott found “a structural distinction in the temporal aspects of PTSD trauma narratives” (2006, p. 88). Individuals with PTSD often spontaneously shift from past to present tense when providing a narrative of the traumatic event (e.g., Pillemer, Desrochers, & Ebanks, 1998). Moreover, Manne (2002) found that a greater use of past-tense words was associated with fewer PTSD symptoms. The portions of PTSD patients’ trauma narratives identified as flashback memories have been found to contain significantly more present-tense verbs relative to non-flashback memories (Hellowell & Brewin, 2004). Hellowell & Brewin (2004) discovered that flashback sections of trauma memories also contain a greater number of sensory words. In their meta-review, O’Kearney & Perrott (2006) concluded that greater PTSD symptomatology was associated with trauma narratives that contained more somatosensory detail.

Unresolved Trauma and Loss

Coding for Unresolved Trauma

Researchers have found that the linguistic features of individuals with PTSD are also prevalent among individuals classified as Unresolved based on the “Unresolved Trauma and Loss Scale,” a scale that is included in the Adult Attachment Inventory (AAI). The AAI, developed by Main and Goldwyn in 1998, is a 16-question semi-structured interview that asks parents to describe their early experiences with their

caregivers. The interview attempts to elicit themes of separation, loss, feelings of rejection, etc., and is designed to measure the extent to which the parent felt secure as a child in relation to attachment figures (Slade, 2000). Trained raters score the verbatim interview text based on a classification system that aims to differentiate among three predominant attachment styles: secure, dismissing, and preoccupied. Individuals categorized as secure tend to use coherent speech and are usually able to recall specific examples from their childhoods that support their responses, whereas individuals categorized as dismissing or preoccupied tend to use disorganized speech and frequently have trouble providing the rationale behind their responses (Main, 1991).

In addition to being categorized as secure, dismissing, or preoccupied on the AAI, people who have suffered a loss or trauma are also eligible to receive a code of Unresolved. Though the AAI's Unresolved classification is most frequently applied to individuals with histories of childhood abuse, this code may also be assigned to those who have undergone other types of trauma (such as the trauma endured by Katrina evacuees). An Unresolved classification is given to individuals whose descriptions of a traumatic event tend to be disorganized and who tend to lack a stable approach to coping with negative emotions (Hesse, 1999). An individual would not be considered Unresolved for crying while describing the trauma or for stating that the topic is too painful to discuss (Siegel, 1999).

Unresolved individuals are believed to experience a temporary disruption in their attentional system as unintegrated fear connected to the loss or trauma intrudes upon their consciousnesses (Main 1995, 2000). This intrusion of fear may lead to lapses in consciousness or working memory that then translate into disruptions in the individual's

narrative (Hesse & Main, 1999). According to Stovall-McClough, Cloitre, and McClough, “Unresolved interviews are distinguished by sudden linguistic changes... that reflect a momentary disorganization of mental state, in which the individual displays a lack of monitoring of discourse and/or reasoning” (2008, p. 329).

The inability to provide a coherent narrative of the trauma also suggests that the trauma has not yet been integrated into the subject’s experience (Stovall-McClough et al., 2008). This lack of integration may be reflected by the individual’s unusual attention to detail or by signs that the individual harbors unrealistic beliefs regarding the trauma (e.g., the individual feels convinced that her thoughts caused the death of a loved one) (Main & Goldwyn, 1998). Some other indicators of Unresolved trauma include: inconsistencies regarding temporal or spatial aspects of the traumatic event; disturbances in the somatosensory aspects of the traumatic memory; evidence of dissociative processes; failed attempts at denial; inclusion of visual imagery; prolonged silences; abrupt shifts in topic (Stovall-McClough et al., 2008).

Unusual attention to detail and inclusion of visual imagery are theorized to be indicative of intrusive, trauma-related ideation, whereas prolonged silences and abrupt shifts in topic are theorized to result from avoidance mechanisms (Fearon & Mansell, 2001). Hesse & Main (1999) view these linguistic disturbances as mostly circumscribed so that the non-trauma related aspects of the narrative might remain relatively coherent. This means that an individual may be classified as Unresolved with regards to trauma while still receiving a Secure attachment classification (Schuengel, Bakermans-Kranenburg, Van Ijzendoorn, & Blom, 1999).

Unresolved Attachment and Dissociation

Lapses in Unresolved individuals' monitoring of their reasoning processes and their discourse have been linked to dissociative experiences (e.g., Hesse & Main, 2006; Dozier, Stovall, and Albus, 1999; Liotti, 2004). According to Hesse and Main (2006), the intrusion of dissociated memories or flashbacks may cause disruptions in the flow of the individual's discourse. For example, the speaker may enter into a trance-like state of dissociation during which he may pause for long durations or provide extremely detailed descriptions of the traumatic occurrence. Hesse and Main (2006) also assert that lapses in reasoning (e.g., referring to a deceased attachment figure as both dead and alive) may be triggered by the activation of multiple, dissociated processes. Liotti (2004) has also drawn parallels between dissociative processes and Unresolved trauma. She noted that dissociative phenomena, such as fragmented descriptions, trance-like states, and abrupt shifts into child-like modes of speech all bear close resemblance to the linguistic hallmarks of Unresolved trauma.

There is empirical evidence that suggests that Unresolved trauma and dissociative phenomena are positively correlated. Hesse and van Ijzendoorn (1999) found that participants classified as Unresolved displayed significant elevations on Tellegen's Absorption Scale, which measures an individual's proclivity to enter into a dissociative state. In another study, West, Adam, Spreng, and Rose (2001) found Unresolved trauma to be significantly correlated with dissociative symptomatology amongst a population of Unresolved and unclassifiable adolescents. Also, Riggs, Paulson, Tunnell, Sahl, Atkinson, and Ross (2007) found that psychiatric inpatients classified as Unresolved displayed a heightened incidence of PTSD and dissociation.

In addition to being associated with PTSD and dissociative symptomatology, the Unresolved attachment status has also been linked to other forms of psychopathology. Manassis, Bradley, Goldberg, and Hood (1994) discovered that 86% of anxiety-disordered participants were classified as Unresolved. In another study, Hobson and Patrick (1998) found that patients diagnosed with borderline personality disorder (BPD) showed a significantly higher likelihood of being classified as Unresolved than patients with depressive disorders. Also, Fonagy, Steele, Steele, Moran, and Higgitt (1991) found that 76% of inpatient psychiatric patients were classified as Unresolved whereas only 7% of individuals from a control population met criteria for being Unresolved.

Unresolved Trauma and PTSD

As noted earlier, the linguistic characteristics of individuals with PTSD are commonly found among Unresolved individuals. The theoretical underpinnings for PTSD and Unresolved trauma are also similar; like PTSD, Unresolved trauma is thought to result from traumatic experiences that have been encoded and stored in an altered fashion (Stovall-McClough et al., 2008). The intrusions, flashbacks, hypervigilance and avoidance that often accompany a PTSD diagnosis are commonly found in individuals classified as Unresolved (Fearon & Mansell, 2001). Horowitz (1997) asserts that Unresolved trauma and loss should be conceptualized as being located on the continuum of stress response syndromes, since intrusive ideation and avoidance mechanisms are prominent among individuals classified as Unresolved.

The similarities between Unresolved trauma and PTSD raises questions about whether the Unresolved classification is, in fact, a distinct construct. PTSD and attachment researchers may have separately examined the same phenomenon and have

not yet synthesized their findings. A select group of researchers (e.g., Fearon & Mansell, 2001; Lyons-Ruth & Block, 1996; Turton, Hughes, Fonagy & Fainman, 2004) recognize that Unresolved trauma and PTSD may be understood via a similar conceptual framework. Stovall-McClough & Cloitre explain:

Until recently, trauma theory and attachment theory have developed along relatively independent lines. Trauma theory and research have proliferated primarily within a cognitive-behavioral framework, whereas attachment theory and research have flourished within psychodynamic and developmental disciplines. A shared dialogue is needed between these scientific communities (2006, p. 219).

Few empirical studies have examined the potential association between PTSD and Unresolved trauma, and the extant findings are inconsistent. In a recent study of female survivors of childhood abuse, women classified as Unresolved were significantly more likely to be diagnosed with PTSD and to exhibit avoidant symptoms (Stovall-McClough & Cloitre, 2006). Turton et al. (2004) failed to find a significant association between PTSD and Unresolved loss in a sample of pregnant mothers who had experienced a previous miscarriage. It is possible that the traumatic nature of a miscarriage may be distinct unto itself so that the findings from Turton et al.'s (2004) study may not necessarily generalize to other traumatized populations. It is beyond the scope of this study to try to clarify the relationship between PTSD and Unresolved trauma. Future studies need to be conducted in this area.

Trauma and Memory

Narratives for traumatic events may reflect the manner in which the salient event has been encoded. Memories of traumatic events can be amazingly vivid and detailed or

seem sparse and incomplete. The extreme forgetting and remembering noted in trauma victims is manifest in PTSD, where vivid flashbacks are often seen in concert with fragmented or partial trauma memories (Brewin, 2001). These seemingly paradoxical observations can be understood as expressions of the curvilinear effect of stress on memory. While mild to moderate levels of stress may enhance memory, intense or prolonged levels of stress may adversely affect recall (Brewin, 2001).

Memory is enhanced by the release of adrenal hormones and the activated sympathetic nervous system aids the recall of emotionally salient events (Cahill and McGaugh, 1998). In contrast, intense levels of stress are associated with high levels of cortisol that often damage the hippocampus (an important structure involved in memory) and impair recall (Metcalf & Jacobs, 1998). Prolonged hyperarousal may prevent the hippocampus from properly integrating the memory so that incoming stimuli may be stored (and later retrieved) as isolated images or sensations, rather than being retained as a single gestalt (van der Kolk, 2007a).

Dual Trauma Memory Systems

Brewin and colleagues (1996) posit the existence of two types of memory for trauma. The authors suggest that the first type of memory, narrative memory, is tied to the performance of a “verbally accessible memory” (VAM) system that is based in the hippocampus. Memories housed in the VAM system are integrated with other conscious autobiographical memories and can be deliberately retrieved (Brewin et al., 1996). The second type of trauma memory system, the “situationally accessible memory” (SAM) system, is connected to the functioning of the amygdala and performs largely outside of awareness. The SAM system also houses “flashback” memories that, when triggered,

cause the rememberer to feel as though she is reliving the traumatic event in the present (Reynolds & Brewin, 1999). In contrast, the VAM system is able to encode temporal aspects of memories so that a past threat is unlikely to be experienced as a current threat.

The existence of two memory storage systems for traumatic events translates to two forms of memory representations as opposed to just one -- *both* the VAM and SAM systems contain information about the traumatic event (Brewin et al., 1996). Yet conscious or “verbally accessible” memories of the trauma tend to be “vague” and “poorly organized” given that intense stress impairs the functioning of the hippocampus (Brewin, 2001, 161). Since the amygdala is less vulnerable to the damaging effects of stress, the flashback memories housed by the SAM system tend to be more robust. Whether traumatic memory is enhanced or diminished depends largely on which of the two memory systems is being engaged (Brewin, 2001).

From an evolutionary perspective, it makes sense for an individual to retain as much information as possible about a threatening situation so that she will be prepared for future threats. The SAM system is likely to contain more detailed information about the traumatic event for a variety of reasons. First, the conscious VAM system can process only a limited amount of material (much less than the total amount of stimuli entering the senses). On top of this built-in limitation, conscious information processing during trauma is most often narrowly focused on the source of the threat, which precludes the encoding of other information. Finally, as mentioned earlier, intense stress tends to negatively impact the functioning of the hippocampus (Brewin, 2001).

Brewin (2001) argues that the primary function of flashbacks is to transfer the extra information surrounding the trauma from the SAM system to the VAM system. In

order for VAM memories to limit inappropriate fear, they must contain much of the same information that is contained in the SAM system. Under normal circumstances, once the threat has abated, flashbacks will transfer information about the event from the SAM system to the VAM system and these flashbacks will rapidly decline as this information becomes assimilated by the VAM system.

In PTSD, however, the communication between the SAM and VAM systems becomes blocked. Brewin (2001, p. 162) posits that the blockage may result from “too great a discrepancy between the contents of the VAM and SAM systems” or from flashbacks that are so distressing that they need to be avoided. In these cases, the flashbacks of the SAM system will continue to try to transfer information, but the VAM system may fail to properly integrate this information due to its threatening nature. Because of the failure of ordinary memory processing following a traumatic event, it may make sense to primarily consider PTSD a disorder of memory (Brewin, 2001).

In terms of treatment, Brewin (2001) suggests that PTSD patients pay close attention to the content of their flashbacks so that the information they contain becomes incorporated by the VAM system. This approach rests on the belief that greater integration between the VAM and SAM systems will promote recovery among individuals with PTSD (Brewin, 2001). Therapies such as exposure therapy and eye movement desensitization and reprocessing (EMDR) facilitate patients’ recall of previously forgotten details of the trauma. This treatment focus may help account for the reported efficacy of these approaches.

Multiple Code Theory

Bucci's (1997, 2002, 2003) multiple code theory provides a theoretical model for emotional processing and is largely consistent with Brewin's (2001) theory of dual memory systems. Like Brewin, Bucci believes that information is stored in separate neural processing systems that operate in tandem. According to Bucci, however, information is registered in "subsymbolic", "nonverbal symbolic," and "verbal symbolic" modes. Bucci and Brewin also agree that integration among the processing systems is vital. Brewin (2001) posits that flashback memories are the main conduits for integration, while Bucci (1997) asserts that narratives are the vehicles for integration.

Symbolic Processing

Bucci defines symbols as "discrete entities that refer to other entities and that can be combined to generate an infinite variety of new forms" (2005, p. 858). Symbols may be nonverbal (in the form of images), or verbal (in the form of words). Bucci defines nonverbal symbols as "discrete images of objects and events that may occur in all sensory modalities, although vision may dominate our awareness" (2005, p. 858). Nonverbal images may pass through the mind, unbidden, as though watching a reel of film. Words though, are usually subject to intentional control (Bucci, 1997, p. 177).

More than images, Bucci considers words to be the "quintessential symbolic form" since words comprise the narratives that are used to communicate experiences to others (2001, p. 47). Through the creation of vivid, specific and concrete narratives, private imagery can be carried over into the realm of shared language. Discourse

provides the opportunity to transmit the knowledge of the culture and to reflect upon the environment and ourselves (Bucci, 2005).

Subsymbolic Processing

Subsymbolic processing refers to the flow of experience through all motoric and sensory modalities. This type of processing is termed “parallel distributed processing” by cognitive scientists (McClelland, Rumelhart, & Hinton, 1989 as cited in Bucci, 2001). Though it adheres to a different set of rules, the subsymbolic processing system is just as complex as the symbolic system and should be recognized as organized thought despite its nonverbal nature (Bucci, 2002).

Subsymbolic processes are difficult to describe as they take place automatically and usually outside of focused awareness. Subsymbolic processes are at work when playing a sport, practicing an instrument, tasting wine, merging into traffic, or recognizing a familiar face. Bucci states, “We know this [subsymbolic] processing as intuition, the wisdom of the body, and in other related ways. The patient and analyst communicate profoundly in this mode” (2003, p. 545).

Emotion Schemas

Emotion schemas serve as the organizers of our interpersonal experiences (Bucci, 1997). Bucci defines these as “types of memory schemas formed on the basis of repeated interactions with caretakers...from the beginning of life” (2005, p.859). Emotion schemas are the prototypical interactions that serve as templates for our future relationships. Each person’s emotion schemas are unique to them and can be modified by life experience (Bucci, 2005). These schemas can influence the way that others are

perceived and, in turn, how the self is perceived by others. While emotion schemas draw on all aspects of the multiple code system (including nonverbal subsymbolic, nonverbal symbolic, and verbal symbolic elements), emotion schemas are more heavily influenced by sensory and bodily representations.

At the center of each emotion schema is an “affective core” that is largely comprised of subsymbolic sensory, motoric, and somatic representations. Emotion schemas (like all memory schemas) are dynamic; the affective core is continuously sorting diverse emotional experiences into categories (Bucci, 2003). To effectively communicate emotional experience one must use imagery or metaphors that correspond to the activated emotion schema. Emotion schemas are always relational in nature and do not refer to simple emotions such as angry, sad, or happy (Bucci, 2003). Bucci explains, “We do not enter a state called ‘hatred’; rather, we have an intense desire to hurt a particular person who is seen to play a role in a particular scenario” (2005, p. 860-861). Language becomes linked to emotional schemas through the referential process.

The Referential Process

The referential process is the integrative core of the multiple code system. It functions as the mechanism that transforms subsymbolic information into nonverbal information and then into verbal symbols (Bucci, 2001). Bucci defines referential activity as “the capacity to express all manner of nonverbal experience, particularly emotional experience, in verbal form” (1997, p. 185). The referential process usually occurs spontaneously and without effort. Yet people frequently encounter problems when attempting to put words to a new experience or when trying to describe a taste, sound or smell (Bucci, 2003).

Bucci (2001) argues that the referential process provides a way to symbolize emotional experience while maintaining access to corresponding feeling states. The visceral aspects of emotions that are difficult to verbalize can be represented in the imagery contained in the narrative. Bucci (1997) summarizes the three stages of the referential process:

- 1) An emotion schema dominated by subsymbolic processes becomes activated.
- 2) The emotion schema connects to the non-verbal symbolic mode via images and actions.
- 3) The images and actions are described in words.

In the first stage of the referential process (i.e., the “arousal phase”), subsymbolic representations are activated that include somatosensory components. These bodily experiences are accessible before the associated emotional meaning can be acknowledged in symbolic form. During the second stage of the referential process, (i.e., the “narrative phase”), the speaker retrieves specific prototypic images that correspond to emotion schemas. In this phase, the subsymbolic representations are transformed into nonverbal symbolic representations (Bucci, 1997). These representations then become mapped onto language. The speaker can then move into the final phase of the referential process (i.e., the “reflection phase”). She can form associations to her story, alternately relying on images and words and may demonstrate the capacity to reflect upon her experience in a new way. In the context of a therapy session or interview, a mutual process occurs in which the two people build upon the teller’s associations and reflect upon the experience together. The process of verbalizing experience while retaining connection to subsymbolic imagery, allows for potential transformation of experience (Bucci, 1997).

