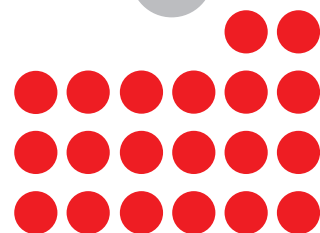




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Preface

Do you like sad music? Have you ever wished you could make learning fun? Are you concerned about social justice? Then welcome to the eighth volume of *Oshkosh Scholar*, the undergraduate research journal of UW Oshkosh. These articles showcase the highest achievements of our top students. The process begins with students who complete original research and have been recommended by their faculty mentors as top performers in their disciplines. Students submit their work to our editing team and go through a rigorous review and editing process. An interdisciplinary selection committee winnows down the submissions to the most well-written papers that present original and interesting conclusions. In one volume, you can find the answers to many questions.

The first section, “Gazing Inward,” has two papers that tell us more about the self. Psychology student Kristie Wirth ran experiments on human subjects to find out more about the relationship between personality traits and music enjoyment. She found evidence that suggests a strong link between empathy and a preference for sad music. Surprisingly, she did not find a connection between depressive traits and sad music. Her scientific approach gives us hard evidence to understand ourselves. Taylor Waring takes another path to self-reflection with his study of Octavio Paz’s poetry. Drawing on postmodern theory, Waring challenges the conclusion of critics that Paz’s poetry depends on form and structure to understand meaning. Rather, Waring suggests, Paz warns readers against relying too much on external constructions of reality, and wants readers to journey inward to find themselves.

The next section, “Maintaining Power,” moves from the individual interior to the individual as leader. Amy Knoll considers the novel *Moby-Dick* and draws on sociology and psychology as well as literary analysis to pull new meanings from the old classic. Knoll reveals that Ahab’s search for the white whale is a cautionary tale, warning readers that Ahab’s tyranny draws its power from the complicity of the crew, and even the readers. Anna Lukyanova also considers the nature of power but instead looks at how to get it in the first place. Studying ancient texts with a fresh eye, she questions how women gained power as queens in twelfth-century Jerusalem. She found women needed not just charisma, but concrete external realities such as a wide kin network among the nobility, the support of the church, recognition of legal power, and allies in the government. Only then could women rise to power.

Next we turn from the throne to the classroom. In the “Improving Learning” section, two students find playful ways to teach. John Dewitt worked to improve arrowgrams, a paper and pencil puzzle created by his faculty mentor, Dr. Kenneth Price. Dewitt uses linear algebra and tournament directed graphs to formulate puzzles quickly for that elusive goal: to make learning math fun. In a similar vein, Carie Gauthier found a whimsical way to encourage struggling students to improve writing skills. She asked students to create a metaphor for the writing process and gently guided them away from rigid, limiting metaphors to more expansive ones. Like a benevolent will o’ the wisp, she lured students to a less familiar but more rewarding path to become better writers.

The last section, “Understanding Injustice,” moves to the world of social justice struggles. Instead of dismissing people who oppose regulating child labor, Rosalind Lyness went out in the field and talked to them. Her findings reveal that adults who worked on farms as children considered the risks of injury an acceptable price for the valuable character-building lessons they learned. However, their positive view was informed by the fact that their work as children did not interfere with their education, and often paid off in improving a farm they would inherit. They had little awareness

of the less rewarding work of current day migrant children on farms. These findings have policy implications for current politicians seeking to pass legislation on child labor regulation. By highlighting the difference between childhood memories and current realities, opposing sides might find common ground. Michelle Duren also has research with current policy applications. She ran statistical models to examine the cause of food insecurity in Africa. By mining data from international organizations, she evaluated military conflict, environmental hazards, and food aid as causes of hunger, and compared them with information about the production and consumption of food. She came to the counterintuitive conclusion that food aid is not the answer to hunger. Her findings show the need for more innovative thinking to an old problem.

Papers that go through the review and editing process but are not chosen for the print edition are published online along with the papers included in the print edition. Should you drink chocolate milk after a workout? To find out the answer to this as well as to learn about the rise of the John Birch Society in Wisconsin, civil rights activism in Milwaukee, and German Army atrocities on the Eastern Front in World War II, please go to www.uwosh.edu/oshkoshscholar. The publication of all these innovative conclusions is possible only with the hard work and dedication of students, their faculty mentors, faculty reviewers, Selection Committee members, and the editing team of Susan Surendonk, Amy Knoll, and Michael Brott. Financial support from the Provost and Differential Tuition is crucial to maintaining the year-round work to produce both this print journal and the online collection.

Each article is a fine example of research in one field, but the volume as a whole showcases the many facets of the University mission. Students have delved into music, literature, science, math, the medieval world, and present-day politics to understand power, learning, justice, and the self. University research trains the next generation of thinkers to understand the broader world around them, but also to remember, in the words of student Taylor Waring, to “once again gaze into our lost reflections” and find the self anew.

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“Oshkosh Scholar contains the finest research from every academic field. This design captures the mass of information scholars begin with and the revision process they undergo to achieve the final result. The gray shapes represent the revision and organization of raw material, while the red shapes represent the final product.”

—Josh Tyner

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Gazing Inward

The Influence of Characteristics on Music Enjoyment and Preference

Kristie Wirth, author

Dr. Quin Chrobak, Psychology, faculty mentor

Kristie Wirth is a senior at UW Oshkosh studying psychology and French. She plans to pursue a Ph.D. in counseling psychology after graduating. Her ideal career would involve both teaching and counseling at a university. She conducted the following research study as part of the McNair Scholars Program during spring 2012.

Dr. Quin Chrobak received his B.A. from Drew University, his M.A. from American University, and his Ph.D. in experimental psychology from Kent State University. His research focuses on understanding how memory and cognition operate in complex real-world situations. Most recently, his research has begun to explore the notion that the nature of the relationship between witnessed and suggested/fabricated events may contribute to the false memory development.

Abstract

Past research has indicated that two specific personality traits, openness and empathy, may contribute to greater enjoyment of music that expresses negative emotions. Individuals with elevated levels of depressive symptoms may similarly have a preference for negative music. However, no research to date has explored the impact of both personality traits and depressive symptoms in the same investigation. The current study measured both music enjoyment (how much people *like* certain music) and music preference (how often people *choose* to listen to certain music) after exposure to negative, neutral, and positive music. Supporting prior research, this study indicated that individuals high in overall empathy (the ability to experience the emotions of another) had a greater enjoyment of negative emotional music. No relationship was found between openness or depression for either music enjoyment or music preference. Further analysis of the data indicates a possible association between music-specific measures of personality and music enjoyment/preference. Future research will be needed to investigate the strength of this relationship.

Introduction

Music appreciation is varied and has typically been assessed in two different ways. The more commonly assessed measure is “music enjoyment,” which refers to how much a person *likes* a piece of music. Less used, “music preference” refers to how often a person *chooses* to listen to a piece of music. While in some individuals, increased music enjoyment may be connected with increased music preference, this is not always true (Hunter 2012). Research has demonstrated that music serves several important functional roles. For example, music provides many people with an outward reflection of their identity and values (Schafer and Sedlmeier 2009). Music can also be used to improve mood, express emotions, or create a more relaxed state (Juslin and Laukka 2004; Waterman 1996). Although music choice can vary based on a person’s immediate goals, people tend to prefer one genre of music, such as alternative, or music that contains a specific emotional characteristic, such as anger. Researchers have extensively studied the reasons for these differences in preference (LeBlanc 1982).

One common finding is that music enjoyment and preference can be influenced by several factors. For example, tempo or pitch can alter enjoyment of a piece, with faster tempo being associated with increased enjoyment. Similarly, people indicate a greater enjoyment of pitches ranging from 400 to 750 hertz (Finns 1989). The attributes of the listener can also influence music enjoyment (McNamara and Ballard 1999), with both gender (Chamorro-Premuzic, Fagan, and Furnham 2010) and the age of the listener (Holbrook and Schindler 1989; Mende 1991) playing a role. It has even been shown that innate auditory factors such as pitch or tonality may influence enjoyment of certain types of music (McDermott and Hauser 2005; Trehub, Schellenberg, and Hill 1997; Umemoto 1997). Finally, variations in the perceived emotionality of the music can influence enjoyment. For example, people primarily enjoy happy music more than sad music (Gosselin et al. 2005; Hunter and Schellenberg 2010; Husain, Thompson, and Schellenberg 2002; Thompson, Schellenberg, and Husain 2001). To illustrate, in a study by Ladinig and Schellenberg (2012), participants provided ratings of enjoyment for numerous pieces of music and their emotional reactions to those pieces. These researchers discovered that the songs enjoyed most by listeners were those associated with happy feelings, while songs that induced sad feelings were generally disliked. This finding seems intuitive, as happy music tends to improve one's overall mood (Saarikallio 2011). This investigation sought to explore additional factors known to influence music enjoyment and preference. Specifically, this paper will explore the relationship between three different characteristics and music enjoyment/preference.

Personality Factors and Musical Enjoyment/Preference

Music preferences typically reflect one's identity (North and Hargreaves 1999). For example, individuals who listen to music often categorized as rebellious, such as heavy metal or rap, are more likely to engage in delinquent behaviors than listeners of other genres (Arnett 1991; Hansen and Hansen 1991). People also tend to discuss music preferences when getting to know others (Rentfrow and Gosling 2006). Given the importance of music in both individual and interpersonal development, it is understandable that personality (the pattern of emotional, intellectual, and behavioral responses of an individual) has been shown to be related to music preference (Hunter and Schellenberg 2011; Rentfrow and Gosling 2006; Rentfrow and McDonald 2009).

It is possible to describe a person's personality in two broad ways. Behavior can result from temporary states determined by situational factors (for example, *mood*: stressed, happy, etc.). By contrast, human behavior can also be understood in terms of long-lasting attributes that persist over time (for example, *personality traits*: artistic, adventurous, etc.). Personality traits are thought of as existing on a continuum, and are not "all-or-none." Using advanced statistical techniques, researchers have identified five different personality traits that are thought to underlie all of human behavior and can be used to explain the diversity in human personality. These five traits, known as the Big Five, are neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (John and Srivastava 1999).

Despite many studies analyzing the connection between these traits and music enjoyment, only one personality trait of the Big Five, openness to experience, has been shown to have a consistent association with music enjoyment (Chamorro-Premuzic, Fagan, and Furnham 2010; Ladinig and Schellenberg 2012). Openness to experience is defined as an appreciation of art, emotion, adventure, imagination, curiosity, and a variety of experiences (Digman 1990). Those who have high levels of openness are more likely to experience music cognitively and to utilize it for intellectual stimulation (Chamorro-Premuzic et al. 2009). For example, a person high in openness may derive pleasure from pondering the meaning conveyed by a song. Several research

studies have revealed the influence of this personality trait on music enjoyment. One study by Vuoskoski et al. (2012) analyzed the association between personality and four categories of music (sad, happy, scary, and tender). Their results indicated the importance of openness to experience, as it was the only Big Five trait associated with liking ratings (namely, an enjoyment of sad music). Openness has also been linked to increased enjoyment of complex music (Chamorro-Premuzic, Fagan, and Furnham 2010; Langmeyer, Guglhor-Rudan, and Tarnai 2012) and music that is considered to be sad or melancholy (Ladinig and Schellenberg 2012; Vuoskoski et al. 2012). This latter finding is likely due to the ability of people who score high on openness to detach themselves from the emotions in music and appreciate it as art—regardless of the emotional content (Hunter et al. 2008; Hunter et al. 2010). Accordingly, this study is predicted to show that those who score higher on openness will give stronger indications of liking both happy and sad music than will those who score lower on openness. It is similarly hypothesized that individuals higher in openness will prefer an emotional song (a happy song or a sad song) over a neutral song when given a choice.

Another personality trait related to song enjoyment/preference is empathy. This trait is not considered a Big Five personality trait, but is often used as an additional measure of personality (Breithaupt 2012). In fact, empathy could be considered a narrower component of the Big Five trait of agreeableness. Specifically, empathy describes the ability to understand and share the feelings of another (Davis 1980). Research has shown that highly empathetic people tend to relate more strongly to emotional stimuli overall. Thus, a connection between empathy and music seems logical, as some researchers argue that music enjoyment is influenced by the specific emotions evoked by music (Hargreaves, Miell, and MacDonald 2005). In general, people tend to enjoy music that causes them to feel stronger emotions (Gatewood 1927; Trombly 1995; Vuoskoski et al. 2012). Specifically, experiencing the emotions in music and not just perceiving that emotions are present may significantly contribute to increased enjoyment (Schubert 2007). One possible explanation for these findings is music that evokes emotions tends to be viewed as more meaningful than non-emotional music. Songs that create responses, such as chills, or trigger emotional memories are similarly perceived as more significant and are thus enjoyed more (Craig 2009; Woody and Burns 2001). Given that those who are highly empathetic experience emotions strongly, and that increased emotional involvement is associated with song enjoyment, it is unsurprising that these individuals tend to enjoy sad music more than others (Vuoskoski et al. 2012). For the current study, it is expected that highly empathetic individuals will indicate more enjoyment of both happy and sad songs over individuals lower in empathy. It is further predicted that those high in empathy will prefer any music that evokes emotions over a neutral music selection.

A final factor related to musical enjoyment/preference is the presence of depressive symptomatology, or the level of depressive symptoms. It is worth noting that this is a somewhat different predictor than either openness or empathy, as depressive symptomatology tends to be less stable over time. Nevertheless, there are numerous pieces of evidence that indicate people with depressive symptoms are drawn to one particular type of stimulus—that which expresses negative emotions. For example, research has shown that people with depression tend to seek negative feedback in social situations (Casbon et al. 2005), whereas nondepressed people pursue positive feedback (Swann, Wenzlaff, Krull, and Pelham 1992). Along the same lines, adolescents with depressive symptoms often befriend individuals with similar levels of depression (Zalk et al. 2010). Not surprisingly then, depressive symptoms have also been associated with a preference for negative music. For example, Miranda and Claes (2007) examined this link between depression and music preference in adolescents.

They identified an association between high depression levels and a preference for metal music, which typically contains negative content.

Numerous factors may contribute to depressed individuals' nonintuitive preference for negative stimuli. There is evidence that those who are in a severely depressed mood may actually feel better after listening to sad music. For example, Matsumoto (2002) found that individuals who are mildly depressed experience no mood change after exposure to sad music, while severely depressed individuals experience a small positive mood change after listening to the same piece. Given that mood typically changes to more closely match an emotional stimuli, it can be assumed that the lack of mood change in the mildly depressed individuals is due to the sad music expressing emotions equal to their current mood. On the other hand, the positive mood change for the severely depressed individuals indicates a difference between the emotions expressed by the music and their current mood. More specifically, the mildly sad music is less sad than the current mood of the severely depressed individuals. These findings suggest that sad music may be chosen in certain situations for the same reasons happy music is chosen (positive mood regulation). Consequently, in the current investigation it is predicted that individuals with elevated levels of depression will enjoy sad music more than individuals with lower levels of depression. Additionally, it is expected that these individuals will demonstrate a higher preference for sad music over other music selections.

Overall, there is a lack of research on how specific personality traits (e.g., openness and empathy) and affective state (e.g., symptoms of major depression) will influence either music enjoyment or preference. The current study seeks to more accurately define the relationship between these factors. Specifically, it will focus on both stimulus enjoyment and preference after exposure to negative, neutral, or positive music. The hypotheses in terms of **music enjoyment** are as follows:

Hypothesis E1: Individuals higher in openness will give higher ratings of enjoyment to both a happy song and a sad song as compared to individuals lower in openness.

Hypothesis E2: Individuals higher in empathy will give higher ratings of enjoyment to both a happy song and a sad song as compared to individuals lower in empathy.

Hypothesis E3: Individuals with a greater number of depressive symptoms will give higher ratings of enjoyment to a sad song than individuals with fewer of these symptoms.

Similarly, there are three main hypotheses regarding **music preference**:

Hypothesis P1: Individuals higher in openness will be more likely to choose either emotional song (the happy song or the sad song) over the neutral song.

Hypothesis P2: Individuals higher in empathy will be more likely to choose either emotional song (the happy song or the sad song) over the neutral song.

Hypothesis P3: Individuals with higher amounts of depressive symptoms will be more likely to choose the sad song over the other two music selections (the happy song or the neutral song).

In general, these findings will contribute to a greater understanding of both music enjoyment and preference.

Method

Participants

A total of 66 undergraduates completed the experiment in fulfillment of a course requirement and were tested individually.

Setting

Previous studies found that certain aspects of a situation, such as upcoming events, can influence music choice (Saarikallio 2011). Therefore, it was thought that the formal laboratory environment where participants were tested might alter musical enjoyment/preference in a way atypical of normal listening. To counter this possible impact, efforts were made to establish a comfortable atmosphere more typical of that in a relaxed, casual setting, such as a home. Specifically, the testing room was dimly lit by a single lamp and the walls were decorated with four neutral art prints. In addition, all participants sat on a comfortable futon for the duration of the experiment.

General Instructions

Participants were informed they would be taking part in three separate experiments by different researchers. To establish the illusion of three experiments, the desk in front of the participants had three envelopes marked “Experiment 1 – Dr. Kliest,” “Experiment 2 – Dr. Wunderling,” and “Experiment 3 – Dr. Yorke.” Participants were instructed to place all materials in each envelope after completing each section of the experiment.

Part I

Participants were given three partially counterbalanced questionnaires (i.e., the three surveys distributed in a random order) and informed via written instructions to choose the best answer for each question:

Major depression inventory. This questionnaire was used to assess the degree of depressive symptoms in each participant (Konstantinidis et al. 2011).

Big Five inventory. The questions from this inventory were used to measure the Big Five personality traits of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (John and Srivastava 1999).

Interpersonal reactivity index. This survey measured the level of various types of empathy in participants (Davis 1980). These categories include perspective taking, fantasy, empathetic concern, and personal distress. For the purposes of the current study, only a global measure of empathy was used.

Part II

Next, participants listened to three partially counterbalanced music segments (happy, sad, or neutral) that were each one minute in length. They were told to close their eyes and concentrate on each music selection. After each selection, participants were required to complete a questionnaire in which they rated their enjoyment of the song, the level of beauty it contained, the degree to which they related to the music, and whether they recognized the band or the song (see appendix).

The music selections used in the experiment were chosen based on several criteria. Emotional reaction to the lyrics was limited by choosing songs that contained ambiguous or muffled lyrics. The effect of familiarity was minimized by choosing less popular songs. Using these basic criteria, three songs were chosen for the experiment:

Positive emotion. The song “Eyes as Candles,” by Passion Pit, was chosen for its ambiguous lyrics and rapid tempo.

Neutral. The song “Slow Motion,” by Panda Bear, was slowed down 10% to function as the neutral selection. Given that faster tempos are typically associated with happy emotions (Webster and Weir 2005), this slight slowing of the tempo was used to create a more neutral stimuli.

Negative emotion. The live version of the Radiohead song “Like Spinning Plates” was used to create a depressing mood.

Preliminary testing was used to determine the validity of the materials used in the main experiment. A small sample of participants rated each selection on a scale of negative six (extremely sad) to positive six (extremely happy). A rating of zero indicated a lack of strong emotion of either valence, or neutral. Results verified that the selected songs adequately established the appropriate emotional content (happy, neutral, or sad). Fitting with expectations, the respective songs were rated as happy ($M = 2.93$), neutral ($M = -.41$), or sad ($M = -2.66$). Analysis of variance (ANOVA) and Tukey post-hoc analyses confirmed that the ratings of emotional content for each song were significantly different from each other ($ps < .05$). In addition, preliminary testing verified that no one selection was universally disliked relative to the others. Finally, results indicated that participants were relatively unfamiliar with the songs (overall identification rate was less than 2%).

Part III

Participants were informed that the third experiment was designed to measure the influence that listening to music has on writing. They were told to choose (via written selection) one of the songs played in the previous section, and that this song would function as a guide for the type of music they would hear while journaling about a somewhat recent and significant life event. The purpose of this part of the experiment was to measure music listening choices. Therefore, the experiment ended after participants made their selection.

Debriefing

After the three sections, participants were debriefed and probed for suspicion. They were asked general questions about the experiment and their level of suspicion was rated on a standardized number scale. More specific questions concerning deception were posed following this rating, such as “At any point during the study did you think there was something more to the study?” and “Can you think of any other aspects of the study that seemed strange or unusual?” Data was removed from analyses for participants who expressed specific suspicions that could potentially affect the results (e.g., guessing the exact research hypotheses).

Results

Enjoyment Ratings

It was expected that individuals higher in openness and empathy would have increased enjoyment of both positive and negative music (Hypotheses E1 and E2). Those with high depression scores were predicted to give higher enjoyment ratings to negative music only (Hypothesis E3). Three multiple regressions were used to test if these factors actually predicted enjoyment of each song respectively. In general, a multiple regression is a statistical technique that tests whether several measured items have an influence on another set of measured items. Results are presented in table 1. For the happy song, the regression was non-significant ($p > .10$), as none of the factors were significant predictors of enjoyment. For the neutral song, the same pattern of non-significant predictors was obtained ($p > .10$). For the sad song, openness was not a significant predictor ($p > .10$) and neither were depression scores ($p > .10$). In other words, Hypotheses E1 and E2 were not supported. However, empathy was found to be a significant predictor of enjoyment of the sad song and accounted for 19% of the variance in enjoyment ratings. Thus, empathy explains 19% of the differences in enjoyment ratings of sad songs for all the participants. Other factors explain the remaining portion of differences. This result also indicates that Hypothesis E2 was partially supported.

Musical Preference

It was predicted that participants who scored high in openness and empathy would be more likely to choose positive and negative music over neutral music (Hypotheses P1 and P2). Individuals with high depressive symptoms were expected to prefer negative music only (Hypothesis P3). A multinomial regression was conducted predicting choice from the openness, empathy, and depression scores. The regression was not found to be significant overall ($X^2 = 5.27, p > .10$), meaning that none of the predictors significantly affected music choice and none of the music preference hypotheses were supported.

Post-Hoc Analyses: Enjoyment Ratings

Given that only one of the original hypotheses was found to be significant, further analyses (post-hoc analyses) were conducted. Post-hoc analyses are conducted without any initial predictions of the results and thus do not have previously formed hypotheses. Three multiple regressions were used to determine if “viewing a song as art” or “relating to the song” predicted enjoyment. This data was obtained from the questionnaires given to participants after listening to each music selection (see appendix). Given the inconclusive results, it was thought that these specific questions would more precisely reflect measurements of openness and empathy than global assessments of these traits (the Big Five Inventory and Interpersonal Reactivity Index) and would thus influence song enjoyment more strongly than global personality traits. Results are shown in table 2. For the happy song, there were two significant predictors: viewing the happy song as art (Wilks’ $\lambda = .394, F(3, 57) = 29.2, p < .001$) and relating to that song (Wilks’ $\lambda = .823, F(3, 57) = 4.08, p = .011$). In terms of the neutral song, a similar pattern was found. Viewing the neutral song as art (Wilks’ $\lambda = .543, F(3, 57) = 16.0, p < .001$) and relating to that song (Wilks’ $\lambda = .807, F(3, 57) = 4.55, p = .006$) were both significant predictors of enjoyment of the neutral song. Finally, viewing the sad song as art was found to significantly predict enjoyment ratings of the sad song (Wilks’ $\lambda = .990, F(3, 57) = 23.7, p < .001$). In sum, those who viewed a particular song as artistic rated it as more enjoyable than those who did not view the song as artistic. This was true for all song types. Similarly, those who related more to the song described it as more enjoyable than those who did not relate to the song, at least for the happy and neutral songs.

Post-Hoc Analyses: Musical Preference

It was hypothesized that viewing a song as art or relating to the song would similarly be associated with higher preference of that music selection. A multinomial regression was conducted predicting choice from viewing each song as art and relating to each song. Results are presented in table 3. Overall, the regression was significant ($p < .001$), which indicates that one or more of the potential predictors significantly affected music preference. Findings indicated that individuals who related strongly to the happy song had a greater chance of choosing the happy song over the neutral song, odds ratio (OR) = 3.40, 95% confidence interval (CI): 1.06, 10.9. Those who viewed the neutral song as art had a decreased chance of choosing both the happy song (OR = .494, 95% CI: .241, 1.01) and the sad song (OR = .453, 95% CI: .210, .978) compared to the neutral song. Furthermore, participants who viewed the sad song as art had a greater chance of preferring the sad song instead of the neutral song (OR = 2.25, 95% CI: 1.05, 4.81). Individuals who viewed the neutral or sad song as art were more likely to choose that song compared to the other choices. Those who related more strongly to the happy song were also more likely to prefer the happy song over

other music selections. No other predictors were significantly associated with music preference.

Discussion

The current study focused on enjoyment and preference for positive, neutral, and negative emotional music. This study also analyzed whether attitudes about music enjoyment are synonymous with music listening behavior (preference). It was thought that individuals high in openness and empathy would enjoy emotional music (both positive and negative) more than individuals lower in these traits. It was similarly predicted that individuals higher in these traits would choose a happy or sad song more often than a neutral selection. Conversely, it was predicted that individuals with higher levels of depression would give higher ratings of enjoyment to sad music than those with fewer depressive symptoms. It was further hypothesized that these individuals with more symptoms of depression would prefer negative music over both positive and neutral music. The results from the current study provided partial support for these hypotheses. Specifically, individuals high in global empathy gave higher ratings of enjoyment to negative emotional music than individuals with lower scores of global empathy, which validates the second part of Hypothesis E2. However, no relationship was found between empathy and enjoyment or preference of positive emotional music, which contradicts the first part of Hypothesis E2. In addition, no relationship was found between openness or depression for either music enjoyment or music preference (Hypotheses E1, E3, P1, P2, and P3). This lack of relationship between depression and enjoyment/preference for sad music warrants further consideration. Given the truncated range of data, depression scores simply may not vary enough to determine any significant relationship to music enjoyment. Along the same lines, most scores on this assessment were far beneath the threshold for a diagnosis of clinical depression.

Although initial hypotheses were only partially supported, further analysis of responses regarding individual song selections indicated a potential connection between musically specific personality traits and music enjoyment/preference. Specifically, results indicated that both “viewing a song as art” and “relating to a song” were more accurate predictors of a person’s enjoyment and preference than stable personality traits, such as openness or empathy. One possible explanation for this finding is that the responses are more precise indicators of openness and empathy, respectively, at least in terms of their relationship to musical appreciation. For example, a significant relationship between empathy and enjoyment/preference may not have been found in the current study because some percentage of participants were empathetic in regard to music listening, but low in other aspects of the trait (e.g., empathy toward other persons). Ultimately, more deliberately designed questions may be necessary to show the relationship between openness/empathy and music preference/enjoyment.

One of the main contributions of this study to existing literature is the inclusion of music choice as a dependent variable, as prior research has primarily focused on ratings of music enjoyment. Given that different factors were found to significantly influence music enjoyment and preference, this study demonstrated that attitudes about music may not be synonymous with music listening behavior. In particular, situation specific measures of empathy and openness were linked to enjoyment of nearly all the songs, while only some of these similar hypotheses held true for preference. Another important contribution of the current study is the inclusion of data for participants who have depressive symptoms, but do not necessarily meet the diagnostic criteria for a diagnosis of major depression. This is important, as previous research has primarily

focused on the latter, and thus the results of the current study may be more applicable to the general population.

Future research would benefit from a closer look at the relationship between personality traits and music enjoyment/preference. Results from the current study suggest that using specific music-related assessments may be more effective than global trait assessments at establishing connections between personality traits and music enjoyment/preference. However, more research is needed to provide evidence for this hypothesis. Other studies should also further explore the possible connection between depression and music enjoyment/preference by using a sample with more varied depressive scores than in the current investigation.

Ultimately, music enjoyment and listening behaviors can be as varied as the individuals who listen to music. Nevertheless, research has been able to identify specific factors that have a substantial effect on song enjoyment and preference. For example, the current study demonstrated the link between empathy and enjoyment of sad music. This finding could be generalized to explain why an individual enjoys any stimulus that portrays negative emotions, such as sad movies or books. An enjoyment of negative emotions may not necessarily indicate a melancholy individual, but rather someone who is more aware of and connected with emotions in general. However, given the complexities of human cognition, numerous other factors likely contribute to music enjoyment/preference. As more studies investigate these relationships, it is likely that music listening habits will be viewed with more insight and a higher level of predictability.

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Appendix
Questionnaire.

Music selection # _____ :

1. How much did you like or dislike the music you just listened to? Please circle a number.

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Disliked extremely		Disliked quite a bit		Disliked slightly		Neutral		Liked slightly		Liked quite a bit		Liked extremely

2. How would you evaluate this song as a piece of art? Please circle a number.

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Extremely unpleasant		Quite unpleasant		Slightly unpleasant		Neutral		Slightly pleasant		Quite pleasant		Extremely pleasant

3. How much did you relate to this song? Please circle a number.

0	1	2	3	4	5	6
Did not relate to it at all		Related to it slightly		Related to it quite a bit		Related to it very much

4. Did you recognize the artist or the song? Circle one: YES NO

If you did recognize the artist or the song, please write their name and/or the song title.

Table 1. Multiple regression analyses of song enjoyment using planned predictors.

	Happy song	Neutral song	Sad song
F ratio	1.32	.769	4.83
R ²	.060	.036	.189
Openness	.093	.108	.129
β Empathy	.146	-.013	.387**
Depression	-.125	-.162	.018

Note: **p* < .10, ***p* < .05

Table 2. Post-hoc multiple regression analyses of song enjoyment.

	Happy song	Neutral song	Sad song
F ratio	30.5**	28.9**	22.8**
R ²	.756	.746	.699
β	Viewing a happy song as art	.667**	.045
	Relating to a happy song	.294**	.021
	Viewing a neutral song as art	.007	.595**
	Relating to a neutral song	.035	.32**
	Viewing a sad song as art	-.004	.069
	Relating to a sad song	-.013	.016

Note: * $p < .10$. ** $p < .05$.

Table 3. Post-hoc multinomial regression of song preference.

	Odds ratio	95% CI
Neutral song versus happy song		
Viewing happy song as art	1.94	.842, 4.46
Relating to happy song	3.40**	1.06, 10.9
Viewing neutral song as art	.494*	.241, 1.01
Relating to neutral song	.442	.147, 1.33
Viewing sad song as art	.921	.574, 1.48
Relating to sad song	.36	.101, 1.29
Neutral song versus sad song		
Viewing happy song as art	1.04	.444, 2.41
Relating to happy song	.633	.137, 2.93
Viewing neutral song as art	.453**	.210, .978
Relating to neutral song	.39	.104, 1.47
Viewing sad song as art	2.25**	1.054, 4.81
Relating to sad song	2.29	.610, 8.5

Note: * $p < .10$. ** $p < .05$.

Broken Mirror: A Look into Octavio Paz's "Blanco"

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Abstract

This essay examines one of Octavio Paz's major works: the prose poem "Blanco." The essay juxtaposes several major analyses of "Blanco," and in doing so shows how many critics have been misled by themselves, and Paz, into misreading the poem. The critics thus far have argued that the typography and structure of "Blanco" are intended to draw the reader toward the postmodern notion of Presence: undeniable, unmediated, though ultimately ineffable perception of reality. Whereas they arrive at this conclusion by gaining their insights from theorists who were influential to Paz, this essay differs in that it applies Octavio Paz's own critical theories. In doing so, I argue that the critics did not find this meaning, but rather that the critics have created it. By exploring the naturally reflective typographic structures of "Blanco," I examine the ways in which the text provides mirror images of who gazes into it: the reader.

Octavio Paz spent his life in constant relocation—not just physically, but mentally as well. Never content to stagnate, Paz was a man of incessant reinvention, or as he calls it in his final autobiographical work, *Itinerary*, revolution. Like Paz, his poetry swells with movement across the page—for Paz, the postmodern linguistic whirl was as natural as the swirling of the stars. Despite this fluidity, Paz's poetry also often conveys rupture. At times his poetic persona seeks only to understand itself, at others, to explode into a reunion with the universe. Throughout Paz's Nobel Prize acceptance speech, he analyzes the origins of this imagery in his Hispanic roots, noting, "The consciousness of being separate is a constant feature of [Hispanic] spiritual history."¹ This separation is sometimes experienced as a wound that marks an internal division, an anguished awareness that invites self-examination; at other times separation appears as a challenge to actively seek out Otherness. Paz writes in his poetry that this longing for the Other is caused by the separation and perception of "two-syllables in love"—binaries—that exist as a consequence of our perception of reality.²

Despite Paz's emphasis on the pursuit of self-knowledge, the overwhelming majority of critics have focused exclusively on external influences on Paz's poetry, such as his interest in the French structuralist movement, surrealism, or Hindu symbolism. The prior critics have sought external theories and perspectives to bring understanding to the poetry of Octavio Paz. This is strange because Paz was heavily

involved as a critical theorist. In this essay, I focus on the theories of the one theorist the critics have avoided—Octavio Paz. In doing so, I show how the majority of Paz's contemporaries had been purposely misled by Paz into misreading his poetry. The most prevalent example of the critical misreading can be seen in the criticism written on Paz's 1968 poem "Blanco." I view "Blanco" through a variety of Paz's theoretical works written across his career and then compare the symbols present in "Blanco" with several of his other poems in order to render an image of Paz's poetry as he would have seen it.

Paz's own critical theories were developed out of the structuralist and poststructuralist movements. The many divisions that Paz uses symbolically, both of subjective and objective reality, stem from the structuralist movement, which gained its momentum shortly before Paz's birth in 1914, and focused heavily on binary understandings of language. The goal of the structuralist movement was to dissolve these binaries and rationalize a greater wholeness from the binary dissolution. While the structuralist movement influenced Paz heavily, he also witnessed and participated in the dawn of the poststructuralist movement. Paz's poststructuralist tendencies can be seen most prevalently in the apparent incompleteness of his works, many of which have no clear beginning or ending. As a movement, poststructuralism is most commonly associated with Jacques Derrida, who emphasized the inherent instability of language brought about by the temporal nature of reading. Due to the temporality of the textual experience, no text ever has a final resolution. So long as there are new readers, there are new possible meanings for a text to take on.

