

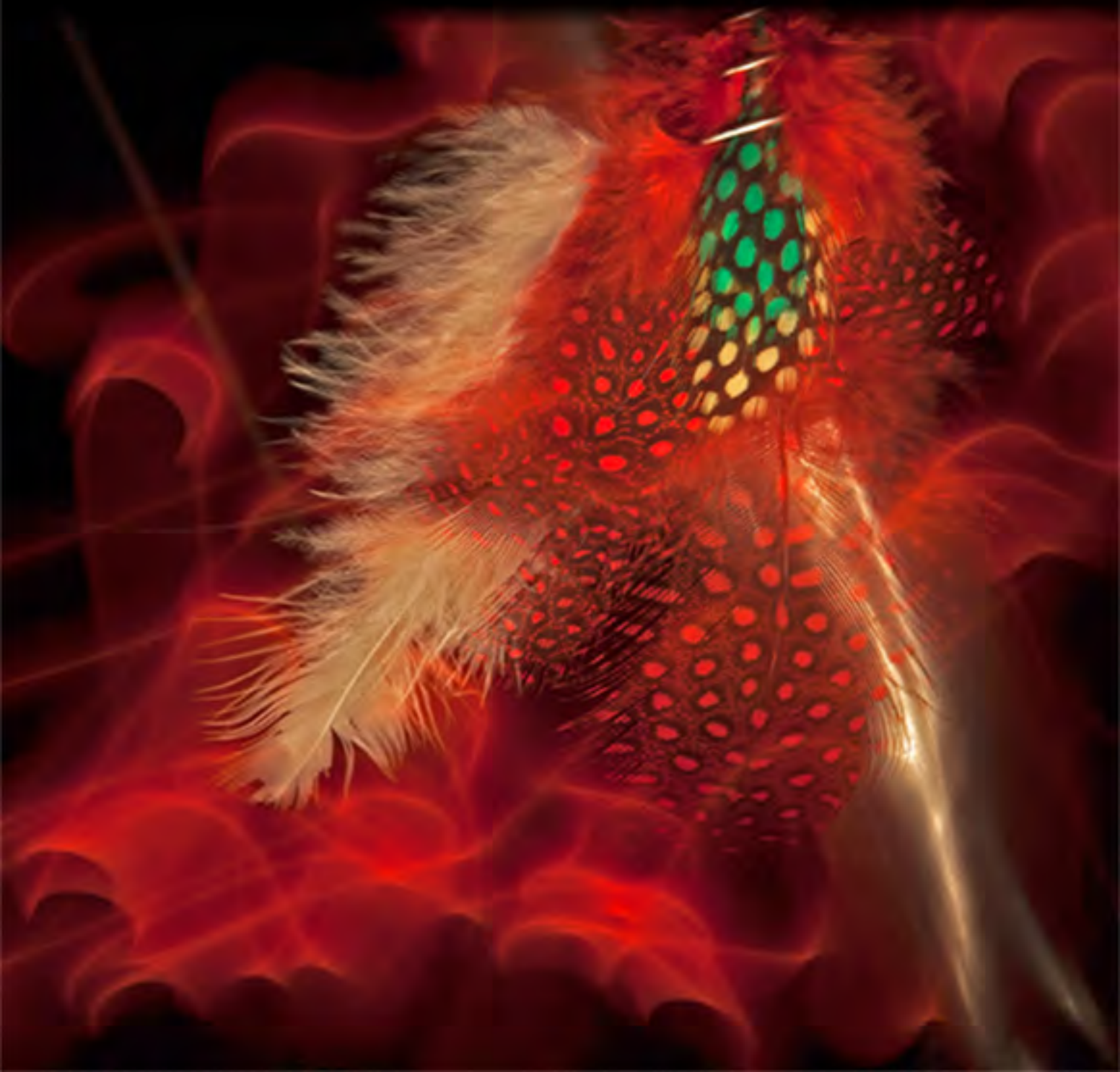
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Letter from the Editor

Dear Reader,

Welcome to the inaugural issue of the *Monarch Review*! From an array of stunning artwork and photographs, to research on the pirates of North Carolina, to a paper that questions our religious paradigms, this journal showcases the talent and dedication of Methodist University's undergraduate students.

As the senior student editor of the *Monarch Review*, I've had the pleasure of working with gifted students and helping oversee the production of this journal. Each of the ten papers presented here is thoroughly researched, thoughtful, and well-executed. The thirteen pieces of artwork demonstrate our students' ability to creatively express the world around them.

While I find the contents of the journal exciting, much of my joy comes from seeing one of my dreams come to fruition. I could not have had this experience at another university. Therefore, I am grateful to the university administration, especially to Dr. Ben Hancock, our president, and to Dr. Delmas Crisp, our academic dean. I also want to express special thanks to Ms. Baylor Hicks, JD, coordinator of the *Monarch Review* and Writing Center consultant, and to Dr. Clay Britton, director of the Center for Undergraduate Research & Creativity, for their leadership and support. Moreover, I'm grateful to the many extraordinary students, faculty, and staff with whom I have worked. Without their support, this journal would not have been possible.

This journal represents the strong academic and creative culture at Methodist University. It has been my pleasure to serve as the senior student editor of this inaugural issue of the *Monarch Review*.

Perhaps it's best to let the journal speak for itself. Happy reading!

Miranda Jade Friel
Senior Student Editor

Quantitative Determination of Tetrahydrozoline Levels in Eye Drops

Stephanie Breitenbach

Faculty Sponsor: Dr. Stephanie Hooper Marosek

Department of Chemistry and Physical Science

Abstract

Tetrahydrozoline (THZ) is a compound that is commonly found in certain brands of over-the-counter ear drops and eye drops such as Visine, targeting specific symptoms such as redness. This substance is used to give one individual an edge over another: if ingested orally, THZ depresses the central nervous system and leaves victims vulnerable to sexual assault. This compound impairs memory and judgment, and it produces a period of unconsciousness. This drug is not easily identified by typical drug analysis, and it is very easy for an individual to obtain. A recent case study evaluated a woman who had ingested a drink containing unknown amounts of THZ. About 20 hours after the drug had been ingested, both blood and urine samples were taken. No drugs were found in her blood, but 114 ng/mL of THZ was detected in her urine using a method known as gas chromatography (GC).¹ This is the only known value of THZ post-ingestion, and there have been no quantitative studies performed addressing THZ levels via ingestion or deposit in the eyes.

The purpose of this research is to analyze levels of THZ in different brands of eye drops. Protocol for this work includes standard solution preparation and quantitative analysis of these standards by ultraviolet/visible (UV/Vis) spectroscopy. In addition, amounts of THZ are

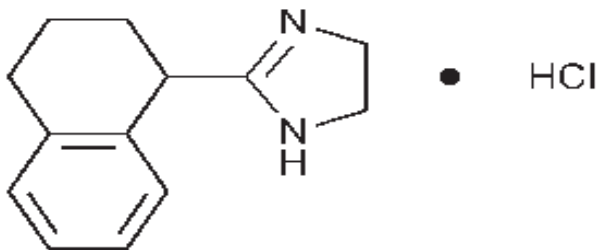


Figure 1: The Structure of Tetrahydrozoline HCl

¹ Spiller, H.A.; Siewert, D.J. "Drug-Facilitated Sexual Assault Using Tetrahydrozoline." *Journal of Forensic Sciences* [Online] 2012 57(3), 835-838.

measured in the different types of eye drops. Ultimately, these results will be beneficial in determining the amount of eye drops that need to be ingested to achieve the desired effects. It will also allow for further investigation of how the THZ interacts with the human body, is metabolized, and produces certain symptoms.

Keywords: Tetrahydrozoline (THZ), UV/Vis spectroscopy, Refractometry, Refractive index

Quantitative Determination of Tetrahydrozoline Levels in Eye Drops

Very few studies have been conducted on tetrahydrozoline (THZ). Though the topic is on the rise, documentation of research on tetrahydrozoline as a date rape drug is very rare. Due to the nature of this topic, further research and quantification on this issue are pertinent. In order to quantify THZ in eye drops, spectroscopic measurements will be taken as well as the refractive index of the substance.

To investigate the use of THZ as a date rape drug, tetrahydrozoline hydrochloride (THZ) from Sigma-Aldrich, Visine brand eye drops, and Equate brand eye drops were obtained. A stock solution of 0.001M THZ was prepared, and from that, standards of 1.00×10^{-6} , 2.00×10^{-6} , 3.50×10^{-6} , 5.00×10^{-6} , 1.00×10^{-5} , and $2.00 \times 10^{-5} M$ were prepared. Following the solution preparation, 100x dilutions of Visine brand and Equate brand of eye drops were prepared after filtration.

Once standards and dilutions were prepared, spectroscopic measurements were taken. All spectroscopic measurements were obtained using an Ocean Optics Red Tide 650 Ultraviolet/Visual (UV/Vis) Spectrometer and the corresponding SpectraSuite software. A UV/Vis spectrum of THZ was obtained using a midrange standard, and a λ_{\max} was determined at a wavelength of 208nm (Fig. 2). Three absorbance readings were taken at this λ_{\max} for every concentration and then averaged. An average absorbance was determined for a 100x dilution for Visine and Equate brand eye drops.

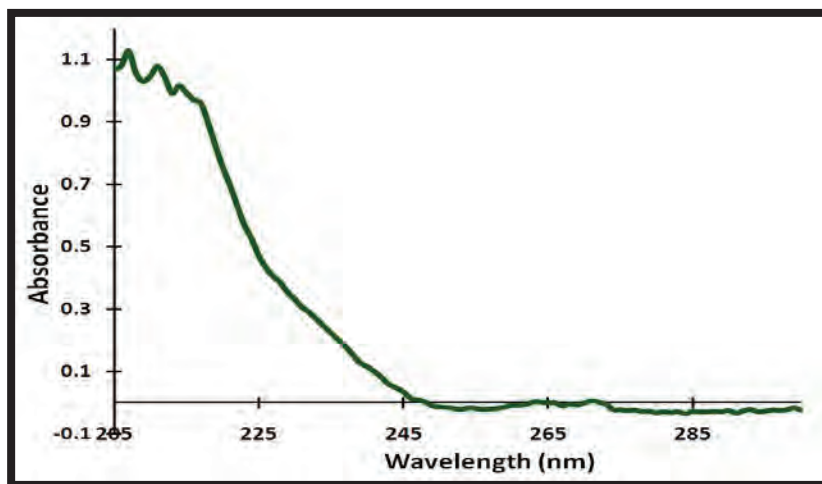


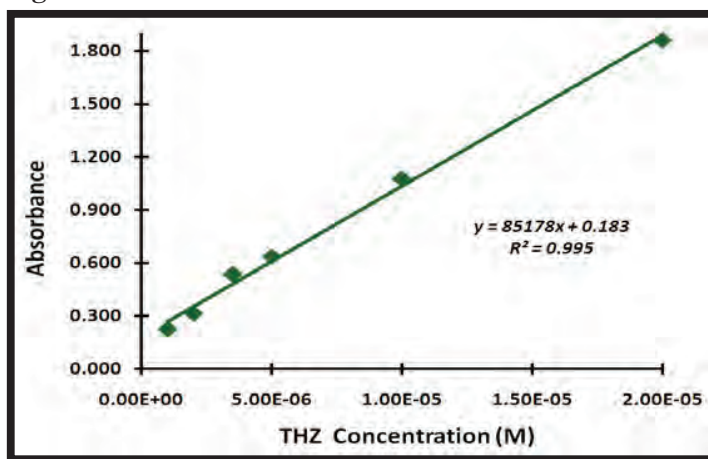
Figure 2: The UV/Vis Spectrum of THZ with a λ_{\max} value at 208 nm

After spectroscopic measurements were analyzed, it was determined that more data was necessary. The refractive index was determined using the ATAGO Pocket Refractometer. This is a qualitative method that identifies the presence of THZ. Measurements were taken for 100X diluted solutions of Visine and Equate brand eye drops, as well as $3.50E \times 10^{-06} M$ THZ.

Results and Discussion

THZ absorbance measurements detected in eye drop samples were consistent with the absorbance measurements of the THZ standards. They were all detected at the 208 nm wavelength. The R^2 value is 0.995, which is an acceptable correlation factor for a calibration curve (Fig. 3). The refractive index was taken, and all of the measurements were relatively close in comparison. This data confirms that there are detectable levels of THZ in certain over-the-counter eye drops.

Figure 3: Calibration curve for THZ Standard Solutions



Eye Drops (Diluted 100 Xs Each)	Diluted Conc. (M)	Actual Conc. (M)	Abs.
Visine	1.90×10^{-6}	1.90×10^{-4}	0.345
Equate	2.05×10^{-6}	2.05×10^{-4}	0.358

Table 1: Calculated Values of THZ in Eye Drops

The quantifiable amount of THZ in Visine and Equate (Table 1) is enough to induce unconsciousness and vomiting when ingested, and is approximately 15% of the LD_{50} concentration in rats. Visine and Equate also produced a refractive index of 1.3345

and 1.3341, reflecting the refractive index of the $3.50 \times 10^{-6} M$ THZ, which was 1.3327 (Table 2). These values represent the potential potency of the misuse of these products,

THZ Concentration	Refractive Index
$3.50 \times 10^{-6} (M)$	1.3327
100x Visine	1.3345
100x Equate	1.3341

Table 2: Refractive Index Measurements

and support the proposition that further analysis of this compound and its metabolites is necessary.

Conclusion

In order to gain complete understanding of the effects of this drug on the human body, further investigation is essential. There is no known dosage of THZ to affect one particular person because there are many factors that interfere; however, it is thought that the addition of THZ to alcohol will elevate the potency of THZ. Because the investigation of this drug is so new, there are many unanswered questions dealing with the mechanism and metabolism of THZ. In the future it will be interesting to determine if the chemical THZ is in fact reacting with the ethanol of certain alcoholic drinks, or if it is interacting with any known chemicals or enzymes in the human body. We know THZ works through the body relatively fast due to the low detection levels. There has been no known human or animal testing done with this chemical, but further investigation will provide the ability to learn the mechanism and by-products of this reaction, greatly benefiting law enforcement and enhancing the scientific understanding of this phenomenon.

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1. Spiller, H.A.; Siewert, D.J. "Drug-Facilitated Sexual Assault Using Tetrahydrozoline." *Journal of Forensic Sciences* [Online] **2012** 57(3), 835-838.

Robert Browning's Exploration of the Dark Side of Human Nature Through the Dramatic Monologue

Celena Brock

Faculty Sponsor: Dr. Emily Wright

Department of English and Writing

Nineteenth-century poet Robert Browning is well known for both his use of the dramatic monologue and his “extraordinary...gallery of villains”; in fact, “few writers...seem to have been more aware of the existence of evil” (Greenblatt 1251). Browning combines the literary form of the dramatic monologue and his interest in evil to create intriguing “psychological portraits in verse” in which stories are told only through the words of villainous male speakers (“Robert Browning”). Browning uses these works to explore and perhaps to better understand the dark or evil side of human nature. Furthermore, he accomplishes this exploration in remarkably similar ways; that is, most of his dramatic monologues share the following similarities: the indirect provision of details about the speakers’ personalities through their own words, the revelation of the speakers’ flaws through their criticism of their victims, the speakers’ irrational states of mind, and the speakers’ motivations of jealousy and control. Three of these works that are best known include the poems “Soliloquy of the Spanish Cloister,” “Porphyria’s Lover,” and “My Last Duchess.”

One of the similarities found in Browning’s dramatic monologues is his use of the speakers’ own words to provide clues, both subtle and more obvious, about their personalities. It is important to realize that the way in which the speakers describe themselves and others may not be entirely accurate—in other words, many of Browning’s speakers are unreliable narrators. The tendency to skew details is a common characteristic of human nature in general, and, after all, these speakers are villainous characters—“murderers, sadistic husbands, mean and petty manipulators” (Greenblatt 1251). Therefore, Browning’s readers must interpret the speakers’ words carefully in order to obtain the author’s meaning and discern the difference between it and the speakers’ meanings.

An example of this technique is found in “Soliloquy of the Spanish Cloister.” The speaker in this poem lives in a monastery and is describing his hatred for one of his companions named Brother Lawrence:

At the meal we sit together:
Salve tibi! I must hear
Wise talk of the kind of weather,
Sort of season, time of year:
Not a plenteous cork crop: scarcely
Dare we hope oak-galls, I doubt:
What's the Latin name for "parsley"?
What's the Greek name for Swine's Snout? (9-16)

From the title of the poem, the reader would think that the characters in the poem should get along with each other because they are supposed to be deeply religious people living together in a religious community. However, the reader discovers in the first line—"G-r-r-r—there go, my heart's abhorrence!"—that the speaker does not think highly of whomever he is addressing (1). In the second stanza, the speaker tells us that he and his companions, including the abhorred Brother Lawrence, sit together while they eat. The speaker uses sarcasm to mock Brother Lawrence by repeating some of his words, insincerely calling his talk "wise," and imagining inappropriate replies to his comments about the plants. Instead of making his enemy appear annoying and distasteful, the speaker makes these qualities reflect back on himself through his negative attitude toward someone in whom the reader cannot find any wrong.

Another example of an unreliable narrator indirectly revealing his true nature to the audience through his own words is found in "Porphyria's Lover":

That moment she was mine, mine, fair,
Perfectly pure and good: I found
A thing to do, and all her hair
In one long yellow string I wound
Three times her little throat around,
And strangled her. No pain felt she;
I am quite sure she felt no pain. (36-42)

These lines contain one of Browning's more obvious indirect descriptions of a speaker. The man is a murderer, and he is either insane or just evil. There is no question that the speaker is a murderer because he confesses and describes entirely possible circumstances; the real question comes into play when the reader tries to determine his state of mind: is he insane or evil? The fact that the speaker wants to have Porphyria all to himself and wants to keep her "perfectly pure and good" might lean a little closer to the insanity explanation because these desires exhibit intense obsession, although many of Browning's villains display a strong desire for control. However, the calmness with which this speaker describes the violent act that he has carried out could point toward either insanity or pure wickedness.

The duke speaking in "My Last Duchess" is also an unreliable narrator who indirectly informs the reader about himself:

...she liked whate'er
She looked on, and her looks went everywhere.

Sir, 'twas all one! My favor at her breast,
 The dropping of the daylight in the West,
 The bough of cherries some officious fool
 Broke in the orchard for her...
 ...all and each
 Would draw from her alike the approving speech,
 Or blush, at least. She thanked men—good! but thanked
 Somehow—I know not how—as if she ranked
 My gift of a nine-hundred-years-old name
 With anybody's gift. Who'd stoop to blame
 This sort of trifling? (23-35)

The duke reveals much about himself in this passage. He spends several lines complaining about his dead wife liking everything too much and showing too much approval toward beauty and others' kindness. This shows the duke's petty jealousy, and one can assume that he displays jealousy and similarly unpleasant traits in other areas of his life as well. These lines also show just how deeply his jealousy runs. He is not only jealous of someone (presumably a man) giving his wife a branch of cherries, but he is also jealous of inanimate objects like the sunset; he does not wish for his wife to find much pleasure in or show much gratitude for anything except him. Near the end of the passage, the duke says that his dead wife acted as if any gift she received, such as the cherry branch, were as important as his "nine-hundred-years-old name" (33). This shows that the duke believes that he is a very important, highly regarded man who has done the young woman a favor by allowing her to marry him. Finally, the duke shows the reader that he denies or disregards his own flaws by saying that it would be beneath him to criticize his wife as "trifling" or failing to adequately appreciate the gift of his name when, several lines later, he subtly confirms that he did in fact take angry, vengeful action against his wife by killing her: "I gave commands; / Then all smiles stopped together. There she stands / As if alive" (35, 46-48). He seems "oblivious to the negative impression [he] create[s]" (Gardner 36).

This denial or disregard of flaws is common in Browning's dramatic monologues. All three of the aforementioned villains point out flaws in the people against whom they commit or wish to commit violent acts, yet the reader is unable to find evidence that the victims are anything other than good people or that they deserve what they receive. Instead, the reader sees the speakers' flaws through their criticism of the flaws that they find in others—the opposite of the speakers' intentions, but the author's exact intention. This is also intended to reveal the speakers' "vanity and hypocrisy" (Gardner 35).

Examples of the speaker revealing his flaws through the criticism of his victim can be found throughout "Soliloquy of the Spanish Cloister." In one stanza, the speaker accuses Brother Lawrence of lusting after women:

Saint, forsooth! While brown Dolores
 Squats outside the Convent bank
 With Sanchicha, telling stories,

Steeping tresses in the tank,
Blue-black, lustrous, thick like horsehairs... (25-29)

The speaker accuses Brother Lawrence of watching women while they are washing their hair, and possibly bathing, but does not realize that, by doing this in such detail, he is incriminating himself. He seems to be referring to a specific incident because he names specific women, and he would not know whom Brother Lawrence was watching unless he had been close enough to overhear or see them himself. The accusation includes other details that make the speaker look guilty. He calls one of the women “brown” and says that she was squatting, that the other woman was washing her hair, and that the two of them were telling stories. Again, these details are specific for a tattle-tale accusation in which he was supposedly not involved. Finally, the speaker lingers on the woman’s hair with such sensuous language that it is clear who is lusting after Dolores and Sanchicha.

The most extreme case of hypocrisy in this poem comes in the last stanza:

Or, there’s Satan!—one might venture
Pledge one’s soul to him, yet leave
Such a flaw in the indenture
As he’d miss till, past retrieve,
Blasted lay that rose-acacia
We’re so proud of! (65-70)

The speaker—a member of a religious order who lives in a monastery—actually expresses the idea of selling his soul to the devil in order to harm Brother Lawrence but then somehow having an “escape clause” and narrowly escaping a terrible fate while his rival unjustly suffers—arguably, both Brother Lawrence and his carefully tended plants, not just the plants, are implied by the phrase “that rose-acacia / We’re so proud of!” (Greenblatt 1255, “Spanish Cloister” 69-70). The fact that a religious man (at least in appearance) would even bring up an idea like this one over a matter as simple as envy shows the man’s extreme hypocrisy and even brings into question his mental state. While it is clear that the speaker in “Porphyria’s Lover” may be insane, the mental state of the speaker in “Soliloquy of the Spanish Cloister” is more ambiguous. Either way, there is something “off” in this speaker’s mind, and he is a strong personification of the dark side of human nature.

Whether or not the speaker in “Porphyria’s Lover” is insane, he reveals his flaws when he criticizes Porphyria. He says that she is

Too weak, for all her heart’s endeavor,
To set its struggling passion free
From pride, and vainer ties dissever,
And give herself to me forever. (22-25)

This complaint of pride and vanity preventing a lover from fully committing herself to her partner might be valid coming from a more “normal” person. In fact, it might be valid in this situation, but the murder of the woman and the lack of remorse later in the poem make the validity of the speaker’s complaint irrelevant. When this criticism of

Porphyria's pride and vanity is considered together with the following lines, the combined passages reveal the speaker's desire to possess Porphyria and his possible jealousy:

Be sure I looked up at her eyes
Happy and proud; at last I knew
Porphyria worshiped me: surprise
Made my heart swell, and still it grew
While I debated what to do. (31-35)

The speaker reveals his desire to possess and control, not to mention his emotional instability, when he interprets her loving gesture of placing his cheek against her bare shoulder as her worshipping him. He continues to reveal his true nature when he describes how happy Porphyria's extreme feelings, exaggerated by his irrational mind, make him. It is difficult to find hypocrisy in the poem, as opposed to the obvious hypocrisy in both "Soliloquy of the Spanish Cloister" and "My Last Duchess," which further supports the idea that the speaker in "Porphyria's Lover" may be insane instead of just evil.

The speaker in "My Last Duchess," as previously discussed, reveals his flaws of extreme jealousy and desire for control when he complains about his wife being too easily pleased by everything and expressing too much gratitude to everyone. Yet the danger and the acuteness of his jealous and controlling nature are best expressed near the end of the poem:

Oh sir, she smiled, no doubt,
Whene'er I passed her; but who passed without
Much the same smile? This grew; I gave commands;
Then all smiles stopped together. There she stands
As if alive. (43-47)

The duke criticizes his dead wife yet again, then wishes to display his power by stating that he stopped the behavior that displeased him. The reader already knows that the duke likes to demonstrate the power that he holds because in the beginning of the poem he "enjoys the power he accrues by deciding when and for whom to reveal the portrait of his duchess" (Gardner 37). Through his vanity and his love of displaying power, the duke reveals the extremity of his emotions and his inhumanity. Instead of praising the duke and looking down on the dead woman, as the duke himself does, the reader has only negative feelings toward the duke and feels pity for the next woman he is about to marry.

