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911 Calls in homicide cases: What does the verbal behavior of the caller reveal?

Jon D. Cromer
James Madison University

911 Calls in Homicide Cases: What Does the Verbal Behavior of the Caller Reveal?

Jon David Cromer

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FACULTY COMMITTEE:

Committee Chair: JoAnne Brewster, Ph.D., ABPP

Committee Members/ Readers:

Michael L. Stoloff, Ph.D.

Kethera Fogler, Ph.D.

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Table of Contents

Appendices

List of Tables

List of Figures

Abstract

Each year, numerous 911 calls reporting a death or a serious injury that leads to death are received by emergency communications centers; many of these turn out to be related to a homicide. Interestingly, a small percentage of these calls are made by the perpetrator. These calls constitute the first available evidence in most homicide cases. They are recorded at times of great stress and are the first versions of what the callers purport to know. The ability to develop hypotheses about a caller's truthfulness enhances the police response by objectively informing the process of formulating early investigative strategies. For example, knowing whether the caller uttered any words or phrases considered to be *red flags* that indicate deception would give an investigator an idea about whether the caller should be interviewed in greater depth.

The present study examined 14 linguistic variables and an additional 4 "mitigating" variables in an effort to determine whether any of those variables, individually or in combination, were predictive of guilt or innocence. A sample of 50 calls to 911 centers was selected, including 36 innocent and 14 guilty callers. Five of the variables (Extraneous Information, Conflicting Facts, Incorrect Order, Proximity, and Weapon Touch) were significantly correlated ($p<.05$) with the guilt of the caller. Three additional variables that were hypothesized to predict guilt (Possession of the Problem, Thinking Pause, and Lack of Fear) were marginally significant ($p<.08$). This study proposes a useful model for the systematic evaluation of 911 calls for the presence of linguistic behavior that is correlated with an ultimate finding of guilt and/or innocence.

Introduction

Emergency communication centers throughout the United States regularly receive calls for a variety of police, fire, and medical situations; an estimated 240 million calls are made to 911 in the U.S. each year (National Emergency Number Association, 2014). Included in that number are calls made in connection with thousands of homicides. Some of the calls are made by the victims prior to their death. In other cases, witnesses phone 911. Perhaps most interestingly, perpetrators themselves make a number of those calls. An unpublished study by Dr. Robert Keppel estimated that 19% of all homicide reports are actually phoned in by the offender posing as an innocent individual (cited in Harpster, 2006, p.19).

These 911 calls constitute the first available evidence in most homicide cases. They are recorded at times of great stress for the callers and are the first documented versions of what the callers purport to know. The ability to develop hypotheses about a caller's truthfulness would enhance the police response by objectively informing the process of formulating early investigative strategies. For example, knowing whether the caller uttered any words or phrases considered to be *red flags* that indicate deception would give an investigator an idea about whether the caller should be interviewed in greater depth. Therefore, the precise language of 911 callers is worthy of careful scrutiny to determine whether it contains clues as to the truthfulness or deceptiveness of the caller.

The legal, philosophical, and scientific communities have been studying deception for centuries (Ford, 2006); the process of attempting to differentiate truthful statements from deceptive statements is as old as civilization itself. However, determining the veracity of statements made to police investigators remains a challenging

task. Training programs that teach officers to recognize physiological, non-verbal, and verbal indicators of deception constitute a significant portion of basic and advanced police training curricula. The literature on the subject of deception detection includes many methods that purport to determine the accuracy of statements made to police; however, the evidence is somewhat equivocal regarding the effectiveness of at least some of these techniques. Law enforcement professionals with specialized training may only be minimally better than average citizens in identifying truthful statements (Bond, 2008). Everything from the effectiveness of early techniques such as phrenology and truth serums, to the more modern and accepted methods of polygraphy and functional magnetic resonance imaging (fMRI), has been discussed extensively (Ford, 2006). While one should not lump all deception-detection techniques into one category, the degree to which each technique is useful for correctly determining the accuracy of a person's statements remains largely debatable.

Recently, the technique of statement analysis has gained popularity among police investigators. Statement analysis is the "analysis of an individual's words, in either oral or written form" (Adams, 2002, p.18). One of the earliest examinations of the effectiveness of statement analysis evaluated the linguistic tendencies of callers who reported fires to emergency communication centers in London, England (Olsson, 2004). The goal of that study was to attempt to differentiate hoax calls from actual emergencies. Olsson specifically examined three areas: the *components of the calls*, defined as the details needed to get help; the *attitude of the callers*, defined in terms of the level of the caller's cooperation; and *aspects of phonetic output*, defined as the concise delivery of a

particular set of facts with variations in tone and pitch. The study yielded exciting possibilities for emergency service personnel seeking the truth about emergency situations. In hoax calls, Olsson found a general lack of cooperation with the call taker and stalling behaviors that included the tactic of repetition. The strongest indicator that a caller was feigning an emergency situation was a lack of urgency.

Other researchers who have studied linguistic patterns of communication have also found differences between those persons who are speaking truthfully and persons who are speaking deceptively. When a speaker anticipates the negative consequences that could result from what s/he says, there is apparently an effect on how the speaker produces language. Carpenter (2009) suggested that if a speaker believes s/he should be cautious in what is said, that belief will lead the speaker to speak with relatively higher levels of lexical diversity (the ratio of total words to the number of different unique word stems). Carpenter found that when a person is being questioned about a matter of great consequence, s/he is particularly cautious in wording answers to questions that could invoke an incriminating response. That caution apparently leads to an increase in the likelihood that s/he will choose low probability words in the construction of the response, which leads cumulatively to a greater number of unique words.

When the perpetrator of a homicide makes a 911 call to report the death, the message that is conveyed is either an admission/confession or a contrived statement designed to misdirect the police. If the caller simply calls to confess, the verbal behavior is not of particular interest for the purpose of the detection of deception. The calls specifically of interest are those in which the caller conceals information and/or

deliberately attempts to deceive the dispatcher. Other than individuals who may have acted in self defense, one might wonder why anyone guilty of homicide would call the police to report the event? There are several possible reasons, but most often the killer may realize that s/he cannot distance herself/himself from the victim, the scene, or the overall situation, so s/he calls 911 to proactively present herself/himself as an innocent party. For example, in the case of a domestic homicide occurring during the night when no other persons are home, the offending partner may surmise that s/he has no other alternative but to attempt to alter the scene to resemble an intruder-perpetrated murder (*staging*, as discussed by Hazelwood & Napier, 2004), and to make a 911 call to report the murder. In addition to possibly physically rearranging the scene, the guilty caller must also misrepresent the facts to the dispatcher during the 911 call. The ability to detect attempts to deceive during the 911 call would be extremely beneficial to the subsequent investigation.

In the first study to consider the verbal behavior of 911 callers reporting homicides, Lt. Tracy Harpster (2006) identified a number of factors that were correlated with guilt. Harpster's study included 911 calls made in connection with a death not attended by a physician, where the cause and manner of death were initially undetermined pending autopsy. These were calls in which the responding police agency, in accordance with best practices, dispatched investigators for the purpose of conducting a thorough death investigation. Harpster examined 20 variables in a correlational design with a sample of 100 calls to 911 centers. Callers who were later found to be guilty frequently included more Extraneous Information and more Conflicting Facts in their

calls and exhibited greater resistance to answering questions. Additionally, they were more likely to accept that the victim was dead, and they were excessively polite and repetitive. Conversely, callers who were later found to be innocent frequently included an urgent and demanding Plea for Help. Several of Harpster's findings were consistent with Olsson's (2004) conclusions regarding hoax calls to report a fire.

A recent Master's thesis (Richards, 2014) partially replicated Harpster's work, but only included 12 calls (6 innocent callers and 6 guilty callers). The study was exploratory in nature and included only descriptive information; no statistical analyses or significance testing were conducted. It is noteworthy that the findings of this study, limited as it was, were consistent with Harpster (2006).

Lt. Harpster has presented his findings at various homicide investigator conferences throughout the United States and Canada, and has developed an instrument (the COPS Scale) now used by some police investigators to evaluate 911 calls. However, in light of the extreme importance of reaching correct conclusions about the possible guilt or innocence of 911 callers, further empirical investigation is warranted to ensure that the techniques will produce valid and useful information to homicide investigators.

The Present Study

The purpose of this study was to advance the pioneering work of Harpster (2006), to further evaluate and develop the strategy of systematically analyzing 911 homicide calls to identify deception on the part of the caller. Specifically, are certain linguistic behaviors found in 911 calls differentially associated with guilt or innocence? The study provides additional information for use by homicide investigators regarding 9 of the 20

variables that Harpster examined, as well as new information about nine previously unexamined variables. Additionally, this study evaluated whether certain variables were influenced by such things as *caller injury, secondhand knowledge,* and whether or not the caller was a *second or subsequent caller;* these characteristics were not considered in Harpster's work.

It is the intent of this researcher that findings resulting from this study will be considered in combination with other information routinely available to investigators. While this study intends to inform and improve the investigative process, it is important to understand that linguistic analysis, at its best, is merely one of the many tools available to criminal investigators. With that said, linguistic analysis appears to have merit as an effective tool if properly applied. Members of the criminal justice system and researchers with an interest in related topics should continuously strive to improve the process by which law enforcement officials identify, apprehend, and prosecute alleged offenders. This study will contribute to that worthy pursuit.

Each of the 18 variables is briefly described below. Although Harpster's (2006) definitions are used for the basis for nine of the variables, those definitions have been expanded and elaborated for the present study. Nine additional variables were identified and defined for the purposes of this study. The hypotheses associated with each variable are stated following the brief definition of the variable. Complete operational definitions and detailed coding instructions with extensive examples for each variable are provided in Appendix A.

1. *Plea for Help.* In the case of a call where someone has been seriously injured, the focus of the innocent 911 caller should be to report the emergency and to summon help. A guilty caller, on the other hand, might be more likely to focus on providing information designed to mislead investigators. This variable is defined as the caller's specific request for assistance for the victim from the police, firefighters or paramedics, as evidenced by such words or phrases as "help," "get here," or "send an ambulance" (Harpster, 2006).

Hypothesis 1: The presence of a Plea for Help is predicted to be associated with innocence of the caller, particularly if the plea is immediate and urgent/demanding.

2. Extraneous Information: If the purpose of the 911 call is to report the emergency and to summon help, the verbiage of the call should be entirely related to that purpose; the caller should not use valuable time to provide information outside the context of that purpose. Innocent callers should have no other purpose for the call, whereas guilty callers may instead be focused on misleading the police. This variable is defined as the spontaneous, unrequested provision of information that is outside the context of the call, which is to report an emergency and to obtain assistance (Harpster, 2006).

Hypothesis 2: The presence of Extraneous Information in the call is predicted to be associated with the guilt of the caller.

3. Conflicting Facts: Innocent callers are likely to provide information exactly as they know it to be correct. A guilty caller who is fabricating information may not be able to keep his/her story straight, and may forget what s/he has previously told the dispatcher.

This variable is defined as an instance of a caller providing information that is in conflict with specific details that the caller previously provided (Harpster, 2006).

Hypothesis 3: The presence of Conflicting Facts in the call will predict guilt.

4. Non-Responsive Remark: The variable is present if an articulate caller fails to answer or gives a non-responsive answer to a question that is relevant to the events that took place, where giving an honest answer to such a question might portray the caller in a negative light. This variable was inspired by a variable that Harpster (2006) called *Resistance to Answer*, but in the present study it was renamed and defined more narrowly.

Hypothesis 4: The presence of a Non-Responsive Remark is hypothesized to predict guilt.

5. Acceptance of Death when a Close Personal Relationship Exists: The caller who has a close personal relationship with the victim typically maintains some level of hope that quick medical attention might result in the survival of the victim, even when injuries are severe. Therefore, it is expected that the caller should not declare the mortality of the victim to the dispatcher. If a close personal relationship exists between the caller and the victim, and the caller accepts or reports the death of the victim, the variable is coded as present, even if a reasonable person might agree that based on the condition of the victim, the victim is certainly dead (Harpster, 2006).

Hypothesis 5: The presence of the variable Acceptance of Death when a Close Personal Relationship exists will be associated with the guilt of the caller.

6. Inappropriate Politeness: This is defined as unexpected gracious or noticeably polite language spoken by the caller during the 911 call. It is expected that the maintenance of conventions of civility and etiquette is not a natural pattern of communication in an emergency, especially if a relationship exists between the caller and the victim (Harpster, 2006). Innocent callers should be focused entirely on quickly getting help for the victim, rather than taking the time to observe traditional patterns of polite conversation. Guilty callers, on the other hand, may be focused on presenting what they perceive to be a "normal" communication pattern.

Hypothesis 6: It is predicted that the presence of Inappropriate Politeness on the part of the caller will be associated with the guilt of the caller.

7. Possession of the Problem: In an emergency call to report an injury or death, the victim is considered to be the possessor of the problem. Sometimes, however, a 911 caller focuses on himself/herself as having a problem, for example, s/he might report: "I have a problem here," or "I need some help." In such an instance, this variable would be coded as present (Harpster, 2006).

Hypothesis 7: Possession of the Problem by the caller is predicted to be associated with the guilt of the caller.

8. Thinking Pause: This variable is present when a 911 caller unexpectedly responds to a dispatcher's relevant question with a deflection or a filler word, such as by saying, "*huh*?", "*what*?", or "*do what*?" (Harpster, 2006). A relevant question refers to a question that would be designed to elicit information that is relevant to an understanding of what the caller purports has happened to cause the emergency or that would elicit

information about the caller's involvement in the emergency. The innocent caller should respond to the dispatcher's relevant questions quickly, without needing much time to formulate an answer, since the innocent caller should simply be reporting what s/he knows to have happened. For a guilty caller, however, additional time might be required to decide what s/he wishes to say in response to the relevant question, in order to maximize the chances that suspicion will be deflected from him/her.

