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Motivated biases in autobiographical narratives of interpersonal transgressions

Stillwell, Arlene Marie, Ph.D.

Case Western Reserve University, 1993
MOTIVATED BIASES IN AUTOBIOGRAPHICAL NARRATIVES

OF INTERPERSONAL TRANSGRESSIONS

by

ARLENE MARIE STILLWELL

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

Thesis Advisor: Roy F. Baumeister

Department of Psychology

CASE WESTERN RESERVE UNIVERSITY

August, 1993
We hereby approve the thesis of

[Signature]

candidate for the M. D.
degree.*

(signed) [Signature]
(chair)

(date) June 16, 1993

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MOTIVATED BIASES IN AUTOBIOGRAPHICAL NARRATIVES
OF INTERPERSONAL TRANSGRESSIONS

Abstract

by

ARLENE MARIE STILLWELL

Past research has found that perpetrators and victims of interpersonal transgressions focus their stories on very different aspects of the event. The present study addressed the issue of the motivated biases and inaccuracies in autobiographical narratives of minor interpersonal transgressions, due to the role or position one played in the original incident (perpetrator or victim). Twenty one males and twenty nine females participated in return for partial course fulfillment. Participants were randomly assigned to one of four experimental conditions or to a control condition. Participants in the four experimental conditions read a story detailing an interpersonal transgression while taking on the perspective of either the perpetrator or the victim. Experimental participants then later wrote the story as they remembered it happening to them. Participants in the control condition were asked to read the story and later wrote it as they remembered it happening. Results indicate that both perpetrators and victims distort their stories to an equal degree. Trends suggest that first-person stories contain more systematic errors while the third-person story errors were mainly random. It was concluded that the motivations to bias autobiographical narratives are contained in the interpersonal roles.
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When individuals describe events from their own experiences, they typically do so in the form of an autobiographical narrative or a story (Baumeister, 1988a; Baumeister and Newman, 1993; Baumeister, Stillwell and Wotman, 1990; Gergen & Gergen, 1988; Harvey, Weber & Orbuch, 1990; Ross, 1989; Ross & Buehler, 1993; Ross & Conway, 1986; Rubin, 1986). Autobiographical narratives are not stagnant or dusty memories but are ongoing communications of people's experiences that are subject to changes, alterations, and biases. Autobiographical narratives are constructed and maintained as a means to bring order and meaning to discrete events and to help maintain a sense of flow or continuity to life experiences (Baumeister & Newman, 1993; Baumeister, et al. 1990; Ross & Conway, 1986).

Autobiographical accounts can also be considered as a valid methodology for the study of human phenomena that are not readily suited to laboratory elicitation and scrutiny. Gergen and Gergen (1988) reviewed and discussed research on autobiographical narratives and noted that by making use of personal narratives researchers might be able to tap into emotions and processes that were previously unavailable or difficult to elicit in the laboratory, as clinicians have done for many years in their work with clients. Researchers have begun to make use of autobiographical accounts to study intimate relationships (Croghan & Miel.. 1992), divorce and the ending of relationships (Harvey, Weber, Galvin, Huszti & Garnick, 1986), anger (Baumeister & Stillwell, 1992; Baumeister, et al. 1990), guilt (Baumeister, Stillwell & Heatherton, 1992), masochism (Baumeister, 1988a; 1988b) and unrequited love (Baumeister, Wotman and Stillwell, 1993), all parts of the human experience that have been difficult to study using traditional laboratory procedures. Psychologists are keenly interested in intimate relationships, emotions, masochism, divorce, and other social intercourse, but investigating these aspects of the human experience has been difficult due to ethical considerations and the issue
of confidentiality, not to mention the practicality of creating a relationship in the laboratory in order to fully dissect and analyze it. By making use of personal narratives about significant life events, researchers may gain access to people's memories of their experiences, without having to artificially construct and manipulate them in the laboratory.

An issue that should be addressed when studying autobiographical narratives is story accuracy. Can we trust that the narratives are accurate and simply assume that subjects are giving us the unbiased truth? Memory has been demonstrated to fail under certain conditions (Baddeley, 1990); therefore we might expect that people's stories contain a certain amount of error. But what of inaccuracies, errors, and biases that are not due to memory failure? Perhaps individuals might be motivated to distort or change their stories of significant life events for a variety of reasons, especially if those events had negative outcomes or reflected badly on the self. One might try to downplay one's responsibility for another's negative outcome and justify the actions as necessary. One might also deny responsibility for one's own outcome and blame the unfortunate circumstances on another. Baumeister, et al. (1990) found that victims and perpetrators of minor interpersonal transgressions told very different kinds of stories, with different emphases and portrayals of who was to blame. The biases in the victim and perpetrator narratives stemmed from the role differences, but the question remained as to which role was biased in its storytelling. The present study addressed the issue of the motivated biases and inaccuracies in autobiographical narratives of minor interpersonal transgressions, due to the role or position one played in the original incident (perpetrator or victim).
Goals

The overall goal of the present study was to assess the accuracy of a sample of narratives in order to better understand the biases and distortions inherent in the accounts people furnish of interpersonal transgressions.

A specific goal was to explore the role-based distortions and biases in narratives about minor interpersonal transgressions. Previous research has found that victims and perpetrators of such events tend to tell very different kinds of stories (Baumeister, et al., 1990). In the present study, the interpersonal role played by the author was hypothesized to influence the content and accuracy of the written narrative. More specifically, participants were asked to put themselves into the position of either the perpetrator or the victim in a given story. Participants then read the account and later wrote the story from memory, as they remembered it happening to them.

A second specific goal of the present study was to compare narratives written in the first person to those written in the third person. First person narratives refer to the self as "I" and should therefore be more self-focused and self-relevant than the objective third person rendition of events. When writing in the third person, one is even further removed from the event, perhaps changing the names or other identifying characteristics of those involved. When participants were asked to write the story as they remembered it, they wrote in either the first person or the third person. First person narratives were expected to contain more biases and distortions than third person narratives.

Role Differences in Accounts

Previous research has demonstrated that people's accounts of events differ, depending upon the role they played in the event (Baumeister & Stillwell, 1992). Two common roles or positions that people find themselves in during social
interactions are that of victim and of offender or perpetrator. Baumeister and his colleagues (1990) found that when people are asked to furnish a story in which they were in a victim position and a story in which they played a perpetrator role, the stories differed systematically across the two roles. It appears that when one is a victim of a crime, an injustice, or even a minor interpersonal transgression, the story one tells is different than the story the perpetrator of the incident would tell, especially in regard to the victim’s emphasis on any negative outcomes resulting from the event and the long-term consequences. Perpetrators tend to emphasize (or, perhaps, even add) mitigating circumstances for their actions and downplay any negative consequences for the victims. In short, victims and perpetrators remember and report different aspects of the same kinds of events, but the question remains as to who is giving the more accurate account of the events that transpired.

A popular position has been that victims furnish accurate accounts of the events as they happened (see Loftus & Ketchum, 1991 and Sykes, 1992 for an analysis and critique of this popular viewpoint). On general principle, the word of the victim is usually accepted as true, while the version given by the perpetrator is typically treated with suspicion (Loftus & Ketchum 1991). Many innocent people have been convicted of crimes on the basis of a victim’s or eyewitness’s testimony, even when evidence of their innocence was presented (Loftus & Ketchum, 1991). One hypothesis that the present study tested was the traditional notion that victims were more accurate in their narratives of interpersonal transgressions, while perpetrators bias or distort their stories.

**Perpetrators.** People often do things of which they are not proud and of which others will disapprove. As perpetrators, we might desire to keep all transgressions hidden. In actuality, people typically learn of others’ actions, both positive and negative. People frequently have the opportunity to disapprove and to
criticize the actions of others when those actions are not in accordance with their own values. A basic self-presentational motive that humans have is to please their audience (Baumeister, 1982). When one's actions garner the disapproval of others, an initial reaction might be to somehow downplay one's role in the event or the outcome for the victim, as people tend to seek out approval from others and to avoid their censure (Baumeister, 1982; Schlenker, 1980). The practical motivation for perpetrators to bias their stories may simply be to avoid punishment from others who learn about the event, especially those in authority.

Perpetrators usually have some measure of advance warning of the offending incident, thereby enjoying a better sense of control over their situation than victims would. Perpetrators tend to view incidents as isolated in time, often with mitigating circumstances or other reasons to account for the outcome. Perpetrators tend to deny that negative consequences have resulted from their actions and report that the incident ended on a positive note (Baumeister, et al. 1990). Perhaps as a result of their perception of the offending incident as distant from the self and an isolated incident, perpetrators would actively remember events in less detail. It might be advantageous for perpetrators to construct an account of the event that was shorter in length, with fewer details (other than those that somehow explain their actions) and a definite sense of closure, especially when telling the story from the first person perspective (as most people do). If their portrayal of the event was as an isolated, unfortunate but unavoidable incident and not indicative of their true nature, the perpetrator could therefore be expected to downplay its significance and the outcome in his or her later retelling of the event.

Perpetrators have both practical and self-presentational motivations to distance themselves from their offending actions. They desire to avoid the punishment, the disapproval and the censure that may result from their actions. It
is hypothesized that these motivations will prompt perpetrators to furnish biased or incomplete accounts of their part in interpersonal transgressions.

Victims. The recent victim literature has focused on victims of natural disasters and violent crimes, but it is assumed that many of the same principals come into play for victims of common, every day occurrences. Janoff-Bulman (1992) reports that the most fundamental, core assumptions that people hold may be significantly altered or shattered after becoming a victim of a trauma. Victims may express shock and disbelief at their circumstances and wonder why it is happening to them. Victims can experience a greater amount of generalized anxiety than others and often hold a more negative view of the world. Although the everyday victim experiences tend to be less traumatic than experiences of trauma or violence, the same principles should apply, namely that the experience is usually negative, with a corresponding emotional state of anger or fear and perhaps a changed outlook in regard to the perpetrator (e.g., I thought he was a nice person but I guess I was wrong).