When one reads and analyzes these three dramatic monologues, it begins to become obvious that Browning was using them to explore evil in a complex, psychological way. By deciding to write these pieces from the perspectives of the villains, he was also deciding to temporarily put himself in the minds of the villains and to try to think the way they would. Two of the most important aspects that Browning had to consider when doing this were state of mind and motivation. There is much evidence in these and other of his dramatic monologues that suggests that Browning was exploring,

and perhaps discovered through his exploration, the idea that evil in all forms often develops from similar states of mind and shares similar motivation.

There exists a common thread between the states of mind of the speakers in “Soliloquy of the Spanish Cloister,” “Porphyria’s Lover,” and “My Last Duchess”: irrationality. However, the causes of these irrational states of mind differ in each poem. In “Soliloquy of the Spanish Cloister,” an immoral “religious” man is consumed with the thought of destroying his rival and mentions the idea of selling his soul to the devil, so his source of irrationality can be best attributed to wickedness. But is he truly evil? How much ordinary human nature is at play, and how much actual evil exists here? How sincere is the speaker in thinking up his threatening ideas? These are valid questions which Browning was exploring through his dramatic monologues and for which he probably never found exact answers. His pieces leave much to the reader; there is much thinking to do and many answers to ponder after reading Browning. One scholar believes that this speaker “reveals himself as a patently evil man, one who in an attempt to discredit the piety of his fellow monk...ironically condemns himself to hell” (Dessommes 34). The religious setting and characters in this poem are clues that the speaker could very well be evil, especially if he is at all sincere about the aforementioned idea of selling his soul in order to wreak petty, undeserved revenge upon an innocent man.

In “Porphyria’s Lover,” the source of the speaker’s irrationality appears to be much more obvious. The evidence in the poem suggests that this speaker is insane. That does not mean that he is not evil, but if he is evil, he may not be willingly evil; insanity would imply that he is incapable of making rational decisions and, therefore, would not have chosen to be evil. However, the last lines of the poem bring ambiguity back into the equation: “And thus we sit together now, / And all night long we have not stirred, / And yet God has not said a word!” (58-60). When religion is a factor in a piece of literature, especially in a piece like this one, it is likely that evil and/or a struggle between good and evil will exist somewhere in the piece. However, because of the tone of the poem and the personality of the speaker, the mental state of the speaker appears to be both irrational and unstable.

The mental state of the speaker in “My Last Duchess,” as opposed to that of Porphyria’s murderer, is irrational yet very stable. The duke knew exactly what he was doing when he had his wife murdered, and he knows exactly what he did and is doing as he speaks the lines of the poem. His language and his tone are very precise. There is little to no doubt of the duke being perfectly sane and perfectly evil. Arguably, the duke is the most evil of the three speakers. The speaker in “Soliloquy of the Spanish Cloister” is immoral and does mention the idea of pretending to sell his soul to the devil, but he does not physically harm Brother Lawrence; he only harms his plants:

How go on your flowers? None double?
Not one fruit-sort can you spy?
And I, too, at such trouble,
Keep them close-nipped on the sly! (45-48)

The speaker in “Porphyria’s Lover” is probably insane, which creates all kinds of questions about whether or not he is evil or how evil he might be. Also, if he is insane,

he is probably too irrational to make decisions the way a sane person would. The duke in “My Last Duchess,” however, is both sane and evil; he exhibits his “rational” calculation and his cruelty when he indirectly confesses, almost bragging, that he is responsible for the death of his wife.

There are also common threads among the motivations of the three speakers: jealousy and control. The speaker in “Soliloquy of the Spanish Cloister” is motivated by extreme jealousy that has turned into hatred. Although it is not exactly clear why he despises his rival so much, he conveys the following idea through his language: despite the fact that he “giv[es] careful attention to the externals of his faith” and performs religious rituals better than Brother Lawrence, his “sensitive but liturgically lax counterpart,” Brother Lawrence is better liked by or receives more praise from others (Dessommes 34). It is important to acknowledge the fact that Brother Lawrence’s excessive popularity and praise may be imagined or exaggerated by the speaker’s irrational mind. Whatever the cause of the speaker’s jealous hatred, the speaker conveys his desire to hurt and to exercise control over his comrade by cutting Brother Lawrence’s plants and plotting to further cause him harm. The speaker in “Porphyria’s Lover” is motivated by his desire to possess Porphyria and have her all for his own. This is a control issue as well as a jealousy issue. He wants to have Porphyria as she is in the moment before he kills her— “mine, mine, fair, / Perfectly pure and good”—and he does not want anyone else to have her (36-37). The speaker in “My Last Duchess,” whom Gardner refers to as a “monomaniacal sociopath” (36), is motivated by the extreme jealousy he feels toward his wife and by the intense desire to control her behavior that drive him to go as far as ending her life.

In conclusion, Robert Browning combines the dramatic monologue, which “proved to be the ideal medium for [his] poetic genius,” and his interest in evil or the dark side of human nature to create entertaining and psychologically complex stories in which he explores the nature of evil (“Robert Browning”). He tells these stories from the perspectives of unreliable male narrators who indirectly reveal their personalities and their flaws through their own words and their criticisms of their victims. By looking into the minds of the villains in order to write his dramatic monologues, Browning had to consider and analyze the state of mind and the motivations of each speaker. Through this process he explores, and perhaps discovered through his exploration, the idea that evil often comes from an irrational state of mind and is often motivated by jealousy and the desire for control.

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Paired-Associate Learning

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Abstract

The present study evaluated an important variable in neuropsychology, which is the impact of patient emotional associations to verbal stimuli during memory testing. Accurate and detailed memory testing is vital to the diagnosis and treatment of neuropathology (e.g. traumatic brain injury). Students were asked to learn a series of word pairs that varied in emotional valence: positive (happy—merry), negative (slay—murder), and neutral or original (curtains—blinds). A one-way repeated-measures ANOVA illustrated a significant effect of emotional valence [$F(2) = 14.5, p < 0.001$], with recall for the neutral/original word pairs ($M = 8.3$) being significantly greater than recall for the negative ($M = 5.4$) and positive ($M = 5.13$) word pairs. Since the emotional (negative or positive) word pairs were synonyms, they could have been more difficult to recall than the neutral/original word pairs. The neutral/original word pairs may also have been higher in imagery than the emotional word pairs. Implications for future research will be discussed.

Paired-Associate Learning

Research in the area of learning and memory has rapidly expanded during the last few decades. Researchers now have access to an extensive body of knowledge about the use of mnemonic devices or associations between semantically related words. The present study used an exploratory technique to evaluate the use of semantically associated words in relation to learning and memory. The present study focused on paired associative memory, which is an important neuropsychology issue in which emotional associations to verbal stimuli are tested for better understanding of cognitive processes. Emotional valence effect on memory and learning is also of great importance for the area of neuropsychology. This study is also specifically relevant to the improvement and understanding of college learning. It was hypothesized that emotional valence will have an effect on memory and learning, and the negative words would be recalled more frequently than positive or neutral/original words. However, the findings partially support this hypothesis. The neutral/original word pairs were recalled more frequently than either the negative or positive word pairs, a result attributed to the higher imagery of the neutral/original pair words.

After numerous studies, scientists are able to identify the areas of the brain associated with memory. The structures involved in learning and memory include the

temporal lobe, the parietal cortex, the hippocampus, and the limbic cortex. Reas and Brewer (2013) articulate that “[b]rain regions sensitive to the strength of the retrieved memory include areas of the medial temporal lobe” (p. 219). Reas and Brewer also add that the “parietal cortex is known to serve an essential role in visuospatial attention, working memory, and sensory association [citations omitted] , [and] parietal subregions are also engaged during memory retrieval” (p. 229). The hippocampus with the collaboration of closely related structures is responsible for the majority of cognitive processes. Carlson (2011) state the following: “the hippocampal formation and the limbic cortex of the medial temporal lobe appear to be involved in the consolidation and retrieval of declarative memories, both episodic and semantic” (p. 366). Furthermore, Norman, Newman, & Detre (2007) observe that

the job of the hippocampal network is to rapidly memorize patterns of cortical activity in a manner that supports pattern completion (i.e., retrieval of the entire pattern in response to a partial cue) after a single study exposure to the pattern. (p. 895)

The hippocampal network supports the task of memorization and learning, thus enabling the process of learning as well as various cognitive processes.

Research on the dual-coding theory has generated valuable knowledge in the area of cognitive psychology. Crawford and Allen (1996) note that Paivio presented the dual-coding theory in his earlier studies (p.355). Crawford and Allen (1996) refer to “Paivio’s (1971, 1986, 1989) dual-coding theory that proposes that there are functionally separate but interactive imaginal and verbal processing systems operating during the recall of pictorial and verbal stimuli” (p. 355). Highly visual imagery generates vivid images that enhance the participant’s ability to learn and to remember. Hence, an individual can vividly conceive high imagery words, both verbally and imaginably. According to the dual-coding theory, both visual and verbal information are processed individually but not independently of each other. Crawford and Allen (1996) explain that “imaginal processes assist in the learning and recall of high imagery words” (p. 355). Perhaps high imagery allows an individual to become more involved and to experience the meaning of a word to a greater level, thus facilitating and improving memory.

Recent research has focused on dual-process theory providing knowledge about specific areas of the brain involved with it. A study by Hayes, Buchler, Stokes, Kragel, and Cabeza (2011) suggests that “[d]ual-process theories have proposed that familiarity is more dependent on rhinal cortex whereas recollection is more dependent on the hippocampus” (p. 3959). The dual-process theory suggests that the method of memorization depends on the familiarity of the word being recalled. Different structures are used for the different methods of memorization and learning. But it is the familiarity of the item that reinforces the method used by the brain.

While high imagery is considered a very influential factor in paired-associate learning, other factors should also be taken into consideration. For instance, attention and motivation to learn a specific task are also significant aspects. Campbell, Trelle, and Hasher (2013) indicate that “learning a list of word pairs requires one to limit attention” (p. 5). Hence, learning any task depends, to a certain extent, on the attention of the person. Reas and Brewer (2013) identify attention as a necessary condition for memory.

Additionally, Reas and Brewer (2013) note the following: “cognitive control and attention critically contribute to episodic memory retrieval efforts and success” (p. 219). Furthermore, the level of motivation is believed to play a significant role in cognitive processes. In their study, Wolosin, Zeithamova, and Preston (2012) argue the following: “distributed patterns of activation within human hippocampus differentiate between motivational contexts during motivated learning to support encoding of novel information” (p. 1272). Similarly, studies with rodents suggest that hippocampal activity in rodents is closely correlated with motivation (Wolosin, Zeithamova, & Preston, 2012, p. 1272).

This Paired-Associate Learning study looks at pair associative learning, which has been a focus of research during the last few decades. Pair associative learning binds different terms or concepts together for the purpose of improved memory. Pengyun, Juan, Huijie, and Shouzi (2013) explain that “associative memory requires remembering of the relationship between items, such as pairs of words” (p. 2). Moreover, remembering newly associated pairs comprise what Pengyun, Juan, Huijie, and Shouzi called a double process. In their study, Pengyun, Juan, Huijie, and Shouzi (2013) state the two processes as follows: “One is acquiring items that have not yet been learned well enough to be retrieved. The other is consolidating items that have already been acquired” (p. 2). Therefore, the individual has to first recognize and encode the information acquired, which in this case would be the word pair. Second, the individual has to be able to reclaim and restate the information, which in this case includes restating and identifying the missing word once presented with one of the words in the pair.

For emotional valence assessment, semantically related words were selected from the list of words earlier developed by Toglia and his colleagues. Semantically related words have been categorized after extensive research. According to Toglia (2009), Paivio, Yuille, and Madigan were the pioneers in semantic words categorization; they were responsible for the primary classification of emotionally related words (p. 531). Toglia (2009) points out the following: “prior to our 1978 norms, a major option was the normative work of Paivio, Yuille, and Madigan (1968). Their norms were, and remain, very useful, but they were limited to 925 items—all nouns—and three scaled dimensions” (p.531). Furthermore, in 1978 Paivio’s findings were expanded and developed to a larger list of words. Toglia (2009) refers to the new norms as the “Toglia and Battig norms” that “expanded the rating of verbal items to include many parts of speech and provided data on seven verbal characteristics: imagery, concreteness, meaningfulness, familiarity, number of attributes, categorizability, and pleasantness” (p. 531). Such findings are used in the present study to evaluate learning as a function of emotional valence. The emotional valence word pairs included negative word pairs (slay—murder), positive word pairs (happy—merry), and neutral or original word pairs (curtains—blinds).

Sadalla and Loftness (1972) conducted a research study in which participants were instructed to create images with emotional words to assess paired-associate learning. Similarly to the current study, Sadalla and Loftness (1972) used paired words from the Paivio, Yuille, and Madigan word list (p.295). The participants were given instructions as to how to associate the emotional words and how to employ mnemonic strategies with the different emotional words. Different instructions were given for each

of the three different emotional valence conditions, which included a neutral condition, a positive, and a negative condition. Sadalla and Loftness (1972) found that “instructions to create ‘emotional’ associations lead to the construction of a sequence of cognitive elaborations which are later recalled more easily and with greater rated clarity” (p. 297). The results of Sadalla and Loftness suggest that the use of mnemonic strategies facilitates paired-associate learning. However, the likelihood of participants using a mnemonic device without prior instructions is undetermined.

A recent study by Pierce and Kensinger (2011) describe that “there may be special mechanisms at work when information is both high in arousal and also negative in valence” (p. 141). However, Pierce and Kensinger (2011) did not take into consideration the level of imagery of the word pairs. Their study asked students from a university setting to identify pairs of words that were either intact, arranged into new pairs, or were a new pair (a pair that the participants were not previously exposed to). Pierce and Kensinger (2011) considered factors such as familiarity, frequency, concreteness, and imageability (p. 140). Pierce and Kensinger took an interesting approach; they instructed the participants to associate the words by quietly forming a sentence that included both words. They also instructed the participants to rate the difficulty of the task as the sentence was elaborated. They did not take into consideration the time it took for the participants to identify or recall the correct response. However, between the administrations of conditions, an interval of 15 minutes was used to complete a maze task in order to distract the participants. In their study, Pierce and Kensinger (2011) report that “Negative valence has been shown to restrict attention to local features while positive valence has been shown to broaden attention and to encourage more global processing” (p. 141). Thus, valence has been shown to influence the learning ability.

In a different study, the contribution of mnemonic strategies and motivation to learn in paired-associate learning was evaluated (Duplessis, Hiscock, and McMurray, 1981). Duplessis, Hiscock, and McMurray’s study focused in incidental learning, intentional learning, and intentional learning with incentive to learn. Participants from the experimental group received instructions to associate high imagery pairs. Duplessis, Hiscock, and McMurray (1981) found that “mnemonics instructions have a facilitative effect in PAL performance” (p. 64). Contrary to the study discussed previously, Duplessis, Hiscock, and McMurray compare paired-associate learning with a control group. The control group did not receive any instructions as to using a mnemonic device. The results of the control group and the experimental group highly differ, suggesting that associative learning has a great impact in memory.

Precise and detailed memory assessment is vital to the diagnosis and treatments in neuropathology. Experimental studies expand the knowledge of neuropsychological areas and also improve diagnosis, testing and treatment of neurological disorders. This study is intended to strengthen the understanding of cognitive processes. The approach is to explore the effects of emotional valence on memory. The present study paired semantically related words (positive, negative, and neutral/original). The semantically related words were further labeled into either high or low imagery word pairs to assess memory and learning. The study focuses on conducting an exploratory analysis in paired-associate learning as a function of emotional valence. The approach followed here includes the use of the emotional words to assess whether recall of the words could

be disturbed. It is hypothesized that emotional valence (positive, negative, or neutral) will have an effect in the recall of pair associated words (high imagery, low imagery). Additionally, it is anticipated that the negative words will have a higher recall than the positive or neutral word pairs.

Methods

Participants

Participants for the study were recruited from General Psychology day classes of Methodist University. The researcher gathered data from about 10 participants. Participant age ranged from 18-25. Sexual orientation was not taken into consideration. Participants were given extra credit for participating in the study. All participants were given the option to withdraw, if necessary or uncomfortable, at any time during the experiment.

Apparatus

The study was conducted in a small psychology experiment room where the experimenter assured the comfort of all participants. Both participants and researcher sat around a small table about one to two feet apart and facing each other. Participants were instructed to sit in a comfortable chair in the silent experiment room. The researcher presented the participants with pair words. The pair words presented to the participants consisted of block printed capital letters, written on 4" x 6" index cards. The note cards were randomly arranged and kept under the same arrangement throughout the duration of the study so that the same order was presented to each participant. The notecards were placed in the middle of the table to provide a barrier between the participant and the experimenter. Notecards were presented to all participants in the same manner.

The words chosen included 30 pairs of words. The words had been categorized and selected based on their emotional meaning, which included neutral (or original), negative, or positive. There was also a set of 10 pairs of filler words; five were presented at the beginning of the 30 emotional pair words, and five were presented at the end of the 30 emotional pair words. The emotional words such as positive and negative were selected from the semantic word norms of Toggia and Battig (1978), which were established after "examination of the number of citations of this set of norms over the years" and which show "a stable employment of these norms by investigators in many fields" (p. 531). The neutral words were obtained from the Rey Auditory Verbal Learning Test, which "simultaneously provides several measures of learning and memory" (Vakil and Blachstein, 1993).

Design

The present study used a 2 (High Imagery, Low Imagery) by 3 (positive, negative, neutral) repeated measures factorial within participants ANOVA. The number of pair words recalled correctly by the participants constituted the dependent measure.

Procedure

After welcoming the participants and closing the door for privacy and to prevent any possible interruption, the researcher proceeded with the informed consent form (refer to Appendix 1). The researcher then instructed the participants as quoted from Pavio (1983):

In front of me I have a set of cards. On each card there are two nouns, such as “table” and “coffee”. Your task is to learn that these two nouns are paired together so that when, at a later time, I give you another that only has “table” on it you can recall the word “coffee” and say it to me. I will then write down your response. The procedure I will follow is this: First, I will give you a series of different cards, each for 10 seconds. On each card will be two words. You are to learn that these two words are paired together. After we complete this set of cards, I will turn to a second pile of cards in front of me. I will show you one card at the time for 10 seconds. During that time you are to tell me what word you think was associated with it. Always guess even if you cannot remember the associated word. Do not leave any blank. Are there any questions? (p. 88).

If the participants had questions, the researcher repeated the instructions. The experimenter was then to continue, presenting the participant with one stimulus card at a time, for 10 seconds each. Each stimulus card was presented to the participant so that it was easily readable, until the total of 40 cards was reached. Then the experimenter turned to the second pile and said to the participant: “Now I will present one of the two pairs of words. Tell me within the 10 second period what the associated word is. If you are not sure, you must guess” (Pavio 1983). The experimenter then continued to present the second pile of words, each for a period of 10 seconds. The researcher wrote down the participant’s responses. The second pile of words did not include the filler words. Thus the experimenter recorded only a total of 30 words. After completing this portion of the experiment, the experimenter asked the participants to write down the method or methods they used to learn and recall the words. The experimenter then debriefed the participants as to the purpose of the experiment (Pavio, 1983).

Results

A one-way Analysis of Variance (ANOVA) was performed on the dependent variable, which was the number of words correctly recalled. A statistically significant effect of emotional valence for the words was found ($F^2=14.5$ $p<0.001$). Post-hoc (HSD) analysis revealed that participants recalled significantly more neutral words ($M=8.3$), than either the positive words ($M=5.13$) or the negative words ($M=5.4$).

Discussion

The present study anticipated that participants would recall more negative word pairs. However, only partial support for the hypothesis was obtained. Unlike the hypothesis projected, there was no effect of the positive or negative word pairs. Recall for the emotionally neutral words was greater, possibly due to the higher imagery. One of the studies relating to high imagery words shows the following: “Highly imageable words are learned more readily and are recalled more often and with greater consistency than words that are more difficult to image” (Weingartner, Caine, & Ebert, 1979, p. 53). Therefore, the complexity of high imagery words must require a higher level of involvement by the brain, which may account for the high frequency of high imagery words recalled. In their study, Weingartner, Caine, and Ebert (1979) suggest that the brain creates a binding reaction to process the high imagery words, in which the information is “dually coded (visual and verbal representation in memory)” (p. 54).

Neurological studies suggest that areas of the brain responsible for memory and visual imagery are closely interrelated. For instance, “visual memory and visual mental imagery are mediated by many of the same cognitive processes. In spite of the observed differences, we also found some similar patterns of neural results in the two tasks” (Slotnick, Thompson & Kosslyn, 2012, p. 20). Hence, the association of high imagery words is processed by more than one area in the brain. The findings of Slotnick, Thompson, and Kosslyn (2012) confirmed the following: “visual memory and visual mental imagery rely on the same frontal-parietal control regions and occipital-temporal sensory regions” (p. 19). Thus, the same areas of the brain processed high imagery words, but the process does not employ identical methods. These findings suggest that cognitive processes reinforce each other, facilitating memory of high imagery words.

Emotional valence affects the process of learning. Hence, the use of emotional valence words, positive or negative, creates a relatively biased response. As earlier research suggests, “learning positively or negatively valenced words has a significant influence on diastolic pressure” (Snyder, Harrison, & Shenal, 1998, p. 257). While emotional valence interferes with memory and learning, other factors might also influence cognitive processes. For instance, prioritizing familiar concepts such as terms used more frequently in the quotidian routine of the individual could cause involuntary preference for the neutral words. Conceivably, the neutral pair words used in the study resembled daily activities, which made the positive and negative pair words less likely to be recalled. According to Hannon, Lozano, Frias, Picallo-Hernandez, and Fuhrman (2010), “it is assumed that the importance of the associations is reflected in the strength of the associations” (p. 1225). Therefore, the recall of high imagery neutral words was prevalent, suggesting that meaning and familiarity bind to create a sort of a scale in relation to the importance of the word.

Stress and anxiety are factors related to the creation of false memories. Roberts (2002) reports: “in vivid imagers stress had quite a powerful effect on false memory creation” (p. 249). All of the data gathered for the present study was collected from college students during the fall semester. Some of participants might have been experiencing stress as a result of their scholastic and personal responsibilities. However, stress and anxiety counteract learning by influencing the creation of false memories. Roberts (2002) also explains that, “since state anxiety, via increased arousal, is likely to

interfere with short-term memory effectiveness [citation omitted] then it is also likely to have some impact on the qualities of memories” (p. 249). Therefore, stress not only interferes with learning but also decreases the efficiency of short-term memory.

In conclusion, partial support was found for the hypothesis. The neutral words were recalled more often than the emotional words. It is assumed that the neutral word pairs had higher imagery than the emotional valence word pairs. In addition, higher imagery is considered to require a higher level of involvement as well as additional cognitive processes. Higher imagery words also demand cognitive processes to complement one another, which makes the learning of neutral words more complex. Additionally, prioritizing and unconsciously selecting the information based on the level of familiarity and relevance are important factors in the learning process. Moreover, high imagery is related to the importance and meaning given to a term. Stress and anxiety are factors that counteract the process of learning and memory. Future research should focus on a wider variety of neutral words; perhaps comparing the high and low imagery neutral words could provide a better understanding.