Psychopathology and Healing

The multiple code model can enhance our understanding of health and psychopathology by illustrating the adaptive and maladaptive ways that emotional experiences are processed. According to multiple code theory, psychopathology stems from a rupture in communication between the subsymbolic and symbolic components of the emotion schemas (Bucci, 2001). The rupture in communication usually begins with an attempt at avoidance in response to threatening stimuli. Bucci explains:

Different forms of pathology are determined by dissociation of different levels and degree and by different ways in which the attempts at repair misfire. The process begins with danger, or experience of danger, that is sufficiently powerful or has particular features (e.g., conflictual) so as to lead to arousal that is sufficiently intense (or of a particular nature) as to make the individual unable to acknowledge the source of the danger (2003, p. 548).

In response to a triggering event, an emotion schema is involuntarily activated and is accompanied by somatic changes (e.g., changes in heart rate, blood pressure, respiration, skin response). Individuals may have difficulty tolerating the physiological arousal associated with the activation of the emotion schema and may try to regulate their arousal through means of avoidance (Bucci, 2003). For example, an individual may try to avoid an external, triggering stimulus by trying to escape from the threat. When the triggering stimulus is internal rather than external, the individual may turn her focus away from the thought, image, or memory in an attempt to reduce her anxiety (Bucci, 2003). She may also assign meaning to explain her emotionally aroused state while remaining unaware of the trigger. If avoidance is ineffective or the activating trigger goes unrecognized, she may become symptomatic in the form of developing addictions, eating disorders, somatization disorders, etc. (Bucci, 2003). In this case, the subsymbolic system becomes dissociated from the symbolic system.

Bucci (2002) conceptualizes the therapeutic process as promoting the integration of the two systems of thought so that a steady flow of communication is re-established. Therapeutic repair involves restoring connection to the triggered emotional schema or traumatic event. However, if the dissociated affect becomes too overwhelming, the individual may meet the threat with renewed avoidance. Therapists should gauge their patients' tolerance for negative affect to ensure that the dissociation is gently challenged, rather than reinforced (Bucci, 2002).

The therapeutic process also aims to modify the activated emotion schema so that the individual feels less threatened. In order for an emotion schema to be modified, “bodily representations, present imagery, and representations of the past” must be simultaneously activated (Bucci, 2002, p. 785). In order for change to occur, then, the individual must maintain memories of past and present experiences while being in a physiological state that corresponds to the targeted emotion schema. In effective treatment, the therapeutic process will modulate the emotional meaning that has been assigned to the somatic experiences while altering the corresponding bodily and emotional reactions as well (Bucci, 2003). Bucci explains that, “Subsymbolic processing facilitates activation of an emotion schema with its affective core; verbal intervention facilitates revision of displaced and distorted meaning... Language alone is not sufficient to bring change” (2002, p. 789).

High Referential Activity Speech versus Low Referential Activity Speech

Narratives that are highly vivid and specific are considered to be high in “referential activity” (RA), as they demonstrate a high level of integration between the symbolic and sub-symbolic modes. High RA speech conveys the immediacy of

experience through the use of specific and detailed language that evokes a corresponding feeling in the listener. High RA speech also contains a great amount of sensory detail and evocative imagery -- it may feel to the listener as though the teller is reliving the moment as she assigns words to her experience (Bucci, 1997). In contrast, low RA speech tends to be general, vague, and abstract. A speaker who scores low in RA is unable to convey her meaning to the listener and fails to connect to her own experience (Bucci, 1997).

High RA speech has been typically associated with health. Empirical studies with depressed patients showed that an increase in RA was associated with the remission of depressive symptomatology (Bucci, 1982). Several psychotherapy outcome studies have also demonstrated that patients' rising RA scores are associated with recovery (McMath, 1991; Bucci and Miller, 1993). Meanwhile, in a metaanalysis, Samstag (1996) found that High RA speech was linked to superior cognitive functioning and affective integration. Although many studies have linked High RA with mental health, the role that RA plays in traumatized populations has not been well examined. Some evidence suggests that High RA amongst traumatized individuals might be positively associated with stress-related symptomatology. In her 1995 dissertation, Vida Grayson found that individuals diagnosed with PTSD tended to use High RA speech when recounting their traumatic memories. Grayson's findings intimate that High RA levels in trauma survivors might be more indicative of unhealthy traumatic immersion than of mental health. This possibility will be examined in depth in later chapters.

Summary

Feelings of fear and helplessness often accompany traumatic experiences. While some individuals show resilience in the face of trauma, others may be more vulnerable to the development of stress-related pathology due to the presence of certain risk factors. Individuals who develop PTSD tend to experience changes in their biological stress-response systems; their reactivity threshold is lowered so that even minor triggers may elicit dramatic stress responses. Moreover, traumatic memories are frequently stored and retrieved in an altered fashion so that the trauma is not readily integrated into the survivor's consciousness. This lack of integration may be reflected by the survivor's inability to construct a coherent trauma narrative and by her reliance on distinct linguistic characteristics. This study asserts that attending to the survivor's linguistic patterns can provide insight into the manner in which she is processing the trauma.

Bucci's Multiple Code Theory postulates that individuals process their emotions via the referential process during which emotional data contained in subsymbolic, non-verbal sensations is translated into symbolic language. Pathology stems from a lack of communication between the symbolic and subsymbolic systems. The RA measure indirectly connotes the level of integration between these two systems by assessing the individual's ability to narrate her experiences. High RA speech conveys the immediacy of experience through the use of evocative language, while Low RA speech tends to be more vague and abstract. The presence of High RA speech, which researchers have linked to mental health, indicates that the symbolic and subsymbolic systems are highly integrated. This dissertation aims to clarify the role of RA in trauma survivors, since the relationship between trauma and RA has not been previously well examined.

Chapter III: Methods

Oral history transcription is a powerful tool for preserving the unique, first-hand experiences of people whose stories might otherwise remain unheard or forgotten. The oral history interviewer is trained to ask open-ended questions and to follow the lead of the interviewee. The interviewer aims to create a space in which the authentic feelings and thoughts of the interviewee can spontaneously arise and be captured with minimal interference. This method frequently produces interviews that feel rich in both content and process. Oral history interviews also tend to capture speech that sounds unrehearsed. This “raw” quality makes these interviews an ideal, rarely tapped resource for analyzing individuals’ naturally occurring linguistic patterns. In these senses, oral history interviews are strikingly similar to psychoanalytic interviews.

In this project, a collection of oral history interviews of Hurricane Katrina evacuees was subjected to narrative and linguistic analysis. There were four primary study aims: 1) To assess the level of Referential Activity (RA) in this traumatized population; 2) To identify linguistic patterns observed in the Katrina survivors’ narratives; 3) To describe the level of Unresolved Trauma in this population; 4) To distinguish transcripts coded as “Unresolved” according to the Unresolved Trauma and Loss Scale of the Adult Attachment Inventory (AAI) from transcripts coded as “Resolved” based on the presence of linguistic markers. This exploratory study relied on a mixed quantitative / qualitative design.

Data

In Fall 2005, Dr. Lisa Pruitt, Associate Professor of History at Middle Tennessee State University (MTSU), embarked upon a project entitled, “Narrating Hurricane Katrina through Oral History.” The project was initiated at the request of MTSU Executive Vice President and Provost, Dr. Kaylene Gebert, who authorized the dispersal of supplemental funds to cover project costs. The project aimed to document the experiences of Katrina evacuees who had relocated to the Middle Tennessee region. The interview transcripts and audio files have been made available to the author by Dr. Pruitt and are permanently archived at the Albert Gore, Sr., Research Center at MTSU.

Participants

The participants are 20 English-speaking individuals who were displaced from their homes by Hurricane Katrina and who relocated (either temporarily or permanently) to the Middle Tennessee region. Participants were recruited by word of mouth, which makes this a convenience sample rather than a random sample. All of the interviews were conducted within one year of the hurricane. At the time of the storm, 13 participants were residing in the New Orleans metropolitan area and 7 were living in the affected regions of Mississippi. All of the subjects were forced to evacuate their homes as a consequence of the hurricane. Twelve participants evacuated preventatively, while 8 participants did not evacuate until after the hurricane made landfall.

The sample consists of 8 males and 12 females who ranged in age from 19 to 92, with a mean age of 50.15 years and a median age of 52.50 years (standard deviation is 19.56). The sample is racially diverse and consists of 12 non-Hispanic White individuals

(60%), 7 African-American individuals (35%), and 1 Hispanic individual (5%). Eleven of the participants reported being married (55%), 8 reported being single (40%), and 1 (5%) reported being widowed. Two married couples were interviewed jointly so that 18 transcripts were analyzed. (Appendix B depicts the demographic breakdown of the sample.)

Occupational data can indicate an individual's social position, educational background, and earning potential. Participants' occupations were classified according to the hierarchical Standard Occupational Classification (SOC), a system frequently utilized in national census surveys. The SOC contains a series of eight broad occupational categories that are hierarchically arranged so that Category 1 represents the highest social ranking and Category 8 represents the lowest social ranking. Each major category includes occupations that are similar in terms of the qualifications, experience, and skills required for job performance.

The SOC data suggest that the sample is quite varied in terms of social rankings, educational background, and potential earnings. The sample includes a city administrator, a cashier at Wal-Mart, a medical doctor, a ship's captain, a nursing assistant, a machine operator, and a homemaker. The breakdown of the sample into the SOC major occupational categories is as follows: Category 1 (Managers and Administrators) contains 2 subjects; Category 2 (Professional Occupations) contains 3 subjects; Category 3 (Associate Professorial and Technical Occupations) contains 4 subjects; Category 4 (Clerical and Secretarial Occupations) contains 1 subject; Category 7 (Sales Occupations) contains 2 subjects; Category 8 (Plant and Machine Operatives) contains 1 subject. Retired participants (N = 5) received an SOC code based on their

most recent occupation when this information was available. There were 4 subjects in college at the time of the interviews who were not given an SOC rating. Three additional subjects did not provide occupational data.

Procedures

Data Collection

Gore Center staff and MTSU graduate students conducted the interviews. All interviewers received approximately 3 hours of training in oral history techniques prior to conducting the interviews. All participants consented to be audiotaped and to allow their narratives to become a part of the permanent collection at the Gore Center. The interview guideline questions were designed to be open-ended in order to allow the interviewees as much control over their stories as possible. Though the precise wording of the questions varied according to each interviewer, all participants were asked to talk about the following: their thoughts and feelings leading up to Hurricane Katrina; their experience during the storm; their experience in the aftermath of the hurricane; and their hopes for the future. The interviews were transcribed verbatim from the audiotapes without being subject to editing. Naturally occurring disfluencies were not edited for purposes of readability so that the transcripts are representative of the participants' unaltered narrative predispositions.

Measures

Referential Activity

Referential activity (RA) measures a person's ability to assign words to nonverbal experience (Bucci, 2001). Speech that is High in RA tends to convey the immediacy of experience through the use of detailed language and evocative imagery. High RA speech connotes a high level of integration between the symbolic and sub-symbolic modes (see pages 35-36) and has been associated with mental health (e.g., Connelly, 1994; Samstag, 1996; McMath, 1991; Bucci and Miller, 1993). In contrast, speech that is Low in RA tends to be vague and connotes a low level of integration between the symbolic and sub-symbolic systems (Bucci, 1997).

Bucci has developed systematic procedures for assessing linguistic choices associated with the RA dimension. RA can be reliably hand-scored by trained judges using four rating scales that are conceptually derived from the referential process as outlined by Bucci (1997). RA scales evaluate concreteness, imagery, specificity, and clarity of speech.

- 1) *Concreteness* is based on the degree of perceptual or sensory quality in speech.
- 2) *Specificity* relates to the quantity of details in the description of events, people, etc.
- 3) *Clarity* refers to the clarity of the image as revealed by language.
- 4) *Imagery* relates to the degree to which the language used stirs up a corresponding experience in the reader or listener.

These scales are further elaborated upon in the RA scoring manual (Bucci, Kabasakalian & group, 1992).

RA can also be reliably scored using the Discourse Attribute Analysis Program (DAAP), a computerized text analysis program developed by Bucci & Maskit (2005) for the modeling of RA. In this study, the DAAP was used to assess the RA levels of the Katrina survivors. The DAAP compares each word of a sample text with the words contained by the Weighted Referential Activity Dictionary (WRAD), an empirically derived list of words used for computer modeling of RA (Bucci & Maskit, 2003). The first computerized procedure for measuring RA, the Computerized Referential Activity (CRA) dictionary (Mergenthaler and Bucci, 1999), was primarily designed to aid psychotherapy process research. The CRA dictionary contains a total of 181 words and is subdivided into two separate dictionaries: 1) A CRA High dictionary that contains words most frequently used in High RA speech; 2) A CRA Low dictionary that contains words most frequently used in Low RA speech. The first generation measure has been used successfully in many research studies (Bucci, 2002).

The WRAD is a second-generation computerized RA measure that is more advanced than the CRA. The WRAD assigns weights to the words contained in the dictionary that are proportionate to the RA level of each word. The assignment of weights allows for greater coverage of sample texts and yields a closer correlation to judges' ratings of RA. Details of this weighing procedure can be found in Bucci & Maskit (2005). The WRAD has weights lying between -1 (for words most common in Low RA speech), and +1 (for words most common in high RA speech) (Bucci and Maskit, 2005). This dictionary has been normalized so that an average WRAD weight of zero corresponds to the neutral RA score of 0.50.

To develop the WRAD, trained judges scored a set of sample texts using the four

RA scales (concreteness, clarity, specificity, and imagery). The sample texts included monologues, early memories, Thematic Apperception Test (TAT) responses, and portions of analytic sessions. Each of the assigned scale scores ranged from 0 to 10 and the average of these scores yielded an overall RA score (modeled by the WRAD). The judges achieved inter-rater reliability of at least 0.80 as measured by Cronbach's alpha. RA ratings for both clinical and non-clinical populations were used to develop the WRAD. The data indicate that the processes involved in RA are distinct from verbal and non-verbal abilities as measured by standard intelligence and fluency tests (Bucci, 1984).

The Unresolved Trauma and Loss Scale

In addition to being categorized as secure, dismissing, or preoccupied on the Adult Attachment Inventory (AAI), people who have suffered a loss or trauma are also eligible to receive a code of Unresolved. An Unresolved classification is given to those whose descriptions of a traumatic event tend to be disorganized and who tend to lack a stable approach to coping with negative emotions (Hesse, 1999).

Dr. Christy Paliouras was hired to score the Katrina transcripts based on the scoring criteria of the Unresolved Trauma and Loss Scale. Prior to scoring the Katrina interviews, Dr. Paliouras had attended a two-week training workshop at the Adult Attachment Interview Training Institute. She subsequently completed an 18-month reliability check and was granted certification as a reliable AAI coder (Paliouras, 2009).

Under the current coding system guidelines for the Unresolved Trauma and Loss Scale, interviews are scored on a 9-point scale where a score of 5 is the typical cutoff point that divides the Resolved individuals from the Unresolved individuals (Steele & Steele, 2008). Individuals who receive scores above 5 are automatically classified as

Unresolved. When an individual receives a score of 5 the coder decides whether to classify the individual as Unresolved (Schuengel et al., 1999). (None of the participants in this study received a score of 5.)

For the purposes of this project, interviews did not receive a dominant attachment classification (i.e., secure, dismissing, or preoccupied), but were judged only on whether they fulfilled the Unresolved scoring criteria. Dr. Karlen Lyons-Ruth, an expert on the AAI Unresolved Trauma and Loss Scale, confirmed that the Katrina evacuee interviews lend themselves to this type of analysis and that the Unresolved code may be assigned in the absence of an overall attachment classification (personal communication, July 26, 2008).

Plan for Data Analysis

Aim 1: To Assess the Level of RA in this Sample of Katrina Survivors

To assess the level of RA in this traumatized population, the author formatted the Katrina transcripts according to special rules (see Appendix A) and then entered the transcripts into the DAAP. The DAAP analyzed the transcripts and yielded individual mean RA scores for the 20 study participants. Those 20 individual mean RA scores were entered into SPSS (a statistical analysis software program). The overall sample mean RA score was then calculated using the descriptive statistics function of SPSS.

Also, the DAAP assigned mean RA scores to the individual responses, or turns of speech, contained in each transcript. Typically, 0.5 functions as a neutral RA value so that a turn of speech that receives a mean RA score above 0.5 is considered to be high in RA and a turn of speech that receives a mean RA score below 0.5 is considered to be low

in RA. Because the overall mean RA score for the Katrina sample was 0.54, the large majority of the turns of speech would have been classified as High RA if the neutral value of 0.5 had been used; this would have obscured the relative fluctuations in RA for each person.

Therefore, for the purposes of this research, each person's mean RA score was adopted as the neutral value so that the mean RA score assigned to each turn of speech was being compared against that person's own mean RA score. A turn of speech was categorized as "High RA" if its mean RA score was higher than that person's overall mean RA score or "Low RA" if the turn of speech was assigned a mean RA score lower than that person's overall mean RA score.

Aim 2: To Identify Linguistic Patterns Observed in the Katrina Survivors' Narratives

A qualitative analysis of the interviews was also conducted in order to identify linguistic patterns in the Katrina transcripts. Aspects of the narratives that were examined include the following: the use of linguistic repetition, the use of dialogue, the use of metaphors for the trauma, temporal disruptions, shifts from first- to second-person pronouns, the inclusion of detail, and the use of sensory imagery.

The transcripts were also subject to grounded theory analysis as defined by Strauss and Corbin (1998). Strauss and Corbin (1998) suggest that the researcher conduct a detailed "micro-analysis" of the narrative at the outset of the data analysis in order to elucidate the properties of the emerging categories and themes. During "micro-analysis," portions of the narrative are assigned "substantive codes" that help the researcher conceptualize and classify events, behaviors, and consequences. Strauss & Corbin explain that, "Although microanalysis sometimes is referred to as 'line-by-line'

analysis, the same process also can be applied to a word, a sentence, or a paragraph” (1998, p. 57).