The popular belief is that victims do not share in the same kinds of motivations to bias or distort their stories as do perpetrators (Janoff-Bulman, 1992: U.S. Department of Justice: Bureau of Justice Statistics, 1984). As a result, victim stories are more likely to be believed than perpetrator stories. Victims accounts have been thought by many to offer a rich and accurate source of detail about an event. In fact, the criminal justice system depends on victims coming forward to initiate the judicial process (Loftus & Ketchum, 1991; U.S. Department of Justice: Bureau of Justice Statistics, 1984).

Upon closer inspection, however, the potential also exists for bias in victim stories, especially with regard to the negative outcome they experience. Victims are operating under practical and self-presentational motivations to bias, much the same
as perpetrators. Victims might be motivated to avoid responsibility for their own actions and to appear competent to their audience ("Yes, I failed the test, but it was the teacher’s fault and not mine. I am still a smart person." Sykes, 1992). Victims may also be seeking some sort of help, assistance or even compensation for their suffering (e.g. a reduction of workload or extension of deadlines to help deal with injuries from a car accident or an assault).

It could be advantageous for victims to focus specifically on the negative outcome they have suffered while avoiding responsibility for the outcome, whether dealing with the legal system in this country or simply their own friends and family. One is not likely to receive a settlement if one asserts in court that: "It was a horrible experience, but I have recovered and am doing just fine." It is the ongoing lawsuit itself that may prompt the victim to keep the traumatic event alive and current, postponing any eventual healing. A victim might even exaggerate the account of an event in order to receive a bigger settlement or to ensure that the perpetrator is given the "proper" sentence (Loftus & Ketchum, 1991). Even when describing the unpleasant events to a friend or loved one, a victim might be motivated to focus more on the negative outcome and perhaps less on their own responsibility (if any) for the event and to concentrate on the responsibility of the perpetrator. If a child's bicycle is stolen, it would be advantageous for that child to focus more attention on the emotional distress suffered and less attention (if any) on the fact that the bicycle was left out and unlocked overnight. The child is visibly upset and is likely to receive a shiny new bicycle, perhaps even better than the one that was stolen.

Victims are motivated by similar practical and self-presentations concerns as are perpetrators. Victims also desire to appear competent and avoid blame for their outcomes, as well as to receive sympathy, empathy, assistance or other compensation. When seeking damages, a victim who describes the severity of the
experience and the long-lasting effect on his life is more likely to receive the desired judgment from the judge or jury, or the desired sympathy, empathy and help from friends and loved ones. It is hypothesized that victims will bias their narratives to emphasize the severity of the offense, the negativity of the outcome, as well as to downplay any mitigating circumstances for the perpetrator's actions or any positive things that he or she might have done.

**Conclusion.** It is my position that both perpetrators and victims are biasing their accounts of events, based on self-presentational and practical motivations. It should be noted, however, that the biasing of accounts need not be deliberate. Perpetrators and victims actively reconstruct their memories of interpersonal transgressions to a greater degree as time passes and they become more removed from the original experience.

Previous work on anger has indeed demonstrated that perpetrators and victims view the same kinds of events from very different perspectives, especially regarding blame for the event (Baumeister, et al., 1990). Perpetrators tend to share the blame with their victims (although their actions are often explained by mitigating or extenuating circumstances). Perpetrators are also more likely to see mitigating or justifying circumstances for their actions, as well as to downplay the consequences for the victim. Victims are more likely to see the event in black and white: the perpetrator is fully responsible for the negative outcome, while the victim remains blameless (except in the case of rape and related crimes, see Janoff-Bullman, 1992). Victims may also exaggerate the severity of the offense and the perpetrator's part in it. To compete with the popular notion that victims are truthful and that perpetrators lie, I hypothesize that both perpetrator and victim stories will prove to be biased. I also predict that perpetrators and victims will bias their stories in different ways: with perpetrators downplaying the event and their part in it, and victims
emphasizing their negative outcome, as well as the perpetrator's responsibility for it.

**Differences in Retelling Perspective**

A second source of distortion or bias in autobiographical narratives may lie in the manner in which the story is recounted. Ongoing research has found story differences, in terms of length and attention to detail, when people are asked to remember events in the first person versus the third person (Fergusson & Ross, 1991; Ross & Buehler, 1993). Pennebaker (1990) found that when people confided in another to a fairly serious infraction or wrongdoing, the confession seemed to have a positive effect on the confessor's health. In a recent extension, Fergusson and Ross (1991) found that the manner in which people retell traumatic life events has a significant impact on the length of their story and the attention paid to detail. When people described a traumatic experience in the third person, their stories were longer and richer in detail as compared to those who write in the first person. Fergusson and Ross hypothesized that the removal of self-focus that the third person perspective offered allowed their subjects to recount a more detailed, full and rich account of their traumatic experience.

Ross and Buehler (1993) caution against making generalizations based on the data, as the analysis is still in progress, but it seems reasonable to suggest that the manner in which individuals tell of an event influences the story, and that by writing in first person (as most do) people systematically tell less detailed stories of their lives. Perhaps the added distance from the self gained from writing in the third person allows people to describe their experiences in greater detail and to deal with the emotional distress in a less threatening fashion. Telling the story of an interpersonal transgression in the third person may reduce the biases inherent in self-narratives because the story becomes more objective and less self-relevant. The
story becomes one step removed from the self. One is referring to "Bobby" or "Susie" and not to "I" or "me" when recounting the details of an event in which one hurt, or was hurt by, another. The present study made use of the third person perspective, in addition to the first person perspective, to explore differences in people's recollections of interpersonal transgressions, dependent on the manner in which they reported the event. I predict that stories furnished in the third person will be more accurate, contain fewer errors and will not differ systematically between perpetrator and victim.

Summary and Predictions

Previous research has demonstrated that the roles people play in everyday social interactions influence their later stories of the event (Baumeister, et al., 1990). Additional research has demonstrated that telling of an event in the third person will result in richer and more detailed stories than telling of an event in the first person (Fergusson & Ross, 1991; Ross & Buehler, 1992).

Regarding perpetrators and victims, I have two competing predictions: first, that both perpetrators and victims will distort or bias their stories, and second, that perpetrators and victims will demonstrate differing levels of accuracy in regard to the kinds of details they include or distort. Perpetrator accounts should concentrate on any mitigating factors for their actions, while downplaying the negative consequences for the victim. Victims are expected to emphasize their negative outcomes and to ignore or downplay factors that might have mitigated the perpetrator's actions. The same motivations (practical and self-presentational) drive both the accuracy and the inaccuracy of victim and perpetrator stories.

In addition, I predict that stories written in the first person will demonstrate more systematic errors and biases than will stories written in the third person. First person stories are highly self-relevant, by definition, and it is this self-relevance that
is the source of errors, biases and distortions in personal narratives. Third person stories are one step removed from the self and will offer a more objective and less biased view of the events in question.

A final word about the artificiality of the method. To objectively assess the accuracy of the autobiographical narratives, it was necessary to sacrifice some measure of external validity. Participants furnished their own accounts of a story in which they took on the perspective of one of the characters, telling the story as it "happened" to them. By asking participants to tell of the given event in their own words, we could then compare the furnished stories to the original events to determine the accuracy of their accounts, thereby gaining experimental control.
Method

Subjects

Fifty students from the Introductory Psychology subject pool at Case Western Reserve University volunteered to participate as subjects in return for partial fulfillment of course requirements. Twenty one males and twenty nine females participated. Because of the culturally diverse student body at Case Western Reserve University, the issue of cultural heterogeneity in the sample should be considered. To address this issue, the sign-up sheet requested that only native English speakers participate. In addition, all participants were randomly assigned to the experimental conditions or to the control condition.

Students in the Introductory Psychology were informed in class that all experiments must be approved by the Human Subjects Committee Review Board before anyone may participate in them. In addition, students were informed that they may ask to be excused from participating in the program due to personal moral, religious or ethical concerns. Finally, students were informed that they may terminate their participation in any experiment if they become uncomfortable or wish to proceed no further without prejudice and without forfeiting their experimental credit.

All participants in the present procedure were given a brief explanation of the experimental procedures prior to participation. Students then signed a form indicating their consent to participate. No risk existed for participants beyond those of daily living.

Materials

Self-esteem Scale. A paper and pencil measure of self-esteem was given to participants as part of the cover story that the experiment concerned the influence of personality on verbal communication styles (Fleming & Courtney, 1984). As the
measure was given solely to support the cover story, no prediction was made regarding the effect of self-esteem on the written accounts and the forms were not scored.

**Given Story.** A written story, describing a series of events between two characters (Harold or Arthur for men and Harriet or Amanda for women) was given to participants to read and to later write from memory. The "A" character in the story is portrayed as one in need (the victim), and the "H" character is portrayed as one who can offer to help, but eventually is unable or chooses not to help (the perpetrator).

Story text: Harold and Arthur were suite mates here at CWRU. They knew each other fairly well, but did not consider themselves to be "best friends". One Fall semester, Arthur was enrolled in an upper-level Engineering class that Harold had completed the previous Spring. Harold had prepared very thoroughly for this class and, as a result, had done very well (A+. quite an accomplishment!). One day, he made a vague sort of offer to assist Arthur on any course work in that particular class. As it turned out, there were to be no exams, rather a final paper that counted as 75% of the grade. This paper was due the Wednesday before reading days started.