"Blanco" is an intricately designed poem that embodies many postmodern traits, with its typography emphasizing the poem's visual aspects. The poem begins with words spread out in three columns across the page. The text then forms a column that proceeds down the page, with the occasional staggering of lines. The single column then splits into a bold font on the left accompanied by an italicized font on the right. As the poem progresses, this pattern repeats four times, with the bold and italicized verses gradually drifting toward, and ultimately pressing against, one another. Critics such as Ramon Xirau, Manuel Duran, Graciela Palau de Nemes, and Guillermo Sucre have argued that the typography of "Blanco" operates as a vehicle meant to bring readers from their subjective position to a (re)union with the universe. Critics have described this movement as finding the Presence of the universe: an unaltered, undeniable, pure perception of the universe, which is otherwise obscured. Presence can only be found at the extremities of cognition, near the epistemic apex and transcendent knowledge. Before readers get too excited, this transcendent knowledge is beyond language: it is silence. The momentary fixation cannot be said or explained, only understood. A return to the Presence of the universe is symbolic of the readers' death, which, in a particularly postmodern fashion, is ultimately a return to one's Beginning.

Because the critics have misplaced the locus of the Beginning, they ultimately misread "Blanco." For them, the poem is an external experience—a journey *toward* Presence. Paz addresses the typographic movement in the preface to "Blanco," one of the only poems Paz has ever written an introduction for, in a series of peculiar statements: "[Blanco] is something like the motionless voyage offered by a roll of Tantric pictures and emblems: as we unroll it, a ritual is spread out before our eyes, a sort of procession or pilgrimage to—where?"³ Paz drops a hint as he continues: "The typography and format of . . . *Blanco* were meant to emphasize not so much the presence of the text, but the space that sustains it: that which makes writing and reading possible, that in which all writing and reading end."⁴

Paz uses these bizarre statements to frame a selection of "variant readings" of "Blanco" that provide a roadmap for the poem's typography.⁵ Thus far, critics have

been inclined to follow. But Paz's suggestions are inherently misleading, thus resulting in a misreading of the poem. This is most demonstrable in the first of Paz's six suggestions: "Blanco" can be read "in its totality, as a single text."⁶ However, as soon as the reader looks at the textual surface of "Blanco," this is obviously impossible: readers' eyes instantly scatter across the poem's typography. It is blatantly fragmented. This can be seen especially in the columned sections of the poem, which can never be read with complete accuracy or totality even at their closest proximity. Paz tells readers that "Blanco" is not about "the presence of the text," and then leads them right to this Presence. When critics find nothing but silence at the end of the line, they are left with the remainder of a deconstructed double negative: Presence. Paz has tricked his early critics into dissecting an absence of meaning—the poem isn't about anything—and twisting a void into nothing. The space that sustains "Blanco" has been misplaced; the reader is lost amid Paz's whirlwind of poetic deconstruction. The critics thus far have failed to realize the inherently reflective nature of "Blanco," and in doing so have gazed upon its surface, but failed to notice their own reflections.

John Fein provides the kind of structural reading Paz leads readers to in *Toward Octavio Paz*, and takes a similar stance as the critics Ruth Needleman and Rachel Phillips. Fein argues, like several other critics, that "Blanco" is much like a riddle or puzzle, which must be meditated upon and solved. However, the poem can only be "understood," not "explained."⁷ Citing the overwhelming congruence present in criticism on "Blanco" at the time, Fein notes that the critics "thereby reflect the intention and structure of the poem," which inherently gives way to multiple meanings. Fein emphasizes his point by noting both the multiplicity of meanings generated by the title of the poem and Paz's peculiar introduction. Fein describes "Blanco" as containing "a tone of symmetrical and mathematical logic that is derived from the poem's typographical arrangement."⁸

Fein calls endless possible divisions of "Blanco" "subpoems" that give way to a possible reading and a possible end of the poem to be created by the reader.⁹ The subpoems can then be subsequently configured and reconfigured because "all readings of the text as subpoems are predicated on the exclusion of certain sections. The reader's full participation is invited not only to the ordering of reality, but also in the creation of the phenomena and the values which compose it."¹⁰ In concurrence with other critics, Fein argues that the poem oscillates between two polarities. The first polarity is representative of the passionate movement between liberation and entrapment, the second a dialogue between a passionate existence and a dull nothingness. This conversation creates a thematic undertow undulating between

the continuing movement outward that we have been observing
through the poet's work, which turns the reader's attention to ideas
that can be reached only through readings outside the poem . . .
[which] necessarily lead the reader to philosophical consideration . . .
[and] . . . the personal reaction to the poem, both the poet's and the
reader's [which] is an inward movement, an emotional reaction that
becomes progressively more difficult to generalize on.¹¹

Fein likens "Blanco" to the experience of a musical piece or the understanding of a painting, which are "inherently projections of reader reactions that are infinitely varied."¹² The stirring of motion and emotion is never resolved and the riddle is never quite solved. Rather, Fein argues that the ultimate paradox created by "Blanco" serves to "supply [the reader] his own interpretation based on his own feelings rather than those of the poet."¹³

Fein concludes that Paz has not provided "Blanco" with an end or final meaning. Instead, "Paz forcefully invites the reader to continue the poet's task."¹⁴ The reader is

tempted by the notion in Paz's preface that "Blanco" is a complete work that can be divided into a plethora of modes. Readers search to discover them all. However, the discovery of possible division and dimensions is but a fraction of what Paz has in mind for the reader: "Only as he reads the text does he learn that by seeing the relationship between the parts, he does not recreate the poem so much as he creates it. He is, accordingly, invited to write the conclusion that is lacking in the text."¹⁵

In contrast to Fein's highly structural reading is Sucre's, whose essay "Octavio Paz: Poetics of Vivacity" is similar to criticism provided by Xirau, Duran, and Nemes. For Sucre, the path to the Presence of the text is destructive. Whereas critics like Fein sought to find the text's meaning by analyzing the poem's destruction, Sucre argues that we must destroy the typographic structure to understand the poem. Readers must work their way through the illusory labyrinth of Paz's poem to the unspeakable edifice of reality. This unmediated Presence of reality is representative of what Sucre calls "vivacity," which he argues "is in the very structure of [Paz's] work."¹⁶ The aesthetic moment that brings about this vivacity, Sucre argues, is the same for Paz as it was for Nietzsche—when the thin veneer of language is punctured, the vibrancies of reality shine through.¹⁷ Through this vivacity readers "convert the relative (the *here and now*) into an absolute," which is "itself a proof" of the Presence of reality.¹⁸

Sucre's criticism relies heavily on the works of the twentieth-century linguist Ludwig Wittgenstein. According to Sucre, because "language is use," it consequently poses a "double threat."¹⁹ Sucre argues that language is inherently frail because it is bound by a spatiotemporal context. Furthermore, because language is bound to context, it is constantly moving in and out of senselessness, so "we must return to language the richness and clarity of its origin."²⁰ For Sucre, this is tantamount to the kind of philosophical treatment Wittgenstein deems necessary for language in his *Philosophical Investigations*. Both want to "show the fly the way out of the bottle" that is language.²¹

However, Sucre begins in the nonsense Wittgenstein hoped to avoid when Sucre notes that because "all language . . . carries within itself its own contradiction," the only way to return language to its original intelligibility is to reconcile the contradictory binaries of language with the original word. Sucre argues that the structure of "Blanco" serves to reconcile the polarities of language. Readers must work through the infinite structural paths "Blanco" offers, until "out of one text there come other texts . . . it becomes an autonomous world independent of the author. In the same way, the reading of the poem approaches the experience of a revelation."²² The revealed Presence of reality is found by the reader's free will. By deciding which path to follow through the poem and creating a plurality of possible texts, the reader creates a paradox between the possible poem the reader creates and the poem created by Paz. For Sucre, "[Blanco] is an imminence: without ceasing to be what it is, it seems ready to be *something* else."²³ This paradox, again, cannot be expressed linguistically; rather, the now transparent edifice of reality "leads to silence."²⁴ It is amid this silent Presence that Sucre argues Paz's ultimate aesthetic technique is actualized: it is "the appearance of the world . . . in its complete original state . . . [which] implies the disappearance of language and of poetry. All that's left is to live poetry: to write the world."²⁵

That critics have been thus far unable to recognize their reflection in the poem is precisely Paz's point: "For us, the universe has ceased to be a mirror."²⁶ As language is treated scientifically, humanity loses touch with the interconnectedness of a form by emphasizing the structural details: "Modern age sees not beings, but organs, functions, processes."²⁷ As Paz writes in "Although It Is Night," our language is "a bloody solipsism that invented the enemy from itself."²⁸ Gradually, humanity has used

language to separate itself from the universe, and in turn from its individual members. We define ourselves by our external constructions of reality. Paz explains that as language becomes more scientific, humanity thinks of itself more and more as a simple animal—soulless matter—loosely tied to its sensations and perceptions:

The bridge between eternity and time, stellar space and human space, heaven and history has broken down. We are alone in the universe . . . modern physics postulates an indeterminate universe, and that universe is expanding, dispersing. Modern society is also dispersing. We human beings are wanderers in a wandering world.²⁹

Neither “Blanco” nor Paz’s poetry can bring readers to the Presence of the universe and it cannot be reached with our thoughts or our hands; our bodies are trapped within themselves as a self-contained totality—a seed. Paz is unconcerned with reuniting readers with the universe because he recognizes that the void of space is unbridgeable. Rather, Paz seeks to guide readers to a point where they can recognize, and then redesign, humanity’s current construction of the soul, and in doing so revitalize humanity’s spirit. Paz envisions a scientifically cognizant concept of a soul found not through science, but through art. We must not destroy our ego before we find it. For Paz, this will be:

A vision at once new and old, a vision in which each human being is a unique, unrepeatable, and precious creature. It is incumbent on the creative imagination of our philosophers, artists, and scientists to rediscover not what is most distant but what is most near and every day: the mystery that each one of us is.³⁰

Paz works incessantly to show readers themselves by forging a poetic mirror that reflects both readers’ solid physical states and their chaotic linguistic souls. Each reader is a paradox, torn in the perpetual wane between birth and death.

To encourage readers to explore their physical constructions, Paz employs two primordial, yet scientifically cognizant, metaphors: the seed and the womb. Prior critics have noted that the first verse of “Blanco” begins with an evocation of a birth ritual. This seems plausible because the first three lines are all states of beginning—*el comienzo* (toward the beginning); *el cimiento* (the foundation); and *la simiente* (the seed):

the beginning
 the foundation
a seed
 latent
 the word at the tip of the tongue
untold unheard
 uneven
pregnant void
 without age
she who was buried with eyes open
innocent promiscuous
 the word
without name without speech
 [my translation]

Paz’s diction after the first three lines quickly takes a far less fertile turn—the seed exists in a peculiar state between passive latency and wild possibility. The beginning of “Blanco” is an “uneven” state that can be read as both the poem’s beginning and end. On one side exists the pregnant womb; on the other is the void. Thus, “the word at the tip of the tongue” could be nameless and unspoken as a fetus or a corpse. However, “the word,” is actually in the simultaneous state of both: if it is “without age,” it

is ageless. When Paz evokes an image such as a seed, the image is conjured in the permeating light of totality—the seed is not a single state. As Paz writes in *Alternating Current*, it is “the seed within which everything that will later be the plant—roots, stem, leaves, fruit, and its final decay—has been quickened with a life that will unfold only in the future yet is also already present.”³¹

Paz demonstrates the paradox of the seed metaphorically in his poem “The Religious Fig.” The poem begins before the seed has had any chance to grow, before it is even planted in the ground—the “wind” carries the “entrails” of the “great tree”:³²

The wind,
the thieves of fruit
(monkeys, birds, bats)
Between the branches of the great tree,
scatter the seeds.³³

[my translation]

Eventually some of these seeds find refuge in fertile soil and “the plant is grounded in the void.”³⁴ It then “spins in its vertigo” and grows in opposing directions: knotted roots and tangled leaves.³⁵ And after persisting for a thousand years, the tree “knotted in itself . . . rises up and strangles itself.”³⁶ Even after the death of the seed as a tree, it “takes a hundred years to rot.”³⁷ The tree metaphor in Paz is often likened to several other acts of creation: the tree is a goddess, the body of names, and even, as in “The Tree Within,” symbolic of the poem itself. For Paz, the act of writing a poem is a natural process filled with echoes, reflections, and growth. “The Tree Within” grows within the mind: “A tree grew inside my head . . . its roots are veins / its branches nerves, thought is tangled foliage.”³⁸ The tree metaphor operates paradoxically: it is not only readers’ lives and deaths, but also in and outside of them. Not only are readers’ bodies decaying, the world around them, too, is evaporating moment by moment.

As if growing out of his seed metaphor, Paz often employs plants to embody strength and stoicism in the face of impermanence in his poems “A Tale of Two Gardens” and “Quartet.” This vegetative persistence is explored in “A Tale of Two Gardens”—the garden silently “await[s] its destruction,” which in turn shows readers the “silent construction of [their] ruin.”³⁹ These trees show the poem’s narrator (likely Paz himself) that he must engage in an inner dialogue to “wave himself goodbye.”⁴⁰ The tree/seed imagery of “Quartet” focuses on an encroaching darkness that symbolizes death: “To wait for night I have stretched out in the shade of a tree.”⁴¹ This tree—here representative of language—bears fruit that “taste[s] of time,” but the taste “has a beginning and end—and is measureless.”⁴² Death is at all times imminent in the shade of language, and when “night comes in” it “covers us with its tide; the sea repeats its syllables.”⁴³ The metaphor both drowns readers and promises them continuity. Our bodies must return to the universe to give way to new life; in the same way, we must write so that we may give way to new thoughts.

Paz also uses concepts of femininity in a similar fashion to confront the life-death cycle in “A Tale of Two Gardens.” The poem’s female presence is binary: the Mother, who constructs readers’ bodies and in turn destroys them; and the Girl, for whom readers are willing to destroy themselves, thus making readers aware of their own impending mortality.⁴⁴ Both symbolize a cut of separation—a cessation from which we are born, a rupture that we mend. For Paz, the maternal cessation is the reason for language, which exists because we appear separate from the universe, and so we search for our origins through language and poetry. Language is the medium between life and death, through which readers seek Otherness.

The Oedipal mystique of Paz’s feminine binary metaphor is meditated upon in “Before the Beginning. . . .” The poem starts as “*otro dio comienza*” (another day

begins), and continues with a disorientation that accompanies readers' isolation: "*ruidos confusos, claridad incierta*" (noisy confusions, uncertain reality).⁴⁵ There are "two bodies stretched out," and as the poetic voice is lost, along with readers, among its own thoughts, the voice becomes aware of its mortality: "The hours sharpen their blades."⁴⁶

Noisy confusions, uncertain reality.
Another day commences.
A room one-quarter shadow,
and two bodies stretched out.
In my forehead I am lost
through a plain with no one.
The hours sharpen their blades.
But at my side you are breathing;
Lovely and remote
you flow with no movement.⁴⁷

[my translation]

The poetic voice, now aware of its constant cessation, hears the breath of the buried Presence of reality, which Paz refers to in "Blanco" as "she who was buried with open eyes."⁴⁸ The feminine Presence is inaccessible, save through confused, synesthetic thoughts—the voice "touches" her with his "eyes" and "watches" her with his "hands."⁴⁹ Readers are not entirely anathema to her, as "blood unites us." The river of life flows through readers; our blood is our mothers'. Despite the connection, readers can only be certain of experiencing the feminine Presence: "All that is certain is the heat of [her] skin."⁵⁰ In the breath of the feminine presence, Paz and his readers hear "the tide of being, the forgotten syllable of the Beginning."⁵¹

The syllable of the Beginning is the same "word at the tip of the tongue" in "Blanco," and represents the same feminine Presence: unmediated, bare, *desnuda* reality. In "A Tale of Two Gardens" she is "the other face of being / the feminine void / the fixed featureless splendor."⁵² However, the feminine Presence is eternally bifurcated: "*la Madre*" and "*una muchacha*." The maternal Presence is tantamount to the seed metaphor, naturally conjuring images of creation and destruction: we "[watch] the restless construction of [our] ruin" and are brought back to "the beginning of the Beginning."⁵³ In the tree and seed metaphor, Paz reminds us "that death is expansion, self negation growth."⁵⁴ *La Madre* reminds readers that they are, first and foremost, a natural construct. "We are constellations," the stars and atoms that compose us are always drifting apart.⁵⁵ Adjoined is *una muchacha*, who is "a follower of acrobats, astronomers, camel drivers," and other metaphors that contain a sense of eternal inertia.⁵⁶ *Una muchacha* is "an intrepid sailboat" that keeps readers afloat on the "unraveled rivers" in which "death and life were jumbled."⁵⁷ *Una muchacha* is the "ear of flame in the garden of bones," and reminds readers that perpetual movement is an unavoidable exertion of time, but it is only "a passage" and "to pass through is to remain."⁵⁸ *Una muchacha*, also called by Paz "the girl of the tale" and "Our Lady of the Other Bank," serves to remind readers they are never alone—"the other bank is here."⁵⁹ She is "the empty plentitude, emptiness as round as [her] hips," and so in the wake of her reappearance to readers a new absence is created: language.⁶⁰ If readers are ultimately inseparable from the universe, then it must be language that produces our imagined separation from it: "The signs are erased: I watch clarity."⁶¹ And in this clarity readers once again hear "the forgotten syllable of the Beginning."⁶²

Paz's seed and goddess metaphors operate symbolically as the reader's own mind/body dichotomy. Physically, readers' bodies are seeds—we grow from them, and produce them in a similar manner to most known organic life. Linguistically, the

physical bodies of language—sounds and print—operate in the same fashion. All words are “air nothing,” a hollow, feminine space.⁶³ Paz writes in “Blanco,” “The heavens are male and female . . . thought phallus and word womb . . . always two syllables in love.”⁶⁴ Language and poetry only exist between oppositions: two opposing forces converge, both confirming and contradicting each other. In the margins of a physically determined world and a spirit that possesses free will, language is born. Paz writes in “Blanco” that the physical world is an invention of language: “The world is an invention of the spirit.”⁶⁵ For Paz, the souls of readers are real; readers’ souls are their languages, readers’ identities. Paz thus represents the readers’ consciousness through *la Madre* and *una muchacha*—uncontrolled creation and desired destruction.

Readers may quickly recognize the physically reflective surfaces of “Blanco” because of its spectacular typography; however, “the image we see refers us to our body; but consciousness has no visible shape or form and therefore cannot refer us to a self.”⁶⁶ Readers’ physical perceptions never quite allow them to experience their souls—it is the one thing we cannot perceive. However, a reader may be coerced into doing so, as Paz writes in *The Double Flame*:

If I look at myself in a mirror, I see my image; but if I think that I am thinking, or realize what I am doing, I do not see, nor will I ever see, my thoughts. The electrical discharges between the various parts that comprise the mind become invisible, inaudible thoughts that have no location.⁶⁷

The critical response until this point has largely come to a complete stop at this inaudible experience, the silent gaze into nothingness. Yet a significant oversight can be found in Paz’s second-to-last work, which suggests that critics have been asking the wrong questions about Paz’s work—their “is a meaningless question, therefore, the only answer to which is silence . . . which is no answer at all.”⁶⁸

If we begin at something like *Sucre* and other critics’ conceptions of Presence, it can be shown quickly how it does not converge with Paz’s use. For them Presence is the end, a sudden halt; for Paz it is only a passing moment in language—the space between words. The reader moves from “silence to transparency, [to] waves,” which then “whitecap” and return to the placid “water” they began as. This water is left incomplete by a colon, at which point it is reflected on two surfaces.

to the water:

the rivers of your body
land of heartbeats

the river of bodies
*stars infusoria reptiles*⁶⁹

The bolded section represents, physically, the rivers of readers’ bodies, the “land of pulse beats” that comprises our veins and neurons. These physical rivers contain “water without thoughts.”⁷⁰ Our bodies are constructed of lifeless corpuscles and when our bodies enter the “land of sleepless mirrors / land of waking water / in the sleeping night” (the mind/soul), they become self-aware. Readers become unknowing voyeurs of their own reflections if they misinterpret the *I* that gazes at itself. The “I” in “Blanco” is the same as it is in “Although It Is Night”: “I am your I.”⁷¹ As readers fixate on the poem, they begin to align themselves with the “I” of the narration, but in doing so readers examine themselves as if through an “eye more crystal clear.”⁷² Readers’ gazes peer back through the poem, as “what I watch watches me.”⁷³ “Blanco” acts simultaneously as the readers’ selves and shadows. The italicized surface reverses the direction of this gaze: readers also create their environment by “conceiving” it through perception.

However, “the water of thoughts”—language—crashes on both shores: the reader is also the creation of “what I see.”⁷⁴ Present in “Blanco” is a subtle consciousness whose waters permeate the universe. A “surge of genealogies” and a “river of suns” give rise to “tall beasts with shining skins”—human life.⁷⁵ This “seminal river” gives life but cannot experience itself. It can only be gazed upon—“the eye that watches it is another river.”⁷⁶ This brings readers face to face with their cosmic position in the torrential throws of language—**created creators**. The “conception” of “perception” is bilateral: it gives birth to thought and breath to matter. As if in a mirror, readers’ gazes create and are created by “Blanco”: “When we perceive reality, we immediately impose a form on our perception; we construct it. Every perception is an act of creation.”⁷⁷

The two surfaces of language begin to press against one another but only converge in the single-columned verses. While the split sections of “Blanco” speak as separate parts of readers’ experiences, the bold and italicized function as one voice with two minds. Like a shadow or reflection, the reader and poet speak through one voice: I. Thus, Paz coerces readers into exploring themselves as they watch Paz explore himself through “Blanco.” Paz’s “pulse” thirsts, like a drought, for language, and his body is made of “sandcastles, playing cards, and the hieroglyph (water and ember), dropped on the breast of Mexico.”⁷⁸ Paz’s body is made from the “dust of silt” and will be destroyed by the “anonymous conjuration of bones.”⁷⁹ Paz and his readers’ sole atonement for death “is language,” an “appeasement” from the speechless edifice of reality.⁸⁰

“Our time,” Paz writes in *The Double Flame*, is “simplistic, superficial, merciless. Having fallen into the idolatry of ideological systems, our century has ended by worshipping Things. What place does love have in such a world?”⁸¹ The modern world has objectified even itself. Though written nearly 20 years ago, Paz’s question has only become more troublesome, as can be seen in the objectifying images we are bombarded with every day. Humanity is at the apex of its dehumanization: we have used our science to convince ourselves we are nothing but animals. Language—our very soul—has cast a veil over itself, ashamed of what it has become and terrified of what it is becoming. In this confusion we use language to tell us we have no soul. But, as Paz elucidates for us, this is not a logical conclusion. While the traditional Platonic soul is slowly dying, it will be born again in its demise, not in fear of science but in light of it:

When I speak of the human person, I am not evoking an abstraction but referring to a concrete reality . . . the soul, or whatever one chooses to call the human psyche, is not only reason and intellect, it is also a *sensibility*. The soul is bodily: sensation, which becomes emotion, sentiment, passion.⁸²

Language is sensation, a gaze into Otherness. “When we were born, we were torn from wholeness,” Paz continues, but this separation gives way to a new hope, “the recovery of wholeness and the discovery of the self as wholeness within the Great Whole.”⁸³ The beloved embrace of self-actualization is “neither great nor small; it is the perception of all times, of all lives, in a single instant.”⁸⁴ To be human is to be divided: body and soul, masculine and feminine, object and subject. Paz concludes *The Double Flame* with this:

We are the theater of the embrace of opposites and of their dissolution, resolved in a single note that is not affirmation or negation but acceptance. What does the couple see in the space of an instant, a blink of the eye? The equation of appearance and disappearance, the truth of the body and the nonbody, the vision of the presence that dissolves into splendor: pure vitality, a heartbeat of time.⁸⁵

For Paz language, poetry, and “Blanco” are proof enough of an external, objective world. It is not the universe’s Presence and pulse that Paz creates his poetry for readers to experience, but rather their own. The reader does not need to experience the fleeting reality of the objective universe. On the contrary, readers must find the reality they have been unable to see: the Self.

Western discourse, in its pursuit of the objective world, has destroyed humanity’s soul and passion by redefining humans as mere animals. In a world claiming that identity is merely a byproduct of society that is constructed for an individual, Octavio Paz stands as a lighthouse to guide readers home from the torrents of science. Our greatest institutions no longer see humans as individuals, but as societal constructions. However, so long as there is poetry, and the humanities to insist upon it, we may again find ourselves in the mirror of language. And if the mirror is too warped, fractured, and cracked, we must reassemble the pieces, forge them back together with the heat of passion, and once again gaze into our lost reflections.

Notes

1. Octavio Paz, *In Search of the Present: 1990 Nobel Lecture*, trans. Anthony Stanton (San Diego: Harcourt Brace Jovanovich, 1990), 10.
2. Octavio Paz, *The Collected Poems of Octavio Paz, 1952–1987*, ed. Eliot Weinberger (New York: New Directions Publishing, 1990), 325.
3. *Ibid.*, 311.
4. *Ibid.*
5. *Ibid.*
6. *Ibid.*
7. John Fein, *Toward Octavio Paz: A Reading of His Major Poems, 1952–1982* (Lexington: University Press of Kentucky, 1986), 64.
8. *Ibid.*, 67.
9. *Ibid.*, 66.
10. *Ibid.*, 68.
11. *Ibid.*, 82.
12. *Ibid.*, 83.
13. *Ibid.*, 94.
14. *Ibid.*
15. *Ibid.*
16. Guillermo Sucre, “Octavio Paz: Poetics of Vivacity,” in *The Perpetual Present: The Poetry and Prose of Octavio Paz*, ed. Ivar Ivask (Norman, OK: University of Oklahoma Press, 1973), 9.
17. *Ibid.*, 7.
18. *Ibid.*, 13.
19. *Ibid.*
20. *Ibid.*, 14.
21. Ludwig Wittgenstein, *Philosophical Investigations*, trans. G. E. M. Anscombe, P. M. S. Hacker, and Joachim Shulte, 4th ed. (West Sussex: Blackwell Publishing, 2009), 110e.
22. Sucre, “Poetics of Vivacity,” 17.
23. *Ibid.*
24. *Ibid.*, 20.
25. *Ibid.*
26. Octavio Paz, *The Double Flame: Love and Eroticism*, trans. Helen Lane (Orlando: Harcourt Brace, 1995), 207.
27. *Ibid.*
28. *Ibid.*, 525.
29. *Ibid.*, 207.
30. *Ibid.*, 212.
31. Octavio Paz, *Alternating Current*, trans. Helen Lane (New York: Arcade Publishing, 1990), 23.

32. Paz, *The Collected Poems*, 172.
33. Ibid.
34. Ibid., 174.
35. Ibid., 175.
36. Ibid., 174.
37. Ibid., 173.
38. Ibid., 595.
39. Ibid., 293–95.
40. Ibid., 295.
41. Ibid., 495.
42. Ibid., 497.
43. Ibid.
44. Ibid., 305.
45. Ibid., 598.
46. Ibid., 599.
47. Ibid., 598.
48. Ibid., 313.
49. Ibid., 599.
50. Ibid.
51. Ibid.
52. Ibid., 295.
53. Ibid., 295–97.
54. Ibid., 299.
55. Ibid.
56. Ibid.
57. Ibid.
58. Ibid., 299–301.
59. Ibid., 305.
60. Ibid.
61. Ibid., 307.
62. Ibid., 295.
63. Ibid., 329.
64. Ibid., 325.
65. Ibid., 329.
66. Paz, *The Double Flame*, 230.
67. Ibid.
68. Ibid., 217.
69. Paz, *The Collected Poems*, 318.
70. Ibid., 319.
71. Ibid., 525.
72. Ibid., 319.
73. Ibid.
74. Ibid.
75. Ibid.
76. Ibid.
77. Paz, *The Double Flame*, 237.
78. Paz, *The Collected Poems*, 317.
79. Ibid.
80. Ibid.
81. Ibid., 186.
82. Ibid., 211.
83. Ibid., 274.
84. Ibid.
85. Ibid.

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Maintaining Power

Authoritarian and Authorial Power in Herman Melville's *Moby-Dick*

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Abstract

Herman Melville's writing reflects his numerous experiences with despotic figures and his uncertainty regarding appropriate responses to them. Encountering oppression in his professional and personal life, Melville grappled with effective ways to challenge authority himself and to equip his readers to challenge it. In *Moby-Dick; or, The Whale* (1851), Melville illustrates despotism's dangers through Captain Ahab. Melville first shows readers how despots gain and retain power; he then illustrates potential responses to this power through crew members' various actions. Ultimately, the crew's failure to effectively oppose Ahab and his monomaniacal quest results in the crew's annihilation. Simultaneously, Melville exposes his authorial control over readers, thereby mirroring Ahab's control over the crew. As readers critique the crew for endorsing Ahab's tyranny, Melville's text highlights readers' own propensity to submit to authority, thereby teaching them to resist would-be oppressors and to question authoritative figures. Further illustrating power's complexity, Melville shows that authoritarian figures cannot fully obtain power without the compliance of those under them. Just as Ahab needs the crew to create his authority and to hunt Moby Dick, Melville needs readers to enable his authority as an author. Ultimately, Melville demonstrates, everyone is culpable in the creation of tyrannical authority and its devastating consequences.

Herman Melville's *Moby-Dick; or, The Whale* has baffled readers and critics alike for more than a century. Though a whaling story at its surface, *Moby-Dick* alternates between an adventure story and an encyclopedia. The detours include chapters composed in dramatic format and informational chapters on whales and whaling, including a chapter on cetology, the classification of whales. Ever since the book's publication, readers have questioned the purpose and legitimacy of such digressions. Nick Selby details this confusion, writing, "Its stylistic and formal incoherence was read as a morally dangerous incoherence, certainly blasphemous, and most probably insane."¹ Yet readers return to the novel: some only once, others over and over again

throughout their lives. Each encounter leaves them wondering what captivates them about *Moby-Dick*, a massive and tangled tome more than 100 years old. The novel possesses a certain fascination, for Melville is a master at playing with readers. He pulls them into the novel through tantalizing promises, many of which remain unfulfilled and leave readers wondering why they continue to pursue the story. But pursue it again and again they do.

One of Melville's most striking characters, Captain Ahab, reflects Melville's rhetorical skills. Ahab is consumed by one goal: to find and kill Moby Dick, the whale that destroyed his leg. Throughout the novel, Ahab's ability to manipulate his crew members is evidenced as he convinces them to chase Moby Dick across the oceans. Over the years critics have studied Ahab from drastically different points of view. Initial reception of *Moby-Dick* was highly critical and the novel failed to gain the popularity of Melville's earlier works. However, during the Melville Revival in the 1920s, scholars reconsidered the complexities of Melville's life and works. This renewed interest in Melville's life led some critics to compare his "dubious 'character' as husband and father"² to the character of Ahab. Other critics took the comparison even further, concluding that Melville "was insane (or Ahab) while writing the book."³ While scholars during this period were split on whether Ahab was the hero or the villain, after the rise of fascism he assumed new meaning as a master manipulator, and critics increasingly examined his authoritarian control over the crew. In these studies scholars have suggested parallels between Ahab and a variety of figures, including *Moby-Dick*'s narrator Ishmael, and King Ahab from the Old Testament. Though the scholarship on Ahab is extensive, a closer look at the tactical similarities between the character and his author is, I believe, crucial to understanding both Ahab's role in the novel and Melville's narrative strategies.

Although textual analysis is at the heart of literary studies, especially when examining narrative strategies, other fields of study can contribute valuable observations. The field of sociology, for example, suggests that the way Ahab gains and retains control over the crew mimics techniques used by despotic figures, such as cult leaders. Ahab knows how to manipulate his crew, and he uses strategies other dangerous leaders have used. A similar examination of the novel through literary techniques reveals that Melville also uses particular techniques to gain control of readers. Though one is a literary figure and the other an author, and although one manipulates crew members in danger of their lives and the other manipulates readers who voluntarily engage in the imaginative process, both show readers how susceptible humans are to manipulation and how powerful and dangerous that susceptibility can be.

An examination and comparison of the manipulative strategies that Ahab and Melville use, I argue, reveals that Melville does more than simply show readers his ability to manipulate them. He also reveals their susceptibility to manipulation and teaches them to resist authority figures. Significantly, Ahab and Melville both exercise authority, but their goals are diametrically opposed: Ahab works for his own gain, while Melville works for the greater good. Ultimately, Melville uses *Moby-Dick* to demonstrate the complicated power relationship between leader and led, thereby showing readers that they have the ability and the responsibility to resist despots.

Over the years critics have amassed information revealing how Melville was no stranger to struggles with authority. Carolyn L. Karcher is one such critic and has charted Melville's biography extensively. Thrust into society's capriciousness after his bankrupt father's death, Melville was forced to face the reality of ruined social status.⁴ He attempted many odd jobs and eventually set sail, encountering conditions so brutal he abandoned ship and took refuge with the Typee, a Polynesian tribe.⁵ During this

time Melville sought appropriate responses to tyranny and began to question social mores. Karcher paints Melville as “a refractory conformist and a reluctant rebel,” for he neither condoned outright rebellion nor seemed content obeying unjust laws.⁶ Melville was also torn personally after his marriage to Elizabeth Shaw gained him Judge Lemuel Shaw as a father-in-law.⁷ Not only were Shaw’s beliefs regarding slavery contradictory to Melville’s, Shaw was a judge in two key pro-slavery cases. His ruling in *Sarah C. Roberts v. the City of Boston* in 1849 became a foundation for the ensuing “separate but equal” doctrine. Similarly, in the 1851 case of Thomas Sims, a fugitive slave, “Shaw became the first northern judge to order a fugitive returned to his master in conformance with the recently passed Fugitive Slave Law.”⁸ Because Shaw was pro-slavery and his rulings as a judge reflected this, Melville’s attempts to speak out against slavery were hesitant at best.⁹ Some critics regard Melville as less reluctant and more rebellious. Denis Donoghue, for example, argues Melville rejected the ballast of culture altogether, being “against all the conditions of life.”¹⁰ Whatever the degree, Melville’s discontentment with authority was strong enough to permeate his works, establishing a clear thematic pattern.