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Appendix 1
Informed Consent Form
Paired-Associate Learning

(Note: Participants will keep for their records)

1. Purpose of the Study: The purpose of the class project is to fulfill a requirement for PSY 355.
2. Procedure: Participants will be presented with paired words for a period of 10 seconds. They will be asked to learn the words, so that they can recall them at a later time. The experimenter will then present only one of the paired words for a period of 10 seconds, the participants will be asked to recall the missing word. The participant will write down a short statement about the strategy used to recall the words.
3. Anonymity of Participants and Confidentiality of the Results: All data will be completely anonymous. All results will be confidential.
4. Discomforts and Risks: There is no risk associated with the present study. However, in the case of any discomfort or risk, the participant can withdraw from the experiment at any time.
5. Benefits of the Study: After completing the experiment, participants' information will be sent to their respective professor for extra credit. Results of the study will be presented at the North Carolina Psychological Association.
6. Freedom to Withdraw: Participants will be free to withdraw at any time during the experiment. If so, extra credit will be given or they will be given another opportunity to earn the extra credit.
7. Approval of Research: Dr. Katharine Snyder has approved the present research. If further information is needed, you can contact her or the experimenter directly. Their information is listed below
Dr. Katharine Snyder
ksnyder@methodist.edu
910-630-7535
8. Permission Statement: You have been informed and instructed about the procedures regarding the present study. You are aware that you will not be required to identify yourself in any of the experiment material. You will be able to withdraw from the experiment at any time.
Participant's Name (Please Print): _____
Participant's Signature: _____
Course: _____
Course Professor: _____
Researcher's Signature: _____

Appendix 2

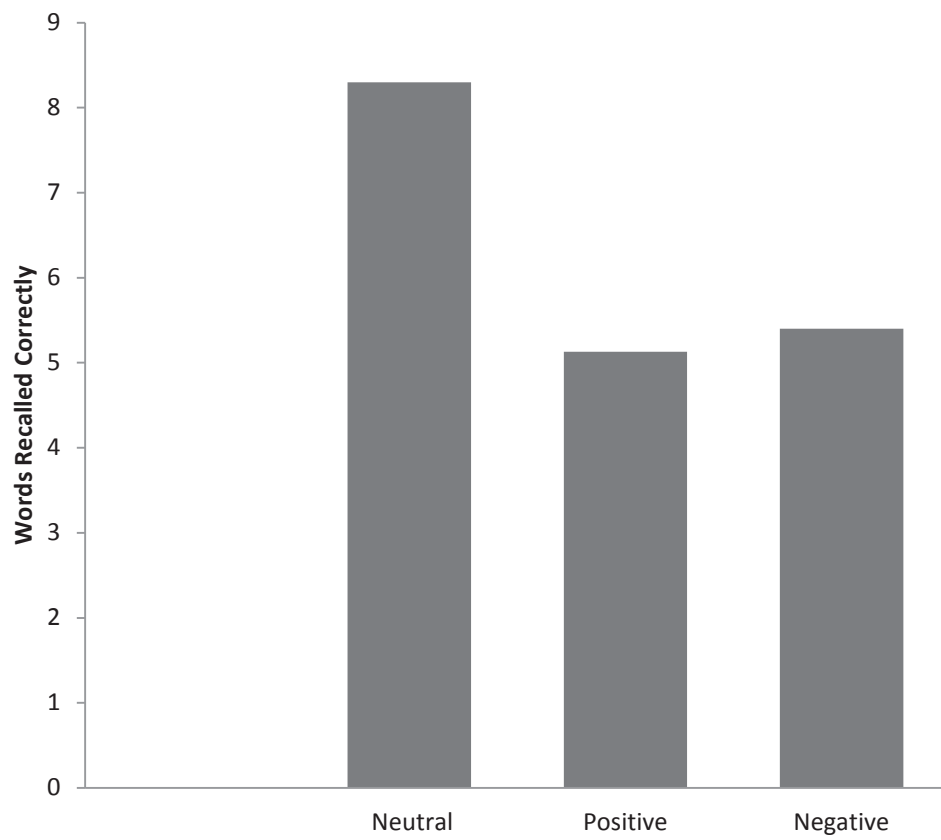
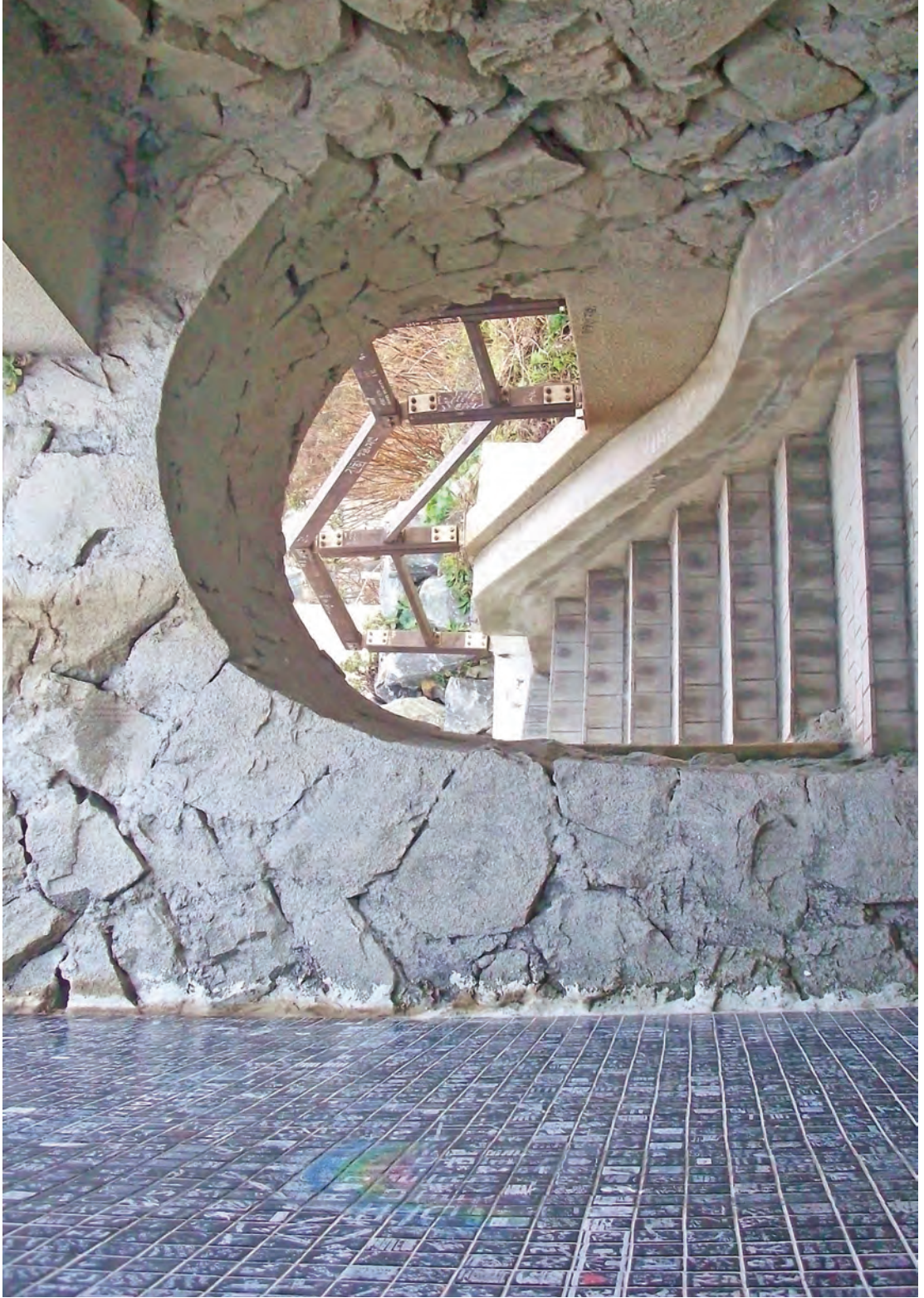


Figure 1. Number of neutral, positive, and negative words recalled correctly in the Learning and Learning Study.



Tracey Raupp

Angles



Arch

Tracey Raupp



Wood and Roses

Tracey Raupp

Every morning,
my chubby cat comes
in my **office**, eats
a **waffle** first,
drinks my hot
coffee, lies on
the cold **floor**
slowly, and
then snores.



Ligature

In typography, ligature, also known as tied-letters, is two or more letters combined to form a single glyph. fi and fl are standard ligatures while ff, ffi, and fj are less common. At first, ligatures were used to save space and increase writing speed because the paper was an expensive commodity. Ligatures were convenient and stylish. Thus, ligatures became widely popular after the printing press was invented. Mrs Eaves, Cezanne and ITC Edwardian Script are good examples of ligatures.



Of Drowning Books and Burning Souls: Magic, Minions, Relationships, and Crisis in *The Tempest* and *Dr. Faustus*

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Department of English and Writing

The central figures of Marlowe's *The Tragedy of Doctor Faustus* and Shakespeare's *The Tempest* bear intriguing similarities. Their use of magic and means of acquiring it, along with their interactions with their servants, highlight their relationship to reality. Both men are faced with a similar crisis at the end of their respective play as well. After having magical powers throughout the majority of the story, each man is asked, subtly or directly, to relinquish his hold on the supernatural. Yet, despite having so many characteristics in common, the two plays reach dramatically different conclusions.

While later acknowledging the melancholy nature of returning to life sans powers, Prospero gives up his books and breaks his staff (Shakespeare 5.1.54-57). He also frees Ariel and Caliban, his two companions. Although entreated several times by an Old Man and various angels to repent of his ways, Faustus is dragged to Hell (Marlowe 13.11). An in-depth examination of Prospero's and Faustus's powers, the ways they use them, the acquisition of and relationships to their minions, and their ultimate relationships to non-magical reality provides insight into their differing destinies. These aspects of their characters also indicate that viewing Prospero as a good magician and Faustus as a bad one is reductionist, and that such a perspective is not helpful in understanding their fates.

One of the most prominent similarities between Prospero and Faustus is their possession of magical powers. It is possible to conclude upon a simple reading of the texts that the magic they use is, if not exactly the same, then very close in nature. Both have assumed control of servants and perform supernatural feats involving invisibility and deception. Yet one may be hesitant to draw parallels between the two men's magic because Faustus's powers are emphatically grounded in the Judeo-Christian tradition while the cultural origins of Prospero's art are nebulous. Despite this difference, the two men have many magical characteristics in common.

While research into Renaissance magic concludes that there were no truly unifying traditions (Henry 7), there are somewhat substantive connections between the Renaissance and the medieval era. Scholars examining Albert Magnus's medieval work

Speculum astronomiae found that magic was roughly divided into two separate categories—Hermetic and Solomonic (Klaasen 168). Hermetic magic was used to focus the powers of celestial bodies at certain times of the year, and often had a ritualistic component involving chanting or animal sacrifice. This type of magic was very concerned with talismans and artifacts. Conversely, Solomonic magic concerned itself with “binding and deploying demons and angels through ritual acts of violence” (Klaasen 173). Klaasen hints that the Solomonic practices present in texts other than *Speculum astronomiae* did not use ritual violence but liturgical rituals.

Broadly, Faustus’s and Prospero’s magic powers fall into the Solomonic category. Their two uses of magic rely far more on the employment of spirit-based servants than upon rituals; in fact, even when Prospero does perform magical feats, they are based on his desires, are devoid of chanting, and have nothing to do with times of the year, as seen in the storm at the beginning of the play. While Faustus relies on a chant to summon Mephostophilis (Marlowe 3.15–23), his magical feats thereafter rely on the powers of his minion. Similarly, though Miranda suspects that the storm itself is attributed to her father, Prospero uses Ariel to save the people aboard the duke’s ship (Shakespeare 1.2.1–5).

The ways the men acquire their powers are also similar. Both use books and remove themselves, either socially or physically, willingly or not, from the non-magical world. The use of books is unsurprising; another aspect of Renaissance magic is that scholarship and magical abilities were often intertwined. Henry writes, “The truly learned magus was held to be a man with a vast knowledge of ‘how to effect things worthy of the highest admiration...by the mutual application of natural actives and passives’” (8). Therefore, the idea of a sorcerer as a learned man was very prominent in Renaissance literature. Such an overlapping between magic and academia becomes even more understandable when one considers the diaphanous boundary between science and magic prior to the Enlightenment.

Further evidence that the magicians exist in a similar magical framework can be found in the magical deeds present in each play—namely, invisibility. While these deeds are not always performed by the magicians themselves, their similarities reinforce the idea that Prospero and Faustus are comparable magically. The feats’ occurrence in conjunction with their use and goals highlights the magicians’ inner natures.

Invisibility is the first power that demonstrates interaction with the external, non-magical world. The feat also allows one to see how the spirits interact with an unprepared public, strengthening the notion of Faustus’s and Prospero’s otherworldliness. The power of invisibility is interestingly shared between master and servant, and allows for a moment of companionship between the sorcerers and their companions. When both beings are invisible, the gap between magicians and the external world seems widened, particularly because the use of invisibility gives the magicians partial dominion over the people they are interacting with.

Prospero employs invisibility, both his own and Ariel’s, for benign purposes. Ariel uses this power, along with his musical ability, to lead Ferdinand to Miranda. While distancing Ferdinand from his father worries the father, this temporary discomfort ultimately ends in happiness, as it leads to Ferdinand’s union with Miranda. The air-spirit also uses his power to save Gonzalo from being murdered. When Prospero and Ariel are invisible together later in the play, their intention is to acquire information.

Because the invisibility is used to avoid danger as well as foster ultimate goodness, these acts indicate that Prospero uses Ariel responsibly, and generally for non-selfish reasons, even if his actions seem questionable at first. Contrastingly, Faustus and Mephostophilis's use of invisibility accentuates Faustus's childish, selfish nature. Despite the demon's supposed near omnipotence, Faustus's demands of Mephostophilis rarely transcend the banal and irritating. For instance, Mephostophilis is used to terrorize the pope during a feast. This act accomplishes nothing substantial; its triviality makes Faustus's decision to barter his soul seem questionable. These actions serve solely as an exercise of power over others. The natural people understandably lack total comprehension of the events, thus causing Faustus to feel wise.

This tendency toward childishness and mild sadism may play a role in Faustus's ultimate decision. His taste of power and superiority is simply too tantalizing for him to give up. Prospero, however, always remains grounded in the affairs of the non-magical world, perhaps because of his negative experience after descending too deeply into sorcery (Shakespeare 1.2.139–150). His stronger relationship to society makes the re-assumption of powerlessness possible.

The character of Faustus approaches that of sorcerer (as understood by playgoers of that era) even before he summons Mephostophilis. The beginning of the play demonstrates how much he understands about the natural world. It is this understanding of the natural world that leads him to become disenchanted with his limited power as a mortal. He says, "Are not [my] bills hung up as monuments, / whereby whole cities have escaped the plague?...Yet art thou still but Faustus, and a man" (Marlowe 1.20-24). Faustus's knowledge has led to fame and repute. Yet, because he cannot raise people from the dead—and thus possesses no dominion over the impossible—Faustus sees no good in his studies. The contrast between having knowledge and having mastery over the natural world creates friction for Faustus, which leads to frustration. It is this frustration that eventually leads him to summon Mephostophilis.

In some ways, Faustus's descent into the dark arts seems a natural outgrowth of his scholarly pursuits. He says, "Lines, circles, schemes, letters, and characters! / Ay, these are those that Faustus most desires" (Marlowe 1.51–52). Though alluding to the technical illustrations present in books such as *Speculum astronomiae*, this nearly-mundane description of forbidden knowledge reinforces the idea of magician as scholar. This idea is further underpinned by Faustus's questioning Mephostophilis about the cosmos (5.210–215). Furthermore, Mephostophilis confers knowledge upon Faustus by giving him three books—one containing "all spells and incantations" (5.164), another relating "all characters and planets of the heavens" (5.169), and a third describing "all plants, herbs, and trees that grow upon the earth" (5.173). It is interesting that Faustus requests this knowledge following the long introductory soliloquy decrying scholarly pursuits as a waste of time; it provides insight into his character, which is riddled with contradictions.

Faustus's character is already comprised of pride and thirst for knowledge. Unlike Prospero, Faustus's references to fame and his own intelligence indicate his self-centeredness. This quality—hubris—is part of why he rejects the repeated angelic attempts to save him.

The Tempest, unlike *Doctor Faustus*, begins *in medias res*. Prospero has already assumed control of Ariel and Caliban at the start of the play. The exercise of his art is at

least twelve years old (Shakespeare 1.2.54). He too alludes to books as the source of his arcane knowledge and power, seen in part when Caliban exhorts his companions to destroy Prospero's books (Shakespeare 3.2.91–92). Prospero also attributes the loss of his kingdom to being too occupied by his studies (Shakespeare 1.2.71–76). Perhaps the less emphasized idea of scholarship can be attributed to the setting of *The Tempest*, as well as to the nature of Prospero's underlings. Unlike Faustus's Mephostophilis, who is born of the wordy Judeo-Christian tradition and commanded by a contract, Ariel and Caliban are bound to Prospero much more informally. The boundaries of Ariel's agreement are mentioned, but the extent of the pact is never emphasized as much as the contract in *Doctor Faustus*, where the sorcerer accentuates the importance by writing his consent in blood. In *The Tempest's* wild setting, with more nature-based spirits, having such formal scholarship would seem incongruous. Still, Prospero's books are retained as relics and as symbols of his power.

As is apparent from the preceding paragraphs, the magicians' minions are of utmost importance to the plays. Upon reflection, the minions can even be used to further understand the character of the magicians themselves. Though Prospero's and Faustus's magic powers both fall under the Solomonic category, their acquisition and education of their minions are very different.

Like many other aspects of his magical powers, Prospero's acquisition of Ariel and Caliban happens prior to the play. While related to his power, the procurement of Prospero's servants seems equally related to chance—that is, his landing on the island. Both Ariel and Caliban inhabited the island prior to Prospero's landing there. Prospero uses his arts to assume control of them. Ariel greets this interference ambivalently; eager to be out of his contract, he occasionally urges Prospero to release him but is never openly hostile. The air-spirit's approach is drastically divergent from Caliban's outright animosity, seen in his cursing and the criticism of Prospero's rule:

For I am all the subjects that you have,
Which first was mine own king: and here you sty me
In this hard rock, whiles you do keep from me
The rest o' the island (Shakespeare 1.2.348–494).

The acquisition of Mephostophilis is much more emphasized in *Doctor Faustus*. The long Latin incantation reinforces the sacrilegious nature of Faustus's spells. Furthermore, the conjuring allows Faustus a chance to congratulate himself, calling himself a "conjurer laureate" (Marlowe 3.33). Yet, Mephostophilis downplays Faustus's powers, remarking that the devils appear to anyone who blasphemes (3.47–49). He even denies Faustus the satisfaction of thinking Satan sent Mephostophilis to see him. These facts are contrasted oddly with Faustus's enormous ego and education. It is evident that asserting his individuality is part of his desire to master the dark arts, but Mephostophilis denies this desire. Perhaps this is why Faustus says, somewhat dramatically, "This word damnation terrifies not [me] / For [I confound] hell in Elysium: / [My] ghost be with the old philosophers" (3.57–59). Having his individuality stolen, he attempts to place himself in a group of the intellectual elite—consolation for not being fully extraordinary. Though Mephostophilis serves Faustus according to the confines of their contract, Mephostophilis makes it repeatedly clear that he serves Satan ultimately and not Faustus.

It is this dedication to a greater master, along with his spiritually powerful nature, that allows Mephostophilis to downplay Faustus's individuality.

Therefore, Faustus's and Prospero's intentions in acquiring their servants are vastly different. Faustus explicitly summons Mephostophilis to provide him with power (Marlowe 3.104). There also seems to be a deep desire to assert his individuality. This desire also leads to his rejection of the salvation repeatedly offered to him. He says repeatedly that he is too far damned to be saved, a proclamation that is untrue based on the comments of the angels. Prospero gains his minions by helping them, though his motive for doing so is unclear. His later relationship to Caliban makes his motives even harder to guess. Ariel and Caliban's acquisition still seems less selfish compared to Faustus's acquisition of Mephostophilis, as it is more incidental but cannot necessarily be called benevolent with complete confidence.

Control, like acquisition, is an important component of the relationship between master and servant. In this case, control can be defined as the actions the servants take with respect to their master's wishes and further explored by examining the means of control.

As stated above, Faustus's control of Mephostophilis stems from the contract he makes with Lucifer. The contract with the devil is a conceit that spans centuries, and some even suggest that the importance of a literal contract to plays like *Doctor Faustus* grows in proportion to the importance of the written word in society. One of the earliest occurrences of the contract with the devil occurs in the tale of Theophilus of Adana, generally dated to 538 CE (Lazar 31). In this iteration, the contract is a brief declaration of fealty to the Dark One. Keeping with Faustus's wordy nature, his contract occupies fifteen lines and includes legally binding language. One of the lines even references his scholastic occupation, beginning, "I, John Faustus of Wittenberg, doctor..." (Marlowe 5.104). The contract, written in blood, gives Faustus essentially perfect control over Mephostophilis's actions but not his personality. The demon is a servant but not a slave, seen when he dismisses Faustus's claims of individuality (3.44) and when he playfully sets firecrackers off behind Robin, Rafe, and Vintner (8.26).

Because there is no fully written-out contract, Prospero's mastery over Ariel and Caliban is a bit more ambiguous. He reminds Ariel (and informs the reader) that he saved the spirit by rending an oak tree with his magic. His powers matched those of the witch Sycorax, a being whose power is implied by her ability to confine Ariel. The play implies that Ariel is bound to Prospero for a period of service because he saved him. However, the boundaries of this mastery are difficult to define. One cannot be sure if Prospero has bound Ariel to him with his powers, outside of freeing him from Sycorax, or if the service is due to Ariel's gratitude. While Ariel's pleas to be freed seem to preclude the latter, that is not necessarily true, as Ariel is obviously grateful to have been rescued from his plight (Shakespeare 1.2.295). Furthermore, Prospero threatens to confine Ariel again if he continues to be impertinent (Shakespeare 1.2.296–298). When one considers the generally good relationship between the two of them, this threat does not seem to carry much weight, making it unlikely that Ariel remains by Prospero's side entirely because of fear. Prospero's later actions—all taken to further goodness—make it equally unlikely that he would torment Ariel. Though it is not possible to conclude with utter certainty that Ariel serves Prospero of his own volition without interference from binding Solomonic magic, it is a possibility that can be entertained. It is supported by the

good terms the servant and master are on, evinced by the use of pet names (Shakespeare 5.1.320) and friendly conversations.

Prospero's mastery over Caliban proves problematic, as it is incomplete. Because *The Tempest* begins *in medias res*, it is impossible to consider the entirety of Prospero's complicated relationship with the son of Sycorax. Though Caliban speaks of a past when he and Prospero were on good terms, one only sees the bad portion of their relationship on stage. Prospero treats Caliban much more harshly than Ariel, and this harshness is returned in equal measure, as Caliban repeatedly curses Prospero. The magician addresses him as a son of a hag and "earth" (Shakespeare 1.2.42); Ariel, fully subservient in action, never earns these epithets. The means of controlling Caliban are much rougher in origin, partly comprised of sheer physical brutality, partly by magically inflicted curses (Shakespeare 1.2.328–330). Caliban worries aloud about beatings and cramps, and serves Prospero mainly out of fear.

The extent of the abuse in their relationship is troubling and at first seems at odds with Prospero's intrinsic goodness. Yet, in light of Caliban's attempted rape of Miranda, Prospero's harshness seems understandable. It is unknown whether or not Prospero became harsh only after the assault, but it seems likely, given Prospero and Caliban's past benign relationship. In this case, Prospero's protection of his daughter overrides compassion and mercy. As for Caliban, his anger stems primarily from Prospero's seizing his island. Though Prospero's rule over the island does not seem to change the setting in any substantial way, Caliban is highly disturbed by the magician's dominion over him. Both parties involved seem a bit nostalgic for the earlier days when the two of them were on better terms—Caliban, in part, because of his naivety and Prospero because his daughter had not been threatened. The harsh feelings on both sides harm the integrity of the master/servant relationship; of the three servants, Caliban serves his master the least willingly and through the use of the most force.

Prospero's relationship with Caliban makes it difficult to argue that the play's endings are due to the magicians' intrinsic goodness or badness. Even if one believes Prospero's abuse of Caliban is appropriate, it is still abuse, and assuming unlawful control of the island is difficult to see as a morally righteous act. Therefore, it is reductionist to claim that Prospero is good while Faustus is bad, as Prospero's relationship with Caliban is flawed.

As Faustus and Prospero both fit the archetype of the scholarly magician, their attempts to educate their servants are unsurprising. Education, in this case, can be likened to attempts at naturalization, a conclusion emphasized by the repeated interpretations of *The Tempest* as a postcolonial text (Skura 229). Besides their scholarly pursuits, it is unclear why the two magicians try to ground their minions in the human paradigm, particularly when they themselves are isolated—emotionally in Faustus's case and physically in Prospero's. Regardless, both of them directly or indirectly encourage the spirits to pursue human behavior and relate to human concerns.