The semester passed without incident, as both suite mates attended classes, prepared assignments and tried to squeeze in some fun as well. One week before the paper was due, Arthur reminded Harold of his earlier offer, stating "I need you to help me write this paper." Harold responded, "No, I said that I would help you with exams in the class." Arthur replied, "But there are no exams this semester, just this big paper!" Harold sighed, "Oh. Well, I guess I can help you." (Harold didn't mind helping Arthur with an exam, just not a paper.) The two suite mates decided to get together to work on the paper the Tuesday afternoon before it was due.

On the designated day, one week later, Harold did not show
up for his appointment. He stumbled in 2 hours later, drunk and a bit surly. It seems that he forgot about having promised to assist Arthur with the paper and made plans to go out drinking with his buddies. (It was "$2 pitcher night" for margaritas.) As you might expect, Harold was of little help to Arthur. To add to the pressure, Arthur's computer was on the blink, making it difficult to get any work done. While in his inebriated state, Harold again promised to help Arthur with the paper, although not until Thursday. Arthur was forced to ask his professor for an extension (due supposedly to his computer problems). The professor was not happy with the request, but he agreed to the extension.

On Thursday afternoon, Arthur went looking for Harold and found him in his suite. Harold now refused to help Arthur, as he had too much to do and time was running out. He did apologize for the situation, but was firm in his refusal to help. Later on that night, Arthur hit a snag in his paper and stopped by Harold's room to ask a quick question. Harold was on the phone and motioned for Arthur to come back later. Arthur stopped back at 11:45 pm and again at 12:15 am, but Harold was still on the phone. (Arthur found out later that he was talking long distance to his girlfriend. It seems that they were discussing a change in their Christmas vacation plans because their relationship had not been going well.) After a time, Arthur gave up and returned to his room to complete the paper on his own.

This particular class was central to Arthur's major. Before the paper, he had a B in the class. After turning in the paper, his grade dropped to a C, as he received only a C on the paper. The TA who graded the paper made comments that included: "Good ideas, but where is the theory?" and "Your reasoning is faulty. What are you trying to say?" As a result of this experience, Arthur ended up majoring in English at another university.
**Letter Identification Task.** A page of text was given to participants to serve as a filler task after reading the story in order control for any mental rehearsing of the story details. The text describes a portion of the procedure for analysis of variance as done by hand with a calculator, specifically the calculation of the expected means squared for each error term. The text was chosen as it is nearly devoid of emotional content and should be unfamiliar to the participants. The task was designed to occupy participants' attention as they cross off as many vowels contained in the text as possible in a five minute time span.

**Design**

A 2 (helper vs. asker role) X 2 (first person vs. third person retelling of story) design with one control condition was used. Participants were randomly assigned to one of 5 conditions: to either of the experimental conditions, (of helper or asker role when reading the story and first or third person when retelling the story) or to a control condition in which they were asked simply to read the story as the experimenter might ask them a few questions pertaining to it later on. Control subjects were later asked to write the story as they remembered it happening, with no further instruction. The helper position corresponds to that of the offender or perpetrator role. The asker position corresponds to that of the victim role. The dependent variables included the content, length and accuracy of written accounts of the story that participants wrote, as well as the specific details they included or left out of their written accounts.

**Informed Consent**

Participants were brought individually into the laboratory and given an initial explanation that the procedure was designed to explore verbal communication from a social psychological perspective. Participants were told that they would have to read something, write something, fill out a questionnaire and
perform the "Letter Identification Test" (filler task), with more explicit details to be furnished later. Participants were then given an informed consent form to sign.

**Procedure**

Participants were first given a questionnaire to complete: the first three sub-scales of the Fleming and Courtney (1984) revision of the Janis and Field measure of self-esteem. Once participants completed the questionnaire, the experimenter then continued with the cover story, explaining that the procedure was designed specifically to study peoples' differing styles of verbal communication, rather than cognitive abilities or competence, as well as to explore the influence of different personality factors on one's style of communication (hence the self-esteem questionnaire). The experimenter then continued to describe how verbal communication is important for success in everyday life (e.g. job interviews or debating a grade with a professor) and that people with differing styles of communication are not necessarily better or worse than others, merely different. The experimenter concluded by stating that the influence of different personality factors on verbal communication style would also be studied. The experimenter then stood up and stated that the next task would be to read a story about two students at the university (Harold and Arthur or Harriet and Amanda, with the "H" role as offender and the "A" role as victim). Prior to the procedure, each participant was randomly assigned to a particular character in the story. The experimenter then told the participant to which character he or she had been assigned and instructed him or her to "become" the character in question and to keep the role in mind while reading the story: "Remember, you are Harold/Harriet and anything that is happening to Harold/Harriet is happening to you."

Participants in the control condition were simply told to read the story and that they might be asked a few pertinent questions later in the experiment.
Once participants finished with the story, the experimenter then reentered the room and explained that the next item on the agenda was the "Letter Identification Test." Participants were then given a page of typed text and told that they would have five minutes to cross out every vowel on this page of text. Participants were told that the exercise was a test and to work both quickly and accurately. (The test was intended to serve as a filler task to keep participants from thinking about the story they just read.) The experimenter started a timer, told the participant to begin and left the room.

Once five minutes elapsed, the experimenter again entered the room and stated "Time's up." picked up the page of text, quickly scanned it and placed it on an adjacent table. The experimenter then asked the participant to "Think back to when you were Harold (etc.). I want you to 'become' Harold again and to write the story as you remember it happening to you." Participants were then given a sheet of lined paper and told to write the story in either the first person or the third person (randomly assigned), with the reminder "If the story said 'Harold sang a song', you would write 'I sang a song.'" for first person and "... you would write 'Harold sang a song.'" for third person. Those in the control condition were asked to write the story as they remembered it happening, with no further instruction. The experimenter left the room and waited in the hall.

When participants finished, the experimenter entered the room to retrieve the rewritten story. All participants were thoroughly debriefed, thanked and dismissed. Any questions regarding the procedure or its underlying theory will be welcomed and answered.

Confidentiality. Each written story was typed and given a code number to ensure confidentiality and to remove any biases due to handwriting style or legibility.
Dichotomous Codings.

Stories were analyzed for content through use of dichotomous codings. Previous work has found dichotomous codings to be more objective than continuous codings and to yield greater inter-rater reliability (Baumeister, Stillwell & Heatherton, 1992; Baumeister, et al., 1990; Baumeister, et al., 1993). One primary rater and two additional raters coded the stories for the presence or absence of each story detail, as well as for any alterations that were made. The average percent agreement among the three coders was 90.2%. Cohen's kappa correction for interrater reliability averaged .6608 overall, a substantial strength of agreement according to Landis and Koch (1977). The analyses were then performed on the primary raters codings only, as the percent agreement and Cohen's kappa correction demonstrated a high level of agreement among the coders.
Results

Manipulation Check

Each first-person story was compared to the original story to confirm that it was written from the assigned role. Third person stories were not subjected to a manipulation check for role, as it was impossible to confirm the assigned role based solely on the stories furnished. All participants who wrote in the first person furnished stories from the proper role.

All participants were assigned to write in the first person or the third person. No story was written from the nonassigned perspective. All stories were written correctly from the assigned perspective.

First-person Stories: Role Biases

Analysis Strategy. The primary focus for the first series of analyses was the comparison of the stories written in the first person to the control stories. The first-person stories were expected to demonstrate more biases than the third-person stories, due to the increased level of self-involvement necessary when writing in the first person. The control stories were not expected to contain systematic biases or distortions.

Additions or alterations to the story details, as well as any omissions of detail, were considered to be distortions (See Table 1). To assess the amount of distortion in the first-person stories, the additions, omissions and alterations to the individual story details for each narrative were counted and used as composite scores. The composite scores from the first-person stories were compared to those from the control stories by means of a three-cell, one-way analysis of variance (ANOVA). The three cell means (perpetrator, victim, and control) were then subjected to multiple t tests to determine if any significant differences existed among the three cells.
**Who Distorts?** The popular notion that perpetrators bias their stories while victims furnish the unvarnished truth, was considered first. I hypothesized that both perpetrators and victims would distort or make errors in their stories, as compared to the objective stories furnished by control subjects. The results of the one way ANOVA indicated that perpetrators, victims and control subjects differed as to the amount of distortion in their stories when writing in the first person \( F(2,27) = 4.036, p < .05 \). Victims who wrote in the first person made an average of 25.5 distortions per story, perpetrators made an average of 25.8 distortions per story, as compared to control subjects who made an average of 17.8 distortions. The mean number of distortions in the perpetrator, victim and control stories were subjected to a t test. Perpetrator stories contained more errors or distortions than did control stories \( t(27) = 4.34, p < .01 \). Victim stories also contained more errors or distortions than did control stories \( t(27) = 4.18, p < .01 \). The prediction, that both perpetrators and victims bias their stories of interpersonal transgressions, was confirmed. Not only did perpetrators add, omit or change details, but victims distorted their stories as well. Control subjects made fewer additions and alterations to their stories, as well as fewer omissions (See Table 2).

The related point, that perpetrators distort or bias to greater degree than victims, was considered next. I hypothesized that victims would bias their stories to a similar degree as would perpetrators. The mean number of distortions in the perpetrator stories and the number of distortions in the victim stories were subjected to a t test. Perpetrators and victims did not differ significantly in the number of distortions made \( t(27) < 1, ns \). Again, victims averaged 25.5 errors or distortions per story, while perpetrators averaged 25.8 errors or distortions per story. Perpetrators did not bias their stories to a greater degree than victims. Perpetrators and victims demonstrated nearly equal levels of bias in their stories.
The hypothesis, that perpetrators bias their stories of interpersonal transgressions to a greater degree than victims, was not supported by the data.