Hypothesis 8: The presence of a Thinking Pause is predicted to be associated with the guilt of the caller.

9. Minimizing "Just" in Initial Communication: This variable is defined here as any statement, the essence of which conveys "I just got here," as if to imply "I couldn't have done it." Innocent callers are expected to be focused on getting help, not on taking the time to spontaneously make statements to make it clear that they could not have been involved in creating the emergency since they just arrived on the scene. Guilty callers, on the other hand, may be more focused on establishing their innocence.

Hypothesis 9: It is predicted that the presence of a Minimizing Just in the call will be associated with the guilt of the caller.

10. Unexplained Knowledge: This variable is defined as any report of information consisting of knowledge that the caller could not have reasonably known under the circumstances, if their report of the events is truthful. An innocent person should only have the degree of knowledge that is consistent with his/her self-reported role in the event. A guilty caller almost certainly has knowledge about the event that only

the perpetrator would have. During the 911 call, some of this "guilty knowledge" may unthinkingly be revealed.

Hypothesis 10: It is predicted that the presence of Unexplained Knowledge in the call will be associated with the guilt of the caller.

11. Narrative "With:" This variable is present if the 911 caller uses the word "with" to describe engaging in a benign, purposeful social activity (such as eating, playing, watching TV or a sporting event, going to the movies, accompanying someone to an activity, etc.) with someone with whom he has a close personal relationship, as in "I was watching TV with my wife." The use of the word "with" is thought to imply distance in a relationship (Sapir, 1987). For example, it is preferable to say, "*My brother and I watched the football game on TV*," as opposed to, "*I watched the football game on TV with my brother*."

Hypothesis 11: It is predicted that the presence of a narrative "with" in a call where there is a close personal relationship between the caller and the victim will be associated with guilt of the caller.

12. Lack of Fear: Innocent individuals who discover a seriously injured or murdered person may find themselves in situations where a perpetrator could still be present and may cause them harm. In those situations, it would be reasonable for the caller to express some fear for his/her safety. Guilty callers, on the other hand, know that they have no reason to be afraid, and they should not spontaneously express fear. This variable should be coded as present in those situations in which the caller should

reasonably fear that the killer(s) might still be at or near the scene, but the caller does not express any evidence of fear, either directly or indirectly.

Hypothesis 12: It is predicted that the Lack of Fear where it is warranted will be associated with the guilt of the caller, and conversely, that an expression of fear will be associated with an innocent caller.

13. Incorrect Order: The order in which individuals speak about things is suggestive of their priorities. An innocent caller who is focused on getting help for a victim should report the most serious aspect of the emergency first. A guilty caller might be experiencing some ambivalence about making the call, and might present less serious aspects of the emergency first, before finally reporting the actual injury or death of the victim. This variable is defined as any instance of mentioning property damage or non-lethal injuries (or focusing on any other aspect of the emergency) prior to mentioning the most serious aspect of the emergency.

Hypothesis 13: It is predicted that the presence of Incorrect Order of reporting aspects of the event will be associated with guilt of the caller.

14. Weapon Touch: Most people have a passing familiarity with investigative strategies because of the wide variety of "cop shows" on TV, which suggests that most people are aware that a crime scene should be left undisturbed to the extent that it is possible. It is that very familiarity with investigative strategies that might lead guilty people to realize that they may have left fingerprints or DNA on the weapon and that they need to provide a plausible explanation for this. A spontaneous report from a caller that s/he has touched the weapon might be offered to provide that explanation. An innocent

person would have very little reason to touch the weapon unless it occurred during the provision of medical attention to the victim, and even then they might not think to mention that they had done so. This variable is considered to be present when a caller who purports not to have injured or killed the victim makes a spontaneous, unsolicited remark about touching a weapon that is reasonably presumed to have been used to inflict the injuries.

Hypothesis 14: It is predicted that the presences of the Weapon Touch variable will be associated with the guilt of the caller.

The remaining predictors constitute variables that, if present, might mitigate other variables. Four such variables were examined: Second/Subsequent Callers, Secondhand Information, Proximity and Report of Caller Injury. These are not linguistic variables in and of themselves, but are thought to have the potential to influence the presence or absence of certain linguistic variables.

15. Second/subsequent Caller: Very often more than one person is present at the location from which a 911 call is made. As a result, a single 911 call sometimes involves more than one person; an initial speaker may talk first, and a second speaker may subsequently get on the line. This variable is present if the speaker during the coded portion of the transcript was not the initial 911 caller. If a second or subsequent speaker is present and in a position to hear the initial caller's portion of the conversation, it is reasonable to conclude that the second or subsequent caller's language could be modified by what the initial caller said.

Hypothesis 15a: If the initial caller made an immediate, urgent, and demanding Plea for Help, it is possible that a second or subsequent speaker may not feel compelled to restate the plea. Second/Subsequent Callers, regardless of guilt or innocence, are predicted to be less likely to utter a Plea for Help than are initial 911 callers.

Hypothesis 15b: If the critical information has already been conveyed by the initial caller, second or subsequent speakers may not be as likely to confine themselves to talking only about that critical information in their portion of the call. Therefore, Second/Subsequent Callers, regardless of guilt or innocence, are predicted to be more likely to provide Extraneous Information than are initial 911 callers.

16. Secondhand Knowledge: Frequently, 911 calls are received from persons who claim or appear to be reporting information that they have obtained from another person(s) rather than through firsthand observation. This is coded as secondhand knowledge.

Hypothesis 16 a: If a caller is simply reporting information that was obtained from someone else, the caller may be less likely to experience the sense of urgency that comes from being on the scene of the emergency. Therefore, callers who report Secondhand Information, regardless of guilt or innocence, are predicted to be less likely to utter a Plea for Help than 911 callers who are providing firsthand information.

Hypothesis 16 b: Callers who are not at the scene of the emergency and are reporting only information obtained from another person may not have a complete and accurate understanding of the emergency. Therefore, callers who report Secondhand

Information, regardless of guilt or innocence, are predicted to be more likely to provide Extraneous Information than 911 callers who are providing firsthand information.

Hypothesis 16 c: Callers who report Secondhand Information, regardless of guilt or innocence, are predicted to be more likely to provide Conflicting Facts than 911 callers who are providing firsthand information.

17. Proximity: If a violent/injurious event has occurred, this variable is present if the caller was actually present at the time that the violence occurred. In the case of an emergency that does not obviously involve some violent/injurious action, such as an infant who stopped breathing for no obvious cause, the caller only has to have been present when the discovery was made for the Proximity variable to be coded as present.

Hypothesis 17: Persons who were not proximal to the emergency when it occurred may feel compelled to offer an explanation as to why they do not have all of the pertinent information. Therefore, callers who are not proximal to the event at its onset or discovery, regardless of guilt or innocence, are predicted to be more likely to utter a Minimizing Just than 911 callers who are in Proximity.

18. Report of Caller Injury: If at any point the caller reports having sustained a personal injury associated with the event that precipitated the 911 call, this variable will be deemed to be present.

Hypothesis 18: If the 911 caller reports having sustained a personal physical injury, they also personally have a problem, in addition to the victim's problem. Callers who report having sustained a personal injury, regardless of guilt or innocence, are

predicted to be more likely to utter words that would be coded as Possession of the Problem than 911 callers who do not report having sustained a personal injury.

Chapter 2

Method

This study was intended as a conceptual replication of Harpster (2006), which was a correlational design with a non-random sample.

Measures

As previously noted, a total of 18 predictor variables were selected. These variables were briefly described in the previous section; more extensive operational definitions for each are elaborated in Appendix A. These variables can be placed into one of four categories: 1.) One variable (Plea for Help) previously examined by Harpster (2006) and predicted to be positively correlated with innocence; 2.) Eight variables (Extraneous Information, Conflicting Facts, Non-Responsive Remark, Acceptance of Death, Inappropriate Politeness, Possession of the Problem, Thinking Pause, and Minimizing Just) previously examined by Harpster (2006) and predicted to positively correlate with guilt; 3.) Five previously unexamined variables (Unexplained Knowledge, Narrative "With," Lack of Fear, Incorrect Order, and Weapon Touch) predicted to be positively correlated with guilt; and 4.) Four previously unexamined variables (Second/Subsequent Caller, Report of Caller Injury, Proximity, and Secondhand Knowledge) that are hypothesized to potentially affect the interpretation of other variables.

In a few cases, no audio recording of the 911 call was received; only a transcript that had been prepared by an investigator was available. The primary researcher contacted the lead criminal investigators for each case and verified the accuracy of the

transcription. Two research associates, having no knowledge of the outcome of the cases associated with the 911 calls in this sample, individually coded each transcript for the presence or absence of each predictor variable. Interrater reliability was assessed and is addressed in the results section.

Call Inclusion Criteria

For a 911 call to be included in this study, all of the following criteria had to be met:

The call had to pertain to a sudden, violent, or unattended death, or an acute illness or injury that resulted in death in reasonable proximity to the time of the call; this requirement eliminated any callers who might have misused the 911 system to report tips on a homicide that may have occurred days, months, or even years earlier. Regardless of the ostensible cause and manner of death, or the time since death, the call had to pertain to a situation where the caller reasonably believed that emergency service personnel and/or the police should immediately be notified.

The caller must have uttered a sufficient number of intelligible words to minimally communicate the nature and location of the emergency. So-called 911 "hang-ups" were not included, nor were calls in which the caller uttered only incomprehensible sounds.

For the purposes of this study, a caller was defined as any person who engaged in a direct verbal exchange with the dispatcher, whether that person was the initial caller or a subsequent speaker who communicated with the dispatcher.

The caller must have been aware, whether directly or indirectly, that some person was injured, seriously ill, or dead. Callers who only reported a vague disturbance, such as "possible gunshots in the area," were eliminated; the calls of interest only include those where the caller knows something relevant about the emergency.

The presentation of the caller must have been that of an innocent person. This study did not attempt to evaluate the linguistic behavior of persons who called 911 to admit any degree of criminal wrongdoing, to offer a complete confession for criminal wrongdoing, or to communicate intentions of surrender. On the other hand, if a 911 caller reported that s/he had caused the death of another person but claimed to have acted under justification, the call was included. This allowed for an analysis of the verbal behavior of anyone who, for example, called 911 and said that s/he had shot another person in self-defense. In some cases these callers were in fact innocent of wrongdoing under the law and were telling the truth about what had happened. In other cases, these callers were actually guilty of wrongdoing and only called the police as part of an attempt to misdirect police from the truth.

A reasonable argument could also be made for including calls involving serious physical violence that without the early intervention of medics and doctors would have resulted in a death. This study, however, did not include that type of call.

Responsibilities of the Researcher

The 911 call transcripts were prepared and/or authenticated by the researcher. Access to the un-redacted data was limited to the researcher and managed according to his law enforcement agency’s policies and procedures for securing confidential

information associated with criminal investigations. The privacy of the 911 callers; the call-takers; and any associated police agencies, governments, communities, and businesses was, and will continue to be, protected. All transcripts were de-identified by the researcher.

Determination of Outcome: For each included call, a legal outcome must have been reached. Consistent with Harpster's (2006) study, in deaths that were ruled to be homicides, guilt and innocence were determined by the final legal outcome as established in a court of law. Individuals who made a 911 call about a homicide where someone other than the caller was charged with the crime were presumed to be innocent. For those cases that did not result in an indictment, such as murder-suicides involving the death of the offender, or justifiable homicides (self defense), the criteria used for sorting these cases was the expert opinion of the attending medical examiner in conjunction with police investigators, and/or the findings of a special grand jury. In Virginia, for example, the legal entity responsible for determining the cause and manner of any sudden, violent, or unattended death is the Office of the Chief Medical Examiner. For those 911 calls where the deaths were ruled to be natural deaths, accidents, or suicides, the callers were presumed to be innocent. Consequently, a portion of the 911 calls obtained and included in this study consisted of calls made to report a death that did not result in an arrest or prosecution, but the cause of death was determined by the Medical Examiner. In some instances 911 calls are made by homicide or suicide victims themselves, prior to death. Such calls were not included in this study.

The researcher determined the proper category (Outcome Variable) for each call based on factual information regarding each case. The following two categories represent levels of the outcome variable:

1.) *Innocent.* This category of caller is presumed not to have intended to deceive authorities or to conceal any relevant information about who perpetrated the event in question. For example, the person calling was not criminally charged, but another person was charged and found guilty of a crime associated with the death; or the caller was not criminally charged and the person determined to be responsible for causing the death in question subsequently died and therefore could not be criminally charged; or the caller was deemed to have committed a homicide that was justified under the law. As the term is used here, innocent is not intended as a legal term, but rather as a description of someone with a high likelihood of being free of moral or legal wrongdoing, and who was not suspected of attempting to deceive or mislead the police during the call.

2.) *Guilty.* This category of caller is presumed to have provided some degree of false information, and/or to have concealed relevant information about who perpetrated the event in question. For example, the caller was charged and ultimately found criminally responsible for the death. This category also includes cases of murder-suicide, where the caller alerts the 911 dispatcher after perpetrating a murder but prior to the final act of suicide, but does so in a manner that conceals relevant information. For example, if a person commits a murder and then phones police to report finding two victims, with the intention of committing suicide immediately after the call, the 911 call would be included because of the misleading information provided.