Despite being the more scholarly of the two, Faustus's education of Mephostophilis is less emphasized in the play. His bold declaration that Mephostophilis should "Learn...of Faustus manly fortitude, / and scorn those joys [Mephostophilis] never shalt possess" (Marlowe 3.85–86) is never entirely supported by Faustus's actions. In fact, Faustus possesses little manly fortitude. He is the one who shies away from

tricking the pope and never performs any particularly astounding feats even with his dominion over his servant.

It is possible that Mephostophilis's lack of education is due, in part, to the fact that he already knows a great deal about the human world. In the Judeo-Christian worldview, the devil and his demons are spirits representing the earth's sinful pleasures in addition to evil itself. This idea would explain why Mephostophilis and Lucifer are familiar with human constructs as disparate as pageants and the tale of the Iliad. Faustus learns more from Mephostophilis than he teaches the demon, and there is little evidence that Mephostophilis is changed by Faustus at all. The demon's final words (assuming Mephostophilis is not the Chorus) are neutral, telling Faustus that anything he desires will be done (Marlowe 12.79–80). Thus, like many of Faustus's promises, the pledge to educate Mephostophilis too is broken.

Prospero's attempted education of Caliban is emphasized. Aided by Miranda, he endeavors to teach Caliban to speak their native language. Though Caliban amply grasps the English language, this attempt to humanize him seems to fail at first. It is at this point in the play that the origins of Prospero and Caliban's sour relationship grow muddled. Does Caliban attempt to rape Miranda following her education of him? Is the rape merely attributed to his brutish nature, or did Prospero assume control of the island and prompt the assault? There are many unanswered questions, echoing the mysterious setting and characters themselves. Regardless, Caliban's infamous line "You taught me language; and my profit on't / Is, I know how to curse" (Shakespeare 1.2.366–367) and his foul curses indicate that Prospero's education of Caliban initially fails to fully ground him in the human paradigm and certainly fails to ground him in any positive way.

The naturalization of Ariel is not fully discussed by *The Tempest*. More magically powerful and ethereal than the earthy Caliban, Ariel intrinsically resists naturalization. This resistance may not be fully conscious and is most likely attributable to his emphatically non-human nature. Though Caliban is likewise non-human in appearance, his childish desires and anger are relatable to human characteristics, whereas very little of Ariel's character can be associated with humanity. Ariel never conscientiously objects to Prospero's demands; he merely longs to be free. Prospero also never directly attempts to naturalize him. If Ariel acquires human characteristics, it is the result of associating with Prospero and not the conscious, direct work of Prospero himself. Following the post-colonial interpretation of the play, Ariel may symbolize the benefits of living in nearly peaceful reality with the natives, as opposed to trying to force culture upon them, though Prospero's dominion over Ariel is, of course, problematic (Skura 152).

The conclusion of *The Tempest* approaches the success of the naturalizations with ambiguity. Prospero's humanization of Caliban may have proven to be a partial success, based on Caliban's final lines. He says,

...I'll be wise hereafter
And seek for grace. What a thrice-double ass
Was I, to take this drunkard for a god
And worship this dull fool! (Shakespeare 5.1.298–302)

His promise to "seek for grace" is at best enigmatic and at worst nonsensical. The reader has no idea what type of "grace" Caliban seeks. Vaughan writes, "Though

Caliban remains 'natural' man in contrast to 'civilized' Antonio, the monster's desire for 'grace' underlies the civilized world's debasement and, once again, emphasizes Caliban's ultimate humanity" (19). Vaughan goes on to imply that Caliban is so captivating because the definitions of "grace" he seeks are so widely varied. Some readers believe that his wish is to become like the "civilized" travelers that inhabited his island while others think the concept is less defined. Regardless of the interpretation, the ending of *The Tempest* is unclear on the result of Caliban's naturalization. As Vaughan writes, "Perhaps [the undefined nature of 'grace'] is why so many sequels to *The Tempest* have been written....Caliban is a loose end; for centuries, readers and playgoers have wanted to tie him up."

Ariel's words near the end of the play are equally ambiguous. After describing the plight of the "king, his brother and [Prospero]," he remarks that his affections would grow tender if he were a human (Shakespeare 5.1.19). His remark that his concern would only be aroused if he were human contrasts oddly with the heartrending account of their suffering. The reader or playgoer is left to wonder if Ariel's sympathies were truly aroused. However, the spirit's comments on the human condition indicate that Prospero has taught him something of human emotions. Perhaps Ariel's remarks are borne of an intellectual understanding; perhaps he is capable of human emotion.

The outcomes of the magicians' naturalization efforts provide further evidence that the divide between Prospero and Faustus is not Manichaeic. Depending on one's ethical framework, one could argue that Faustus's failure to change Mephostophilis is more humane than Prospero's thrusting language upon Caliban. Faustus's failure may indicate his weak nature; that personality flaw is not necessarily indicative of evil, but Faustus's wavering resolve is part of why he is damned. It is also possible that Prospero's negative relationship with Caliban makes leaving the island easier, supporting his relinquishment of magic.

A look at the magicians' affections for the beings around them is in order. These feelings may be linked to but not indicative of the magicians' relationships with their servants. Bizarrely enough, the most affectionate master, at least in spoken terms, is Faustus. From the outset, he seems absolutely enchanted with Mephostophilis both as a being and an idea. At first, this affection is entirely conflated with his thirst for power. He says,

Had I as many souls as there be stars,
I'd give them all for Mephostophilis.
By him I'll be a great emperor of the world,
And make a bridge through the moving air... (3.102-106)

He goes on to refer to the demon as "Sweet Mephostophilis" four more times over the course of the play and even calls the devil "My Mephostophilis" (5.206) in a possessive way rather than in an address. Based on Faustus's other relationships (they are bitter and few in number), it is highly likely that the affection for Mephostophilis is borne of either Faustus's control over him, Mephostophilis's power, or both.

The bulk of Prospero's affection, on the other hand, is placed on his daughter Miranda. He says to Ferdinand,

...I have given you here a third of mine own life,
Or that for which I live; who once again
I tender to thy hand: all thy vexations
Were but my trials of thy love and thou
Hast strangely stood the test here, afore Heaven,
I ratify this my rich gift. O Ferdinand,
Do not smile at me that I boast her off,
For thou shalt find she will outstrip all praise
And make it halt behind her. (Shakespeare 4.1.2–11)

While he is affectionate towards Ariel, Miranda is the more important being in his life. His protective nature is weighted against the responsibility he has to her to let her marry and be with other people at last. In her own way, she is just as naturalized as Caliban, but by the visitors to the island. Given her marriage to Ferdinand, her naturalization is ultimately successful, thanks in part to the supervision of her father.

The magicians' affections provide the greatest insights into their endings. Though he frees Ariel and Caliban, Prospero has something to return to—his rightful kingdom. He also has Miranda's joyous union with Ferdinand to look forward to. While Prospero laments being old (Shakespeare 5.1.3), his final speech is more focused on being freed from the stage—similar to the freeing of Ariel. Prospero's connections to nonmagical reality lead him to "drown his book...break his staff" (5.1.54–57), and return home.

The graphic ending of *Doctor Faustus* could not be farther from the ending of *The Tempest*. In the hours before his damnation, Faustus's only human company is two unnamed scholars. One of them makes a tentative suggestion that they stay and pray with Faustus, but the pair ultimately abandons him. Faustus's long parting soliloquy appeals to the powers of his intellect and his knowledge of the world. As he nears damnation, he offers to burn his books, but it is clear that this release of magic powers is not wholehearted, or enough to save him. His final word is the name of the one being he was closest to—"Mephostophilis!" Faustus dies in social isolation, friendless.

Thus, Prospero maintains connections to beings other than his servants. His emotionally beneficial relationships with Miranda and Ariel provide him enough stability to make the transition to the realm of mortal men. Faustus, adrift, has no mortals to turn to. His continual self-gratification leaves him with no easy way to give up his power, as do his pride and desperate need for individuality. It is his self-centered psyche that led him to blaspheme in the first place. Furthermore, Faustus fooled himself into believing Mephostophilis was his to keep. Prospero's understanding with Ariel reminded him continually that their relationship was temporary; these reminders may also have led to his decision.

It is reductionist to say that Prospero was good and Faustus was bad. The two plays reveal that the men's relationships to their power and the world around them were very complex. Their attempts at naturalizing their servants are treated ambiguously and, while Faustus evinces more character flaws than Prospero, his damnation may not entirely be attributed to them. Due to their inner natures and relationships, both men reach separate ends. Prospero drowns his books and forswears sorcery, and Doctor Faustus burns.

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Negligence in the Manufacturing and Marketing of Pondimin and Redux by the American Home Products Corporation

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Introduction

The Federal Food, Drug, and Cosmetic Act (FD&C Act) of 1938 allots to the Food and Drug Administration (FDA) and to drug manufacturers the responsibility to ensure the safety of pharmaceutical products and the effectiveness of claimed outcomes. Yet, it has become apparent that pharmaceutical companies sometimes disregard their social and legal duties in order to maximize their economic ventures even when their unethical business strategies harm the safety of their consumers. The class action lawsuit against the American Home Products Corporation (AHP), now known as Wyeth, for its breach of duty in manufacturing and marketing the drugs fenfluramine (Pondimin) and dexfenfluramine (Redux), despite the company's awareness of the potential medical risks to consumers, illustrates the extent to which businesses are willing to go in order to seek profit. Indeed, AHP's records show that, long before the FDA's decision to withdraw both Pondimin and Redux from the market in 1997, the firm received considerable information from various sources that both drugs could potentially lead to valvular heart disease (VHD) and pulmonary hypertension (PH), but AHP ignored the evidence and failed to put health warnings on these drugs' labels. This exemplary tort case leads critics to raise concern about the fact that FDA-approved drugs, which have been on the market for over twenty years, are being withdrawn. Additionally, this case of corporate negligence sheds light on a growing phenomenon of companies' refusal to make the sensible decision of ensuring the safety and effectiveness of their products in order to indulge their thirst for short-term profit.

I. AHP's exclusive responsibility for manufacturing, marketing, and labeling of Pondimin (fenfluramine) and Redux (dexfenfluramine)

Until 1989, A.H. Robins was the sole company in the United States responsible for the manufacturing and marketing of fenfluramine, a drug approved for weight loss

purposes by the FDA in 1973. When AHP acquired A.H. Robins in 1989, the company also acquired the exclusive right to manufacture and market fenfluramine in America, but under the brand name Pondimin. Starting from 1992, the popular social trend of mixing Pondimin (fenfluramine) with the drug phentermine, known as Fen-Phen, for rapid weight loss helped boost AHP's sales of Pondimin. The large momentum in the sales of Pondimin led AHP in 1994 to acquire the Lederle Division of American Cyanamid, the only company responsible for the development and promotion of Redux (dexfenfluramine).¹ Critics think that AHP's decision to purchase American Cyanamid might have been strategic based on two main reasons:

- By the time AHP acquired American Cyanamid, the company was already dealing with a number of reports of Pondimin-related pulmonary hypertension (PH), and thus was probably trying to replace fenfluramine with its isomer,² dexfenfluramine, before the company was exposed.
- Dexfenfluramine was believed to lead to faster weight loss than fenfluramine when mixed with phentermine.

In addition, AHP knew that one guaranteed advantage was that the isomer of an already approved product (fenfluramine) can be patented anew and marketed as if it were a breakthrough product.³ AHP also knew that the approval process of an isomer drug would be significantly shorter. In fact, "the longest study done on dexfenfluramine was for one year"⁴ until it was finally approved by the FDA on April 29, 1996.

The quick approval and the sudden withdrawal of Redux led the Federal Bureau of Investigation (FBI) to question the legality of the methods used by AHP to have Redux approved by the FDA. FBI investigators held interviews with the purpose of finding out "whether AHP and other companies involved told the FDA all they knew about adverse reactions to the diet pills ... [and looking] into the deliberations of an

¹ Sheila Brown, et al., v. American Home Products Corporation, Order No. 1415, 2000 WL 1222042 (E.D. Pa. Aug. 28, 2000), 1.

² Isomers are compounds that possess the same chemical formula as another chemical species but have different structures. In other words, isomers contain the same number of atoms as another chemical, but these atoms are differently arranged.

Dexfenfluramine, also called dexfenfluramine hydrochloride, is an isomer or mirror image of fenfluramine. Both dexfenfluramine and fenfluramine are "cogeners of amphetamines" and are classified as serotonin releasing agents as they significantly elevate the concentration of serotonin in the brain. The rapid release of serotonin fools the individual's brain into thinking that the stomach is full, thus causing the loss of appetite.

³ Jerry Avorn, *Powerful Medicines: The Benefits, Risks, and Costs of Prescription Drugs*, 1st Ed. (New York: Alfred A. Knopf, 2004), 75.

⁴ Camille N. Tragos, "Fen-Phen Litigation Against American Home Products Corporation: The Widespread Use of Fenfluramine (Pondimin) and Dexfenfluramine (Redux) for Weight Loss, the Health Problems Associated with Those Drugs, the Resulting Litigation Against American Home Prod.," Digital Collection, Harvard Law School (Cambridge, MA, Harvard University, 2000), 55, http://dash.harvard.edu/bitstream/handle/1/8965626/Tragos,_Camille.html?sequence=2 (accessed March 1, 2014).

FDA advisory committee that recommended approval of Redux.”⁵ The FDA officials confessed that the approval of Redux was not easy and that the advisory committee had initially rejected the drug in September 1995 by a vote of 5-3 due to safety concerns. However, later that year the panel reversed itself by a vote of 6-5, deciding that the benefits for the clinically obese outweighed the risks.⁶

While many consumers found in the fen-phen mix a remedy for obesity, the health consequences were soon to be fatal. The fen-phen phenomenon has spawned thousands of lawsuits, later consolidated in the federal District Court for the Eastern District of Pennsylvania, and a multitude of scientific studies concerning VHD and PH.

A. Background information on fenfluramine (Pondimin) and dexfenfluramine (Redux)

Fenfluramine and its derivatives are amphetamine anti-obesity drugs, appetite suppressants that act through serotonergic mechanisms such as smell receptors to send messages to the brain to inhibit appetite, thus generating weight loss.⁷ In the process of fooling the brain, these drugs have drastic toxic effects on the central nervous system, leading to a high risk of dependency and rapid deterioration of organs. Records show that from the 1970s until 1992, fenfluramine was a modestly selling drug due to its inefficacy, an inefficacy that had led the FDA to approve it only for short-term weight loss.⁸ However, starting in 1992, the drug’s stature was transformed when Dr. Michael Weintraub, a clinical pharmacologist who directed one of the FDA’s divisions of new drug approval,⁹ published a series of articles in the *Journal of Clinical Pharmacology and Therapy* arguing that the synergic interaction of fenfluramine with phentermine would lead to quicker and greater weight loss results.

Fenfluramine’s limits as a weight loss drug hurt the sales of Pondimin until Dr. Weintraub’s advocacy of the drug combination that would soon be known as fen-phen. Nevertheless, one can argue that even though Dr. Weintraub is responsible for planting the seed of the fen-phen craze, his suggestions about the off-label¹⁰ use of the drugs

⁵ David S. Cloud and Richard B. Schmitt, “FBI Looks into the Approval of American Home’s Redux,” *The Wall Street Journal*, September 9, 1999, <http://online.wsj.com/news/articles/SB936834524950994967>, (accessed March 5, 2014).

⁶ Ibid.

⁷ Toxicology Data Network (Toxnet), National Institutes of Health, “Hazardous Substances Data Bank: Fenfluramine,” <http://toxnet.nlm.nih.gov/cgi-bin/sis/search/r?dbs+hsdb:@term+@rn+458-24-2> (accessed February 23, 2014).

⁸ Avorn, *Powerful Medicines*, 73-74.

⁹ Gina Kolata, “How Fen-Phen, a Diet ‘Miracle,’ Rose and Fell,” *New York Times*, September 23, 1997, <http://www.nytimes.com/1997/09/23/science/how-fen-phen-a-diet-miracle-rose-and-fell.html> (accessed February 20, 2014).

¹⁰ Off-label use of a drug occurs when a practitioner prescribes a drug for a use, or in a manner, not authorized by the Food and Drug Administration. The off-label use of drugs is not considered illegal practice as long as these drugs are FDA-approved. Nevertheless, the FDA requires that physicians encouraging off-label use of a drug be well-informed about the potential risks and benefits of the drug, maintain safe dosage, and keep scrupulous records of the product’s use and effects.

would have been unsuccessful without the contribution of prescribing physicians. In addition to the worsening obesity epidemic in the United States, which brought a wave of various unconventional and unsafe weight loss methods, the physicians' role in advocating and prescribing fen-phen popularized the regimen amongst millions of Americans. In fact, AHP's revenues from the sales of Pondimin are recorded as follows: \$3.7 million in 1993, \$8.5 million in 1994, \$48.7 million in 1995, and \$150.1 million in 1996.¹¹ As this frenzy grew, more people were willing to try the drug combination. From January 1995 to mid-September 1997, the number of Pondimin consumers in the United States was evaluated at 4,000,000 persons.

B. Off-label use and side effects of fen-phen

It is reported that "just three months after the introduction of Redux, doctors [were] writing 85,000 prescriptions a week,"¹² which can be extrapolated to 4 to 5 million prescriptions a year. And while most fen-phen users saw the combination as an antidote to obesity, the drug use quickly took a deadly turn. In fact, in March 1997, "researchers at the Mayo Clinic in Rochester, Minnesota who conducted a research with 24 women using fen-phen began observing an association between the cocktail and a particular type of valvular heart disease."¹³ The two deadly risks created by the use of fenfluramine and dexfenfluramine are valvular heart disease (VHD) and pulmonary hypertension (PH). VHD is characterized as a defect in one of the four heart valves that interferes with the normal flow of blood in the heart and causes the heart to function poorly. This abnormal flow of blood then increases the pressure in the pulmonary arteries, which are responsible for carrying blood from the heart to the lungs, thus causing PH. The damage to the pulmonary arteries affects the transport of oxygen through the body, quickly leads to severe breathing difficulty and heart failure, and eventually may cause death. In fact, fen-phen was so dangerous that a 29-year-old woman, previously diagnosed as healthy, took the cocktail for a 23-day period and succumbed eight months later from severe PH due to the combination.¹⁴

The publication of these findings in the *New England Journal of Medicine* on August 28, 1997, raised public awareness and led the FDA to withdraw fenfluramine from the U.S. market that same year. Phentermine was not implicated in the fen-phen litigation and remained on the market since it was not found to have caused the health problems associated with the fen-phen combination.¹⁵ On the other hand, fenfluramine was withdrawn because it depresses rather than stimulates the central nervous system

¹¹ Avorn, *Powerful Medicines*, 76.

¹² Michael D. Lemonick, "The New Miracle Drug?" *Time Magazine*, September 23, 1996. <http://content.time.com/time/magazine/article/0,9171,985187,00.html> (accessed February 20, 2014).

¹³ Sheila Brown, et al., v. American Home Products Corporation, Order No. 1415, 2000 WL 1222042 (E.D. Pa. Aug. 28, 2000), 2.

¹⁴ Eugene J. Mark et al., "Fatal Pulmonary Hypertension Associated with Short-Term Use of Fenfluramine and Phentermine," *The New England Journal of Medicine* 337, no. 9 (August 28, 1997): 602, <http://www.nejm.org/doi/pdf/10.1056/NEJM199708283370904> (accessed February 23, 2014).

¹⁵ Tragos, "Fen-Phen Litigation Against American Home Products Corporation," 4.

and affects the cellular processing of serotonin.¹⁶ The problem was that “since fenfluramine and dexfenfluramine cause an increase in the amount of serotonin released by the body and a decrease in the amount the body reabsorbs, when phentermine interferes with the pulmonary clearance of that serotonin, it magnifies the serotonin related effects of the fenfluramines in the lungs,”¹⁷ thus promoting valvular heart disease and PH.

The off-label use of fen-phen weighed on the physicians and pharmacists who encouraged its use. Doctors like Israel Levavi admit having prescribed and encouraged obese patients to take fen-phen; even Dr. Weintraub, who is responsible for launching the fen-phen trend, confesses, after medical studies showed the danger of taking fen-phen, that he had figured these drugs were safe since they had been on the market for over ten years.¹⁸ However, even though fenfluramine and dexfenfluramine were respectively approved by the FDA in 1973 and 1996, they were never approved to be taken in combination with other drugs like phentermine.

II. Class action lawsuit against AHP for the manufacturing and selling of Pondimin and Redux

The withdrawal of Pondimin and Redux from the U.S. market in 1997 was followed by a wave of litigation involving approximately 18,000 individuals, filing lawsuits against either AHP, pharmacies that distributed these drugs, or physicians who prescribed them.¹⁹ Additionally, more than a hundred plaintiffs brought lawsuits, mainly seeking three remedies from AHP:

- (1) to create an equitable fund providing medical screening services to patients who had used Pondimin and/or Redux ... to determine if they had asymptomatic valvular heart disease; and/or
- (2) to recover the amounts expended by consumers to purchase Pondimin and/or Redux or to obtain echocardiograms as a consequence of exposure to these drugs; and/or
- (3) to recover personal injury damages on behalf of classes of persons who took Pondimin and/or Redux.²⁰

The class actions were filed in the federal courts and consolidated as *Sheila Brown, et al., v. American Home Products Corporation* in the United States District Court for the Eastern District of Pennsylvania. The court created a Plaintiffs' Management Committee (PMC) to act for plaintiffs in pretrial proceedings and conduct discovery.²¹

¹⁶ Mark et al., “Fatal Pulmonary Hypertension,” 605.

¹⁷ Tragos, “Fen-Phen Litigation,” 13.

¹⁸ Kolata, “How Fen-Phen.”

¹⁹ *Sheila Brown, et al., v. American Home Products Corporation*, Order No. 1415, 2000 WL 1222042 (E.D. Pa. Aug. 28, 2000), 3.

²⁰ *Ibid.*.

²¹ *Sheila Brown, et al., v. American Home Products Corporation*, 2002 WL 32154197 (E.D.Pa. Oct. 3, 2002), 2.

In 1999, AHP and plaintiffs' attorneys representing the PMC and plaintiffs in state class actions certified in seven states agreed to a comprehensive settlement.²² The settlement was approved by the federal Court of Appeals for the Third Circuit on January 3, 2002.²³

Under the Settlement Agreement, AHP agreed to provide the following:

- Reimbursement of purchase cost of drugs
- Compensation of medical diagnostics for those who took or had been exposed to fen-phen
- More substantial compensation for those who had been diagnosed with injuries as a result of taking fen-phen²⁴

The amount compensated depended on the plaintiff's age and the level of severity of his/her injuries. Ultimately, AHP was obligated for a total of approximately \$3.8 billion.²⁵

III. Who has liability for the damages of fen-phen?

A. AHP's egregious negligence and breach of duty

The fen-phen case provides reason to worry about diet pills and drug manufacturers' negligence to test and inform consumers of the risk they run by taking these drugs. For the benefit of the consumers, the FDA requires that all companies include on their drug labels facts about the drugs and evidence of efficacy, as well as potential risks, so that consumers can make informed choices about whether to use a given product.²⁶ Yet, despite AHP's awareness of the health complications caused by its drugs, it did not fully report the risks of taking the fenfluramines with phentermine or even put a warning on its labels. Records show that by 1994 AHP had been informed of about forty-one Pondimin-related VHD and PH cases but informed the FDA of only four cases to be inserted on Pondimin's label. During the early stages of the litigation in 1997, a Texas law firm representing plaintiffs posted on the internet a number of corporate memos in which AHP officials discuss their concerns regarding the serious risks of the fenfluramines.²⁷ Indeed, around mid-1994 Fred Wilson, a company official,

²² Sheila Brown, et al., v. American Home Products Corporation, 2002 WL 32154197 (E.D.Pa. Oct. 3, 2002), 4.

²³ Ibid.

²⁴ "Welcome to the Diet Drugs Claims Administration Web Site," *AHP Diet Drug Settlement*, n.d., <http://www.settlementdietdrugs.com/> (accessed February 12, 2014).