As a writer Melville was not content to bury his questions. Instead, he used his books to confront issues of authority he had encountered in different spheres of his life. Karcher notes that after Melville’s publishers cut sections they considered inflammatory from his first book, *Typee*, Melville resorted to more subversive methods of influencing audiences.¹¹ Alternating between symbolism and realism, Melville struggled both to appease his public and to write the truth as he saw it.¹² Finally, having given up hope of eliciting the change he sought, Melville began to write from the viewpoint of his audience, first establishing reader identification with the characters then revealing their villainy: “Mouthing their racist clichés, mimicking their social snobbery, echoing their pious platitudes, and exposing their sublime obliviousness to the suffering on which they fattened, Melville mercilessly anatomized the readers he had given up hope of converting.”¹³ Though written before these final creative years, Melville’s magnum opus, *Moby-Dick*, foreshadows his evolving tactics to reveal social wrongs and effect change through writing.

In *Moby-Dick* Melville personified his struggles with authority. By creating a despotic captain for the *Pequod*’s crew, Melville revealed the power of tyranny. Karcher recognizes this issue, arguing that in his works he “concentrate[s] on the moral issue of whether men in such circumstances may justifiably resort to violence to overthrow their oppressors.”¹⁴ She then connects this struggle to the issues of slavery facing America: “In *Moby-Dick*, Melville envisages several possible dénouements to the American crisis over slavery, along with various answers to the question of whether individuals (and nations) help to weave their own destiny into the warp of necessity or are entirely caught in the threads of Fate’s loom.”¹⁵ As Karcher continues to argue throughout her analysis of *Moby-Dick*, the *Pequod*’s crew must decide whether to rebel or obey. Their ultimate course of obedience, she concludes, results in the death of all but Ishmael. While Karcher focuses on the warning contained in the novel’s final pages, Melville warns readers throughout *Moby-Dick* by illustrating, through Ahab, the dangerous nature of power and the consequences of failing to question such power.

Though many critics have identified Ahab’s forceful character and the power he has over the *Pequod*’s crew, their arguments have led to different conclusions.¹⁶ That these critics see in Ahab a polemic force is not surprising, given the charisma with which he clearly manipulates the crew. However, their analyses overlook the parallels between Ahab’s and Melville’s manipulative techniques, which are equally intriguing and ultimately can help shed light on readers’ fascination with the work. Through Ahab,

Melville reveals specific psychological strategies for both gaining and maintaining authority over the *Pequod's* crew.

"The Ruthlessness of State Formation," by Antonio Giustozzi, illustrates some of these techniques. Giustozzi explores the role of violence in the early stages of state formation, looking at examples from various time periods and geographic areas. He sets up a model of oppressive state formation, which Ahab mirrors in some aspects as he uses psychological means to rally the crew around his cause. According to Giustozzi, while ideology alone is not sufficient to form an oppressive state, groups formed around ideology best enable "legitimization, the development of loyalty and cohesion among 'the agents of coercion.'"¹⁷ Ahab initially sets up this identification by asking his crew questions with obvious answers: "What do ye do when ye see a whale, men?"¹⁸ When they reply, "Sing out for him!" he asks, "what do ye next, men?"¹⁹ As crew members continue to answer Ahab they are astounded to find they become more excited without understanding why. Later Ishmael reveals that the crew members, himself included, have gravitated toward Ahab because of their ideological identification with his cause: "A wild, mystical, sympathetic feeling was in me; Ahab's quenchless feud seemed mine."²⁰ In "Charismatic Leadership, Manipulation and the Complexity of Organizational Life," a study of organizational charismatic leaders, Iris Aaltio-Marjosola and Tuomo Takala argue that this identification between leader and followers plays a significant role in the psychological creation of leadership: "The leader is important because they can 'charismatically' evoke this sense of belief and can thereby demand obedience."²¹ The crew's identification with Ahab is in part what has prompted critics to align him with oppressive leaders, such as Christopher S. Durer's comparison of Ahab to Adolf Hitler.

After this initial identification with crew members, Ahab further gains control over them through their superstitions, using his leadership powers for his own ends. Aaltio-Marjosola and Takala align this kind of behavior with organizational leaders who use propaganda to influence their followers, *propaganda* being defined as "the deliberate and systematic attempt to shape perceptions, manipulate cognitions and direct behavior to achieve a response that furthers the desired intent of the propagandist."²² As dangers arise, Ahab strengthens his image as a god-like leader before the crew. During a violent storm, one of the shipmates, Starbuck, declares that "God is against" Ahab.²³ When the crew members hear this, they "[fall] back in dismay."²⁴ This fear of Ahab only intensifies as the journey continues. After the storm, the members of the crew are again afraid when the ship's compass stops working. Taking advantage of their fear and superstitions, Ahab explains the phenomenon: "Ere the first wild alarm could get out abroad among the crew, the old man with a rigid laugh exclaimed, 'I have it! It has happened before. Mr. Starbuck, last night's thunder turned our compasses—that's all.'"²⁵ He then proceeds to make a new compass, providing a solution to the crew members' problem. Their responses evince renewed trust in Ahab: "Abashed glances of servile wonder were exchanged by the sailors, as this was said; and with fascinated eyes they awaited whatever magic might follow."²⁶ As Ishmael watches Ahab's exaggerated motions he wonders if Ahab is making a show of fixing the compass.²⁷ This also follows the pattern of psychological authority in leaders that Aaltio-Marjosola and Takala set up: "Charismatic leaders make efforts to manage their followers' impressions of themselves by framing, scripting, staging and performing, which constitute the basic phases in this dramaturgical process."²⁸ Later, the crew hears wailing and again becomes fearful. When Ahab ascends to deck and hears the account, he laughs at the fears and explains the phenomenon: the wails are merely lost seal cubs.²⁹ Through these scenes, Ahab's propagandistic intent becomes clear. Though disdainful of the crew's superstitions, he is ready to use them to gain more control.

Ahab uses other psychological means to gain power in the crew members' minds. Ishmael recounts, "Ahab's purpose now fixedly gleamed down upon the constant midnight of the gloomy crew. It domineered about them so, that all their bodings, doubts, misgivings, fears, were fain to hide beneath their souls, and not sprout forth a single spear or leaf."³⁰ Under Ahab's gaze the crew members "dumbly moved about the deck, ever conscious that the old man's despot eye was on them."³¹ As the *Pequod* nears the waters in which Ahab hopes to find Moby Dick, his mania becomes increasingly evident. Ahab's determination to hunt Moby Dick at any cost causes the crew to fear him. As Ishmael explains, "Now it was that there lurked a something in the old man's eyes, which it was hardly sufferable for feeble souls to see."³² Part of the despot's power resides in his desiring a goal so strongly that the desire consumes all else. "Rigidity characterizes not only Ahab's acts, attitudes, and purpose," Joyce Sparer Adler observes, "but also his mode of thinking." For this reason, he perceives "in the whale only a reflection of his thwarted ambitions and his deprivations."³³ As the "rigidity" and hatred that Adler notes in Ahab continue to grow, crew members find it increasingly difficult to oppose him.

Ahab continues to gain control over the crew and eventually begins to threaten crew members physically. This follows a pattern of manipulative leadership that Robert S. Baron, Kevin Crawley, and Diana Paulina identify in their study of cult leaders, "Aberrations of Power: Leadership in Totalist Groups." Cult leaders, they observe, "increasingly have to maintain control of the group by relying on coercive or reward power as they will forgo their status as in-group prototypes."³⁴ While Ahab initially maintains control over Starbuck simply because the crew will not oppose Ahab, he eventually threatens Starbuck physically. During the storm Starbuck tells Ahab that the whale oil, the entire purpose of the journey, is leaking and they should protect it. But Ahab is unconcerned about the oil, and decides not to stop at a port to fix the leak.³⁵ Starbuck continues to protest Ahab's decision, citing the owners of the ship and the displeasure they would feel were they to know how Ahab was handling their property. Ahab at first is secure in his authority, but soon he must take extreme measures to retain this authority. When Starbuck continues to protest, "Ahab seized a loaded musket from the rack (forming part of most South-Sea-men's cabin furniture), and pointing it towards Starbuck, exclaimed: 'There is one God that is Lord over the earth, and one Captain that is lord over the *Pequod*.—On deck!'"³⁶ Starbuck finally acquiesces, saying, "let Ahab beware of Ahab; beware of thyself, old man."³⁷ Though Ahab is ultimately able to regain his authority over Starbuck, it comes at a cost. For though Ahab gains control over Starbuck, he ultimately threatens himself by exercising his authority abusively.

Just as important as Ahab's ability to gain power over the crew is his ability to maintain that power over them, and he accomplishes both through his knowledge of human psychology. While Ahab is initially able to get the crew worked up over hunting Moby Dick, he realizes their fervor will not last long. For this reason he decides to continue hunting other whales in the interim. In a long passage explaining the reasoning behind Ahab's decision, Melville shows that Ahab controls the crew members through his understanding of them: "For the present, the hunt should in some way be stripped of that strange imaginative impiousness which naturally invested it."³⁸ Ahab knows that though the crew members became fervent for a moment, their fervor is not enough to sustain their obedience long term. The idea of hunting Moby Dick must remain in the background, where it will retain a sense of danger and excitement. For, remarks Ishmael, "when retained for any object remote and blank in pursuit, however promissory of life and passion in the end, it is above all things requisite that temporary interests and employments should intervene and hold them healthily

suspended for the final dash.”³⁹ Ahab is calculating in his decision to continue hunting whales, for he knows the only way he can kill Moby Dick is with the crew’s help and he must therefore use his human weapons cunningly.

Ahab also continues hunting whales to fully vanquish Starbuck. When Ahab first inflames the crew, Starbuck speaks out against him. However, Ahab silences Starbuck then glories, “Starbuck now is mine; cannot oppose me now, without rebellion.”⁴⁰ However, as Dan Vogel observes, Starbuck is not truly conquered, which Ahab realizes when Starbuck opposes him during the storm.⁴¹ In response, Ahab threatens Starbuck physically then vanquishes him mentally:

Starbuck’s body and Starbuck’s coerced will were Ahab’s . . . it might be that a long interval would elapse ere the White Whale was seen. During that long interval Starbuck would ever be apt to fall into open relapses of rebellion against his captain’s leadership, unless some ordinary, prudential, circumstantial influences were brought to bear upon him.⁴²

Indeed, Ahab does eventually triumph over Starbuck and this ultimate victory shows his power over individual crew members.

Another tool Ahab uses to control the crew is the gold doubloon he nails to the *Pequod*’s masthead to remind the crew of his quest. When he hammers it to the ship he again uses exaggerated actions, thereby investing it with greater significance. Ishmael relates how Ahab “advanced towards the main-mast with the hammer uplifted in one hand, exhibiting the gold with the other.”⁴³ When Ahab announces that whoever sees Moby Dick first will receive the doubloon as a reward, the crew responds, “‘Huzza! Huzza!’ . . . as with swinging tarpaulins they hailed the act of nailing the gold to the mast.”⁴⁴ As the voyage progresses, each crew member invests the doubloon with his own meaning, giving it a new kind of power.⁴⁵ Whatever is most important to them remains before their eyes in the shape of the doubloon and drives them on to the hunt. Ultimately, Ahab claims the doubloon for himself, simultaneously claiming the power the crew has bestowed upon it. He exclaims, “the doubloon is mine, Fate reserved the doubloon for me. *I* only; none of ye could have raised the White Whale first.”⁴⁶ In this way, Ahab successfully magnifies Moby Dick and himself in the crew members’ minds.

In the same way that Ahab’s control over the crew follows specific psychological patterns, Melville uses specific literary techniques that cause readers to acknowledge his role as author. Ahab’s control over crew members and Melville’s control over readers mirror each other in that both attain control through understanding the human mind. As readers come to see the correlation, they can begin to understand that they too must comprehend their own psychology in order to resist manipulation. Melville establishes initial identification between readers and Ishmael to draw readers into the novel. He then incorporates foreshadowing to further draw readers in, mimicking Ahab’s use of crew members’ superstitions to intensify his power in crew members’ minds. Melville maintains reader interest by strategically inserting important plot points throughout the narrative, just as Ahab maintains the crew’s interest by continuing to hunt whales.

Melville uses his chapter “The Doubloon” to set up his text as a parallel to Ahab and the crew. As crew members approach the masthead to which the doubloon is nailed, each interprets the gold coin differently. Stubb, watching each interchange, observes, “There’s another rendering now; but still one text.”⁴⁷ Just as Ahab draws the crew into his battle using the doubloon, so Melville creates a figurative doubloon to keep readers coming back to the novel to interpret it and puzzle over it. However, the interaction between Melville and readers is more complex than that between Ahab and

crew members. Melville does not domineer over readers but instead reveals his role as author, ultimately encouraging resistance to tyranny.

Paralleling Ahab's use of rhetoric to draw the crew into his hunt, Melville draws readers into the narrative using suspense. Yet Melville goes a step further by making readers aware of his maneuvers. In his classic analysis of narrative techniques, *Story and Discourse*, Seymour Chatman links foreshadowing and suspense, writing, "Though suspense always entails a lesser or greater degree of foreshadowing, the reverse need not occur."⁴⁸ His measurement of whether foreshadowing is suspenseful or not is, "If no threat looms for the hero, the anticipatory satellite may result in a more 'normal' event, an event of 'due course.'"⁴⁹ Studying Melville's foreshadowing, readers see that it does present a "threat" for Ishmael and the entire crew. This foreshadowing leads to suspense, which serves to pull readers in.⁵⁰ However, after using recurring images, themes, and characters to ground the beginning of the novel in the expectation of peril, Melville fails to fulfill that expectation later on. As a result, readers perceive the foreshadowing more readily than they otherwise would.

Melville sets up readers' expectations almost immediately in Ishmael, simultaneously setting up identification between Ishmael and the readers, just as Ahab establishes identification between himself and the crew. As Ishmael expounds upon his reasons for going to sea, Melville incorporates extensive foreshadowing. "Doubtless," Ishmael explains, "my going on this whaling voyage, formed part of the grand programme of Providence that was drawn up a long time ago."⁵¹ He then expands on Fate's role in his going to sea:

Yet, now that I recall all the circumstances, I think I can see a little into the springs and motives which being cunningly presented to me under various disguises, induced me to set about performing the part I did, besides cajoling me into the delusion that it was a choice resulting from my own unbiased freewill and discriminating judgment.⁵²

Indeed, as Fate strings Ishmael along, so Melville strings readers along by using Fate to indicate impending narrative events. He ends the chapter by giving readers another moment of foreshadowing, this one grounded in a powerful image: "There floated into my inmost soul, endless processions of the whale, and, midmost of them all, one grand hooded phantom, like a snow hill in the air."⁵³ While Fate leads readers to expect significant developments on the *Pequod*, the image of a white whale creates the expectation that Moby Dick will cause those developments. In addition to specific images, Melville constantly places hints of death and destruction before readers. While the images themselves are not necessarily indicative, their continuous presence is. Melville envelops the *Pequod* in such images. The name itself carries with it a history of destruction.⁵⁴ Melville's first description of the ship renders it a "cannibal of a craft" because parts of it are made with whale bones.⁵⁵ As the *Pequod* leaves for the voyage, it "blindly plunge[s] like fate into the lone Atlantic."⁵⁶ Because of these references, readers fear the same fate that overtook the Pequod tribe and the whales will also overtake those on the ship. Through these literary techniques, Melville, like Ahab, uses readers' expectations of foreshadowing to draw them into his story.

Melville also creates suspense through the development of Ishmael and Queequeg's friendship. When Ishmael begins his quest to find a whaling ship, he journeys from Manhattan to New Bedford.⁵⁷ He finally finds an inn to stay at and agrees to share a bed with a harpooner. As he waits for the harpooner to return, the landlord plays with Ishmael, telling him, "To-night he went out a peddling, you see, and I don't see what on airt keeps him so late, unless, may be, he can't sell his head."⁵⁸ Ishmael does not understand why the harpooner would try to sell his head, and as Ishmael puzzles over this mysterious harpooner readers do as well. The bewilderment increases readers'

suspense. Eventually Ishmael realizes the harpooner is selling embalmed heads, and Ishmael then becomes uneasy as he imagines the person with whom he will be sharing a bed. Ishmael's continued uncertainty furthers readers' suspense. After Queequeg, the mysterious harpooner, appears, the next chapters chronicle the budding friendship between the two and powerfully climax in a symbolic marriage.⁵⁹ The relationship's progression implies that it will be significant throughout the story, but that does not prove to be the case. After the *Pequod* has set sail Queequeg all but disappears from the narrative, and readers are left with thwarted expectations.

After Ishmael chooses to sail on the *Pequod*, Melville continues to build suspense, hinting time and again at the fate the voyage will meet. As Ishmael learns more about Ahab, his—and readers'—suspicions grow. One of the *Pequod*'s owners, Captain Peleg, tells Ishmael that Ahab became troubled after he lost his leg to Moby Dick. But, Peleg claims, "that will all pass."⁶⁰ Yet as Ishmael leaves, he is "filled with a certain wild vagueness of painfulness concerning" Ahab.⁶¹ The mystery around Ahab continues to build as he refuses to appear before the *Pequod* sails. Ishmael is also accosted by the madman Elijah, who prophesies the voyage's doom. Ishmael's response to Elijah mirrors readers' responses to Melville's foreshadowing:

It seemed to me that he was dogging us, but with what intent I could not for the life of me imagine. This circumstance, coupled with his ambiguous, half-hinting, half-revealing, shrouded sort of talk, now begat in me all kinds of vague wonderments and half-apprehensions, and all connected with the *Pequod*.⁶²

Like Elijah, Melville creates uncertainty in readers through "half-hinting, half-revealing, shrouded sort of talk." Once again, however, when the *Pequod* finally sets sail the foreshadowing moves toward the background. Thereafter the action diminishes through the remainder of the novel.

That Melville uses foreshadowing to build up reader anticipation is not unique. The significance lies in the fact that Melville does not fulfill all the foreshadowing. Though the *Pequod* does eventually encounter destruction, it is far more anticlimactic than the novel's opening scenes suggest. The crew does not chase Moby Dick until roughly 110 chapters after the *Pequod* has set sail. Even then, the chase lasts three chapters and lacks any climactic moment to satisfy the expectations created by the constant foreshadowing. Melville does create some dramatic moments, such as "The Quarter-Deck," in which Ahab incites the crew to hunt Moby Dick. After these scenes, however, the story lapses into observations on whaling and whales. Critics and readers alike have long been mystified by the long explanatory sections that, on their surface, add nothing to the action at hand. Even more mystifying are the unfulfilled foreshadowings, and critics have posited multiple theories to explain these discrepancies. George R. Stewart, for example, posits that Melville composed *Moby-Dick* in two writing phases, while James Barbour posits three. Critics in Melville's time were also puzzled by the work. As Selby summarizes, "the most important critical appraisals of the book struggled to articulate their sense of its complex ambiguities, tensions and ironies."⁶³

Perhaps there is reason to Melville's madness. Because he sets up the story as a whaling voyage then frustrates readers' expectations regarding the story's arc, readers become aware that Melville manipulates their emotions to involve them in the story. As he thwarts readers' expectations, they search for a cause and ultimately find Melville, thereby becoming increasingly conscious of his role as author. Melville uses these thwarted expectations to demonstrate the contrast between his purpose and Ahab's. Rather than domineering over readers, Melville encourages them to interact with him and to understand his authorial role. As Karcher contends, "The reading habit formed

by plots organized around the exploits of epic heroes primes us to join rather than resist Ahab's hunt. Hence, Melville must thwart this impulse if he is to liberate the reader from Ahab's worldview. That is, Melville must teach alternative ways of reading."⁶⁴ Read in this way, rather than being merely a product of an "insane" author, as some reviewers in Melville's day wondered, the mix of genres serves to empower readers by encouraging them to actively participate in the reading process and to unlearn passive acceptance of authority.

Not only does Melville exhibit his control over readers through foreshadowing, he also retains reader interest, proving as adept at maintaining authorial power as Ahab is at maintaining authoritarian power. While Melville constantly deviates from the central conflict, the digressions are only temporary. The most infamous chapter in *Moby-Dick* is "Cetology," in which Ishmael attempts to categorize whales into three "books" subdivided by "chapters," ultimately expressing the impossibility of truly categorizing such a massive species. Though the chapter's purpose in the novel has baffled many critics, some have argued that it serves to illustrate the futility of all such categorizations. For example, Karcher argues that it teaches the reader "by satirizing learned authorities and the arbitrary systems of classification they have erected, whether biological taxonomies or literary genres."⁶⁵ While some readers easily lose interest in the novel during such lengthy detours, Melville bookends the chapter with scenes crucial to the primary plot. The chapter prior to "Cetology" uses a conversation between shipmates Stubb and Flask to foreshadow Ahab's ultimate demise. Stubb divulges a dream in which Ahab is kicking him with the ivory leg.⁶⁶ A merman approaches and tells Stubb to consider the kicks an honor, for "ye were kicked by old Ahab, and made a wise man of."⁶⁷ Stubb repeats this assertion, saying, "It's made a wise man of me. . . . The best thing you can do, Flask, is to let that old man alone; never speak to him, whatever he says."⁶⁸

Stubb's dream links wisdom to suffering, an essential component of the *Pequod's* destruction. One of Ishmael's most well-known lines encapsulates the association between these two states: "There is a wisdom that is woe; but there is a woe that is madness."⁶⁹ Melville further explores the correlation between wisdom, woe, and madness in the relationship between Ahab and the young cabin boy Pip, who also goes mad. Pip presents redemption for Ahab, but in his anger Ahab rejects the healing Pip can bring, and this desire for revenge ultimately drives him over the dividing line between wisdom and madness. Though Pip's suffering and Ahab's injury offer the same wisdom, the *Pequod's* crew dies because of Ahab's choice. As "Queen Mab" ends, Stubb points readers to this danger and shows the sway Ahab's madness has over him.⁷⁰ From these hints of what is to come, Melville launches into the long chapter cataloguing whales and subsequent chapters relating traditions of hierarchy on whale ships. Yet Melville eventually draws readers into the story again.

Melville places "The Quarter-Deck" a few chapters after "Cetology," thereby refocusing readers' attention on the action. The chapters immediately following "The Quarter-Deck" continue to build an ominous tone. Beginning in "Sunset" Melville works in a dramatic format, giving the viewpoints of Ahab, Starbuck, Stubb, and finally the other sailors through dialogue, stage directions, and soliloquies. This "dramatic form," Karcher argues, "removes the mediating presence of a narrator and confronts the reader directly with the actors. Clearly Melville chose to switch genres for that very reason, so that the reader could experience Ahab's power as if on board the *Pequod*."⁷¹ This section climaxes with Ishmael's musings on how Ahab is able to so effectively control the crew. Melville then explores *Moby Dick's* significance in "Moby Dick" and "The Whiteness of the Whale." Yet as soon as Melville has again immersed readers in Ahab's quest, he digresses using a series of seeming side stories. For example,

he relates and explains whaling ship encounters, also known as gams, and discusses correct and incorrect depictions of whales in venues as diverse as art, scientific writings, and shop signs. Melville continues in this format throughout the work, moving between the main narrative strand and interruptions of that strand. Critics have posited many reasons for the nonfiction sections, demonstrating that they are not as purposeless as many readers believe. For example, Sheila Post-Lauria discusses the genre of mixed-form narrative during Melville's time, arguing he adopted that narrative structure. Betsy Hilbert, on the other hand, claims he uses these sections to show readers the futility of stark categorizations. Regardless of Melville's purpose, scholars agree that the text's structure affects readers' interpretations of the work—whether or not they realize it—because they are forced to confront their preconceptions and expectations as Melville alternately develops and interrupts the main narrative strand.

The understanding readers come to regarding their expectations, both in the foreshadowing and in the narrative interruptions, is crucial to the novel's power, I posit, because it encourages them to move beyond contemplating merely the plot to also contemplating Melville's role as author. Melville employed this interaction between author and reader in other works. In "The Encantadas," a series of "sketches" first published in *Putnam's Magazine* in 1854, Melville's narrator overtly establishes his authority. The narrator recounts a tragic tale in which a woman is rescued from an island after seeing her husband and brother die. The narrator interrupts himself at suspenseful points throughout the story and withholds some details altogether. Melville further draws attention to his control as author when he writes, "Unwittingly I imp this cat-like thing, sporting with the heart of him who reads; for if he feel not he reads in vain."⁷² Melville's "sport" with readers is clear in *Moby-Dick* as he plays with their expectations. Kate Haworth explores the power of linguistic interaction in "The Dynamics of Power and Resistance in Police Interview Discourse," writing, "Power and control are constantly under negotiation, and are always open to challenge and resistance."⁷³ Similarly, Melville and his readers constantly negotiate power through language. Melville's authorial manipulations ensure that readers engage with the text to gain more from it. For this reason, part of the work's significance lies in this interaction between readers and the text, supporting Stanley Fish's argument that literature is more than words on the page.⁷⁴ Indeed, Wolfgang Iser argues that through the establishing and breaking of expectations readers interact with a text and learn to orient themselves to new ideas.⁷⁵ This process of establishing expectations in readers then breaking those expectations occurs constantly throughout the novel, making readers aware of Melville's role as author. As readers see the crew succumbing to Ahab's power, they also discern Melville's manipulation of them throughout the text. Thus, readers are encouraged to perceive their susceptibility to manipulation.

Yet Melville does not let readers rest with the knowledge that they are susceptible to manipulation; he also shows them their responsibility to resist such manipulation. Through Ahab and the crew, Melville demonstrates the followers' culpability in creating and maintaining authority. As Aaltio-Marjosola and Takala argue, in their analysis of organizational charismatic leaders, "The legitimacy of charisma and charismatic leadership is sociologically and psychologically attributed to the belief of the followers and not so much to the quality of the leader."⁷⁶ Therefore, charismatic leaders often emerge in times of crisis.⁷⁷ Following this psychological reasoning, the crew ultimately gives Ahab the permission of power. Importantly, the crew members are not willing to go against Ahab, even when they feel something is amiss. Starbuck is the clearest example of this because he openly speaks against Ahab but goes no further than voicing his misgivings. However, Ishmael does the same thing: he expresses qualms of the voyage yet admits that he allowed himself to be swept up in Ahab's

hunt. Even when other crew members sense they are on a doomed voyage, they do not oppose Ahab; they only fear him more. Ultimately, the crew chooses to invest Ahab with authority. As Patterson writes, "In short, the basis of authority comes down to a matter of belief and faith. Without faith (or confidence) in the voice of command and the unspoken rules supporting it, authority cannot exist."⁷⁸ Indeed, as Ishmael becomes swept up in the voyage, the readers do as well, and they too become implicated in the destruction that occurs. As readers come to see, without the crew's—and their own—belief in Ahab's power, it would cease to exist. For this reason, everyone has the responsibility to resist oppression.

Additionally, though Ahab understands how to manipulate the crew members' emotions, they lack this understanding, and their ignorance better enables Ahab to use them. Again, Melville shows readers that they too are responsible for this ignorance. Though they at first identify with Ishmael and his lack of resistance to Ahab, they eventually come to understand Ishmael's complicity in the events that unfold upon the *Pequod*. When Ahab first provokes the crew to hunt Moby Dick, Ishmael is caught up in the fervor but does not understand why: "A wild, mystical, sympathetic feeling was in me; Ahab's quenchless feud seemed mine. With greedy ears I learned the history of that murderous monster against whom I and all the other has taken our oaths of violence and revenge."⁷⁹ Ishmael's awareness of his emotions is not enough for him to understand their cause or to change them. He sees the frenzy, but is still caught in the madness. Thus, Melville shows, people must understand that they are being manipulated in order to resist.

As Melville challenged readers to resist authority, he found himself facing similar struggles as he attempted to balance writing with conviction and making a living. Knowing he could not write only for himself if he was to gain an audience, Melville expressed tension between his desires and audiences' desires. In a letter to his friend Richard Henry Dana Jr., dated May 1, 1850, Melville reports on his work in progress, *Moby-Dick*, and reveals his determination to write the truth, regardless of popularity: "To cook the thing up, one must needs throw in a little fancy, which from the nature of the thing, must be ungainly as the gambols of the whales themselves. Yet I mean to give the truth of the thing, spite of this."⁸⁰ In referring to this letter, Selby notes the tension Melville clearly felt in his creative process, observing, "That Melville is prepared—albeit reluctantly—to 'throw in a little fancy' in his writing of *Moby-Dick* to ensure his continued popularity is an indication of the commercial pressures under which he felt himself to be working. Yet his letter also clearly indicates the unease he felt in writing for money."⁸¹ This conflict between the things Melville truly wanted to write about and the things an audience wanted to read continued throughout Melville's career. In addition to the interaction between Melville and readers, he also at times capitulated to publishers' wishes. In *Typee*, writes Karcher, "Melville's American publishers insisted on expurgating his attacks on the missionary and imperialist spoilers of Polynesia."⁸² While Melville later regretted this decision, it is clear that he was aware of his need for readers' and publishers' approval of his writing if he was to have a literary presence. As he wrote to his friend Nathaniel Hawthorne, "'Try to get a living by the Truth . . . —and go to the Soup Societies.'"⁸³

Melville needed an audience to elicit the change he sought. Evidence indicates that Melville was trying to influence readers; but to have any influence, Melville was obliged to capitulate at times to readers and publishers. Melville's changing literary tactics signal his desire to influence society. Though after *Typee* Melville no longer wanted to surrender to publishers' wishes, he knew that he would not retain an audience if he wrote overtly against society. Thus, according to Karcher, "he started experimenting with increasingly elaborate strategies for subverting his readers'

prejudices and conveying unwelcome truths.”⁸⁴ Melville’s desire to effect change is also indicated by his awareness of the political controversies of his time. Critics have seen Melville responding to these and have pointed to his political dissent with his father-in-law and mentor, Judge Lemuel Shaw. Critical interpretations of Melville’s political stance differ, some arguing he was warning against slavery and others that he was arguing against radical abolitionism.⁸⁵ Regardless of Melville’s precise political affiliation, however, he clearly desired to influence his readers. And this idea, that literature possesses, as Jane P. Tompkins writes, “the ability to influence human behavior in a direct and practical manner,” requires readers.⁸⁶ For without readers to engage in the work, it would have no one to influence. Therefore, Melville’s need to balance capitulating to authority and maintaining autonomy is clear and explains his many maneuvers to retain an audience. Ultimately, Melville uses his interaction with readers to show them a view of life diametrically opposed to Ahab’s. As Adler argues, “Were his imagination outreaching, like Melville’s, he would not see in the whale only a reflection of his thwarted ambitions and his deprivations.”⁸⁷ To escape Ahab’s view of life, readers must learn to possess an imagination that is “outreaching” and flexible, rather than Ahab’s grasping and rigid imagination. Doubtless, *Moby-Dick*’s many readers would agree that the novel pushes them beyond their imaginative horizon, introducing them to a world as vast as Moby Dick and as impossible to define.

In the end, the *Pequod*’s destruction sends a sobering note to readers. If we are led astray as easily as the *Pequod*’s crew, will we also share their fate? Hostilities seem increasingly to confirm this: from John Brown’s raid on Harper’s Ferry eight years after the publication of *Moby-Dick*, to the subsequent Civil War, the rise and fall of Hitler, two world wars, atomic bombs, and terrorism. Indeed, critics have drawn fascinating parallels between *Moby-Dick* and events such as the Vietnam War and 9/11. Yet Melville does not leave the picture entirely bleak. If the first step to resisting oppression is understanding it, Melville seems to have begun leading in the right direction. Though he may not have developed a satisfying response to the oppression he encountered in his own life, he paved the way for others to discover one. Power is beguiling to leaders and followers alike, but we do have the ability to resist it. Melville shows us a way to begin: recognize the inherent dangers of absolute authority, then learn to resist them one chapter at a time.

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Female Succession in the Kingdom of Jerusalem in the Twelfth Century

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Abstract

This paper explores the question of queenship in the Crusader States, specifically the Kingdom of Jerusalem in the twelfth century. It seeks to understand how women were able to gain and wield power in a time when they were viewed solely as diplomatic links between dynasties and transmitters of royal blood. Research was done through a close reading of primary and secondary sources concerning the history of the Crusader States, medieval queenship, and other ancillary topics, as well as through case studies of important female rulers from the Holy Land and Western Europe. From this research I argue that internal and external political stability was required for women to effectively rule, but if those conditions were met, a queen could be influential.

While many people are familiar with the idea of "crusading" and the Crusades, most people cannot explain what the Crusades were about or when they happened. Further, most are unaware that the First Crusade was successful and led to the establishment of the Crusader States, Latin Christian territories in the heart of the Near East. These states were the Kingdom of Jerusalem, the Principality of Antioch, the County of Edessa, and the County of Tripoli¹ (fig. 1). They lasted from 1097 with the conquest of Edessa, to 1291 with the fall of Acre.² The Crusader States were especially interesting because of the frequent occurrences of female succession to the throne of Jerusalem and smaller territories. Why were there so many female rulers in Jerusalem and under what conditions did they thrive? This question, though important, is understudied and there are many misconceptions about it. Royal women in the Crusader States often became the focus of political, legal, and dynastic power due to the lack of male heirs. Unlike their contemporaries in Western Europe, the queens of Jerusalem were able to wield political power contingent on internal and external stability in the region; if there was not stability it became increasingly difficult for queens to reign effectively.