**Things Included: Accuracy.** Once victims and perpetrators were both shown to bias and distort their stories, the question of how they distort was addressed. I hypothesized that perpetrators and victims would systematically distort their stories due to practical and self-presentational motivations. Perpetrators were expected to center their attention on any mitigating or extenuating circumstances for their behavior, as well as any positive things they might have done, while ignoring the transgression itself and any consequences for the victim. Victims were expected to focus their stories on the negative outcome itself and those factors that made the offense worse, while ignoring any mitigating circumstances for the perpetrator’s behavior, as well as anything positive that the perpetrator might have done. Control subjects were not expected to differ systematically in their portrayal of the events in question. The following results indicate that victims and perpetrators distorted their stories in systematically different ways.

The distortions described in the previous sections were broken down into several relevant categories of bias or error (See Table 3). The detail categories were derived from our previous content codings of interpersonal transgressions (Baumeister, et al. 1990). and included: details that somehow mitigated or excused the perpetrator’s behavior, details that described the good things the perpetrator did, details that exacerbated the offense or made it worse, and details that described the outcome for the victim. The individual details for each category were determined by independent coders.

Story accuracy first determined for the details that somehow mitigated or justified the perpetrator’s behavior by comparing the number of items in the
furnished stories to the actual number of mitigating details in the original story. Perpetrators, victims, and controls differed as to the inclusion of details that mitigated or somehow justified the perpetrator's behavior $F(2.27)=7.603, p<.005$ (See Table 4). Perpetrators were the most accurate in their inclusion of the mitigating details. Of the 5 total mitigating or extenuating details, perpetrators included an average of 3.8 while victims included an average of 1.7 per story and controls an average of 3.1 per story. Perpetrators were more accurate than victims $L(27)=6.63, p<.01$, and control subjects $L(27)=4.34, p<.01$, in the inclusion of the mitigating details. Control subjects were, in turn, more accurate than victims as the inclusion of the mitigating details $L(27)=4.42, p<.01$. Perpetrators included as many mitigating details for their behavior as possible, perhaps in order to reduce their responsibility for their actions. Control subjects included fewer mitigating details, while victims included the fewest mitigating details. The mitigating details included: the perpetrator having forgotten the study date, the perpetrator was out drinking with friends, the perpetrator was too busy to help later, and the perpetrator was speaking on the telephone long distance with his/her romantic partner about a crisis in their relationship.

Story accuracy was next determined for the details that described the good things the perpetrator did by comparing the number of items in the furnished stories to the actual number of positive details in the original story. Perpetrators, victims and control subjects differed again as to the inclusion of the details describing the perpetrator's positive actions $F(2.27)=4.097, p<.05$ (See Table 4). Of the 4 "perpetrator-positive" details, perpetrators included an average of 2.0 per story, while victims included an average of 1.1 per story and controls an average of 1.5. Perpetrators were more accurate than victims $L(27)=4.94, p<.01$, and controls $L(27)=2.74, p<.05$, in terms of the inclusion of perpetrator-positive
details. Control subjects, in turn, were more accurate than the victims when including the perpetrator-positive details $L (27) = 2.199, p < .05$. The perpetrators included the most positive details. Victims included the fewest perpetrator-positive details, while the control subjects tended to remain neutral and mentioned about half of the positive details. The perpetrator-positive details included: the perpetrator's initial offer to help, that the perpetrator did not mind helping, the perpetrator's promise to help while drunk, and the perpetrator's eventual apology.

Story accuracy was then determined for the details that somehow exacerbated the offense by comparing the number of items in the furnished stories to the actual number of exacerbating details in the original story. In regard to factors that made the offense worse, victims again differed from perpetrators and control subjects $F (2, 27) = 12.378, p < .001$ (See Table 4). Victims correctly included more of the exacerbating details (averaging 5.1 out of 7 actual details) than did perpetrators in their stories (averaging 2.8 out of 7 actual details) $L (27) = 7.926, p < .01$. In turn, control subjects were more accurate than perpetrators as to the inclusion of details that exacerbated the offense (averaging 4.8 out of 7 actual details) $L (27) = 6.892, p < .01$. Victims included more of the exacerbating details than did controls, although the difference did not reach significance $L (27) = 1.03, ns$. Victims featured the details that exacerbated the offense. Perpetrators mostly ignored or left out these details. Control subjects furnished reasonably accurate stories, without bias to feature certain aspects and to downplay others. The details that exacerbated the offense included: the time frame to set up the study meeting, the definite date to meet, that the perpetrator did not show the first time, the perpetrator was 2 hours late and intoxicated, that the victim tried to meet with the perpetrator two more times, the victim eventually gave up and started the paper alone, and that the class was central to the victim's major.
Victims, perpetrators and control subjects also differed as to the inclusion of the details that described the severity of the outcome for the victim, in comparing the furnished stories to the original story, \( F(2,27)=3.566, p<.05 \) (See Table 4). Victims correctly included an average of 3.4 out of 4.0 details that exacerbated the offense, as compared to the perpetrators' average inclusion of 2.4 details and the control subjects' 2.6 details. Victims were more accurate than perpetrators \( t(27)=4.371, p<.01 \) and control subjects \( t(27)=3.497, p<.01 \) for the details describing the outcome for the victim. Perpetrators and control subjects did not differ in their accuracy of the outcome details \( t(27)<1, \) ns. Victims presented the severity of their outcome in its fullest detail, while perpetrators and control subjects fewer details pertaining to the victim's outcome. The details that described the severity of the outcome included: the class was central to the victim's major, the victim's grade dropped to a C, the grade of C on the final paper, the victim's final change of major and university.

**Things Distorted: Inaccuracies.** Once victims, perpetrators and control subjects were shown to differ in the amount and kind of details included, the question of the level of distortion was addressed. Again, I hypothesized that perpetrators and victims would systematically distort their stories due to practical and self-presentational motivations. Perpetrators were expected to add or emphasize the mitigating or extenuating circumstances for their behavior, as well as any positive things they might have done, while downplaying the transgression itself and any consequences for the victim. Victims were expected to add or emphasize the negative outcome itself and those factors that made the offense worse, while downplaying any mitigating circumstances for the perpetrator's behavior, as well as anything positive that the perpetrator might have done. Again, control subjects were not expected to differ systematically in their portrayal of the
events in question. The following results indicate that victims and perpetrators distorted their stories in systematically different ways.

Again, the detail categories were derived from Baumeister, et al. (1990) and included: details that somehow mitigated or excused the perpetrator's behavior, details that described the good things the perpetrator did, details that exacerbated the offense or made it worse, and details that described the severity of the outcome for the victim. The individual details for each category were determined by independent coders.

Distortion of the details that mitigated the perpetrator's behavior was determined by comparing the number of items added or somehow changed in the furnished stories to the actual number of mitigating details in the original story. Perpetrators, victims, and control subjects differed as to the addition or alteration of details that mitigated the perpetrator's actions $F(2,27) = 5.413, p <.01$ (See Table 5). Victim and control subjects were equally accurate in their portrayal of the mitigating circumstances and did not add or alter any of these details ($M_e=0$). $L(27)<1$, ns. Perpetrators added or altered an average of 1.3 mitigating factors per story for their own actions. Both the victims and the control subjects were more accurate than the perpetrators for the mitigating details $L(27)=4.935, p<.01$. Perpetrators tended to add or emphasize details that mitigated or justified their actions, while victims and control subjects tended to be accurate as to the addition or alteration of these details. In this case, victims and control subjects were more accurate than perpetrators in terms of the portrayal of mitigating or extenuating circumstances for the perpetrator's behavior.

Distortion of the positive aspects of the perpetrator's behavior was determined by comparing the number of items added or somehow changed in the furnished stories to the actual number of perpetrator-positive details in the original
story. Perpetrators, victims and control subjects differed in their likelihood to add or emphasize the details that described the positive things the perpetrator did. \( E(2.27) = 3.42, p < .05 \) (See Table 5). Perpetrators added or altered an average of 1.1 positive details per story, victims added or altered an average of 1.0 positive details, and controls added or altered an average of 0.3 details per story.

Perpetrators and victims were equally likely to add or emphasize the details that described the positive things the perpetrator did, \( L (27) < 1 \) ns. Control subjects were much less likely to do so than perpetrators, \( L (27) = 4.156, p < .01 \), and victims, \( L (27) = 3.636, p < .01 \). Perpetrators biased their stories by emphasizing their repeated offers to help, even after a long night of partying. Victims did so by changing the perpetrator's offer of help to a promise to help, thereby making the offense worse instead of better. Both perpetrator and victim stories were fairly accurate in terms of biasing or distorting the positive things that the perpetrator did, even though their biases went in different directions. Control subjects offered no such systematic bias in their portrayal of the perpetrator's actions.

Distortion of the details that exacerbated the offense was determined by comparing the number of items added or somehow changed in the furnished stories to the actual number of exacerbating details in the original story. Victims, perpetrators, and control subjects differed in their portrayal of the factors that made the offense worse, \( E(2.27) = 2.505, p = .10 \), although the difference did not reach significance (See Table 5). Victims added or altered an average of 0.8 details per story that made the offense seem somehow worse, while perpetrators added or altered 0.2 details that exacerbated the offense, typically by downplaying them. Control subjects added or changed an average of 0.5 details per story that exacerbated the offense. Victims were more likely than perpetrators to add to or emphasize the factors that made the offense worse, \( L (27) = 3.879, p < .01 \). Control
subjects differed neither from victims \( L(27) = 1.939, \text{ ns.} \) nor from perpetrators \( I(27) = 1.939, \text{ ns.} \) in the portrayal of the exacerbating details. Control subjects neither featured nor ignored these details.