As noted above, grounded theory analysis allows for paragraphs to serve as coding units. Since the data used in this study was originally spoken as opposed to written, the interviewees’ discrete responses, or “turns of speech,” were used as substitutes for grounded theory’s “paragraphs.” This allowed for a parallel analysis with RA in which turns of speech are also used as the unit of coding. The results of an examination of the relationship between the interviewees’ fluctuating RA scores and the ideational content of the interviewees’ turns of speech (based on grounded theory analysis) will be presented in the following chapter.

Once substantive codes were assigned to the interviewees’ turns of speech, the codes were grouped according to their salient properties. This process of synthesizing the codes yielded eight groupings (see Appendix C), which were then subsumed by three umbrella categories. The three umbrella categories that emerged were, Direct Experiences Related to the Storm, Making Sense of the Disaster, and Life Adjustments after the Storm. It was unusual for a single turn of speech to be subsumed by groupings that spanned more than one of these three categories. In these few instances, the turn of speech was classified based on which ideational content was most dominant. This coding decision was made to preserve the validity of the turns of speech. (Turns that are fewer than 25 words do not provide valid RA scores.)

Aim 3: To Describe the Level of Unresolved Trauma in this Sample of Katrina Survivors

The Unresolved Trauma and Loss Scale of the AAI was used to assess the level of Unresolved Trauma in this sample of Katrina survivors. As noted earlier, a rater trained

in the AAI coding system scored each of the transcripts based on the scoring criteria of the Unresolved Trauma and Loss Scale. The rater then categorized the Katrina survivors as Unresolved or Resolved based on the scale scores that they received. (Survivors who received scores above 5 were classified as Unresolved and survivors who received scores below 5 were classified as Resolved, as per the current coding guidelines.) The level of Unresolved Trauma in this sample was thought to be indicated by the percentage of survivors who were classified as Unresolved.

Aim 4: To Distinguish “Unresolved” Transcripts from “Resolved” Transcripts Based on the Presence of Linguistic Markers

A between-group comparison was conducted in which the Resolved transcripts were contrasted with the Unresolved transcripts to determine whether there existed reliable and distinguishing unique linguistic identifiers. A within-group comparison was also conducted in which the Resolved and Unresolved groups were each broken down into two subcategories. The Resolved individuals were subdivided into two groups, “More Resolved” and “Less Resolved,” where the More Resolved individuals received scores of 3 or below and the Less Resolved individuals received scores that fell between 3 and 5. The Unresolved individuals were also subdivided into two groups, “More Unresolved” and “Less Unresolved,” where the More Unresolved individuals received scores of 7 or higher while the Less Unresolved individuals received scores that fell between 5 and 7. (Refer to Appendix D for a depiction of the subdivision of the Resolved and Unresolved categories.) For the within-group comparison, the Less Resolved transcripts were contrasted with the More Resolved transcripts and the Less Unresolved transcripts were contrasted with the More Unresolved transcripts. The

linguistic characteristics that were examined in the comparisons include linguistic repetition, metaphor, shifts into present tense, shifts into second person pronouns, reliance on dialogue, and inclusion of detail.

While conducting the between-group and within-group comparisons, a special emphasis was placed on the use of three subtypes of linguistic repetition: exact, variable, and non-contiguous. Every instance of repetition contained in the transcripts was identified and assigned to one of these three subtype categories. To be categorized as “exact,” a word or phrase had to have been repeated in an unvarying manner and had to have appeared in close proximity to the original word or phrase. (A repetition was considered to be in close proximity if it appeared in the same or following sentence as the original utterance.) A word or phrase had to have been repeated with slight alterations and also had to have appeared within close proximity to the original utterance in order to be labeled “variable.” A repetition was labeled “non-contiguous” if a phrase was repeated in an unvarying manner but was temporally separated from the original phrase by at least one complete sentence. Once the repetitions were categorized, the number of times that the three repetition subtypes appeared in each transcript was tallied. The total number of repetitions used by each interviewee was then calculated and the percentage breakdown of the exact, variable, and non-contiguous repetitions was computed for each individual using SPSS. The findings of the between-group and within-group comparisons are presented in the following chapter.

Chapter IV: Results

Though the survivors had lived through a collective traumatic experience, each survivor's story was distinct. Since the interviews were semi-structured, the survivors had the freedom to construct their narratives in the manner that they desired without being overly constrained by the parameters of the interview. It is not surprising then, that the interviews varied widely in terms of length, tone, and content. Their average length was 17 pages and they ranged in length from 4 pages to 29 pages. Despite the fact that their interviews varied in length, nearly all of the survivors seemed to relish the opportunity to tell their stories and to have their traumas witnessed.

Most of the survivors used vivid language while narrating their storm experiences, which lent an evocative quality to the interviews. The emotional content of the stories was both volatile and variegated: gloom would transform into irritation; anger would morph into thankfulness; sadness would lead to resignation. Many survivors seemed to get caught in their recollections while recounting their tales; their absorption in the trauma meant that they often had difficulty distancing themselves enough from the trauma in order to be able to reflect upon it. Those who appeared to be less immersed in the trauma showed a greater capacity for reflection and for meaning-making. The empirical findings presented below lend support to these observations.

Aim 1: Assessment of the Level of Referential Activity (RA) in this Sample of Katrina Survivors

The overall mean Referential Activity (RA) score for the Katrina sample was 0.54

with the individual mean RA scores ranging from 0.50 to 0.60 (See Table 1). No published studies to date have used the Discourse Attribute Analysis Program (DAAP) or the Computerized Referential Activity (CRA) in evaluating RA among natural disaster victims. Also, no data on the standard deviation of the Mean Weighted Referential Activity Dictionary (MWRAD) has been published. Thus, standardized comparisons between established normative scores and the scores of the present sample could not be calculated.

Table 1

List of Participants' Mean RA (MWRAD) Scores

Interviewee ID	Mean RA Score
HK-1	.56
HK-2	.53
HK-3	.50
HK-4	.49
HK-5	.49
HK-6	.53
HK-7	.54
HK-8	.53
HK-9	.53
HK-10	.56
HK-11	.54
HK-12	.57
HK-13	.54
HK-14	.56
HK-15	.60
HK-16	.52
HK-17	.52
HK-18	.55
HK-19	.56
HK-20	.54

Several university-based populations have been used in the establishment of relative norms (Bucci & Maskit, 2005). One set of data, named JST, yielded a mean referential activity (RA) score of 0.45 when responses to the Thematic Apperception Test were analyzed. Another dataset, named EKM, yielded a mean RA score of 0.43 with a population of 41 working-class male and female mid-westerners. The subject matter of this population's interview was not reported (Bucci & Maskit, 2005). The Katrina evacuees' mean RA score of 0.54 appears relatively high compared to the mean RA scores of the JST and EKM samples; this suggests that the majority of the evacuees may have been psychologically immersed in the traumatic event to some extent while being interviewed.

Fluctuations in Survivors' Mean RA Scores Across Content Domains

The relationship between the interviewees' fluctuating RA scores and the ideational content of the interviewees' turns of speech (based on grounded theory analysis) was also examined. A grounded theory analysis of the transcripts resulted in the evacuees' turns of speech being classified under three broad categories based on the ideational content contained in each turn. The categories that emerged include: Direct Experiences Related to the Storm; Making Sense of the Disaster; and Life Adjustments after the Storm.

Turns of speech that contained one or more of the following contents were classified under the "Direct Experiences Related to the Storm" category: Interviewees' personal experiences during the storm; Interviewees' experiences in the immediate aftermath of the storm; Direct consequences of the storm (e.g., loss of communication with loved ones, loss of personal property, death of a loved one as a result of the storm).

Turns of speech in which the interviewees describe the emotional impact of the disaster and/or create meaning from the disaster were classified under the “Making Sense of the Disaster” category. These turns of speech pertained to one or more of the following topics: Interviewees’ psychological responses to the disaster; Viewing the disaster through a religious framework; and Interviewees’ theories of causation. Turns of speech classified under the “Life Adjustments After the Storm” category contained one or both of the following contents: “Interviewees’ Descriptions of Life after Katrina” and “Interviewees’ Plans to Rebuild or Relocate.” The author tracked the fluctuations in the survivors’ mean RA scores across these different content domains.

The “Direct Experiences Related to the Storm” category was found to be predominantly High RA; a large majority (80%) of the relevant turns of speech were scored as High RA. The predominantly High RA scores assigned to these turns of speech indicate that nearly all of the interviewees devoted a large amount of psychic energy to trying to symbolize their storm experiences. Meanwhile, the “Making Sense of the Disaster” category was comprised of a diverse mixture of Low-RA and High-RA turns of speech. (49% of the relevant turns of speech were High RA turns while 51% of the turns were Low RA turns.) This finding suggests that while most survivors tried to make sense of Hurricane Katrina as they were being interviewed, those whose language suggested greater immersion had more difficulty creating a symbolic space that allowed for reflection.

Towards the conclusion of the interviews, many evacuees spoke about their transitions to their new lives following Katrina. While the evacuees received almost uniformly high RA scores as they described their direct storm experiences, they received

overwhelmingly *low* RA scores as they described the life adjustments they had undergone in the aftermath of the storm. As a result, the “Life Adjustments After the Storm” category was found to be predominantly Low RA so that a large majority (72%) of the relevant turns of speech were scored as Low RA. As explained in Chapter 2, Low RA speech tends to be general, vague, and abstract. The overwhelmingly Low RA scores assigned to the “Life Adjustments After the Storm” turns of speech reflect the interviewees’ low level of linguistic investment in speaking about their lives following the storm.

The fact that the survivors’ mean RA scores fluctuated widely according to the ideational content of the interviewees’ speech renders the survivors’ overall mean RA score of 0.54 somewhat less meaningful. The variable RA scores may also suggest that recounting the trauma may have placed a higher demand on the interviewees’ symbolizing capacities than either meaning-making or describing life adjustments post-trauma.

Aim 2: Identification of Linguistic Patterns in Katrina Survivors

Nearly all of the interviewees were immersed while describing their storm experiences, as evidenced by the predominantly High RA scores that they received. (As described in Chapter 2, High RA speech conveys the immediacy of experience through the use of detailed language and evocative imagery.) Immersion in the traumatic recollection, where the subject speaks as though reliving the experience, acts as a double-edged sword. On one hand, the subject is more likely to integrate the trauma productively if she can symbolize her trauma-related bodily experiences effectively via

language. If the immersion becomes too complete, though, the individual could become overwhelmed and develop recurrent, re-traumatizing thoughts and images connected to the trauma.

The appearance of distinct linguistic mechanisms throughout the interviewees' storm descriptions (e.g., sensory imagery, linguistic repetition, shifts into present tense, heavy use of dialogue, inclusion of detail) also suggests that the majority of the evacuees seemed caught in their traumatic recollections. The transcripts were found to share these distinct mechanisms despite the fact that the tone, length, and content of the interviews varied considerably. These special linguistic characteristics will be explored in the following sections along with salient themes that were revealed in the course of the data analysis.

Sensory Imagery

The process of verbalizing experience while retaining connection to bodily sensations allows for potential transformation of experience (Bucci, 1997). By conjuring evocative, sensory-laden images, traumatized individuals may gain greater access to their visceral sensations. If they are then able to translate these bodily sensations into language, a more complete and healthy integration of the trauma may commence. The interviewees' movement towards greater assimilation of the trauma is suggested by the wealth of sensory imagery contained in the Katrina transcripts.

Many of the interviewees seem to have felt bombarded by the sights, sounds, and smells connected to their storm experiences. As these individuals tell their stories, they appear to be re-experiencing the intense feelings and sensations that accompanied the

original traumatic situations. For example, as Mary² recalls the color and texture of the floodwaters that she was forced to traverse, she appears to relive the incident:

The water was so thick with stuff, it's like you could have got caught on anything... You could feel the debris underneath the water. You couldn't see nothing because the oil spilled in the water. They had gases, you know, stuff we was inhaling that made us real sick... Not being able to swim and walking through all that water. I can't swim a lick and walking, trying to balance each other up. 'Cause my daughter right there [gesturing], she had to walk through it too and we was like elbow and elbow, just walking through that water. Y'all had to see it -- see the color of it -- like the swamp. And having enough courage to walk through it. That was my worst -- that's going to stay with me the rest of my life.

Mary seems besieged by the bodily sensations connected to the memory; it is almost as though Mary can still *feel* the debris below the water's surface, *smell* the gases being released, *see* in her mind's eye the swamp-like water. Her sensations of fear come rushing back to her as she recalls trying to summon up the courage to cross to dry land. Mary's vivid account is neither inchoate nor intellectualized. Rather, her use of specific descriptors evokes in the listener the same sense of terror and un-preparedness that Mary felt at the time of the trauma.

Mary, inundated by trauma-related sensory stimuli, tries to recruit language in the service of containment. She labels her indeterminate bodily sensations so that they might feel less foreign and more manageable. It is possible that by assigning words to her visceral experiences, these inherently amorphous sensations are given form. Mary attempts to bind her overwhelming experiences by translating her private, nebulous bodily sensations into a shared, rule-governed language.

Like Mary, John also connects with his bodily sensations as he describes cleaning up his property immediately following the storm. Note the sensory imagery in the

² All names have been changed to protect confidentiality.

following passage:

You would work in these areas, previously densely-populated areas. You would work in them for an entire day and I wouldn't see another human being, wouldn't hear another car. Not only that, but there were no birds. There wasn't a sound of a living creature. And everything was dead. Water had covered all the bushes and it contained chemicals, sewage, and killed all the bushes. So everything was brown. I would say a majority of the trees were dead. And then you would be out there in this area and there would be this, you know -- it would be ninety-five degrees, this searing heat -- and it would be this overwhelming odor that you literally couldn't eat and go out there. You would throw up. You couldn't keep food in your stomach. And then you would go out there and there wouldn't be a bird, you wouldn't hear a sound, you wouldn't hear a noise, you wouldn't see anything move, you wouldn't -- it was just an eerie, eerie, deadly, quiet kind of thing. The only thing is at night as you go out there -- of course there is no electrical, no gas, no anything -- so as night came on it was like being in the middle of a national forest or something. There were no lights. There weren't even lights to look at. You know, you couldn't see any lights in the distance and the rats would start moving as the sun went down. And it was just terrifying. I mean your skin would just crawl... Trees down everywhere, you know, and just everything dead. It stinks, this stench, this overwhelming stench and, you know. Just, mm, I didn't see any bodies lying around, but it was just overwhelming.

Whereas Mary's senses were flooded with the presence of external stimuli, John's senses were overwhelmed not only by the presence of external stimuli but also by their absence. Though John comments on the horrid stench and the searing heat on his skin, what stands out is John's articulation of the discomfiting silence and lack of movement that surrounded him. John notes the stimuli that he would have expected to see under ordinary circumstances (e.g., birds, sounds, light, trees). This absence of life summons up a sense of deadness in John and triggers morbid associations, which likely account for his offhand comment, "I didn't see any bodies lying around."

John, like Mary, also attempts to use language to counteract the overwhelming nature of his bodily sensations. To help facilitate the process of containment, he resorts to the use of idiosyncratic linguistic devices. For instance, John switches from using second-person pronouns to using first-person pronouns when he says, "**You** would work

in them [these areas] for an entire day and **I** wouldn't see another human being, wouldn't hear another car." Later he says, "**I** mean, **your** skin would just crawl." Throughout most of his narrative, John relies on second-person pronouns to try to distance himself from his visceral experience. Yet his shifts into first-person pronouns suggest that he is not able to separate himself wholly from his powerful, sensory-laden experience. The passage quoted above is also pervaded by shifts in tense and linguistic repetition, elements that will be addressed in the sections that follow.

Linguistic Repetition

Linguistic repetition can act as a vocalized representation of a visual flashback. Like flashbacks, linguistic repetition provides the individual with a means of habituating oneself to the more unwieldy aspects of the traumatic experience. In fact, habituation may be viewed as one of the primary goals of exposure therapy, a cognitive-behavioral treatment technique that has been proven effective for lessening the symptoms of PTSD in traumatized individuals (e.g., Rauch, DeFeaver, Favorite, Duroe, Garrity, Martis, & Liberzon, 2009; Cooper & Clum, 1989; Keane, Fairbank, Caddell, and Zimering, 1989). In exposure therapy, the individual is instructed to recount the traumatic event in as much detail as possible while in a safe, therapeutic environment. The theory posits that repetition allows the individual to eventually become desensitized to the traumatic recollection so that it is no longer paramount in her psyche.

Examples of linguistic repetition abound in the transcripts. Casoni (2002) views repetition as an attempt to bind intense trauma-induced excitations, but warns that, "repetition, because of its compulsive quality, fails." It is true that the evacuees' trauma-induced sensations are so overwhelming that they seem to defy the binding function of

language. The simple reiteration of the same words and phrases may also be an unconscious effort to wear away at the internal experience of the traumatic event. Just as a knife dulls with recurrent use, the narrator may unconsciously hope that the mere repetition of words and phrases will strip them of their psychic force so that habituation to the trauma may commence. Brenda, an Unresolved evacuee, provides the following account of the storm:

There's no water yet. There's no water yet -- just the wind. And you could hear branches coming down, coming down, hitting, I mean, banging our rooftop and all... It's a metal roof. I mean you could hear it go [rat-a-tat sounds repeated]. I mean, I thought, it's going... You could hear the flapping, and I thought our roof is going to go any minute. And it stayed. It was amazing. But we went through the night... You could hear it [the storm] still going, still going... The storm was very, very, very long as far as the wind, the wind, the wind, the wind, the trees, the trees.

This striking illustration suggests that Brenda seems to be stuck in her experience. While Brenda repeats the same phrases as she struggles to assimilate the trauma, her language remains largely static. In the end, she seems to have trouble extricating herself from her traumatic recollections.

John's narrative (see p. 62) contains both subtle and overt forms of repetition. The repetition of words and phrases becomes most apparent as John says, "You wouldn't hear a sound, you wouldn't hear a noise, you wouldn't see anything move, you wouldn't - it was just an eerie, eerie, deadly, quiet kind of thing." By using parallel constructions and by repeating the word "eerie," John tries to desensitize himself to those facets of the trauma that were most unsettling to him, namely the morbid thoughts evoked by the silence in a typically busy neighborhood.