Figure 1. The Crusader States.³

The Latin Kingdom of Jerusalem was abnormal for the Middle Ages in its quantity of female leadership and the legal rights women possessed.⁴ Female leadership took place in aristocratic households and was characterized by success and failure. There were five queens regnant who ruled in their own right on the basis of inheritance in the twelfth century: Melisende, Sibylla, Isabella I, Maria, and Isabella II. How did these women wield power? What external and internal issues were important to a successful reign? How did they deal with the more masculine aspects of their leadership?

A large body of work exists on various aspects of these issues. However, nothing specifically addresses how the queens of Jerusalem, especially Melisende and Sibylla, exercised power.⁵ The "Studies in the History of Queen Melisende of Jerusalem" by Hans E. Mayer is the premier work on the political life of Melisende. It is based on legal documents and historical chronicles, the most important of which is *A History of Deeds Done Beyond the Sea* by William, Archbishop of Tyre, written in the latter half of the twelfth century. This is the main chronicle for the Kingdom of Jerusalem and covers the important political figures and events of the twelfth century.⁶ While Mayer never explicitly states so, Melisende, and other women to a lesser extent, used four methods to exercise power: a wide kin network with the nobility, mutually beneficial support of the church, the issuing of charters, and the filling of government positions with trusted allies. This paper will specifically address Melisende's methods of power.

To understand this topic within the broader context of medieval rulership and the crusades, I also examined typical roles of a medieval king. What were their

duties and powers in contrast to the roles of a medieval queen? For a general idea of kingship, Thomas Watkin discusses the role of the *Dominus Rex* (Lord King) who was “consecrated and crown,” a medieval king but also the lord of his realm. Watkin argues that the *Dominus Rex* was the new definition of kingship in the twelfth century, reflecting an increased respect for the royal office.⁷ In terms of the kings of Jerusalem, Bernard Hamilton argues the kings consort (kings by marriage) who were recruited from Western Europe due to a lack of suitable royal males, upset the balance of power when they politically favored their Western entourages.⁸ The current scholarship on medieval queenship focuses largely on sexuality, power, and the perception of women by their contemporaries.⁹ Royal power in the Crusader States was established and maintained differently than in Western Europe.¹⁰ Historians have characterized the Crusader States as a frontier society (on the fringe of Christendom). This differentiation between European society and the Crusader States is one of the main reasons historians believe women in the Crusader States gained positions of power.¹¹

Hamilton’s “Women in the Crusader States: The Queens of Jerusalem (1100–1191)” provides an excellent modern interpretation of the experiences of the queens of Jerusalem, including biographical detail and a general timeline.¹² Hamilton not only considers both queens regnant and queens consort (queens by marriage) but also women, such as Agnes of Courtnay, who were never queens but had power over the throne. However, Hamilton overlooks Queen Sibylla’s agency, preferring instead to focus on the influence of her husband, Guy of Lusignan, and her mother, Agnes of Courtnay.¹³ This paper addresses the issue of Sibylla’s agency by presenting her as a political actor. Lois L. Huneycutt’s “Female Succession and the Language of Power in the Writings of Twelfth Century Churchmen” provides insight on how clergy reacted to strong female leaders, but does not comment specifically on how those women ruled. Lambert’s “Queen or Consort: Rulership and Politics in the Latin East, 1118–1228” is a detailed analysis of the role each queen regnant of Jerusalem played during her reign.¹⁴ While Lambert discusses how these queens were perceived and treated by their nobles, she does not spend much time discussing what political tools they used to maintain power. Therefore, this paper will focus on methods of preserving power.

To contrast the experiences of the queens of Jerusalem, I examined the experiences of aristocratic women from other Crusader States. Agnes of Courtnay, though never queen, was the mother of two monarchs, and, it is argued, was especially influential during the reign of her son, Baldwin IV.¹⁵ Further, Alice of Antioch provides a contemporary contrast to Queen Melisende, as she was less successful in her endeavors to rule.¹⁶ Finally, I also researched contemporary powerful queens from Western Europe, such as Empress Matilda and Blanche of Castile. Queens regnant from the twelfth century were rare—this highlights how exceptional the occurrences of queenship in the Kingdom of Jerusalem were.

When discussing the different circumstances in the Kingdom of Jerusalem one must examine how medieval king- and queenship worked, both in theory and practice. Kingship is the easiest to discuss because it was the norm of medieval Europe. Around the twelfth century, the idea of kingship was evolving. The early medieval king was a political leader who commanded armies, was a unifying force for his kingdom, and was anointed and crowned. At the time Queen Melisende was establishing her power base in Jerusalem, King Henry II of England was developing the Common Law system and the idea that a king dispensed justice to all of his subjects by insisting on, according to Watkin, “universal lordship of the king within kingdom.”¹⁷ That is, every subject from peasant to high lord owed personal allegiance to the king, not just to their feudal overlord. If the king’s power was in the public sphere, then the queen’s role was in the private sphere.

The three types of medieval queens, from most common to rarest, are queens consort, queens regent, and queens regnant. A queen consort was the wife of a king: she had little political power, except in terms of private influence as an intercessor in public affairs.¹⁸ Her main function was to transmit dynastic blood, provide a link between her family and her husband's, and produce heirs as shown by the "obsessive attention focused on the birth of heirs . . . and the apprehensions aroused by barren queens," according to Carmi-Parsons.¹⁹ The second form of queenship, queen regent, originated from a queen's perceived natural affinity for motherhood. A queen regent was a queen who ruled in the place of an incapacitated monarch, often a son who was too young to rule. According to Andre Poulet, in a regency "the queen emerge[d] as her husband's legal replacement," but was less threatening than a king because she was not crowned and consecrated, and therefore not bound to authority in the same way.²⁰

One of the most powerful women in medieval history, Blanche of Castile, was a queen regent. Louis IX of France was 12 years old when he became king in 1226. His mother, Blanche of Castile, immediately took power and "legislated, dealt with foreign powers, waged war, arranged marriages—in short, imposed herself as sovereign of the realm," according to Poulet.²¹ She was so effective that after Louis IX came of majority, he deferred to her judgment and named her his regent when he went on crusade. One of Blanche's most effective methods of rulership was that from the legal documentary evidence it was impossible to tell that she was ruling. She did everything in the name of her son, making her non-threatening to the nobility. However, she was limited by her "weakness of coercive powers," according to Poulet.²² The problem of coercive power is a recurring theme in medieval queenship. One crucial component to kingship was the ability to lead an army, which a medieval woman could not do. Queens regent and queens regnant had to rely on trusted men, usually relatives, to lead their forces for them. That is not to say a woman never led an army or otherwise participated in battle. There are some rare examples of medieval women functioning in a military capacity, but no famous or powerful queens did.²³

A queen regnant was a woman who ruled in her own right, on the basis of birth. The best example of a queen regnant in medieval history, besides the queens of Jerusalem, is Empress Matilda. Also known as Maud, Matilda was the daughter of Henry I of England and lived in the first half of the twelfth century. She married the German emperor at a young age, but after his death and the death of her brother, her father named her his heir. Henry required his vassals to swear an oath recognizing her right to succession in 1127.²⁴ After Henry's death, her cousin, Stephen of Blois, challenged her claim to the throne and civil war ensued. Matilda was the first woman in English history "to claim the throne in her own right and not merely to act for a son," according to Stafford.²⁵ This distinguishes her in both theory and practice from a queen regent, who exercised power in the name of others. Matilda was never able to capture the throne from Stephen, though she was successful in a number of battles and had her son, Henry, named heir to the English throne.²⁶ Matilda failed in part because of how she was perceived by contemporaries. The *Gesta Stephani*, though written by someone hostile to her cause, says she was accused of "abuses of power in general and the abuses of power particularly expected from a woman . . . she is haughty, overbearing, with an imperious voice and harsh and insulting language."²⁷ In other words, she acted too much like a man.

Though they differed from kingdoms in Western Europe, the Crusader States were still influenced by them. After the conquest of Jerusalem and the success of the First Crusade in 1099, Godfrey of Bouillon was proclaimed Defender of the Holy Sepulcher and took possession of Jerusalem, effectively becoming king. After his death in 1100, his brother, Baldwin of Bouillon Count of Edessa, became king, establishing

a hereditary monarchy.²⁸ The Kingdom of Jerusalem was on its way to becoming like twelfth century France or England. However, due to the nature of the frontier-like society, there were complications. A shortage of men to hold elite positions led to noblewomen taking roles their male relatives would have held in Western Europe. Women held elevated status in the Crusader States for three reasons. First, girls survived infancy and childhood more often than boys and consequently inherited their father's fiefs more often. Second, short male lifespan meant more young heiresses or widows were ruling in their own right or for their children. Third, constant warfare and death meant the women had to take up traditional male roles.²⁹ As a result, women became heiresses of the royal dynasty and conferred regal rights onto their husbands. Men, including some kings of Jerusalem and princes of Antioch, were often brought from Western Europe to marry these women. This practice placed the man in the traditionally feminine role of leaving one's homeland to marry. These men may have been more eager to exert their authority and establish masculine identities, leading to competition and resentment between their entourages and the already established nobility. While most settlers in the Holy Land were from Western Europe and therefore the main influence on the Crusader States, the Byzantine Empire's proximity and connection to the King of Jerusalem must also be considered.

The Byzantine Empire, the eastern half of the old Roman Empire, was the most powerful Christian polity in the Near East and was therefore an ally to the Crusader States. Intermarriage between the ruling house of Jerusalem and the imperial family was common: Baldwin III wed Theodora Comnena, and Amalric I married Maria Comnena, the niece and great-grandniece of Emperor Manuel Comnenus, respectively.³⁰ The cultural exchange between Byzantium and the Crusader States may also have affected inheritance patterns. The Byzantine Empire followed the pattern of porphyrogeniture, which meant only a child born in the purple room of the Imperial Palace or to the Emperor after his ascension to the throne was considered heir.³¹ With porphyrogeniture, an heir's suitability was based on his or her relation to the emperor and was not necessarily gender specific.³² This contrasts with primogeniture, in which the firstborn son inherited everything, which was the dominant inheritance pattern in Western Europe at the time. In fact, royal women in the Byzantine Empire could play a significant role in politics. In her *Alexiad*, Anna Comnena discusses the level of influence her grandmother, Anna Dalassena, had over her son the Emperor, stating that "without her brains and good judgment the Empire would not survive."³³ In the latter half of the twelfth century, the distinction between porphyrogeniture and primogeniture became important in the Kingdom of Jerusalem when Baldwin IV died; his sister, Sibylla, was firstborn, but their half sister, Isabella, was related to the Emperor.

The story of female power in the Latin Kingdom of Jerusalem started in the early part of the twelfth century. King Baldwin II only had daughters; therefore, he decided that Melisende, the eldest daughter, would succeed him upon his death. Mayer argues that this switch from an agnatic (succession through the male line) to a cognatic (succession through either the male or female line) inheritance pattern was necessary for Baldwin II if he wanted to strengthen a hereditary tradition of inheritance rather than have a free election between the clergy and baronage.³⁴ Melisende's reign (1131–1161) was recounted by the chronicler William, Archbishop of Tyre. Melisende's political career can be broken into two time frames—first, her joint rulership with her husband, Fulk of Anjou; and second, her joint reign and struggle for power with her son, Baldwin III. The pinnacle of her power lasted from after the revolt of Hugh of Jaffa in 1134 until her son's majority approximately 10 years later. How did Melisende maintain and exercise power in an age when royal women were seen as mere transmitters of royal blood?³⁵ Melisende successfully employed four methods

for exercising and maintaining power: a close, mutually beneficial relationship with the church, an extensive kinship network built up within the nobility of the Crusader States, an ability to fill important governmental offices with her supporters, and a monopoly on issuing charters.

The impetus to Melisende's rise to power was Hugh of Jaffa's rebellion against Fulk. Before this rebellion, her husband, Fulk of Anjou, was the dominant monarch. For example, in one of the charters issued early in his reign, Fulk claimed that he had the right to rule the kingdom because he was sole heir to the throne. However, it was his marriage to Melisende that gave him legal justification. Despite Baldwin II's will, which made Fulk and Melisende joint rulers of Jerusalem, Mayer concludes that Fulk was attempting to push his wife out of direct government.³⁶ Mayer's conclusion is supported by William of Tyre's description of Fulk's character. William describes Fulk's administration of his native Anjou, where he was count before he was recruited to become the king of Jerusalem, as very hands on: "He lived on terms of intimate friendship with all the barons . . . he was administering his affairs with wisdom and energy."³⁷ In a time when France was fairly unstable, Fulk's intimate friendships with his barons can be understood as he paid attention to their dealings and tolerated no unruliness from them. Because he was accustomed to governing Anjou personally, he was not eager to share power with his wife. However, Melisende was able to shift the balance of power and establish herself politically. William of Tyre states that the origin of this shift was the rebellion of Hugh, Count of Jaffa in 1134.

Hugh of Jaffa was Queen Melisende's first cousin, but that did not stop the rumors that Hugh was Melisende's lover.³⁸ This type of accusation was common in the Middle Ages, as one of the best ways to undermine the queen was to question her matrimonial loyalty. If a queen took lovers, it jeopardized the continuation of the dynasty and reflected badly on the king. Eleanor of Aquitaine was similarly accused, a few decades later during the Second Crusade, of being too intimate with Raymond of Poitier, the Prince of Antioch and her uncle.³⁹ It is more likely that Hugh was defending his kinswoman's right to power, as there was a legitimate fear among the nobility that Fulk was attempting to deprive Melisende of her right to her father's throne.⁴⁰ In any case, Hugh was declared guilty of high treason in 1134.⁴¹ While waiting to leave the kingdom for his sentence of exile, Hugh was murdered by a man hoping to gain the king's favor. Public opinion then turned against Fulk, and Melisende gained the upper hand. William of Tyre states that the king and his supporters felt they were not safe in the queen's presence or among her allies because of her terrible wrath over the matter. Fulk, "from that day forward, became so uxorious that, whereas he had formerly aroused her wrath, he now calmed it, and not even in unimportant cases did he take any measures without her knowledge and assistance."⁴² In this instance the traditional gender roles of king and queen were reversed in Melisende and Fulk's relationship, and she was able to establish lasting political power.

One traditional role of a medieval queen was that of private intercessor into public affairs.⁴³ In the political aftermath of Hugh's rebellion, William of Tyre recounts to his readers that "the king, finally, after persistent efforts succeeded in gaining a pardon for the other objects of [Melisende's] wrath—at least to such an extent that they could be introduced into her presence."⁴⁴ Here the king was petitioning the queen to allow his allies back into the public sphere of court, which was the opposite of a typical medieval household. By supplicating himself to Melisende's power and consulting her in every matter, Fulk enabled his queen to establish public power. This was not too difficult for Melisende, and given the initial support Hugh of Jaffa had in his rebellion, there must have been considerable favor for the queen among the baronage.⁴⁵

The fact that the barons of Jerusalem would support Melisende over Fulk makes sense: he was a foreign ruler and she was the link to Baldwin II's line. Furthermore, Fulk's preference for his Angevin knights made the native nobility less willing to support him.⁴⁶ Medieval societies seem fearful of foreigners, especially when they were attached to power, as the typical distrust of queens consort shows.⁴⁷ The barons probably felt threatened by Fulk and his Angevin knights. The kingdom still needed Fulk as a military commander given the ever-present threat of its Muslim neighbors, but it seems the barons were not willing to sacrifice their royal house to gain security. This internal instability built up against her husband allowed Melisende to cement her power; after this period, all of Fulk's charters from the Jerusalem chancery, which was the administrative office of the government, were jointly issued by him and Melisende.

Fulk died late in 1143, leaving behind Melisende and their two sons, Baldwin and Amalric, ages thirteen and seven, respectively. According to William of Tyre, "Royal power passed to the Lady Melisend [sic], a queen beloved of God, to whom it belonged by hereditary right."⁴⁸ From this quotation it is clear that William of Tyre supported the queen. This is not surprising, given that the church usually supported Melisende in political matters. She often gave lavish land grants and other forms of patronage. These gifts were dual in nature: they improved both the church's and the royal family's standing.⁴⁹ For example, Melisende founded a convent at Bethany so her sister, Yveta, could be abbess.⁵⁰ This relationship with the church was the first of four ways Melisende built up her power base and enforced her hereditary right to rule after her eldest son, Baldwin III, had come of age. Her only true disadvantage, which Baldwin exploited to eventually oust her from power, was her inability to lead an army.

The second way that Melisende maintained power was through extensive kin networks with the nobility throughout the Crusader States. Her ties to the nobility outside the Kingdom of Jerusalem stemmed from marriage—two of her sisters married into the reigning houses of Tripoli and Antioch. By 1153, when trouble was brewing between Melisende and Baldwin III, her niece, Constance, was the Princess Regent of Antioch and her sister, Hodierna, was the Countess of Tripoli.⁵¹ Further, her familial ties to the baronage in her own kingdom were demonstrated in 1144 when the County of Edessa fell. Melisende dispatched a military detachment headed by the Constable of the Realm, Manasses of Hierges; Philip of Nablus, the only other adult male in the kingdom who had a serious claim to the throne; and Elinard of Tiberias, Prince of Galilee, holder of the largest crown fief in the kingdom.⁵² She clearly trusted these men to keep her interests in mind while on their mission, and their high feudal positions indicate that Melisende had a large network of noble support on which she could count. This network of secular support, coupled with her ecclesiastical support, gave the queen a large pool of allies.

Filling governmental positions with trusted personnel was the third way Melisende exercised her power. One of the main posts of a medieval kingdom was the constable of the realm. Mayer explains that the constable was "the chief military officer of the kingdom . . . [who] presided over the Haute Cour, the land's highest assembly, whenever the king was absent. He was second in command of the army."⁵³ Melisende was able to fill the post of constable with her kinsman, Manasses. Another important official was the chancellor. He ran the royal chancery and ensured the government functioned properly. Mayer states that "[the chancellors] were engaged in establishing the guidelines of the policy together with the ruler, went on diplomatic missions, and strictly speaking were more cabinet ministers than chancery clerks."⁵⁴ A good indicator of Melisende's grip on power was the degree to which she controlled this office. For example, after Fulk's death, Melisende appointed a new chancellor. However, in 1150

she did not have the political clout to install another chancellor, though she was able to remove the old one.⁵⁵ This inability to fill the position not only demonstrates the weakness in her standing as her son became older, but also is intrinsically linked to the final way Melisende maintained power—issuing charters.

The ability to issue legal charters indicated authority in the realm and was the fourth way Melisende exercised power. Charters were written and notarized in a scriptorium, a “writing room,” and then approved by the monarch before being published by the chancery. By controlling how, where, and by whom charters were issued, Melisende exercised substantial power in opposition to her son, especially during the early phase of their struggles. For example, in response to Baldwin’s failed military campaign in 1147, Melisende issued a charter that named Baldwin and his younger brother Amalric as joint issuers. This made Amalric a shareholder in the government. Not only would Baldwin theoretically have to share power with his mother and brother, but, to add insult to injury, Amalric remained loyal to Melisende throughout her struggles with Baldwin. After 1150, Melisende issued charters through her own scriptorium. By creating a scriptorium distinct from the chancery, she bypassed any oversight Baldwin would have had over her charters. This was radical and a precursor to civil war.⁵⁶

The hostilities between Baldwin and Melisende had escalated by 1153. William of Tyre relates the civil war and its outcome, starting with Baldwin’s demand that he be crowned without his mother on Easter Sunday. He did not get his way, but mother and son made an agreement to formally split the kingdom: the king took possession of Tyre and Acre, and the queen took Jerusalem and Nablus. While it may seem dangerous to split such a small kingdom, it was better than outright warfare. Baldwin, despite his ability to command an army, could not be confident that he would win a war with his mother. She still had extensive allies in her region of the kingdom and close connections to the other Crusader States. Further, as evidenced from the patriarch of Jerusalem refusing Baldwin’s coronation request, the church was his mother’s ally. Baldwin later regretted his capitulation and the peace did not hold. It probably did not help his ego that Melisende held Jerusalem and, with it, all the prestige and symbolic power of a capital city.⁵⁷ William tells his readers that “the king began to make trouble for his mother.”⁵⁸ A peace deal was mediated wherein Melisende agreed to surrender Jerusalem while retaining Nablus. Her strong personality and ability to rule are evidenced in her ability to retain the city, where she ruled until her death in 1161. Like other queens of Jerusalem, instability ultimately removed her from power. A woman could rule in her own right in the Middle Ages as long as the internal and external political situation was peaceful. Alice of Antioch, Melisende’s sister, demonstrates this link between instability and female rule.

William of Tyre did not like Alice of Antioch. He called her a “malicious and wily woman” prone to causing trouble with wicked plans.⁵⁹ This dislike of a woman in power is interesting, given William’s support of Melisende in similar circumstances. Thomas Asbridge takes a more sympathetic view of Alice, concluding that “the most basic cause of the principality’s vulnerability was not Alice’s ambition, which in a man we would probably see as nothing more than a natural impulse. Instead, two vagaries of fate crippled Antioch: the birth of a female . . . heir to Bohemond II and Alice; and the sudden death of that same young prince in battle in 1130.”⁶⁰ Like her sister, Alice was widowed when her child was under age. She also started her own scriptorium and employed her own chancellor to facilitate ruling. However, she was unable to cement her power as her sister did. Alice’s main problem was that Antioch, unlike Jerusalem, had recently been plagued with instability, leading to interference from the kings of Jerusalem in the principality’s affairs. Additionally, she lacked a strong relationship with the church.⁶¹

Succession in Antioch was fraught with chaos in the early twelfth century. After Prince Bohemond I returned to the West and his successor died in battle, the principality was left without a clear heir until Bohemond II arrived in 1126 from Italy, where he had been raised. However, his death a few years later plunged the principality into further uncertainty. William of Tyre gives his readers a sense of this dread: "The misfortune utterly overwhelmed the people of Antioch . . . again they renewed their lamentations, complaining that without the help of a prince they were in danger of falling a prey to the enemy."⁶² In this instability and uncertainty the chances of a woman establishing her power over Antioch were slim because the need for a strong military ruler was overwhelming. Instead of accepting Alice's regency after the death of Bohemond II, some of the nobles called on the king of Jerusalem to lead them. Both Baldwin II and Fulk exercised this royal prerogative during Alice's lifetime.⁶³

Bringing a foreign power into Antioch to rule was problematic for Alice and one of the main reasons she was unable to establish power. She attempted to cement her rule for six years, during which time she went through periods of limited success, interference from the kings of Jerusalem, and finally exclusion from power. She must have had some measure of support in the principality, as evidenced by how long it took her to be ousted from power. However, her legitimacy to rule was tenuous because she was a royal bride, described by Carmi-Parsons as an "interloper and potential adulteress who inspired distrust and suspicion," whereas her father and brother-in-law were legitimate royal authorities who had over-lordship of Antioch.⁶⁴ According to William of Tyre, Baldwin II traveled to the principality at the behest of the "great men of Antioch."⁶⁵ Yet Asbridge is skeptical as to the precise position Baldwin's supporters held in society. He states, "They were, to the best of our knowledge, not 'great men' of Antioch, but rather . . . an otherwise unknown monk of Saint Paul and a burgess of the city."⁶⁶ This discrepancy should cause scholars to question William's account of Alice, and, because of his ecclesiastical position, shows Alice's third problem in establishing power: her lack of a relationship with the church.

There were similarities in the ways Alice attempted to establish her power and the ways her sister, Melisende, wielded power. Both women issued charters and created scriptoria to facilitate ruling. While Alice may have attempted to replicate Melisende in other ways, she was unsuccessful in terms of a relationship with the church. Alice did, however, have her own scriptorium and chancellery, so it is not appropriate to say Alice of Antioch had no supporters in the church.⁶⁷ If Alice had her own bureaucratic structure, she must have had clergy members to run it—the laity at the time would not have had access to the necessary education. These men would have owed Alice their support because they depended on her for their livelihood. However, she did not have allies among the high clergy of the Crusader States. William of Tyre's attitude toward her, written a generation after her death, is probably typical of churchmen at the time. As Huneycutt declares, while "it is clear that medieval thinkers were not able or even willing to exclude women from sharing in public authority, it is not so clear that their tolerance extended to accepting a female ruler in her own right."⁶⁸ Melisende's success hinged in large part on the mutual support between her and the church; however, it seems Alice did not cultivate similar relationships.

These sisters offer a good contrast of female succession in the twelfth century. Clearly it was possible for a woman to rule well, as demonstrated by Melisende's success. William of Tyre proclaimed:

Melisende . . . was a woman of great wisdom who had much experience in all kinds of secular matters . . . it was her ambition to emulate the magnificence of the greatest and noblest princes and to show herself in no wise [sic] inferior to them . . . she ruled the

kingdom and administered the government with such skillful care that she may be said truly to have equaled her ancestors in that respect.⁶⁹

However, it was also possible for an otherwise strong female ruler to be ineffectual, especially in times of political instability, as Alice of Antioch demonstrated. These dual outcomes come together in Queen Sibylla of Jerusalem.

Sibylla was Melisende's granddaughter by her second son, Amalric, and his first wife, Agnes of Courtnay. Early in Sibylla's reign, she exercised considerable power but failed to protect the realm from the Muslim warlord Saladin, ultimately leading to the fall of Jerusalem and the beginning of the Third Crusade. Thus, Sibylla's reign was short, and much of the scholarship devoted to this period focuses on the actions of her second husband, Guy of Lusignan. Guy's prominence in the scholarship is due to his polarizing effect on the politics of royal court during the reigns of Sibylla and her predecessor and brother, Baldwin IV. However, it is a mistake to focus solely on Guy. Sibylla was not the passive transmitter of dynastic blood that later queens of Jerusalem would become. She acted with agency, as demonstrated by her choice of husband. This ability to express power must be reconciled with her inability to act, which led to the fall of Jerusalem. In more peaceful times, and with a more competent husband, Sibylla would have been an effective ruler.

William of Tyre died in 1186 while writing about the end of Baldwin IV's reign. Consequently, he is silent on Sibylla's rule, though he did chronicle Guy of Lusignan's regency for Baldwin IV. The main source for Queen Sibylla's reign is "The Old French Continuation of William of Tyre, 1184–97," written by Ernoul, a squire to the Christian nobleman Balian of Ibelin.⁷⁰ At the time of the Third Crusade, Balian was married to Sibylla's stepmother, Maria Comnena, and was the Lord of Nablus. William of Tyre indicated Balian's importance by listing him among the lords who urged Baldwin IV to put aside Guy of Lusignan as regent and to co-crown his young nephew, also named Baldwin.⁷¹ Ernoul's connection to Balian is important to remember as Ernoul favored Balian's opinions and actions. Consequently, Guy of Lusignan is not portrayed in a sympathetic light because of the animosity between the two noblemen. The other account for Sibylla's reign was written by Roger of Wendover, a thirteenth-century monk from St. Albans in England who wrote a history of the world from creation to the year 1235.⁷² This source is more favorable to the queen and her king-consort, and reveals Sibylla's strong will.

Due to his leprosy and the cultural stigma attached to it, Baldwin IV, Sibylla's brother, was not married and had no children to succeed him.⁷³ Sibylla did not immediately follow her brother to the throne. Instead, her young son from her first marriage, Baldwin V, was king for a short time. After her son's death in 1186, Roger of Wendover relates that the council of nobles decided that Sibylla, "as heiress of the kingdom, should be crowned queen and repudiate Guy, as unequal to the government."⁷⁴ It is an important point in terms of inheritance patterns that rather than Sibylla assuming the throne automatically, a council of nobles had to decide that the heiress to the kingdom should be crowned. Sibylla agreed to put Guy aside on the condition that she would be able to choose her next husband. She was subsequently crowned queen. When Sibylla was asked to name her new husband, she named Guy of Lusignan, whom her nobles were bound by oath to accept. Roger of Wendover tells historians that "all were astonished at her words, and wondered that so simple a woman had baffled so many wise councilors. Her conduct was in fact worthy of great praise . . . for she saved the crown for her husband and her husband for herself."⁷⁵

Sibylla was clearly willing to displease her vassals if she thought she was in the right, and the fact that no one suspected her decision to crown Guy suggests she was

politically astute. By publicly choosing Guy as her king-consort, Sibylla limited the influence her barons and family could exert over her. Realistically, either her mother or the nobility would have forced their own choice of husband on her if she had not decided swiftly. Fear of this imposition seemed to be the reason Baldwin IV married his sister to Guy of Lusignan in the first place. William of Tyre was not impressed by Guy. He snidely stated that Guy was noble enough, but that Baldwin “might have found in the kingdom nobles of far greater importance, wisdom, and even wealth . . . an alliance with any one of whom would have been of much greater advantage to the kingdom.”⁷⁶ While William’s words are true enough, Guy’s low standing might have been the reason he was so appealing to Baldwin IV and Sibylla.

Sibylla’s coronation story highlights the nobility’s increase in power over the half century between Melisende and her granddaughter. When Baldwin II invited Fulk of Anjou to Jerusalem to marry Melisende, there were no serious negotiations over whether or not she had the right to inherit or transmit the crown to her husband.⁷⁷ With Sibylla, the nobles of the kingdom convened a council to decide whether she or her half sister, Isabella, should inherit the throne, though Sibylla was the elder of the two.⁷⁸ Furthermore, the realization of Sibylla’s hereditary rights was contingent on her repudiation of Guy. The barons were attempting to claim the right of election, which would weaken the power of the monarchy by subverting succession. It allowed the barons to limit the actions of a king or queen by placing constraints upon monarchical power in order to inherit the throne. This struggle later became a major issue in Jerusalem’s political history.⁷⁹ Sibylla’s coronation illustrates this struggle between the monarchy and the nobility over hereditary rights versus the right of election.

Noble discretion over a monarch’s choice of consort was also imposed on Sibylla’s father, Amalric I, in order to succeed his brother, Baldwin III. This is the genesis of the nobility’s assertion of their right to election. Amalric agreed to the barons’ demands and set aside Agnes of Courtnay to marry Maria Comnena, a niece of the Byzantine emperor, though his children by Agnes were made legitimate by papal dispensation. The parallels between Guy and Agnes are clear: neither was important, politically speaking. Agnes was the sister of the dispossessed Count of Edessa, so while she was related to one of the ruling houses of the Crusader States, she was landless, poor, and without many connections.⁸⁰ Guy, at the time of his coronation, had lived in Jerusalem for six years, meaning that he had only been in the kingdom for a year when he married Sibylla.⁸¹ Both married their spouses when they had little chance of inheriting the throne—probably why the barons did not at first oppose the marriages. Amalric’s brother, Baldwin III, was married to Theodora Comnena, and they could have produced an heir if he had not died in 1163 at age 33.⁸² Sibylla’s brother, Baldwin IV, was not allowed to have children, so the throne should have passed to his eldest sister. However, Sibylla had a young son from her first marriage to William of Montferrat to whom many hoped she would transmit the throne. Yet there is a marked difference in how the nobility exercised power over the choice of a king consort versus that of a queen consort. Regardless of legal status, a king consort was more powerful than a queen consort because he commanded the army.

Sibylla needed to choose a husband to fulfill one of the duties of medieval kingship: leading an army. Without Guy, she would be vulnerable not only to her Muslim neighbors, but also to her nobles. Agnes’ primary function to produce an heir had already been met and secured by the papal dispensation. She was more replaceable, whereas Guy was necessary to defend the kingdom. Indeed, Guy had stepped in to lead the army as regent for Baldwin IV when leprosy weakened him.⁸³ If Sibylla had put aside Guy as the barons wished, there would have been no natural leader of the army while she negotiated a new husband. This would have been dangerous. Sibylla’s and

her brother's reigns coincided with the rise of al-Malik al-Nasir Salah ed-Din Yusuf, better known in Christian sources as Saladin, who united the Muslim world when he became the overlord of Egypt and Damascus in 1176.⁸⁴

The turning point for the Christians was the Battle of Hattin, which was a disaster. Guy was marching with his army toward the besieged city of Tiberias, when Saladin attacked the army. A letter to the master of Hospitallers in Italy tells scholars that "the Christians were defeated. The king was captured."⁸⁵ Furthermore, the Templars were almost all killed. In all, only about "two hundred of the knights or footsoldiers escaped," including Balian of Ibelin.⁸⁶ Not only was the Battle of Hattin a psychological blow to the Kingdom of Jerusalem, it also militarily crippled the kingdom. The Templars and the other military orders were the backbone of the Christian army. With their ranks decimated, there were not enough troops to defend the capital, and with the capture of the king, the army lacked a commander.