Distortion of the details that described the severity of the victim's outcome was then determined by comparing the number of items added or somehow changed in the furnished stories to the actual number of details that referred to the outcome's severity in the original story. Victims, perpetrators and control subjects differed in the portrayal of the outcome \( F(2, 27) = 3.629, p < .05 \) (See Table 5). Victims were more likely than perpetrators and control subjects to emphasize or add details that described the severity of the negative outcome. Victims added or altered an average of 0.6 details per story regarding their negative outcome. In contrast, perpetrators and control subjects added or altered an average of 0.1 details per story in regard to the victim's outcome. Here, perpetrators (as well as controls) were more accurate than victims in terms of the portrayal of the outcome \( I(27) = 4.038, p < .01 \). Victims emphasized the negative outcome, while perpetrators and control subjects did not.

**Summary.** Victims and perpetrators did not differ as to the level of distortion in their stories. Victims and perpetrators did differ from each other and from control subjects as to how the distortions were made. Victims featured the details that pertained to the severity of the outcome and that exacerbated the offense, while ignoring or downplaying the details that portrayed the perpetrator as positive or not responsible for the outcome. In contrast, perpetrators ignored or downplayed the details that pertained to the severity of the offense and its outcome and featured the details that mitigated their behavior or that described their positive actions.
Role Differences vs. Perspective Differences: Accuracy and Inaccuracy

Analysis Strategy. The primary focus for the next series of analyses was the comparison of the perpetrator and victim stories written in the first person to those written in the third person. The first-person stories were expected to demonstrate more biases than the third-person stories, due to the increased level of self-involvement necessary when writing in the first person. The third person stories were expected to demonstrate fewer systematic biases due to role and were expected to be more objective renditions of the events in question.

Overall Distortions. Additions or alterations to the story details, as well as any omissions of detail, were considered errors or distortions. To assess the amount of distortion in the stories, the additions, omissions and alterations to the individual story details for each narrative were counted and used as composite scores. The composite scores from the first-person stories were compared to those from the third-person stories by means of a 2X2 ANOVA (role by perspective).

The results of the 2 X 2 ANOVA demonstrated that role and retelling perspective did not interact as to the amount of bias or distortion $F(1,36) = 1.732$, ns (See Table 6). Regardless of the retelling perspective, perpetrator and victim stories contained the same amount of biases and distortions. The main effect for role was not significant $F(1,36) = 1.43$, ns. nor was the main effect for perspective significant $F(1,36) = 0.089$, ns. Overall, perpetrators and victims wrote stories of interpersonal transgressions with similar amounts of error in the first person, as well as in the third person. The hypothesis, that stories written in the third person would differ from stories written in the first person as to the overall level of error, was not supported. Stories written in the first person did not differ from stories written in the third person as to the overall level of error.
Things Included: Accuracy. Again, the story detail categories were derived from Baumeister, et al. (1990) and included: details that somehow mitigated or excused the perpetrator's behavior, details that described the good things the perpetrator did, details that exacerbated the offense or made it worse, and details that described the severity of the outcome for the victim. The individual details for each category were determined by independent coders.

In comparing the first person victim and perpetrator stories to the third person stories, I expected to find greater variance between the first person stories than between the third person stories for the four detail-categories. In general, the data followed this pattern. However, only two of the four detail-category interactions between role and perspective for the inclusion of the detail categories achieved or approached significance. A 2X2 ANOVA was used to compare the roles to the perspectives. A one way ANOVA was used to compare each set of roles within the first person and the third person perspectives.

The interaction between role and perspective for the inclusion of the perpetrator positive details approached significance $F(1,36) = 3.663, p = .06$ (See Table 7). The first-person perpetrators and the first-person victims differed as to the amount of detail included $F(1,18) = 8.191, p < .01$. The first-person perpetrators included the most details (average 2. out of 5), while the first-person victims included the fewest (average 1.1 out of 5). The third-person perpetrators and victims did not differ $F(1,18) = 0$. ns: both included an average of 1.5 out of 5 positive details (See Table 8).

The interaction between role and perspective for the inclusion of details that exacerbated the offense did achieve significance $F(1,36) = 8.50, p < .01$ (See Table 7). The first-person stories did differ according to role $F(1,18) = 21.16, p < .001$. First-person victim stories included the most details (average 5.1 out of
7), while the first-person perpetrator stories included the fewest (average 2.8 out of 7). Again the third-person stories did not differ between roles $F(1, 18) = .032$. ns: perpetrators included an average of 4.1 details, while victims included an average of 4.2 details that exacerbated the offense. Third-person victims and perpetrators did not differ in their portrayal of the details that exacerbated the offense (See Table 8).

The interaction between role and perspective for the inclusion of the details that mitigated the perpetrator’s behavior did not reach significance $F(1, 18) = 2.483$. ns, but the pattern of details included remained in the predicted direction (See Table 7). The difference between perpetrators and victims in the first-person stories was significant $F(1, 18) = 25.28$, $p < .001$. For the details that mitigated the perpetrator’s behavior, the first-person perpetrators included the most details (average 3.8 out of 5), while the first-person victims included the fewest (average 1.7 out of 5). The difference between perpetrators and victims in the third-person stories was not significant $F(1, 18) = 1.997$. ns. The means for the third-person stories were closer together: 2.8 for the perpetrators and 1.9 for the victims. Third-person victims and perpetrators did not differ in their portrayal of the details that mitigated the perpetrator’s behavior (See Table 8).

The interaction between role and perspective for the details that described the severity of the victim’s outcome was not significant $F(1, 18) = 2.163$. ns (See Table 7). The difference between perpetrators and victims in the first person was significant $F(1, 18) = 6.081$, $p < .05$. First-person victims included the most details (average 3.4 out of 4), while the first-person perpetrators included the fewest (average 2.4 out of 4). Third-person victims and perpetrators did not differ in their portrayal of the details that mitigated the perpetrator’s behavior $F(1, 18) = .048$. ns. The means for the third-person stories were also closer
together: 2.5 details out of 4 for the perpetrators and 2.6 out of 4 for the victims. Third-person victims and perpetrators did not differ in their portrayal of the details that described the severity of the outcome for the victim (See Table 8).

**Things Distorted: Inaccuracies.** Again, the story detail categories were derived from Baumeister, et al. (1990) and included: details that somehow mitigated or excused the perpetrator's behavior, details that described the good things the perpetrator did, details that exacerbated the offense or made it worse, and details that described the severity of the outcome for the victim. The individual details for each category were determined by independent coders.

As with the comparison of first-person victim and perpetrator stories to the third-person stories for the correct inclusion of details, I also expected to find greater variance between the first-person stories than between the third-person stories for the details added or altered. However, the distinction between the perpetrator and victim stories in the first and the third person was less dramatic for the details added or altered than for the details included. The pattern of greater variation between the first-person perpetrator and victim stories as compared to the third-person stories for the average number of additions and alterations was also much less dramatic than the pattern for the details included.

Of the four, 2X2 ANOVAs, only one interaction achieved significance, that for the mitigating circumstances for the perpetrator's behavior \( F(1,36) =5.05, p< .05 \) (See Table 9). The difference between perpetrators and victims in the first-person stories was significant \( F(1,18) =5.413, p< .05 \). The means for the first-person stories were significantly far apart: 1.3 for the perpetrators and 0 for the victims. The difference between perpetrators and victims in the third-person stories was not significant \( F(1,18) = .3, \) ns. The means for the third-person stories were closer together: 0.6 for the perpetrators and .8 for the victims. Third-
person victims and perpetrators did not differ in their portrayal of the details that mitigated the perpetrator's behavior (See Table 10).

The interaction between role and perspective for the perpetrator's positive actions did not reach significance $F(1.36) = .04$, ns (See Table 9). First-person perpetrators did not differ from first-person victims $F(1.18) = .07$, ns, nor did third-person perpetrators from third-person victims $F(1.18) = .409$, ns. A main effect for perspective as to the positive details attributed to the perpetrator was found $F(1.18) = 5.237$, $p < .05$. Those who wrote in the first person added or changed an average of 1.05 details, as compared to those who wrote in the third person ($M = .5$). Those who wrote in the first person made more additions or changed to the positive actions of the perpetrator than did those who wrote in the third person (See Table 10).

The interaction between role and perspective for the addition or alteration of details that made the offense worse did not reach significance $F(1.36) = 1.8$, ns, but the pattern of details added or altered remained in the predicted direction (See Table 9). The difference between perpetrators and victims in the first-person stories was significant $F(1.18) = 4.5$, $p < .05$. The means were significantly different: .8 for the victims and .2 for the perpetrators. Perpetrators and victims who wrote in the third-person stories did not differ $F(1.18) = 0$. ns. The means for the third-person stories were equal: .6 for the perpetrators and for the victims. Third-person victims and perpetrators did not differ in their portrayal of the details that mitigated the perpetrator's behavior (See Table 10).

The interaction between role and perspective for the details that described the severity of the victim's outcome was not significant $F(1.36) = .383$, ns (See Table 9). The difference between perpetrators and victims in the first person was significant $F(1.18) = 4.245$, $p = .05$. The means for first-person victims and
first-person perpetrators were significantly different: .6 for victims and .1 for perpetrators. Third-person victims and perpetrators did not differ in their portrayal of the details that described the severity of the outcome $F(1.18) = 1.976$, ns. The means for the third-person stories were also closer together: 0 details for the perpetrators and .3 for the victims. Third-person victims and perpetrators did not differ in their portrayal of the details that described the severity of the outcome for the victim (See Table 10).