Ted, a ship's captain who was on duty during Hurricane Katrina, also employs repetitive phrasing but in a less overt manner than Brenda. He states:

All hell broke loose. *The wind was coming out of the -- hell -- the wind was coming out of the* southeast at the time, the way it was wrapping around. And, mm, it was *serious, serious...* You had so much wind and noise from the wind. You had the engines of the boats rolling. Everybody's hollering on radios, you know. *This was breaking loose, that was breaking loose.*

Ted seems to be trying to promote habituation to the trauma by repeating certain words and phrases. At the same time, Ted's repetitive phrasings include variations and are intermingled with the rest of his speech, which suggests that he is attempting to use language to connect the traumatic event to other experiences. In doing so, Ted may have an easier time categorizing the traumatic experience and thus making sense of it. Brenda, on the other hand, relies heavily on fixed repetition in which static, trauma-related phrasings are kept separate from the rest of her language; her use of fixed repetition may reinforce a dissociative process by ensuring that her traumatic storm experience remains encapsulated. Later in this chapter, it will be proposed that multiple forms of linguistic repetition exist (e.g., fixed repetition, variable repetition, and non-contiguous repetition), and that the specific type of linguistic repetition employed may help reveal the extent to which a trauma survivor is Unresolved.

John, Brenda, and Ted's use of repetition indicates that they are unable to keep their overwhelming feelings at bay; their visceral sensations come flooding back with full force and elude their efforts at habituation. They are stuck in their experiences. Consequently, John, Brenda, and Ted do not merely recount the traumatic events -- rather, the events are *relived*.

Metaphors

Like repetitive phrasings, metaphors can also be used to erode the traumatic experience. Whereas reliance on repetition may correspond to passively remaining stuck

in the traumatic occurrence, the creation of metaphor represents an active attempt to comprehend the trauma by linking it to prior experience. Metaphors, which liken unfamiliar phenomena to familiar ones, may detract from the trauma's psychic force by connecting the trauma to a less alien experience. By juxtaposing a novel, strange experience with a known experience, the individual may find it easier to comprehend the trauma and/or assign meaning to the events. Assimilation of the trauma is facilitated as the individual uses metaphor to better incorporate the trauma into her pre-existent schemas.

Metaphors also tend to be linked to bodily experience. Since people first rely on bodily sensations to organize their experience, metaphors often function as symbolic representations of sensory experiences (Benveniste, D., 1998; Lakoff & Johnson, 1980).

Benveniste (1998, p. 74) argues the following:

The symbolic function is a cognitive operation derived from bodily experience. It pertains to the linking of sensations into perceptions which are further associated with or displaced from other perceptions or condensed into new forms. It develops through successive levels of nonverbal representation and is ultimately clothed in linguistic and culturally determined representations which further reshape the experience of a sense of self, a sense of other, and a sense of the world. Thus, all symbolism from the personal to the cosmic is ultimately derived from bodily experience.

Ferenczi (1956) also asserts that metaphors are fundamentally derived from bodily experience:

Thus arise those intimate connections, which remain throughout life, between the human body and the objective world that we call symbolic. On the one hand, the child in this stage sees in the world nothing but images of his corporeality, on the other, he learns to represent by means of his body the whole multifariousness of the world (1913, p. 194).

While the metaphors that appeared in the Katrina interviews are diverse, several metaphors surfaced repeatedly, referencing terrorist attacks, nuclear bombs, and Third

World nations. These metaphors evoke iconic images of barrenness, depletion, and total demolition and conjure associations to the destruction and/or fragmentation of the body. In these metaphors, the damaged Gulf Coast may serve as a stand-in for bodily destruction; some interviewees may have been so overwhelmed by their trauma-related sensations that the traumatic event felt akin to fragmentation of the body. Also, the images of barrenness may reflect the interviewees' sense of emptiness and/or loss following the storm. In any case, these metaphors help bring the teller closer to the core of the trauma, thus paving the road towards integration.

A female interviewee employs metaphor as she compares the destruction wrought by Katrina to a scene from the war-torn Middle East. She says, "The area where we lived had water to the peaks of attics... It looked like what you would see, say, in Iraq. Everything had mildew, muck." Ted describes the damage to the hurricane-affected areas as, "Total devastation... Looked like, to me, like a nuclear bomb went off." Another interviewee describes the devastation: "It's like a bomb hit. It's nothing like the media could ever present." The interviewees' Third World nation and bomb metaphors link the novel Katrina images to more familiar destructive images and events. This linkage allows for better assimilation of the traumatic events of Katrina, which become experienced as less foreign.

Insight alone is insufficient to promote change, but insight joined by affective and visceral engagement may allow for transformation (Bucci, 2002). Expressive metaphors also promote the merger of the symbolic and sub-symbolic systems by serving as bridges to the individual's bodily sensations. An apt metaphor grants the individual greater access to her trauma-related sensory experiences that may then allow for further

integration. The symbolic and sub-symbolic systems appear to become fused as Karen describes the initial impact of seeing her home destroyed:

I have been using the description that you felt like somebody kicked you in the stomach. It was unbelievable. We have never experienced anything like that before... We saw that our house had been destroyed though we still had our roof and some two by fours... And it was devastating. It was very devastating.

Karen connects with the visceral sensation of “being kicked in the stomach” as she uses metaphor to symbolize the traumatic experience. Greater integration of the loss becomes possible as Karen employs a bodily metaphor that grants her fuller access to her trauma-related sensory experiences. However, the fact that Karen resorts to the use of exact repetition at the end of the passage when she says “And it was devastating. It was very devastating,” suggests that her efforts to integrate the loss via the use of metaphor have not been wholly successful.

Karen also distances herself from the trauma by shifting into second-person pronouns when she says, “**I** have been using the description that **you** felt like somebody kicked **you** in the stomach.” Meanwhile, her use of the phrase, “I have been using the description that...” indicates that Karen has been rehearsing her story with others. The repetition of her traumatic story may enhance integration. If the repetition of the story becomes rote and over-rehearsed, however, it may provide another mechanism by which Karen can more easily detach herself from her trauma-related emotions.

Shifts into the Present Tense

Other distinctive linguistic markers, including abrupt shifts in tense, suggest that the individual is unable to relegate the trauma to the past. Unbidden traumatic associations periodically intrude on the individual and defy attempts at avoidance. When

sensations that arise are too powerful to be ignored, the individual may become flooded with traumatic associations that result in distinct linguistic alterations.

In the passage discussed earlier (see p. 57-58), John becomes increasingly absorbed in his traumatic recollections, as evidenced by his change in tense. Below is an excerpt from the original passage that illustrates this point:

You couldn't see any lights in the distance and the rats would start moving as the sun went down. And it was just terrifying. I mean your skin would just crawl... Trees down everywhere, you know, and just everything dead. It stinks, this stench, this overwhelming stench.

John switches from the conditional to the present tense as he conjures the visceral memory of the vile stench. His shift into the present tense at that precise moment indicates that John connects with his bodily sensations as he becomes increasingly gripped by his story.

Sean, a college undergraduate, also seems to be transported as he describes his evacuation from New Orleans. Note his abrupt shift into the present tense:

That [the evacuation] was about the hardest thing we've ever done in our lives, again, because of the traffic, the way people wanted to act... The traffic is sardined on the streets, you know, this far away from the car in front of you. [Motions with hands very close together]. And you stop at a stop sign and you have to slam on the brakes because people are cutting you off left and right. It's just so packed, anyhow. We finally get out of New Orleans on the causeway.

Sean's use of the present tense brings the story to life. The listener has the momentary experience of feeling sardined on the road, in the midst of the traffic and chaos. Sean also appears affectively engaged in his story, as evidenced by his hand gesticulations and his heated tone of voice. Later in the interview, Sean tries to affectively distance himself from his experience. As he describes saying goodbye to a friend prior to the evacuation, Sean says, "Looking back on it now, neither of us had no idea what was really going on." His use of the phrase, "Looking back on it now," places psychological distance between

himself and his story as he adopts a retrospective stance. Yet Sean's attempts to remove himself from his storm experience fail, and he quickly becomes re-immersed. This re-immersion is reflected by his shift into the present tense:

When we left, we were already hyped up. I didn't know what to expect. I didn't know what was going to happen. We were dog-tired, too. There were no, absolutely no hotel vacancies between New Orleans and west of Dallas. So we had nowhere to stop. We just kept driving and driving and driving... So we are beat, we are tired. We pull into a gas station -- you have to sleep sitting straight up because there's four of us in a Forerunner... And it's already daylight so I can't sleep. And it's uncomfortable so you are miserable. We pull over at a gas station and that's when we find out that Hurricane Katrina upgraded to a category five. And I heard that and I was depressed when I heard that. And we finally, finally made it to Dallas, beat- down like crazy, hungry, and tired.

These linguistic vacillations between the past and present tenses mirror Sean's struggle to distance himself from his powerful trauma-related sensations.

Frequent Use of Dialogue

Several Katrina interviewees also wove dialogue into their tales of the storm. Heavy use of dialogue, along with shifts into the present tense, suggests a high level of absorption in the traumatic experience. When an individual uses dialogue in her account of the storm, she is no longer recounting her experience but reliving it in the present. Brenda enters into real-time conversation as she provides her account:

My daughter called me at seven o' clock in the morning. She said, "Mom, are you okay?" I went, "I don't know honey." And then the wind, it started picking up right as she called me. "I don't know honey. The wind is starting to pick up again." "Oh, Mom." And then she went hysterical, because she was in North Louisiana. I said, "Honey, just pray." And the phone went out. And in a way I was kind of glad it did, because then hell broke loose. And I looked and went, "Oh honey, there's water!" I mean it started, I mean, running down the street. I went, "Oh my God, what happened?" My husband goes, "Oh the rain, it's really hard out there." And I said, "That's not rain. That's flood!" He went, "Oh my God."

As Brenda shifts into dialogue in the course of her narrative, she turns the recounting of her tale into an approximation of a performance. This performative narrative style may be fueled by Brenda's need to temporarily adopt the other players' perspectives so that her relationship to the trauma is altered in some way. Brenda may gain some semblance of mastery over the traumatic events as she chooses which roles to inhabit. Also, by embracing a meta-perspective of the trauma, she unwittingly counteracts her feelings of helplessness that were salient at the time of the trauma.

Frequent use of dialogue also more closely mimics the survivor's desire to have the listener witness her authentic experience. As Brenda weaves dialogue into her narrative, she transforms the listener into a spectator who can observe the trauma in a vivid manner. Patients may suffer more if they feel as though another person has not borne witness to their trauma. One reason that psychotherapy is often effective for traumatized individuals is that it can help the patient to feel that she is no longer utterly alone with her experience.

Inclusion of Detail

The teller may also recount the trauma in extraordinary detail in order to bring her narrative to life. In this way, the teller may realize the unconscious goal of transforming the listener into a witness. Explicit detail may help the interviewee access her trauma-related visceral sensations and facilitate integration. At times, however, the excessive inclusion of detail may reinforce the sense of being stuck in the traumatic recollection.

An Unresolved female interviewee provides the following account of the storm. Note the astounding amount of detail included in the following turn of speech:

When it [the water] got in the house, I went, “I’m going in the attic”... I jumped in my attic. I grabbed my husband’s -- he’s got a Bowie knife -- and I’m holding the knife, and I’m hysterical. I mean, I’m sitting in the attic and I’m thinking, “How am I gonna get out of this metal roof?” I’m holding this knife, wondering, “This is the stupidest place.” But it was like I froze. That’s when I froze. And my husband said, “Let me get this, get that.” He’s handing me a toaster oven. He handed me an atlas... It’s like, “Get me out of this attic.” The water’s rising, and he goes, “Wait honey.” And I couldn’t see him... And I’m sitting there. “Please come.” “Wait honey. I gotta get some food.” “Come up here.” And then I just lost it. I lost it. “Get up here.” And he wouldn’t answer me. I went, “Answer me. Answer me”... What I was afraid of -- he’s got bad knees -- what I was afraid of is if he got swept away. That’s what I was afraid of. I didn’t know whether to run out and just start running, or go in my attic. And either one can be dangerous. Because the attic, my brother lost a friend because he went in the attic and, of course, a tree crushed on him. And that was the fear. It’s like, what am I doing in the attic? And at the same time, I mean, I really froze.

The wealth of detail incorporated in the above turn of speech suggests that the teller is still stuck in the traumatic experience. As soon as the interviewee launches into her story, she is immediately transported back to the attic where she clutches a “Bowie knife,” terrified. By incorporating an immense amount of detail into her account, the interviewee seems better able to connect with her bodily sensations at the time of the trauma (e.g., the sense of being “frozen”). This, in turn, may have aided the integrative process.

The interviewees tended to recall a particularly striking amount of detail when describing their damaged homes. This abundance of detail reflects the powerful emotional significance that the interviewees attributed to the loss of their properties. The obliteration of one’s home often carries multiple, charged meanings. Since the home is a place often associated with safety and comfort, its destruction may come to represent not only the loss of material wealth, but also the loss of security. A home is intended to serve as a physical barrier against the elements. That the interviewees’ homes were not able to offer sufficient protection during the storm may have left several of the evacuees feeling

vulnerable or even violated. Another possibility is that some individuals may have experienced the destruction of the home as psychically equivalent to the destruction of the self, since the home can serve as an unconscious representation of the self. What is common to all these hypotheses is a profound sense of loss -- loss of emotional security, loss of physical security, and even loss of the self.

Vague and Avoidant Responses

Many of the interviewees use evocative, vivid language when describing their storm-related experiences, but their language often grows more vague and abstract when contemplating the trauma. Since the ability for reflection requires a certain amount of emotional disengagement, it follows that these reflective passages appear drained of the color that imbued the interviewees' descriptive passages. Several interviewees also seem disconnected from their bodily sensations as they outline their emotional responses to Katrina. This lack of connectedness likely contributes to the interviewees' flat and intellectualized language and to their correspondingly low RA scores.

Brenda, the Unresolved female mentioned earlier, uses imprecise language when describing the emotional impact of the storm. She says,

Every time I've been down [to Mississippi] and I've been down three times, I come back very, very emotional. It's almost like I go down as a reality check... All of our contents were totally destroyed, but as far as human life, we all were okay. And I think I would have been okay through the hurricane. I think I would have, had I gone back and said, 'Oh what a mess,' it wouldn't have bothered me as much. But I stayed. And that was the emotional part, the fact that I stayed.

Whereas Brenda's storm descriptions are replete with specific details, the description above feels sparse. The reader is left to wonder what exactly Brenda means when she refers to the "emotional part" of her experience. Brenda's vagueness suggests that she is

distanced from her emotions even as she describes becoming “very emotional.”

Brenda also avoids examining the ways in which she has been negatively impacted by the storm. She says, “Rather than talk about the bad things, I want to talk about the good things that have come out of this.” Brenda’s avoidant tendencies encroach on her ability to stay connected to her visceral experience. These avoidant mechanisms are partially adaptive in the short run in that they allow Brenda to more easily distance herself from the trauma. But shying away from her trauma-related thoughts and sensations may impede integration of the trauma and will likely hinder her recovery.

Brenda also seems to need reassurance that she has overcome the traumatic experience. As the interview concludes, Brenda says, “Thank you for doing this because now I know that I’m somewhat over it. I’m moving on with my life. And three months ago I was a basket case. And I had my moments.” She seems quick to put the experience behind her, though it is clear from her storm descriptions that she is still quite preoccupied with the trauma. In fact, Brenda met criteria for being Unresolved precisely *because* her language reflected a high level of absorption with the traumatic experience.

Brenda is not the only evacuee who employs vague language and who exhibits avoidant tendencies. Diane says, “This thing [Katrina] is such an unprecedented event that all of us are going through a myriad of psychological swings to and fro.” Diane avoids saying “Katrina” or “the storm” in favor of saying “this thing” as though to pronounce its name would invite in danger. Like Brenda, Diane uses imprecise language when describing the negative emotional impact of the storm. Diane alludes to trauma-related mood swings, but stops herself from elaborating any further. This failure to

elaborate, which translates into a drop in RA, is striking in light of Diane's highly detailed storm descriptions.

Psychological Responses to the Storm: Dissociative Reactions

Analyses of the transcripts also reveal that several interviewees appear to have entered into a dissociative state during or immediately following the storm. Several interviewees used the words "shock" and "surreal" when reflecting upon their psychological responses to the storm, which suggests the presence of dissociative processes. Employing dissociative defenses during the storm would likely have helped these interviewees detach themselves from their emotions. This may have been adaptive since the interviewees' ability to respond quickly and prudently during the crisis may have been hampered had they been more attuned to their emotional life. Also, several evacuees mentioned having a delayed emotional reaction to the storm. These individuals asserted that they did not experience the full psychological impact of the trauma until they were safe and settled in their new location. These individuals may have also entered into a dissociated state at the time of the trauma, which could have accounted for their delayed emotional responses.

Stacy, an evacuee who was interviewed a few months after the storm, describes her delayed emotional response:

We've been still in a survival mode. That's the way it has felt until very recently... It was just everything was so boom, boom, boom, boom that until literally three weeks ago that I myself hit a wall, physically, mentally, spiritually, emotionally. Because it was so survival up until that point, that when we got settled, when the pictures were on the wall... I sat back and took a breath. It was like everything that had been bottled up on the inside just started flooding out. And I allowed myself to do it because I needed to. And out of exhaustion, relief, grief, anger, I cried nonstop for about two weeks.

Stacy's comment, "Everything that had been bottled up on the inside just started flooding out," suggests that her internal levees were breached months after the storm; she was left feeling drenched in emotion. She allowed herself release only once she was no longer required to be in survival mode. Though Stacy seemed overwhelmed by the intensity of her emotions, she also seemed relieved that she could finally express these emotions rather than erect barricades against them.