When Saladin swept south to Jerusalem, the city fell within weeks, and Sibylla, for all her political savvy, was powerless to stop it. The queen's loss of power at this point is indicated by her lack of appearance in the source material. She completely disappears from "The Old French Continuation of William of Tyre, 1184–97" even though she was in the city during the siege; instead, the defense of the city and negotiations with Saladin are left to Balian of Ibelin. This is not surprising, given the author's political leanings and Balian's social standing. Balian was one of the few men to escape Hattin and was probably the only person left in the city capable of leading the military defense.⁸⁷

After Saladin swept through the Crusader States, only the cities of Tripoli, Antioch, and Tyre remained in Christian hands. Guy, having been released from captivity, traveled to Acre and took back the city. Unfortunately, Sibylla and her two daughters died at Acre soon after, plunging the remaining Christians into chaos. With Sibylla and her heiresses dead, Guy's claim to the throne disappeared. The crown was still hereditary at this point despite the overwhelming need for a strong military leader. Fortunately, Isabella, Sibylla and Baldwin IV's half sister and now rightful queen, had recently wed Conrad of Montferrat who, according to Edbury, was "renowned across the Mediterranean for his skill and bravery."⁸⁸ From this point on, a queen's association with a suitable consort became a major facet in the succession of monarchs.⁸⁹

After Sibylla, there was a series of queens—Isabella I, Maria, and Isabella II—who were each less powerful than the last. Sibylla was the last queen with any political agency, and later queens were, as Lambert states, "gradually excluded from all political choice and became merely the figure-head for the dynasty, someone to whom the barons could attach their choice of king."⁹⁰ The struggle between the queens' assertion of dynastic rights and the barons' desire for right to election was at the crux of the matter. The barons were eventually successful in establishing this right. Isabella I's marriage to Henry of Champagne is an excellent example of this struggle. After Isabella's second husband, Conrad of Montferrat, died, the barons asked Henry of Champagne to be their king. Lambert points out that Henry was "only urged to marry [Isabella]"⁹¹ after he became king, and that her status as heiress lent his rule more stability. Because the kingdom needed strong male leadership to survive, the nobility was more concerned with securing male leadership than with ensuring that the throne was hereditary. Furthermore, after Henry's death, Isabella was married to Aimery of Lusignan, King of Cyprus. Only after she was firmly tied to a suitable king was she crowned queen.⁹²

Today, the Crusades are of great cultural interest. Every few years there is a film or video game based on these events, and politicians use crusading language in their rhetoric. However, many of these references are steeped in factual error, which is a pity

because the real history of the Crusades is rich in complex people, events, and stories. This article was an effort to bring some of those engaging stories to light and show their interconnections. In the end, studying queenship in the Crusader States shows it was possible for women to maintain power in a time when conventional gender norms cast them as weak and politically passive. Though Melisende was the most powerful queen regnant, internal strife between her and her son weakened the kingdom so that it fell to Saladin two generations later during the reign of her granddaughter, Queen Sibylla.

Notes

1. Thomas F. Madden, *The New Concise History of the Crusades: Updated Student Edition* (Lanham, MD: Rowman & Littlefield, 2006), 36.
2. *Ibid.*, 26, 189.
3. Andrew Jotischky, *Crusading and the Crusader States*, 1st ed., Recovering the Past (Harlow, England: Pearson/Longman, 2004), 49.
4. Peter Edbury, "Women and the Customs of the High Court of Jerusalem According to John of Ibelin," in *Chemins d'Outre-Mer: Études d'Histoire sur la Méditerranée Médiévale Offertes à Michel Balard*, ed. Damien Coulon, Catherine Otten-Froux, Paule Pagès, and Dominique Valérien (Paris: Publications de la Sorbonne, 2004), 292.
5. For example: H. E. Mayer, "Studies in the History of Queen Melisende of Jerusalem," *Dumbarton Oaks Papers* 26 (1972): 93–183; Lois L. Huneycutt, "Female Succession and the Language of Power in the Writings of Twelfth Century Churchmen," in *Medieval Queenship*, ed. John Carmi-Parsons (New York: St. Martin's Press, 1993), 189–202; and Bernard Hamilton, "Women in the Crusader States: The Queens of Jerusalem (1100–1190)," in *Medieval Women*, ed. Derek Baker (Hoboken, NJ: Blackwell, 1981), 143–74.
6. William of Tyre, vol. 2 of *A History of Deeds Done Beyond the Sea*, ed. Austin P. Evans (New York: Columbia University Press, 1943).
7. Thomas Glyn Watkin, "The Political Philosophy of the Lord King," in *Communities and Courts in Britain 1150–1900*, ed. Christopher Brooks and Michael Lobban (London: Hambledon Press, 1997), 1–12.
8. Bernard Hamilton, "King Consorts of Jerusalem and Their Entourages from the West from 1186–1250," in *Die Kreuzfahrerstaaten Als Multikulturelle Gesellschaft: Einwanderer und Minderheiten im 12 und 13 Jahrhundert*, ed. H. E. Mayer (Munich, Germany: Oldenbourg, 1997), 13–24.
9. For example: John Carmi-Parsons, "Introduction: Family, Sex, and Power; The Rhythms of Medieval Queenship," in *Medieval Queenship*, ed. John Carmi-Parsons (New York: St. Martin's Press, 1993), 1–11; Pauline Stafford, "The Portrayal of Royal Women in England, Mid-Tenth to Mid-Twelfth Centuries," in *Medieval Queenship*, ed. John Carmi-Parsons (New York: St. Martin's Press, 1993), 143–68.
10. Madden, *The New Concise History*, 37–40.
11. Sylvia Schein, "Women in Medieval Colonial Society: The Latin Kingdom of Jerusalem in the Twelfth Century," in *Gendering the Crusades*, ed. Susan B. Edgington and Sarah Lambert (New York: Columbia University Press, 2002), 140–53; Graham McLennan, "The Lady of Caesarea: A Colonist of Outremer," in *Our Medieval Heritage: Essays in Honour of John Tillotson for his 60th Birthday*, ed. Linda Rasmussen, Valerie Spear, and Diane Tillotson (Cardiff: Meron Priory Press, 2002), 172–84.
12. Hamilton, "Women in the Crusader States," 143–74.
13. For example: Peter Edbury, "Propaganda and Faction in the Kingdom of Jerusalem: The Background to Hattin," in *Kingdoms of the Crusaders: From Jerusalem to Cyprus*, ed. Peter Edbury (Aldershot, England: Ashgate, 1999), 173–89.
14. Huneycutt, "Female Succession and the Language of Power," 189–202; Sarah Lambert, "Queen or Consort: Rulership and Politics in the Latin East, 1118–1228," in *Queens and Queenship in Medieval Europe: Proceedings of a Conference Held at King's College London*, April 1995, ed. Anne Duggan (Woodbridge, England: Boydell Press, 1997), 153–90.

15. Bernard Hamilton, "The Titular Nobility of the Latin East: The Case of Agnes of Courtney," in *Crusaders, Cathars, and the Holy Places*, ed. Bernard Hamilton (Aldershot, England: Ashgate, 1999), 197–203.
16. Thomas Asbridge, "Alice of Antioch: A Case Study of Female Power in the Twelfth Century," in *The Experience of Crusading: Western Approaches*, ed. Marcus Bull and Norman Housley (Cambridge: Cambridge University Press, 2003), 129–47.
17. Watkin, "The Lord King," 2.
18. Stafford, "Royal Women in England," 145.
19. Carmi-Parsons, "Family, Sex, and Power," 4.
20. Andre Poulet, "Capetian Women and the Regency: The Genesis of a Vocation," in *Medieval Queenship*, ed. John Carmi-Parsons (New York: St. Martin's Press, 1993), 104–05.
21. *Ibid.*, 110.
22. *Ibid.* Not all regents were women. Baldwin IV of Jerusalem appointed Raymond of Tripoli and Guy of Lusignan when his leprosy made it impossible for him to rule.
23. For example: Margaret of Beverley. See: Christoph T. Maier, "The Roles of Women in the Crusade Movement: A Survey," *Journal of Medieval History* 30, no. 1 (2004): 61–82. For further reading on the experience of women in medieval warfare see: Yvonne Friedman, "Captivity and Ransom: The Experience of Women," in *Gendering the Crusades*, ed. Susan B. Edgington and Sarah Lambert (New York: Columbia University Press, 2002), 121–39.
24. Watkin, "The Lord King," 2–3.
25. Stafford, "Royal Women in England," 160.
26. Huneycutt, "Female Succession and the Language of Power," 192. Matilda's son, Henry II of England, was from her second marriage to Geoffrey V, Count of Anjou. Geoffrey was the son of Fulk V, Count of Anjou, who married Melisende of Jerusalem. Fulk's decision to marry Melisende allowed Matilda and Geoffrey to pursue her claim on the English throne.
27. Stafford, "Royal Women in England," 159.
28. Madden, *The New Concise History*, 38–39.
29. Schein, "Women in Medieval Colonial Society," 141.
30. Hamilton, "Women in the Crusader States," 157, 161.
31. OED Online, s.v. "porphyrogenite," last modified December 2006, <http://www.oed.com/view/Entry/148064?redirectedFrom=Porphyrogenitus>.
32. For example, Anna Comnena was considered the heir to her father, Emperor Alexius Comnenus, long after the birth of her brother, John, though he did ultimately become emperor instead of her.
33. Anna Comnena, *The Alexiad of Anna Comnena* (Baltimore: Penguin Books, 1969), 116.
34. Mayer, "Queen Melisende of Jerusalem," 111.
35. Stafford, "Royal Women in England," 198.
36. Mayer, "Queen Melisende of Jerusalem," 110: "bonae memoriae rex Balduinius, qui me Ierosolimitani regni fecit heredem."
37. William of Tyre, *A History of Deeds*, 50.
38. *Ibid.*, 71, 76.
39. Poulet, "Capetian Women," 103.
40. Mayer, "Queen Melisende of Jerusalem," 101–02. Mayer says the basis for this fear was that Fulk's own father was notorious for changing "his wives more frequently than his coat-of-mail."
41. William of Tyre, *A History of Deeds*, 72.
42. *Ibid.*, 76.
43. Carmi-Parsons, "Family, Sex, and Power," 9.
44. William of Tyre, *A History of Deeds*, 76.
45. Mayer, "Queen Melisende of Jerusalem," 102.
46. Hamilton, "King Consorts of Jerusalem," 24.
47. Carmi-Parsons, "Family, Sex, and Power," 6.
48. William of Tyre, *A History of Deeds*, 134–35.
49. Mayer, "Queen Melisende of Jerusalem," 98.
50. Hamilton, "Women in the Crusader States," 151.

51. Ibid., 154. Melisende also had connections to the House of Courtnay, the rulers of Edessa, through the marriage of her younger son, Amalric, to Agnes of Courtnay in 1157. However, the County of Edessa had been lost to Zangi and Nur al-Din in the late 1140s, thus this marriage was not politically advantageous, and too late to be helpful in the early 1150s.
52. Mayer, "Queen Melisende of Jerusalem," 118.
53. Ibid., 161.
54. Ibid., 121.
55. Ibid., 116, 135.
56. Ibid., 124, 136.
57. William of Tyre, *A History of Deeds*, 205.
58. Ibid., 207.
59. Ibid., 53.
60. Asbridge, "Alice of Antioch," 40.
61. Ibid., 47.
62. Ibid., 32.
63. Ibid., 44. Baldwin II was regent in Antioch before the marriage of Alice and Bohemond II, so this was precedent.
64. Carmi-Parsons, "Family, Sex, and Power," 6.
65. Asbridge, "Alice of Antioch," 33.
66. Ibid., 33–34.
67. Ibid., 40.
68. Stafford, "Royal Women in England," 201.
69. William of Tyre, *A History of Deeds*, 139–41.
70. Peter Edbury, ed., *The Conquest of Jerusalem and the Third Crusade: Sources in Translation* (Aldershot, England: Ashgate, 1998), 5.
71. William of Tyre, *A History of Deeds*, 425, 501.
72. *Oxford Reference Online*, s.v. "Roger of Wendover," May 2013, <http://www.oxfordreference.com/view/10.1093/oi/authority.20110803100426554>; S. J. Allen and Emilie Amt, eds., *The Crusades: A Reader* (Toronto: University of Toronto Press, 2010), 159.
73. William of Tyre, *A History of Deeds*, 398.
74. Roger of Wendover, "Sibylla Is Crowned Queen of Jerusalem," in *The Crusades: A Reader*, ed. S. J. Allen and Emilie Amt (Toronto: University of Toronto Press, 2010), 159.
75. Roger of Wendover, "Sibylla Is Crowned," 159.
76. William of Tyre, *A History of Deeds*, 446. The sudden decision of the Prince of Antioch and the Count of Tripoli to visit the Kingdom of Jerusalem with an armed escort prompted the hasty nuptials.
77. Ibid., 38.
78. Roger of Wendover, "Sibylla Is Crowned," 159.
79. Lambert, "Queen or Consort," 168.
80. Hamilton, "Agnes of Courtnay," 198. He points out that Agnes' good birth was her only advantage.
81. Hamilton, "King Consorts of Jerusalem," 13.
82. William of Tyre, *A History of Deeds*, 274, 193.
83. Madden, *The New Concise History*, 72.
84. Ibid., 69.
85. Peter Edbury, "The Battle of Hattin (4 July 1187) and Its Aftermath: 4b," in *The Conquest of Jerusalem and the Third Crusade: Sources in Translation* (Aldershot, England: Ashgate, 1998), 160–61.
86. Ibid.
87. Ernoul, "The Old French Continuation of William of Tyre, 1184–97," in *The Conquest of Jerusalem and the Third Crusade: Sources in Translation*, ed. Peter Edbury (Aldershot, England: Ashgate, 1998), 55–65, 59–61.
88. Edbury, "The Battle of Hattin (4 July 1187) and Its Aftermath: 4b," 161.
89. Madden, *The New Concise History*, 78, 83.
90. Lambert, "Queen or Consort," 162.

91. Ibid., 164.

92. Ibid.

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Improving Learning

Arrowgrams: The Next Pencil and Paper Phenomenon

John Dewitt, author

Dr. Kenneth Price, Mathematics, faculty mentor

John Dewitt attended Oshkosh West High School and graduated summa cum laude from UW Oshkosh in December 2013. He majored in secondary education and mathematics. At UW Oshkosh John was the president of Athletes in Action, did undergraduate research for the Mathematics Department, worked as a tutor in the math lab and an assistant in the math office, and was a two-time All-American in cross country and track and field. He began his teaching career in the West Allis-West Milwaukee School District in January 2014.

Dr. Kenneth Price earned his undergraduate degree at Western Illinois University and went on to earn his M.S. and Ph.D. in mathematics (specializing in algebra) from UW–Milwaukee. Price became a professor at UW Oshkosh in fall 1999, where he is today. At Wisconsin conferences he gets attendees interested in mathematics with the Face-Off game.

Abstract

Puzzles are a fascinating part of everyday life, and newspapers everywhere feature crosswords, word jumbles, and Sudokus as a way to test and intrigue the human mind. Arrowgrams are a new type of pencil and paper puzzle created by Dr. Kenneth Price of the University of Wisconsin Oshkosh. In these puzzles, directed graphs, which are a widely used physical element in both mathematics and computer science, are partially labeled, and the goal of the puzzle solver is to complete the rest of the labeling using the transitivity rule, which is a rule that resembles the Pythagorean Theorem. After completing the rest of the labeling, the solver may then find a secret message encoded in the puzzle. By analyzing arrowgrams using linear algebra, a puzzle creator can determine exactly what arrows need to be labeled for the puzzle to be uniquely solvable. A theorem is presented that relates which arrows need to be labeled for a special kind of directed graph called a tournament directed graph.

Arrowgrams: An Introduction

Arrowgrams are a type of pencil and paper puzzle developed by Dr. Kenneth Price of the University of Wisconsin Oshkosh. Arrowgrams arose from Dr. Price's research with colleague Dr. Stephen Szydlík, as a way to promote mathematical concepts to those who are not math experts. Dr. Price's first attempt at creating an arrowgram came in December 2009. In spring 2010, he changed the design to its current appearance. After more exploration of his arrowgrams, Dr. Price presented arrowgrams at the Wisconsin regional meeting of the Mathematical Association of America in April 2011. This presentation drew enough excitement and interest to encourage him to submit "Take Aim at an Arrowgram," which was accepted for publication in the puzzle section of *MAA Focus*, and to give another presentation at a national conference in Boston in January 2012. According to Price, the response to his presentation was positive. Dr. Sarah-Marie Belcastro, a research associate at Smith College and a lecturer at the University of Massachusetts–Amherst, decided to teach a unit on arrowgrams to high school students taking her summer honors program mathematics course. Dr. Price is currently studying the mathematical properties of arrowgrams and has his

linear algebra students create their own arrowgrams using skills they develop in his class. I started working on arrowgrams in September 2011, when Dr. Price invited me to explore these puzzles with him. Between creating arrowgrams, looking at other puzzles, and analyzing arrowgrams using linear algebra, I have discovered that both math majors and nonmajors can enjoy arrowgrams. In this paper, we will explore what arrowgrams are, how to create them, and a specific kind of arrowgram—an arrowgram on a tournament directed graph—which will hopefully be our key to eventually mass-producing these puzzles.

Arrowgrams are built on vertices connected by arrows, which form mathematical objects called *directed graphs*. Some of these arrows have a designated value already labeled. The value of an arrow is called its grade. The goal of the puzzle is to determine the grade of every arrow. An additional property that every arrowgram possesses is the *transitivity rule*. This rule allows us to determine the grades of the unlabeled arrows.

The transitivity rule involves relating arrows determined by three vertices (Price, “Arrowgrams”). To use the transitivity rule, one looks for three vertices, say x , y , and z , that are connected by a sequence of arrows. One arrow must go from x to y , another arrow from y to z , and a third arrow from x to z . In this situation, we say x , y , and z form a *transitive triple*.

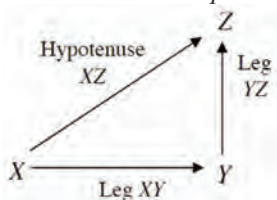


Figure 1. A transitive triple.

The arrows going from x to y and y to z are called the legs of the transitive triple, and the arrow going from x to z is called the *hypotenuse* of the transitive triple. Each arrowgram is associated with a specific mathematical operation, such as ordinary addition. The operation combines the two numbers to get one number. In the case of the addition operation, this outcome would be the sum of the two numbers.

The transitivity rule states that the results of the operation on the grades of the legs should be equal to the grade of the hypotenuse in every transitive triple (Price 2011). For example, if your operation is addition and two legs have grades 3 and 4, the transitivity rule requires that the hypotenuse has a grade of 7.

Although this may sound like the Pythagorean Theorem (the sum of the squares of the legs equals the square of the hypotenuse in every right triangle), it is not. The transitivity rule features the terms of a right triangle, and our above example (fig. 1) is arranged in the shape of a right triangle, but the Pythagorean Theorem and transitivity rule are different by definition. The transitivity rule deals with a specified operation, which may not be addition. For example, if two legs were graded 3 and 4, and the operation was multiplication, we would have a hypotenuse of grade 12. Furthermore, the Pythagorean Theorem features the squares of the lengths, while the transitivity rule does not square the terms or rely on lengths. The grades on a transitive triple potentially have any values, including negative numbers. Additionally, the hypotenuse, in terms of a transitive triple, need not be the hypotenuse of a right triangle. For example, if you switched the direction on arrow XY , the hypotenuse would become YZ , and XZ would become a leg. Also, the three vertices do not need to be arranged in a right triangle, as in the example in figure 2, which features addition as its grading condition.

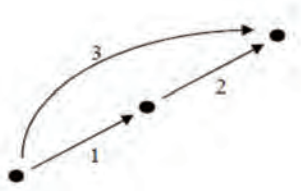


Figure 2. Oddly shaped transitive triple.

While grading the arrows in such a graph is a mathematically interesting challenge, the puzzles become more universally appealing when we modify the objective to determining a secret message. We change the vertices to letters, then, from the grading of the arrowgram, the grades of the arrows are matched with a key to determine the letters of the secret message. For example, a puzzle could consist of two blanks labeled 34 and -5. After solving the puzzle, a person might discover that the arrow going from vertex M to vertex A has grade 34 and the arrow going from vertex T to vertex H has grade -5. Thus, the secret message would be MATH.

At this point, it may be useful to walk through an example arrowgram. Figure 3 is a puzzle created by Dr. Price and is in his notes titled “Arrowgrams.”

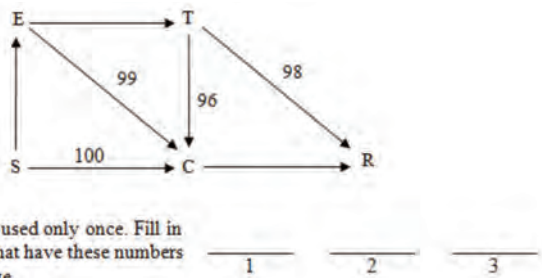


Figure 3. SECRET arrowgram.

As we can see, there are arrows going from S to E, E to C, and then S to C, so (S, E, C) is a transitive triple. By our definition of legs and hypotenuse, we see that arrow SE and arrow EC are considered the legs of this transitive triple and arrow SC is considered the hypotenuse. Another way to see this is that if we start at S and follow the arrow to E, we can continue to follow the path naturally to vertex C. However, if we tried to head back to vertex S, we would be going against the direction of the arrow. Thus, when we have three vertices where a puzzle solver can follow two and then get stopped by the third, we have two legs (the two arrows that flow together, tip to tail) and a hypotenuse (the arrow that opposes the direction). Now that we have identified the legs and hypotenuse, we will label the grade of arrow SE to be the variable X, and we get the equation $X + 99 = 100$. Simple algebra tells us that X is 1, and therefore arrow SE has a grade 1 and “SE” goes in the blank associated with 1.

Next, we turn our attention to the vertices E, T, and C. Once again, if we start at E, we can follow the ungraded arrow to vertex T. Then, we can follow the arrow graded 96 to vertex C. However, if we try to go from vertex C to vertex E, we would be going against the direction of the arrow. Therefore, we know (E, T, C) is a transitive triple. Assigning

the variable Y to the arrow going from E to T , we get the equation $Y + 96 = 99$. Once again, simple algebra finds that Y is 3, and thus ET goes in the blank labeled 3.

Finally, we look at vertices T , C , and R . We have an arrow going from T to C and C to R , and from T to R . Once again, by definition, arrows going from T to C and C to R are legs and the arrow from T to R is the hypotenuse. Replacing the arrow from C to R with variable Z , we get $96 + Z = 98$, which gives us that $Z = 2$. Because of this, CR goes in the blank labeled 2 and our puzzle is solved with the message “SECRET.”

This is a basic secret message, but there are many other ways to design a more complicated secret message. For example, a puzzle creator could specify that the grade X appears exactly three times and that the rest of the secret message is determined by the unknown X . The blanks may be labeled $X + 3$, $2X$, $3 - X$, or something to that effect. After solving the puzzle for X , a puzzle solver could easily find $X + 3$, $2X$, $3 - X$, etc., and then match those grades with the arrows to form the secret message.

The triangle arrowgram in figure 4 appears in the UW Oshkosh Mathematics Department’s 2011–2012 newsletter. It is more difficult than example 1, and has some extra stipulations in the directions, but has a unique solution nevertheless.

Triangle Arrowgram

This puzzle uses the grading group of integers under addition, but only the numbers 1–18 are grades of arrows. The grading uses the numbers 1, 6, and 8 exactly twice.

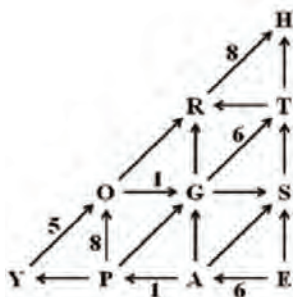


Figure 4. Triangle Arrowgram.

Source: Kenneth Price, “Arrowgrams.”

Every other number 1–18 is used exactly once, except for three numbers, x , y , and z , where x is the smallest and z is the largest of the three numbers.

$z - y + 2$	$y - 1$	$x - 1$	$x + 3$	$x + 1$

If an arrowgram is constructed well, someone who knows the transitivity rule should be able to take the arrows whose grades are given and solve for the rest of the arrows. If an arrow does not have a uniquely determined grade, the secret message will not be effectively communicated. This begs two questions. First, how many arrows need to be filled in so that a unique solution is guaranteed? Second, which arrows should be given grades first? I provide context for these questions by summarizing some of the mathematical literature on these types of problems for similar paper and pencil puzzles.

Literature Review: Mathematics of Puzzles

Sudokus have been a growing phenomenon during the past 10 years. As stated by Dan Vergano from *USA Today*, “Since the introduction of the numerical puzzle in London’s *The Times* in 2004, Sudoku has taken quiz fans by storm. It has appeared on websites, cell phones, and in newspapers, including *USA Today*” (2013). More than that, we see puzzle books that feature Sudokus in stores everywhere. What is this interesting puzzle that has taken the world by storm? Agnes M. Herzberg and M. Ram Murty describe the nature of Sudokus:

The puzzle consists of a 9×9 grid in which some of the entries of the grid have a number from 1 to 9. One is then required to complete the grid in such a way that every row, every column and every one of the nine 3×3 sub-grids contain the digits from 1 to 9 exactly once. (2007, 708)

Herzberg and Murty continue to inform us that Sudokus are similar to a Latin square:

Recall that a Latin square of rank n is an $n \times n$ array consisting of the numbers such that each row and column has all the numbers from 1 to n . In particular, every Sudoku square is a Latin square of rank 9, but not conversely because of the condition on the nine 3×3 sub-grids. (2007, 708)

In other words, every Sudoku is a Latin square, but not every Latin square is a Sudoku (in the same way that every square is a rectangle, but not every rectangle is a square). The nine 3×3 subgrids, where each subgrid must contain numbers 1 to 9, are what make a Sudoku unique. An interesting question to explore is: How many boxes must be filled in to ensure a unique solution? The answer was recently shown to be 17. In her 2007 paper, “Puzzling Over Sudoku,” James Madison University faculty Laura Taalman states: “Mathematicians and computer scientists have conjectured that at least 17 clues are always needed. Although there are many known 17-clue puzzles and no known 16-clue Sudoku puzzles, it is still an open problem to prove that no 16-clue puzzles exist” (2007, 57). However, more recently, in “There Is No 16-Clue Sudoku: Solving the Sudoku Minimum Number of Clues Problem,” Gary McGuire et al. state, “We are not saying that all completed sudoku grids contain a 17-clue puzzle (in fact, only a few do). We are saying that no completed sudoku grid contains a 16-clue puzzle” (2013, 5). Furthermore, Felgenhauer and Jarvis, in their paper “Mathematics of Sudoku I,” count the number of different Sudoku labelings to be approximately 6.71×10^{21} (this is 671 followed by 19 zeros). Although this is interesting, we understand that Sudokus are different from arrowgrams in that Sudokus do not require any arithmetic. There is no need to worry about the numerical properties of the numbers; one simply uses logic and reasoning to solve the puzzle. In other words, in a Sudoku, one could replace the numbers 1–9 with any nine other symbols and still find a solution. For example, one could change each number to a color and still use reason and logic to find a solution to the puzzle. This could not be done on an arrowgram because solving the puzzle relies on the mathematical operation and numbers that are given. It is also worth noting that, due to their logical necessities, J. F. Crook has claimed to have found an algorithm for solving any Sudoku. If you follow his process, which involves using preemptive sets, you will be guaranteed to find the answer to any given Sudoku, which may or may not take the fun out of solving the puzzle.

Another similar puzzle is a KenKen. In 2004, a Japanese mathematics teacher, Tetsuya Miyamoto, invented a Sudoku-like puzzle called a KenKen (loosely translated, this means “wisdom squared”). A KenKen is similar to a Sudoku in that it is an $n \times n$ puzzle where each row and column must have one of each of the numbers from 1 to n .

Instead of giving puzzle solvers values, a KenKen features cages that require certain mathematical operations. Changing the operation is also a feature of arrowgrams. Figure 5 shows a 5 x 5 KenKen puzzle.



Figure 5. An example of a KenKen.

Source: John Watkins, “Triangular Numbers, Gaussian Integers, and KenKen.”

We see that the cage in the bottom right-hand corner contains a 1- in the top left corner. This means that the two numbers in that cage should have a difference of 1. It does not matter which number goes in which of the two squares of the cage, but they must have a difference of 1. Furthermore, in the bottom left corner, we see a cage with a 10+. This means that the three boxes in the cage add up to 10. In a Sudoku, the numbers have no specific relevance aside from their job as placeholders; this is not the case in a KenKen.

Some mathematical aspects of KenKens include prime factorization and the partition of an integer. A prime factorization is the unique way in which a number can be written as a product of prime numbers. For example, the prime factorization of 24 is $2 \times 2 \times 2 \times 3$. There is no other way to write 24 as a product of prime numbers other than changing the order. Furthermore, a partition of a number is a sum of positive integers equal to that specific number. For example, 4 can be partitioned in five different ways: 4, $3 + 1$, $1 + 1 + 2$, $1 + 1 + 1 + 1$, $2 + 2$.

Another interesting concept that arises in the solution of a KenKen is the Greek idea of triangular numbers. The first few triangular numbers are 1, 3, 6, and 10. The relationship with triangles can be described in terms of bowling pins. One pin is in the front. There are two pins behind it, which gives three pins in a triangle. Next, three more pins give a six-pin triangle. Finally, there are four pins in the back, which gives a ten-pin triangle. You could get more triangular numbers, such as 15, 21, 28, and 36, by continuing to add pins to your triangle. John Watkins, a mathematician at Colorado College, writes specifically about these triangular numbers in his paper “Triangular Numbers, Gaussian Integers, and KenKen”:

What is quite surprising is that another important notion in number theory, the ancient Greek concept of triangular numbers, can also often be used to solve a KenKen because in any solution to a KenKen the sum of the numbers in any row or column of the grid is $1 + 2 + \dots + n$; that is, the sum is the n th triangular number. In Figure 1 [figure 5 in this paper], the sum of the numbers in any row or column must be 15 [that is, the triangular number $15 = 1 + 2 + 3 + 4 + 5$]. For example, since in the bottom row the sum in the first cage is 10, the sum in the

second cage must be 5. Hence, that cage contains 2 and 3. But, there is already a 3 in the fourth column, so we can immediately place the 2 and 3 in their correct positions in the bottom row. (2012, 38)

KenKens are similar to Sudokus, but may be even more similar to the puzzle we will be exploring in this paper: the arrowgram.

Selecting Arrows to Label

When creating an arrowgram, one of the most important questions to be answered is: What arrows do I need to label to ensure that there is a unique solution and a solution that does not contradict itself? We do not want to label too few or too many arrows. For example, what if our secret arrowgram from example 1 was changed to the labeling in figure 6?

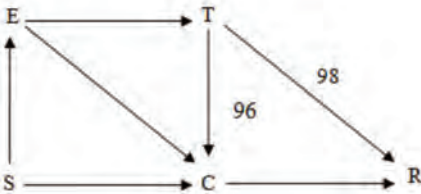


Figure 6. An incomplete example of an arrowgram.

One quickly sees, after finding the label on the arrow going from C to R, that we cannot solve any more of the puzzle. Thus, we clearly do not have a well-constructed arrowgram.

Now let us look at the flip side—what happens when we label too many arrows—by looking at the example in figure 7.

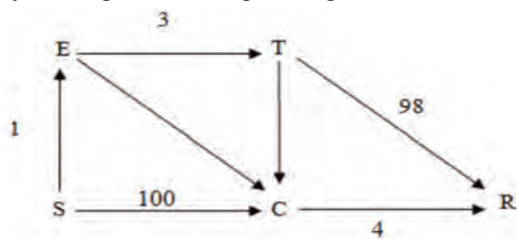


Figure 7. An arrowgram with too many labels.

Trying to solve this puzzle leads to a contradiction. By using the transitivity rule, one could find that the arrow from E to C is 99. Now let us label the arrow from T to C as X. We would thus have the equation $X + 3 = 99$ from the transitive triple E, T, and C, meaning that X would be equal to 96. However, we would then look at the transitive triple between vertices T, C, and R. The equation that would follow would be $96 + 4 = 98$. It does not take a math major to see that something is wrong here. Thus, we need to be careful that our labeling does not contain any mathematical contradictions. Let us look at a new example that we will call T_4 , shown in figure 8.

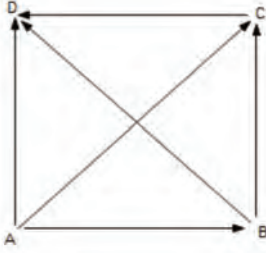


Figure 8. A tournament directed graph with four vertices.

We would like to construct an arrowgram based on this graph. To ensure that our arrowgram is well-constructed, we start by setting up equations for each of the transitive triples. For ease of notation, let us represent the grade on the arrow going from some vertex p to some vertex q using variables $X_{p,q}$. For example, the arrow going from A to B would be represented $X_{A,B}$. There are a total of six arrows, so there are six unknowns. By considering the four transitive triples in the arrowgram, we obtain the following equations:

$$X_{A,B} + X_{B,C} = X_{A,C}$$

$$X_{A,B} + X_{B,D} = X_{A,D}$$

$$X_{A,C} + X_{C,D} = X_{A,D}$$

$$X_{B,C} + X_{C,D} = X_{B,D}$$

Our goal with these equations is to figure out which variables are the free variables, which are a set of variables whose values can be chosen arbitrarily. However, after being chosen, they uniquely determine the values of all the other variables in the system. In other words, by declaring values for our free variables, we will have a uniquely solvable arrowgram. In our next step in determining the free variables, we can move every term to the left side by subtraction. This leaves us with:

$$X_{A,B} + X_{B,C} - X_{A,C} = 0$$

$$X_{A,B} + X_{B,D} - X_{A,D} = 0$$

$$X_{A,C} + X_{C,D} - X_{A,D} = 0$$

$$X_{B,C} + X_{C,D} - X_{B,D} = 0$$

This corresponds to the matrix equation $A_4X = 0$, where A_4 is the coefficient matrix of the above equations, which is shown below:

$$A_4 = \begin{bmatrix} 1 & -1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 1 & 0 \\ 0 & 1 & 0 & -1 & 0 & 1 \\ 0 & 0 & 1 & 0 & -1 & 1 \end{bmatrix}$$

Each row corresponds to an equation and each column corresponds to a variable. Also, X is the column vector associated with the variables, shown below:

$$X = \begin{bmatrix} X_{A,B} \\ X_{A,C} \\ X_{B,C} \\ X_{A,D} \\ X_{B,D} \\ X_{C,D} \end{bmatrix}$$

Thus, if we multiplied A_4 by X using matrix multiplication, we would be left with a set of equations in which the right sides are all equal to 0. If we look at A_4 , we can see that each row corresponds to a transitive triple equation, and each column corresponds to an arrow on the graph.