Transcript Preparation: The 911 call transcripts that were coded did not always include the entire transcript of the call. Emergency 911 calls most often consist of three distinct phases: nature and location of problem, instruction from the dispatcher, and waiting for the arrival of the first responder(s). During the nature and location phase, details regarding the nature of the problem and location where help is needed are communicated by the caller or are elicited from the caller by the dispatcher. During the instruction phase, the dispatcher transitions to giving instructions for providing emergency care if appropriate and/or provides details regarding the status of the emergency response. The 911 call may segue to a third phase in which the dispatcher keeps the caller on the line as a way of providing emotional support while waiting for the arrival of the first responder(s). Depending on the particular circumstances, 911 calls may involve extended dialogue over a significant period of time. When the call moves into the waiting phase, often very little additional information is communicated by the caller that is of value to this study. The identified predictor variables, if they occur, typically will be present in one or both of the first two phases of the call. Therefore, the researcher reviewed each transcript and made a subjective determination as to whether or not the entire transcript should be included. Any 911 call that included a waiting phase that did not include additional relevant data was shortened to only the first and second phases before the transcript was forwarded to the research associates for coding.

Responsibilities of the Research Associates

Two research associates who did not know the categories (innocent or guilty) to which the calls were assigned were trained to code the transcripts based on the full

operational definitions of the 18 predictor variables (See Appendix A). The research associates each received a notebook containing the redacted transcripts of the 911 calls that had been selected for this study. The transcripts were assigned a three-digit number for identification purposes, and all identifying information was removed. The researcher was the sole custodian of the key that was used for associating the transcripts to case information. A Transcript Coding Sheet was developed to allow the research associates to indicate whether each of the 18 variables was present or not present. (See Appendix B for a sample Transcript Coding Sheet.)

In the case of a call transfer, where a call came in to one dispatcher and then was transferred to another, some of the initial communication of the caller might have been lost if the audio recording of the initial communications did not accompany the transferred call. Typically if a call is transferred, e.g. from a Fire/Rescue emergency dispatcher to a Police dispatcher, the transfer occurs relatively early in the call. Regardless, this presented a coding problem, because those variables that are based solely on the initial communication of the caller to the dispatcher could not be accurately coded. Variables that were not present in the transcript might have been present in the portion of the call that was missing. When it was not possible to definitively code the presence or absence of a variable because of a missing initial portion of the call, those variables were not coded. On the other hand, some variables could still be coded as present or not present if there was definitive evidence in the transcript to support that coding. For example, if the caller stated that s/he was injured, that variable could be coded. If the

caller stated that s/he was at the scene of the emergency, the Proximity variable could be coded.

Description of the Sample

A non-random sample of 50 calls was selected for this study from 911 calls available to this researcher. The 911 calls consisted of archival data from one of two sources: calls available to the primary researcher as a function of his duties as a police investigator, or calls available from open source data. The accuracy of each call was authenticated by the primary researcher through established contacts in the law-enforcement community.

Thirty-six of the calls were made by innocent callers, and 14 were made by guilty callers. Forty-one of the calls turned out to be homicides and four pertained to deaths ultimately determined to be suicides. Five calls were a homicide-suicide. There were no occurrences of accidental or natural deaths in the sample.

Of the 41 homicides: 37 were single murders, 3 were double-murders, 2 were triple-murders, and 4 were mass murders (involving four or more victims). Thirty-one deaths were the result of gunshot wounds, 5 were the result of sharp-force injuries, 10 were the result of blunt-force trauma, one was the result of asphyxia, 2 were the result of poisoning, and one was the result of a fall from a height.

Additionally, 8 of the 50 calls were in the category of second or subsequent caller. Two of the 50 calls were transferred from another dispatcher and some information was lost for those two calls. At times a particular variable in a call, as previously explained,

could not be coded due to the call having been transferred from one dispatcher to another. Due to missing data, some variables have data for only 48 or 49 calls.

Of the 50 calls, 18 were made by women and 32 were made by men. Of the 18 female callers, 4 were found guilty. Of the 32 male callers, 10 were found guilty.

Data Analysis

The strength and direction of the relationship between each predictor variable and the outcome variable was examined through bivariate, logistic regression. Given the small sample, Fisher's exact test was reported for certain variables. From the outset, this researcher understood that he would not be able to develop an equation that would predict guilt or innocence with 18 variables using a sample of only 50 cases. The intent, however, was to investigate the 18 linguistic behaviors by measuring the correlation of each with the outcome variable. Then, applying the primary researcher's professional experience and familiarity with the empirical literature, and considering the statistical relevance of each variable, the goal was to develop a prediction model using a few of these variables that may have practical utility for law enforcement professionals.

Chapter 3

Results

With respect to inter-rater reliability, in the 900 coding decisions (18 variables in each of the 50 calls) that were made by the two research associates, there were no disagreements in 44 of the 50 calls (88% of the calls). In the remaining 6 calls, there were only a total of 10 disagreements (1.1% of the total number of 900 coding decisions), ranging from 1 to 4 disagreements per call. Disagreements about the coding decisions were resolved through discussion by the research associates. The initial disagreements primarily focused on the presence or absence of two variables: Thinking Pause and Proximity. In only two instances out of 900 coding decisions (0.2%) did the primary researcher need to intervene to resolve the disagreements.

Hypothesis 1: Plea for Help

It was expected that the presence of a Plea for Help would occur more often among innocent 911 callers. The presence or absence of a Plea for Help did not significantly predict guilt/innocence, p =.62; this hypothesis was not supported. Thirty-two of the 50 calls in this sample included at least one Plea for Help; 23 (72%) of those callers were innocent and 9 (28%) were guilty. Of the 50 calls, 18 callers did not make any Plea for Help at any point in the calls; 5 (28%) were guilty and 13 (72%) were innocent. Further analyses were conducted on the immediacy and/or urgency of the 32 calls that contained pleas for help. Neither immediacy (p = .49) nor urgency (p = .30) of the plea was significantly correlated with guilt or innocence. Furthermore, a Plea for Help

that came later in the call was not significantly correlated with guilt or innocence, regardless of whether the plea was urgent (p = .38) or not (p = .41).

Table 1

Frequency of Variable Plea for Help by outcome

	No Plea for Help	Plea for Help	Plea Immediate	Plea immediate + Urgent, Demanding	Plea Later in Call	Plea Later + Demanding, Urgent
Guilty	5	9	5	2	7	6
Innocent	13	23	14	9	21	19
Total	18	32	19	11	28	25

Hypothesis 2: Extraneous Information

Guilty 911 callers were predicted to be more likely to present Extraneous Information during their 911 calls than innocent callers. Consistent with Harpster's results (2006), this hypothesis was supported by the data, (X^2(1, N = 50) = .38, p = .01). Five of the 50 calls included Extraneous Information, including 1 out of 36 innocent callers (3%) and 4 out of 14 guilty callers (29%). Overall, this variable is not often present, but it is more common in calls made by guilty persons.

Table 2

Frequency of Variable Extraneous Information by outcome

	Extraneous Information Present	No Extraneous Information
Guilty	4	10
Innocent	1	35
Total	5	45

Hypothesis 3: Conflicting Facts

Guilty 911 callers were predicted to be more likely to present Conflicting Facts during their 911 calls than innocent callers. Four of the 50 callers in this sample were determined to have provided Conflicting Facts, including 1 out of 36 innocent callers (3%) and 3 out of 14 guilty callers (21%). Consistent with Harpster's results (2006), the data supported the hypothesis. ($X^2(1, N = 50) = .304, p = .04$)

Table 3

Frequency of variable Conflicting Facts by outcome

	Conflicting Facts Present	No Conflicting Facts
Guilty	3	11
Innocent	1	35
Total	4	46

Hypothesis 4: Non-Responsive Remark

It was predicted that the presence of a Non-Responsive Remark would be associated with guilt, however that prediction was not supported by this sample of calls, $p = .32$. In an effort to thoroughly explore the potential predictive value of this variable, this study attempted to distinguish Non-Responsive Remarks according to whether the caller provided an articulate response or an inarticulate utterance. Four of the 49 calls in this sample for which a determination could be made included a Non-Responsive Remark; two of the callers were innocent and two were guilty. Three of the four callers who were deemed to have been Non-Responsive uttered inarticulate words or phrases in response to the dispatcher's questions. Of these three, two were innocent and one was guilty. The inarticulate words or phrases were further sorted according to whether or not the

inarticulate utterance was best described as hysteria or agonal. Of the two instances of inarticulate hysteria, one was innocent and one was guilty. Only one caller displayed an inarticulate/agonal utterance; that caller was innocent. This hypothesis was not supported by the data, despite the fact that Harpster (2006) did find a positive relationship with guilt.

Table 4

Frequency of variable Non-Responsive Remark by outcome

	Non-Responsive Remark	Non-Responsive Inarticulate Hysteria	Non-Responsive Inarticulate Agonal
Guilty	2	1	0
Innocent	2	1	1
Total	4	2	1

Only one of these Non-Responsive Remarks was similar to Harpster's (2006) original variable, "Resistance to Answer," in that the presence of the variable was not due to hysteria or agonal utterances. That one caller was guilty. When an articulate caller does not respond to a relevant question, a logical inference is that the caller is unwilling to answer the question for fear of incrimination. Unfortunately, this sample did not provide enough data to explore this hypothesis. Nor are there enough data to explore the possibility that non-responsiveness due to hysteria is associated with innocence.

Hypothesis 5: Acceptance of Death in Close Personal Relationship

Guilty 911 callers were predicted to be more likely accept the death of the victim (if in a close personal relationship) than innocent callers. In contrast with Harpster's

(2006) findings, this hypothesis was not supported by the data. Acceptance of Death in a Close Personal Relationship did not have a statistically significant relationship with guilt/innocence, $p = .38$. Eleven of the 50 calls for which a determination regarding a relationship could be made were judged to include an Acceptance of Death; 7 were innocent, 4 were guilty. Of the 7 innocent callers, 2 (29%) had a close personal relationship with the victim, and 5 (71%) did not. Of the 4 guilty callers, all (100%) had a close relationship with the victim.

Table 5

Frequency of variable Acceptance of Death in Close Personal Relationship by outcome

	Acceptance of Death	Close Relationship	Not a Close Relationship
Guilty	4	4	0
Innocent	7	2	5

Hypothesis 6: Inappropriate Politeness

Guilty 911 callers were predicted to be more likely to display Inappropriate Politeness during their 911 calls than innocent callers. Despite the fact that Harpster (2006) found a strong, positive correlation between this variable and guilt, the present study did not find a statistically significant relationship with guilt/innocence, $p = .497$. Only 2 of the 48 callers able to be assessed on this variable were determined to have been inappropriately polite; both were innocent.

Table 6

Frequency of variable Inappropriate Politeness by outcome

	Inappropriate Politeness Present	No Inappropriate Politeness
Guilty	0	14
Innocent	2	34
Total	2	48

Hypothesis 7: Possession of the Problem

Guilty 911 callers were predicted to be more likely than innocent callers to possess the problem during their 911 calls. Seven of 49 callers are described as having taken Possession of the Problem, including 3 out of 35 innocent callers (8%) and 4 out of 14 guilty callers (29%). Possession of the Problem did not have a statistically significant relationship with guilt/innocence, p =.207. This hypothesis was not supported.

Table 7

Frequency of variable Possession of the Problem by outcome

	Caller took Possession of the Problem	No Possession of the Problem
Guilty	4	10
Innocent	3	32
Total	7	42

Hypothesis 8: Thinking Pause

Guilty 911 callers were predicted to be more likely than innocent callers to exhibit a Thinking Pause during their 911 calls. One or more Thinking Pauses were identified in 9 of 48 callers (19% of the callers for whom the variable could be coded); 4 out of 36 innocent callers (11%) and 5 out of the 14 guilty callers (36%). Marginal statistical significance was found between the variable of Thinking Pause and guilt, ($X^2(1, N = 50) = .28, p = .05$).

Table 8

Frequency of variable Thinking Pause by outcome

	Thinking Pause	No Thinking Pause
Guilty	5	9
Innocent	4	30
Total	9	39

Hypothesis 9: Minimizing Just

Guilty 911 callers were predicted to be more likely than innocent callers to utter a Minimizing Just in the initial communication. Harpster (2006) found that a statistically significant relationship existed between the variable of Minimizing Just in the initial communication and guilt. In the present study, 13 of 48 calls (27%) included a Minimizing Just, including 8 out of the 36 innocent callers (22%) and 5 out of 13 guilty callers (38%). In 4 of those 13 calls in which a Minimizing Just was identified (31%), the Minimizing Just occurred in the initial communication. Of the 4, 2 were innocent and 2

were guilty. Minimizing Just in the initial communication did not have a statistically significant relationship with guilt/innocence, p =.57. The hypothesis was not supported.

Table 9

Frequency of variable Minimizing Just by outcome

	Minimizing Just	No Minimizing Just
Guilty	5	8
Innocent	8	27
Total	13	35

Variables previously unexamined, and hypothesized to predict guilt:

The professional experiences of the primary researcher in analyzing 911 calls in actual homicide cases inspired the inclusion in the present study of five additional variables that have not previously been examined.

Hypothesis 10: Unexplained Knowledge

Guilty 911 callers were predicted to be more likely than innocent callers to provide Unexplained Knowledge during their 911 calls. Four of 48 callers (8%) were determined to have Unexplained Knowledge; those callers were evenly split with 2 (6%) being innocent and 2 (14%) being guilty. Unexplained knowledge did not have a statistically significant relationship with guilt/innocence, p =.331. The hypothesis was not supported.

Table 10

Frequency of variable Unexplained Knowledge by outcome

	Unexplained Knowledge	No Unexplained Knowledge
Guilty	2	11
Innocent	2	33
Total	4	44

Hypothesis 11: Narrative "With"

This research question focused on assertions made by Sapir (1987) that the presence of a narrative "with" signals distance in a social relationship. A positive relationship was hypothesized to exist between the presence of a *narrative "with"* and the guilt of 911 callers. However, no calls in the present sample included a Narrative With, so this hypothesis could not be tested.