**Summary.** Overall, role and perspective did not interact in terms of the total number of errors made. Victims and perpetrators told stories with similar amounts of bias in the first person and in the third person. First-person victim and perpetrator stories did differ as to the level of systematic bias; third-person victim and perpetrator stories did not. First-person victims differed from first-person perpetrators as to the inclusion and portrayal of: the mitigating details for the perpetrator's behavior, the perpetrator's positive actions, the details that exacerbated the offense and that dealt with the severity of the victim's outcome. Third-person victims and perpetrators did not differ in these respects.
Discussion

Who Distorts? Victims and Perpetrators

The first question addressed by this investigation was the relative degree of distortion in victim and perpetrator narratives of interpersonal transgressions. The popular notion that victims are accurate in their portrayal of interpersonal transgressions, while perpetrators lie and distort was not supported by the data. The competing prediction, that both perpetrators and victims distort their stories of interpersonal transgressions was supported by the data. Perpetrators and victims differed from control subjects as to the total number of additions, omissions and alterations in the stories. Both perpetrators and victims demonstrated higher levels of distortion in their stories than did control subjects. Apparently, having to tell the story of an interpersonal transgression from the perspective of either perpetrator or victim was sufficient motivation to bias the story. The increased level of self-involvement necessary when writing in the first person seems to a key factor in the distortion of narratives. When telling the story from the objective, outside witness perspective, the control subjects were much more accurate and did not systematically bias their stories of the transgression.

Even though victims and perpetrators have both been found to distort their stories, some might still argue that perpetrators distort their stories to a greater degree than do victims. The argument that perpetrators distort their stories of interpersonal transgressions more than victims was not supported by the data. Perpetrators and victims did not differ as to the amount of distortions in the stories; in fact, the mean total memory errors were nearly identical. Again, simply telling the story of an interpersonal transgression as a perpetrator or a victim was sufficient motivation for subjects to bias the stories, regardless of role. The motivation to bias or distort stories of interpersonal transgressions is in both roles.
and it appears to be equally influential for both.

Thus, the widely held belief that perpetrators distort their narratives while victims furnish truthful and accurate accounts was not supported. Perpetrators and victims demonstrated nearly identical levels of distortion in their stories of interpersonal transgressions, simply as a result of having been involved in the incident. The present results suggest that victims are as involved in interpersonal transgressions as perpetrators. It is this level of ego involvement that is sufficient cause for a significant increase in story errors, as compared to the outside observers or control subjects. Even the hypothetical, role-playing involvement found in this investigation was enough to result in distortions based on role.

Nature of the Distortions: Role-based Motivations

The next question to be addressed involved the nature of the distortions that victims and perpetrators make. Victim and perpetrator stories contained the same amount of distortion, but simply the having the same amount of distortion did not show how the distortions were made. I hypothesized that perpetrators and victims would distort the stories in different directions, for similar practical and self-presentational motivations.

Perpetrators focused their stories on the mitigating factors for their actions, as well as on the positive things they did. such as the fact that the perpetrator was intoxicated at the time he/she tried to help and also that the perpetrator apologized for the situation. The perpetrators were the most accurate in the inclusion of the mitigating and positive details, as compared to victims and control subjects. Perpetrators were also more likely than victims and control subjects to add or somehow emphasize these details. Perpetrators tended to downplay, or even ignore, any negative consequences that the victims might have suffered, as well as
any factors that exacerbated the offense. In general, perpetrators are motivated to
avoid responsibility and punishment for their actions. Perhaps it was this
motivation that prompted the perpetrators in the present investigation to include
more mitigating and positive details, as well as fewer details pertaining to the
negative consequences, even though they were merely playing a role with no risk
of punishment. The desire to present themselves positively may have been enough
for the role-based distortions to happen.

On the other hand, victims were more likely to focus their stories on the
details that described the severity of the outcome, as well as those factors that
exacerbated the offense. Victims were more accurate than perpetrators or control
subjects for the details pertaining to the offense and the resulting outcome.
Victims, as opposed to perpetrators and control subjects, tended to downplay or
even ignore any mitigating circumstances for the perpetrator's behavior, as well as
any positive things the perpetrator might have done. The practical and self-
presentations motivations for victims and perpetrators to distort were hypothesized
to occur in very different ways. For victims in general, the practical motivations
were thought to be the sympathy, empathy, and assistance that could be gained
from others as a result of their focus on the severity of the outcome. Victims were
also thought to be motivated to distort by the self-presentational concern to not
appear responsible for the negative outcome by emphasizing the perpetrator's role
in the incident. In the present study, victims constructed their stories to avoid
responsibility for their own negative outcome and placed the blame squarely on the
perpetrator's shoulders. The desire to avoid responsibility for the outcome and to
gain sympathy, empathy and assistance from others was thought to prompt victims
to correctly include, add and emphasize the exacerbating details, as well as those
that described the severity of the offense.
Even though victims and perpetrators were found to exhibit the same level of distortion in their stories of interpersonal transgressions, the nature of the distortions was quite different. Based on the data, victims and perpetrator were thought to be influenced by similar motivations to distort, both practical and self-presentational, that entailed very different patterns of distortion. Victims focused their stories on the outcome and on the severity of the offense, even to the point of adding or changing these details, while ignoring any mitigating or positive factors associated with the perpetrator. In contrast, perpetrators focused their stories on the mitigating circumstances and positive aspects of their behavior, while ignoring or downplaying the offense and the outcome for the victim. Both perpetrators and victims demonstrated remarkable levels of accuracy for certain details, as well as equally remarkable levels of distortion and bias for other aspects of the story. Neither group was immune to the influence of the role-based motivations to distort.

**Roles and Perspectives: Self-involvement vs. Objective Storytelling**

The final issue addressed by this investigation was the comparison of the self-referent first-person stories to the more objective third-person stories. I hypothesized that the first person stories would contain more errors and distortions than the third person stories. The overall comparison of the first and third person perpetrator stories to the first and third person victim stories yielded no significant differences. Regardless of the perspective taken when retelling the story, perpetrators and victims did not differ as to the overall amount of error in their stories, perhaps due to the artificiality of the method or the brief period of time allowed from reading the story initially to constructing the narrative.

The results did yield a consistent pattern of differences for role between the first-person stories and the third-person stories. All eight comparisons between the first-person perpetrators and victims yielded significant differences for the detail
groups included, added, and changed. The eight comparisons between the third-person perpetrators and victims resulted in no significant differences. First-person perpetrators included, added or changed the details pertaining to the mitigating circumstances for their actions and the details describing their positive actions. First-person victims included, added or changed the details that described the severity of the outcome and that exacerbated the offense. First-person perpetrators were less concerned with the detail categories that pertained to the victim. In turn, first-person victims were less concerned with the details that pertained to the perpetrator. Each role concentrated on their own concerns and ignored or downplayed the concerns of the other. To contrast, third-person perpetrators and victims did not differ as to the inclusion, addition or alteration of the mitigating, positive, or exacerbating details, as well as for the details that described the severity of the victim's outcome. Third-person stories did contain a similar level of error as compared to the first-person stories, but the errors were not found to result from systematic distortions or biases. The third-person victim and perpetrator stories were much more alike than they were different, in partial confirmation of the prediction that the first-person stories would contain more systematic, role-based, biases and distortions than would the third-person stories.

The first-person and third-person stories exhibited varying levels of distortion, to a limited degree. The eight pairwise comparisons between the first-person perpetrators and victims yielded significant differences for the details included, added and changed, while the eight comparisons between the third-person perpetrators and victims did not. Even so, the interactions between role and perspective did not yield reliably significant differences. The interaction between role and perspective for the inclusion of the details that exacerbated the offense reached significance. The interaction for the inclusion of the perpetrator-positive
details approached significance. The interaction for the addition or alteration of the mitigating details also reached significance. The other five interactions for the details included, added or changed did not achieve significance. The results were suggestive, but not conclusive, as to the differences between first-person stories and third-person stories of interpersonal transgressions as told from the victim and perpetrator perspectives. The strength of the difference overall was insufficient to reliably assert that first and third-person stories are different, but the trend seems to point in that direction. The errors in the third-person stories seemed to be random, while the errors in the first-person stories appeared to be more systematic.

**Determining the Accuracy of Narratives: Real World vs. the Laboratory**

**Confidence vs. Accuracy.** When reviewing their own personal memories, people are usually fairly confident as to the accuracy of their recall (Greenberg, 1980). Past work has supported people’s confidence in their memory (in some cases) by demonstrating that people remember information better if it is somehow tied to the self, although the debate among psychologists regarding confidence in memory and any corresponding accuracy continues. For example, Rogers, Kuiper and Kirker (1977) found that people demonstrated better recall for words that were self-referent, in comparison to words that were remembered on structural, phonemic or even semantic levels. More recently, Greenwald and Banaji (1989) have shown the self to be a powerful and effective (though not unique) memory system.

In contrast, Davis and Schiffman (1985) found that when asked leading questions regarding a stimulus they previously experienced, subjects were more confident as to their answers and the accuracy of their memory than when the questions were unbiased. In addition, Lindsay, Wells and Rumpel (1981) found that as the probability of an incorrect identification of a suspect increased, subject’s
confidence in their accuracy of identification did not decrease. In these two studies, when biased or leading information was introduced, people’s confidence in the accuracy of their memory did not decrease and may even have increased as a result. It is perhaps safe to say that people’s confidence in the accuracy of their memories may be warranted in some cases, but confidence does not necessarily equate with accuracy in every case.