The standard way to find the free variables of a linear system is by finding the reduced row echelon form of the matrix. However, this form is not especially helpful to our arrowgram problem because it produces fractions. The reduced row echelon form may reveal, for example, that the value of a variable is half that of another variable. This is fine if our underlying number system is the real numbers, but if we want to work with the integers, we may encounter problems. Trying to take half of an odd number will give us a fraction.

The *Smith form* of a matrix is the appropriate tool for solving equations based on abelian group operations, which is a group where operations are commutative ($2 + 4 = 4 + 2$). The Smith form of the matrix is a transformed version of the original matrix, where the new matrix is a matrix filled with zeros, except on the diagonal, starting from the left-hand corner (Rotman 2010). On the diagonal, we have positive integer entries, which are listed in nondescending order. The number of zero columns in the matrix is of considerable importance because it is equal to the number of free variables in our system. To change the matrix to the Smith form, there is a change of variables that takes place. Thus, the columns of the Smith form still relate to variables, but these variables are no longer the originals. They are new variables that we will label Y_1, Y_2, Y_3, Y_4, Y_5 , and Y_6 . By looking at the column operations that were enacted on the original matrix, we find that our original variables relate to these new variables in the following fashion.

$$X_{A,B} = Y_1 + Y_2 + Y_4$$

$$X_{A,C} = Y_2 + Y_3 + Y_4 + Y_5$$

$$X_{B,C} = Y_3 + Y_5$$

$$X_{A,D} = Y_4 + Y_5 + Y_6$$

$$X_{B,D} = Y_5 + Y_6$$

$$X_{C,D} = Y_6$$

From the Smith form of the matrix, we can determine that the variables that correspond with a column with a nonzero entry in it are equal to 0. Thus, we had columns of zeros in the columns corresponding to Y_4, Y_5, Y_6 , so we know that Y_1, Y_2 , and Y_3 are all zeros. Therefore, we are left with:

$$X_{A,B} = Y_4$$

$$X_{A,C} = Y_4 + Y_5$$

$$X_{B,C} = Y_5$$

$$X_{A,D} = Y_5 + Y_6$$

$$X_{B,D} = Y_5 + Y_6$$

$$X_{C,D} = Y_6$$

Thus, we can see that if we simply label $X_{A,B}$, $X_{B,C}$, and $X_{C,D}$, we will have a unique and solvable puzzle. Therefore, by finding the Smith form of the matrix and determining the column operations that were imposed on the original matrix, we can find our free variables and the arrows that need to be labeled in our puzzles.

Tournament Directed Graphs

One particular type of directed graph is a tournament directed graph. A *tournament directed graph* T_k consists of vertices numbered from 1 to k and arrow set $\{xy : 1 \leq x < y \leq k\}$. That is, the graph consists precisely of those arrows connecting a vertex to another vertex of greater value. For example, T_5 consists of five vertices, and arrows from 1 to 2, 1 to 3, 1 to 4, 1 to 5, 2 to 3, 2 to 4, 2 to 5, 3 to 4, 3 to 5, and 4 to 5. A *good-grading* of a tournament directed graph is any grading for which the transitivity rule is satisfied. A slightly different statement of the following theorem, which originally had algebraic applications in mind, appears in the paper “Good Gradings of Full Matrix Rings” by S. Dascalescu et al.

Theorem. *Let G be a finite group. There are $|G|^{k-1}$ good G -gradings of T_k for every $k \geq 3$.*

A *group* is a set of numbers that needs to be associative ($a + b = b + a$), closed under the operation, and closed when you have inverses. For our purposes, a group is a set of numbers along with an operation for combining them, such as addition or multiplication. We use the operation in the transitivity rule for an arrowgram. Sometimes the label is missing on a leg. We then need to subtract, divide, or somehow solve the equation given by the transitivity rule. This requires an inverse for the number under the operation. If we use addition, we need every number’s opposite to belong to the group. For example, the opposite of 3 is -3. If we use multiplication, then we need every number to have an inverse. For example, the inverse of 3 is $3^{-1} = 1/3$. We also want the order of operations to hold, so the binary operation must be associative.

A finite group means that there are only a limited number of elements we could grade each arrow. For example, $\{0, 1, 2, 3, 4\}$ would be a finite group, where we could only label each arrow 0, 1, 2, 3, or 4. The symbol $|G|$ stands for the number of elements in the group G . So if we could only label each arrow 0, 1, 2, 3, or 4, we would have five elements in a finite group G and $|G| = 5$. For example, if we were using T_5 , and we could only label each arrow 0, 1, 2, 3, or 4, then there would be $5^4 = 625$ different ways to label the tournament directed graph. Also, if we simply changed the vertices to letters, we would have an arrowgram, so there would be 625 different arrowgrams to make from that group. This would be like needing to label four squares for designing a Sudoku, but you could only use 1, 2, 3, 4, or 5. If no two of the four squares are in the same row or column, then there are 625 different possible choices.

Clockwork arithmetic provides examples of finite groups. How do you assign an operation on the set? For example, for the set $\{0, 1, 2, 3, 4\}$, what happens if we add 4 and 3? We get 7, but 7 does not belong to the set, so we must find some way to make sure the number we get is an element of the group for the closure property to hold. This is where clockwork, or modular, arithmetic comes in handy. It works like a clock, where if you are adding, you move clockwise, and if you are subtracting, you move counterclockwise. So in figure 9, we have a clock with elements $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 0\}$ (we will identify the 12 with a 0).



Figure 9. Clockwork arithmetic may be extremely useful as we look to mass-produce arrowgrams.

Source: Iyo, "Purzen Clock Face."

Thus, if we were adding $8 + 7$, we would move seven elements clockwise, and end up at 3. Thus, $(7 + 8) \bmod 12$ (mod12 because we have 12 elements in our set) is equal to 3. Subtraction would work in the opposite direction, counterclockwise. Thus, $(3 - 8) \bmod 12$ would be like moving eight elements counterclockwise, which would bring us to 7. With this new clockwork arithmetic, we ensure that all the grades on our arrowgram are elements of the group. Note that the set also contains the inverse of every element in the set. For example, because $2 + 10 \bmod 12$ is 0, we have that 10 is the inverse of 2 in this operation.

Going back to the theorem, Dr. Price and I provided a new proof of this theorem by analyzing the different tournament directed graphs and their coefficient matrices. We found that there was a pattern in the way each matrix was composed, and we proved, via induction, that the arrows that need to be labeled for graph T_k are 1 to 2, 2 to 3, 3 to 4, and so on until $k - 1$ to k . Thus, for T_5 , we must label the arrow from 1 to 2, 2 to 3, 3 to 4, and 4 to 5. Because each arrow has five possibilities for its value, and we have four arrows that need to be labeled, one can see how we determined that there are 5^4 ways we can label T_5 . However, not all 625 arrowgrams are useful for encoding secret messages. For example, if two arrows are labeled with a 4, and the puzzler is asked to put the arrow labeled 4 in the blank, how are puzzlers supposed to know which set of letters fills the blank? Factors like this must be taken into account when creating an arrowgram.

In the case of finite groups, it is possible to count the number of different ways to grade a tournament directed graph. For example, if we were using T_5 and we could only label each arrow 0, 1, 2, 3, 4, there would be $5^4 = 625$ different ways to label the tournament directed graph. Also, if we changed the vertices to letters, we would have an arrowgram, so there would be 625 different arrowgrams to make from that group.

Figures 10 and 11 feature arrowgrams designed on tournament directed graphs:

For the following puzzle, all the operations are taken Mod 15. Each element of Z_{15} is used exactly once, except for two numbers, which are not used at all, and two numbers, which are used twice. Let P be the bigger of the two numbers that are used twice and let Q be the bigger of the two numbers that are not used.

$$\begin{array}{r} \hline P + Q + 7 \\ \hline \end{array} \quad \begin{array}{r} \hline Q + 10 \\ \hline \end{array} \quad \begin{array}{r} \hline Q - P \\ \hline \end{array}$$

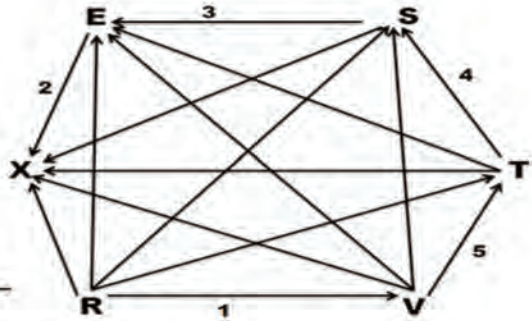


Figure 10. A six-vertex example of an arrowgram on a tournament directed graph.
Source: Kenneth Price, “Arrowgrams.”

In this puzzle, each of the operations are in Z_{10} . Each element of Mod 10 is used exactly once, except for one number, X, that is used twice, and one number, Y, that is not used.

$$\begin{array}{r} \hline Y - X \\ \hline \end{array} \quad \begin{array}{r} \hline X - Y \\ \hline \end{array} \quad \begin{array}{r} \hline 2Y - X \\ \hline \end{array}$$

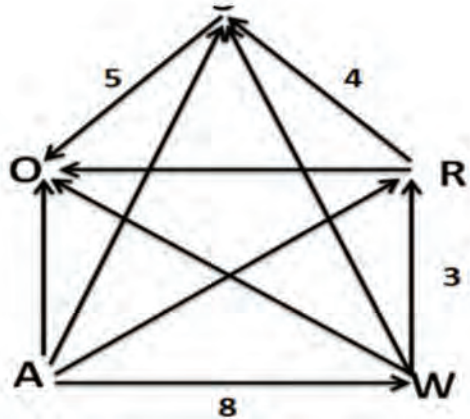


Figure 11. A five-vertex example of an arrowgram on a tournament directed graph.
Source: Kenneth Price, “Arrowgrams.”

Conclusion

Arrowgrams are an exciting new puzzle that require the puzzler to use math in solving them. Creating the puzzles is currently difficult and tedious because one has to consider many factors when encoding the secret message, including which arrows need to be labeled. However, by looking at tournament directed graphs, we have a way to quickly formulate puzzles and to know which arrows need to be labeled. Although we are just beginning to create them, arrowgrams may eventually be as popular as KenKens or Sudokus, and expose the world to some interesting mathematics.

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Metaphors in the Writing Process of Student Writers

Carie Gauthier, author

Dr. Samantha Looker, English, faculty mentor

Carie Gauthier graduated from UW Oshkosh in spring 2013 with a Bachelor of Arts in English. She worked with Dr. Looker as a research assistant for the Writing Based Inquiry Seminar (WBIS) program. Her contributions include influencing the WBIS program goal revisions, ideas for a student-oriented WBIS website, and input on various other WBIS program items. This article started as a senior seminar research paper about the writing process. It was accepted by and presented at the National Conference on Undergraduate Research (NCUR) 2013 in La Crosse, Wisconsin. After a brief break for family and relocation, Carie plans to continue working on this topic at graduate school and hopes to see the ideas presented here incorporated into more writing/tutoring centers.

Dr. Samantha Looker is an assistant professor of English and the director of first-year writing. She teaches WBIS, rhetoric and writing theory, and core English major courses. Her main research interests are in linguistic diversity, feminism, and the teaching of college-level writing. She has a Ph.D. in English with a specialization in writing studies from the University of Illinois at Urbana-Champaign.

Abstract

Research shows that metaphors are a useful instructional tool in the science classroom, and additional research shows that student understanding of the writing process impacts the quality of the students' final products. This article investigates the potential value of applying metaphors to writing instruction. I asked experienced and inexperienced student writers to describe their metaphors for the writing process and compared their responses. I found that inexperienced writers had rigid metaphors focused on a perfect product, whereas experienced writers had fluid metaphors focused on developing through writing. This difference shows an opportunity for development within the student-generated metaphors, which educators can use to guide students to more developed concepts of academic writing.

We talk about arguments as if they are war and we talk about life and love as journeys. In fact, we cannot talk about any of our abstract ideas without talking in metaphorical terms. When I say metaphor, I don't exactly mean the literary metaphor we all learn in grade school. I am talking about the metaphors that are built into our consciousness and that provide a foundation for our understanding of the way the world works.¹ Try to describe hate without metaphors and you may get something like "hate is an emotion that we feel toward each other." However, that definition does not accurately describe hate because you could put *companionship* in place of *hate* and still be right. When you add metaphor, you can say, "Hate is a powerful emotion of dislike that can color our actions and thoughts black with their strength." The second definition uses the metaphors that feelings are weak/strong and that actions and thoughts have color. Emotions are abstract and must be explained in concrete terms, but these concrete terms are by nature metaphorical because the target knowledge is not concrete.

But what if the target knowledge is not abstract? Metaphors are used for explaining the extremes of the natural world as well. In science, we use metaphors to describe natural phenomena such as electrical currents and light refraction.² We use metaphorical activities in our classrooms like role play, model building, and cartoons to show how the world works. The use of these metaphors deepens student understanding and has been proven to be an effective tool to generate student engagement.³ More engaged students are then better able to explain the knowledge they have gained through their participation in metaphorical activity. The writing process is also very complex, so it naturally follows that metaphor can help us to understand it.

My research aims to show the potential of metaphor as an aid to writing instruction and learning. There are two theoretical contributions in my argument. The first applies metaphors, already used in teaching scientific concepts, to the teaching of writing. The second adds complexity to the aspect of cognitive writing theory, which studies the differences between skilled and unskilled writers. My research aims to support the use of metaphors for teaching while also focusing on skilled and unskilled student writers. My claim is that students vary in their abilities, and by encouraging them to create metaphors for their writing processes, we can help both students and teachers understand students' progress as writers.

The seeds of my study were planted in my senior seminar class discussion about some of the ways in which my classmates and I, as experienced writers, picture ourselves in relation to the writing process. Our discussion was prompted by an article written by Paul Prior and Jody Shipka that describes the ways in which the writing environment is social, complex, and layered. In their study, they asked writers to draw a picture of the environment in which they write. The drawings were detailed, and varied based on the understanding the respondents had of what writing entailed. Prior and Shipka conclude that the conceptual bases for writing are "interior worlds of sense and affect [that are] fundamental elements of writing."⁴ Our discussion of the article generated metaphors that describe our understanding of the writing process. I created what would become a highly detailed metaphor about how writing is like knitting. I also started to wonder what metaphors other, less experienced, students use when they describe the writing process.

In this article, I will describe the two theoretical contributions to my argument and then illustrate them with a sample of students with different levels of writing skill. The students' metaphors show clear differences in writing process concepts, which support my theoretical point. I aim to show the ways in which metaphors provide a starting point for writers in the writing process and how those metaphors can then be used in the classroom.

Theoretical Discussion

Metaphors in Science Education

The practical applications of metaphor in teaching have been seen primarily in the science classroom. Several studies outlined in *Metaphor and Analogy in Science Education* advocate using metaphors as an instructional tool for science education. The science educators/scholars of this anthology examined ways in which their own classrooms were affected by their use of metaphors and found them to be useful as long as the educators remain active through guided questions to their students. (It is important to note that, in this book, metaphor and analogy are sometimes used interchangeably.)

Aubusson and Fogwill describe the use of educator-guided role play, a metaphorical activity, to help students learn about chemical reactions. When the students created a role play of a chemical reaction and talked each other through the details of the

reaction, they were able to apply metaphorical thinking to the target knowledge. In this case, the role play activity required the students to create a group metaphor that demonstrated the chemical process needed to create a copper ion in an acidic solution that also produced bubbles. As the students worked through their metaphor, they encountered gaps in their knowledge, such as how to represent covalent vs. ionic bonds, and used problem solving to get the desired reaction. The role play helped the students, as a group, build the metaphor in which the classroom was a room of atoms and molecules, represented by students, books, and chairs. In addition to being productive, the role play provided a level of entertainment and engagement that may not have been possible in a typical lecture about ion formation.⁵ The success of the role play was measured through interviews and tests before and after the role plays, which showed improvement in student understanding about ion formation.

Harrison and Treagust feel that “if analogies are appropriate, they promote concept learning because they encourage students to build links between past familiar knowledge and experiences and new contexts and problems.”⁶ Harrison and Treagust advocate using an earlier model for lesson planning called the FAR guide, in which educators plan the analogy based on their own understanding of the concept and the common experience they feel students have. From there, discussion follows in which students ask questions and offer additional analogies, creating an opportunity for the educator to give feedback based on the students’ understanding. Harrison and Treagust also recognize the useful nature of student-generated analogies because, though student analogies are more difficult to create, they are easier for the students to explain and enable the educator to identify what areas of the target knowledge are missing.⁷

Metaphors in Writing Instruction

Meaningful learning happens as a result of creating an analogy/metaphor and then developing it based on student understanding. As I will argue again later on, student-generated metaphors for writing can help students improve their understanding of the writing process. In turn, their deeper understanding can lead to improved writing.

To date, the use of metaphors for writing instruction has not been explored in detail; however, writing educators are aware that metaphor can be a useful tool for their own pedagogy. For example, VanDeWeghe talks about how becoming aware of and building his own metaphor for his classroom has affected student engagement. He claims, “As we understand our teaching, metaphorically, so do we extend the metaphor in more complex and often compelling ways.”⁸ He writes that his classroom is a story in which the students are both the readers and the characters. As the instructor, VanDeWeghe is the narrator and the author, and the meaning that is created depends on the engagement of his students and the ways in which he presents material.

Using this metaphor, he resisted the urge to interfere with the writing process of one of his students, Dan, who started using images in his journaling process. Instead of telling Dan that journaling was written, not drawn, VanDeWeghe watched to see what would happen. He discovered that Dan was more productive in his writing, and that the images were vital to helping his writing become clearer as he demonstrated deeper understanding. VanDeWeghe used his metaphor of classroom-as-story to view Dan’s images as character development, not deviation from the assigned work. VanDeWeghe learned the importance that analogical processes can have in the classroom, not only to enable educators to explain their ideas but also to allow room for students to develop their own understanding. Though VanDeWeghe used metaphor as a pedagogical tool for himself, he did not call his students’ attention to their own work. In fact, the use of student-generated metaphors to teach writing has not yet been explored; however,

the impact of student understanding of specific writing concepts, such as structure and content analysis, has been examined by cognitive theorists.

Smith, Campbell, and Brooker investigated why some student work showed a complex thought process while other student writing was superficial. The researchers desired to “further theoretical analysis of students’ underlying conceptual understandings of the essay writing process” by recording and then interviewing students of varying skill levels.⁹ Students who wrote in what was described as a “unistructural” mode primarily focused on repeating facts that other scholars had reported. When asked about the criteria of organization, synthesis, and critical evaluation, students in this category withheld personal connections, opting to give textbook definitions instead. Smith, Campbell, and Brooker found that students who wrote “relational” essays included their personal opinions of synthesis and aimed to connect several ideas together in a nuanced manner. The relational writers felt that organization was structural, but that the information needed to flow together as well.¹⁰ The students they interviewed described critical evaluation as “analyzing it, looking at what’s good and what’s bad about it.”¹¹ Smith, Campbell, and Brooker, therefore, found that students’ understanding of specific writing activities directly affected the quality of the work they created.

Similarly, Mike Rose examined students’ understanding of the writing process in an effort to help students overcome writer’s block. He reviewed the blocking patterns of students who got stuck in their writing and the strategies of students who were able to work through their blocks. He found that students who were unable to get past their blocks were adhering to writing rules that hindered them. Ironically, he cites composition teachers and writing textbooks as two of the sources of the students’ problems.¹² For example, one student he worked with only had a general idea of what the paper would look like and indicated that, if her initial plan did not work, she would change it. In contrast, another student he worked with would only start writing after she had mapped out everything she wanted to say in incredibly complex diagrams. This need to outline in great detail left her with too much information to put into her short essay, and she would end up turning her work in late and unpolished. Rose was able to help students work past their blocks by showing them ways their concepts of writing were preventing them from writing.

Nancy Sommers built on the cognitive theorists above by comparing experienced (professional) and inexperienced (student) writers in different contexts. She analyzed the ways in which writers conceptualized revision, and found that inexperienced writers were more interested in the mechanics of their writing whereas experienced writers were concerned with the content of their writing. She used this difference to distinguish students’ from professional writers’ conceptualizations of revision. Though she makes a good point, she assumes that all students are equally inexperienced. Despite this assumption, Sommers’ model is useful because she draws our attention to the clear differences in the conceptual approaches toward revision in each skill level. We can use this same model when we look at different skill levels within the student writer group. The conceptual differences between inexperienced and experienced writers are reminiscent of the work Smith, Campbell, and Brooker did with unistructural and relational writers, as well as what Rose did with writer’s block. In my study, I will look at the differences in concepts of writing between experienced and inexperienced *student* writers.

My research into metaphor and its use in the classroom reveals an area of metaphor that can be applied to the teaching of the writing process. When used successfully, student concepts of writing, embodied as a metaphor, can be examined and compared as well as manipulated.

Study of Student Writers

In designing a study that would support my theoretical ideas regarding the use of student-generated metaphors as a tool for teaching writing, I decided to compare the metaphors of writers who are identified as basic writers and those who are writing tutors. Basic writers are typically students who are required to take a remedial writing course before they can take the first-year composition course. Writing tutors in this study are mostly English majors who identify themselves as good writers and were employed by the UW Oshkosh Writing Center during the semester of my study. The tutors enjoy the task of writing, have a desire to help others become better writers, and are sometimes asked for feedback outside of the Writing Center.

I started by creating a brief survey that asked the following: "Thinking about the writing process in general, what metaphor/analogy fits how you approach writing? Describe or draw all parts that make up your metaphor." I also provided a condensed version of my own metaphor in which I tried to account for different aspects of the writing process without influencing the responses: "Writing is like knitting. The yarn is the words, the pattern is my knowledge, the needles are my physical environment, and the product is my completed essay. If I make a mistake, I can choose to undo everything and start over, or I can rework the stitches (sentences, etc.) until I am back on track with my pattern. It takes practice and can be time consuming, but anyone can learn how to knit (write) well. For some people, knitting/writing is a hobby; other people can market their product for a profit."

Once I had the initial responses, I looked for general patterns. I found that inexperienced writers were concerned with the final product and the right and wrong way of writing. They wanted a perfect paper and felt that there was an ideal that they could get to if they only tried hard enough. For example, they wrote that writing was like a perfect game, the perfect outfit, or beating a video game. These ideas were not exactly wrong, but they were limited. They focused on a goal of perfection that has a clear beginning and end. On the other hand, the writing tutors gave metaphors that were much more fluid and allowed for a variety of tasks and goals in their writing. They wrote that writing was like running errands, growing a tree, or cleaning. None of these tasks, especially the cleaning, is ever done. While there is always room for adding details, the tutors were more process-oriented. To help you see what I was seeing, I will provide some examples from each group.

Inexperienced Writers

Brian, one of the basic writers, wrote that writing is like a maze.¹³ There are clear boundaries, and the goal is to navigate without deviating from the correct path. He is confined by the rules, and he wants to get to the end of his writing quickly. He said, "You are trying to get to the end of the maze by taking the right path right away" and "there are certain paths you can take that will help lead to the end the fastest." Brian gave little attention to the value that a wrong turn in a maze can have. The metaphor is good in that there is a learning process that occurs in it, but there is room to develop it in terms of genre study, scope, and complexity of the writing. Brian may need to be careful that the urge to reach the end as fast as possible does not interfere with developing ideas. A tutor or a teacher could suggest that a more complex maze would make a better metaphor here, where the path of writing changes based on what happens and where there may be more than one way out. This would effectively open the metaphor to possibilities that a traditional maze does not offer without removing the idea of the maze.

Experienced Writers

Charlotte, one of the writing tutors, wrote that writing is a dance. Her metaphor indicates her awareness of genre and the historical value of writing: “There are many different styles of dance . . . [and they] have evolved over a period of time.” Each person dances a bit differently, but can choose to follow a particular style. Since everyone writes a little bit differently, it is more important to learn the steps and then apply your own flourish. The words are the bodily expression of writing, and she recognizes that they may not be perfect and may present challenges. She identified the social aspect of writing in dance partners and others who have influenced her dancing (instructors, peers, etc.). She also provided some specific examples of dances: “A Tango may be a passionate love letter” and “a Rhumba may be a persuasive essay.” Her metaphor indicated the need for structure and topical knowledge, but she also felt that individual voice is important to writing. Charlotte’s discussion of instructors and partners in her metaphor shows that she is conscious of the role audience can play. This awareness of audience does not show up in the samples from the basic writers.

Matching Metaphors

Some students from each writing group chose to use the same metaphor. These pairs of students had the same ideas about writing but differed in how they mapped their ideas. Their differences illustrate the underlying conceptual ideas each group has toward writing. This is where my theoretical point stands out the most, because these pairs of matching metaphors are the same on the surface but follow the same pattern as the metaphors I evaluated above.

Ashley, a writing tutor, and Catherine, a basic writer, both wrote that writing is like a tree. Ashley’s metaphor was about the process of planting and nurturing a tree. She starts with a seed and then makes sure that she is caring for it, giving it the things it needs to grow into a healthy tree. Her emphasis on the process of growing fits the tendency of the writing tutors to focus on the process of writing, not the product. She writes, “You should be proud of your plant and not forget about it . . . it will die if you do not continually return to it.”

Catherine’s metaphor, on the other hand, was about a fully grown tree with established roots. She outlined the physical parts of the paper—intro, body, and supporting points—in terms of the physical aspects of the tree. She writes, “The roots is [sic] the structure of the main topics . . . the main body is where you write out the main ideas. . . . The branches and twigs are the evidence and information to support the body.” Her description of her metaphor is focused on the basic structural parts, and does not acknowledge that the ideas in the writing are vital to the development of the paper.

Similarly, Logan, a tutor, and Alexa, a basic writer, both felt that writing is like painting, and the general pattern of process vs. product continues here as well. Logan begins with an idea, and lets the process work toward creating a whole that “flows well.” He also is aware that different goals require different methods. He explains, “Writing an essay is different from writing a poem . . . in the same way that painting is not the same as drawing.” Though he does not go into detail about how exactly they are different, it is clear that his goal in writing is creating a whole, though it does not have to be a perfect whole. His words indicate significant revision “in hopes of creating a cohesive whole.” At no point does he indicate that the goal is a perfect and complete final product.

On the other hand, Alexa wants a beautiful masterpiece. She wants to have a final product that is perfect all the way down to the details. Like Catherine, Alexa is also looking at the physical parts of the paper. She mentions examples, details, and the

words themselves, while taking herself out of the creation. She writes, “To paint, you let the brush do the work, like letting your fingers type,” and leaves the knowledge and ideas to her sources.

Multiple Metaphors

My study also revealed that student writers used multiple metaphors. Only the tutors shared multiple metaphors, and this shows an additional level of thought process that the basic writers did not have in their responses. In his article “Metaphors We Write By,” Stephen Ritchie describes the value of having multiple metaphors for writing. He asserts, “The generation and application of alternative writing metaphors might guide researchers to take up new challenges in writing.”¹⁴ When he created and used more than one metaphor, the quality of his collaborative writing improved based on the metaphor he used and the project’s goal. He found it easier to collaborate with other writers because he had a clear idea of his role, resulting in more concise writing.

It is possible that Kara, one of the tutors, was doing something similar, and that the multiple metaphors she shared with me are a reflection of how she writes differently in various situations. She wrote about how writing is social and described writing as natural disasters in which people and ideas come together to rebuild in the aftermath. She also wrote that writing is a science experiment, in which some ideas float on the top of the water while others sink through a filter to settle at the bottom of the bottle. Her third metaphor was that writing is headgear in the sense that the ideas need to be pushed around before they can be straightened into a final product. Each metaphor is well suited to different goals in writing.

Harold also shared more than one metaphor for his response. He did not describe each one, but both metaphors show that he equated writing to discovery. The first, a puzzle, is crossed off with no additional detail, but it is not hard to see how a puzzle would fit the writing process. The one he describes in more detail confirms his focus on discovering through writing. He decided that writing is like a fossil because it starts with an interesting idea that he can then explore by digging around his ideas.

Metaphors in Action

After the basic writers created their metaphors, the writing tutors were able to use them in their tutoring sessions with the basic writers. One of the writing tutors, Clark, wrote that the metaphors “open[ed] a new line of communication with the writer.” When his writers created the metaphors, not only could he use them as icebreakers, but he could then refer to the metaphors as he worked with his students. He identified ways in which the students were doing something they had described, and he also found ways in which his own metaphor about making banana bread helped build his students’ understanding.

A few weeks after their initial responses, the inexperienced writers were given a brief self-reflective writing assignment (approximately one paragraph) in which they reevaluated their metaphors and described the impact their metaphors had on their writing. While some students were not yet ready to identify a change in their metaphors, a few writers did show a deeper understanding. One changed her metaphor from an onion to an eyeball. Her metaphor is still the same shape and idea, but it is much more complex. This change indicates that she was self-aware enough to know that her initial idea needed to be more intricate.

Another basic writer did not change her metaphor, but her words showed a more developed idea of writing. When Alexa, the basic writer mentioned above with the painting metaphor, revisited her metaphor, she indicated that she did not feel that her metaphor had changed. However, she also started to get at the same idea as Logan,

the writing tutor mentioned above, and focused on a general goal rather than a perfect product. She revealed, "Focusing on the goal, question, idea will get the job done." Even though she is still looking for a final product, she no longer stresses perfection. This difference reveals that though she may not be aware of the small changes her metaphor underwent during the semester, there was a shift in understanding.

Conclusions

The use of metaphor in the classroom and in tutoring sessions works well with teaching that is tailored to the student. Teachers have the experience and understanding that students are only beginning to develop. As in the science classroom, the awareness of metaphors in writing can provide a better level of understanding for students and educators alike, and it is our responsibility, as educators, to help our students build their understanding. Being aware of a student's metaphor can influence the strategies we use to teach them to become better writers.

In "Analogies and Conceptual Change," Dagher advocates the study of the conceptual change that analogy can provide for students. He adds, "The contribution of instructional analogies to conceptual change may be tacit, leading to small but substantive shifts in students' understanding of concepts."¹⁵ This would fit with what I found in the metaphors given by the inexperienced writers and showed in the examples above, with the onion changing to an eyeball and the potential for the maze to become more elaborate. The goal in working with the students to develop their metaphors would not be to get the students to scrap their ideas but to provide a small change that could lead to more developed academic writing.

The act of writing in metaphorical terms allows students to develop more complex meanings, and can help support their move into more developed academic discourse. My work has already been used by the Writing Center tutors and basic writing students at UW Oshkosh. Further use of my work should aim to chart the change in understanding the writing process, as Dagher proposes.

The longer I thought about my metaphor, the more detail I was able to give it. Longitudinal and comparative studies could explore any differences in the quality of student writing through interviewing the students and evaluating their writing samples. I would strongly recommend that future work be carried out as ongoing research and not as a single-semester research study to allow the researcher time to track the growth in more detail and with a larger sample. A comparative study, meanwhile, could use different sections of the same class to track the impact the students' metaphors have on their writing by evaluating the end of semester writing provided by each section.

Additionally, following Rose's methodology, conducting interviews could provide an opportunity for teaching students to reconceptualize their writing. Lackoff and Johnson claim that metaphor "becomes a deeper reality when we act in terms of it."¹⁶ If we can foster student awareness of writing, we can help students develop their views of writing. By helping students see what is limited in their initial metaphors and then helping them see the ways in which their metaphors can become more adaptable to the varied tasks in writing, we would be able to help students move from a maze with only one way out to a maze in which the walls can move and may contain ideas never seen before. What would be important would be recognizing that there is no "right way" to write a "perfect paper."

Notes

1. George Lackoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980), 4–6.
2. Allan Harrison, “The Affective Dimension of Analogy: Student Interest Is More than Just Interesting!” in *Metaphor and Analogy in Science Education*, ed. Peter J. Aubusson, Allan Harrison, and Stephen M. Ritchie (Dordrecht, Netherlands: Springer, 2006), 52–63.
3. Ibid., 59.
4. Paul Prior and Jody Shipka, “Chronotopic Lamination: Tracing the Contours of Literate Activity,” in *Writing Selves/Writing Societies: Research from Activity Perspectives*, ed. Charles Bazerman and David Russel (Fort Collins, CO: WAC Clearinghouse, 2003), 180, http://wac.colostate.edu/books/selves_societies.
5. Allan Harrison and Stephen Fogwill, “Role Play as Analogical Modelling in Science,” in *Metaphor and Analogy in Science Education*, ed. Peter J. Aubusson, Allan Harrison, and Stephen M. Ritchie (Dordrecht, Netherlands: Springer, 2006), 93.
6. Allan Harrison and David Treagust, “Teaching and Learning with Analogies: Friend or Foe?” in *Metaphor and Analogy in Science Education*, ed. Peter J. Aubusson, Allan Harrison, and Stephen M. Ritchie (Dordrecht, Netherlands: Springer, 2006), 11.
7. Ibid., 14.
8. Rick VanDeWeghe, “Teaching Writing as a Story,” *Journal of Teaching Writing* 20, no. 1 & 2 (2002): 103, <http://journals.iupui.edu/index.php/teachingwriting/article/view/1282/1235>.
9. David Smith, Jennifer C. Campbell, and Ross Brooker, “The Impact of Students’ Approaches to Essay Writing on the Quality of Their Essays,” *Assessment & Evaluation in Higher Education* 24, no. 3 (1999): 327, Professional Development Collection, EBSCOhost, doi:10.1080/0260293990240306.
10. Ibid., 331.
11. Ibid., 332.
12. Mike Rose, “Rigid Rules, Inflexible Plans, and the Stifling of Language: A Cognitivist Analysis of Writer’s Block,” *College Composition and Communication* 31, no. 4 (1980): 389, JSTOR, <http://www.jstor.org/stable/356589>.
13. All student names are pseudonyms.
14. Stephen Ritchie, “Metaphors We Write By,” in *Metaphor and Analogy in Science Education*, ed. Peter J. Aubusson, Allan Harrison, and Stephen M. Ritchie (Dordrecht, Netherlands: Springer, 2006), 177.
15. Zoubeida R. Dagher, “Does the Use of Analogies Contribute to Conceptual Change?” *Science Education* 78, no. 6 (1994): 601, Wiley Online Library, 2013 Full Collection, doi:10.1002/sce.3730780605.
16. Lackoff and Johnson, *Metaphors We Live By*, 145.