Hypothesis 12: Lack of Fear

Guilty 911 callers were predicted to be more likely than innocent callers to demonstrate a Lack of Fear when in imminent danger. Twenty-one (44%) of the 50 callers were determined to be in possible imminent danger; 19 of the 21 (90%) were innocent, 2 of the 21 (10%) were guilty. Only 7 of the 21 callers (33%) who could have been in danger expressed fear; all 7 were innocent. Of the 19 innocent callers, only 37% of callers determined to be in possible imminent danger expressed fear. Neither of the two guilty callers who were determined to be in possible imminent danger expressed fear.

The variable Lack of Fear was not statistically correlated with guilt, Fisher's Exact Test, p =.09. It is noteworthy, however, that of the 7 callers who expressed fear (out of the 21 callers in this study who were deemed to have been in possible imminent danger according to the information provided by the caller), all of them were innocent. It is true that 14 of the 21 callers (2 guilty and 12 innocent) who were in potential imminent danger did not express fear, but all callers who did express fear were innocent.

Table 11

Frequency of variable Lack of Fear by outcome

	Caller in Apparent Imminent Danger	Of Callers in Apparent Imminent Danger; No Lack of Fear	Of Callers in Apparent Imminent Danger; Lack of Fear
Guilty	2	0	2
Innocent	19	7	12
Total	21	7	14

Hypothesis 13: Incorrect Order

A positive relationship was hypothesized to exist between the presence of Incorrect Order and the guilt of 911 callers. Two of 48 callers (4% of callers) provided information in an Incorrect Order and both callers were guilty; this was a significant relationship, ($X^2(1, N = 50) = .33$, p =.02). While all callers who provided information in an Incorrect Order were guilty, it is important to note that this variable was present in only 14% of all guilty callers.

Table 12

Frequency of variable Incorrect Order by outcome

	Incorrect Order	No Incorrect Order
Guilty	2	12
Innocent	0	36
Total	2	48

Hypothesis 14: Weapon Touch

A positive relationship was hypothesized to exist between the presence of the Weapon Touch variable and the guilt of 911 callers. Two of 48 callers spontaneously reported touching a weapon in a manner consistent with the operational definition for this variable; both were guilty. A statistically significant relationship was found between the presence of the variable Weapon Touch and guilt, ($X^2(1, N = 50) = .33, p = .02$). This hypothesis was supported.

Table 13

Frequency of variable Weapon Touch by outcome

	Weapon Touch	No Weapon Touch
Guilty	2	12
Innocent	0	36
Total	2	48

Mitigating Variables

One way in which this study differed from Harpster (2006) is that an attempt was made to identify variables that, if present, might mitigate other variables. Four such variables were examined: Second/Subsequent Callers, Secondhand Information, Proximity and Report of Caller Injury. Because of the small sample size, however, no firm conclusions could be drawn. Descriptive information for each variable is provided.

Hypotheses 15 a-b: Second/Subsequent Callers

This study considered whether or not second/subsequent 911 callers differ significantly in their linguistic behavior from initial 911 callers. It was hypothesized (Hypothesis #15 a) that one way in which Second/Subsequent Callers would differ from initial 911 callers, regardless of whether they were guilty or innocent, is that they would be less likely to utter a Plea for Help than initial 911 callers. It was further hypothesized (Hypothesis #15 b) that Second/Subsequent Callers, regardless of whether they were guilty or innocent, would also be more likely to provide Extraneous Information than initial 911 callers.

Eight of the 49 calls in this study (16%) for which a determination could be made by the coders were made by persons identified as second or subsequent callers. In seven of the eight instances the caller simply passed the phone to another person at the scene of the emergency; in one instance the dispatcher specifically asked to speak to another individual because it appeared that the initial caller was only relaying secondhand information from a person who was in Proximity to the initial caller. Twenty-nine percent of all guilty callers fell into this category, as opposed to 11% of all innocent callers.

Table 14

Frequency of variable Second/Subsequent Caller by outcome

	Second or Subsequent Caller (Speaker)	Initial Caller (Speaker)	Total
Guilty	4	10	14 (29%)
Innocent	4	31	35 (11%)
Total	8	41	49 (16%)

Thirty-two calls included a plea for help. In one of those calls (that included a plea for help), a determination could not be made as to whether or not the caller was an initial caller or a Second/Subsequent Caller. Second/Subsequent Callers, regardless of guilt, uttered a Plea for Help at a rate of 63% (5 of 8), and 63% (26 of 41) of the initial callers also uttered a Plea for Help. Thus, in the present study, there were no differences between Second/Subsequent Callers and Initial Callers with respect to uttering a Plea for Help; Hypothesis 15a was not supported. Second/Subsequent Callers provided Extraneous Information at a rate of 13% (1 of 8), as opposed to 10% (4 of 41) of the initial callers. Hypothesis 15b was not supported.

Hypotheses 16 a-c: Secondhand Information

The next research question addressed whether 911 callers who claim or appear to be reporting only secondhand information differ significantly in their linguistic behavior from 911 callers reporting firsthand information, regardless of guilt or innocence. It was hypothesized that callers who claim or appear to be reporting Secondhand Information

would be less likely to utter a Plea for Help (Hypothesis 16 a), would be more likely to provide Extraneous Information (Hypothesis 16 b), and would be more likely to provide conflicting information (Hypothesis 16 c). Ten of the 50 callers (9 innocent and 1 guilty) provided information that is defined in this study as Secondhand Information.

Table 15

Frequency of variable Secondhand Information by outcome

	Caller Provided Secondhand Knowledge	Caller Provided Firsthand Knowledge
Guilty	1	13
Innocent	9	27
Total	10	40

In the present study, callers providing Secondhand Information uttered a Plea for Help at a rate of 70% (7 of 10), as opposed to 63% (25 of 40) of the callers who were not reporting Secondhand Information. None of the callers providing Secondhand Information provided Extraneous Information, as opposed to 13% (5 of 40) of the initial callers. And, none of the callers providing Secondhand Information provided Conflicting Facts, as opposed to 10% (4 of 40) callers who were providing firsthand information. The data with respect to each of these hypotheses are trending in the opposite direction of the prediction.

Hypothesis 17: Proximity

The next question addressed whether 911 callers, whether guilty or innocent, who are proximal to the event differ significantly in their linguistic behavior from 911 callers

who are not in Proximity. It was hypothesized (Hypothesis 17) that callers determined not to be in Proximity to the event would be more likely to utter a Minimizing Just. Twenty-one of 49 calls (12 innocent and 9 guilty) for which Proximity could be determined were made by persons in Proximity to the violent or injurious event at the time the event occurred.

Table 16

Frequency of variable Proximity by outcome

	In Proximity	Not in Proximity
Guilty	9	5
Innocent	12	23
Total	21	28

Proximity of a 911 Caller to the violent or injurious event was found to have a statistically significant correlation with guilt, $X^2(1, N = 50) = .28, p < .05$. Of the 21 callers for whom Proximity could be determined, in 20 of them a determination could be made regarding the utterance of a Minimizing Just. Contrary to predictions, all 13 occurrences of a Minimizing Just were found to have been uttered by persons who were in Proximity to the event; none of the callers who were not proximal to the event uttered a Minimizing Just. The hypothesis was not supported.

Hypothesis 18: Report of Caller Injury

The final question was directed at whether 911 callers, regardless of guilt or innocence, who report having sustained a personal injury differ in their linguistic

behavior from callers who do not report having sustained a personal injury. Hypothesis 18 predicted that 911 callers who report having sustained a personal injury, regardless of guilt or innocence, will be more likely to possess the problem than 911 callers who do not report having sustained a personal injury. Seven of 49 callers (14%) reported a personal injury (3 innocent and 4 guilty).

Table 17

Frequency of variable Report of Caller Injury by outcome

	Caller Reported Personal Injury	Caller Made No Report of Personal Injury	Total
Possession of the Problem	3	4	7
No Possession of the Problem	2	40	42
Total	5	44	49

Sixty percent of callers (3 out of 5) who possessed the problem also reported an injury, as opposed to forty percent (4 of 44) callers who possessed the problem but did not report an injury. The data appear to be trending in the predicted direction, but because the frequencies for these variables are so small, no conclusions should be drawn.

Logistic Regression Model

It should be noted at the outset that because of the small sample size ($N = 50$), there were a number of instances when the expected frequency in each cell was less than five in the cross tabulation. In each such instance, the Fisher's Exact Test, which corrects for the small sample size, was used in lieu of the Chi Square.

A five-predictor logistic regression model was created that included the variables: Extraneous Information, Conflicting Facts, Possession of the Problem, Incorrect Order, and Weapon Touch. The inclusion of the first three variables was inspired by findings published by Harpster (2006). According to Harpster (2006), Extraneous information was the strongest predictor of guilt ($r = .09$, $p < .01$, $N = 100$), Conflicting Facts was the second strongest Predictor ($r = .62$, $p < .01$, $N = 100$), and Possession of the Problem was third ($r = .37$, $p < .01$, $N = 100$). This researcher added two additional, previously unexamined variables based on this researcher's professional experience; each of those two variables were found to have statistically significant Phi Coefficients: Incorrect Order, $p = .024$; and Weapon Touch, $p = .024$.

Logistic regression analysis was used to determine if the presence of the linguistic variables Extraneous Information, Conflicting Facts, Possession of the Problem, Incorrect Order, and Weapon Touch were predictive of the guilt of the caller. A test of the full model, as compared to a model with the intercept only, was significant, $X^2(5, N = 50) = 14.68$, $p = .012$. The model was able to correctly classify 43% of callers who were guilty and 97% of callers who were innocent. The positive predictive rate (the percent of those callers who were classified by the model as guilty, and were, in fact guilty) was 86%. The negative predictive rate (the percent of those callers who were classified by the model as innocent and were, in fact innocent) was 80%.

Table 18

Logistic Regression Analysis of Five Predictor Model

Independent variable	b	se	sig.	Odds
Extraneous Information	1.648	1.439	.252	5.196
Conflicting Facts	.727	1.723	.673	2.068
Possession of the Problem	1.172	1.158	.312	3.228
Incorrect Order	21.993	26281.146	.999	
Weapon Touch	20.821	26281.146	.999	

Model $X^2 = 14.682$

N = 50

Note: The outcome variable in this analysis is the likelihood a 911 caller would be found guilty.

Looking at the three individual predictors for which the odds ratio could be calculated, when holding all other variables constant, a caller who provides Extraneous Information is 5.20 times more likely to be guilty than innocent. When holding all other variables constant, a caller who provides Conflicting Facts is 2.07 times more likely to be guilty than innocent. And, when holding all other variables constant, a caller who Possesses the Problem is 3.23 times more likely to be guilty than innocent.

"Red-Flag" Four-Predictor Model

Table 19

Red Flag Model: Total of Red Flags by Outcome

Legal Outcome	# of Cases	0 Red Flags	1 Red Flag	2 Red Flags	3 Red Flags
Guilty	14	57%	21%	7%	14%
Innocent	36	94%	6%	0%	0%

Thinking strictly about how the results of this study could be applied by police investigators, an attempt was made to identify a model wherein a clear line of demarcation could be observed between guilty and innocent callers, given the present data set. The model with the smallest number of predictors, or *red flags* as they will be referred to in this particular model, that accomplished the best prediction included Extraneous Information, Incorrect Order, Conflicting Facts, and Weapon touch (see Figure 1). Ninety-four percent of the innocent callers and 57% of the guilty callers had none of these four red flags. Six percent of the innocent callers and 21% of the guilty callers had just one of these red flags. However, no innocent callers had more than one of any of these four red flags. Seven percent of guilty callers, on the other hand, had two red flags and 14 percent had three. Investigators could use this information to say that the presence of one of these particular red flags in a call should not necessarily be a basis for

raising suspicion about the caller. However, the presence of two or more of these red flags would raise suspicion, and should prompt further investigation. Models using additional red flags (up to seven variables) were not superior in discriminating between innocent and guilty callers.

Discussion

Perhaps the most significant contribution of this study is the development of the exhaustive operational definitions and standardized coding instructions for each of the 18 variables. The reliability of the definitions and instructions is demonstrated by the extremely consistent coding decisions made by research associates unfamiliar with the outcome of each case. The impressive inter-rater reliability achieved by the transcript coders is an exciting outcome of the study. There is little doubt that the robust set of operational definitions of the variables accounts for the agreement between the two research assistants. This study has produced a reliable method for analyzing 911 calls that can be used by law enforcement officers in actual investigations, once the investigators have learned the rules for coding. On a practical level, this high level of agreement demonstrates the utility of this set of definitions to police investigators as well as any researchers who may decide to further explore this area of study. The few disagreements that did occur were focused on two variables, Thinking Pause and Proximity.

This study examined 18 variables: one that was hypothesized to predict innocence, 13 that were hypothesized to predict guilt, and 4 that were hypothesized to influence the predictive power of the other 14 and were therefore used as controls. It was surprising that only 4 of the 13 variables hypothesized to predict guilt (Extraneous

Information, Conflicting Facts, Incorrect Order, and Weapon Touch) significantly predicted guilt ($p < .05$), and only 3 additional variables (Possession of the Problem, Thinking Pause, and Lack of Fear) marginally predicted guilt ($p < .08$). Furthermore, the one variable hypothesized to predict innocence (Plea for Help) was not found to be statistically significant. Of the 9 variables previously examined by Harpster (2006) and found to be significantly correlated with guilt, this study only found statically significant results for two of them (Extraneous Information and Conflicting Facts) and marginally statistically significant results for an additional two (Possession of the Problem and Thinking Pause). Five were not statistically significant (Plea for Help, Non-Responsive Remark, Acceptance of Death, Inappropriate Politeness, and Minimizing Just). Part of the reason for the lack of support for several of the hypotheses may be the combination of a small sample size and a focus on variables that are rare events in the first place.