Psychological Responses to the Storm: Feeling Fortunate

The number of interviewees who reported feeling blessed and/or fortunate was staggering. *Half* of the subjects spontaneously remarked that they were faring well relative to other Katrina survivors. Several of these subjects had endured particularly horrific storm experiences and seemed to be trying to find solace by comparing themselves to worse-off individuals. For instance, an Unresolved interviewee whose life had been threatened during the storm asserts, "There are so many people with worse stories. I've been very lucky." Another interviewee says he feels "more fortunate than the average person down there [in Mississippi]." Meanwhile Brenda, who remained trapped in her attic during the storm, declares the following:

Life is going on, and we're getting through it. And it could have been worse. It could have been worse. We were so blessed that we survived. Because sometimes the reaction is run outside and just start running. Go in your attic and you could get crushed. We have a sycamore tree and an old tree and I thought, 'Which one is going to fall first?'

The interviewees' language here is often non-specific, and so it tends to sound flat and unconvincing. The interviewees are frequently remiss at providing specific examples that illustrate the ways in which they were fortunate. The underlying sentiment, "It could have been worse," seems to provide comfort to them. At the same time, Brenda's

repetition of the phrase, “It could have been worse,” suggests that she is having trouble persuading herself of this truth; she has to repeat the phrase in an effort to convince herself of its integrity. Meanwhile, as soon as she tries to reflect on her storm experience, she finds herself back in the heart of the trauma. Her terror and preoccupation with her own mortality become manifest as she delineates the ways that she could have died in the storm.

Katrina’s Impact on Identity

As the interviewees tried to make sense of Hurricane Katrina, they struggled to incorporate their new identities as “refugees,” “evacuees,” “survivors,” or “victims.” Several interviewees expressed their dismay that their newfound identities were imposed upon them by others rather than self-determined; they wanted to quickly shed their “Katrina identity” so that they could reenter a world in which their identity was created *by* them rather than assigned *to* them. Margaret states:

I feel like I have to be somewhere where I’m stable and my girls can go to school and we can live a normal life as opposed to being a victim, refugee, evacuee, a crisis victim. That gets old real fast because the national news doesn’t remember it four months after it happened, but it’s your life. And the further you can get away from it the more you can deal.

Margaret likely experiences her newfound Katrina identity as problematic since it makes it more difficult to avoid her trauma-related thoughts and feelings. Margaret would rather leave her Katrina experience in New Orleans than be forced to carry it with her, so she especially resents feeling coerced into a confrontation with the trauma. It is also striking that, in the passage above, Margaret repeats the word “victim” twice but does not reference the more popular Katrina identifier, “survivor.” Because Margaret may not experience herself as a survivor she has trouble imagining that others would view her in

that light. Margaret might feel more at ease if she could begin to conceive of herself as an active survivor as opposed to a passive victim. A skilled therapist might aid in this endeavor by helping Margaret to identify the actions that she took during the storm that ensured her safety. A therapist might also encourage Margaret to employ active coping strategies in the aftermath of the storm. Emphasizing Margaret's agency would likely help to counteract her sense of passive victimhood.

It is also possible that Margaret's sense of self may be in flux. Margaret says, "It's just like a divorce or a death or identity theft or something. You start all over again." Like many Katrina evacuees, Margaret may have lost important identifying documents so that the term "identity theft" may carry literal connotations, but her mention of "identity theft" also suggests that she feels stripped of her pre-Katrina identity. The term "identity theft" alludes to Margaret's sense that she has become a stranger in a place far from home. Her inner landscape has been transfigured by the storm, and Margaret may be feeling alienated from her private experience.

Along with Margaret, several other interviewees also seem to have experienced a disruption in their sense of self as a result of the storm. For example, a female evacuee describes feeling "born again" following Katrina. Aside from the religious overtones it carries, the phrase "born again" suggests that Katrina may have shattered the evacuee's sense of a continuous self. The term "born again" evokes images of a scared, helpless baby forced into an unfamiliar environment; these images may correspond to the evacuee's experience of feeling fearful and lost and without a clear sense of identity.

Most of the interviewees chafed at being assigned a Katrina label, but a few readily embraced their new identities. Sean, the college undergraduate mentioned earlier,

welcomed his new identity as a “Hurricane Kid” because of the benefits conferred upon him. He said:

We’ve all been hanging out like crazy. It’s almost like a brotherhood, you know, like the football team and ROTC, just like any organization or club. It’s like ‘Yeah, man we’re the hurricane kids.’ We tend to, not band together, but we kind of see each other differently than we see everybody else. ‘Hey man, you’re from the Gulf Coast!’ And you’re, like, instantly friends with them.

Sean’s adoption of his new identity allows him to establish an instant sense of comradery with his new schoolmates. By claiming status as a “Hurricane Kid,” Sean is provided a venue in which he can feel recognized by others who have undergone similar experiences. Sean may also have been drawn to embrace his ready-made “Hurricane-Kid” identity since, as a young adult, he is still in a developmental phase where he is struggling to define himself. Embracing a manufactured identity may supply Sean with a more solid sense of self at a time when he might otherwise feel more fluid.

Sean’s atypical response to the hurricane may also be related to the fact that, as a young adult, Sean appears to be less fixated on his mortality fears relative to the older interviewees. Given Sean’s youth and corresponding sense of indestructibility, it is possible that Sean experienced his evacuation from New Orleans largely as an adventure, rather than as a threat to his wellbeing. Sean’s reduced awareness of the danger that was posed to him may have led him to more easily appropriate his new identity.

Theories of Causation and the Religious Framework

Nine of the 20 interviewees made spontaneous reference to their Christian religiosity in the course of the interviews. Several attempted to comprehend the trauma by viewing the disaster through a religious lens. Religion provided some with feelings of

solace and community in the storm's aftermath, but reliance on a religious framework proved to be problematic for others.

In the following account, a young male struggles to make sense of Hurricane Katrina by drawing on his religious principles:

The thing that I learned was to always keep in touch with family, and your family is the most important thing in your life. You know, you never know how much a person means to you until you lose 'em. Just losing contact with 'em, you know? And never put your trust in other things like material stuff 'cause, just like the hurricane, the stuff will just be destroyed, taken away from you. I just always put my trust in God... I come from what you want to call a religious family, or whatever, and we always talk about God. That's first in our lives.

Here the interviewee turns to religion to help identify the ontological underpinnings of the traumatic incident, but his language sounds clichéd when he makes statements like, “You never know how much a person means to you until you lose 'em.” The evacuee's use of platitudes likely contributes to his drop in RA.

Some interviewees prayed to God for help in the midst of crisis. For instance, Brenda, while trapped in her attic during the storm, implored, “Lord, get us out of this, or if I'm not ready, then help me through this and show me something, what you have for me, you know, for the rest of my life if I'm going to survive this.” By praying to God as the water rose, Brenda was demonstrating her need to have a witness to her traumatic experience. Bargaining with God might have also allowed Brenda to feel as though she had some control over her fate.

Other interviewees expressed their belief that God was guiding and protecting them during Katrina. Their religious conviction helped to provide them with a feeling of safety in the midst of chaos, but it also tended to undermine their sense of agency. Note the passive tone that permeates the following storm description:

God just laid the way, 'cause as we moved out of New Orleans the water was covering the highway. As we went up through Mississippi the trees were falling across the interstate. As we moved along, God was just moving us out of harm's way.

Another evacuee diminishes his agency when he says, "The Lord was directing our path... The Lord wanted us in Nashville, Tennessee." By viewing his relocation as part of God's plan, the evacuee attributes meaning to the disaster, which likely helps him to cope with the storm's consequences.

In fact, several interviewees assert that their religion has helped them to cope in the aftermath of Katrina. One interviewee says, "With the help of friends, family, church, God, we're forging forward." Another remarks, "Our faith has kept us laughing 'cause there's a lot of folk that are depressed 'cause of, you know, what has happened. But we've been able to hook up with a beautiful church." Only Margaret discloses that the disaster caused her to question her faith in God. She says, "I'm a Catholic all my life. This is the first time I ever considered not being a Catholic." Margaret seems to view Katrina as a betrayal by God.

In contrast, Diane uses the events of Katrina to reify her religious belief. To help cement her faith, she theorizes that Katrina was a manifestation of God's will:

We needed to be cleansed in our community. I am sorry about the loss of life, the inconvenience, and the distresses that we all went through, but if that's what it took, that's what it took... All this [Katrina] is God's Doing. And a lot is missing in New Orleans. It has been taken for granted and He will let you know when you need to wake up and get things on the right track.

Perhaps the most unsettling part of this turn of speech is Diane's use of the word "cleansed," which triggers associations to eugenics and genocide. The underlying implication is that God wanted to rid the community of sinners and that New Orleans is better off for having been "cleansed" in this way. To question God's righteousness may

have been too disconcerting, and so Diane makes sense of the disaster by blaming the victims for their sinful provocations. Diane's use of the word "cleansed" also conjures associations to the anality of the body. Since anality has to do with control and with the loss of control (Benveniste, 1998), the anal implications of the word "cleansed" suggest that Diane is struggling with feelings of powerlessness connected to the storm.

Minimizing the Difficulty of the Transition

The data analysis revealed that several interviewees downplayed the difficult nature of their relocations after Katrina. They tended to use non-specific language in their attempts at minimization, which contributed to their overwhelmingly Low RA scores. For instance, Lila, an undergraduate who recently changed schools, is vague as she says, "I'm one of those people who can just take change. I mean, I don't like to change stuff around, but I'll do it anyway so I'm accepting of change." Lila's equivocal declaration undermines her credibility and causes the listener to question whether she is as adaptable as she reports. The listener's credulity is tested further when, later in the interview, Lila reports feeling lonely at her new school.

Lila's desire to minimize the difficulty of switching schools manifests itself in language that is inconsistent and vague. Lila employed psychic defenses that were meant to counteract her anxiety about the transition and that resulted in obscured speech. While these defenses may have successfully diminished Lila's anxiety, they also seem to have hampered Lila's ability to connect with her authentic experience; as a result, Lila is unable to acknowledge the difficulties inherent in such an abrupt and unwelcome transition. Meanwhile, Lila's inconsistent and vague speech defies the listener's attempts to fully comprehend and appreciate her experience. If Lila had greater access to her

visceral experience, she would likely be able to speak about the transition in a more lucid manner that would enable others to empathize.

Like Lila, several other individuals also try to minimize the difficulty of their transitions following Katrina. Diane, who relocated from New Orleans to Tennessee, romanticizes her new life when she says, “I sit in this little apartment, this little two-bedroom apartment, and I look at the cardinals and the blue jays and the lilacs, and it’s wonderful.” She later describes Tennessee as “warm,” “peaceful,” and “beautiful.” This idealized image provides a stark contrast to Diane’s depiction of New Orleans as “dirty” and “flat.” Diane manages her anxiety surrounding the transition by devaluing her old life in New Orleans while idealizing her new life in Tennessee. Her tendency to rely on defensive splitting gives rise to superficial descriptions that lack nuance. As a result, the listener is not readily able to comprehend or appreciate Diane’s experience.

Mary, who relocated with her adolescent-aged children after Katrina, also seems motivated to gloss over the challenges surrounding the transition. She refutes the notion that her children might still be struggling with the emotional ramifications of the storm. She asserts, “Where my kids go to school, you know what I mean, they’re having problems, but not the kind of problems they had. I think they’re having teenager problems. They’re not having Katrina problems.” Even though her children had to be air-lifted off the roof of their home during the storm, Mary is reluctant to acknowledge that the storm may have had a lasting impact on them. Because she is motivated to overlook the ways in which Katrina has traumatized her, Mary is unable to allow for the possibility that her children may have been affected by the storm. Mary’s denial likely impedes her ability to help her children cope with the emotional ramifications of Katrina.

“There’s No Place Like Home”

Several individuals who relocated after the storm allude to a sense of dislocation in their transcripts. Margaret, an African-American female, provides the following account:

There’s nobody that can make us whole until we touch back down [in New Orleans]. It’s like the slaves when they go back to Africa... I get phone calls from my friends. I can talk to my friends. But it ain’t nothing like going to church where you had your first communion... seeing the store you’ve gone to for years. When you walk in they [the store owners] know you. They know your size... Home is home is home.

Margaret seems to experience herself as fragmented in the aftermath of Katrina; the notion that she needs to regain “wholeness” implies feelings of incompleteness. Margaret’s sense of herself as fragmented seems tied to the splintering of her social support network in New Orleans. She seems unmoored in the absence of those individuals who helped to provide her with a sense of identity and belonging.

The above passage also suggests that Margaret is struggling with the separation from New Orleans itself. She imagines that her feelings of estrangement resemble the alienation that the slaves must have felt while separated from Africa. Margaret also presumes that, like the slaves, she will remain in a state of incompleteness until she returns to her homeland. Margaret’s desire to return to her “motherland” may, in part, derive from her wish to return to a symbiotic state in which she may re-discover a sense of union and belongingness; in this way, Margaret may manage to counteract her feelings of alienation while restoring a feeling of “wholeness.”

Garland (2002) believes that a universally held, unconscious wish among traumatized individuals is the wish for the restoration of the pre-trauma self. In the above

passage, Margaret articulates a sense of mourning for her lost homeland and for her pre-trauma self yet she overlooks the fact that New Orleans will never be the same New Orleans in which she received her first communion and that she will never be the same person that she was prior to the storm.

Margaret's simple, but powerful statement, "Home is home is home," implies that there can never be a substitute for one's true home; another setting can serve only as a second-rate proxy at best. Margaret's adage, "Home is home is home," is reminiscent of the well-known line, "There's no place like home," from *The Wizard of Oz*. In fact, Margaret's plight bears some similarities to Dorothy's predicament in *The Wizard of Oz*. Whereas Margaret finds herself in unfamiliar territory following the hurricane, Dorothy finds herself in a strange land after a tornado destroys her home in Kansas. Desperate to be reunited with her friends and family following a long and arduous journey, Dorothy clicks together her heels and repeats aloud three times, "There's no place like home." With these words, she wakes up at home surrounded by the loving and concerned faces of her family members. Luckily for Dorothy, the tornado and her subsequent exile from home are revealed to be elements of a bad dream. Meanwhile, Margaret only wishes that she could be magically transported back to her still intact home.

Another parallel can be drawn between Margaret's storm experience and Dorothy's experience in *The Wizard of Oz*. When Dorothy first discovers that she is lost following the tornado, a cowardly lion informs her that she must track down the Wizard in order to return home. After a treacherous journey through the Land of Oz, Dorothy finally encounters the ostensibly all-powerful Wizard. Though he puts on an impressive show, the Wizard is revealed to be just a "man behind the curtain" who is impotent to

help her; his aspirations to godliness serve as a flimsy mask over the insecure man underneath.

While Dorothy felt disheartened by the Wizard's inability to assist her, Margaret was disappointed by the lack of aid that President Bush and his government provided. Yet unlike the Wizard of Oz, President Bush *was* capable of providing assistance to the Katrina evacuees through Federal Emergency Management Agency (FEMA) and the swift dispatching of the military. The evacuees called upon President Bush to bear witness to their traumatic experience and to respond accordingly, yet he failed on both accounts. Because President Bush's power and authority remained largely unexercised during this time of crisis, many evacuees felt betrayed by the appointed "Wizard" in chief. From their standpoint, the "man behind the curtain" was revealed to be little more than a straw man, or a scarecrow, as it were.

Aim 3: Level of Unresolved Trauma in Katrina Survivors

The Unresolved Trauma and Loss Scale of the AAI was used to assess the level of Unresolved Trauma in this sample of Katrina survivors. As noted earlier, a rater trained in the AAI coding system scored each of the transcripts based on the scoring criteria of the Unresolved Trauma and Loss Scale. The rater then categorized the Katrina survivors as Unresolved or Resolved based on the scale scores that they received. (Survivors who received scores above 5 were classified as Unresolved and survivors who received scores below 5 were classified as Resolved, as per the current coding guidelines.) Based on this criterion, 5 of the 20 evacuees (25%) were classified as Unresolved. (Table 2 lists the scale scores assigned to the interviewees.) The fact that only 25% of the evacuees were

categorized as Unresolved is somewhat surprising given the degree of narrative disruption exhibited by many of the individuals categorized as “Resolved” (see the following section).

Table 2

List of Participants’ Unresolved Scores (Note: Participants with scores above 5 were considered to be Unresolved)

Interviewee ID	Unresolved Score
HK-1	1.5
HK-2	6.5
HK-3	2.5
HK-4	1.0
HK-5	2.0
HK-6	3.5
HK-7	6.0
HK-8	7.5
HK-9	7.5
HK-10	1.0
HK-11	7.5
HK-12	2.5
HK-13	2.5
HK-14	1.0
HK-15	1.5
HK-16	4.0
HK-17	4.5
HK-18	4.0
HK-19	2.0
HK-20	1.0

Aim 4: Unresolved Trauma and Language

Linguistic Repetition

As noted in the Methods chapter, and as part of an effort to distinguish the linguistic patterns of Resolved versus Unresolved subjects, every instance of repetition

contained in the transcripts was identified and categorized as “exact,” “variable,” or “non-contiguous” (See page 54). The total number of repetitions used by each survivor was then calculated and the percentage breakdown of the exact, variable, and non-contiguous repetitions was computed for each individual. Table 3, which depicts the percentage breakdown of the repetition subtypes, shows that each of the 5 Unresolved transcripts contained more exact repetitions than variable repetitions. Table 3 also demonstrates that each of the 15 Resolved transcripts contained more variable repetitions than exact repetitions.

These findings indicate that the repetitions contained in the Less Resolved and More Resolved transcripts tended to incorporate slight variations so that the repetitions were not exact facsimiles of the original phrasings. At one juncture in the interview, Lila, a More Resolved interviewee, discusses her fears about eventually returning to New Orleans after the storm. She says, “I know it [New Orleans] won’t be normal obviously, but I hope it’s not crazy. It doesn’t have to be normal, just not crazy.” While these two sentences closely resemble one another, the second sentence is not an exact reproduction of the sentence that precedes it.

Laura, another More Resolved individual, also employs variable repetition as she describes her reaction to the damage in New Orleans:

Driving through the New Orleans East area, we got there right at dusk. It was such an eerie feeling because no lights, zero people, cars in ditches, cars in canals, boats up in trees, no windows anywhere, just no signs of life, but all of this destruction.