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Understanding Injustice

Child Labor in Wisconsin Agriculture: Human Rights Violation or Beneficial Experience?

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Abstract

Human rights organizations have attacked child labor in U.S. agriculture. Investigations into the conditions for children working in U.S. agriculture, such as the 2010 Human Rights Watch study *Fields of Peril*, propelled the U.S. Department of Labor's largest attempt in U.S. history to reform child labor laws in agriculture. The Obama administration abandoned the 2009 Children's Act for Responsible Employment (CARE Act) in April 2012 following aggressive opposition by U.S. agricultural interests and farming families.

My study investigates how people who worked as children on farms evaluate their experiences. I interviewed 15 adults who worked on farms in Wisconsin as children and their responses suggest that what some see as violations of children's human rights are often valued and treasured experiences by those who once toiled in the fields. Most of my interviewees saw no problem with children working on farms and often opposed change to the existing child labor laws. Insights from these interviews, as well as secondary research, could provide a better basis for future change that would more effectively aid those who are truly victims.

Introduction

While consumers consider cheap and abundant produce a right, this right comes at a price. That price is a violation of human rights, more specifically the use of child labor. To increase profits and reduce costs, cheap farm labor is necessary, "and what's cheaper than a child?" (execat1 2010). For the documentary *The Harvest (La Cosecha)*, award-winning American filmmaker U. Roberto Romano "spent over a year documenting the lives of three migrant worker families and their children across the United States. He said that while he was aware of child labor from his work in other countries, what he found in the U.S. was shocking" (Spinks 2011). Thousands of children as young as 12 work in the fields alongside their parents harvesting fruits and vegetables (Child Labor Coalition 2011).

My personal interest in and awareness of child labor in the United States was a product of my participation in an advanced human rights class, but my curiosity was further piqued by opposition groups that lobby against legislative reform. There seemed to be a contradiction between the compassionate nature of many farm families and their

opposition to changes that could better the human rights and safety of children across this country.

The primary research of my study involves interviewing people who worked on Wisconsin farms as children. I hoped to reveal how these seemingly good-hearted farm families and operators could seem callous or dismissive toward the conditions of child farm workers, whether hires or members of their own families. While there exists a variety of crops and methods of farming in the United States and around the world, there are commonalities among all agricultural settings, including the concern for the human rights of child laborers. Therefore, a study of these Wisconsin subjects can provide insight into human rights issues in the United States and the world.

The purpose of my secondary research is not to provide a history of U.S. child labor legislation, nor that specifically of Wisconsin, but to provide an abbreviated basis and an understanding of the need for my primary research. The secondary research revealed a broad range of academic literature, but a lack of data necessary for meaningful spatial analysis or maps. Human rights geography can use alternative methodologies that are accepted within the human geography field to look at the processes that affect a particular place or physical space created or altered by human activity (Carmalt 2007). For the purposes of this paper, that place will not be a town, state, or country—that place will be a farm. Traditionally, a *farm* is defined as an area of land and buildings under single ownership. Agricultural settings today can be with or without buildings and homes, and can be permanently owned—by a single family, partnership, or corporation—or temporarily owned, as with leasing or renting. While a strict definition of *agriculture* is the science of cultivating soil, producing crops, and raising livestock, this paper uses the word *agriculture* to represent the farm and/or farm life. The experiences of child laborers occur in a place, a basis for all geographical research. Therefore, considering changes in the characteristics of places, or in this specific case farms or agriculture, can reveal avenues for solutions to the challenges of child labor in the absence of statistical data.

Existing research regarding agricultural child labor has largely focused on four areas: historical development, human rights issues, education, and agromedicine. There is extensive literature on the history of child labor and reform attempts in U.S. agriculture. One of the best-known sectors of that historical research is of child labor in the sugar beet industry from 1890 to 1920 (Lyons-Barrett 2005). Enacted in 1942, the bracero program allowed Mexican nationals to work temporarily in the United States and children continued to labor in the fields (Norris 2009; Mapes 2009). Additional literature addresses state-level attempts to reform child labor law (McLogan 1935), the advent of compulsory school laws, and debates about family versus industrial agriculture (Mapes 2009), which are similar to current issues and debates, more than a century later.

Immigration, migration, and child labor issues are all closely tied to farms, agriculture, and human rights, and therefore a wide range of texts focusing on human rights aspects of child labor are available. Those studies include but are not limited to: the adverse conditions of current child laborers (Human Rights Watch 2010; Michigan Civil Rights Commission 2010; Hess 2007), recent child labor law reform attempts (Grossman-Greene and Bayer 2009), migrant and immigrant specific issues (Bacon 2008; Cholewinski 2009), and more general studies of the overall problem of child labor (Levine 2003). Other scholars address the demographics, educational attainment, immigration raids, and migrant educational centers connected to child labor issues (McLanahan 2011; Capps and Castaneda 2007; U.S. Department of Health and Human Services 2011).

Studies focusing on injuries and other medical issues of children in agriculture cover a variety of topics: migrant and immigrant children-specific issues (McLaurin and Liebman 2012), injury risk and prevention (Marlenga, Lee, and Pickett 2012; McCurdy and Kwan 2011; Pryor, Carruth, and LaCour 2005; Rivara 1985), and agricultural dangers and solutions (Fisher, Berg, and Marlenga 2009; Lee et al. 2012).

Despite the literature mentioned above, the film and text documentaries that interview current child laborers, and ongoing legislative attempts, there appears to be no research that investigates the recollections and opinions of those who were once child laborers. This void guided my decision to focus my primary research and paper on those who once labored on farms as children.

Contrary to popular belief, child labor is common, and even increasing in agriculture across the United States (Spinks 2011). In December 1999, the United States was one of the first countries to ratify the International Labor Organization (ILO) Convention No. 182, which prohibits the worst forms of child labor. In 2010, the ILO's Committee of Experts "strongly criticized children's involvement in hazardous agricultural work" in the United States and "urged the U.S. government 'to take immediate and effective measures to comply with the convention'" (Human Rights Watch 2010).

"Children are primarily working in hand-harvest crops," says Zama Coursen-Neff of Human Rights Watch. "They're picking apples, cherries, blueberries, tomatoes, cucumbers, zucchini. . . . They're harvesting tobacco. They're doing the work that puts fresh fruit and vegetables Americans enjoy right on our table" (Peters 2010). Children make a significant contribution to the agricultural workforce. They are working in the second most dangerous occupation in the United States, where farm machinery is the leading cause of fatal and nonfatal injuries. Tractors accounted for half of the machinery deaths, followed by farm wagons, combines, and forklifts (Rivara 1985). In 2010, 26 people died in grain elevator accidents; six of the fatalities were children (myFOXla.com 2011). Other hazards on farms include pesticides, large animals, heights, and water hazards, such as troughs and ponds (Fisher, Berg, and Marlenga 2009). Up to 40% of those injured under the age of 19 suffer permanent disabilities (Pryor, Carruth, and LaCour 2005). According to the National Farm Medicine Center in Marshfield, Wisconsin, childhood injury rates fell 59% between 1998 and 2009, but the fatality rate is still "six times the average across all industries" (Kilman 2011). The dangers involved in farm work are a serious problem, but other issues connected to children working on farms are also a concern.

Human Rights Watch published a 95-page study, *Fields of Peril: Child Labor in US Agriculture*, which reports data from more than 140 interviews—including 70 current and former child workers who worked across the United States—and reveals problematic conditions (Human Rights Watch 2010). Beyond the aforementioned physical dangers that children face while working in agriculture, this study highlights issues in education, health and safety, social challenges, and exploitive work conditions. High dropout rates are one of the many educational issues. Health and safety issues include a lack of sanitation and healthcare and overlap with the social issues of sexual harassment and violence. The exploitive work conditions consist of pressure to work for long hours at low wages, even while sick or injured. The interviews are compelling and provide substantial evidence for poor and dangerous work conditions.

The United States does not have a system or plan to track any comprehensive data on youth, such as their occupation, age, where they work, injuries, or deaths (Project Censored 2011). The statistics available in various sources are not comprehensive. For example, the NAWS (National Agricultural Workers Survey), indicates that between

1989 and 2006, 5.5% of the hired crop workers were children ages 14 to 17 (McLaurin and Liebman 2012). While the data available is sufficient to convey high mortality and injury rates for agricultural occupations, negligence exists in the collection of data on child laborers under the age of 16 (Levine 2003). The United States publishes reports documenting goods produced with child labor in countries worldwide, but goods produced by child labor in the United States are not included in that report (Spinks 2011).

Although the United States “spends over \$25 million a year—more than all other countries combined—to eliminate child labor abroad” (Human Rights Watch 2012) and is the “largest donor to the International Labour Organisation’s programme to combat child labor” (Peters 2010), its progress is slow at home. Attempting to remedy the health, safety, and education issues of U.S. child laborers, Rep. Lucille Royal-Allard worked relentlessly to pass the Children’s Act for Responsible Employment (CARE Act) (Child Labor Coalition 2011). The CARE Act sought to bring the age and work hour standards for children working in agriculture up to the standards set under the Fair Labor Standards Act for all other working youth, raise the standards for pesticide exposure, require greater data collection by the Department of Labor on the industries in which minors are employed (specifically agriculture), and preserve the current exemptions for children working on their family farms. On May 20, 2010, the Department of Labor’s Wage and Hour Division published “a Final Rule designed to protect children from hazards in the workplace while also recognizing the value of safe work to children and their families,” which updated the Child Labor Regulations (U.S. Department of Labor 2011), but still exempted family farms. The rule prohibited hired farm workers under the age of 16 from operating power-driven equipment, but exempted family farm children. These updates did not address issues such as pesticide exposure and long working hours. The proposal was published September 2, 2011, and on October 31, 2011, an extension allowed public comment until December 1, 2011. The comment period brought more than 18,000 responses, largely in opposition, which accused the administration of attempting to wipe out the existence of the family farm (Keifer and Heiberger 2012). Those in opposition were a combination of corporate farm owners, family farm owners, peripheral agricultural businesses, lobby groups, and family and hired laborers—both past and present.

By April 2012, based on the overwhelming opposition, the Obama administration dropped the legislation provided by the CARE Act and promised not to revisit it during his presidency. The case made by proponents of legislation was weakened by migrant workers who may have lacked Internet access or feared losing employment. Furthermore, the administration could not ignore the clout of the farming community—the backbone of the food supply in this country. As a result, the status quo of the FLSA (Fair Labor Standards Act of 1938) still stands:

Minors of any age may hold jobs on farms owned or operated by their parents. . . . Children age 12 and 13 may work at nonhazardous jobs outside school hours at the same farm as the parents . . . or elsewhere with written parental consent. . . . Children age 16 and older may work at any job hazardous or otherwise with no hourly restrictions.
(Pieris 2004)

Standards in the United States for children working in agriculture continue to be similar to those of less-developed countries regarding work conditions, hours, and safety, so solutions to this problem are still needed.

Research Methods

My decision to interview adults who once worked on farms (as opposed to children currently working on farms) is based on three considerations. First, research involving interviews with minor children, as in the documentary *The Harvest* and the study *Fields of Peril*, is well established. Second, there are major hurdles in obtaining IRB (Institutional Review Board) approval and parental permissions for interviewing minors. Last, and perhaps most important, I thought a retrospective view might reveal an explanation for the attitudes of those in power today who are most opposed to reform. Yesterday's child workers are making the decisions for the children of the future.

After obtaining IRB approval for my study, I arranged interviews according to the following criteria: the person had worked on a farm (or farms) as a child (under the age of 18) and the person worked on a farm (or farms) in Wisconsin. Although present in my geographic study area, none of my interviewees were immigrants or migrant workers. All of my interviewees were native-born U.S. citizens, but not by intention or exclusion. Therefore, information reported regarding immigrants is based only on secondary research. My quest to obtain interviews was more difficult than anticipated because of the controversy created over the proposed reformative legislation. There was a sense of mistrust and suspicion with some prospective interviewees when the term *child labor* was mentioned; however, my interviews were with farm laborers who seemed to be honest and forthcoming.

I arranged appointments for each interview in advance; however, two interviews developed spontaneously as a result of an in-progress interview. My interviews took place between June and September 2012, in home or work settings. Interviews lasted 30 to 90 minutes and interviewees spoke as long as they wished, while I used a laptop to write their responses. I repeated several questions in each interview, which allowed for some meaningful quantitative results, but most questions were open-ended and allowed for nonstructured individual discussion. As required by IRB guidelines, I omitted information that could reveal someone's identity and used pseudonyms, but I did provide ages to aid in interpreting the era the interviewee was working in as a child.

Interviewees were not asked identical questions. Numerical results presented in this paper are based on the number of interviewees asked a specific question and not the total number of interviewees. That being said, these numbers, combined with the qualitative results and attitudes conveyed, work together to provide indisputable experiences, perceptions, and realities based on farm environments and experiences.

Of the 15 interviewees, 10 were male and 5 female, with an approximate age range of 25 to 82. Of those asked, 53% currently own their own farm (or their family does). In addition, a little more than half of the 15 receive income from farming. Some income is from ownership, but other interviewees rent land to derive agricultural income. At the time of the interviews, 26% were involved in physical farm labor. This number may seem low compared to the ownership and income percentages; however, this is because some landowners are receiving income by leasing land to a farmer. Another significant factor is what I will call "inheritance potential"; by this, I mean my interviewees are potential heirs to farmland or more farmland than they currently own. Some 60% of my interviewees had inheritance potential. These results indicate the economic interests of people with small family farms, which can have a significant impact on the perceptions of and reactions to any changes affecting farm labor.

The Farm in General

The request, "Please describe the farm you worked on as a child" provided some understanding of the place and setting where these interviewees worked. In various

Wisconsin locations, the farm size of those interviewed ranged from 40 to 320 acres, with an average of 157 acres. Based on the age information gathered of the interviewees, they worked on farms as children between 1935 and 2005. Of the 15 farms, 14 had dairy cows and more than half had cattle for meat. Dairy herds ranged from 20 to 75 milking cows. Other animals included pigs, chickens, horses, geese, ducks, and goats, with chickens and pigs being most popular after milking cows. Crops included hay, corn, oats, barley, soybeans, wheat, vegetables, rye, peas, cabbage, strawberries, and gardens or other minor plantings. All of my 15 interviewees worked on their parents' or grandparents' farms. In addition, 20% worked on another family member's farm and 46% on a neighbor's or friend's farm.

Agricultural Chores

When asked, "What age did you start doing chores?" the answers ranged from five to ten years old, with an average of seven years old. Chores included making bread, feeding chickens, carrying milk, detasseling corn, picking stones, cleaning barns, mending fences, milking, raking hay, unloading bales, cleaning cows, castrating, dehorning, and more. These children did it all. Interestingly, the most hated chore was "pickin' stones." Picking stones entailed a *stone boat*, which was a large sled-type creation that was pulled by horses, or a tractor in later years. All working in the field would follow the boat and fill it with stones. Joe (age 75) shared, "When you hooked on that stone boat, you knew it was gonna be work!" After Gary (age 65) indicated shoveling manure was the job he disliked the most, he remembered picking stones and recanted: "That's the most dreadful job. Worse than manure. It's never done . . . that's the worst [*laughs*]."

Ted (age 65) started working at age five. There was an unloader connected to a Model T transmission and Ted's job was to pull the chain on the electric switch. He reflected, "It was a dusty, dirty job that I didn't particularly care for." Tom (age 62) remembered feeding calves in the barn when he was between four and five years old and milking at the age of ten. Janet (age 70) said with pride, "By the time I was seven, I had to make the bread every Saturday," and Shirley (age 82) recollected, "One of my youngest memories is . . . going out as a youngster on hands and knees and putting strawberries in a basket in maybe first or second grade. Friends helped and I think we got a penny a basket." Asked about the chores he did, Don (age 58) rattled off the list: "Anything from unloading hay or straw, cleaning calf pens, raking hay, pulling weeds in the garden, pulling potatoes, cutting burdocks in the pasture . . . that covers a lot." Later when asked what chores he was doing at eight years old, he rattled off more: "Sweeping the barn, liming the barn, cleaning the chickens, pulling weeds. Oh yeah and when baling hay, go out with a fork and pick up hay." The interviewees conveyed a sense of pride in their work and an understanding of economic value from a young age. Later in the interviews I learned how these early days of labor shaped my interviewees' lives.

When I asked, "When were you expected to do chores?" 57% of interviewees said during the morning, 82% said during the evening, and 30% said both. All of the 15 interviewees had to work in the summer, and most had to work longer hours in the summer than during the school year. However, some worked morning and night regardless of the time of year. Gary (age 65) said, "Yes, milked morning and evening," and Shirley (age 82) replied emphatically with a look of pride and reflection, "I milked EVERY day!" When asked about what age they drove a tractor, the boys' ages ranged from seven to thirteen years old and the girls' from ten to fifteen years old. Not exactly "driving," Ted (age 65) recalled being four when he held the wheel straight on a 1936 John Deere tractor while it was in first gear, so that the adults in the field could husk

corn by hand. Joe (age 75) believed he was seven years old at most when he started driving the tractor, and by age ten he was cultivating corn. Mary (age 65) remembered driving a tractor about the age of ten, while Grace (age 42) didn't drive a tractor until she was fifteen, just before getting her driver's license. Tom (age 62) remembered cultivating at eight years old with a Chalmers model WC tractor and driving down the road for the first time at age eleven. Whether male or female, my interviewees drove tractors at a young age, as was expected and often necessary to complete the daily chores.

I asked my interviewees to categorize their farm labor as work, recreation, or both; 80% responded work and 20% both. For example, Joe (age 75) expounded, "I guess you would consider it work. It was fun while you were doing it growing up. You were able to be involved or functional. You could do adult things." By contrast, Rick (age 34) explained, "I was at that age I hated living on the farm, got to see my friends play all day and wished I lived in town and that it wasn't that way on the farm." However, Rick also said, "I didn't appreciate it until college. . . . It was a good thing—the hard work and values. . . . Nothing else can teach you values like that. It teaches you to work hard. . . . I think you can pick out kids today that worked on farms . . . just the work ethic that they bring to the work table." A consistent pattern emerged among the interviewees in retrospect: working on the farm, although difficult, hard, and with risks and economic challenges, was a treasured memory and a valuable experience that was rewarding in multiple ways.

Injuries

A major concern regarding children working in agriculture today is the propensity for injury. The interviewees conveyed a wide range of responses regarding questions about injuries, from virtually no concern to some frightening situations: 82% experienced at least one injury. Gary (age 65) said, "My older brother broke his wrist a lot cranking the tractor." Another, Janet (age 70), remembered, "My older brother got run over by a milk truck, but it was spring, and really soft, so he wasn't hurt." Janet also remembered a neighbor boy getting killed in a manure spreader, when a boy driver turned it on. Mary (age 65) fell out of a hayloft and wasn't seriously hurt, but Tom (age 62) remembered falling down a silo and tearing his ligaments. He relived the accident: "I was laid up probably two weeks. Any place I had to go, they put me in a wagon and hauled me. I was probably 20 to 30 feet up the silo and slipped and fell onto a concrete floor." Asked how he felt after that, he said, "Didn't bother me. I still climbed." One of Ted's (age 65) cousins was crippled on a hay mower because he fell when the horses jolted. Grace (age 42) was kicked several times by cows and lost her two front teeth by getting bunted by a calf, but Shirley (age 82) had a preventative to getting kicked. She explained, "I had to wash my hair every day because I put my head in the cow's flank to avoid getting kicked. I never got kicked because I learned very young to put my head in the flank and block with my elbow." Injuries were part of farm life and all of the interviewees readily accepted the risks. Jim (age 70) explained with acceptance, "There are always farm accidents. It's part of the trade." Even if these children did not personally experience injuries, they knew someone who did. Interviewee recollections indicate similarities to agriculture today in the sense that injuries are common and varied in nature.

I asked some interviewees to indicate chores that they should not have been doing or children should not be doing on farms today. Don (age 58) said being up in the silo was dangerous because of the gas and lack of fresh air and recalled the most dangerous thing he did "was hooking silage off the back of the wagons into the open blower."

When Butch (age 50) was asked, he replied, “Probably a lot of things, umm, climbing silos, cleaning out plugged machines and total freedom around animals, at a young age before you knew how to respect them.” When asked how she felt about kids operating machinery, Janet (age 70) had this to say:

Ahh, you know, that’s kind of scary. Some kids are very responsible. We did it and I don’t know that we got hurt on farm equipment. We fell off roofs and stuff. We were around all of the farm equipment, especially in the fall when bringing in crops. It took two to drive the tractor—one to sit on the seat and one to jump on the clutch.

Janet realized that although they did not have injuries in their family, they could have, so she seemed to have mixed feelings about making a definitive statement one way or the other. With a more general, but qualified, statement, Rick (age 34) indicated that he wouldn’t want his own children doing the more dangerous things on the farm. But “the skills you learn you don’t learn anywhere else,” he said, emphasizing the life lessons that are learned from working on a farm.

Education

Another issue of concern with children working in agriculture today, most notably for migrant children as opposed to children working on family farms, is deprivation of an education. Surprisingly, all of the 10 interviewees asked indicated that education was important to their families and that they never or rarely missed school for farming. For example, Jean (age 82) said, “[Our parents] wanted kids to get an education beyond eighth grade, because they couldn’t . . . everyone wanted their kids to go to high school.” Janet (age 70) echoed, “To them, education was very important. They were of the age when few finished high school.” Asked if school was often missed, both Tom (age 62) and Don (age 58) said rarely, unless a silo needed to be filled, and Shirley (age 82) said, “No, really didn’t. . . . No, never for hay or anything.” This is different from the experiences of migrant children, as documented in *The Harvest*. Studies indicate that “the children of migrant agricultural workers are among the most educationally disadvantaged children in the United States” (Michigan Civil Rights Commission 2010). Different environments, structures, family settings, economics, and availability of schools prevent many migrant children from getting an education, and dropout rates are high.

Opinions on Children Working on Farms Today

All interviewees believed that children should be allowed to work on farms today. As an example, Chuck (age 25) had this to say:

The farming industry wouldn’t be able to stay afloat without kids and high schoolers milking. They [farmers] wouldn’t get everything done in a day. I know there was a proposed law that anyone under 18 couldn’t use certain equipment. It’s grey because there are a bunch of partnerships and stuff.

Chuck shared his concerns about the grey area of the law: if the changes were passed, he knew of someone who would not be able to work on his father’s farm, because the farm entity was not a single family farm, but a partnership. Chuck further elaborated on the farm bill (i.e., the CARE Act) that was recently abandoned:

Personally I thought it was ridiculous. A piece of milking equipment is not a tractor. You are not even getting near a cow and there is no way to get kicked. If we were to hire a kid from town, we’re not going to throw them right on a tractor, and training on a tractor is so much easier today.

This same interviewee, however, was aware of the threats of pesticide exposure. He indicated his concerns about them near children and relayed that his own father was cautious with pesticides. This young man, who had worked on his parents' farm, was aware of the economic impact of his contribution to the family farm and also understood how the law changes might affect young family farm laborers even though the law claimed not to affect family farm members. His insights brought to light the difficulties in blanket legislation that tries to address safety and working conditions.

The interviewees considered cheap labor, in the form of a child working on a family farm, acceptable. On the family farm, ownership of the farm gives incentives to family child laborers to condone the use of child labor in a joint family effort to preserve the farm's existence. This ownership provides both familial and economic motivation in the form of future benefits that are not realized by migrant child laborers. However, Jim (age 70) recognized another benefit: "It's a good opportunity [for kids to work on a farm]. A man told me in town that the reason he hired me was because I worked on a farm." Grace (age 42) replied, "I think it's definitely a good experience. It gives a child an idea of structure with work and life." Ted (age 65) agreed, but thought a child had to grow up on the farm to understand the hazards. When questioned further as to whether children should labor if the country's prosperity does not require their labor, Ted (age 65) responded:

Well, how will they learn things? . . . In this day and age with mechanization, [the farm is a] good opportunity for kids. They learn by doing on the farm. Unfortunately with farms the size they are now, fewer kids have that chance. . . . The family farm is doomed. Because of family economics, the next round of people going into agricultural careers will have no agricultural background.

If legislation allows children to work on large or corporate farms, the agricultural tradition and ethic may not be altogether lost, even in the face of the demise of the small family farm.

Economics

One aspect of economics revealed through the interviews was entrepreneurship related to the ownership of the farm. For example, Mary (age 65) remembered that when her mom wanted to buy something extra for the house, she bought pigs and raised them to sell to the butcher. Shirley (age 82) remembered her father being renowned for the quality of his cream, but when he had to sell his cows he grew vegetables on his farm, which he sold profitably to supermarkets.

I did not ask my interviewees direct questions about money or economics, but they discussed many economic aspects. Many of my interviewees, especially those of the earliest generations, lived a poor or modest life. The success of the family farm—economically, physically, and quintessentially—was dependent on labor that was available, including children. The ideal of family life, hard work, and values was as important as the physical and economic asset of the farm. These aspects existed hand in hand. Family supported immediate family (parents and grandparents) first, then neighbor helped neighbor, and in some cases family helped distant family, if geographically feasible. Jim (age 70) painted the neighborly picture of thrashing in the fall:

One neighbor had a grain thrashing machine. . . . Then he thrashed for the rest of the farmers. When he moved in, it took two or three days. Mom would make the meals and neighbors would come with horses and wagons, and do one farm at a time, and go in a circle. The new guy came last. There must have been ten farms in the group.

Reliance on neighbors was common in agricultural areas. At that time many farms could not afford expensive machinery, such as a thrashing machine. Therefore, sharing machinery and labor with neighbors was common and necessary. Early generations assumed the future existence of the farm. Frank (age 70) shared, “Back then, a son of a farmer, well, it was highly likely what he was going to do. Nobody ever asked me, ‘Now, you’re going to be a farmer?’ And I couldn’t wait to get out of school so I could do that.” As the years went by and some of the younger generations chose not to farm, they often inherited farms and opted to lease them, which still provided a financial asset.

As previously discussed, inheritance potential is a motivating factor on family farms. Beyond the sentimental value of the farm life to my interviewees, the economic benefits of the ownership of physical real estate and land tend to justify sacrifices that may not be reasonable to expect of a hired laborer. Family members were more enticed than a hired laborer to endure years of low wages, knowing that in the end the family is holding a financial asset with equity that can provide rental income. Hired farm workers may not understand the motivation of a family farm worker with a vested interest in family farm ownership and the treasured character-building ideals realized through the commitment to the common goal of the family farm. The research shows that the environment for the migrant or immigrant child laborer is different from that of a child laborer on a family farm.

Comparison of Farms Then and Now

When asked if farming today is similar to what they experienced, 92% of interviewees disagreed. Don (age 58) emphatically responded, “Not even close! No. . . . Might be similarities of work, but rewards are a whole lot different.” Butch (age 50) said, “No, it’s not similar. It is less physical work and more automated now.” Tom (age 62) simply stated, “No, there is very little resemblance at all.” Gary (age 65) compared the work then and now:

Things have changed so much. There isn’t all this manual labor. They have robots that milk cows. As far as cleaning pens and stuff, it’s all mechanized. . . . [There is] none of the manual labor like I was accustomed to with 12 cows and livestock. Everything was wheelbarrowed to a pile and pitched on manure spreaders by hand.

Shirley (age 82) elaborated on this topic as well. However, she addressed the change in overall environment as opposed to strictly changes in machinery and technology:

No I don’t. Not at all. Big, big machinery. Lots of cows. I’m sure some families still own. I just don’t think there is a tight union where you milked, killed your own chickens. We raised a calf every year and it was special food because we knew she was slaughtered for home use. We also did all of our beef, chicken, and pork.

These responses reflect a farming environment in which mechanization and automation has increased in both the fields and barns; however, it is apparent that these interviewees refer to local conditions, not the states where handpicked crops requiring hard physical labor still exist.

Overall Experience

Of the 11 interviewees asked about their overall experience of working on a farm as a child, 82% replied it was good or excellent, 18% had mixed feelings, and none said it was bad. Responses were overwhelmingly sentimental and accepting of the conditions, hard work, and challenges faced. Butch (age 50) said his overall experience was “very rewarding . . . gave me a sense of accomplishment, personal pride, loyalty to family,”

while Rick (age 34) said, “It was a good thing—hard work and values.” Chuck (age 25) offered, “Working on a farm has made me the guy I am today and I’m proud of that,” and Jean (age 82) shared that her experience was “positive. I learned how to work, how to live without, how to be positive.” Don (age 58) echoed this prevailing theme of family values, work ethic, respect, and intangible rewards:

Excellent! It was rewarding, life building or umm let me think . . . life building . . . umm respectful to elders as far as neighbors and things like that. . . . At the time you didn’t think it was rewarding, but now you know it was life molding, learning work ethics and respect.

There was an overall sentiment that working on the farm as a child was rewarding, valuable in building ethics and family values, and, regardless of risks involved, is an experience that the interviewees would find acceptable and desirable for their own children and others. These conclusions may help explain the strong opposition people like my interviewees have to regulation changes.

Conclusions

My interviewees do not have identical answers, but their stories have common threads. Several conclusions can be drawn from their insights, and their sentiments provide comparison and contrast to the farming entities across the country, whether small or large, family or corporation.

First, those who worked on farms as children considered hard physical labor a way of life and not abusive. As a matter of fact, they believed it built character and morals that would not be obtained otherwise. They felt these experiences brought them advantages in life that were lacking for those who did not work on farms as children.

Second, while some might think farm families are ignorant of the dangers present in farming, they are well aware of the threat of injury or death. The interviewees accepted those risks as part of a way of life. But “the data is clear: Agriculture is one of our nation’s most dangerous industries” (Lee et al. 2012). This danger is present for all ages, so it is logical that preventing children from performing such tasks does not make the conditions safer for all ages. Perhaps an approach to make agriculture safer for all workers could help conditions for children without forcing unwanted legislation. One example of this is in the area of pesticides. Safe practices overall would benefit the children working side by side with adults.

Third, those interviewed were comfortable with children working on farms, regardless of which children—their own, a neighbor’s, or legal immigrants. Jeffrey Passel, a senior demographer at the Pew Hispanic Center in Washington, predicts that “immigrants and their children will provide virtually all of the growth in the U.S. labor force over the next forty years” due to the country’s aging population “combined with low fertility and mortality rates” (Passel 2011). Although my interviewees are not likely aware of the demographic specifics, their history solidifies their belief that low-cost labor and/or “free” family labor is a necessity. Defense of the need for children working on farms will likely be strengthened by the threat of a labor shortage.

Fourth, the interviewees considered education important, but did not have the challenges that migrant farm workers have in maintaining an education. Most of my interviewees either did not move during their childhood or moved within a 10-mile radius, while various studies indicate migrant families move 1.37 to 4.31 times per year (U.S. Department of Health and Human Services 2011). The interviewees recognized, valued, and treasured the support of family and neighbors in their experiences working on the farm, and recognized the lack of this environment for hired child laborers or migrants. However, most did not indicate an understanding that accommodations, for example in education, are needed for hired workers in today’s farming environment.

The perception of interviewees is that migrant child laborers would receive the same intangible benefits that they did; they did not seem to be aware that “a third of child crop workers drop out before graduating from high school” (Human Rights Watch 2012).

Last, a major difference for immigrant or hired child laborers is the lack of inheritance potential and the absence of the family farm experience. The environment for the migrant child laborer is different than that of a child laborer on a family farm, and although migrant workers learn some of the same work ethic, it is not accompanied by the benefits of a stable familial, educational, and neighborly environment.

Standards established by the ILO and other organizations reveal contradictions in U.S. practices regarding child labor. The distinct child worker populations—workers on family farms and migrant workers—show that blanket legislation is not the answer for the agricultural business. Nonetheless, considerations or remedies for either population should consider the needs of the child, and perhaps the scope of what a child needs should be broadened. Most of my interviewees felt that their child labor experiences were vital to their rewarding lives. Lessons learned from these interviewees are applicable not only to the United States, but to other countries around the world.

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An Evaluation of the Factors Causing Food Insecurity in Africa

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Abstract

Food security is not only one of the most relevant fields of study for Africa but also one of the most pressing. Despite increasing levels of food production, famines such as the 2011 famine in the Horn of Africa continue to leave millions facing starvation. Furthermore, with the effects of climate change on the horizon, the challenges associated with food security are only expected to worsen. To know how best to attack a problem on a scale such as this, a firm understanding of the causes is required. The following research will evaluate three frequently cited causes of food insecurity: conflict, environmental hazards, and food aid. Variables tied to these hypothesized causes will be measured against two facets of food security: production and consumption. The results ultimately show that food aid decreases production by creating disincentives, while environmental hazards lower consumption. The following research will investigate these three areas, comparing the effect of each on food consumption and production to devise substantive policy solutions for improving food security in Africa.

At the World Food Conference in 1974, the international community declared that “every man, woman and child has the right to be free from hunger and malnutrition” (“Rome Declaration” 1996, 807). This emphatic right to food has been frequently mentioned at subsequent conferences and summits, often accompanied by ambitious goals for the eradication of hunger. The most recent of these can be found in the United Nations’ *Millennium Development Goals Report 2010*, which lists ending hunger as one of eight targets to be accomplished by the year 2015 (United Nations 2010). Despite these laudable aspirations, hunger and malnutrition are rising to unprecedented levels. Thirty-eight million people have faced an “urgent and imminent threat to their peace, security, and stability” as a result of the 2011 drought in the Horn of Africa, which severely affected Somalia, Ethiopia, Eritrea, Djibouti, and Kenya (Clover 2003, 5).