This researcher anticipated that a statistically significant relationship would be found between each of the predictor variables and the outcome variables described in this study, with the exception of the four variables that were expected to mitigate the presence or absence of other variables as previously described in Hypotheses 15-18. This study differs from Harpster (2006), in that Harpster's study was a correlational study, whereas this study attempted to determine through logistic regression analysis which verbal behaviors best predicted guilt or innocence. Unlike in Harpster's study, no attempt was made to develop a checklist for investigators to determine the overall likelihood that a caller would be found guilty or innocent based solely on the interpretation of the results of the analysis of the caller's verbal behavior, since this investigative technique is very

much in the early stages of development. That is not to say that investigators should not consider the results; they should. These results should be considered along with all of the other evidence available in a case and factored into a hypothesis about guilt or innocence.

An encouraging finding of this study was that in the group of five previously unexamined variables that were hypothesized to predict guilt (Unexplained Knowledge, Narrative With, Lack of Fear when in Imminent Danger, Incorrect Order, and Weapon Touch), two were statistically significant (Incorrect Order and Weapon Touch), and one had marginal statistical significance (Lack of Fear). For one of the five (Narrative With) there were no occurrences of the variable observed in the data set, and another variable (Unexplained Knowledge) was not significant. Consequently, this study adds valuable information to this body of literature by the discovery of additional predictors.

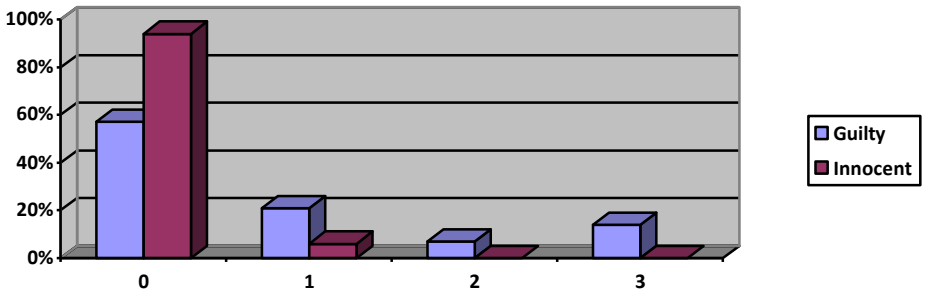
The fact that Proximity had a statistically significant correlation with guilt is perhaps not surprising; what it means, practically speaking, is that guilty callers are more likely to create a false report that involves placing themselves at the actual scene, as opposed to creating a story of not having been present. With that said, this study did not find any moderating influence of Proximity on the variable of Minimizing Just.

If the four variables that are predictive of guilt (Extraneous Information, Conflicting Facts, Incorrect Order, and Weapon Touch) are individually considered as red flags for investigators, the law enforcement application becomes clearer. Ninety-four percent of the innocent callers and 57% of the guilty callers exhibited no red flags (none of the four variables were present). One red flag was identified in 21% of the guilty callers and 6% of the innocent callers. One can see that both guilty and innocent callers

sometimes have one or no red flags. This suggests that a call in which no red flags exist could have been made by either an innocent or a guilty caller, although it is somewhat more likely to have been made by an innocent caller. Even a call with one red flag could have been made by an innocent or a guilty caller, although it is somewhat more likely to have been made by a guilty caller. The line of demarcation appears to be at two or more red flags; 7% of guilty callers had two red flags and 14% had three red flags. No innocent callers in this study had more than one of these 4 variables. The presence of two or more of these red flags is sufficient to warrant increased investigative scrutiny of the caller.

Figure 1

Red Flag Model: Number of Red Flags by outcome



As noted in the Results section, the relationship between Lack of Fear was only marginal in its statistical correlation with guilt, however, it is noteworthy that of the 7 callers who expressed fear out of 21 callers who were deemed to have been in potential imminent danger according to the information provided by the caller, all of them were innocent. The probable explanation for the Lack of Fear on the part of guilty callers is that they already know the identity of the perpetrator of the crime (themselves), and so they have no fear of some unknown perpetrator. This phenomenon of a Lack of Fear on

the part of a perpetrator is often observed in other ways, such as in the widely published surveillance photos of the Boston Marathon bombers who, in retrospect, are easily spotted among a crowd of terrified pedestrians, because they are the only ones not running from the scene or looking around frantically for sources of danger. But, 12 innocent callers who were potentially in danger did not verbally express fear. Why would innocent people fail to express fear in a situation where some imminent danger to their safety from an unknown (or known) perpetrator might exist? If the priority of innocent callers is to obtain help for the victim, some calls may simply be too short for the caller to make the transition to expressing fear on his/her own behalf. In the present study, calls in which the caller was determined to have been in imminent danger and expressed fear were approximately 27% longer in duration on average than calls wherein the caller did not express fear. It is also possible that some innocent callers, in the stress of the moment, may not actually recognize that they could be in danger from a perpetrator.

This study also introduced the idea that factors may exist that could influence the predictive power of predictor variables. Specifically, four variables were hypothesized to have the potential to exert a mitigating influence (Second/Subsequent Caller, Secondhand Knowledge, Proximity and Report of Caller Injury. As previously described, this study explored the possible influence these four variables might have on the presence or absence of other variables. For example, it was predicted that Second/Subsequent Callers might be less likely to utter a Plea for Help, or they might be more likely to provide extraneous information. Callers reporting Secondhand Knowledge were likewise predicted to be less likely to utter a Plea for Help, more likely to provide Extraneous

Information and/or Conflicting Facts. And, callers who reported a personal injury were predicted to be more likely to Possess the Problem. Despite the fact that no mitigating influence was identified in any of these four variables, future research should be mindful of the potential for such mitigation by these or other variables.

In addition to identifying some characteristics of guilty callers, this study also, from a descriptive standpoint, identified what innocent callers tend to do in a 911 call. They tend to make an immediate and urgent Plea for Help (23 of 36; 64%). They offer a prioritized description of the emergency without Extraneous Information (35 of 36; 97%) or Conflicting Facts (35 of 36; 97%). When it was reasonable to be afraid of possible imminent danger from a perpetrator, only innocent callers expressed fear, although not all innocent callers did so. They don't need long pauses to formulate their responses to the dispatcher's questions (32 of 36; 89%). They are not overly polite (34 of 36; 97%). They tend to be unwilling to accept that their loved one is beyond emergency assistance (29 of 36; 81%). The 911 call made by the innocent caller focuses on getting immediate help for the victim.

This study also provided a thorough definition of what constitutes a 911 call suitable for inclusion in future research on this method of analysis. This researcher found during the course of data collection that vast differences exist among 911 calls, even when the scope is narrowed to only those calls that were made in connection to a homicide. For example, some calls are made as the homicidal violence is occurring; a portion of those were made by the victims themselves before death, while another subset of calls were made by witnesses to the mortal violence. Other 911 calls are made by

someone who purports to have discovered a dying or dead person. In other cases, 911 calls are made by persons quite removed from the event, such as call made to report having heard gunshots in the distance. In at least one call in this study, the caller purported to be en route to the scene at the time of the call, due to a secondhand report of a problem at that location. The experiences of individual 911 callers vary greatly, depending on how close that caller is to the violent action and whether a personal relationship exists between the caller and the victim, as well as many other factors. Seven criteria were established that narrowed the focus of what constitutes a relevant 911 call for this type of analysis, and were elaborated under the heading of "Call Inclusion Criteria" in research Method section (Chapter 2). Investigators desiring to use this analytical method for evaluating 911 calls and researchers who may desire to replicate the present study in the future should pay strict attention to these criteria when choosing calls to include.

A Final Caveat

It would be a mistake for investigators to draw a firm conclusion about the guilt or innocence of a caller based solely on verbal behavior during a 911 call. Any hypotheses generated by the linguistic analysis should be considered in combination with all other available information. For purposes of classifying calls in this study, guilt and innocence were determined by the criminal justice process. With that being said, when this information is applied to an unresolved case, it is important to think in slightly different terms. Guilt, as the term is used in this study, suggests an attempt to deceive and innocence suggests no attempt to deceive. The way in which investigators should use this

information is to assist in developing investigative strategies and in managing investigative resources. Depending on the linguistics of any particular 911 call, investigators might be able to decide how to prioritize persons to be interviewed. For example, if a caller exhibits multiple red-flags as defined in this study, perhaps the investigator might decide to conduct a formal interview of the 911 caller at a different place and time than if the caller did not exhibit any so called red flags. Another way in which this information might appropriately be applied is that the lead investigator may decide to assign an investigator who is more experienced in interview and interrogation techniques to a 911 caller who exhibited multiple indications of deception. If the caller did not exhibit any such indications of deception, the lead investigator may feel comfortable allowing a less experienced interviewer to conduct the requisite interview.

Limitations of the Study

The most significant limitation of this study is the relatively small sample size. Acquiring a data set of 911 calls pertaining to criminal cases that have been fully adjudicated is made difficult by the length of time that elapses from the commission of the offense to the final outcome in the trial court. While these calls are routinely maintained by the investigative agencies for extended periods of time, many of the calls coming into this researcher's possession are recent or otherwise unresolved cases that are not suitable for inclusion in the study due to the pending nature of the cases. Some of the predictors appeared to trend in a particular direction; with a larger sample size, it is possible that additional predictor variables would have been determined to have a statistically significant relationship to the outcome variable.

A second limitation of this study, also relevant to this researcher's use of readily available archival data, is that 21/50 of the 911 calls originated in Virginia. Three calls each were obtained from Florida, Georgia, Indiana, North Carolina, and Ohio. Two calls each were obtained from Minnesota, Texas and Washington. One call came from each of the following eight states: California, Colorado, Michigan, Missouri, New Jersey, New York, and Utah. While at least one call was obtained from seventeen different states, 42% were from Virginia alone. A more diverse sample of calls, drawing from the various geographic regions, would be preferable.

Finally, the study was limited to English-speaking 911 callers. The degree to which these findings generalize to speakers of other languages is unknown. Differences may even exist between callers whose native language is English and those for whom English is a second language.

Recommendations for Future Research

At the conclusion of this study, a number of questions were immediately apparent. In the few disagreements between the two research associates that occurred in the coding of the 911 transcripts, those disagreements focused almost exclusively around two variables: Proximity and Thinking Pause. Any future consideration of these two variables should follow a reexamination of their operational definitions. Perhaps it would be possible to refine those definitions and further improve interrater reliability.

A decision was made in the early stages of this research project that if both Extraneous Information and Incorrect Order were present, only Extraneous Information would be coded. For example, a parent of a child who is having a seizure calls 911, but

before mentioning the seizure first reports having been in a car wreck more than a week earlier, both Extraneous Information and Incorrect Order could be coded. However, in the present study, if both were detected, we decided to code only for the presence of Extraneous Information (and not also Incorrect Order). An argument could reasonably be made for removing that restriction and coding both variables independently, particularly since both were predictors of guilt.

Despite the fact that the present study did not find a statistically significant correlation between the variable Acceptance of Death in a Close Personal Relationship and the outcome of guilt, Harpster's study (2006), which had a sample size twice as large as the present sample, did find a statistically significant correlation. In both the present study and Harpster's study (2006), if the caller who had a close personal relationship with the victim mentioned that the victim was dead (regardless of any other circumstances) the variable was coded as present. One way that this predictor could be more closely examined in future research would be to account for those circumstances where the caller utters a series of statements that are progressively moving towards a conclusion of death. For example, consider the following progression of statements by the caller over the course of a call: "He's going to die if you don't get here…hurry up….yes, he's breathing, but now he's not responding….please, hurry up…he's not breathing…he's going to die if you don't get here…he's dying…it's too late…I think he's dead." According to the operational definitions of the present study and Harpster's original study (2006), this caller would have been coded as having accepted the death of someone in a close personal relationship. However, when such progressive statements are made over an

extended period of time, an innocent person may have finally reached the inescapable conclusion that the victim is dead. One way to test this hypothesis would be to re-define this variable so that this logical progression toward an Acceptance of Death is not coded as a "red flag." For example, one call in this study was made by a registered nurse whose child had been attacked by an adult man who was in the home. An ambulance arrived in the general area, but was delayed in rendering aid due to the ongoing threat posed by the perpetrator, who had to be subdued by police before medical personnel could attend to the child. The caller, who was in fact innocent, had sufficient knowledge to know that her daughter's jugular vein had been cut, and that she was gradually bleeding out during the delay. The caller's references to the ongoing emergency were consistent with the example above, and perhaps should have received a different coding than calls in which the caller spontaneously reports Acceptance of Death early in the call.

Future attempts to advance the understanding of the verbal behavior of 911 callers in homicide cases could also consider a third category of the outcome variable. To date, the only published studies on this topic have utilized two levels of the outcome variable: innocent and guilty. Consideration should be given to adding a third level: *suspicious*. This category of caller could be distinguished from the other two groups of callers (*Innocent* and *Guilty*) in that there was some degree of evidence supporting a hypothesis of guilt or attempts to deceive, but the evidence was insufficient to sustain a criminal conviction or other determination of guilt. For example, if the person calling was criminally charged and was ultimately acquitted at trial, but the prosecutors/police investigators are not actively pursuing the identification or indictment of another person

because of their belief that the proper person (the caller) was charged, then this person's call could be included in the suspicious level of the outcome variable. It is important to note that under the American system of justice, in order to be tried for a felony crime such as murder, one must undergo several levels of legal scrutiny. While there have no doubt been occasions of innocent persons who have been charged with and even convicted of murder, the mere fact that any person tried for murder must undergo multiple levels of judicial scrutiny suggests that the majority of persons charged with and tried for murder are in fact guilty. This statement is not in conflict with the presumption of innocence, a right of every person who is accused of a crime. However, in collecting data for the present study, no such calls were obtained. Therefore, this study was not able to differentiate 911 callers for whom enough evidence existed for them to be charged but not convicted of a crime, from callers who were charged with and convicted (guilty), and those who were never charged (innocent).