²⁵ "Fen-phen Class Action Settlement Information," Petroff & Associates Attorneys at Law, n.d., <http://www.petroffassociates.com/fen-phen-settlement.cfm> (accessed February 12, 2014); Sheila Brown, et al., v. American Home Products Corporation, 2002 WL 32154197 (E.D.Pa. Oct. 3, 2002), 6;

"Summary of Available Settlement Benefits and Registration Requirement," *AHP Diet Drug Settlement*, n.d., <http://www.settlementdietdrugs.com/> (accessed February 12, 2014).

²⁶ Avorn, *Powerful Medicines*, 74.

²⁷ Ibid.

wrote to a colleague: “I have been concerned that our approved labeling contains only four such cases when in fact, we have 37 reports in addition to those mentioned in the labeling.”²⁸ Wilson initially proposed to fully disclose the information about Pondimin to the FDA and the public, but it took over two years, until about 1997, for the company to inform the FDA.²⁹

The federal Food, Drug, and Cosmetic Act (FD&C Act) of 1938³⁰ allots to the Food and Drug Administration (FDA) and drug manufacturers the responsibility to ensure the safety of the products and the effectiveness of the claimed outcomes. Thus, AHP breached a duty of care through its negligence to inform its consumers about the risks of Pondimin and Redux, which caused severe injuries and deaths. By marketing a defective product, AHP ran afoul of the law on strict liability. Critics attest that had American Home Products supplied an adequate warning about fenfluramine and dexfenfluramine, AHP could have been exempt from strictly liability for adverse effects resulting from ingestion of these drugs.³¹ Adopted in 1997, the Restatement Third of Torts³² concerning products liability

provides [clear] answers to the question of whether a product is defective by formulating three distinct categories of product defect:

- Manufacturing defects
- Design defects
- Warning defects

and the legal standards appropriate to each.³³

In this case, AHP was liable due to both the design and warning defects of Pondimin and Redux. The design defects of Pondimin and Redux came from the drugs’ dangerous side effects while the warning defects came from the fact that AHP did not inform the FDA or the public of the dangers of its drugs. The fact is that the dangers of Pondimin and Redux could have been avoided had AHP ensured the drugs’ safety before selling them. AHP’s decision to disregard its social and legal duty mentioned in the FD&C Act of 1938 also illustrates the popular tendency for companies to prioritize their own profit even if the consumers’ lives are on the line.

AHP’s unethical strategic decisions vis-à-vis the dangers of fen-phen frame the growing tendency for businesses to choose compromising routes in order to maximize their profits, and lead one to ask why businesses follow unscrupulous paths that can

²⁸ Ibid, 75.

²⁹ Ibid.

³⁰ The FD&C Act of 1938 refers to a set of laws passed by the Congress in 1938 with the objectives of expanding the FDA’s role in regulating foods, drugs, and cosmetic products and of enhancing businesses’ manufacturing and marketing standards.

³¹ Tragos, “Fen-phen Litigation Against American Home Products Corporation,” 63.

³² Restatement (Third) of Torts, which replaces Restatement (Second) of Torts, is a treatise issued by the American Law Institute which elaborates on a wide range of legal matters such as companies’ strict liability for manufacturing and marketing defective products. The purpose of the Restatement is to establish a basis for the interpretation of the common law.

³³ “Restatement of the Law Third, Torts: Products Liability,” The American Law Institute, 1997, http://www.ali.org/ali_old/promo6081.htm (accessed March 23, 2014).

only lead to short-term profit instead of pursuing an honest route that leads to the company's long-term profitability. While AHP's cupidity greatly benefited the firm from 1992 until 1994, the \$3.8 billion settlement fund reduced AHP to ashes and led the company to change its name to Wyeth on March 11, 2002.

B. Physicians' promotion of off-label use of drugs

Despite the fact that AHP was the principal party held liable in the fen-phen litigation, one can argue that the physicians who prescribed the mix share liability since they prescribed the cocktail without having any evidence about the efficacy and safety of these drugs. Even though off-label use of drugs is not considered a crime in the U.S., the FDA requires that physicians be well informed about the product, to base their use on firm scientific rationale and on sound medical evidence.³⁴ The dilemma here is that AHP did not inform the public about the potential danger of the drugs, but the firm did not promote the off-label use of fen-phen either: the practitioners are the ones who, based on their reading of the articles of Dr. Weintraub, advocated the use of fen-phen to their patients for longer periods than originally approved by the FDA. "Every drug has at least two effects: the one intended and the one unintended,"³⁵ and Dr. Weintraub's fault in the matter is that when he put his hypothesis to the test using 121 obese patients, he merely focused on the weight loss aspect and failed to observe the circulatory symptoms developed by the participants.³⁶ This case shows how the off-label uses recommended by medical textbooks and scientific articles have become a ubiquitous part of mainstream medical practice. In order to prevent unfortunate patients from paying the price for their physicians' careless decisions, the doctors should be held liable for the damages caused by the dangerous drugs that they prescribe.

Practitioners who prescribe unapproved dosages and/or combinations of drugs from which the patients develop diseases have committed a tort by not having the diligence to gather proper information about the potential side effects arising from the drug use. As a result, they should be charged with medical malpractice and held liable for the damages caused. In fact, in a Philadelphia fen-phen trial, the prescribing doctor was held liable for a \$4 million verdict after having prescribed the cocktail to his patient for two years, a period significantly beyond the two weeks recommended by the manufacturer.³⁷ Nevertheless, in order to legally hold physicians liable for their wrong, President Clinton's Modernization Act of 1997,³⁸ "which changed the law on off-label

³⁴ "Off-Label and Investigational Use of Marketed Drugs, Biologics, and Medical Devices," FDA, last modified August 10, 2011, <http://www.fda.gov/regulatoryinformation/guidances/ucm126486.htm> (accessed February 12, 2014).

³⁵ Avorn, *Powerful Medicines*, 72.

³⁶ Kolata, "How Fen-Phen?"

³⁷ Tragos, "Fen-Phen Litigation Against American Home Products Corporation," 60.

³⁸ The Food and Drug Administration Modernization Act, which amended the federal Food, Drug, and Cosmetic Act and the Public Health Service Act, was enacted on November 21, 1997, under Bill Clinton's presidency. One of the most important changes brought by the Modernization Act relates to off-label promotion. Indeed, before November 1997, the marketing by manufacturers or physicians of drugs for uses unapproved by the FDA was an illegal practice.

promotion and made it a circumstantially permissible practice,”³⁹ needs to be amended so that the FDA can extend its power on drug regulation. Critics believe that had it not been for the off-label promotion of fen-phen by physicians and publications in peer-reviewed journals, the fen-phen craze would undoubtedly not have taken such an unsavory turn.⁴⁰ Yet, the disadvantage of having the FDA oversee all uses of drugs is that the additional regulation would be costly and time-consuming.

C. The FDA’s role in approving fenfluramine and dexfenfluramine

The FDA’s responsibility is to “protect the public health by assuring the safety, efficacy and security of human and veterinary drugs.”⁴¹ How then is it possible that drugs that are FDA-approved are being withdrawn after being on the market for over twenty years? Like Pondimin and Redux, since 1990 a large number of drugs have been withdrawn for substantial unexpected safety problems due to insufficient premarketing studies to detect rare side effects.⁴² In fact, the premarketing study done on dexfenfluramine lasted only one year. The ease of the approval process for drugs has proven to be a profitable advantage to greedy and dishonest manufacturers, but has been fatal to the consumers. While critics admit that requiring that all drugs on the market be completely safe is an impossible matter, the FDA must promote higher and stricter standards. The agency should impose longer periods of preapproval trials that can provide information that is not just “good enough” but that covers the most foreseeable scenarios.

The common perception that the FDA conducts studies on drugs before they are marketed is false. In reality, this agency does not study any drugs prior to approval but mainly relies on the manufacturer to generate that information in studies conducted or commissioned by the company.⁴³ Nevertheless, with the new powers granted to the FDA through the Food and Drug Administration Amendments Act (FDAAA) of 2007, the agency is now able to require a Risk Evaluation and Mitigation Strategy from manufacturers of approved drugs. The FDAAA, signed by George W. Bush, could prove to be the beginning of a new era of diligence from the FDA and drug manufacturers.

Conclusion

Every business has the duty to satisfy the needs of its customers either through the effective services provided or through the safe and high quality products manufactured. When a company breaches the duty of care, it is liable for the damages resulting from its negligence. The fen-phen case is a buoy that signals the danger of off-

However, with the Modernization Act, firms and physicians were no longer constrained and could encourage consumers and patients to choose off-label use of drugs.

³⁹ Tragos, “Fen-Phen Litigation Against American Home Products Corporation,” 56.

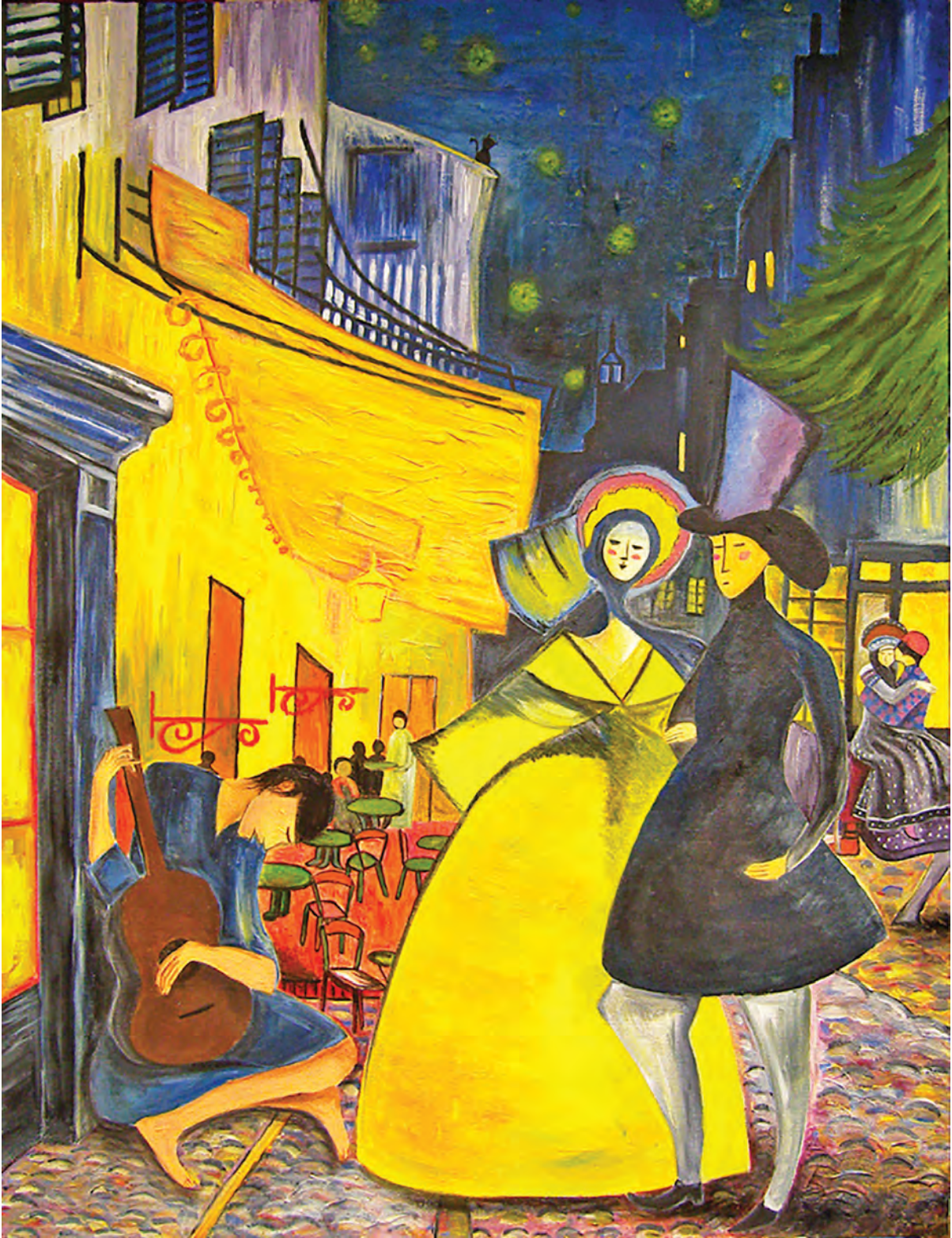
⁴⁰ Ibid, 56.

⁴¹ “About FDA,” FDA, last modified September 19, 2013, <http://www.fda.gov/aboutfda/whatwedo/> (accessed February 12, 2014).

⁴² Avorn, *Powerful Medicines*, 85.

⁴³ Ibid., 71.

label use and the growing tendency for corporate negligence. Because of AHP's negligence to report the dangers of taking the fenfluramine drugs, the company breached its duty and thus needs to be held strictly liable for the damages caused by the drugs. The lack of information and the poor judgment of the medical practitioners have also harmed patients. While the physicians' unawareness of the risks of the fenfluramines can be blamed on AHP, they are still at fault for their decision to write prescriptions for a drug mix based on inadequate medical studies and for a period beyond that recommended. Additionally, the FDA must impose higher standards when overseeing drug pretrial studies and must regulate the off-label use of drugs. With all the power held by the FDA, the agency should have been able to prevent the occurrence of such an avoidable drug plague as the fen-phen epidemic. Compensation for damages is necessary, but is not the best way of punishing companies for their dangerous negligence. If drug manufacturers know that in addition to providing compensation they might be subjected to more severe sanctions, such as incarceration of top employees, they will become more diligent and minimize the risks of dangerous products.



Doo Lee

Young Man Playing Guitar At Starry Night



In A Dream

Doo Lee



Apparition

Filip Lazarevic



Threshold Consciousness

Filip Lazarevic

Public Opinion on Welfare: An Analysis of Survey Data

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I. Introduction

Welfare has a controversial past in the United States, enjoying the limelight of public debate most intensely since the Great Depression. The problem of welfare legislation is created by the opposing vantage points on the issue. The main arguments for the increase of welfare programs usually focus on the idea of equality in the sense that all people are thought entitled to have a certain level of care provided to them if they are poor, disabled, or otherwise unable to care for themselves. Some authors point out that, in the U.S., public opinion on the welfare system is that it is not efficient enough to accomplish this goal, citing the millions who found themselves in dire straits after the Great Recession of 2007 (Anderson 1979; Hacker 2002). On the other end of the spectrum, arguments exist that an under-regulated or overly generous welfare system is prone to abuse, causing people to stay dependent on the welfare rather than encouraging them to work (Anderson 1979; Gilens 1999). This theory of welfare dependence claims that too much welfare is bad for the economy of the state in two ways: Directly impacting the economy, welfare costs public money insofar as the beneficiaries of such programs are directly dependent on public money. Less directly, the beneficiaries are seen as potentially inactive parts of society, therefore as using public money but not contributing to the wellbeing of the state; in this view, welfare programs encourage such inactivity by eliminating the need for useful work.

These arguments can be understood as having two aspects, one focusing on the socio-economic dimensions, often connected to the social standing, gender, and racial issues in the debate, and the other addressing the political angle, which looks at partisanship and ideology and how they shape public opinions on the issue. All aspects of the issue, however, have a cultural component centered on a belief in individualism as one of the main components in U.S. culture (Feldman and Steenbergen 2001).

In regards to individualism as an overarching component in the debate, public opinion on welfare is globally divided between the egalitarian and the humanitarian

viewpoints. The first argues that the governmental obligation is to provide a minimum of equality for all its citizens, while the second stresses the importance of the individual's inherent equality of opportunity in an economically liberal and limited government environment, and therefore bases welfare more on individual donations and similar help to the endangered groups of society.

In this paper, an examination of these ideas as well as public opinion surveys on welfare and related issues will attempt to identify the factors that account for the difference in people's level of support for government programs to help low income people economically.

Socio-Economic Influences

The idea that public opinion is critical of welfare—as being too generous to those who do not deserve these benefits—is represented by a large portion of the academics writing on the issue (Anderson 1979; Iversen 2005; Gilens 1999). Martin Gilens maintains that the biggest reasons given for this public opinion are certain misconceptions about welfare recipients' ability to work and their race, and media misrepresentation. The United States public, according to Gilens's book *Why Americans Hate Welfare*, is fully supportive of welfare but is disillusioned by its application. For example, he argues that there is a strong racial bias shaping welfare opinion, African-Americans being stereotyped as less interested in work and more interested in living on the benefits of the welfare state. This notion is exaggerated by the media, with its excessive representation of crime, poverty, and welfare abuse in the African-American population at rates higher than found in reality, which presents a more equal distribution of these issues among the races. Therefore, he argues, many scholars represent the white population's public opinion as seemingly negative on expansion of the welfare programs that are believed to benefit financially the black population. However, he goes on to argue that this is not an accurate depiction of public opinion, and that the U.S. public is still overwhelmingly supportive of welfare programs that enable income generation rather than give direct help to recipients, even if these are closely associated with the black population, as in the case of Head Start and job training (Gilens 1999, 67-72).

The racial discrimination in public opinion on welfare and the notion that welfare recipients are undeserving are echoed and augmented by Reingold and Smith (2012). These authors claim that race, but also gender, stereotypes have created a “controlling image” of the welfare recipient as one “who promiscuously gives birth to multiple children in order to receive more benefits and avoid working[, an image] that has come to symbolize the typical recipient and all that is wrong with American welfare policy”(Reingold and Smith 2012, 135). These researchers echo the sentiments of other scholars who agree that ignorance and ill-informed stereotypes are important parts of the discussion of public opinion about welfare (Reingold and Smith 2012).

Political Influences

The political shaping of public opinion is another controversial issue. For example, the Bush Administration openly promoted a policy of creating a selective welfare system that would encourage or “discipline” (Fitzgerald 2004) the welfare

recipient to keep the traditional family structure. The Bush Administration declared the following:

Although our policy must and does continue to support single-parent families, national policy must do a better job of promoting healthy marriages. Rather, it is simply wise and prudent to reorient our policies to encourage marriage, especially when children are involved. For this reason, the Administration plans to commit up to \$300 million per year for states to design and implement programs that reduce nonmarital births and increase the percentage of children in married-couple families. (White House press release 2002)

This policy is seen by some scholars as discriminatory, as it may mean less support for single parents and preferential treatment for marriage, which some believe is not “a sure way out of poverty” (Fitzgerald 2004).

Martin Anderson, conservative economist and fellow at the Hoover Institution, claimed in his 1979 book *Welfare* that public opinion in the United States was positive for programs that help those who cannot help themselves but also overwhelmingly opposed to welfare programs in general, as many recipients were seen as “cheating” (Anderson 1979, 59). He went on to assert that “[t]here is, in effect, a ‘poverty wall’ that destroys the financial incentive to work for millions of Americans. Free from basic wants, but heavily dependent on the State, with little hope of breaking free, they are a new caste, the ‘Dependent Americans’” (Anderson 1979, 43). Anderson concluded that the public was concerned with the issue of welfare being misused by recipients, and that this view was consistent with the idea of American individualism. Following these lines, Shapiro and Young argued that the public was most favorable to welfare in those areas which were most closely related to individual success, or in their words, “equality of opportunity, as opposed to equality of outcomes for individuals” (Shapiro and Young 1989).

The preference of many administrations to create a welfare regime based on the principle of equality of opportunity has led to a hybrid system that supplements a limited system of public welfare with an extensive system of regulations to encourage the private sector to contribute. This hybrid machine has followed a pattern of development in almost all aspects of welfare. Yet the problem dogging this development has been that the government regulation is followed by “attempts at evasion and then tighter regulations and then litigation and then more regulations” (Hacker 2002, 281).

These patterns are seen as the major shortcoming of the humanitarian system, which is troubled by, on one hand, the evasiveness of the private sector in utilizing the subsidies as originally intended and, on the other hand, the inability of the public sector to respond appropriately in preventing misuse of funds (Hacker 2002).

II. Methodology

The purpose of this section is to operationally define variables that will explore the causal effects between independent variables and the dependent variables, and to provide hypotheses that will direct this process. In doing so, the paper will answer the research question. Two main dependent variables will be observed, in order to be able to compare and contrast them in the analytical sections of the paper. These variables will be further explored below. All the data in this study were collected in 2008 by the National Opinion Research Center (NORC) and are represented in the General Social Survey (GSS). The GSS is a survey used to collect sociology data on demographics and attitudes of United States residents. The GSS contains 3559 individual cases (respondents).

Concepts and Variables

In order to operationally define the dependent variables, the paper will use the variables 68) WELFARE \$ for welfare spending and 86) EQUALIZE \$ for equalizing income. The variable 68) WELFARE \$ is an ordinal variable that is made up of three sets of responses to the question whether the government spends “too much,” “right amount,” or “too little” money on welfare. This variable was chosen as it directly expresses the respondent’s opinion on government spending (and therefore tax money spending) on welfare programs. Variable 86) EQUALIZE \$ is also an ordinal variable. The GSS asked participants to choose the answer that best fits their opinion, where the possible answers were the following: government should concern itself with income inequality; moderate; and government should not be concerned with income inequality. This variable shows public opinion on government involvement in helping people economically by lowering the rich-poor divide.

The independent variables that could possibly indicate influences on public opinion on welfare are ideology, party affiliation, and income per family. These variables will be divided into two categories, political and economic. Here is an overview of the variables with conceptual definitions and descriptions of each.

Political Variables:

1. 57) POL VIEW — asks if the respondent is a (1) liberal, (2) moderate, or (3) conservative, effectively asking for the ideology of the respondent. This is an ordinal variable.
2. 56) PARTY — asks respondents if they generally think of themselves as a Republican, Democrat, Independent, or something else. The results are presented in three categories: (1) Democrat, (2) Independent, and (3) Republican. This variable is ordinal.

Economic Variable:

50) INCOME — asks respondents for their family's income, described as (1) Low, (2) Middle, or (3) High. It is an ordinal variable. This variable will show the correlation between self-perceived family income (economic status) and the opinion on welfare.

Hypotheses

Hypotheses on the welfare spending dependent variable.

Hypothesis 1: Liberals tend to have greater support for more spending on welfare programs than conservatives.

Ideology is an important element in public opinion on welfare spending, as it directly relates to public opinion on equity and social programs in general. The underlying hypothesis is based on the premise that respondents with a more liberal viewpoint have greater support for social programs and therefore have more support for welfare, which is a subset of social programs. As both variables are ordinal, the Measure of Association (MoA) that will be used is Gamma.

Hypothesis 2: Democrats tend to have greater support for increased spending on welfare than Republicans.

Party affiliation has traditionally been correlated to welfare support, with Democrats having a tendency to favor welfare support more than Republicans. These two parties have used welfare as an election issue throughout their history, with fairly consistent positions of Democratic support and Republican opposition. Testing this hypothesis will show how relevant and how strong these relationships are. Both variables are ordinal, and Gamma will be used as the MoA.

Hypothesis 3: Low income respondents will tend to have the opinion that the government does too little spending on welfare programs, unlike middle income and high income respondents.

The traditional recipients of welfare are those in the low income categories and, to a lesser degree, those in the middle income category. This means that respondents with low income will tend to support higher spending as that will directly benefit them. Both variables are ordinal, and Gamma will be used as the MoA.

Hypotheses on the income inequality dependent variable.

Hypothesis 4: Liberals tend to have greater support for a more equal income distribution than conservatives.

This hypothesis is based on the premise that liberals tend to have a more egalitarian view, supporting government intervention in lowering the difference in income. The MoA is Gamma.

Hypothesis 5: Democrats tend to have greater support for a more equal income distribution than Republicans.

Similar to hypothesis 2, hypothesis 5 is based on the premise that Democrats support income equality more than Republicans do. The MoA is Gamma.

Hypothesis 6: Low income respondents will tend to support a more equal income distribution, unlike middle income and high income respondents.

The low income respondents are more likely to support a more equalized income distribution because they would directly benefit from it and because they are more likely to see the problem of limited upward mobility due to the inherent limitations of those without sufficient income to get educated. The MoA will be Gamma.

Research Method

As mentioned above, this research will be using the General Social Survey data file from the software included with the book *Research Methods in Political Science*, 8th edition (Le Roy 2013). This file contains 424 variables (with 3559 cases/respondents) from which the secondary analysis will be performed, in a quantitative manner. This research will be an aggregate data analysis.

Cross-tabulation will be used to plot the data, with the columns representing the independent variables and the rows representing the dependent variables. The main two views that will be utilized in representing the cross-tabulation data are the column percentage view and the statistical view.