Furthermore, as the 2011 food crisis in the Horn of Africa demonstrates, urgent and drastic attention must be given to solving the issue of food insecurity. Food is a basic right and need, and its lack has already cost an incomprehensible number of lives in the last few years alone, with many people forced to leave their homes and subsist on very

little (Sheeran 2011). This is inexcusable at a time when technological advancement in food production has made the world better equipped than ever before to deal effectively with the consequences of drought. During the past three decades world food production has grown at a faster rate than the population; in spite of this, as previously mentioned, the number of undernourished people has increased substantially (Clover 2003, 5).

Given the direness of the situation, it is important not only to treat the symptoms of a food crisis but also to uncover the underlying causes. At the same time, it is important to note that “there is no single explanation nor universal cure for African food deficits” (Berry 1984, 96). With this in mind, the following research will evaluate the commonly offered explanations of food insecurity to ascertain how each explanation impacts food security and to determine each hypothesized linkage’s marginal effects. Given the indications of prior research relating to food security, this analysis will focus on three key areas: conflict, the environment, and aid. While this is not an exhaustive list, the following research seeks to evaluate the effects of the most predominantly cited causes. Moreover, rather than zeroing in on one element, this paper will endeavor to provide a more comprehensive view of food insecurity in Africa.

This paper is organized as follows: first, I discuss previous research that has identified factors substantially affecting food consumption and production. Following this review of food security literature, I isolate and operationalize the predominant factors in a discussion of the research design used in this paper. These predominant factors comprise the three hypotheses tested in the following research: conflict increases food insecurity, environmental hazards increase food insecurity, and food aid increases food insecurity. I used a total of eight regression equations to evaluate the connections between each of the focus areas (conflict, the environment, and aid) and food security. Half of the equations use food production as the dependent variable, and the other half use food consumption. The first three sets of equations establish whether the hypothesized relationship is statistically and economically significant. Based on these results, I take two independent variables from each model for inclusion in two regression models incorporating all three hypotheses, one for consumption and another for production. This final set of regression equations allows me to draw comparisons across hypotheses. I analyze the results of these models in detail in the results section before synthesizing in a discussion section. The conclusion summarizes the findings of this research while also offering policy implications and solutions.

The Role of Conflict, the Environment, and Aid

An extensive body of literature on food security has amassed over the past several decades linking numerous policy decisions and general phenomena to food insecurity. These studies encompass a diverse array of items, from oil prices, which affect fertilizer use and transport costs (Nelleman 2009), to gender discrimination, which can leave female-headed households unable to sufficiently provide for their children (Jenkins, Scanlan, and Peterson 2007, 831). Despite the wealth of connections made in previous literature between food security and various topics, the following research analyzes only three of these. The three key factors highlighted here—conflict, the environment, and aid—were chosen primarily for their predominance in current research (see Clover 2003; Morgan and Solarz 1994; Misselhorn 2004; Kanbur 2000). Furthermore, each hypothesis emanating from these factors points to different mechanisms causing food insecurity and, consequently, each calls for different policy solutions.

One argument common in the conflict literature contends that food insecurity is not a supply problem but rather a problem stemming from power and access (Jenkins, Scanlan, and Peterson 2007, 839). The focus of this assertion is on the influence of

militarism and, in particular, arms races, civil war, and internal repression (Jenkins and Scanlan 2001, 719). There are three commonly cited explanations behind this assertion. The first emphasizes that military spending and arms imports reduce a state's capacity to invest in public sectors such as nutrition, health, and education, which constitute the basic needs of a population (Jenkins and Scanlan 2001, 724). The second explanation is that internal armed conflicts disrupt agricultural production, markets, and food distribution because rival forces can use food as a political weapon, thereby further undermining food security (Jenkins and Scanlan 2001, 724). The third explanation argues that food insecurity is a direct result of ethnopolitical discrimination and state terrorism (Jenkins, Scanlan, and Peterson 2007, 831). According to this last explanation, a state's human rights abuses and the civil and political rights afforded to citizens are the most important factors for determining the level of food security in a given country.

The policy implication underlying the hypothesis that conflict increases food insecurity is that it is a political problem that merits a political solution. Previous research shows that stable autocracies and recently established democracies are more likely to experience food insecurity compared to long-standing democracies (Jenkins, Scanlan, and Peterson 2007, 838). This points to political democratization as one form of political change that will improve food security; however, such change would only benefit countries further along in the process toward democratic consolidation. Other policy solutions related to the factors previously mentioned include restrictions on arms trade in response to the influence of arms races and a reduction of generalized violence in response to internal conflict (Jenkins and Scanlan 2001, 738).

Instead of focusing on the power and access dimensions of food security, as in the conflict hypothesis, the hypothesis arguing environmental disasters increase food insecurity emphasizes the *availability* of food. It follows that increasing deforestation, overgrazing, soil erosion, and low levels of rainfall have led to periodic famines, frequent shortages of staple foods, and an overall decline in the production of agricultural commodities (Morgan and Solarz 1994, 57). In the past decade, Africa—the Sahel region in particular—has been experiencing droughts of increasing frequency and magnitude (Clover 2003, 8). This results in not only an inadequate level of consumption in the short term, but also an erosion of a country's ability to produce in the long term.

Currently, nearly 70 percent of the population in Africa relies on agriculture for its livelihood (Mwaniki 2006, 2). With climate change decreasing agricultural yields, making grazing grounds unsuitable, and causing important bodies of water to dry up, the continent as a whole will face disastrous consequences (UNEP, "Livelihood," 2011, 8). Not only do the livelihoods of the majority of Africans depend on the continuing fertility of the land, the stability and growth of African economies do as well. With agriculture representing an average of 30 percent of GDP throughout Africa, climate change and its myriad effects cannot afford to be ignored (Mwaniki 2006, 2).

In addition to the impact of climate change, many African countries face the threat of multiplier effects. Natural resources in Africa are particularly sensitive to climatic variability, suggesting that the availability of those resources is currently being threatened (Washington and Downing 1999, 255). This new vulnerability could aggravate already existing vulnerabilities—namely, water security, health issues, and food security (UNEP, "Livelihood," 2011, 14). Thus, climate change has the potential to slow down and even reverse the development process by causing mass migration, competition for resources, political destabilization, and conflict (UNEP, "Livelihood," 2011, 14).

The policy implications of environmental uncertainty include forecasting, infrastructure, and livelihood diversification. First, with improved seasonal forecasting, the vulnerability of households can be reduced by giving governments an opportunity to prepare for and, in all likelihood, preempt the effects of natural disasters (Washington and Downing 1999, 255). Correspondingly, by providing infrastructure support governments can better equip themselves to mitigate the risks associated with sudden-onset catastrophes (UNEP, "Livelihood," 2011, 8). Finally, African governments should promote livelihood diversification in an effort to lessen the extent to which the population will be directly affected (UNEP, "Livelihood," 2011, 8).

The third hypothesized cause of food insecurity, food aid, is a recent phenomenon, beginning in earnest in the 1960s after the first wave of African independence (Bovard 1986, 3). Since then, per capita food production in Africa has fallen by a staggering 20 percent (Bovard 1986, 3). There are four commonly cited explanations behind this drop: foreign subsidies lowering producer prices, foreign aid strengthening repressive and corrupt regimes, support from abroad allowing failed policies to remain in place, and donor agencies institutionalizing aid dependence. Each of these has serious implications for the current system of food aid and merits additional attention.

To start, it is worth noting that "no food aid would exist without agricultural surpluses" (Tarrant 1980, 125). Agricultural export subsidies and domestic support in developed countries encourage large-scale production, which has resulted in global overproduction of basic commodities, including maize, wheat, cotton, and sugar (UNECA 2007, 10). In the short term, these surpluses flood local markets with free food. One example of this is the American Food for Peace program (Bovard 1986, 1). Every year Food for Peace unloads more than \$2 billion worth of surplus agricultural commodities in local markets throughout the developing world (Bovard 1986, 1). This disrupts markets, with the potential risk of irreparably destroying rural economies. In the long term, subsidized and surplus commodities lower production by creating artificially low prices that reduce market incentives to produce (Fleshman 2006, 8).

Another consequence of food aid is that it increases the patronage power of African governments (Bovard 1986, 5). This increases the desirability of political office with greater associated prestige and influence. A direct consequence of having a highly centralized government with immense power but no legitimacy or accountability to its people is that replacing heads of government becomes an easy task, as evidenced by the occurrence of coups. Related to this concept is the fact that failed policies and initiatives are maintained. With food coming in from abroad, recipient governments have little incentive to improve efficiency by reforming their agricultural sectors (Bovard 1986, 4).

Lastly, this dependence on aid is becoming institutionalized not only in recipient economies but in recipient governments as well. With the conditions and implementation requirements imposed on recipient governments by donor governments and agencies, the current aid system has become formalized out of necessity. It has demanded a great deal of "national energy and political capital" to be expended in interacting with donor agencies (Kanbur 2000, 419). This aid system diverts attention away from domestic affairs and consensus building, deepening the divide between the people and their representatives (Kanbur 2000, 419).

Each of these hypotheses is well founded and has been shown to have an impact on food security. What the following research seeks to contribute to the current literature is a comparative look, answering the question of which factor has the most substantial impact on food security as it relates to both food supply and access to food. Furthermore, it will add empirical data to linkages that have thus far relied primarily on

qualitative research. The methodology used to accomplish this task is discussed in the following section.

Data and Design

As mentioned previously, four sets of regression equations will test the effects of conflict, the environment, and aid on food security. The majority of the following section is dedicated to describing each set, with an explanation of which variables are employed, how they are measured, and where the data were collected. Before commenting on these elements, however, items common to all of the models are discussed.

In each model two regression equations are included, one testing the effect of a given set of independent variables on food *production* and the other testing the effect of the same variables on food *consumption*. The purpose of these two tests is to understand food insecurity by its two components: inadequate production of food and inadequate access to food (Misselhorn 2005, 35). Regarding production, food insecurity can represent an issue of supply, in which insufficient production leads to inadequate food availability. The second facet is related but can be indicative of a distinct problem. In a study by Jenkins and Stephen on food security in less developed countries, they found that food supply levels have a relatively weak impact on child hunger rates (2001, 738). Thus, in some instances, increased levels of production may not result in the expected increase in average caloric intake. This disparity can be indicative of poor transportation infrastructure, unaffordable prices, or other commonly cited reasons (FAO 2005). It therefore becomes necessary to study food security in terms of both access and production. To best measure overall food consumption, access to food is measured as daily calorie supply per capita (listed as “Consumption” in the appendix). This is computed from the energy equivalent of net food supplies in a country, not including animal feed, seeds for agricultural use, or food lost in processing (ADB 2007, xi). Food production is then measured by per capita food production to test a country’s capacity to provide for its citizens’ needs (appearing as “Production” in the appendix). Production data refers to primary commodities, excluding indices for tobacco, coffee, tea, inedible oilseeds, animal and vegetable fibers, and rubber (ADB 2007, xi). Both measures are human development indicators obtained from the African Development Bank’s *Selected Statistics on African Countries 2007*. The data for food production are from 2005, while the data for food consumption are from 2004.

Regarding the data used for these dependant variables and the subsequent independent variables, the latest available data are always used, never going further back than 2003. While this is admittedly not ideal, it is the best way of ensuring complete models that can speak to Africa more generally, since the alternative is employing models with a quarter or more of the countries missing. Therefore, every African country was included in all of the models, with the exception of South Sudan, which had not yet achieved independence when the data were collected. All of the countries included are listed in the appendix. Countries that had data missing for one or more variables in a model were excluded from the regression model and listed as a missing case below the given table.

For the first model, evaluating the hypothesis that conflict increases food insecurity, five independent variables are used. The first two, military expenditure as a percentage of gross domestic product (GDP) (listed as “Military Expenditure”) and arms imports (“Arms Imports”), measure the state’s capacity to invest in the public sector and in basic welfare areas. These variables are taken from the World Bank Data Catalog for the year 2011. Next, the variable combining the extent of political stability and absence of violence in a given country is used to measure the level of internal conflict

(“Stability”). These data are 2009 data from the World Bank publication *Africa Development Indicators 2011*. To measure the level of internal repression, the U.S. Department of State and Amnesty International’s Political Terror Scale for 2011 is used (“State Terror”) (Gibney, Cornett, and Wood 2011). The last variable included for determining the validity of the conflict hypothesis is a polity indicator with a score ranging from strongly autocratic to strongly democratic. This score, also taken from the World Bank’s *Africa Development Indicators 2011*, is used to measure the effect of political democratization on food security to determine if it is linked.

As with the conflict hypothesis, five variables evaluate the validity of the environment hypothesis, comprising the second model. The first of these variables is the average precipitation for 2011 as taken from the World Bank Data Catalog (“Precipitation”). The next variable measures the number of droughts experienced from 1970 to 2004 (“Drought Conditions”) (Carvajal-Velez 2007, figure 2). Next, to operationalize the extent to which a country is affected by environmental hazards, the agricultural population density is used, measured as the agricultural population per hectare of arable land and permanent crops land (“Agricultural Population”). This variable is from the Food and Agriculture Organization’s database titled FAOSTAT and is averaged for the years 2006–2008. Lastly, to measure the effect of climate change, two factors are employed: desertification and deforestation. Desertification is measured as the percentage of drylands in a given area (“Desertification”). This measure includes arid, semiarid, and dry subhumid zones or areas with the lengths of growing periods of 1–179 days, and is based on data collected in 2003. These areas are seen as having the greatest potential for desertification. Alternatively, deforestation is measured as forest average annual change for 2005–2010, or, in other words, the total net change in forest cover (“Deforestation”). The data for both deforestation and desertification have been obtained through the Environmental Data Explorer within the United Nations Environment Programme.

The five variables used to evaluate the effect of food aid on food security are as follows: Official Development Assistance (ODA), food aid, price indices, import dependency, and corruption. The ODA variable, from the World Bank publication *Africa Development Indicators 2011*, is defined as net ODA as a percentage of GDP (“ODA”) and is collected from 2009 data. Using the variable as a percentage of GDP takes into account the size of a country’s economy, so there is less influence from extraneous factors. In the same way, the variable for food aid, from the Food and Agriculture Organization’s FAOSTAT for the years 2004–2006, is calculated as share of food aid in total consumption, thereby removing the influence of country and population size (“FAOSTAT”). The variable operationalizing price is less ideal, because it represents consumer food prices instead of producer prices for 2006 (“Price Indices”). Even so, it is an important variable that needs to be represented in the model. This statistic is an annual index, with 2000 as its base year, from the statistical division of the United Nations’ International Labor Organization. The import dependency ratio is obtained from the African Development Bank’s publication *Selected Statistics on African Countries 2007* and is used to determine the extent to which reliance on imports, a consequence of aid, decreases production and consumption (“Import Dependency”). The last variable, corruption, as defined by Transparency International’s Perception of Corruption Index for 2011, seeks to evaluate another consequence of aid (“Corruption”). These last two variables are included in the regression models as possible mechanisms relating food aid to food crisis.

The last model included in this study is a combination of the three models previously discussed. This model consists of six variables, with two taken from each of the previous models. The two variables most significant for food production are

included in one regression equation while the two most significant variables for food consumption are included in another. Therefore, in this instance only, the variables for food production and food consumption are not the same. The results of this model and previous models will now be discussed simultaneously, as they relate to each of the three hypotheses.

Results

Hypothesis #1: Conflict Increases Food Insecurity

The figures provided in table 1 capture the effect of military expenditures, arms imports, political stability, internal repression, and democratization on food production and consumption. For production, two variables—stability and military expenditures—were statistically significant at the .05 significance level. This indicates with 95 percent confidence that these results were not due to chance. Moreover, unless stated otherwise, the .05 significance level will be the threshold used for statistical significance throughout the analysis section.

The first variable, stability, supports previous research by showing that a country not experiencing internal conflict will exhibit greater food production. The effect of military expenditures, however, was unexpected, opposing previous research by showing that the more a country spends on its military, the higher its rate of food production. One possible explanation could be that the more developed a country is, the more funds it has available to spend on both military and social programs. Another possible reason is that a country with a developed military will have a more developed infrastructure that will be better equipped for food production. The other variables, including the level of arms imports, state terror, and democratization, were not found to be significant, showing that these factors are not good indicators of the production side of food security.

For consumption, two different variables were significant, illustrating how the different aspects of food security can be influenced in different ways by the same variable. The significant factors are arms imports and the level of democratization. First, the difference between arms imports and military expenditures demonstrates that military expenditures are a more legitimate budgetary measure that help food production while not addressing consumption. On the other hand, arms imports do not increase the capacity of a country to produce food but rather provide environments that enable markets to prosper. Arms imports give the state a monopoly on violence, which enables it to suppress opposition groups, generating more stability in communities and specifically the markets within those communities. This also relates to the second finding, that of democratization. The data contrast with prior research by showing that stable autocracies provide more for their citizens. This also can be rationalized because instead of leaving distribution to the market, autocracies use clientelism—a system of patron-client networks whereby politicians in power allocate state resources—to secure their legitimacy and gain political support.

For the last set of regression equations, the two variables that were statistically significant in each of the models above were included. In terms of food production, these were the stability variable and the military expenditures variable. For food consumption the two variables included were arms imports and the polity indicator. Looking first at table 4, neither of the variables included from this hypothesis were significant for food production. Both significance levels failed to meet the .05 threshold. The same is true of the other two variables included in the model for food consumption, as evidenced by the figures listed in table 5. While all of these variables included from the conflict hypothesis in the last model were significant in the first table, their effects on food security are negligible when compared to the other hypotheses.

Hypothesis #2: Environmental Hazards Increase Food Insecurity

Table 2 shows the effects of precipitation, drought, agricultural population density, desertification, and deforestation on food security. For food production, no variables were statistically significant, but all showed the expected direction. An increase in the variable for the agricultural population resulted in an increase in production, which is logical because having a larger labor force dedicated to agriculture naturally results in more food being produced. Although deforestation degrades the environment, it can have positive effects on food production and consumption by reallocating land for developmental purposes, thereby spurring economic growth. The rest of the factors, including desertification, droughts, and precipitation, relate to uncontrollable natural occurrences that negatively impact food production and consumption. These all have a devastating effect on the environment and directly impact agricultural lands, thereby forcing the people who depend on the land to find alternative livelihoods or migrate to better land.

Returning to food consumption, both average rainfall and frequency of droughts were highly significant, making them good indicators of this aspect of food security. They were significant at both the .05 and .01 levels of significance, thus indicating with 99 percent confidence that these outcomes were not due to chance. Here, the larger the portion of population devoted to agriculture, the greater the decrease in food consumption. This is also an understandable finding because more people will be directly affected by any natural disasters that occur. Finally, deforestation has the same effect on food production as it does on consumption: encouraging development.

Ultimately, the variables worth concentrating on are average rainfall and the frequency of droughts. These seem to have a well-defined and significant influence on food consumption. The remaining variables were surprisingly not good indicators of food insecurity. This may point toward a future rather than current impact on food production and consumption. Africa is particularly vulnerable to the effects of climate change, as evidenced by the variability of rainfall and the increasing frequency and magnitude of droughts. The other effects of deforestation and desertification are more gradual and will likely cause devastating consequences further down the road.

This analysis is reinforced by the results in tables 4 and 5. The rainfall and population variables, being the closest to the .05 threshold, were included in the last regression equation for production. As in table 2, these variables were not statistically significant, and with beta values of $-.271$ and $-.107$, they were not economically significant in this instance either. In stark contrast to the negligible impact on food production, the two variables included for analysis in table 5—rainfall and droughts—were both highly significant in relation to food consumption. Here, the variables for the environment hypothesis indicate statistical significance at the .01 level of significance.

In terms of marginal impact on food consumption, the unstandardized beta coefficients present a clearer picture of how precipitation and droughts can affect food insecurity. Whereas the standardized values are calculated to have variances equal to one, the unstandardized coefficients show their independent effect on the dependent variable. Thus, the figures included in each table are the standardized beta coefficients to allow comparisons across different units of measurement, while the unstandardized coefficients are used when stating the marginal effects of each independent variable. In this instance, the per capita daily calorie supply decreases by .524 calories for every additional millimeter in average annual precipitation. Although this has the opposite effect of what was hypothesized, the marginal impact indicates that this is not an economically significant variable when compared to overall daily food consumption. Furthermore, while an additional millimeter of rain may be beneficial for food consumption, precipitation coming in the form of hail or floods is also included in

average precipitation and consequently might obfuscate the effect of precipitation on food security. Therefore, in further studies, variables measuring annual rainfall and the occurrence of flooding would be good indicators to include, in order to further elucidate the relationship between precipitation and food consumption. The variable for droughts, on the other hand, demonstrates the expected relationship and is both economically and statistically significant. Here, for each additional drought that is classified, regardless of its severity, the per capita daily caloric consumption for a country decreases by 236.253 units. This is a large amount, especially for those already facing extreme poverty and subsisting on very little, and shows an unmistakable effect.

Lastly, the standardized beta coefficients listed in table 5 and the adjusted R-squared value show that the environment has a far more substantial effect on food consumption than the other two hypotheses tested. With an adjusted R-squared value of .437, the model provides a useful description of food consumption, showing that 43 percent of the variation in food consumption can be explained by the variables included in the model. Furthermore, with beta values of .565 and .600, compared to values of .220 and below, the environment hypothesis is the only one supported by the model. Both variables included from the environment model have more than double the impact on food consumption than the variables from the aid hypothesis and more than five times the impact of the two conflict variables. These comparisons, made based on the standardized variances, emphasize the economic significance of the variables from the environment hypothesis. Additionally, the two variables from the environment model were the only statistically significant variables in table 5. The values in parentheses denote statistical significance.

Hypothesis #3: Food Aid Increases Food Insecurity

Table 3 examines the impact of ODA, food aid, price indices, import dependency, and corruption on food production and consumption. For production, three variables were significant at the .05 level, with two of those also being significant at the .01 level. Those are food aid and price indices. For food aid, the results show that for every percent increase of food aid in total consumption, production decreases 1.074 per capita. Conversely, as price increases, so does production, showing that price acts as an incentive for producers to grow more. The last significant variable, corruption, was significant at the .05 level for production and consumption, refuting previous research by showing a positive effect on both. The marginal effect of corruption was a 3.286 increase in per capita production and an increase of 158.190 in daily calories per capita. The only other variable significant for consumption was that of import dependency.

With production, import dependency was negative and not significant. However, in relation to consumption, import dependency was shown to have a positive effect. This relates back to the short-term benefits of importing and receiving aid. Yet while aid initially increases the availability of food, it also erodes countries' capacities to produce. Moreover, while aid was shown to have a negative effect on both production and consumption, this was not significant, demonstrating that the amount of aid is not a good indicator of food security. There are two possible explanations behind this result. One is that some types of aid may be beneficial, but other types, such as food aid, undermine a country's food security. Another is that aid does not have a direct effect on consumption and production itself but rather causes corruption and import dependency that then influence food security. This second explanation is the more likely of the two given the results for corruption and import dependency.

Incorporating the hypothesis that aid increases food insecurity into the last model, two different variables were used for the production and consumption regression equations. For food production, the two variables that were significant at the .01 level

of significance were included. For consumption, since only two variables—corruption and import dependency—were significant, those were the two used in table 5 from this hypothesis. Looking first at table 5, as referenced earlier, neither variable for the aid hypothesis was statistically significant. Table 4, however, shows something different. Here, only the aid hypothesis is statistically significant and both variables for this hypothesis are significant at the .01 level of significance.

The marginal impact of these two variables is important to consider in terms of the unstandardized beta coefficients. For the price variable, a one-unit increase in the consumer price index corresponds to an increase of .011 per capita production levels. To gain some perspective, based on data from the Food and Agriculture Organization, the annual change in the world food price index for 2000–2010 averaged an increase of 9.49 points (FAO 2013). This would mean that an annual change could correspond to a change of .104 points in the food production index. For aid, the change is slightly more substantial. A percentage increase in the share of food aid in total consumption decreases food production per capita by 1.122 points. Thus, when looking at the effect of the three hypotheses on food production, aid is the only explanation with a statistically significant effect. Furthermore, within that category, the only variable that is both statistically and economically significant is the amount of food aid.

Discussion

Using the adjusted R-squared figures to determine the strength of the models, there are three that stand out above the others. These are tables 4 and 5 as well as the food consumption model in table 2, all of which had adjusted R-squared values above .40. Food aid and droughts are emphasized as having the most determinative effect on food security in Africa.

For food production, the third hypothesis was a good indicator of food security because it linked food aid with food insecurity. This was shown in tables 3 and 4. Table 4 in particular clearly shows the third hypothesis as being the only hypothesis with a quantifiable effect on food production. In table 3, which focused solely on the effects of aid, price had the largest effect, followed by food aid and corruption. The first two are directly related because food prices plummet when free food is given to developing countries (Bovard 1986, 1). Unexpectedly, corruption was found to improve food security, and its impact was substantial in terms of both food production and consumption. This result challenges the vast majority of literature on corruption, which points to corruption as inhibiting economic and political development in Africa (Szeftel 2000). These figures instead add credence to the revisionist claim that corruption can lead to an efficient allocation of resources while also inducing the state to consider social welfare concerns and to provide access to those marginalized in society (Kurer 1993). At the same time, however, the case against corruption is well supported, with some effects universally recognized as damaging. Therefore, these results do not refute previous literature in its entirety, but rather suggest some positive outcomes of corruption, and point to an area for possible further research. The other two hypotheses of conflict and environmental hazards, on the other hand, did not have a significant effect on food production. In relation to these hypotheses, the results suggest that while they may impact food security in some fashion, there are more significant factors involved.

Regarding food consumption, the inverse proved to be true. Here, the environment was the only linkage with a strong impact on consumption, while conflict and aid had a negligible effect. The drought variable within the environment model in particular was shown to have the largest and most substantial influence. This supports the large body of evidence on climate change. But surprisingly, the effects of deforestation and

desertification have yet to be realized. For the conflict hypothesis, which did have some significance when looked at separately, the type of government and the size of arms imports were revealed to have the largest influence. These results show that food consumption increases under strong, centralized governments with a monopoly on the use of force.

While the research performed here is a good first step toward better understanding the issue of food security in Africa, more extensive research is needed. First, more complete data are required with all of the independent variables being from the same year instead of the most recent data being used, as was the case in the regression models used here. Next, promising research has used lagged regression models, which include current and past values of the explanatory values to show the effect of past policy measures on current food production and consumption. This would provide models with greater authority to address the current food crisis facing Africa.

Conclusion

With food security encompassing the availability of and restricted access to food, this research has attempted to understand these facets through the tangible measures of food production and consumption. The resulting evidence has in part refuted common assumptions relating to food security while supporting other assumptions. The strongest pieces of evidence pronounce that environmental hazards, particularly frequent droughts, decrease food consumption, while lower production levels are based most heavily on the disincentives associated with food aid. The secondary conclusions state that the structure of government and direction of government expenditures directly influence food consumption. Corruption was also implicated as having an important impact on food consumption and production.

There are several widely accepted solutions that address these findings. Most significant is that immediate action must be taken regarding climate change. In particular, the United States, China, and India must be held accountable for the harm they are causing to the rest of the world. If pollution and overall environmental degradation are permitted to continue unchecked, droughts will not only become a frequent reality for Africans but also increase in severity (Clover 2003, 8). An FAO study has predicted that by 2050 an additional 30 million Africans could be affected by famine (Clover 2003, 8). If concrete and substantial action is not taken by the developed world, the developing world will be forced to face the consequences.

At the same time, however, the impending food crisis is not limited to the developing world. As witnessed in 2008, during which world food prices increased by a staggering 54 percent (Nelleman 2009, 12), developed countries are not left unscathed by declining crop yields. Higher prices, reduced availability, and less access to food were seen throughout the world, but these effects were intensified in the developing world where incomes are substantially lower (Nelleman 2009). The harshness of this reality could be seen in the 2008 food riots that took place in countries as diverse as Egypt, Bangladesh, and Haiti.

The other policy objective these results point to is the gradual reduction of subsidies that developed countries give to their own agricultural sectors. These subsidies affect developing countries' economies by giving farmers in developed countries greater support and income than their African counterparts, thereby affecting the world price for these agricultural commodities. In 2002 the Organization for Economic Cooperation and Development estimated that the artificially low prices induced by agricultural subsidies and surpluses cause an annual loss of income for African countries that exceeds \$10 billion (Clover 2003, 13). Furthermore, at a rate of \$1 billion per day, developed countries are spending six times as much on their own

agricultural sector than on all development assistance (Clover 2003, 13). If these domestic supports are removed, agricultural surpluses will undoubtedly be depleted and consequently lead to an increase in price. To limit the effect this will have on consumption, removing subsidies has to be done gradually to stimulate production without having a drastic impact on food access. In the long run, African countries will regain their natural competitive advantage with commodities such as sugar, and will thereby improve food availability and income as well as increase earnings from exports (UNECA 2007, 6).

The topic addressed here is a broad yet important one. Development assistance and government initiatives often focus on large and ambitious new projects while neglecting the agricultural sector. The same was true of the Soviet Union, when the Soviet government focused almost entirely on the “commanding heights” of the economy and military while food security steadily declined. Before any meaningful development can occur in Africa, there must be an established and secure market system for food. As this research has shown, the blame for perpetuating food insecurity falls largely on the international community rather than on domestic politics or internal conflict. What is needed now is a firm understanding of and decisive action on the issue of food security in Africa.

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Appendix

List of Countries:

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé & Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe.

Table 1. Conflict variables influencing consumption and production.

Variables	Production	Consumption
Stability	.650* (.034)	.536 (.055)
Military Expenditure	.430* (.030)	-.172 (.327)
Arms Imports	.213 (.240)	.470** (.008)
State Terror	.254 (.388)	.204 (.450)
Polity Indicator	.000 (.999)	-.380* (.030)
Adjusted R-Squared	.194	.316

Note: N = 30; β is an OLS coefficient for the indicated comparison; * Indicates significance at .05; ** Indicates significance at .01; Values in parentheses are the values for significance; Missing values: Burundi, Cape Verde, Côte d'Ivoire, Comoros, Djibouti, Ethiopia, Eritrea, Equatorial Guinea, Gambia, Guinea, Guinea-Bissau,

Liberia, Madagascar, Malawi, Mauritania, Mauritius, Mozambique, Niger, São Tomé & Príncipe, Seychelles, Somalia, Swaziland, Togo.

Table 2. Environmental hazard variables influencing food security.

Variables	Production	Consumption
Precipitation	-1.965 (.057)	-5.350** (.000)
Drought Conditions	-.051 (.797)	-3.902** (.000)
Agricultural Population	.251 (.106)	-.114 (.348)
Desertification	-.106 (.556)	-.054 (.703)
Deforestation	.014 (.926)	.952 (.348)
Adjusted R-Squared	.096	.464

Note: N = 44 for production; N = 42 for consumption; β is an OLS coefficient for the indicated comparison; * Indicates significance at .05; ** Indicates significance at .01; Values in parentheses are the values for significance; Missing values for production: Cape Verde, Central African Republic, Côte d’Ivoire, Comoros, Lesotho, Mauritius, São Tomé & Príncipe, Seychelles, Zimbabwe; Missing values for consumption: Cape Verde, Central African Republic, Côte d’Ivoire, Comoros, Equatorial Guinea, Lesotho, Mauritius, São Tomé & Príncipe, Seychelles, Somalia, Zimbabwe.

Table 3. Aid variables influencing consumption and production.

Variables	Production	Consumption
ODA	-.004 (.976)	-.170 (.294)
Food Aid	-.417** (.004)	-.063 (.686)
Price Indices	.526** (.000)	-.039 (.797)
Import Dependency	-.136 (.316)	.339* (.032)
Corruption	.340* (.017)	.376* (.020)
Adjusted R-Squared	.374	.188

Note: N = 40; β is an OLS coefficient for the indicated comparison; * Indicates significance at .05; ** Indicates significance at .01; Values in parentheses are the values for significance; Missing values: Chad, Comoros, Democratic Republic of the Congo, Djibouti, Eritrea, Equatorial Guinea, Liberia, Libya, Mauritania, São Tomé & Príncipe, Sierra Leone, Somalia, Sudan.

Table 4. Effect of conflict, the environment, and aid on food production.

Variables	Production
Stability	.256 (.065)
Military Expenditure	.143 (.363)
Precipitation	-.271 (.079)
Agricultural Population	-.107 (.422)
Price Indices	.415** (.003)
Food Aid	-.461** (.001)
Adjusted R-Squared	.438

Note: N = 39; β is an OLS coefficient for the indicated comparison; * Indicates significance at .05; ** Indicates significance at .01; Values in parentheses are the values for significance; Missing values: Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Liberia, Libya, São Tomé & Príncipe, Somalia, Sudan, Zimbabwe.

Table 5. Effect of conflict, the environment, and aid on food consumption.

Variables	Consumption
Arms Imports	.095 (.559)
Polity Indicator	.015 (.928)
Precipitation	-.565** (.008)
Drought Conditions	-.600** (.002)
Corruption	.043 (.808)
Import Dependency	.220 (.143)
Adjusted R-Squared	.437

Note: N = 30; β is an OLS coefficient for the indicated comparison; * Indicates significance at .05; ** Indicates significance at .01; Values in parentheses are the values for significance; Missing values: Burundi, Cape Verde, Chad, Côte d'Ivoire, Comoros, Djibouti, Ethiopia, Equatorial Guinea, Gabon, Liberia, Libya, Madagascar, Malawi, Mauritania, Mauritius, Mozambique, São Tomé & Príncipe, Seychelles, Sierra Leone, Somalia, Swaziland, Togo, Zimbabwe.