Gender differences were not explored in this study, but it would be helpful for police investigators to be aware of any differences that might exist between male and female callers. Female callers represented 18 (36%) of the 50 callers in this study; 4 were guilty (22% of all female callers) and 14 were innocent (78% of all female callers). Thirty-two (64%) of all callers in this study were male; 10 were guilty (31% of all male callers) and 22 were innocent (69% of all male callers). Of the 14 guilty callers in this study, 4 (29%) were women, and 10 (71%) were men. According to the Uniform Crime Reports, (Federal Bureau of Investigation [FBI], 2010), women account for approximately 9.7% of all perpetrators of homicide, and as such, women are slightly

over-represented in this study and men are slightly under represented. It is not known if the gender of the caller influences their verbal behavior. Similarly, it would be equally helpful to know if the findings of this study generalize to callers of different age brackets.

One final consideration for future research has to do with the question of whether or not, and to what degree, the findings of this study generalize to 911 calls about other types of personal violence where the victim survives.

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Appendix A

Defining the Variables: Transcript Coding Instructions for Research Associates

Plea for Help: This variable is defined as the caller's specific request for assistance from the police, firefighters or paramedics, as evidenced by such words or phrases as "help," "get here," or "send an ambulance." A Plea for Help is distinguished from a mere report of a problem by the caller's first priority being to seek emergency assistance for the victim (Harpster, 2006). The following is an example of a Plea for Help:

Dispatcher: "911, what is your emergency?"

Caller: "Get an ambulance to (Numeric/Name of) Road, my friend's been shot!"

Note that the emphasis is to summon medical assistance. Occasionally, people will implore God or another deity for help, for example "Jesus, Jesus, please help me." If this is the only Plea for Help in the call, the variable is coded as not present. The plea must be for assistance from emergency personnel.

Some callers, in their opening communication, only report a problem: *"I have an infant, he's not breathing*" (Harpster, 2006). This example is little more than a statement of fact and would not be considered a Plea for Help.

This variable should be coded as follows:

Plea for Help is Present: If a request for help from emergency personnel is uttered at any point in the communication, the variable Plea for Help is coded as present. If the variable is coded as present, then code whether it is *immediately present*.

Plea is Immediately Present: The plea is considered immediate if it is uttered in the initial communication of the caller. The initial communication is defined as the initial,

uninterrupted words spoken to the 911 dispatcher when the dispatcher opens with a question regarding the nature of the emergency; i.e. "911, what is your emergency?" Sometimes the caller's initial communication is interrupted by the caller's hysterical or agonal utterances and/or by interruptions and questions by the dispatcher. If such interruptions exist, the coder should consider the initial communication to include all of the verbiage uttered by the caller up to the point that the nature of the emergency has been communicated, as if the interruptions had not occurred.

Often the first question that the dispatcher asks is for the location of the emergency. If they are immediately asked for a location, callers quite understandably often, but not always, answer this question first before stating the nature of the problem and/or asking for help. If the caller provides location information first in response to the dispatcher's question, this should not be considered the initial communication for the purposes of coding whether a Plea for Help is present in the initial communication. However, to be considered immediate, the Plea for Help should be communicated in the next uninterrupted words uttered by the caller after providing the location or after answering the dispatcher's initial question(s). If the plea is immediately present, then code whether it is *urgent/demanding*.

Urgent/Demanding Verbiage: The verbiage is determined to be urgent/demanding if the caller stresses the urgency of the plea by the use of such words as "now" and "hurry up," or otherwise stresses that immediate help is needed.

Example:

Dispatcher: "What is the phone number you are calling from?"

Caller: "Just get to 854 Lee Street! Now!" (Harpster, 2006).

Plea for Help Later in the Call: The only Plea for Help may come later in the call, after the initial communication. If so, this variable is present. On the other hand, there may be a Plea for Help in the initial communication (which will be coded as indicated above), and there may be additional pleas later in the call. Again, the variable would be coded as present, to record the presence of the pleas for help that occurred after the initial communication. If a Plea for Help occurs later in the call, it should also be coded as to whether it is *urgent/demanding*, as previously defined.

From time-to-time, callers are demanding or abrupt in ways that are not associated with a Plea for Help. Coders should be careful not to include those verbalizations under this variable simply because they are demanding or abrupt. Demands or other abrupt phrases communicated by the 911 caller that are not associated with a Plea for Help should not be considered when coding demanding/urgent.

Extraneous Information: This variable is defined as an unexpected communication that is outside the context of the topic, spontaneously made by the 911 caller to the dispatcher. As it is used here, the term extraneous does not necessarily imply verbose.

Keep in mind the following assumptions: the caller has placed a call to the one entity that can send help. Spontaneous utterances of the caller, particularly at the beginning of the call, ideally should be directed toward getting help to the proper location. The caller should not insert any unrelated or unnecessary information into the conversation unless the dispatcher elicits the information with a question or remark. If the Extraneous Information is elicited by the dispatcher, the variable is coded as not present.

The location within a particular 911 call of a spontaneously uttered "borderline" extraneous phrase may also influence the decision as to whether or not to code the variable as present. The same borderline extraneous phrase appearing early in the call would be judged more critically (variable present) than the same phrase appearing later in the call, after the dispatcher clearly has help on the way.

The following is an example of an exchange with a parent.

Dispatcher: "How old is your son?"

Caller: "He's only six, he's like ate an apple and he's burpin' it up, he's not, not, it's like a seizure type, we got in a, yea, we got in a car wreck two months ago." (Harpster, 2006).

The initial report was that the child was having difficulty breathing and there is no stated nexus to the car wreck; nor is the information about the car wreck a response to the dispatcher's question.

The following is a second example of Extraneous Information:

Dispatcher: Emergency Communications. Hello?

Caller: Yes, I just got home a few minutes ago and there's blood all over my house. I can't find my girlfriend. The last couple of weeks ago my girlfriend, somebody broke in and raped her.

The information about the break in and rape of two weeks ago would be Extraneous Information as part of the initial communication, although it might become relevant as part of a later investigation.

Conflicting Facts: This variable is defined as an instance of a caller providing information that conflicts with specific details that the caller previously provided

(Harpster, 2006). Determining whether or not the caller provides conflicting information should be a fairly straight-forward, objective determination in most instances. For example, if the caller stated, "I was not here when she fell," but later said, "The fall sounded pretty bad," the statements are in apparent conflict, and the variable Conflicting Facts is coded as present. It is possible, within the entire context of the 911 call, that the caller may later offer an explanation such as, "Yes, I was on the phone with her at the time of her fall," which may explain how he was "not here when she fell," but was in a position to somehow hear the fall. In order to make a proper determination as to whether or not any of the caller's facts are in conflict with one another, the entire statement must be considered as a whole.

The threshold for deciding that Conflicting Facts are present should be fairly low. Even the use of the present tense to describe two incompatible situations that cannot exist simultaneously should be coded as Conflicting Facts.

Occasionally a caller makes a self-correction in order to clarify or repair a misstatement of fact that was part of an excited communication. For example, if the caller said, "*853 Stuart Highway…No! 833 Stuart Highway. 833*!" that would not be considered an instance of Conflicting Facts, but a correction of a piece of factual data.

Non-Responsive Remark: A 911 caller should understand that cooperation with the dispatcher will improve the chances of receiving the requested services. A lack of cooperation in responding to the dispatcher's inquiries should be coded as Non-Responsive Remark. What is of particular interest here is the apparent resistance to answering a question that is relevant to the events that took place, where answering might

portray the caller in a negative light, or might force the caller to provide information that s/he does not wish to provide, or might force the caller to commit to a version of the events when they are not prepared to do so. The variable is present if the caller fails to answer or gives a Non-Responsive answer to the dispatcher's relevant question.

Occasionally, a caller will fail to answer a dispatcher's relevant question because his/her attention has shifted to talking with someone else on the scene. This should not be coded as Non-Responsive Remark.

Notice, in the following example, the caller's failure to answering the dispatcher's question:

Dispatcher: "Did something happen to her, … was this more than just an argument?"

Caller: "That's all I'm trying to report." (Harpster, 2006).

A second example is taken from a 911 call in which the dispatcher's question comes after approximately a full minute of communication, during which there had been no pleas for help. The exchange is given as an example of Non-Responsive Remark:

Dispatcher: How did this happen?

Caller: Just send somebody.

The "just send somebody" remark, when viewed in context of the entire call, was not uttered as part of a demanding Plea for Help. In this particular instance, the caller simply appeared to not want to answer any further questions.

Occasionally, the caller's Non-Responsive Remark consists of an incoherent response to a dispatcher's question. Because the caller is non-responsive to the question, this variable should be coded as present. However, if an incoherent response is uttered,

the transcript should be coded in such a manner as to reflect the presence of *Inarticulate hysteria* or *Inarticulate agonal noises*. An example of inarticulate hysteria could be, "Oh, no…..no, no, no, no, no! Oh my god! No!" An example of Inarticulate agonal noises could be moaning noises or other similar groaning or incomprehensible noises.

Acceptance of Death when a Close Personal Relationship Exists: It is possible in the modern era of emergency medicine for individuals to survive serious, horrific injuries. The caller who has a close personal relationship with the victim should maintain some level of hope that quick medical attention might result in survival of the victim. Therefore, it is expected that the caller should not declare the mortality of the victim to the dispatcher (Harpster, 2006). A close personal relationship includes a spouse (or romantic partner) or a close relative (grandparent, parent, sibling, child, or grandchild). Depending upon the circumstances, it could include other persons who are more distantly related; are cohabiting; or have other types of intimate relationships, such as business partners or life-long best friends. If a close personal relationship exists between the caller and the victim, and the caller accepts or reports the death of the victim, the variable is coded as present, even if a reasonable person might agree that based on the condition of the victim, they are certainly dead. If no close personal relationship exists, then the variable is coded as not present, even if there is Acceptance of Death.

The following is an example of language adjudged to be an Acceptance of Death when a close personal relationship exists between the caller and the victim:

Dispatcher: 911, what is your emergency?

Caller: "I just got home from work and my wife is lying at the foot of the stairs dead."

This is a second example of Acceptance of Death when a close personal relationship exists:

Dispatcher: 911. What is your emergency?

Caller: I just shot my boyfriend 'cause he was trying to beat me up.

Dispatcher: Is he breathing?

Caller: No, he's dead. I'm sure of it.

If the caller uses both of the following phrases in referring to a victim's condition: "He's dying" and "He's dead," any single unequivocal reference to the victim being "dead" is sufficient to code the variable as present.

Inappropriate Politeness: This is defined as unexpected, gracious language spoken by the caller during the 911 emergency call. It is expected that civility and etiquette, especially if a relationship exists between the caller and the victim, are not a natural pattern of communication in an emergency (Harpster, 2006). The presence of this variable is determined by more than any one polite word, except in cases of the repetition of a polite word spoken with urgency, as in "Please, please send help!" Inappropriately Politeness is said to occur if the cumulative aspects of the caller's language are conversational in nature with requisite time delays to convey unnecessary polite expressions.

If the only instances of polite words occur at the end of the phone call, where the caller says "thank you," and/or "bye" or "goodbye," as part of the closing remarks of the call, those closing words are not coded as Inappropriately Politeness, given that they are habitual and over-practiced verbalizations for most people.

In some areas of the country, it is customary to routinely address others as "ma'am" or "sir." Transcripts from callers who were raised in those geographic areas or calls that originate in those geographic areas may include many instances where the caller repeatedly begins or ends sentences or responses with "ma'am" or "sir." In addition, people who served in the military (or who have worked in law enforcement or other paramilitary organizations) often habitually address others as "ma'am" or "sir." It is not typically possible to tell from a transcript whether these circumstances exist. For these reasons, the liberal use of "ma'am" or "sir" in isolation from other polite phrases, will not be coded as Inappropriately Politeness.

Inappropriately Politeness primarily includes, but is not limited to, unexpected polite language that is uttered spontaneously by the caller, or in response to the dispatcher's extended questioning, when a reasonable person is no longer apt to be polite. If a caller responds politely under circumstances where a reasonable person might have started to become impatient, the variable is coded as present.

An example of Inappropriate Politeness would be:

Dispatcher: Okay, they're on their way.

Caller: "I understand, thank you ma'am. Bye, bye."

A second example of Inappropriately Politeness:

Dispatcher: Okay, stay on the line with me, okay?

Caller: Sure.

(12 second pause)

Dispatcher: Are you still there?

Caller: Yes ma'am. You're good.

If the caller's language appears to be bordering on Inappropriate Politeness, and the transcript coder could argue it either way, then the variable should be coded as not present (err on the side of not coding the variable).

Possession of the Problem: In an emergency call to report an injury or death, the possessor of the problem is considered to be the victim. Sometimes, however, the caller focuses on himself/herself as having a problem. There are several ways in which this variable may be considered to be present. For example, the caller may use the phrase "*I have a* (problem)…," but does not ask for assistance from the dispatcher (Harpster, 2006). Note the examples below where the variable is considered present.

Caller*: I have an infant here who is not breathing.*

Caller: *I have a problem here…uh, I think my wife is dead*.