A test for statistical significance will be performed. This test will show whether the sample that was observed is actually representative of the entire population and therefore whether the results are statistically significant enough to be used to analyze the pattern. The software uses the abbreviation 'prob' for the test for statistical significance, and we will use a cut-off value of 0.05, which means that there is a 5% chance that the pattern is random. This means that we will consider all correlation with a statistical significance between 0.00 and 0.05 to be statistically significant and all correlation outside these parameters as not statistically significant.

After the determination that a correlation is statistically significant, a measure of association will be performed to determine the strength of this correlation. As both dependent variables are ordinal, the independent variable determines the measure of association used. Gamma will be used in every case because all the independent variables are ordinal. The Gamma measure has a range from 0 to 1 (with three decimal places in the value). The strength of the relationship between the variables for the Gamma measure of association will be determined by the guideline provided by the Le Roy (2013, 196) textbook:

<u>Value of measure of association</u>	<u>Strength of relationship</u>
Under .1	Very weak
.10 to .19	Weak
.20 to .29	Moderate
.30 or above	Strong

The methodology section provides a general framework on how the research will be conducted, an overview of hypotheses, and a description of the main statistical tool that will be utilized. The next section, Findings and Analysis, will utilize the methods described above to present the results of the research.

III. Findings and Analysis

The purpose of this section is to present the findings and analyze these findings based on the hypotheses from the previous section. The findings will be presented in Tables 1-6. The tables are divided in two sections according to the dependent variable they represent, with section A dedicated to welfare spending and section B reserved for income equalization. These tables will show whether the hypotheses were supported or not. This section will give an analysis of the findings after each individual finding and explore some implications of these findings, and hence help answer the research question: “What accounts for the difference in people’s level of support for government programs to help people economically?”

A1: Political Views by Opinion on Welfare Spending

The first hypothesis states that “[l]iberals tend to have greater support for more spending on welfare programs than conservatives.” Table 1 shows the results for cross-tabulation of political views by opinion on welfare spending. Across the top, designated POLITICAL VIEW, is the category of political views held by the respondents, classified in three subcategories: liberal (LIB), moderate (MOD), and conservative (CONS). As in the next two tables, the row category is that of opinion on welfare spending, with self-explanatory subcategories of responses that the government spends too little, the right amount, and too much on welfare.

Table 1: Political Views by Opinion on Welfare Spending

POLITICAL VIEW						
WELFARE \$		LIB	MOD	CONS		TOTAL
	TOO LITTLE	34% (165)	21% (131)	18% (98)		24% (394)
	RIGHT	43% (207)	40% (257)	33% (178)		38% (624)
	TOO MUCH	23% (113)	39% (252)	49% (259)		38% (624)
	TOTAL	100% (485)	100% (640)	100% (535)		1659
P = 0.00 Gamma = 0.28						

Looking at the lowest row, we can see that $P=0.00$, meaning that there is 0% chance that the data in the table is random. We can thus regard the data in the table as being reliable—statistically significant—and we can move on to analyze it.

The second piece of data in this row is the measure of association, $\text{Gamma} = 0.28$. Referring to the book *Research Methods in Political Science* (Le Roy 2013), we can see that the measure of association is moderately strong in this case. (See Le Roy 2013, page 10, for a table on how to interpret the data.) Therefore, we can go on to look at the table itself and see if the hypothesis is supported.

In the case of this dependent variable, the subcategory TOO LITTLE is the one that represents support for more welfare spending, as it means that the respondent believes that the government is spending too little money on welfare programs. If we look across the TOO LITTLE row, we see that 34% of liberals, 21% of moderates, and 18% of conservatives support increased welfare spending. We can conclude that those who would self-report as being liberals would also support welfare programs.

It has to be noted that the respondents who report themselves to be liberals are more willing to respond that the spending is at the right amount than do conservatives. We see that most liberals (43%) claim that the spending is right. On the other hand, we see that conservatives adhere to a pattern with most (49%) standing against more spending on welfare. The differences in the “strength” of support or opposition show that the conservative respondents adhere closer to their pattern than liberal respondents adhere to the liberal pattern. This can mean that the issue of cutting welfare spending is more important to persons who are in favor of it than increasing welfare is to persons that support increased welfare spending—in other words, liberals tend to have a lukewarm support for welfare, while conservatives have strong outright opposition, a finding that has to be further compared to other data.

A2: Party Affiliation by Opinion on Welfare Spending

The second hypothesis states that “Democrats tend to have greater support for increased spending on welfare than Republicans.” Table 2 shows the results of cross-tabulation of party affiliation by welfare spending. The rows show opinion on welfare spending while the columns represent party affiliation: Democrats (DEM), independents (IND), and Republicans (REP).

With a P value of 0.00, the statistical significance of this test can be affirmed. The measure of association, the Gamma value, is 0.315, meaning that there is a strong relationship between the variables. As the statistical data points to a relevant data set, we can proceed to analyze the data.

Table 2: Party Affiliation by Opinion on Welfare Spending

		PARTY				
		DEM	IND	REP		TOTAL
WELFARE \$	TOO LITTLE	31% (258)	23% (60)	14% (82)		24% (400)
	RIGHT	40% (338)	40% (103)	36% (207)		39% (647)
	TOO MUCH	29% (240)	37% (94)	50% (290)		37% (624)
	TOTAL	100% (836)	100% (256)	100% (579)		100% 1672
P = 0.00 Gamma = 0.315						

With 31% of respondents who identify themselves as Democrats supporting an increase in welfare spending and only 14% of Republicans supporting the same, the hypothesis is supported. Therefore, we can conclude that those who self-identify as Democrats support welfare more than those who self-identify as Republicans. It is possible to stipulate that this pattern is consistent with not just the historic patterns of people according to their party affiliation, but also the historic patterns of action by the Democratic Party and the Republican Party, with the former traditionally supporting increases in welfare spending and the latter opposing.

Interestingly, a similar pattern can be seen as before in regard to the distribution of the support versus opposition. Most of the respondents affiliating with the Democrats fall in the middle category on the welfare support category (RIGHT). This category accounts for some 40% of Democratic respondents while 31% of Democrats answered TOO LITTLE and 29% responded TOO MUCH. With only 2% more supporting increased welfare spending than opposing to such spending, the strength of the hypothesis, despite the statistical values, is questionable. However, the opposition of those identifying as Republicans is far more evident, with 50% of the respondents falling into the category of TOO MUCH and only 14% falling in the supportive TOO LITTLE category. Again, the same pattern emerges as in the results of A1, with Democrats exhibiting high variability and therefore only lukewarm support, while Republicans show low variability, and therefore strong opposition.

There were 836 respondents who identified themselves as Democrats and 579 who identified as Republicans. Yet, despite the Democratic strength in numbers, because of this difference in variability only a total of 340 respondents (if we disregard the category INDEPENDENT) supported increased welfare spending while 530 respondents opposed current welfare spending.

The previous two independent variables can be seen as related, therefore it is necessary to look at some others, and see if the pattern thus far identified will be seen again.

A3: Income Category by Opinion on Welfare Spending

The third hypothesis is that “[l]ow income respondents will tend to have the opinion that the government does too little spending on welfare programs, unlike middle income and high income respondents.” Table 3 shows the results of the cross-tabulation of income categories by opinion on welfare. Here, the column category represents self-reports of respondents on their income, where they had to choose between low, medium, and high.

As in previous examples, the statistical significance value is 0.00, meaning that the data is statistically significant. The measure of association is 0.173, which is considered a weak correlation. An analysis of the table will have to be made, to establish the viability of the hypothesis.

Looking at the table, we can see a general trend across the rows, with 34% of low income respondents supporting welfare spending and only 21% of high income respondents supporting more spending on welfare. Only 28% of low income and 42% high income respondents ask for less welfare. This is an interesting trend, as it weakly supports the hypothesis, but it also shows a familiar trend of a spike in the RIGHT

category, 39% by the overall most supportive group, in this case the low income group. Taking all the data into consideration, this hypothesis is weakly supported by the evidence.

Table 3: Income Category by Opinion on Welfare Spending

		INCOME				
WELFARE \$		LOW	MIDDLE	HIGH		TOTAL
	TOO LITTLE	34% (118)	23% (106)	21% (177)		24% (400)
	RIGHT	39% (135)	39% (176)	37% (312)		38% (623)
	TOO MUCH	28% (97)	39% (176)	42% (357)		38% (630)
	TOTAL	100% (350)	100% (458)	100% (846)		1654
P = 0.00 Gamma = 0.173						

These results might be explained by the fact that almost all recipients of welfare are found in the lower income categories. This would mean that those who see themselves as low income are also those who are on some sort of welfare program. The reason for the weak relationship in this hypothesis could be the relatively low support by the middle income category. By implication, many of the respondents from this category may not be recipients of welfare, hence skewing the results. Another explanation could be that party affiliation and ideology go across income levels, making the results based on income levels somewhat ambiguous.

B1: Political Views by Income Redistribution

The fourth hypothesis states that “[l]iberals tend to have greater support for a more equal income distribution than conservatives.” Table 4 shows results for cross-tabulation of the independent and dependent variables. The independent variable is political views, as defined in the categories of Liberal (LIB), Moderate (MOD), and Conservative (CONS). The dependent variable is the opinion on government involvement in income redistribution: the respondents are asked how much they believe the government should intervene in income inequality. The answers are set into three subcategories, coded as SHOULD (i.e., should intervene in income redistribution), MODERATE, and SHOULD NOT.

The test for statistical significance (P) value is 0.00, meaning that there is a 0% chance of the data being random. The measure of association value is represented by Gamma, and it is 0.355, meaning that the relationship is strong.

Looking at the data in the table, it is evident that there is a strongly contrasting relationship across the rows, with liberals supporting income redistribution at 64% while conservatives support it at only 36%. Amongst the liberals, only 19% stated that they do

not support income redistribution, while 48% of conservatives do not support income redistribution.

Table 4: Political Views by Income Redistribution

POLITICAL VIEW						
EQUALIZE \$		LIB	MOD	CONS		TOTAL
	SHOULD	64% (395)	51% (447)	36% (274)		50% (1117)
	MODERATE	17% (104)	23% (201)	17% (127)		19% (432)
	SHOULD NOT	19% (115)	26% (229)	48% (365)		31% (709)
	TOTAL	100% (615)	100% (877)	100% (766)		2258
P = 0.00 Gamma = 0.355						

It is interesting to see that, overall, most participants (50%) support government involvement in income redistribution while 31% do not. This overall support for income redistribution is fairly different than attitudes seen in the first hypothesis, concerning welfare spending.

We can conclude that liberals do in fact support income redistribution more than conservatives, affirming the hypothesis.

B2: Party Affiliation by Income Redistribution

The fifth hypothesis states that “Democrats tend to have greater support for a more equal income distribution than Republicans.” Table 5 shows the results of cross-tabulation of party affiliation and income redistribution.

The P value is 0.00, meaning the data is statistically significant, with 0% chance of data being random. The value of Gamma is 0.477, indicating a strong relationship between the variables.

With 64% of Democrats supporting income redistribution and 30% Republicans supporting income redistribution, and the reverse pattern in the SHOULD NOT row, we can see that the hypothesis is supported. Interestingly, again we can see that the overall population supporting income redistribution is at 50%, while the opposing population is 31%. This is in contrast to the results of the cross-tabulation for the second hypothesis.

Unlike in the first two hypotheses’ results, in hypotheses 4 and 5 we see that the variation in the data is reversed. In the case of hypothesis 5, the supporting population scores higher in its support, with 64% positive responses, than the opposing population in its opposition, scoring 52% negative responses. This can only mean that the respondents who identify as Democrats are more cohesive in support of income

Table 5: Party Affiliation by Income Redistribution

PARTY						
EQUALIZE \$		DEM	IND	REP		TOTAL
	SHOULD	64% (722)	50% (180)	30% (234)		50% (1136)
	MODERATE	19% (211)	24% (87)	19% (149)		20% (447)
	SHOULD NOT	18% (203)	25% (90)	52% (412)		31% (704)
	TOTAL	100% (1136)	100% (356)	100% (795)		2287
P = 0.00 Gamma = 0.477						

redistribution than those who consider themselves Republicans are in opposing redistribution.

B3: Income Categories by Income Redistribution

The sixth hypothesis states that “[l]ow income respondents will tend to support a more equal income distribution, unlike middle income and high income respondents.” Table 6 shows the results of cross-tabulation of income categories by income redistribution.

Table 6: Income Categories by Income Redistribution

INCOME						
EQUALIZE \$		LOW	MIDDLE	HIGH		TOTAL
	SHOULD	58% (281)	52% (336)	45% (485)		50% (1103)
	MODERATE	22% (107)	21% (134)	17% (189)		19% (429)
	SHOULD NOT	20% (100)	28% (182)	38% (415)		31% (697)
	TOTAL	100% (488)	100% (652)	100% (1090)		2230
P = 0.00 Gamma = 0.197						

The value of P is 0.00, meaning that there is a strong statistical significance. The measure of association is Gamma, and it has the value of 0.197. This is identified as a

weak/moderate association due to the proximity between the values set for the interpretation of the values, as set forth previously in the text.

We can see that the low income category supports income redistribution by 58%, while the high income category supports it by only 45%. There is an inverse pattern for those who do not support income redistribution, with 38% of high income respondents and only 20% of low income respondents siding against redistribution. The middle income respondents were moderate in their choices as well, with 52% being in support and 28% opposing government intervention to promote income redistribution. This data is in line with the hypothesis as it does support the claim that low income respondents support income redistribution more than do high income respondents.

Interestingly, the response MODERATE for the income redistribution variable scored the least with only 19% of the population choosing this answer. It would seem that the public is very divided on this issue, with most respondents either being for or against government intervention for income redistribution. It also has to be noted that the overall results show a largely supportive public opinion on income redistribution.

Discussion

Overall, the strongest indicator of welfare support is party affiliation. It is followed by a moderate indicator, political views, and then by a weak indicator, income. Across the independent variables, welfare spending garners relatively low support by all of the respondents, with the highest support coming from liberals, at 34% support. Republicans and conservatives seem most opposed to welfare spending, at approximately 50% disapproval. An interesting pattern suggests that, when it comes to welfare, the opposition categories have usually smaller deviations, while the supporting groups often have a greater variability, as demonstrated in the case of party affiliation, where 31% of all Democrats support increased welfare spending while 29% want to see current spending levels reduced.

The highest support for an increase in welfare spending is found among liberals and Democrats, with only moderate support in the low income category.

In the case of income redistribution, some interesting patterns emerged. Both party affiliation and political views seem to score higher with the measure of association, showing a strong relationship between the variables. Income follows, having weak/medium strength of correlation. The most interesting pattern is that there is overall more *support* for this dependent variable, with the supporting groups being more coherent, that is, showing a smaller deviation in opinion, while the opposite can be said for the *opposition* to income redistribution.

The difference in the overall patterns for the two dependent variables could be explained by the proposition that welfare still has a negative connotation in the U.S., being associated in people's thinking with laziness, inefficiency, and socialism. The other explanation is that the question for welfare support involves the phrase "government spending," which may evoke the fears of a growing external debt and a call for reducing government spending, while the income redistribution question does not mention any government spending. These results are important to future data collection, which should try to control for words like "government spending" or even "welfare" itself, as

these might contribute to skewed results. The wording is also important to policy makers when gathering support for welfare-related policies.

IV. Conclusion

The purpose of this research paper is to examine different factors that influence the public's opinions on welfare spending and income redistribution. Welfare is an important part of any government, as it represents the safety net for those who need it the most, the victims of poverty. According to the support or opposition of the public, these policies change in their scope and nature to correspond more closely to those opinions. Therefore, it is of paramount importance to research these opinions in order to understand them better, and this is true not only for academic society but also for the political elites.

This research paper has looked at a wide variety of factors and found that political ideology, party affiliation, and income are important in shaping opinion on both welfare spending and income redistribution. In both cases, liberals, Democrats, and low income respondents are most likely to support the increase of such programs. It also has to be noted that in the second case, that of income redistribution, the support was higher overall.

Some explanation is needed for the fact that the results of this study, as mentioned above, show a higher overall support for income redistribution than for welfare spending. As suggested by some literature, this is most likely due to the negative overall view of the word *welfare* rather than the concept. As already suggested in the analysis section, this is probably due to the association of the word *welfare* with socialism, inefficiency, and laziness.

The strongest factors affecting opinions on welfare spending are the political factors of ideology and party affiliation. Income level has a weak relationship with welfare opinion.

Compared to qualitative data presented in the introduction section of the paper, the results indicate that public opinion is still strongly shaped by the subjective ideas of what *welfare* and *income redistribution* mean to the cultural collective mind in the U.S. An emphasis on individualism and by extension on humanitarianism, as opposed to egalitarianism, is supported by the evidence presented here and is much in line with the arguments of other authors. Yet it seems that a number of authors, among them Feldman and Steenbergen 2001, Hacker 2002, and Shapiro and Young 1989, argue that individualism and individual humanitarianism are universally valued, that is, that the U.S. culture is *a priori* more supportive of individual success and individual social responsibility to help those in need over government provided support. But this analysis of the GSS data does not support the latter position. The large difference in the weak public support for the variable of welfare spending compared to the vigorous support for income redistribution demonstrates that semantics play a stronger role than the cultural norms. One logical explanation for this phenomenon is that the long-lasting political debate over welfare has created an overall revulsion of the public to the term, while the concept itself (when presented in different terms, such as equalization of income) has a level of attractiveness.

This would mean, by extension, that there is no *a priori* preference of the public for policies regarding government support to help people economically. The operational preferences—what answers people circle in a survey—are highly dependent on the semantics of the survey rather than the content. This has implications for the methodology of public opinion research as well as for research interpretation based on culture, collective identities, and other umbrella concepts.

The methodology implications are quite clear, as they point to the possibility that the wording used in data collection may lead to biased results, as seen clearly in the Findings and Analysis section above, where the gap in support between *welfare spending* and *income redistribution* is striking. In the case of political views, liberals supported increased welfare spending with 34%, while they supported increased government involvement in income redistribution by 64%, which is beyond doubt a significant gap.

However, the issue of data interpretation is less clear and is an area of greater concern for future research. As we have seen, it is not sufficient to look at the welfare debate and claim that public opinion is shaped by the intrinsic individualism of U.S. culture. The abovementioned large difference in support for welfare spending versus income redistribution indicates that there is, in a sense, a gap between the collective perceptions of the public of the value of individualism—the responsibility of individuals to take care of themselves and others—and the collective, or public, responsibility. The results of this paper lead to the recommendation not to take individualism as a maxim in studying U.S. public opinion nor to dismiss the presence and magnitude of a sense of collective responsibility.

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Colonial North Carolina: A Safe Harbor for Pirates

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The colony of North Carolina was unique, one in which the people owned land and enjoyed religious toleration but were isolated from much of the Atlantic trade. Unlike any other colonial society, the demographic of settlers included a mixture of classes, religions, and races among landowners. The local government was comprised of the new landowners, so it tended to be informal and less structured than the colonial government of Virginia, creating a relaxed judicial system. The geography of the coastline of North Carolina presented many obstacles for the large ships of the Atlantic trade but attracted many pirate sloops, since it offered inlets and islands that could serve as hideouts. The people who settled in Carolina formed a society that did not define criminal activity in the same manner as their Virginian neighbors. As a result of these factors—the demographics of the population, the informal structure of government, and the geographic obstacles for legal trade—pirates, who provided luxury goods at cheaper prices than England and were an easily accessible source for trade, were embraced by the people and accepted into North Carolina communities.

Historians have written about colonial North Carolina, its geographical differences from other eastern colonies, and its history under proprietary rule. Jonathan Edward Barth's article, "'The Sinke of America': Society in the Albemarle Borderlands of North Carolina, 1663-1729," "seeks to provide a glimpse into early modern ideas on authority and disorder. . .in early North Carolina, a colony that many contemporaries considered a stain on the map of British America."¹ Barth's research and analysis support the claim that, in a region geographically designed to protect pirates from many seafaring naval vessels too large to navigate the Outer Banks, the early colonists of North Carolina were the types of individuals who were open to nurturing a mutually beneficial relationship with pirates, and were perfectly located to do so. Edwin Combs

¹Jonathan Edward Barth, "'The Sinke of America': Society in the Albemarle Borderlands of North Carolina, 1663-1729," *North Carolina Historical Review* 87, no. 1 (2010): 5. *Academic Search Complete*.

III argues that the North Carolina coastline offered only one port, Port Brunswick, which could reliably accommodate the large ships required for transatlantic trade; thus, marine commerce was greatly hindered compared to the coastline conditions of the colonies to the north.² Consequently, exports from North Carolina had to be transported over land for many miles before arriving at the port to be shipped out. North Carolinians' trading difficulties may have led the colonists to act illegally to make a profit from their exports, or to purchase necessities that may have been imported by shady characters. In a more localized argument, Charles R. Ewen, an archaeologist, pieces together his archaeological data with primary and secondary written sources to unveil a detailed view of what colonial Bath, a port town, was like and how the townspeople lived in the eighteenth century. Despite written documentation of a dozen families living in Bath at that time, Ewen's field research discovered seventy-one lots in the town, which suggests that the settlement was more populated than previously thought.³ Ewen also discusses a pirate's relationship with the people of the town of Bath.⁴ Although not specifically addressing the colony of North Carolina, Rebecca Simon argues that the Puritans who settled the first colonies made a significant impact upon the judicial system, and their perceived definition of a "criminal" became part of the jurisprudence of much of colonial America.⁵ Those ideas can lead to the hypothesis that there were commonalities between the colonial North Carolinians and the seafaring pirates of the eighteenth century. The historians, the archaeologist, and the social scientist mentioned above all agree that piracy was a problem for the British in their attempt to profit from the Atlantic trade. Barth and Ewen agree that piracy was different in colonial North Carolina; the people and the coastline itself welcomed pirates. Certain unique characteristics and situations of colonial North Carolina created an environment suitable for mutual gain between North Carolinian colonists and pirates, eventually resulting in the latter's integration into society without the encumbrance of a change in occupation. It is these characteristics and situations that merit exploration.

By 1696, piracy had become a costly nuisance to England, and King Charles II wanted the Proprietors of Carolina to ensure the safety of their import and export goods along the plantation trade routes. On behalf of the King, Edward Randolph proposed that Courts of Admiralty be established "in all the Colonys & Provinces upon the Coast of America" and that "collectors & others who have by ignorance or Connivance encouraged the illegal Trade in the plantations be removed, & honest & able officers be

² Edwin L. Combs III, "Trading in Lubberland: Marine Commerce in Colonial North Carolina," *North Carolina Historical Review* 80, no. 1 (January 2003): 13. *Academic Search Complete*.

³ Charles R. Ewen, "John Lawson's Bath: A Subterranean Perspective," *North Carolina Historical Review* 88, no. 3 (2011): 275. *Academic Search Complete*.

⁴ *Ibid.*, 270.

⁵ Rebecca Simon, "The Social Construction of Crime in the Atlantic World: Piracy as a Case Study," *International Journal of Interdisciplinary Social Sciences* 6, no. 6 (2012): 77, *Academic Search Complete*.

put in their Rooms...for the better putting the said act in Execution.”⁶ In response, the Lords Proprietors sent a message to England claiming they were “willing and ready to erect such Courts [of Admiralty] and constitute such able officers as shall be well affected to his Majesty’s Government” in order to implement the trade laws and eradicate piracy along the Carolina coastline.⁷ Then, they assigned their colonial governor, a man chosen from among the settlers of Carolina, the task of establishing an admiralty court similar to the courts in other colonies, appointing a judge, a registrar, a marshal, and an attorney general to enforce the trade laws, and protecting the Crown’s interests.⁸

Even though the governing bodies of the American colonies were decided by the English, colonial laws were greatly influenced by the religious ideals of the time, ideals that had less value to North Carolinians than to other colonists. The Protestant Reformation in Britain and the Puritan beliefs dominant in the New England colonies made the definition of “crime” synonymous with opinions on what constituted “sin,” and this influenced the jurisprudence of the colonies.⁹ Irreligious acts like swearing, public drunkenness, and violence were classified as crimes deserving of punishment, like theft and murder. Rebecca Simon states in her case study of piracy:

Citizens regarded the law as a mechanism to ensure a community that was free from sin and corruption. Puritan colonists believed that work was pleasing to God when performed in a regular and disciplined manner. Sailors were seen as corrupt because their work alternated between frantic activity and idleness. Drunkenness, theft, and other moral crimes were the most prosecuted crimes in the British colonies.¹⁰

The Puritan colonists’ judgmental opinion of a sailor was mild in comparison to their opinion of a pirate. Pirates were a particular threat against the communities who believed in these moral guidelines; not only did they commit robbery and murder, but they also drank in excess, were violently rowdy, and swore regularly during conversation, thereby representing a rebellion against government, religion, and “proper” society.¹¹

⁶ Edward Randolph, *Proposals by Edward Randolph Concerning Trade in the Colonies* [July 31, 1696], *The Colonial and State Records of North Carolina*, Vol.1 (2010):461, <http://docsouth.unc.edu/csr/index.html/document/csr01-0212>.