Examples of variable repetition can be distilled in the passage quoted above. For instance, Laura refers to “no lights... no windows anywhere... no signs of life” and recalls seeing “cars in ditches, cars in canals, boats up in trees.” This use of parallel

construction contributes to a sense of recurrence within the description. The prose adopts a rhythmic quality and begins to resemble poetic verse. This passage is also striking in that Laura does not include certain verbs in her account. Instead of saying, “It was such an eerie feeling because *there were* no lights, zero people,” she says, “It was such an eerie feeling because no lights, zero people.” The absence of verbs, of action, conjures the feelings of desolation and deadness that Laura is trying to convey. The grammatical construction amplifies the content and provides a window into her subjective experience. In this way, Laura succeeds in creating a witness to her traumatic experience. To merely attend to the content of the story is to lose an essential aspect of the teller’s communications.

Like the More Resolved transcripts, the Less Resolved transcripts contain examples of both exact and variable repetition, though variable repetition is still more prevalent. For example, variable repetition is at play when Melissa, a Less Resolved interviewee, says the following:

Watching it [the storm] on television, I kept waiting to wake up. I kept waiting. It’s -- this is a nightmare. I ate something too spicy last night, too greasy, too spicy. It’s giving me nightmares. I’m gonna wake up any minute. I’ll be back in my suburb... with my kids and, you know, business as usual. Work on Monday. It was surreal to watch.

Many of the words and phrases in the above passage are repeated with slight alterations, like when Melissa says, “I kept waiting to wake up, I kept waiting... I’m gonna wake up any minute” and “This is a nightmare... It’s giving me nightmares.” This passage is also striking since Melissa vacillates between the past and present tenses as she struggles to maintain a degree of distance from her recollection. Also, the phrase “It was surreal,” surfaces repeatedly throughout Melissa’s transcript, yet these repetitions do not abut one

another. For the purposes of this paper, this type of repetition has been designated “non-contiguous repetition.”

As mentioned earlier, the Unresolved individuals tended to rely more heavily on exact repetitions than on variable repetitions. For example, Brenda, a More Unresolved individual, says, “The storm was very, very, very long as far as the wind, the wind, the wind, the wind, the trees, the trees.” She later remarks, “You could hear it [the storm] still going, still going... There’s no water yet. There’s no water yet.” Margaret, another Unresolved individual, also relies on exact linguistic repetition while describing her storm experience. She uses phrases like, “And there were rows and rows and rows of ambulances lined up” and, “Home is home is home.”

Though the Unresolved individuals relied heavily on the use of exact repetition and the Resolved individuals gravitated towards the use of variable repetition, these distinctions were not precise. Overlap was found to exist between the two groups so that exact repetitions occasionally appeared in the Resolved transcripts while variable repetitions sometimes surfaced in the Unresolved transcripts. The differences outlined above should be viewed as tendencies rather than as absolute patterns.

The percentage breakdown of the non-contiguous repetitions did not noticeably differ between the Unresolved and the Resolved transcripts (See Table 3). Also, when comparing the More Resolved transcripts with the Less Resolved transcripts, no meaningful differences in the rates of exact, variable, and non-contiguous repetitions were detected. The same is true when comparing the More Unresolved transcripts with the Less Unresolved transcripts. These findings will be discussed in the following chapter.

Table 3

List of Percentage Breakdowns of Exact, Variable, and Non-Contiguous Repetitions

ID	Unresolved (U) Vs. Resolved (R) Status	% of Exact Repetitions	% of Variable Repetitions	% of Non- Contiguous Repetitions
HK- 1	R - More	20%	75%	5%
HK-2	U - Less	42%	34%	24%
HK-3	R - More	0%	57%	43%
HK-4	R - More	1%	44%	55%
HK-5	R - More	20%	37%	43%
HK-6	R - Less	18%	73%	9%
HK-7	U - Less	60%	40%	0%
HK-8	U - More	64%	30%	6%
HK-9	U - More	40%	31%	29%
HK-10	R - More	0%	67%	33%
HK-11	U - More	46%	31%	23%
HK-12	R - More	0%	50%	50%
HK-13	R - More	15%	63%	22%
HK-14	R - More	17%	83%	0%
HK-15	R - More	18%	73%	9%
HK-16	R - Less	18%	40%	42%
HK-17	R - Less	35%	55%	10%
HK-18	R - Less	29%	42%	29%
HK-19	R - More	17%	58%	25%
HK-20	R - More	32%	36%	32%

Metaphors

Just as various forms of repetition were identified in the Katrina transcripts, multiple forms of metaphors were also detected. As noted earlier, both the Resolved and Unresolved individuals used metaphors that contained images of destruction and devastation. The prevalence of these types of metaphors suggests that they arose from the interviewees' collective unconscious.

The Unresolved individuals tended to employ more advanced metaphors that contained a greater amount of sensory imagery than the metaphors used by the Resolved individuals. The Unresolved individuals' greater use of sensory-infused metaphors suggests that they may have felt a stronger unconscious need to facilitate their assimilative process that was likely hampered. For instance, as an Unresolved individual describes her reaction to seeing the devastation in New Orleans, she remarks, "New Orleans looked like it had been through the flu or something. You know how you get sick and you're still not over it? They were still not over it. They definitely weren't over it." Here the destroyed city of New Orleans seems to serve as a symbolic representation of the interviewee's damaged self. Just as the flu virus invades the body, the interviewee perceives Katrina as having violated the once-healthy New Orleans. This metaphor, which links the traumatic event to the bodily realm, helps to render the traumatic event as experience-near so that the interviewee can more easily assimilate the trauma into her psyche.

Another Unresolved individual, when depicting the initial phase of the storm, says, "The wind sounded like trains just circling the house. You're standing on the track, or you're standing next to the track, and a train is passing. That's what it felt like. That's

what it sounded like.” The listener becomes a part of the visceral sensation of powerful winds rushing past so that the teller’s words register with the listener on an experiential level. Again, the teller’s use of metaphor serves to facilitate the assimilative process by connecting the traumatic event to her bodily sensations and thus rendering the traumatic event less foreign.

Shifts into Present Tense / Shifts into Second-Person Pronouns

The interviewees’ abrupt shifts from past into present tense and into the use of second-person pronouns were also examined. The Resolved transcripts were found to contain only a few shifts into the present tense. For instance, Melissa vacillates between the past and present tenses as she portrays her evacuation experience:

My dog got overheated and died in my mother’s arms on the way out. And, god, it was just surreal. And I think I can still see the bumper to bumper for miles. I mean, just the aggravation, the desperation, you know. The people on the radio, you know, “Have patience.” The people are, you know, losing their tempers. It’s -- everybody’s trying to get out too.

Talking about the death of her dog seems to trigger Melissa’s abrupt shift into the present tense. The sensory stimuli associated with the loss launches her back into the evacuation experience and she begins to relive the traumatic event to some extent.

The Unresolved transcripts were found to contain more shifts into the present tense relative to the Resolved transcripts. The Unresolved transcripts also included more frequent transitions into the use of second-person pronouns. For instance, a More Unresolved individual gives her account of listening to the local radio station during the storm:

Over the radio **you** were hearing these horror stories about what was going on in the Superdome from people in the Superdome... **You** know **your** life is in danger. **I** was at my house and knew... There was no censoring. There was no filtering.

You just heard everything. And it was just raw. Gave **you** goose bumps and **you** knew **you** were in trouble.

The Unresolved individuals' frequent changes into the present tense suggest a tendency to become more immersed in the trauma relative to the Resolved individuals. At the same time, the Unresolved Individuals' heavier reliance on the use of second-person pronouns represents an attempt to pull themselves out of this immersed state by distancing themselves from their trauma-related feelings and recollections.

Frequent Use of Dialogue and Inclusion of Detail

The qualitative data analysis revealed that the Unresolved interviewees used dialogue more frequently than the rest of the sample. This finding supports the notion that more frequent use of dialogue, which implies greater use of the present tense, is often matched by greater preoccupation with the trauma. Mary, an Unresolved individual, says the following:

We stayed in New Orleans actually after the hurricane five days. On the fourth day, they spotted my children 'cause they was doing a rescue at the church next door, like 'round the corner. The man like hovered over the house for a long time 'cause he didn't see no adults. I guess he was saying, "Well, did they leave the kids?" They didn't come back that night 'cause I was scared. I didn't want to be airlifted, you know, in one of those little things. I'm afraid of heights. So I'm like, "We might just have to take a chance and walk to the Convention Center or Superdome." Actually, the next morning the National Guardsmen, or what is it, rescue, they were knocking on the door. They was like, "We saw those babies out there yesterday." I'm like, "My babies?" He say, "Yeah, that was me in that helicopter." He say, "We didn't know what house, you know, they came out of." So he told us we had to go. They took us in a U-Haul to the airport.

Mary's heavy use of dialogue suggests that she is highly absorbed in her traumatic recollection. At the same time, her reliance on dialogue renders her account more vivid and enables the listener to share in her experience.

The data analysis also revealed that the Unresolved interviewees tended to provide especially detailed storm accounts relative to the rest of the sample. The Unresolved interviewees' greater inclusion of detail is another indication that assimilation of the trauma may have been problematic. Margaret, an Unresolved individual, includes a wealth of detail in her account:

By this time the electricity is not working, but the water was still on. I was still able to flush the toilets. But then they made an announcement over the radio that you couldn't. Even if you could still that you ran the risk of everything backing up into yours. So that was the end of flushing the toilets. So I had already filled up a bathtub, every available space that could have water. I had like six or seven buckets. Three were filled with disinfectant. One was filled with bleach and detergent, like, Dawn, I guess, so that I'd be able to wash dishes. The other one or two, whatever was left, was just clear water... I had a lot of scrubs, so whoever came to the door I made them strip down at the door and leave their clothes in a pile out of the water, wipe down with the wipes, use hand sanitizer, and put on a pair of scrubs. And I double bagged everything that came through the door and threw it out the back door. By this time the water's pretty high. According to my car, it was now at the bottom of the glass, top of the door, bottom of the glass, bottom of the windshield, I guess. You couldn't see the door handles any more. And I drive a Ford Crown Victoria so it wasn't a little car. There was also a neighbor who had a dump truck. And once my car went under, I couldn't tell by that any more. Now I had to gauge by the dump truck how high the water got. And water got as high as the top of the mirror on the dump truck. That's where it leveled out.

Margaret's need to provide such an abundance of detail would not be so pressing if she were readily able to assimilate the trauma; her heavy reliance on detail may reflect a desperate attempt to discover some means of integration.

Chapter V: Discussion

It is only for convenience that we speak of... a 'traumatic memory.' The subject is often incapable of making the necessary narrative which we call memory regarding the event; and yet he remains confronted by a difficult situation in which he has not been able to play a satisfactory part, one to which his adaptation had been imperfect, so that he continues to make efforts at adaptation. (Pierre Janet as quoted in van der Kolk & van der Hart 1995: 160)

I thought how unpleasant it is to be locked out; and I thought how it is worse, perhaps, to be locked in. (Virginia Woolf, 1929, p. 24)

This work examined the manner in which traumatic events can interfere with a survivor's ability to weave a coherent narrative of her experience. An archival collection of oral history interviews of Hurricane Katrina evacuees was subjected to narrative and linguistic analysis. An attempt was made to identify characteristic linguistic patterns within this sample of Katrina evacuees and the evacuees' levels of Referential Activity (RA) and Unresolved Trauma were also assessed. In addition, this study aimed to distinguish transcripts coded as "Unresolved" according to the Unresolved Trauma and Loss Scale of the Adult Attachment Inventory (AAI) from transcripts coded as "Resolved" on the basis of linguistic markers.

This project did not attempt to conclude whether or not the interviewees' attempts to integrate the trauma were ultimately successful. Longitudinal interview data would be necessary in order to state with confidence whether an interviewee's efforts towards assimilation were realized. In light of these limitations, this project examined how the subjects' powerful *strivings* toward integration were manifested in their language.

Levels of RA in this Sample of Katrina Survivors

Wilma Bucci's theory of Referential Activity (RA) informed the current examination. RA, a measure that reflects an individual's ability to translate non-verbal experience into language, does not remain constant; it is influenced by context and subject to fluctuation. Close tracking of a survivor's capacity to assign words to her non-verbal experience may provide insight into the ways she processes the traumatic event. Though the RA measure has been used in several research studies, it has never before been applied to a non-clinical sample of traumatized individuals.

Major Disparities in Survivors' Mean RA Scores Between Content Domains

The survivors' mean RA scores were disparate across the three (grounded theory derived) content domains (i.e., Direct Experiences Related to the Storm, Making Sense of the Disaster, and Life Adjustments after the Storm). The predominantly High RA scores that the interviewees received as they provided their direct storm accounts indicate that nearly all of the interviewees were absorbed in their traumatic recollections. As they attempted to make sense of the disaster, the interviewees' RA scores grew more divergent. The wide range of RA scores assigned to these turns of speech suggests that some interviewees adopted a more disengaged perspective and created a symbolic space, while others were unable to distance themselves enough from their experiences to create a space for reflection. The predominantly low RA scores that the interviewees received as they spoke of their lives following the storm suggests that the survivors were unable to fully invest in their present realities. It is possible that the evacuees had few psychic resources available to devote to the processing of their life transitions since the bulk of

their energies had been recruited in the service of processing the trauma itself.

The overall mean RA score for the Katrina sample was 0.54 with the individual mean RA scores ranging from 0.49 to 0.60. However, the fact that the survivors' RA scores fluctuated widely according to the ideational content of the survivors' turns of speech renders the overall mean RA score of 0.54 somewhat less meaningful. It is not so surprising that the survivors' RA scores fluctuated widely since RA is a measure that tends to vary with every turn of speech. What is noteworthy, however, is the *manner* in which their RA scores fluctuated.

The evacuees' RA scores fluctuated in a similar manner across the three content domains, which suggests that the fluctuations were systematic rather than random. For example, it is possible that recounting the trauma may have demanded more from the interviewees' symbolizing capacities than describing their life adjustments or making sense of the trauma. The steep rise in RA scores that accompanied the survivors' direct storm accounts may have reflected this differential demand on the interviewees' symbolizing capacities. Future studies that aim to clarify the relationship between context and RA fluctuations are needed.

Clarifying the Role of RA in Traumatized Populations

Given that numerous studies have linked High RA to mental health (e.g., Connelly, 1994; Samstag, 1996; McMath, 1991; Bucci and Miller, 1993) one would expect to find traumatized individuals demonstrating low levels of RA. The results of the present study disconfirm this hypothesis. The overwhelming majority of the evacuees used more High RA than Low RA turns of speech; all but two of the evacuees received mean RA scores of 0.50 or higher (see Table 1).

Linguistic mechanisms suggestive of traumatic immersion surfaced even in the transcripts of the individuals deemed “Resolved”. Since the majority of the Katrina evacuees seemed to be struggling in the aftermath of the storm, it would be misguided to equate their High RA speech with mental health. That the Unresolved individuals received mean RA scores of 0.50 or higher also seems to refute the notion that High RA speech is invariably linked to adaptive coping.

Bucci’s Multiple Code Theory would not have predicted a preponderance of High RA speech amongst the Katrina evacuees, since this would have suggested a high degree of integration between the evacuees’ subsymbolic and symbolic processes. (As discussed in Chapter 2, Bucci (2001) views pathology as stemming from a rupture in communication between the subsymbolic and symbolic systems.) It is possible that the evacuees’ subsymbolic and symbolic systems were only partially integrated despite the preponderance of High RA turns of speech. Translated into Brewin’s (2001) language of traumatic memory, it is likely that the memories of the storm that were housed in the survivors’ situationally-accessible memory (SAM) systems had not been fully integrated with the survivors’ verbally-accessible memory (VAM) systems (See pages 32-34). Since the memories housed by the SAM system tend to be more detailed and robust than those housed by the VAM system (Brewin, 2001), the fact that most of the evacuees’ traumatic memories were enhanced suggests that the evacuees relied most heavily on their SAM systems as they tried to integrate their traumatic storm recollections. Therefore, despite their High RA scores, the evacuees may still have been struggling to successfully integrate their nonverbal experiences of the storm into their more conscious memory systems.

This study is not the first to discover unexpectedly High RA scores amongst a sample of traumatized individuals. In their 1999 study, Jepson and Bucci compared the RA scores of 15 physically abused adolescents with the RA scores of 15 nonabused adolescents. It was hypothesized that the physically abused adolescents would exhibit lower RA scores than the nonabused adolescents, based on the assumption that the abused adolescents would demonstrate less ability to synthesize verbal and nonverbal experience compared to their nonabused peers. While no significant differences were found between groups on overall measures of RA, the abused adolescents were found to rely more heavily on evocative and sensory-infused imagery than the nonabused adolescents, as demonstrated by the abused adolescents' higher RA scores on the Concreteness and Imagery subscales (Jepson & Bucci, 1999). Jepson and Bucci (1999) noted that the physical abuse experienced by this sample of adolescents was not very severe and recommended that other traumatized populations be investigated in future research in order to better contextualize these unanticipated results.

Vida Grayson's (1995) study, which assessed RA in a sample of trauma survivors, also resulted in unexpected findings. In Grayson's study, 21 individuals receiving psychological treatment for PTSD symptoms recalled four different types of memories: a Traumatic memory, a Neutral Memory, an Early Memory, and a Recent Memory. Each memory was then scored using four RA scales (these scales were the predecessors to the computerized DAAP program). Though Grayson (1995) had predicted lower RA for the Traumatic Memories, she was surprised to find that the participants' Traumatic Memories received significantly higher RA scores than any other memory type. Grayson (1995) concluded that the patients in her study must have effectively processed their traumatic

experiences in psychological treatment. Grayson's conclusions do not find accord with the Katrina sample, a non-clinical sample of traumatized individuals that showed a preponderance of High RA speech. Though it is possible that a few of the study participants sought psychological services following Katrina, it is unlikely that the predominance of High RA speech is a result of the evacuees' having "worked through" the trauma, since the evacuees were recruited from the community rather than a clinic.

These findings, combined with the results of the present study, suggest that RA may play a unique role in traumatized populations. While findings from previous studies would suggest that High RA in the non-traumatized individual is indicative of mental health (e.g., Connelly, 1994; Samstag, 1996; McMath, 1991; Bucci and Miller, 1993), High RA in the trauma survivor may reflect the presence of trauma-related pathology. An important limitation of the RA measure is that it does not distinguish between evocative language and language suggestive of traumatic immersion. As a result of this limitation, a non-traumatized person and a traumatized person may receive equally High RA scores based on their use of evocative language. However, the meaning of these scores differs.