Another way that a caller may be considered to take Possession of the Problem, without specifically using the "I have a…" phrase, is if the caller's attitude is self-centered, as opposed to victim-centered. In such an instance, the variable would also be deemed present. This can be exhibited in the caller's use of singular pronouns when plural pronouns would be more appropriate. Suppose the caller lives with her husband and two small children, and they reportedly suffer a home invasion but the caller escapes to a neighbor's house to call 911. The condition of the other family members is unknown, but when she fled the assault was ongoing. If the caller uses such words/phrases as, "Help me", "my house", "my bed" (after describing a bed which she shares with her husband), none of which recognize the urgent plight of her family members, the Possession of the

Problem variable would be deemed to be present. A proper determination of whether or not this variable is present often requires a consideration of the entire communication; the *Possession of the Problem* variable is present if, when viewed on a macro level, the caller seems to be focused primarily or only on him or herself, rather than on the victim(s). This is not to say that the caller may not make a self-centered remark, especially later in an extended call, but if the majority of the caller's relevant utterances are victim-focused, an isolated self-centered remark would not necessarily trigger a coding for Possession of the Problem as present. The threshold would be lower for coding Possession of the Problem as present if a spontaneous self-focused remark is uttered early in the call.

A third way in which this variable might be considered present is if the caller focuses on how the event or the response to the event will affect him or her, rather than the victim. For example, an expression of concern over what neighbors will think about seeing police cars in front of one's residence is a focus on how the event will affect the caller, rather than on the necessity for a quick emergency response.

Occasionally, words such as "I need…." might be erroneously interpreted as Possession of the Problem. For example, a caller might say "I need an ambulance," "I need help," or something similar, in the context of getting assistance for a victim. Although the words "I need" might suggest a focus on the caller's needs (i.e. Possession of the Problem), they should be considered a way of asking for assistance (Plea for Help), as long the focus is on getting assistance for the victim.

Thinking Pause: Pausing to think before responding to a relevant question from the dispatcher can be thought of as providing additional time for the caller to decide what

information s/he wishes to impart. This variable is present when a 911 caller unexpectedly responds to a dispatcher's relevant question with a deflection or filler word, such as by saying, "*huh*?", "*what*?", or "*do what*?" (Harpster, 2006). A relevant question refers to a question that would be designed to elicit information that is relevant to an understanding of what the caller purports has happened to cause the emergency or that would elicit information about the caller's involvement in the emergency. This would include questions asking for information about what took place, what actions were taken by the caller, etc. This would not include questions that would clearly not be pertinent to the caller's involvement in the event, or to the guilt or innocence of the caller. This also does not include instances when it is reasonable to conclude that the caller may not have heard the question due to the dynamics of the situation itself, excessive background noise, or a poor telephone connection.

If the caller pauses or inserts a filler word before answering a relevant question, it would be coded as a Thinking Pause. If the caller never answers the relevant question (or gives a non-responsive answer), the previously described variable of Non-Responsive Remark would be coded instead of Thinking Pause.

The following example demonstrates the type of verbal behavior that would be considered a Thinking Pause:

Dispatcher: "911, what is your emergency?"

Caller: "I just came home and it looks like my wife has fallen. She's hurt bad and she's not breathing."

Dispatcher: "Okay, I have medical on the way. Was she on a ladder, or…do you know how she might have fallen?

Caller: "Huh?"

Sometimes a Thinking Pause may come at the onset of the call, where the caller utters filler words before verbalizing the problem, which could represent a delay while the caller attempts to decide how to present the problem. For example, when asked "What is your emergency," the caller might begin with "Yea, uh, um,….my wife is dead." However, if the dispatcher's opening question is, "Where is your emergency?" filler words in the caller's immediate response should not be scored as a Thinking Pause. This rule is established to take into account what could be the unexpected question regarding location, when the caller is primed to state the nature of the emergency. The pause or the filler words may occur while the caller shifts mental gears to answer the unexpected question.

The following filler words would also not be coded as a Thinking Pause, because the question concerns only a request for demographic information, and the pause is presumed to reflect the time it takes to retrieve the information from memory.

Dispatcher: "*How old is your wife*."

Caller: "*Um, ah, she's 67*."

Minimizing "Just": This variable is defined here as any statement, the essence of which conveys: "I just got here," (as if to imply "Therefore I couldn't have done it."). The caller does not literally need to use the word "just" in order to convey the sense that they should not be expected to know any more about the situation than they are reporting, since they

claim that they were not present at the event. In order for the Minimizing Just variable to be considered present, the caller must be present at the scene at the time of the call, or must have been present but vacated the scene prior to the call for the purpose of safety or to obtain the means for placing the 911 call. Do not code the presence of a Minimizing Just if a caller reports that s/he is en route to the scene of the emergency at the time of the call, or for those callers who are purportedly placing the call based only on secondhand information (i.e. they report that they have never been at the scene). Also do not code a Minimizing Just if someone is reporting what they know from the security of some vantage point that may or may not allow them to observe the scene, but they have not been at the scene themselves.

When coding a transcript, the first determination to be made, once the variable is determined to be present, is whether or not the Minimizing Just came in the initial communication or later in the call. An initial communication is defined as the initial, uninterrupted words spoken to the 911 dispatcher when the dispatcher asks a question regarding the nature of the emergency; i.e. "911, what is your emergency?" Examples of the presence of the Minimizing Just in the initial communication include:

Caller*: I just got home. My house has been burglarized and I think my wife is dead.*

Caller*: I only got home a minute ago, but the babysitter is telling me my son hasn't been breathing right for a while. He's getting blue around the mouth.*

If the Minimizing Just did not occur in the initial communication, but did occur later in the conversation, the second determination that should be made is whether or not the Minimizing Just was uttered spontaneously or in response to a specific question from

the dispatcher about the timing of the event. For example, if the dispatcher asked the caller when s/he got there, and the caller said s/he had just arrived, this would be a responsive Minimizing Just. A Minimizing Just statement uttered in response to a generic question about the event, such as "What happened?" would be coded as spontaneous.

Unexplained Knowledge: This variable is defined as any report of information consisting of knowledge that the caller could not have reasonably known under the circumstances. It is logical to assume that certain aspects of a dynamic situation are immediately apparent to a 911 caller, but there are other things that would not be known at the time of the call. In the example below, the caller reported seeing a barn fire from his house, but he stated that he had not gone down to the barn as of the time of the call. Observe the following exchange:

Dispatcher: "Okay alright, do you have anything in your barn that's explosive or anything like that?"

Caller: "Yea there's gasoline that's already burning up."

The caller purports to be at his house some distance from the barn. While it is reasonable to believe that any gasoline in the barn would be burning, to say that it is "already burning up" is an example of Unexplained Knowledge. A more appropriate response would have been, "Yes, cans of gasoline!" because he cannot know if it is "already burning up."

Narrative "With:" The word "with" implies distance in a relationship (Sapir, 1987). For example, it is preferable to say, "*My brother and I watched the football game on TV*", as opposed to, "*I watched the football game on TV with my brother*." This variable is

present if the 911 caller uses the word "with" to describe doing a benign, purposeful social activity (such as eating, playing, watching tv or a sporting event, going to the movies, accompanying someone to an activity, etc.) with someone with whom he has a close personal relationship. However, this only applies to individuals presumed to be in a social relationship. If the caller were to say, "…then the bad guy jumped onto the bed with us," the variable would not be considered to be present.

It should be noted that the word "with" can be used in many ways; the "Narrative With" should only be coded when the caller reports that s/he is or was collaboratively engaged in a specific, voluntary social activity with another person. So, the following examples of the use of the word "with" would not be coded as a "Narrative With."

"I work with him."

"I'm standing here with a friend."

"Stay with me!" (as if to say, "don't die")

"I live with my husband."

Lack of Fear: This variable should be coded as present in those situations in which the caller should reasonably fear that the killer(s) might still be at or near the scene, but the caller does not express any evidence of fear. For example, the caller purports to have arrived on the scene of a crime that might still be in progress, such as a home burglary with obvious forced entry. It also applies to those situations when the caller is present during the alleged attack, as in the instance of a home invasion. In either case, the caller should report some level of concern regarding the whereabouts of the offender and/or his or her own safety. This concern can be expressed directly or indirectly. While it is

certainly possible that other types of fear may be experienced by a caller (i.e. fear of the inability to cope with the loss of a partner, or fear that a fire will spread), what is at issue here is expressed fear, or the lack thereof, of an assailant or perpetrator who may still be on the scene or in the vicinity and the possible danger that poses for the caller or other potential victims.

Two components of the variable will be coded separately, in order to properly determine if Lack of Fear is present. Firstly, determine whether or not there exists any potential imminent danger from an assailant or perpetrator. If a reasonable person would have cause to suspect that the event precipitating the 911 call recently occurred and a violent actor might still be at or near the scene, code the presence of potential imminent danger. If no such reasonable possibility exists (as in the case of finding human remains that are already decomposed), potential imminent danger is not present. As noted, potential threats from environmental events would not be included here, for example, in the case of a report of a fire. Secondly, determine whether or not the caller communicates, either directly or indirectly, fear with respect to any potential imminent danger from an assailant or perpetrator, and record the presence or absence of fear. In transcripts where potential imminent danger is coded as present AND fear is coded as not present, the variable Lack of Fear will be recorded as being present.

Observe the following example of a caller expressing fear when it is reasonable to do so (coded as imminent danger present, Lack of Fear not present). The caller was at her parents' residence and an intruder entered the home and shot both of her parents while she was sleeping in another part of the house.

Caller: "Oh my god, oh my god…I'm so scared. Are (the police) almost here? Where are they now?"

Now observe a less overt example of what could be considered fear or concern for personal safety (coded as imminent danger present, fear present) when it is reasonable to experience fear. The caller was out for a walk in his neighborhood and reported discovering a dead person in a vehicle with an apparently fresh gunshot wound.

Dispatcher: "Okay, sir…sir, I need you to wait there for me, okay? The police are on their way."

Caller: "Uh…I am not going to stand here. I'm going to go back to my yard. I'm only about a hundred yards from my house. They can talk to me there."

Dispatcher: "But sir."

Caller: "Tell them I will be standing in front of (Numeric/Name of) Road. I'm not waiting here."

In the example above, the caller did not specifically articulate a concern for his safety, but he clearly was resistant to remaining on the scene with the deceased person, when it was not known whether the killer might still be in the vicinity. He was cooperative with the dispatcher. He did not refuse to follow the dispatcher's instructions, except when it came to remaining at the scene. Therefore, it is reasonable to conclude that the caller wanted to return to his property out of an abundance of caution for his personal safety.

The following is an example of the absence of fear when there should be some level of concern – (coded as potential imminent danger present, Lack of Fear present).

The caller made a 911 call after allegedly coming home to find his wife dead from gunshot wounds.

Caller: "Hey, listen. I just got home and it looks like someone broke in my house. There's glass everywhere. My wife … it looks like she's been shot a bunch of times."

Dispatcher: "Is she breathing?"

Caller: "I don't know. No, I … it really looks like she's dead. For sure. Oh my god. Who would do this?"

Considering the call as a whole, the caller never directly or indirectly expressed any fear. It is as if the caller never considers the possibility that the assailant(s) might still be at the scene. It is certainly possible that the failure of a caller to express or demonstrate fear for personal safety is the result of naiveté, or perhaps a focused attention on the needs of the injured family member. However, for purposes of coding the 911 call, the coder should only be concerned with whether or not potential imminent danger is present or not present, and whether Lack of Fear is present or not present in each case. In order to make the determination, the call must be considered in its entirety. The coder must ask: Is it reasonable to believe that the average person would be in fear for his/her personal safety due to the possible presence of an assailant, based on the description of the situation provided? If it is determined that the caller should reasonably be afraid, then code the presence of potential imminent danger. In such a situation, if evidence of fear is found, the Lack of Fear variable is by definition not present. If no direct or indirect indications of fear for personal safety are observed where they should be, the Lack of Fear variable is present, and will be recorded by the researcher.

It is important to remember that the Lack of Fear variable is only present if there is no evidence of fear when it is reasonable to assume that the caller should be afraid. The best example of a situation where fear for personal safety would be appropriate is when it appears to the caller that a violent perpetrator has very recently seriously injured or killed someone and the perpetrator's whereabouts are not immediately known.

So, under what circumstances would a Lack of Fear be appropriate? Some level of anxiety would be likely to be experienced by any person calling 911 in the case of an emergency, whether the emergency is genuine or feigned. However, fear of an assailant would not be expected if the caller is with a group of individuals and the perpetrator has fled the scene, if the caller discovers a deceased person and there is no indication whatsoever that the time of the occurrence was recent (e.g. skeletal remains), or if the totality of circumstances are such that a reasonable person would feel comfortable remaining in their present location for the arrival of a first responder. What the variable is attempting to capture is whether or not a caller demonstrates an unexpected Lack of Fear of a presumably still dangerous assailant, suggesting some level of knowledge that there is no continuing danger. If it is determined that the caller has no particular reason to be afraid, (i.e. imminent danger is coded as not present) the Lack of Fear variable cannot be present.

Incorrect Order: The order in which individuals speak about things is suggestive of their priorities. If, for example, a caller reports having returned home to find evidence of a burglary and his wife dead, it would be unreasonable for him to say, "*My house is ransacked, and my wife is dead*." The fact the house has been ransacked should obviously

be of lesser importance, and consequently should not be mentioned prior to the injury/death of his wife. This variable is defined as any instance of mentioning property damage or non-lethal injuries (or focusing on any other aspect of the emergency) prior to mentioning the most serious aspect of the emergency.

A second example of Incorrect Order:

Dispatcher: "911, what is your emergency?"

Caller: "My infant is a month old and he's not breathing."