⁷ Lords Proprietors et al., “Memorandum from Colonial Proprietors to the Board of Trade of England Concerning Courts of Admiralty [1696],” *The Colonial and State Records of North Carolina*, Vol. 1 (2010): 472, <http://docsouth.unc.edu/csr/index.html/document/csr01-0217>.

⁸ Randolph, “Proposals,” 461.

⁹ Simon, “The Social Construction,” 77.

¹⁰ Ibid.

¹¹ Ibid., 82.

Simon writes, “[Pirates] did not answer to any authority, government, state, or religion—the key factors that maintained a cohesive Atlantic world. . . . Pirates were not just economic foes against the British and colonists. They represented every blasphemy set against early modern Protestant society.”¹²

However, in North Carolina, society was not so “proper,” despite the fact that the colony shared many of the same laws as other colonies. Because eighteenth century North Carolinians did not share the same ethical viewpoint or religious beliefs as the Puritan colonists, their concept of who the “criminals” were may have differed, even though the laws that the Proprietors wished to implement were similar to those that were enforced in other colonies. North Carolina’s colonists enjoyed more religious toleration and diversity. When the Lords Proprietors sought individuals to settle and plant their land, they advertised that they would give any free man over the age of sixteen sixty acres of land to call his own, as long as he paid the taxes and shared the profits yielded from the land.¹³ They desperately wanted to attract settlers to the region to work the land, produce a crop, and start engaging in Atlantic trade, thereby creating a source of profit for themselves. That desperation for working men meant that the Proprietors welcomed political dissenters from English and Scottish soil, indentured servants, runaway slaves, outlaws, Quakers, individuals who were trying to evade the elitist class of plantation owners, and any others who wanted to have a piece of wilderness to call their own and work into something profitable.¹⁴ Barth’s description of the results of Proprietary rule—less defined class structure with many landowners, less rigid government rule, and more religious toleration—portrays a colony that was distinct from other British colonies and boasted a population of people who were very different from the elite gentlemen of Virginia and the Puritans of New England. According to Barth, those differences were significant because that mishmash population, who were considered “undesirables” to Virginians and New Englanders, had a greater tolerance for one another that allowed them to coexist relatively well and a relaxed government that afforded them more personal freedoms.¹⁵ With questionable personal histories and a lack of concern for the “proper” distinction between classes of people, colonial North Carolinians could arguably have socialized with other groups of individuals, like pirates, whom the Virginians and the English would have classified as “undesirables.” North Carolinians were considered lazy, carousing drunks by many Virginians—a petty attempt by the Virginians to diminish the courage of the “misfits” who had the audacity to desire land and freedom beyond what they would have achieved in Virginia.¹⁶ A missionary named Christoph von Graffenried even described North Carolinians as “a criminal and ungodly set of people. . . among whom there were burglars, thieves, lewd fellows, profane

¹² Ibid., 85.

¹³ Barth, “The Sinke,” 8.

¹⁴ Ibid., 3.

¹⁵ Ibid., 10.

¹⁶ Ibid., 22.

swearers, slanderers, etc...I was more sorry to leave such a beautiful and good country than such wicked people."¹⁷ However, acquiring a reputation for undisciplined, lazy, and irreverent behavior did not affect how North Carolinians lived their lives during the Proprietary era. Most of the earliest settlers became landowners and the government was made up of those who lived in the region, so the class structure and populist government were less stringent than in other colonial societies, which were primarily controlled by the plantation owners.¹⁸ North Carolinians enjoyed living in a less strict system of government in which, despite some involvement of the Lords Proprietors, they could determine how, and if, their colony would enforce the laws that were based on more extreme religious beliefs than they espoused. This attitude of the North Carolina colonists helped to make the colony a more welcoming place for pirates.

Another characteristic that made North Carolina an ideal place for piracy to flourish was that its coastal geography caused problems for commerce. Unlike the topography of other North American colonies, the North Carolina mainland lacked direct access to the Atlantic. The North Carolina coastline is blocked by the Outer Banks, a group of islands that separate the mainland from the Atlantic Ocean. The Outer Banks diminished the possibility of sustaining a navigable coastal port and participating in the plantation trade routes as successfully as neighboring Virginia. Since most travel and trade possibilities depended on coastal ports, this geographical barrier isolated the colony from much of the Atlantic trade industry. In 1720, Joseph Boone and John Barnwell described the colony of North Carolina as

[A] great quantity of good Land...and the Country very healthy, yet its situation renders it for ever incapable of being a place of any consequence, for there lies a vast sound of 60 mile over between it and ye sea which break into the same thro' a chain of sand banks with barrs so shifting and shallow that sloops of 5 feet water runs great risqs, and if it sometimes happens that they have 8 or 10 feet water the next storm may alter it so, and perhaps in the very Chanell rise an island of sand as is really dreadfull and surprising This renders the place incapable of a Trade to great Brittain.¹⁹

Consequently, exports from North Carolina had to be transported over land for many miles before arriving at a port to be shipped out. This geographical isolation caused more than one difficulty for North Carolinian farmers. Not only was it time-consuming

¹⁷ Christoph von Graffenried, "Narrative by Christoph von Graffenried Concerning His Voyage to North Carolina and the Founding of New Bern [1708]," trans. M. Du Four, *The Colonial and State Records of North Carolina*, Vol. 1 (2010): 971, <http://docsouth.unc.edu/csr/index.html/document/csr01-0486>

¹⁸ Barth, "The Sinke," 15.

¹⁹ Joseph Boone and John Barnwell, "Report by Joseph Boone and John Barnwell Concerning the North Carolina Boundaries [November 23, 1720]," *The Colonial and State Records of North Carolina*, Vol. 2 (2010): 396, <http://docsouth.unc.edu/csr/index.html/document/csr02-0201>.

and expensive to get their goods to a port town, but many North Carolinian exports had acquired a bad reputation of being of poor quality after being transported for longer periods of time, so they did not bring premium profits.²⁰ One businessman in New York “advised a New Bern correspondent not to ship any more indigo on his account: ‘The best of Carolina Indigo Would not Sell here it has a bad Name among Our Cuntry People some will not Look at it if you says its from Carolina.’”²¹ Also, Virginians complained that North Carolinian tobacco was packed wet or too full, allowing it to rot in transport and bringing down the price.²² The lower value of North Carolinian exports and the unfavorable balance of trade meant that there was a scarcity of hard currency in the colony.²³ According to Edwin Combs III, this made business very difficult in North Carolina; many businesses had to raise their prices in order to “profit from a trade in low-value exports.”²⁴ Also, Combs discusses the occurrence of smuggling, which evaded the enforcement of the Trade Laws and the Navigation Acts, and the fact that local officials did not seem very effective in preventing those crimes.²⁵ In response to written directions advising him to “crack down on illegal trade and punish smugglers,” one governor wrote, “I believe many Frauds are committed by running and short entries, as we have no tide Officers or Searchers but the Collectors and Naval Officers. . . . [I]t is impossible to prevent a Clandestine entry of goods which ought to pay Duties.”²⁶ That statement admitted the existence of smuggling along North Carolina’s waterways and an inability to control the situation, whether by default or by design, despite the Crown’s insistence on capturing and prosecuting offenders.

According to Charles R. Ewen, the colonists in eighteenth century Bath “were not thriving,” despite their efforts to be a part of the world trade economy.²⁷ That statement suggests economic vulnerability, which could be alleviated somewhat by having a trusted pirate included in the town’s commerce. The evidence of the notorious pirate Blackbeard’s immersion in the community implies that the citizens of Bath had a mutually beneficial relationship with the pirate, affording the townspeople a less expensive means to liquidate their exports and an influx of luxury goods to profit from.²⁸ Ewen writes, “[H]e never attacked the port, [but] he did traffic in stolen goods

²⁰ Combs, “Trading in Lubberland,” 15.

²¹ As quoted in Combs, “Trading in Lubberland,” 15.

²² *Ibid.*, 15.

²³ *Ibid.*, 16.

²⁴ *Ibid.*, 21.

²⁵ *Ibid.*, 22.

²⁶ As quoted in Combs, “Trading in Lubberland,” 22.

²⁷ Ewen, “John Lawson’s Bath,” 279.

²⁸ *Ibid.*, 267.

there.”²⁹ In 1717, Blackbeard, also known as Edward Teach, Edward Tach, or Edward Thatch, swore his allegiance to the Crown and was officially pardoned for his crimes of piracy by North Carolina’s Governor Eden.³⁰ Blackbeard was known to have lived outside the port town of Bath for a while, and he even married a local girl, Mary Ormond, in the presence of the governor, Charles Eden.³¹ He was welcomed into the community under the pretense of being “involved in trade,” but allegedly Governor Eden, his secretary Tobias Knight, and other influential colonists were aware of, supported, and profited from Blackbeard’s continued acts of piracy.³² According to testimony heard by the Court of Admiralty in reference to Tobias Knight’s involvement with Blackbeard:

[S]oone after Thache’s [Blackbeard’s] arrival at Ocacock Inlet he went in a periangor. . . to Mr Tobias Knight Secty of North Carolina carrying with him a present of Chocolate Loaf Sugar and Sweet meats being part of what was taken on Board the ffrench ships. . . and Some boxes the Contents of which they did not know that they got to the sd Knight house about Twelve or one a Clock in the Night and carried up the caggs and boxes afsd which were all left there except one cagg of Sweet meets. . . that the sd Knight was then at home and the sd Thache staid with him til about an hour before the break of day and then departed that about three miles from the sd Knights house at a place called Chesters landing.³³

This testimony certainly implies a relationship of sorts between the “former” outlaw and the official. Most individuals who visit that late at night, bring multiple “presents,” and leave in the early hours of the morning, but before dawn, are good friends. More than that, they are up to something and trying to be discreet. The four men who witnessed those interactions, “Richd Stiles James Blake James White and Thomas Gates,” were African Americans, so their testimony was discredited at Knight’s request that the court “Consider as to the Evidence themselves they being such as Contradict themselves or as ought not to be taken in any Court of Record or else where against the sd Tobias Knight or any other white man.”³⁴ Also, an incriminating letter closing with “I expect the

²⁹ Ibid., 267.

³⁰ Ibid., 279.

³¹ Ibid., 270.

³² Ibid., 267.

³³ “Minutes of the North Carolina Governor’s Council, Including a Deposition, a Remonstrance, and Correspondence Concerning Tobias Knight’s Business with Edward Teach [May 27, 1719],” *The Colonial and State Records of North Carolina*, vol.2 (2010): 341. <http://docsouth.unc.edu/csr/index.html/document/csr02-0181>.

³⁴ Ibid., 345.

Governor this night or tomorrow who I believe would be likewise glad to see you before you goe, I have not time to add save my hearty respects to you and am your real ffreind And Servant T. KNIGHT” was found on board Blackbeard’s sloop, *Adventure*. However, what would have been conclusive evidence of guilt in the Virginian Admiralty Court, even if the black pirates’ testimony was eliminated, did not result in a guilty verdict for Tobias Knight. One can hypothesize that his colleagues did not want to see him persecuted for a “crime” that they were all guilty of committing: aiding and abetting piracy. Those trial documents are significant evidence that, at the very least, North Carolina’s government officials, including Secretary Tobias Knight and Governor Eden, were on friendly terms with Blackbeard.

The means by which Blackbeard’s career as a pirate ended, due to the Virginia governor’s intervention, corroborates the theory that North Carolina was a safe haven for Blackbeard and his crew. In a letter to one of the Lords Proprietors of the colony, Governor Alexander Spotswood of Virginia defended his reasons for attacking and killing Blackbeard in an inlet of North Carolina without permission or involvement from the local government. Governor Spotswood stressed the proximity of Governor Eden’s residence to the location of Blackbeard’s “chief resort” and wrote of the need for total secrecy of the plan of attack, “least among the many favourers of Pyrates...some of them might send Intelligence to Tach [Blackbeard].”³⁵ In May 1719, he also divulged his suspicions of certain North Carolinian government officials’ complicity with Blackbeard and other pirates in his letter to the Lords of Trade in England.³⁶ Spotswood also sent a letter to James Craggs, the Postmaster General of the United Kingdom on the same day in May 1719. In it he wrote as follows:

“[T]here are some in y’t Government y’t endeavour to justify Thach and his Crew as very honest men, and to condemn the Officers and Men belonging to the King’s Ships as Murderers for attacking and subduing them, When it is notorious that after they surrendered in y’t Province, and rec’d the benefit of his Maj’ty’s Mercy, they went out again on the same piratical design, not without the privity of some in principal Stations in that Gov’t...I hope the Lords proprietors themselves w’ll give little Credit to such Clandestine Testimonials when they shall know how dark apart some of their Officers have acted, particularly one who enjoyed the post of Secretary Chief Justice, one of their Lord’p’s Deputys and Collector of the Customs held a private Correspondence w’th Thach, concealed a Robbery he committed in that province, and received and concealed a considerable part of the

³⁵ Alexander Spotswood, “Letter from Alexander Spotswood to John Carteret, Earl Granville [February 14, 1719],” *The Colonial and State Records of North Carolina*, vol. 2 (2010): 326, <http://docsouth.unc.edu/csr/index.html/document/csr02-0174>.

³⁶ Alexander Spotswood, “Letter from Alexander Spotswood to the Board of Trade of Great Britain [Extract] [May 26, 1719],” *The Colonial and State Records of North Carolina*, vol. 2 (2010): 337, <http://docsouth.unc.edu/csr/index.html/document/csr02-0179>.

Cargo of this very ffrench Ship w'ch he knew Thach had no Right to give or he to receive...But it would be too tedious to relate how many favourers of Pirats there are in these parts.”³⁷

Despite Governor Spotswood’s suspicions and accusations, which were shared with many powerful individuals in England, North Carolina’s Court of Admiralty never investigated charges against anyone other than the Secretary of State, Tobias Knight, who was found not guilty.³⁸ Governor Spotswood’s disgust and disdain for the North Carolinian government is clear, and he believed his attack on Blackbeard on Carolina soil was necessary in order to eliminate the threat that the pirate represented to Virginian trade. His attitude was not much different, if at all, from the other Virginians who believed the colonists of North Carolina did not fit the mold of what a “proper” society should be like. However, his assessment of the relationship between the colonial government of North Carolina and Blackbeard was most likely accurate.

In conclusion, the demographic of the people in North Carolina was very different from other colonies and included people that Virginians and the English referred to as “lazy,” “ruffians,” “criminals,” “drunkards,” “religious dissenters,” and “dangerous,” which are not very different from the descriptions of “pirates” or “criminals” in Simon’s article.³⁹ In theory, many North Carolinians fostered relationships with the individuals classified as pirates because they shared similar characteristics, considering the colonists were often looked upon as outcasts from proper society too. That opinion was evident in a letter to the Proprietors dated November 23, 1720, in which Boone and Barnwell wrote the following:

“[T]his place is the receptacle of all the vagabouns & runaways of the main land of America for which reason and for their entertaining Pirats they are justly contemned by their neighbours, for which reason and that they may be under good Government and be made usefull to the rest of his Majesty's Collonys it would be proper to joyn the same again to Virginia.”⁴⁰

The colonists of North Carolina would not have responded well to the suggestion that they should just be absorbed into the colony of Virginia; that would have been a detestable suggestion to those independent individuals, who either left another colony to ensure their personal freedoms or were political dissenters who had had to rebuild their lives in a wilderness with few governmental restrictions. Under Proprietary rule, North

³⁷ Alexander Spotswood, “Letter from Alexander Spotswood to James Craggs [May 26, 1719],” *The Colonial and State Records of North Carolina*, vol. 2 (2010): 335, <http://docsouth.unc.edu/csr/index.html/document/csr02-0178>.

³⁸ Ibid., “Minutes [May 27, 1719],” 341.

³⁹ Barth, “The Sinke,” 1, 8, 27. Simon, “The Social Construction,” 78.

⁴⁰ Boone and Barnwell, “Report,” 396.

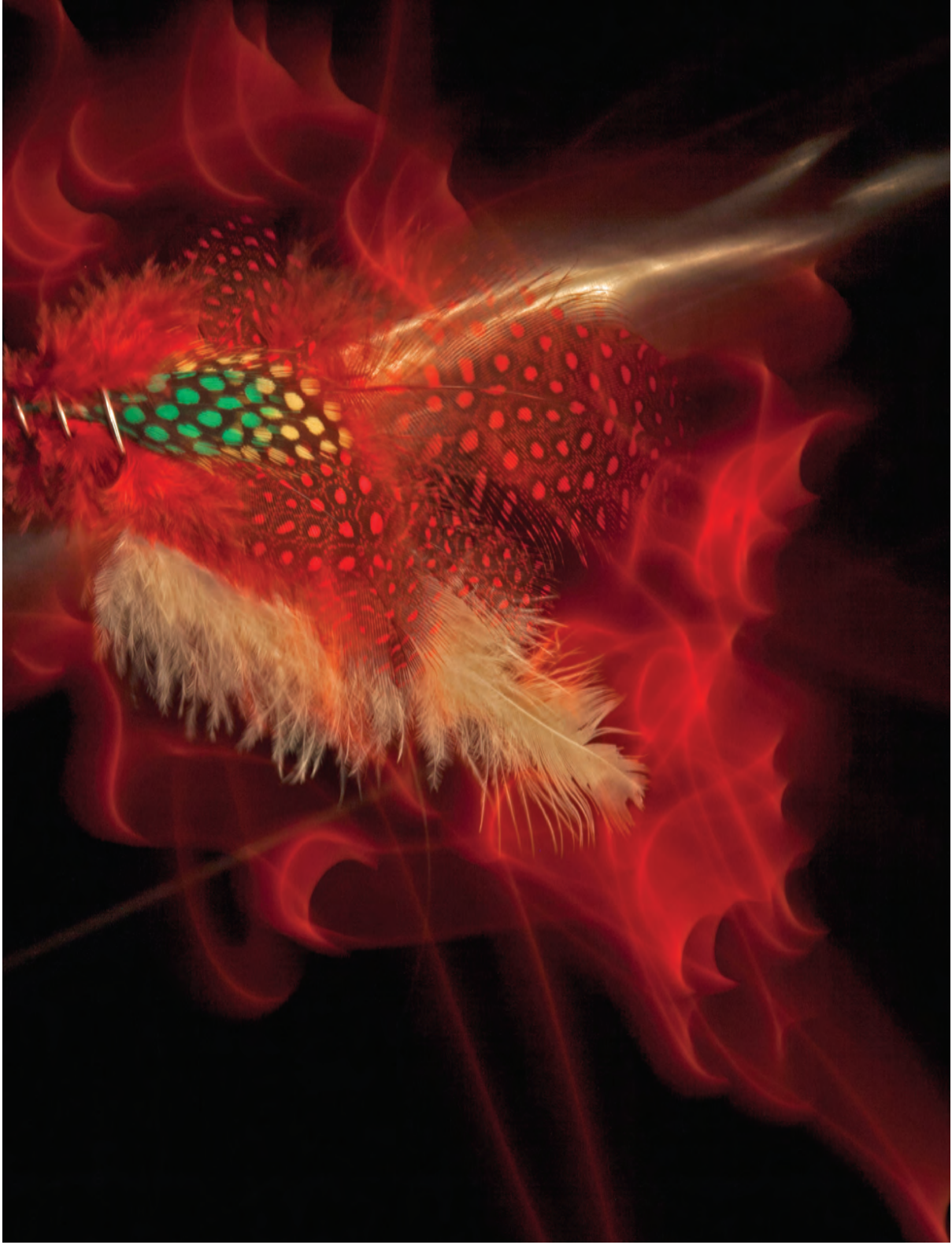
Carolinians had values and norms that differed greatly from those of the other established colonies, and their relaxed society seemed just as threatening to Virginia, in particular, as the acts of piracy that occurred along the colonial coastlines. As Jonathan Barth states eloquently, “The combination of an unintrusive and more populist government, weak church establishment, hostile physical environment, and a more equal distribution of land and wealth created the conditions for an individualistic society anomalous from the rest of British America.”⁴¹ Those factors, plus the geographical difficulties that hindered Atlantic trade, allowed for a mutually beneficial relationship to develop with pirates. The pirates could deliver to North Carolinians the luxury items that they wanted at reasonable prices, plus enable colonial producers to liquidate some of their exports with ease, and North Carolinians could provide pirates with a safe harbor in which to find temporary respite from persecution.

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⁴¹ Barth, “The Sinke,” 3.

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Contemplating Life

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The Subtle Use of Foreshadowing in Hurston's *Their Eyes Were Watching God*

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In *Their Eyes Were Watching God*, Zora Neale Hurston uses foreshadowing in several different ways, some obvious and some quite subtle, in order to evoke particular emotions from the reader. In some instances, Hurston uses foreshadowing to add foreboding and suspense to her story. In other situations, Hurston's subtle use of foreshadowing emphasizes the perceptions of her main character, Janie, and allows the reader to be affected on a more personal level. A particularly striking use of this technique occurs early in Janie's relationship with each of her husbands. The three different modes of transportation offered by each man inconspicuously hint at the type of relationship Janie has with each husband, which allows the reader to prepare for the next phase of Janie's self-discovery.

After Janie is married to Logan Killicks, the wagon ride to his home is described as uncomfortable, lackluster, and lonesome, qualities that are also true of the marriage itself. Hurston writes, "[N]obody put anything on the seat of Logan's wagon to make it ride glorious on the way to his house. It was a lonesome place like a stump in the middle of the woods where nobody had ever been" (21-22). The marriage between Janie and Logan is not a love match; the arrangement is made by Nanny, Janie's grandmother, as an old woman's attempt to protect her granddaughter before she dies. As the quotation implies, no one made Janie's transition into being a wife any easier for her; there is no thought for her comfort after the wedding itself. Nanny does not ever concern herself with Janie's feelings, especially her desire for love. She only wants to see her granddaughter wed to a black man with some property and money. Janie does not want to disappoint Nanny, so she naively hopes that love will follow after the wedding is over and agrees to wed the moderately successful black farmer who is much older than she. Once married, Janie realizes that her hope of love may never be realized with Logan Killicks, and she certainly does not care about the material things he has to offer. In a conversation with her grandmother after being married for only eight weeks, Janie states, "Ah could throw ten acres of [Logan's land] over de fence every day and never look back to see where it fell. Ah feel de same way 'bout Mr. Killicks too. Some folks never was meant to be loved and he's one of 'em" (Hurston 23-24). The seasons change and Janie still hopes for love, but Logan seems less enamored of her than he had been in the

beginning of their marriage; he loses the fascination he had for touching her hair and he does not want to cut wood for her anymore. Janie is lonesome and unhappy in this “uncomfortable wagon” that is her marriage. However, she is strong enough to stand up for herself when Logan wants her to become a farmhand for him as well as a homemaker. She bluntly states, “Youse mad ‘cause Ah don’t fall down and wash-up dese sixty acres uh ground yuh got. You ain’t done me no favor by marryin’ me....Ah don’t thank yuh for it” (Hurston 31). This is the beginning of the end to her first marriage. Janie realizes “[t]he familiar people and things had failed her....[S]he knew now that marriage did not make love” (Hurston 25).

Not only does Hurston use foreshadowing effectively to hint at the new couple’s relationship, but she also incorporates symbolism as well. Being in Logan’s wagon is described as “a lonesome place like a stump in the middle of the woods,” which, since the wagon foreshadows the relationship, implies the marriage is like a lifeless stump too (Hurston 22). This stump, a dead thing chopped down in its prime, is in stark contrast to the blooming pear tree that represents vitality, beauty, and sexual fulfillment to Janie (Hurston 11). Hurston includes this symbolism within the foreshadowing statements to intensify the reader’s awareness of the desolation Janie experiences while married to Logan.