**Objective Measures of Accuracy.** The study of personal or autobiographical memory has posed somewhat of a problem for researchers. It has often been difficult to verify the accuracy of people’s accounts without actually having been present for the original event. Several lines of research have attempted to address the question. William Brewer (1986: 1988) has made use of randomly activated beepers that prompted his participants to record their current thoughts, emotions and actions for later recall. Craig Barclay and his colleagues (Barclay & Subramaniam, 1987; Barclay & DeCooke, 1988) have made use of diaries in which participants were to record and rate five events or activities per day for later recognition memory tests. Based on their findings, both Brewer and Barclay have concluded that personal memories are, more or less, reconstructed. In other words, when people remember events from their own lives, they are actually rebuilding or reconstructing that memory, instead of merely accessing a copy of the original event. People’s reconstructions of events, especially of everyday occurrences, tend to contain inaccuracies or errors with regard to specific details, the people involved, their own reactions and the eventual outcome. The errors people make in remembering and retelling events could happen for a variety of reasons: simple forgetting, intentionally untrue statements, emotional involvement or even their reliance on self-schemas.
Once thought to be an accurate source of knowledge about the self, autobiographical narratives are now understood to contain some measure of inaccuracy with regard to the outcomes of events and to their own responsibility for the events. For example, Baumeister, et al. (1990) found that people tend to portray interpersonal transgressions very differently, depending on the part they played in the event and how they later recall the details. When recounting their participation in an anger-producing event, perpetrators tended to downplay their own responsibility for the outcome and maintained that the victim is partially (or wholly) to blame for their misfortune. Perpetrators tended to downplay the severity of the event and its outcome and asserted that "everything turned out all right." On the other hand, victims tended to emphasize the severity of the offense and its negative outcome, as well as the perpetrator's responsibility for what happened, while often refusing to accept even a portion of the blame. As the stories were of real-world experiences, the authors were unable to determine the accuracy and amount of bias in the stories written by their subjects, as compared to the original events.

The reconstruction of autobiographical narratives seems to offer individuals a rich opportunity for the biasing or distortion of stories, perhaps to serve their own personal motivations. Of course not all narratives are biased or distorted, but it seems likely that the people's practical and self-presentational motivations are pervasive enough for the bias to occur. As demonstrated by the data, people will bias their stories of interpersonal transgressions in which they merely played a role and did not actually participate, seemingly to serve these motivations.
Limitations and Directions For Future Work

One limitation of the method was its artificial nature. In order to objectively assess the accuracy of the narratives, it was necessary to compare the furnished stories to the given story. By making use of an experience of the participant's own choosing, I would not have been able to objectively assess its accuracy.

Another limitation was the 5 minute time frame allowed from initial experience of the event to construction of the narrative. For narratives of actual events, people typically have more than 5 minutes to construct a narrative of the event. Participants might have benefited from a longer interval between the original exposure to the story and the narrative they furnished. One solution might be to increase the interval from the initial exposure to the construction of the narrative in order to mimic more closely the circumstances of narratives in real life.

A broader issue is the cultural diversity of the sample that was briefly mentioned in the method section as related to varying conceptions of self across cultures. The anthropological literature discusses many different concepts of the self across cultures (Ewing, 1990; Markus and Kitayama, 1991; Triandis, 1989). Concepts of self may range from interdependent views of self (e.g. Asian cultures) to those that espouse more independent views of self (e.g. Western European United States). In the present study, the Western view of self was necessarily the framework within which the story of the perpetrator and victim was constructed. It could be argued that the findings reported here might not apply to a more general, multicultural audience, especially if that audience shares a different conception of self from the Western view. For example, the idea that the victim went to an outsider for help would be unheard of in many cultures. He or she should have turned first to a family member for help. The victim might even be viewed as lazy
or weak for putting too much emphasis on a grade and not enough on learning the material him or herself. The perpetrator also could be viewed as a victim, in the sense that he or she had a problem with alcohol and had plenty to be concerned with outside of the victim's problems. To address this limitation, further work is planned to consider alternate story forms that pertain to the varied conceptions of self found in different cultures.

A final limitation was the low level of ego-involvement as necessitated by the constraints of the laboratory. Ross & his colleagues (Fergusson & Ross. 1991; Ross & Buehler, 1993) have demonstrated the differences between first and third person stories of actual events, especially those of traumas. Even with these limitations, biases and distortions were found in the first person stories, suggesting that role-based motivations to distort are fairly strong influences on narratives.

Regarding future work, can the motivation to distort be overridden by a motivation for accuracy? The present study offered one method of assessing the accuracy of autobiographical narratives by asking participants to read a story about a specific event as one of the characters in that event. By comparing the stories of minor interpersonal transgressions that participants furnished to the original story, I was able to learn how perpetrators and victims bias their stories in relation to the stories given by control subjects with no assigned role. Victims were found to bias their stories to nearly the same degree as perpetrators. Neither position seemed to be immune to the motivations inherent in their own particular role to bias their stories.

To address the motivation issue, I plan to take the same laboratory manipulation with one difference, to pay subjects as a function of their story accuracy. I suspect that the role-based motivations would decrease, but that they not drop out entirely. The strength of the effect, even after a 5 minute retention
interval, suggests that the influence of roles on narratives is a pervasive one.

**Conclusion**

Victims and perpetrators were shown to distort their stories to a nearly identical degree. The distortions included the inclusion, addition and alteration of some details, as well as the exclusion of others. Not only do victims and perpetrators distort equally, but each does so by slanting the story in different directions, perhaps based on motivations inherent in the role they might have played in the event.

Even though the third-person narratives of interpersonal transgressions contained fewer systematic biases between perpetrators and victims, they did contain similar levels of error as compared to first-person narratives. The data were not reliably significant as to the overall differences between third and first-person narratives, but the trend seems to suggest that the errors in the third-person stories were random, while the errors in the first-person stories were more systematic.

In closing, we should trust (or distrust) victim and perpetrator accounts equally, as both are apt to tell a biased or distorted tale, geared perhaps to the motivations inherent in the role they played in the event. These distortions may or may not be deliberate, and it would be counterproductive to engage in blaming either the perpetrator or the victim for the inaccuracies in their individual accounts. Rather, victims and perpetrators would be better served by recognizing the tendency for them to distort their stories and by taking that tendency into account when these kinds of events take place.
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Neisser (Eds.) The Remembered Self: Accuracy and Construction in the Life
Narrative. Cambridge: Cambridge University Press.

of motivation and cognition: Foundations of social behavior. (pp. 122-144).
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York: St. Martin's Press.

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legislation: An overview. (Publication number NCJ-94365). Washington D.C.:
### Table 1: List of Story Details

1. H and A suite mates  
2. Knew each other  
3. Not best friends  
4. A enrolled in class  
5. H previously completed  
6. H prepared thoroughly  
7. H did well (A+)  
8. H’s vague offer  
9. Will assist A on course work  
10. Prof changed the course format  
11. No exams, only a final paper  
12. Paper due the last week of class  
13. Passage of time  
14. One week before the due date  
15. A reminded H of the offer  
16. "No, only on exams"  
17. "But there are no exams"  
18. H finally agrees  
19. H didn’t mind helping with exams  
20. H and A set a time to meet  
21. H didn’t show  
22. H 2 hours late and drunk  
23. H forgot  
24. H went drinking with friends  
25. Margarita night  
26. H of little help to A  
27. A’s computer was broken  
28. H’s drunken promise to help again  
29. Would help Thursday  
30. A asked for an extension  
31. Extension due to computer  
32. Prof. not happy  
33. Prof. agrees  
34. A looks for H in his suite  
35. H refuses to help A  
36. H has too much to do now  
37. H’s apology  
38. H firm in refusal  
39. Later, A has a quick question for H  
40. H on phone & motioned to come back  
41. A stopped back two times  
42. H on phone long-distance with partner  
43. Discussing a change in winter break  
44. Relationship in trouble  
45. A gave up and started alone  
46. Class central to A’s major  
47. B pre-paper  
48. Grade dropped to C  
49. C on paper  
50. TA’s comments (good ideas, but theory?)  
51. A’s major and university change
Table 2: Overall Distortions - First-person roles vs. controls

<table>
<thead>
<tr>
<th></th>
<th>Perpetrators</th>
<th>Victims</th>
<th>Controls</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total changes</td>
<td>25.8a</td>
<td>25.5a</td>
<td>17.8b</td>
<td>*</td>
</tr>
<tr>
<td>(adds +omits + alters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** * = p<.05

Means with different subscripts are significantly different.
**Table 3: Detail categories**

<table>
<thead>
<tr>
<th>Mitigating circumstances</th>
<th>Perpetrator-positive details</th>
</tr>
</thead>
<tbody>
<tr>
<td>H forgot</td>
<td>H's vague offer</td>
</tr>
<tr>
<td>H went drinking with friends</td>
<td>H didn't mind helping</td>
</tr>
<tr>
<td>H has too much to do now</td>
<td>H's drunken promise</td>
</tr>
<tr>
<td>H on phone long-distance with partner</td>
<td>H's apology</td>
</tr>
<tr>
<td>Relationship in trouble</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details describing the outcome's severity</th>
<th>Details that exacerbated the offense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class central to A's major</td>
<td>One week before the due date</td>
</tr>
<tr>
<td>Grade dropped to C</td>
<td>H and A set a time to meet</td>
</tr>
<tr>
<td>C on paper</td>
<td>H didn't show</td>
</tr>
<tr>
<td>A's major and university change</td>
<td>H 2 hours late and drunk</td>
</tr>
<tr>
<td></td>
<td>A stopped back two times</td>
</tr>
<tr>
<td></td>
<td>A gave up and started alone</td>
</tr>
<tr>
<td></td>
<td>Class central to A's major</td>
</tr>
</tbody>
</table>
Table 4: Detail groups (1st person items included)