The age of the infant should not be of higher priority than the fact that he is not breathing.

The following rules of prioritization should apply (most important to least important):

Plea for Help and/or Report of Location (if the caller is immediately asked for the location by the dispatcher);

Description of or comment about the presence of an immediate threat;

Threats/damage to life before threats/damage to property;

Lethal before non-lethal threats or injuries, understanding that at times the severity of a wound may not be immediately apparent.

Note: if the caller mentions property before life, but it comes as a part of a single phrase, or a report of a single action, do not code this variable as present, based on this one factor alone. For example: "My ex-husband broke into my house and stabbed my son…send an ambulance now!" This is a concise description of events that support the Plea for Help. The phrase, "broke into my house and stabbed…" is an example of a

continuous offense; the focus is still on the stabbing and the need for an ambulance. This is not the same thing as a caller who arrives home to find and report, “My house has been ransacked and my wife is dead.”

If the initial communication begins with a Minimizing Just, even if is immediately followed by a report of the emergency in the correct order of priority, both a Minimizing Just and Incorrect Order should be coded. The Minimizing Just should not have come before the report of the emergency.

In calls where the same set of words could be coded both as Incorrect Order and Extraneous Information, code only Incorrect Order (see variable 13). For example, if the previous call was as follows:

Caller: “*Yes, the last couple of weeks ago my girlfriend, somebody broke in and raped her. I just got home a few minutes ago and there’s blood all over my house. I can’t find my girlfriend.*”

In this case the same words, “the last couple of weeks ago my girlfriend, somebody broke in and raped her,” are both extraneous, and presented in the Incorrect Order (coming prior to the report of the nature of the emergency). The coding for Incorrect Order takes precedence over the coding for Extraneous Information when both are present in the same set of words; code only Incorrect Order.

It is possible for a call to contain Extraneous Information that would not also be coded as Incorrect Order, as in the call above from the parent of the child having a seizure, where the car wreck was referenced after the report of the emergency. In that case, code for the presence of Extraneous Information only.

Weapon Touch – This variable is considered to be present when a caller who purports not to have injured or killed the victim makes an unsolicited remark about touching a weapon that is reasonably presumed to be part of the emergency situation. For example, observe the following exchange:

Dispatcher: So, she is bleeding? Where is the blood coming from?

Caller: It's coming from her side or something…I moved the knife.

The variable is not considered to be present in those instances when the caller reports having armed him/herself with an uninvolved weapon for personal safety. This variable applies only to the touching of the apparent instrument that produced the injury being reported.

In the case of a caller who reports that s/he injured or killed the victim in self-defense, it is axiomatic that s/he touched the weapon, and the variable is recorded as not present. It is only present if a caller who is claiming not to have caused the injury touches the weapon involved, and spontaneously reports it to the dispatcher.

Second/Subsequent Caller: A single 911 call sometimes involves more than one caller; an initial caller may speak first, and a second caller may subsequently get on the line. Each caller's portion of the transcript should be coded separately. If the call begins with one caller, but the portion of the call being coded is from a second (or subsequent) caller who also speaks with the dispatcher during the course of the same call, and if that person was present and able to hear the first caller's communications with the dispatcher, this variable should be coded as present. The presence of this variable was recorded because

it is possible that the verbal behavior of a caller who has heard what has already been said to the dispatcher will be different from that of an initial caller.

Secondhand Knowledge: Frequently, 911 calls are received from persons who claim or appear to be reporting secondhand information. This variable is present if the caller reports information known only through some other individual; this judgement can be made through an explicit claim by the caller that they are not at the scene or that they are getting the information from someone else, or it can be reasonably inferred by the coder based on information contained in the call. In the absence of specific language that confirms the coding of secondhand knowledge, all callers are presumed to have firsthand knowledge. It is not necessary to have seen or heard all aspects of the problem (i.e. it is not necessary to have witnessed the event that led to the emergency) to be considered as having firsthand knowledge. Generally, a person must be present at the scene to which emergency services are being summoned (i.e. the scene that contains the injured or deceased person), and reporting his or her own current observations, to be considered as having firsthand information, whether or not s/he actually saw the injurious event. Actually witnessing the event itself is recorded through the Proximity variable. If a person has not been present at the scene to which emergency services are being summoned, the person is presumed to have only secondhand knowledge, and this variable is coded as present.

In some calls, the caller appears to be asking questions of another person in order to answer the dispatcher's questions or to obtain requested or additional information. It is sometimes difficult to ascertain whether the caller is actually at the scene of the

emergency or removed from the scene. For example, a caller using a land line might actually be in the same room as the emergency, but is not close enough to the victim to observe small details, such as whether an injured person's heart is beating, or whether s/he is breathing. The caller may ask another person at the scene for this information, but would still be considered to have firsthand knowledge, because of their presence at the immediate scene. On the other hand, if it is clear that the caller is removed from the scene (even if they are in the vicinity), and is asking another person questions regarding the actual nature of the emergency itself in order to provide information to the dispatcher, the caller would be considered to have secondhand knowledge.

Because of the potential for confusing the two variables of Secondhand Knowledge and Proximity, examples are provided immediately after the definition of Proximity.

Proximity: If a violent/injurious event has occurred, at issue here is whether or not the caller reports having been present at the time that the injury was inflicted. The variable is present if the caller was present at the time of that event. It is not necessary for the caller to have been close enough to the event to have a complete understanding of everything that happened, only close enough so as to perceive some or all of the unfolding events that immediately led to the injury or death.

In the case of an emergency that does NOT obviously involve some violent/injurious action, such as an infant who stopped breathing for no obvious cause, the caller only has to have been present when the discovery was made for the Proximity variable to be present.

In either case, if the caller arrives on the scene of an ongoing emergency, but was not present at the time when the emergency began (or was not there when it was discovered), the variable is not present. Such a person arriving on the scene of an ongoing emergency might now have firsthand knowledge of the problem that they are reporting since they are now on the scene, but they were allegedly not present at the start of the emergency, so while s/he has firsthand knowledge, the Proximity variable is not present.

In order for the transcript coders to record the Proximity variable as present or not present, there must be explicit language in the call that supports the coding. In some cases, it will not be clear from the language of the caller whether or not the caller was present at the event. In those cases, the transcript coders should record the decision that the transcript is "unclear" with regard to Proximity. If available, supplemental evidence (evidence separate from the call and not available to the transcript coders) may be used subsequently by the researcher to correctly define the caller's Proximity to the event. For example, sometimes information derived from cell phone towers can be used to pinpoint a person's location (or at least his/her phone's location) at a particular time.

Observe the following 911 call and description of whether or not the Proximity and *secondhand knowledge* variables are present.

Caller: He's not breathing! He's not breathing! We need an ambulance now!

Dispatcher: Ma'am, what happened?

Caller: I don't know! My daughter called and said there was a problem…I just got here, but my grandbaby is not breathing!

This caller is a grandparent who reportedly arrived at her daughter's residence after her daughter called her to report that the grandchild was sick. Based on the total communication, it appears as though the grandmother arrived to find an emergency already in progress. The *Proximity* variable is not present (the grandmother was not present when the baby stopped breathing and was not the person who discovered that the infant was not breathing), and the *secondhand knowledge* variable is not present (the grandmother is personally present at the scene of the emergency at the time of the call).

Consider another example 911 call:

Dispatcher: 911, what is your emergency?

Caller: My grandson is not breathing! Send an ambulance!

Dispatcher: Ma'am, what happened?

Caller: I don't know. He was sitting in his playpen and all of the sudden he fell backwards and started turning blue.

In this example, the caller is a grandparent who reportedly was present when the emergency first developed. The *proximity* variable is present, and the *secondhand knowledge* variable is not present.

Now consider another example 911 call:

Caller: Something is going on at my neighbor's house. We need some help here! I don't know what's going on, but you need to send us an officer.

Dispatcher: What's going on, sir?

Caller: I don't know. Our neighbor's daughter just came over here and said that she can't wake her parents up. She is only 9. She said her mother has blood all over her clothes. I'm going to go see what's going on. But you need to send somebody right now.

The *proximity* variable is not present (the caller was not present at the time of the event and is not present at the time of this call). The *secondhand knowledge* variable is present (the caller has not yet been at the scene of the emergency and is reporting only information obtained from another person).

Below are some additional examples to assist in determining an appropriate threshold for the presence or absence of Proximity:

Proximity Example 1: The caller reports being in his/her residence when an assailant forcibly enters and shoots another person in the residence. The caller describes being in the room where the shooting occurred, at the time the shot was fired. The Proximity variable should be considered **present,** based on the specific report of the caller.

Proximity Example 2: The caller reports being in his/her residence when an assailant forcibly enters and shoots another person in the residence. The caller describes hearing a disturbance to which another person who is in the residence responds. The caller is immediately aware that there is an escalating problem, but is not physically in the same room at the beginning of the disturbance. The caller hears a gunshot, immediately runs to the sound, and finds the victim on the floor. While the caller did not witness all aspects of the situation, the caller was generally present at the scene of the emergency at the time of the injury. The Proximity variable should be considered **present**, based on the specific report of the caller.

Proximity Example 3: The caller reports being in his/her residence when an assailant forcibly enters and stabs another person in the residence. The caller reports being asleep in another part of the house at the time of the assault, and finding the victim after some unknown amount of time has elapsed. While the caller was in the same general area, s/he reportedly had no knowledge of the unfolding events, and therefore the Proximity variable should be considered **not present**.

Proximity Example 4: The caller reports arriving at his/her residence to find an injured person. According to the caller's description of events, s/he did not see any of the events leading up to the injury. The Proximity variable should be considered **not present**.

The task of determining whether the Proximity variable is present becomes more difficult when the nature of the emergency is not the result of an obvious violent action. In the example of a child who is not breathing, consider the following examples:

Proximity Example 5: The caller reports that her child is not breathing. The caller describes being at her residence with her child. The child is reported to have slumped over while the caller was playing with the child. The Proximity variable is **present**.

Proximity Example 6: The caller reports that her child is not breathing. The caller describes being at her residence and discovering the emergency upon entering the child's bedroom to check on the child. While it is not known when the child may have stopped breathing, the caller discovered an emergency that was not the result of a violent event. The Proximity variable should be considered **present**.

Proximity Example 7: The caller, a grandmother who is visiting the residence of her daughter and granddaughter, reports hearing her daughter scream from the area of the

granddaughter's bedroom. The grandmother reports running to the bedroom and seeing her daughter trying to wake-up her granddaughter. If the grandmother had been alert and aware of what was generally happening in the house during the time period leading up to the discovery of the child, she would be considered to be generally present at the apparent onset of the emergency (in spite of the fact that she did not make the discovery herself), and the Proximity variable should be considered **present**. On the other hand, if the grandmother had been unaware of what was generally happening in the house during the time period leading up to the discovery of the child (she was asleep, in a remote part of the house, or engrossed in an activity and not paying attention), she would be considered to have not been present at the apparent onset of the emergency, and the Proximity variable should be considered **not present**.

Proximity Example 8: The caller, a grandmother of the victim, reports having arrived at her daughter's residence to find an ongoing emergency involving her granddaughter (the child was not breathing). The caller was not physically present at the apparent onset of the emergency; the Proximity variable should be considered **not present**.

Another category of calls should be considered here, that of callers who report hearing gunshots and only afterwards arriving on the scene. The sound of gunfire can travel a significant distance. Thus, it is quite possible for a person to hear a gunshot and have no knowledge whatsoever of the circumstances occurring at the shooting location. Consider the following example.

Proximity Example 9: The caller reports hearing a gunshot while driving, and moments later finding an injured person lying in the roadway. While the caller reports hearing the

gunshot, s/he did not witness any disturbance or any person fleeing the scene. The time between hearing the sound of the gunshot and the arrival on the scene is not entirely relevant. Whether it was only a matter of seconds, or whether it was a longer interval is not of concern. What is important is that the caller reportedly had no other knowledge of the circumstances of the actual event of the shooting, even if they subsequently arrived on the scene. The Proximity variable should be considered **not present**.

Proximity Example 10: The caller reports seeing a disturbance, though s/he is unclear of the exact circumstances. The caller then hears a gunshot and observes people fleeing the area. The caller goes to the area of the disturbance, finds an injured person and calls 911. The Proximity variable should be considered **present**, because the caller actually observed some aspects of the injurious event, even if from some distance.

Report of Caller Injury: If the 911 caller reports having sustained a personal physical injury, it is reasonable that the injury could have an effect on the caller's verbal behavior. If at any point, the caller reports a personal injury associated with the event that precipitated the 911 call, this variable will be deemed to be present. This variable should not be coded present if the caller refers to some pre-existing injury, such as a back injury, that is, for example, offered as a basis for not lifting or moving a victim.

Appendix B

Transcript Coding Sheet

Transcript Number: _____

Predictor Variable	**Present**	**Not Present**	**Unclear**
Second/Subsequent Caller			
Plea for Help Present			
Immediately Present			
Urgent/Demanding			
Plea for Help **Present Later in Call**			
Urgent/Demanding			
Extraneous Information			
Conflicting Facts			
Resistance to Answer			
Inarticulate:			
Hysteria			
Agonal			
Acceptance of Death in a Close Personal Relationship			
Inappropriate Politeness			
Possession of the Problem			
Thinking Pause			
Minimizing Just:			
Initial Communication			
Later in Call			
Spontaneous			
Responsive			
Unexplained Knowledge			
Narrative With			
Re: Lack of Fear (Code only two components below)			
Imminent Danger			
Expression of Fear			
Incorrect Order			
Report of Caller Injury			
Proximity			
Based on verbiage			
Based on supplemental evidence			
Secondhand Knowledge			
Spontaneous Remark Re: Touching			

Weapon			