Additional studies that examine the role of RA in traumatized populations are needed to further test these propositions. If additional evidence demonstrates that High RA amongst traumatized individuals is *not* linked to adaptive coping, it would suggest that the RA measure needs to be further refined so that it can better distinguish between evocative language and language suggestive of traumatic immersion. In the meantime, researchers and clinicians should be cautious when interpreting the RA scores of trauma

survivors. Specifically, they should not assume that High RA scores are necessarily indicative of mental health in traumatized individuals.

Linguistic Patterns Observed in this Population

A Convergence of Findings

The narrative analysis of the Katrina transcripts was conducted without the aid of Mary Main's AAI coding manual; the linguistic markers described in this study were discovered independently. However, there appears to be a high degree of confluence between the findings of the present study and the results of Main's research. Numerous overlaps exist between the linguistic devices identified in this sample and those devices identified in transcripts deemed to be "incoherent" by Main. The accordance between the sets of findings carries important research and clinical implications.

Since its inception, Mary Main's AAI scoring procedure has emphasized the overall coherence of the narrative (Hesse, 1999). Slade defines the notion of coherence as it applies to the AAI: "A coherent interview is one that seems both believable and 'true' to the listener" (1999, p. 580). Markers of incoherence that AAI raters are instructed to note include the following: contradictions in the text, extremely long or short narratives, repeated use of vague terms, "grammatical entanglements," and narratives that are hard to follow (Hesse, 1999, p. 565). "Unusual attention to detail," and "inclusion of visual imagery," are also considered to be signs of incoherence (Stovall-McClough et al., 2008). When enough of these "incoherence markers" are present in a narrative, the speaker is likely to be scored as "insecure" (i.e., Dismissing, Preoccupied, and/or Unresolved) with regards to attachment.

Several of the linguistic markers identified in this study are convergent with markers previously identified by Main. For example, “sensory imagery” and “inclusion of detail” are similar to Main’s “inclusion of visual imagery” and “unusual attention to detail.” Also, some of the linguistic markers identified in this study could be subsumed under Main’s broader indices of incoherence. For example, the “shifts between first- and second person pronouns” and “shifts into the present tense” from the Katrina transcripts could be seen as falling under Main’s “grammatical entanglements” category. Although “exact repetition” and “heavy use of dialogue” have not been specifically cited by Main as being indicators of incoherence, these markers seem to harmonize with the other incoherence markers identified by Main.

The independent detection of these linguistic markers lends support to Main’s research and helps to verify that Main’s markers are hallmarks of traumatic narrative. Though the present study links these markers to a heightened degree of traumatic immersion, Main believes that these markers surface when dissociated thoughts or memories intrude into consciousness and cause a lapse in discourse (Hesse, 1999). These viewpoints are not mutually exclusive, but rather serve as complementary ways of understanding the same phenomena.

Main’s “attentional flexibility” framework can also help contextualize the findings from the present study. Main proposes that the three major attachment categories, Secure, Dismissing, and Preoccupied, differ along the dimension of attentional flexibility (Main, 2000). She asserts that “secure autonomous” speakers are able to shift their attention flexibly so that they can portray their attachment related experiences while also evaluating the impact of those experiences (Main, 2000). In

contrast, Main suggests that both “Dismissing” and “Preoccupied” speakers show an inflexibility of attention. According to Main, Dismissing speakers tend to shift the linguistic emphasis *away* from past attachment experiences whereas Preoccupied speakers tend to orient their linguistic emphasis *towards* past attachment experiences. Main (2000) also asserts that Preoccupied speakers are so focused on these past experiences that they are frequently unable to evaluate the impact of those experiences. Since the Unresolved attachment category is a relatively newer category, the attentional stance of the “Unresolved” speaker has not yet been established.

Despite the fact that the dimension of attentional flexibility was not formally assessed in the present sample, it would appear as though the Unresolved evacuees, on the whole, demonstrated a lack of attentional flexibility. Moreover, the type of attentional inflexibility displayed by the Unresolved evacuees parallels the type of attentional inflexibility seen in Preoccupied speakers. Just as Preoccupied individuals’ focus on their past attachment experiences impedes their ability to reflect upon those experiences, the Unresolved evacuees’ focus on their traumatic experiences seemed to hamper their capacity for reflection. Further research is needed to verify empirically whether the attentional stance of Unresolved individuals does in fact resemble that of Preoccupied individuals.

Levels of Unresolved Trauma in this Sample of Katrina Survivors

This work also aimed to assess the levels of Unresolved trauma in this sample. Five of the 20 evacuees (25%) were classified as Unresolved based on the scoring criteria of the Unresolved Trauma and Loss Scale of the AAI. (Table 2 lists the scale scores

assigned to the interviewees.) All 5 Unresolved individuals were among those who did not evacuate until after the storm's conclusion. This finding lends support to the notion that greater exposure to disaster-related elements may be linked to a greater incidence of psychological distress following trauma (Norris & Uhl, 1993; Simeon, Greenberg, Nelson, Schmeidler & Hollander, 2005). Three of the Resolved individuals were also late evacuees, which suggests that heightened traumatic exposure does not necessarily lead to maladaptive coping following trauma. While greater disaster exposure may place an individual at greater risk for maladaptive coping following trauma, there are likely other prognostic factors at play.

As noted in the Results chapter, it is somewhat surprising that only 25% of the evacuees were categorized as Unresolved since several of the Resolved transcripts also contained linguistic markers suggestive of incoherence. It is possible that a larger percentage of the Katrina evacuees might have been classified as Unresolved if the formalized AAI coding procedures were adapted to better reflect the continuous nature of the Unresolved Trauma and Loss measure.

Distinguishing Unresolved and Resolved Transcripts Based on Linguistic Markers

Also, this study evaluated whether transcripts coded as "Unresolved" according to the Unresolved Trauma and Loss Scale of the AAI contained unique linguistic characteristics that could distinguish them from those transcripts classified as "Resolved." As noted in the Results chapter, both the Resolved and Unresolved evacuees relied on characteristic linguistic mechanisms (e.g., exact repetition, shifts into present tense, sensory imagery, heavy use of dialogue, inclusion of detail), but the Unresolved

individuals were found to rely on these devices more heavily. This indicates that they were more immersed in their traumatic recollections than the Resolved individuals.

A Taxonomy of Linguistic Devices

Qualitative differences between the Resolved and Unresolved transcripts also emerged. The Unresolved individuals were found to resort more frequently to the use of fixed, exact repetition whereas the Resolved individuals were found to rely more on the use of higher-order, variable repetition. That the Unresolved individuals were found to rely more heavily on exact repetition (as opposed to variable repetition) suggests that a hierarchy may exist among the different forms of linguistic repetition. Other researchers have also surmised that a taxonomy of repetition may exist in which exact repetition represents the most primitive form of repetition. Grofman (2008) concludes that, “In children’s books, repetition is a multileveled phenomenon. Books for young children repeat simple words like ‘you,’ ‘I,’ ‘me,’ ‘mommy,’ and ‘bunny’... Gradually, in accordance with the child's maturation, repetition becomes more subtle” (p.14). Here Grofman suggests that subtler, more varied forms of repetition may be consonant with the attainment of a higher level of cognitive development and integration. Though Grofman does not use the terms “exact repetition” and “variable repetition,” the repetition of “simple words” seems to correspond with what is described in this work as “exact repetition” while the subtler forms of repetition that Grofman refers to can be seen as analogous to what is described here as variable repetition.

The presence of exact repetitions in a trauma narrative may indicate the speaker is unable to assimilate the traumatic experience. By repeating certain words or phrases in an unvarying manner, the narrator may be trying desperately to habituate herself to

traumatic elements that feel too foreign and threatening to be easily integrated. In comparison, variable repetition is a more flexible device -- the repeated words and/or phrases are intermingled with the rest of the individual's language rather than preserved as a separate, frozen entity. For this reason, varied repetition may often appear as more spontaneous and playful than exact repetition. The presence of variable repetition may indicate that the person is actively striving to *transform* the traumatic experience.

Also, the survivor's use of fixed repetition, in which static phrasings are preserved as separate entities, may reinforce a dissociative process by helping to ensure that the trauma remains encapsulated in the psyche. In contrast, the survivor who relies on variable repetition may be attempting to connect her traumatic storm experience to prior experiences so that she can more easily categorize her experience. Being able to categorize the traumatic experience may be desirable, as it likely limits the amount of psychic energy that the survivor is required to expend as she tries to make sense of the trauma (Rapaport, 1951).

Non-contiguous repetitions may exist in the middle stratum of the repetition hierarchy. Non-contiguous repetitions are more subtle than exact repetitions, as they tend to be woven into the rest of the individual's speech and are temporally separated. Unlike variable repetitions, though, non-contiguous repetitions consist of words or phrases that are repeated in a fixed, unyielding manner. In other words, the trauma does not remain fully encapsulated since these fixed repetitions are dispersed throughout the narrative, even though the survivor repeats trauma-related phrases in an exact manner. The use of non-contiguous repetition may therefore represent the survivor's nascent attempts to connect the traumatic experience to prior experiences. Though no meaningful differences

were detected between the Unresolved and Resolved groups when it came to the use of non-contiguous repetitions, it is possible that the small sample size used in this study may have obscured differences that were present. Larger-scale studies that assess the usage rates of non-contiguous repetitions amongst Unresolved and Resolved individuals need to be conducted in order to clarify the role of non-contiguous repetitions.

While this work has deemed variable repetitions to be less primitive than exact repetitions, metaphors appear to be more advanced than all forms of linguistic repetition since they accompany an even greater movement towards transformation. This striving towards transformation is reflected in the spontaneous and playful ways that words and ideas are combined through metaphor. The person who relies on metaphor is actively engaged in a mutative act that may help her to derive new meaning from the trauma.

A teller's over-reliance on linguistic repetition may produce feelings of boredom or irritation in the listener, whereas the use of evocative metaphor can often pique the listener's interest. Thus, a person who employs metaphor may discover that she is more able to elicit an empathic response than a person who relies on repetition. Since an empathic listener is more likely to offer assistance and compassion, a device that succeeds in eliciting the listener's empathy (such as metaphor) may be considered superior to one that often fails in producing this desired effect. There may be exceptions to these generalizations. For example, a stereotyped or trite metaphor may strike the listener as dull while a well-timed repetition may impart a compelling sense of musicality or suspense (assuming that it is said in the context of more varied speech).

An Examination of the Current AAI Coding System

The extent of traumatic immersion differed between the Resolved and Unresolved

evacuees, but the linguistic devices used in both sets of transcripts were fundamentally similar. This suggests that the hard distinction between the Unresolved and Resolved classifications might be more fluid than previously thought. Moreover, this fluidity should call into question the AAI coding system as it pertains to the Unresolved Trauma and Loss Scale. As reviewed in the Methods chapter, an individual is classified as Unresolved with regards to trauma if she receives a score of 5 or above on the scale, and is classified as Resolved if she receives a score below 5. The rationale behind the current coding system rests on the assumption that Unresolved trauma is either present or absent in any given individual. The findings from this study suggest instead that individuals in both categories appeared stuck in the traumatic occurrence to varying degrees. Based on these findings, it seems reasonable to conclude that Unresolved Trauma should be viewed as a continuous measure and not as a dichotomous one. Traumatized individuals should not simply be classified as Resolved or Unresolved. Rather, *the degree* to which they are Unresolved should be determined. Though the current binary coding system is convenient for research purposes, it does not adequately capture the complicated nature of traumatic reactions.

While some researchers have adapted the Unresolved Trauma and Loss scale for use as a continuous measure, the official AAI coding manual still proposes that the Unresolved Trauma and Loss Scale be used as a categorical measure. One way to formally alter the coding system to better reflect the continuous nature of the Unresolved trauma measure could be to further subdivide the Unresolved and Resolved classifications. In this more highly differentiated coding system, the 1 - 9 Unresolved Trauma and Loss scale would be segmented into quartiles. An individual who received a

score of 3 or below would be classified as “More Resolved” while an individual who received a score that fell between 3 and 5 would be classified as “Less Resolved.” An individual who received a score that fell between 5 and 7 would be classified as “Less Unresolved” while an individual who received a score of 7 or higher would be classified as “More Unresolved.” Modifying the scale in this way would preserve the ease of comparison necessary for research purposes while more accurately depicting the continuous nature of the variable being measured.

Clinical Implications of the Current Findings

The results of this study demonstrate that careful, attuned listening on the part of the clinician presents a naturalistic method of assessment. Attending to the characteristic linguistic markers identified in this study can help clinicians identify those individuals who may be at a heightened risk for stress-related pathology following trauma. If a survivor relies heavily on these markers while providing her trauma account, it may indicate that she is Unresolved with regards to trauma. (While Unresolved trauma should not be equated with psychopathology, the presence of Unresolved trauma has been shown to be an important contributing risk factor in the development of psychopathology (Slade, 1999)).

The clinician should recognize that linguistic repetition can act as a double-edged sword; it may enhance integration, but if the repetition of the story becomes rote and over-rehearsed, it may provide another mechanism by which the survivor can more easily detach herself from her trauma-related emotions. The clinician should also pay special attention to a patient’s reliance on exact repetition since this form of repetition may

indicate an especially high degree of psychological immersion in the trauma. Moreover, a patient who regularly resorts to the use of exact repetition may fall at the extreme end of the Unresolved continuum and may be at heightened risk for stress-related psychopathology.

Frequent shifts into the present tense and into the use of second-person pronouns should also serve as warning signs for the clinician. A patient who relies heavily on these devices may be struggling to disengage from the traumatic event. If she is unable to disengage from the trauma, the patient may remain stuck in her traumatic recollections. She may also be at heightened risk for the development of psychopathology as a result of her inability to reflect upon the trauma, or to create meaning from it.

Traumatized individuals who demonstrate excessive use of the linguistic mechanisms outlined above should be monitored closely for the development of stress-related symptomatology. These patients may benefit from a trauma-focused therapy such as exposure therapy or EMDR. These treatments may aid the recovery process by helping to habituate the patient to the most traumatic aspects of the event.

The treating clinician should also be sensitized to themes of loss related to the trauma. These themes surfaced repeatedly in the Katrina transcripts; the evacuees seemed to be mourning for the loss of material possessions, the loss of security, and/or the loss of their pre-trauma identities. Though individuals' subjective responses to trauma may be unique, the need to mourn for what has been lost may often be shared amongst survivors.

When feelings of loss arise during the course of treatment, the clinician may help the patient to mourn those aspects of her self that cannot be regained. The clinician may

simultaneously encourage the patient to establish a new identity that incorporates the traumatic event without being solely defined by it. This process of mourning and resurrection may require the patient and therapist to co-construct a more coherent narrative that leaves room for the creation of new possibilities (Neimeyer et al., 2006). As this more seamless narrative begins to arise from the broken narrative, the patient's experience of a continuous self may be restored. In this way, the patient may recover her sense of "going on being" (Winnicott, 1956).

Lastly, the clinician should not be surprised to find herself cast in the role of witness to the trauma when working with a survivor. The qualitative analysis showed that several of the linguistic devices used by the evacuees (e.g., heavy use of dialogue, shifts into present tense, inclusion of detail) effectively transformed the interviewer into a witness. Using language to create a witness may be adaptive in that it can help the teller to feel less alone with the trauma. A clinician who acts as witness may also help the patient to contain her painful affect and to properly integrate the traumatic memory (Blum & Pfetzing, 1997).

Limitations and Directions for Future Research

While the results of this study carry important implications for both clinicians and researchers working with traumatized populations, a few caveats should be noted. First, the sample was comprised of only 20 individuals, which may limit the generalizability of the findings presented here. Also, a self-selecting bias may have influenced the results given that the sample was a convenience sample rather than a random sample. Evacuees who were primed to talk about their experience may have been more likely to volunteer

for study participation than evacuees with avoidant tendencies. If the sample had attracted a greater number of avoidant evacuees, the individual mean RA scores may have been comparatively lower since avoidant individuals would likely have employed vaguer language when describing their storm experience.

Some may also view the interviewers' brief training as a shortcoming. While it is true that skilled clinical interviewers may have managed to elicit additional, potentially useful information, the evacuees might have censored themselves more if they felt as though the interviewers were clinically assessing them. The raw and organic nature of the interviews suggests that the participants felt largely at ease while being interviewed. This lack of self-consciousness may have helped to ensure that the language that appears in the transcripts is representative of the evacuees' naturally occurring speech patterns.

Another possible limitation of the study is that individuals exposed to other forms of trauma (e.g., physical trauma, sexual trauma, war trauma, etc.) did not participate in this study. Because the type and duration of the trauma endured may have an important bearing on an individual's narrative style, results from this study might not apply to individuals who have suffered non-disaster-related traumas. Future studies in this area should account for differences in the nature and intensity of the traumatic event both in their study design as well as in their data analyses.

The reliance on archival data acts as another limiting factor. Because the aim of Dr. Pruitt's initial study was to simply document the survivors' hurricane stories, trauma histories were not collected so that it is unknown whether some of the evacuees' were subject to earlier traumas. Prior traumatic incidents, if present, could have contributed to the development of the linguistic characteristics identified in this study. The evacuees

were also not formally assessed for the presence of PTSD symptomatology. Given that PTSD and Unresolved trauma are understood via a similar conceptual framework (Stovall-McClough & Cloitre, 2006), it would have been interesting to note whether evacuees deemed to be Unresolved also demonstrated high levels of PTSD symptomatology. Future studies are needed that focus on the potential association between PTSD and Unresolved trauma since it is unclear whether the Unresolved classification is a distinct construct (see Chapter 2 for elaboration).

To further bolster the conclusions presented here, this study would be repeated using a random sample comprised of a greater number of subjects. Trauma histories would be collected and the evacuees would be assessed for the presence of PTSD symptomatology. Follow-up interviews would also be conducted so that longitudinal data would be made available. If, at the time of follow-up, the evacuees' language was found to be largely unchanged, it would suggest that their integrative strivings had been unsuccessful. However, if the evacuee's language seemed transformed in a way that suggested less immersion in the trauma, it might signal that recovery was underway.