<table>
<thead>
<tr>
<th>Coding Detail</th>
<th>Perpetrators</th>
<th>Victims</th>
<th>Controls</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative outcome for V</td>
<td>2.4a</td>
<td>3.4b</td>
<td>2.6a</td>
<td>*</td>
</tr>
<tr>
<td>Exacerbated the offense</td>
<td>2.8a</td>
<td>5.1b</td>
<td>4.8b</td>
<td>***</td>
</tr>
<tr>
<td>Mitigating circumstances for P</td>
<td>3.8a</td>
<td>1.7b</td>
<td>3.1a</td>
<td>**</td>
</tr>
<tr>
<td>Good things P did</td>
<td>2.0a</td>
<td>1.1b</td>
<td>1.5c</td>
<td>*</td>
</tr>
</tbody>
</table>

**NOTE:** *=p<.05; **=p<.005; ***=p<.001

Means with different subscripts are significantly different.
Table 5: Detail groups (1st person items added or altered)

<table>
<thead>
<tr>
<th>Coding Detail</th>
<th>Perpetrators</th>
<th>Victims</th>
<th>Controls</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative outcome for V</td>
<td>0.1a</td>
<td>0.6b</td>
<td>0.1a</td>
<td>*</td>
</tr>
<tr>
<td>Exacerbated the offense</td>
<td>0.2a</td>
<td>0.8b</td>
<td>0.5ab</td>
<td>p=.10</td>
</tr>
<tr>
<td>Mitigating circumstances for P.</td>
<td>1.3a</td>
<td>0.0b</td>
<td>0.0b</td>
<td>*</td>
</tr>
<tr>
<td>Good things P did</td>
<td>1.1a</td>
<td>1.0a</td>
<td>0.3b</td>
<td>*</td>
</tr>
</tbody>
</table>

NOTE: *p<.05

Means with different subscripts are significantly different.
<table>
<thead>
<tr>
<th>Perspective</th>
<th>Perpetrators</th>
<th>Victims</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First person</strong></td>
<td>25.8</td>
<td>25.5</td>
</tr>
<tr>
<td>Mean # of changes (adds + omits + alters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Third person</strong></td>
<td>21.8</td>
<td>28.0</td>
</tr>
<tr>
<td>Mean # of changes (adds + omits + alters)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 7: Detail group interactions for items included

<table>
<thead>
<tr>
<th></th>
<th>First person</th>
<th></th>
<th>Third person</th>
<th></th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Perpetrators</td>
<td>Victims</td>
<td>Perpetrators</td>
<td>Victims</td>
<td></td>
</tr>
<tr>
<td>Perpetrator positive</td>
<td>2.0</td>
<td>1.1</td>
<td>1.5</td>
<td>1.5</td>
<td>ns</td>
</tr>
<tr>
<td>Exacerbated offense</td>
<td>2.8</td>
<td>5.1</td>
<td>4.1</td>
<td>4.2</td>
<td>**</td>
</tr>
<tr>
<td>Mitig. circumstances</td>
<td>3.8</td>
<td>1.7</td>
<td>2.8</td>
<td>1.9</td>
<td>ns</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>2.4</td>
<td>3.4</td>
<td>2.5</td>
<td>2.6</td>
<td>ns</td>
</tr>
</tbody>
</table>

(Mean # items included)

**NOTE:** **=p<.01
Table 8: Detail groups—Pairwise comparisons for items included

**First Person**

<table>
<thead>
<tr>
<th>Coding Detail</th>
<th>Perpetrators</th>
<th>Victims</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigating circumstances for perp.</td>
<td>3.8</td>
<td>1.7</td>
<td>***</td>
</tr>
<tr>
<td>Good things P did</td>
<td>2.0</td>
<td>1.1</td>
<td>**</td>
</tr>
<tr>
<td>Negative outcome for victim</td>
<td>2.4</td>
<td>3.4</td>
<td>*</td>
</tr>
<tr>
<td>Exacerbated the offense</td>
<td>2.8</td>
<td>5.1</td>
<td>***</td>
</tr>
</tbody>
</table>

**Third Person**

<table>
<thead>
<tr>
<th>Coding Detail</th>
<th>Perpetrators</th>
<th>Victims</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigating circumstances for perp.</td>
<td>2.8</td>
<td>1.9</td>
<td>ns</td>
</tr>
<tr>
<td>Good things P did</td>
<td>1.5</td>
<td>1.5</td>
<td>ns</td>
</tr>
<tr>
<td>Negative outcome for victim</td>
<td>2.5</td>
<td>2.6</td>
<td>ns</td>
</tr>
<tr>
<td>Exacerbated the offense</td>
<td>4.1</td>
<td>4.2</td>
<td>ns</td>
</tr>
</tbody>
</table>

**NOTE:** * = p<.05; ** = p<.01; *** = p<.001
Table 9: Detail group interactions for items added or altered

<table>
<thead>
<tr>
<th></th>
<th>First person</th>
<th></th>
<th>Third person</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Perpetrators</td>
<td>Victims</td>
<td>Perpetrators</td>
<td>Victims</td>
<td>p</td>
</tr>
<tr>
<td>Mitig. circumstances</td>
<td>1.3</td>
<td>0.0</td>
<td>0.6</td>
<td>0.8</td>
<td>*</td>
</tr>
<tr>
<td>Perpetrator positive</td>
<td>1.1</td>
<td>1.0</td>
<td>0.6</td>
<td>0.4</td>
<td>ns</td>
</tr>
<tr>
<td>Exacerbated offense</td>
<td>0.2</td>
<td>0.8</td>
<td>0.6</td>
<td>0.6</td>
<td>ns</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>0.1</td>
<td>0.6</td>
<td>0.0</td>
<td>0.3</td>
<td>ns</td>
</tr>
</tbody>
</table>

**NOTE:** * = p < .05
Table 10: Detail groups-- Pairwise comparisons for items added or altered

<table>
<thead>
<tr>
<th>Coding Detail</th>
<th>Perpetrators</th>
<th>Victims</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>First person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitigating circumstances for P</td>
<td>1.3</td>
<td>0.0</td>
<td>*</td>
</tr>
<tr>
<td>Good things P did</td>
<td>1.1</td>
<td>1.0</td>
<td>ns</td>
</tr>
<tr>
<td>Negative outcome for V</td>
<td>0.1</td>
<td>0.6</td>
<td>*</td>
</tr>
<tr>
<td>Exacerbated the offense</td>
<td>0.2</td>
<td>0.8</td>
<td>*</td>
</tr>
<tr>
<td>Third person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitigating circumstances for P</td>
<td>0.6</td>
<td>0.8</td>
<td>ns</td>
</tr>
<tr>
<td>Good things H did</td>
<td>0.6</td>
<td>0.4</td>
<td>ns</td>
</tr>
<tr>
<td>Negative outcome for V</td>
<td>0.0</td>
<td>0.3</td>
<td>ns</td>
</tr>
<tr>
<td>Exacerbated the offense</td>
<td>0.6</td>
<td>0.6</td>
<td>ns</td>
</tr>
</tbody>
</table>

**NOTE:** * = p<.05
Appendix B

Letter Identification Test

Finding Expected Mean Squares

An expected mean square contains all of the sources of variation expected to contribute to the obtained mean square. An expected mean square can be found for every source term in the source table. The expected mean square (or E(MS)) as it is often written is our mathematical model of the way sources of variation are partitioned in our design. As such, they are important in selecting appropriate error terms and in understanding how analysis of variance really works. They can be found by the following rules. In practice, at least after this course is finished you will probably have very little use for these rules but by learning them, you will be able to astound friends and neighbors alike because there are very few people who are able to tell you the E(MS) for any design without consulting a statistics book. For those occasions when you will need them, here they are:

1. Write the word 'Source' and below that, list each term from the source table computed by the previously given rules.

2. On the same row as the word source is written, list each term in the source table across the page. Underline all code letters not in parentheses which specify fixed factors.

3. You have now formed a matrix in which both rows and columns are labeled with all the terms from the source table. We will refer to the terms marking rows as the source terms (as usual) and to the terms marking columns as the E(MS) terms.

4. Apply the following rules to each source (row) term. Make all entries on the row marked by that source term, but in the column specified by the rule.

4a. Put a zero (0) in each column in which the E(MS) (column) term does not contain all of the letters contained in the source (row) term. The E(MS) (column) term may contain other letters but it must contain each and every letter contained in the source (row) term.

4b. Put an X in each column in which an underlined code letter in the E(MS) term does NOT appear in the source term.

5. For the remaining intersections of columns and rows which are filled with neither an O or an X, write the E(MS) term which heads that column.

6. Determine a coefficient for each of the terms in the body of the matrix (i.e., each of the terms that you have just written in the open spaces) by multiplying together the number of levels for each factor whose code letter is not represented in the term under consideration. If all letters are used, the coefficient is 1.

7. Write a new source table which has all of the terms of the original. In the row corresponding to the same row in your matrix, copy the E(MS) terms from the body of your matrix using one of the following rules into a column labeled E(MS).

7a. This is the convention followed in most statistics books. For each row, write the coefficient for the term followed by \( s^2 \). Now allow the letters written in the matrix to serve as subscripts for the \( s^2 \). Connect each term in the row with plus signs. That term which contains only S outside of parentheses, when part of the E(MS), may be written as \( s^2 \) which is read as "sigma squared error". The reason for writing all of the \( s^2 \) symbols is to indicate that each term in an expected mean square represents a variance component which is a population parameter. What we actually deal with when doing an analysis of variance are estimates of the variances which are generally represented as \( s^2 \).