Due to the limited scope of this study, the evacuee's Reflection scores (derived from the DAAP output) were not analyzed. It is possible that adaptive coping in traumatized individuals might be represented by spikes in RA that would alternate with spikes in Reflection. This alternating, dynamic pattern of RA and Reflection scores would signify the survivors' ability to connect with their visceral trauma-related sensations as well as their ability to disengage from the traumatic material when threatened by overwhelming negative affect. This pattern of fluctuating RA and Reflection scores might serve as a graphical representation of a flexible coping style, a

style that has been correlated with good prognostic outcomes in the literature (Mancini & Bonanno, 2006; Bonanno et al., 2004). Future studies that examine the role of both RA and Reflection in traumatized individuals are needed to test this hypothesis.

Also, listeners' responses to the trauma narratives were not examined closely. A future study might aim to differentiate listeners' responses to trauma narratives based on which linguistic mechanism surfaced most frequently throughout the narrative. It would be interesting to determine whether individuals who relied most on metaphor tended to elicit a greater degree of compassion than individuals who relied most on linguistic repetition. If this were true, it would demonstrate that the use of metaphor is more adaptive than the use of repetition since the eliciting of listeners' aid and compassion tends to be the tellers' desired result. Also, research has shown that traumatized patients who receive less social support are more prone to the development of stress-related psychopathology (e.g., Billings & Moos, 1984; Brown & Harris, 1978) so that a mechanism that fails to produce the desired result in the listener may be determined to be less adaptive. As part of the same study, it would be interesting to determine whether listeners tended to respond more positively to individuals who relied mostly on variable, as opposed to exact, repetition. This would support the existence of a hierarchy of repetition in which exact repetition is seen as more primitive. If a clearer hierarchy of linguistic mechanisms were established, the naturalistic means of assessment proposed in this study could be further refined. Clinicians could better identify patients at risk by taking special note of those patients who used linguistic mechanisms that failed to produce the desired response in the listener.

Conclusion

The core of traumatic experience eludes knowingness and comprehension. Sheer incomprehensibility itself may comprise the bedrock of trauma. Though the center of the trauma may not be glimpsed directly, clinicians may discern the contours of a traumatic experience by paying heed to traumatic manifestations. Trauma-related thoughts, feelings, memories, and sensations may be quarantined from awareness while exerting a subtle and continual influence on the survivor's psyche. Meanwhile, aspects of the trauma may appear in derivative form in individuals' language, behavior, dreams, etc.

This work tried to elucidate the core of the evacuees' traumatic experience by using their language as a point of entry. Attending to the content and process of their trauma narratives provided insight into the manner in which the evacuees were processing their traumatic storm experiences. This study successfully identified several distinct linguistic mechanisms that appear to be suggestive of greater absorption in the trauma. Clinicians' careful attention to the surfacing of these mechanisms in patients' trauma narratives may function as a naturalistic means of assessment that can help to identify patients who are at a heightened risk for stress-related pathology.

Appendix A

DAAP Transcription Rules

Version 2³

Bernard Maskit and Wilma Bucci

I – BACKGROUND

The original HDAAP series were written in C++; the DAAP series are written in Perl, so there is a different set of operating rules, and a somewhat different set of transcription rules. The transcription rules for DAAP that are different from those of HDAAP are written in *italics*. (The changes are primarily in item 3, and the optional functions provided in item 4. Also see changes in several of the rules in items 9, 10 and 13.)

I – ESSENTIAL TRANSCRIPTION RULES FOR ALL VERSIONS OF DAAP AND
FOR ALL DICTIONARIES

1. Word Processing Format. Do not use any of the typography or formatting tools of your word processor, such as bold, italics, justification, etc. Make sure you write or save your final version as a text (.txt) file.

Some word processors break words and insert hyphens. Make sure your word processor does not do this.

2. Top Matter. The transcript begins with a confidentiality and/or ownership statement provided by the project director with the tape being transcribed. Place this confidentiality statement at the top of the transcript.

Follow this with a statement telling: the transcriber's identifier (i.e., name or initials, as directed by the project director), date of transcription, and name of study.

Write the name of the session on the next line.

3. Classification indicators. *The major improvement of DAAP over HDAAP is a different way of handling classification indicators such as time, subject and task. You choose your classification terms depending on the organization of your study. For example, if your transcript has several interviews, with different subjects, at different times, and each subject is asked several questions, your classification terms might be: 'subject', 'time' and 'question'. If, for example, your first subject is labeled Lucy and the interview is at time 1, and the first question concerns food, you would mark the interview as follows:*

\t subject:lucy

\t time:1

³Some of these rules are modifications of previous rules defined by Mergenthaler and Stinson (1991), and Dahl (1979).

\t question:food

Then, when the interview turns to the next question, which might be love, you would place the marker:

\t question:love

on a line by itself, just before the beginning of this part of the interview. There is no need to repeat the information that the subject is Lucy and that the time is 1.

The program treats each change of classification as a new turn of speech, so you must indicate who is speaking after each change of classification, even if there is no change of speaker. That is, you must have a line beginning with

ls

after each change of classification.

All the classifications to be used in your study must be included in the first set of labels. You cannot add a new classification after the beginning of the first turn of speech; and you must spell the classification term exactly the same way each time you use it (the program is case sensitive, spelling includes capital letters).

The classification terms, and the names of the instances of the categories (e.g., Lucy, 1, food) must be made up of ordinary letters, either upper or lower case, and numbers; no other keyboard characters are allowed; also no accented letters are allowed. Again, the program is case sensitive, T and t are different letters.

4. Optional Function; Specified Aggregation of data. *The program will automatically compute data for each turn of speech and for each speaker within specified classifications. That is, for the above example, the program will automatically compute the data for speaker 1 for the subject Lucy, in interview 1, and subject food. That is, in the AGI file, there will be a separate line for speaker 1, and for speaker 2, for each subject, for each time and for each topic.*

You might wish to further aggregate your data. For example, you might wish to see aggregate scores for each subject and each time, where the scores for the different topics are all combined. To do this, you type, on a line by itself, below the first instance of the categories:

\g question

Or you might want to see aggregate data for each subject, aggregating over all times and all questions. in this case, you would type:

\g time:question

However, you are permitted only one instruction of this type, so if you want to aggregate data in several different ways, you will need to run the program several times. (if you have two separate lines starting with \g, the result will be unpredictable.)

5. Confidentiality. The transcriber must consult with the research project director concerning the use of disguises. All proper names of persons, places and animals must be changed; they are usually changed into other names of persons, places and animals, of the same form, but some project directors prefer other codes. This replacement must be done by the transcriber; the software will not do it. These changes must be listed in a code book, and must not appear in any form in the transcript. The form and safety of the code book is the responsibility of the project director.

6. Speaker designators. The tape contains the voices of several speakers; name these as 1, 2, etc.; there is no a priori limit to the number of speakers. Each time there is a change of speaker, **start a new line after a blank line. If the new speaker is speaker 1, start this new line with the speaker designator:**

`\s 1`

If the next speaker is speaker 2, start this new line with

`\s 2 ;`

etc. Note that there is no space before the backslash, and that there are spaces both before and after the numbers; these are important. There is also a special rule for psychotherapy and psychoanalytic sessions, and similar dialogues, such as interviews; the patient or interviewee is **always** speaker 1, and the therapist or analyst or interviewer is **always** speaker 2.

There is a special rule for turns of speech with no content, such as the case of a speaker who is interrupted by someone else coughing, or laughing, or saying just some non-word, such as “hm” or “um hmm”. In these cases, and in these cases only, start a new line and, if for example, the interruption consists of speaker 2 saying “hm”, type:

`\st 2 mm.`

(Again, note that the backslash occurs at the beginning of a line, and that there are spaces both before and after the speaker number.)

7. End of transcript. At the end of the transcription of the last speaker, start a new line and type:

`\c9`

Any material in the transcript after this will not be processed by DAAP.

8. Sounds other than spoken words. Events, or sounds other than words, should be noted in parentheses, as in (laughs), (coughs), or (telephone rings), etc.

9. Backslashes. *The backslash may only be used as indicated above. It must always be the first character of the line it is on.*

10. Rules for words. The following are intended to standardize the decisions that the transcriber will need to make. NOTE: These rules do not apply to items in parentheses, as the program ignores all items included in parentheses (round brackets).

- **Compound words.** Write compound words such as "self_sacrificing" using the underscore, rather than the hyphen used in the rules for previous versions of DAAP. As before, please consult a dictionary if there is any doubt as to whether a word is a compound. For example, while "self_sufficient" is a compound word, "selfless" is one word.

- Here are the rules for extraordinary words:

1. A word or phrase that is in the dictionary should be transcribed as written in the dictionary.

2. If there are two possible forms in the dictionary, such as "goodbye" or "good_bye", choose the simpler; i.e., no underscore.

3. If the dictionary offers one word or two, such as "chickenpox" or "chicken pox", choose one word; i.e., "chickenpox".

4. If the item sounds as if it ought to be one word, but is not in the dictionary, such as "bookturner", and there is no such item in the dictionary, and both parts are words in the dictionary, write it as two words; i.e., "book turner".

5. If the item as spoken appears as one word, such as "nonbelief" and there is no such item in the dictionary, and the two separate parts are not words in the dictionary ("non" is not a word in the dictionary; it is listed as a prefix), then write this as a hyphenated word; that is "non_belief."

- **Incomplete words.** Denote an incomplete word by ending it with exactly one hyphen. For example, if the speaker stutters and says: "f f fail"; this should be transcribed as "f- f- fail"; *note the spaces after the hyphens*. If the speaker starts a word, hesitates, and then either completes the word or says another word, type the first partial word with a hyphen at the end, followed by a space. For example if the speaker says "some", then hesitates, then says "somewhat", transcribe it as "some- somewhat". The reason for this rule is that some versions of DAAP count incomplete words. However, if the speaker says "I I I don't know what to say"; these are not incomplete words, and this sentence should be transcribed as shown.

If at all possible, do not use hyphens for any other purpose. Some word processors, including MS Word, sometimes interpret hyphens used in other contexts as em-dashes or en-dashes, which the program will then reject.

- **Unclear words.** These are noted in parentheses; if the speaker says "the" followed by one or more unclear words, type "the (unclear)". It is not necessary to try to preserve the

number of unclear words.

- **Misspoken words.** If the speaker misspeaks, or if you hear the speaker as misspeaking, and there is no doubt as to the correct meaning, type the correct word. For example, if the speaker says something that sounds like, “I want to Philadelphia yesterday, and walked on Market Street”, this is clearly a misspeaking, and the correct word is “went”, rather than “want”, so the transcription should read, “I went (want) to Philadelphia ...”.
- **Apostrophes.** Use apostrophes as usual for contractions, such as "don't", "can't", "I'd", and for possessives. However, type “o_clock” rather than “o'clock”, as this is really one word.
- **Filled pauses.** Sounds that have no meaning, such as “um”, should always be written as “mm”. If there is any reason to attempt to preserve the original sound more specifically, one can type the phonetics in parentheses, such as, “mm (um)”, or “mm (hm)”. Note that “oh”, “ah”, and “mm_hmm” are words; the usual sounds in the “MM” category are: “um”, “hm”, “uh”, “uhm”, etc.
- **Numbers.** *Numbers in the text should be written out; that is, type “seven”, rather than “7”. For time, type “eight_forty_five” rather than “8:45”. Even large numbers should be written out using underscores; for example: “twenty_four_hundred_fifty_three”. Of course, speaker indicators must be digits (1,2, etc.), and category designators can use digits, including such designators as “mong4”.*

11. Punctuation Marks. Use punctuation marks, such as commas, periods (full stops), semicolons, exclamation points and question marks as in customary usage. They do not matter for the program, but can be used to make the text more readable.

12. Abbreviations. Some standard abbreviations are usually written with periods, such as “a.m.”, while others, such as “S.U.N.Y”, are sometimes written with periods and sometimes without. Do not use periods, but rather type, for example, “am”, and “SUNY,”

13. Pauses. *You may use slashes (/), to indicate pauses of up to five seconds (one slash for each second). Do not use longer dashes (em-dashes or en-dashes) or three dots (...) for this purpose. You should leave a space both before and after each of these dashes.*

Some transcription rules use hyphens, or em- or en-dashes, or two or more dots to indicate pauses. You may leave these time indicators as is, but you must check the "log" file after running the program to ensure that your word processors has not translated some of these into strange symbols.

II. SPECIAL DISAMBIGUATION RULES FOR THE WEIGHTED REFERENTIAL ACTIVITY DICTIONARY, VERSION 3 (WRAD3)

- 1 The word “kind” has two distinct meanings, as in “She’s a kind person”, and “what kind of apples do you like?”. The first meaning should be typed as “kindAFF”, as in “Be kindAFF to your poor old mother”, while the second meaning is typed as simply “kind”, as in “There is more than one kind of happy relationship”.
- 2 The word “know” has two meanings, which are sometimes hard to distinguish. The first is as part of the verb to know, as in “I know where I’m going”. The second meaning is as a filler, as in “We were in the car, you know, when she told me about Sarah”. Here the first meaning should be typed as simply “know”, as in “I know what you’re thinking”, while the second meaning should be typed as “knowD”, as in “We were just strolling down Fifth Avenue, you knowD what I mean, when the taxicab stopped right in front of us.”
- 3 The word "like" has two major meanings, as a verb and as a comparative; it is also very generally used as a filler. The verb form is disambiguated by typing "likeV", and the comparative form is disambiguated by typing "likeC". Here are rules to help with this disambiguation.
 - a. The word "like" is always a comparative after any form of "seem", "look", "sound", "feel", "smell" or "taste"; that is, "seems likeC ...", "look likeC ...", "felt likeC ...", etc.
 - b. The word "like" is usually a comparative immediately before "this" or "that"; for example, “I won’t put up with stuff likeC that.” However, there are exceptions, as in, “It’s like, this is a dingy rug,” or “I likeV that a lot.”
 - c. Anytime the word "like" is used in a sentence where the meaning would be unchanged by removing this word, it is a filler, not a comparative. For example, “I ate like about six red apples”.
 - d. When the word "like" is used with the meaning of “such as”, usually preceding an example or list of examples, treat it as a comparative. For example, “I love soft colors, likeC rose or amethyst”.
 - e. If there is no obvious comparison being made, treat the word "like" as a filler. For example, “I walked up to him, and he’s like ‘what do you want’, and I’m like ‘I need a telephone’”.
4. The word “mean” has two distinct usages. One is as an adjective, as in, “he’s mean to me”, and the other is a verb, as in “What do you mean by that?”. The first meaning should be typed as “meanAFF”, as in “Don’t be so meanAFF!”, while the second meaning should be simply typed as “mean”, as in “I mean to go ahead with my plan”.

5. The word “well” has at least three distinct meanings. It is often used as a filler; it is an adverb; and it has a special use as a form of conjunction. The filler use, as in, “Well, then we like, you know, went to the country”, is transcribed as simply “well”. The adverbial use, as in “I know him well”, is transcribed as “wellA”. The conjunction use, as in “she knits baby clothes as well as sweaters”, is transcribed as “wellC”. Note that wellC is always preceded by the word “as”.

Appendix B

Demographic Breakdown of the Sample

Interviewee ID	Age	Ethnicity	Gender	Marital Status	Timing of Evacuation – Early vs. Late*
HK-1	71	Caucasian	F	Married	Late
HK-2 / “Ted”	50	Caucasian	M	Married	Late
HK-3	55	Caucasian	F	Single	Early
HK-4 / “Lila”	22	Caucasian	F	Single	Early
HK-5 / “Sean”	23	Caucasian	M	Single	Early
HK-6 / “Diane”	53	Black	F	Married	Early
HK-7	59	Caucasian	M	Single	Late
HK-8 / “Brenda”	55	Caucasian	F	Married	Late
HK-9 / “Margaret”	40	Black	M	Single	Late
HK-10	20	Black	F	Single	Early
HK-11 / “Mary”	38	Black	F	Single	Late
HK-12	92	Caucasian	F	Widow	Late
HK-13 / “John”	52	Caucasian	M	Married	Early
HK-14	72	Caucasian	M	Married	Early
HK-15 / “Karen”	72	Caucasian	F	Married	Early
HK-16	41	Hispanic	F	Married	Early
HK-17	62	Black	M	Married	Late
HK-18	60	Black	F	Married	Early
HK-19	19	Black	M	Single	Early
HK-20 / “Stacy”	47	Caucasian	F	Married	Early

* Note: Individuals were considered to be “Early” evacuators if they left before the storm made landfall. Individuals were considered to be “Late” evacuators if they left after the storm made landfall.

Appendix C

List of Eight Major Groupings and Three Umbrella Categories (yielded by Grounded Theory Analysis)

1. “Direct Experiences Related to the Storm”

- a. Interviewees’ personal experiences during the storm
- b. Interviewees’ experiences in the immediate aftermath of the storm
- c. Direct consequences of the storm (e.g., loss of communication with loved ones, loss of personal property, death of a loved one as a result of the storm).

2. “Making Sense of the Disaster”

- a. Interviewees’ psychological responses to the disaster
- b. Viewing the disaster through a religious framework
- c. Interviewees’ theories of causation.

3. “Life Adjustments after the Storm”

- a. Interviewees’ Descriptions of Life after Katrina

Interviewees’ Plans to Rebuild or Relocate

Appendix D

Comparison of the “Resolved” versus the “Unresolved” Transcripts: Breakdown of the Sample

“Resolved” Transcripts: N = 15

a. *“More Resolved” Transcripts: N = 11*

(Includes: HK-1; HK-3; HK-4; HK-5; HK-10; HK-12; HK-13; HK-14; HK-15; HK-19; HK-20)

b. *“Less Resolved” Transcripts: N = 4*

(Includes: HK-6; HK-16; HK-17; HK-18)

“Unresolved Transcripts: N = 5

a. *“Less Unresolved” Transcripts: N = 2*

(Includes HK-2 and HK-7)

b. *“More Unresolved” Transcripts: N = 3*

(Includes HK-8; HK-9; HK-11)

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