Still a teenager, Janie is full of dreams of far-off places and hopes to experience love and happiness. These facts and the state of her marriage to Logan, “who wanted to use Janie as if she were just another mule on his farm,” make her susceptible to Joe Starks’s flattery (Ashmawi 203). Hurston writes, “they managed to meet...and talk about when he would be a big ruler of things with her reaping the benefits...Janie pulled back...because he did not represent...pollen and blooming trees, but he spoke for far horizon...for change and chance” (29). The reader becomes aware that this may not be a perfect match for Janie and has a greater understanding as to why Janie abandons Logan for the chance to explore a new place with an ambitious man who wants to share his dream with her. Unfortunately, Joe’s idea of “benefits” is different from Janie’s perception of the term, but Janie and the reader will not know this until after they are married.

Hurston’s subtle use of foreshadowing also prepares the reader for the relationship Janie shares with Joe. Hurston states, “Joe Starks was waiting for her with a hired rig. He...helped her to the seat beside him. With him on it, it sat like some high, ruling chair” (32). This example of foreshadowing perfectly describes Janie’s role as the future Mrs. Mayor Starks, submitting to his authority: “Having taken her away from Logan to protect her from overwork, [Joe] treats her as a possession that, as such, contributes to the respect others pay him. And since [Joe] cannot afford to lose that respect, Janie must maintain herself above the others” (McCredie 27). At the grand opening of their store in the new city of Eatonville, Joe “told [Janie] to dress up and stand in the store all evening...he didn’t mean for nobody else’s wife to rank with her. She must look on herself as the bell-cow, the other women were the gang” (Hurston 41). As Bealer states, “Joe feels he must consistently emphasize her class difference, and in so doing reinforce his own mastery” (317). In telling Janie to overdress for the occasion, Joe “helps” to place her in the “high, ruling chair” above the other townswomen, making Janie easy to admire but difficult to interact with. Alienating her further, Joe dismisses Janie’s voice in the town from the beginning. When asked to give

a few words of encouragement as Mrs. Mayor Starks, Janie never gets the opportunity to respond. Joe quickly says, “[M]ah wife don’t know nothin’ ‘bout no speech-makin’....She’s uh woman and her place is in de home,” effectively ensuring that his voice would be the only important one from the perspective of the citizens of Eatonville (Hurst 43). Joe puts her up on a pedestal as a prized possession, and he restricts her ability to interact with the townspeople. However, Joe does want Janie to work in the store, a job that she hates, to allow him the freedom to work as the mayor and promote the town to black people who live nearby: “[Joe’s] desire to embody authority in all aspects of his life, public and private, mandates that Janie *not* work outside the domestic sphere in order to bolster his pose of economic superiority, but ironically requires her *to work* in his store in a way that stifles her voice and body. He [also] strictly polices her appearance” (Bealer 317, emphasis in the original). Janie is ordered to wear a head rag while in the store because Joe does not want any other man to be able to admire her long, silky hair. This is just one of the ways that he treats her like a possession, without thought for her own desires.

When Joe asks her if she likes being Mrs. Mayor Starks, she says, “Ah feels lak Ah’m jus’ markin’ time. Hope it soon gits over” (Hurst 46). Janie mistakenly believes that her life with Joe will be better, less “strained,” once the town is established, but Joe’s ambitions are never satisfied and he is a domineering man hungry for power. That night she starts to feel “far away from things and lonely,” and she begins to see the disadvantages of being with Joe in the “high, ruling chair” (Hurst 46).

Janie is married for seven years before she realizes that “the spirit of the marriage left the bedroom and took to living in the parlor” (Hurst 71). The relationship exists only for appearance’s sake, like the “hired rig” that is only meant to impress Janie and the inhabitants of the newly formed town when they arrive. By the time Janie is thirty-five, Hurst writes, “She was a rut in the road. Plenty of life beneath the surface but it was kept beaten down by the wheels,” and Joe Starks is the driver of the rig with the wheels that beat her down (76). Her marriage to Mayor Starks is like being in the “high, ruling chair” over the citizens of Eatonville, but she is being ruled by a driver who wants total submission.

As Joe grows older, he becomes even more critical of Janie’s appearance and actions. Janie defends herself once, in front of all the men in the store, and Joe is devastated and furious. A short while later, Joe dies and Janie attends the funeral with a solemn face: “Inside the expensive black folds were resurrection and life....[Janie] sent her face to Joe’s funeral, and herself went rollicking with the springtime across the world” (Hurst 88). Janie feels alive again. As she explains to her best friend, “Ah done lived Grandma’s way, now Ah means tuh live mine....sittin’ on porches lak de white madam looked lak uh mighty fine thing tuh her. Dat’s whut she wanted for me...Git up on uh high chair and sit dere....So Ah got up on de high stool...[and] Ah done nearly languished tuh death up dere” (Hurst 114). Of Janie’s living a life confined by the expectations of others, Wolff states: “[B]oth of [Janie’s] husbands and her grandmother have imposed a role on Janie, in telling her what she should be [and]...She is expected to conform to it” (31). When her marriage ends with Joe’s death, Janie is able to step down from the “high, ruling chair” in which Joe had positioned her and take control over her own destiny.

Hurston also subtly foreshadows Janie's relationship with Vergible Woods, known as Tea Cake, through the mode of transportation he uses to pick her up from the train station: a car, an old station wagon. This foreshadows the comfortable but exciting and slightly dangerous relationship Janie shares with Tea Cake. From the first day they meet, Janie feels "as if she had known him all her life" (Hurston 99). She could easily laugh with him, and she is thrilled that he wants to teach her to play checkers so they can play together. She is attracted to Tea Cake and excited to spend time with him. Janie thinks Tea Cake "looks like the love thoughts of women" and, in contrast to her first impressions of Joe, Janie believes "[Tea Cake] could be a bee to a blossom—a pear tree blossom in the spring" (Hurston 106). She is excited to finally meet the "bee" for her "bloom."

Janie and Tea Cake go everywhere together: hunting, dancing, baseball games, and cinemas. Wolff writes, "Tea Cake gives Janie the world. . . . He offers her experience" (31). Like a car, it is a relationship in motion; Janie is finally able to go places and meet people while being with a man who makes her happy. Traveling in a car, especially a used car, can be risky, which adds an element of danger. This is similar to Janie's relationship with Tea Cake, too. Her love for him makes her vulnerable, and there are risk factors to be considered. Janie must overcome doubts about Tea Cake's motives for being with her; as a wealthy widow, she has become a target for some money-seeking men, and she has to take a leap of faith that Tea Cake truly loves her. Janie decides to trust Tea Cake and tells her friend, "Dis ain't no business proposition, and no race after property and titles. Dis is uh love game" (Hurston 114). So Janie and Tea Cake experience a relationship that is comfortable, exciting, adventurous, and a little risky, just like a trip in a slightly used car.

The relationships that Janie experiences and her perception of who she is and what she wants in her life improve as the novel progresses. As Peoples states, "Janie develops through loving and leaving each of her husbands at the required moment; these acts thus allow the self-expression that leads to self-actualization" (187). Similarly, just as the relationships improve, the mode of transportation offered by each man improves, too. With Logan, the wagon, the relationship is crude and uncomfortable. With Joe, the hired rig, the relationship is all about unequal power, status symbols, and a wealthy lifestyle. With Teacake, the car, the relationship is exciting, comfortable, and racy. Also, the means of transportation serve as symbols for what each man has to offer to Janie. The primitive wagon is the means of transport for the landowning farmer; land is not important to Janie. The hired rig is the chosen vehicle for the man who wants to impress others, caring about status symbols that mean nothing to Janie. The used car that Tea Cake buys is chosen for the comfort it will provide for her, but is not pretentious at all. Normally, Tea Cake walks to his destinations, but he wants to make it convenient for Janie to travel with him wherever he goes, and since this is also what Janie desires most, the car suits them both.

Another similarity between the marital relationships and the modes of transportation has to do with the fact that two of the vehicles require a beast of burden to pull the couple to their location and one does not. According to Dilbeck, "[O]nce Jody dies and Janie is free to do as she pleases, there are no further references to mules; Janie is free of her 'load,' no longer required to bear the expectations of men or others. . . . she belongs to no one but herself" (103). Hurston foreshadows what Janie's

marital relationships will be like with the modes of transportation each man offers, and incorporates the symbolism of the beast of burden, or mule, which is introduced to the reader by Nanny when she tells Janie, “De nigger woman is de mule uh de world” (14). The two husbands, Logan and Joe, who treat Janie like a beast of burden and a submissive possession take Janie to their destinations in wheeled conveyances that require beasts of burden to pull them, possibly using mules for the task, although Hurston does not mention the animals specifically. However, Hurston does specify that no beast of burden is necessary when Janie begins her life with Tea Cake. The car he buys for her to travel in foreshadows what their relationship will be and symbolizes the liberation Janie experiences while she is with him. Janie does work while she is with him, “but not for Tea Cake, *with* him; not to earn more money or to possess more, but to be with Tea Cake, to love more” (McCredie 27, emphasis in the original).

Although Hurston uses foreshadowing to increase the sense of foreboding towards the climactic happenings of the novel, the subtle instances are also important, but for different reasons. The subtle use of foreshadowing effectively provides depth to the story, a cohesion of sorts, while preparing the reader for the lifestyle changes to come for the main character, Janie. As a result, the reader has a better understanding of the three most important relationships of Janie’s life and how they each guided her to a better understanding of herself during her quest for self-fulfillment.

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The Role of Eastern Religious Traditions in Society

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In the State of Nature, back when people lived semi-nomadic lives without governments and social structures, the human experience was constructed entirely on a subjective basis: with no paradigms or social roles, people were free to construct their own meaning of life—granted, the demands of survival did not afford humans much time for contemplation or leisurely thought. Gradually, men and women gathered in villages, constructing the first societies based on cooperation, self-interest, or a combination of both. While philosophers disagree about the nature of humans and their actions, they all agree that conventions are necessary for life in communities to exist: morality, politics, society, and all aspects of everyday life are explicit or implicit conventions. Hobbes called this set of conventions "commodious living" (38), arguing that they facilitate and regulate life in society.

As Rousseau contended, almost in protest, "[m]an was born free, and he is everywhere in chains" (49). Social conventions affect human behavior and ideas in all areas of activity, regulating affairs as intimate as domestic life and emotions, and extending beyond to more bureaucratic areas such as employment and legal procedures. Rather than chains, these conventions are the tools people need to live in society. They result from widely-accepted views and beliefs, and they become cornerstones of organized life.

Historically, organized religion has held an influential role in social conventions, and diverse religious doctrines continue to influence social dynamics around the world. To a large extent, these doctrines determine many of the ethics, codes of conduct, hierarchies, and rituals practiced by billions of people. Moreover, these beliefs go beyond religious spaces and permeate all layers of social convention.

Because of their ubiquity, religions have the potential to organize societies through diverse structures and rituals. Religions can be identified as an ordering principle of society because they function as self-legitimizing authorities and sources of various beliefs. They are self-legitimizing authorities because they establish the rules of the earthly life and the afterlife, mediating between individuals and the divinity. On a

large scale, religions determine how society is structured, how it functions, and how individuals will seek to self-fashion.¹

Rites are a common element across many religions. They symbolize the participation of people in religious affairs. In a study of the dynamics of religion in modern society, Durkheim defines rites as determined modes of action, resulting from a particular belief (171). He believed the performance of rites is not restricted to the realm of the divine but often extends into the profane, thereby becoming a part of daily life (185). When individuals perform rites, they are participating in the social structures shaped by religion. In the same line of thought, Ching argues that rites “give expression to communal beliefs,” suggesting that each individual’s performance of rites develops and enforces these beliefs (61). For instance, the cult of ancestors found in modern Chinese religions is an extension of the veneration of elders in the afterlife found in various ancient religious practices across Asia; in modern times, Chinese families place a heavy emphasis on respect for their elders. In the same manner, religion establishes what is socially appropriate, the patterns of conduct, and the expectations of each member of the social group. This distinction between the influence of religion in the social sphere—social structures and their function—and its influence on the individual—the *actor* in the social sphere—highlights the functionality of religion as it both defines and regulates daily life. Seen as units in their environment, people perform in rites to fulfill their duty as members of a religion.

Modern religious practices interact with other elements of culture to influence social structures and behavior. Nevertheless, religion influences people more significantly than other elements of culture because of the nature of religious practices, which require people to participate in the performance of rites or to obey certain cosmological rules. Geertz argues that duty, or the motivation to act in accordance with religious beliefs, is pervasive across most religious systems and is justified as an element of “the order of the universe” (90); duty regulates an individual’s actions within society, which is also a part of this universal order. People fulfill their duty because of their belief in some form of punishment or reward in the afterlife derived from their actions.

Some religious systems also encourage people to achieve a certain life purpose, often closely tied to fulfillment in the afterlife. Hindus believe the objective of earthly life is to respect the laws of Dharma and gain benefit in the cycle of life and reincarnation. In the same fashion, religious rites give expression to communal beliefs, and the self-perceived role of each individual becomes a physical manifestation of these beliefs. Therefore, a functionalist study of religion must explore both the relationship between specific beliefs and practice, and the role of the individual as part of a community or society. These two elements in the practice of religious traditions influence what is perceived as order within a society.

Practicing a religion is the most direct form of individual conditioning. Considering that the social function of religion—shaping social structures and dynamics—depends on the interpretation and application of information in a specific and consistent manner by all members of society, it can be analyzed through a religion

¹ Self-fashioning is the process of constructing one’s identity and public persona according to a set of socially acceptable standards. See Greenblatt’s introduction to *Renaissance Self-Fashioning*.

“meta-frame.”² A religion meta-frame is a type of framing³ analysis that superimposes the priority of religion in human life above all other social structures of beliefs. It suggests that this activity extends to all aspects of social life in an overarching manner—hence the affix “meta.” When a religion meta-frame is in operation, religion becomes the natural order for everyday life, an order that manifests through rituals, cultural norms, stereotypes, and forms of government. In this way, religion serves as the primordial principle of social organization. Yet it is worth questioning why humans adhere loyally to religion since there are other social structures that could provide order and meaning to human life. One explanation for the primacy of religion comes from Freud, who argued that religious beliefs fulfill the individual's “egotistic wish for protection” (22-3). He suggests religion mediates the ego⁴ and the the environment (12-5); this delimitation is necessary for the socially conditioned individual's identity to interact with and within his/her environment. In other words, the knowledge of a religious system, combined with the need for protection of the ego, motivates humans to maintain religious beliefs that allow them to understand their social context and to feel protected.

As previously discussed, religion plays an essential role in defining the identity of the individual. Freud believed that the superego replicates the external authority figure of religion, but also that it internalizes the individual's resistance to this authority (17). People are socialized to operate in their religious world, but they are also socialized to subconsciously enforce their religious beliefs in the superego. As the ego or self develops, and the individual leaves the supervision of the father and the domestic sphere behind, religion appears to remain an element of the ego and superego.

Because religion shapes the individual and the social structures simultaneously, the role of the self and the order of society are extensions of each other. As Ching suggests, communal rites allow individuals to fulfill their religious duty as well as fulfill personal expectations of themselves (63). This phenomenon can be observed in various eastern religious practices, including the *varnasrama-dharma* system of the Vedic-period Hinduism, the separation between laity and *sangha* in Mahayana Buddhism, and Confucianism's bold emphasis on filial piety within modern Chinese religious practices.

In the Hindu practice of the Vedic period, the *varnasrama-dharma* system—also known as the Varna or caste system—organizes society according to various social strata and life stages, or *varna* and *asrama* respectively. According to Flood, this mode of social

² The sociological construct of the meta-frame was first applied to the use of security as the ordering principle of modern society. Bajc's introduction to *Security and Everyday Life* discusses how security has become the most important value of the Western world and how it has subjected all social activity to the pursuit of that value.

³ Framing is a process whereby communicators, consciously or unconsciously, act to construct a point of view that encourages the facts of a given situation to be interpreted by others in a particular manner (Kuypers 11).

⁴ According to Snowden, "In Freud's structural model of the psyche: 'id (instinct)' is the innate, subconscious instinct; 'ego (self)' is the consciously-organized decision making part of the psyche, and 'super-ego (conscience)' is the critical and moralizing function which is developed through experience over time" (115-7).

organization is part of *dharmā*⁵—or the balanced order of the universe—and constitutes the earthly portion of the Hindu cosmology (65). In Hinduism, earthly life is considered a stage of *samsara*,⁶ and souls progress towards liberation from *samsara* through various earthly lives, each a continuation of the previous. Through each of these lives, people accrue *karma*⁷ based on their actions, determining their caste in their next reincarnation.

The *varna* system is part of “a larger ‘chain of being,’ fitting into a cosmic hierarchy where various categories (*jati*) are arranged in differing degrees of subtlety and purity and associated with each other” (Flood 58). Before the caste system was outlawed, duty and obedience were necessary to ascend the caste hierarchy in the next reincarnation. In many ways, the caste system restricted the liberties and opportunities of people who belonged to the lowest castes. For instance, only those who were twice-born⁸ and part of one of the superior *varna* categories were allowed to hear and learn the *vedas*,⁹ participate in sacred rituals, and choose the *asrama* they would like to pursue in their adult life.

Besides caste stratification, other features of social classification derived from the practice of Vedic-period Hinduism. For instance, gender is a variable that can limit people’s liberty: subject first to their fathers, and later to their husbands, women were always subject to male authority figures (Flood 66). Furthermore, the submission of women in Vedic texts suggests that gender stratification has an allegedly sacred conditioning. Under these categories of social organization, all elements of earthly life are mediated by karmic consequences, resulting in a particular form of life in reincarnation.

Outlawed in 1949, the caste system is considered an oppressive practice. Today, discourse involving class and caste in India is commonly regarded as discriminatory. While the Indian government has promoted the equality of all people for over six decades, traces of the caste system are still present in the social structures of modern-day India. From political platforms to opportunities in education and the job market, novelist and culture critic Sankaran draws many similarities between the post-caste system in Indian society and the racial tensions that remain relevant in the United States (n.p.). These traces of the Vedic caste system in India serve as evidence of the pervasive force of the religious meta-frame.

The motivations to conform to these practices of Vedic-period Hinduism are rooted in the authority of *dharmā* and its emphasis on orthopraxy¹⁰ and ritualism:

⁵ Flood explains that *dharmā* is “Sanskrit to the English term ‘religion’, but [it also] has a wider connotation than this, incorporating the ideas of ‘truth’, ‘duty’, ‘ethics’, ‘law’ and even ‘natural law’”; in the *varnasrama-dharma*, it also includes “obligation” (11, 58-62).

⁶ The cycle of birth and death, connected by reincarnation (Flood 75)

⁷ Sanskrit for “the law of actions and effects” (Flood 6)

⁸ Boys of the three superior castes who had undergone initiation (*upanayana*) (Flood 58)

⁹ Sacred texts of Hinduism (Flood 39)

¹⁰ Orthopraxy signifies the emphasis on conduct and behavior over beliefs. In Hinduism, “[b]ehavior, expressing Hindu values and power structures, takes precedence over belief” (Flood 16).

obeying the caste system and fulfilling the duties and expectations of one's caste are fundamental requirements to accrue *karma*. For instance, duty and family life are more important than asceticism and spiritual devotion in most stages of *samsara*. While spiritual liberation or *moksa*¹¹ is a legitimate concern of the twice-born *varna* members, the duties of *dharmā* always come before *moksa*: “if he [an individual from the higher three castes who has undergone initiation] has not fulfilled his social obligations then he goes to hell, making it clear that while renunciation [one of the *asrama* stages] and the goal of liberation are valid, they must be deferred until social obligations have been met” (Flood 64). It is clear that Vedic-period Hinduism constructed social structures and conditioned individuals as a result of rituals and practice, so emphasized in religious texts.

When present, religion is the primary ordering social principle because it justifies the existence of social structures and conditions all interactions between individuals. Similarly to Vedic-period Hinduism, the Mahayana Buddhist meta-frame guides individuals to become enlightened and thereby achieve *nirvana* or extinguishment of suffering. The fastest route to *nirvana* is monkhood, and the initiation rites required to become a monk represent a person's transition from the realm of the profane and into the realm of the sacred as well as his commitment to continue the teaching duty of the Buddha (Durkheim 11).

In a religion where advancement towards *nirvana* can manifest as a hierarchy, *buddhas* and *arhats* (saints) occupy the highest positions. As members of the religious elite, they mediate the instruction of *Dharma*¹² and they are revered as teachers of truth and wisdom (Gethin 34-36). Their teaching labor is continued by the members of the *sangha*,¹³ whose duties include guiding believers towards enlightenment as well as perfecting their knowledge and their practice of *Dharma*. The *Vinaya*¹⁴ exhorts followers to become part of the *sangha*, and it constitutes the foundation of the practice of Buddhism. The *Vinaya* also mentions the importance of a laity, since members of the *sangha* are not allowed to work and they require the laity's material help to survive. This relationship, based on the principle of codependence, regulates the interactions between the laity and the *sangha*, establishing a path between the earthly and the divine (Gethin 107). In this relationship, the *sangha* is hierarchically superior to the laity because the latter cannot access the divine without the former. Therefore, Buddhism operates as the primordial organizing principle because social organization happens largely as a function of religion.

In some societies, the influence of religious traditions on hierarchies and governance is more noticeable than in others. For instance, in early Chinese folk religion, dynastic governments were legitimized by the belief in the existence of a direct bloodline between one of the Five Emperors and the ruling dynasty—for example, the relationship between Emperor *Yü* and the Xi Dynasty (Mungello 97). This belief developed over a period of time from various folk rituals and practices that sought to

¹¹ Liberation from the cycle of life (Flood 79)

¹² The teachings of the Buddha (Gethin 35)

¹³ Community of accomplished Buddhist disciples (Gethin 34)

¹⁴ One of the three *pitakas* of the Buddhist canon, the *Vinaya* describes the regulations and rules of the *sangha* (Gethin 87).

interact with the divine, conceived as a group of high-ranking ancestors. According to Ching, divination was central to the act of governing in ancient China and emperors would often consult the shamans and oracles for guidance on important issues (27-9). This practice led to the development of the philosophy of Heavenly Mandate, which considered the political ruler to be a descendant of the royal family favored by *Tian*.¹⁵ Because of this relationship, rulers also served as mediators between the realms of the sacred and the profane (Ching 60-2). In later Chinese dynastic history, the link between political rulers and *Tian* strengthened. The emperor, or “Son of Heaven,” began consulting the oracle directly on matters of state, reinforcing the unity between state and religion, and replacing a link of bloodline with one of divine favor (63). In this period, Chinese society held that the emperor’s authority was invested in him by *Tian* regardless of bloodline, linking social and political obligation to religious obligation. Since power derived from interactions with the divine, and only the emperor was afforded these interactions, he held the power to regulate everyday life. Beyond overseeing political, military, and state affairs, he determined moral guidelines and rituals. It is under the auspices of the emperor that Confucianism became the guiding ideology of the state in 125 BCE, demonstrating how religion holds the potential to organize society.

Before Confucianism was adopted as the official state doctrine, it was largely devoid of religious connotations. However, Chinese religions are characterized by fluidity and syncretism, incorporating rituals and practices from various religions and linking them to existing beliefs. When Confucianism was adopted as the moral compass of the empire, it was linked to the philosophy of Divine Mandate and therefore endowed with divine legitimacy. Ching entertains a discussion on the appropriate categorization of Confucianism, arriving at the conclusion that it is best understood as a “doctrinal system, ... a humanism that is open to religious values” since it was fully compatible with earlier Chinese folk religion (52-65).

The five relationships of Confucian philosophy serve as regulating social parameters and determine acceptable individual identities by setting out acceptable behaviors associated with each position in the hierarchy. Authority in this hierarchy varies endogenously according to each position in the relationship. Furthermore, strong allegiance to an authoritarian father figure is maintained because Chinese social structures are intended to resemble those of a large family (Ching 58). Since the father-son relationship is replicated at various levels—from the ruler-subject relationship at the top of the hierarchy to the friend-friend relationship at the bottom—the hierarchy is always explicit and evident. Furthermore, Confucian thought prescribes a balance between *Jen* and *Li*—the inner orientation and thoughts of the individual, and the outward social behavior, respectively—to maintain balanced, fruitful, and productive relationships. By adhering to these principles and values, the individual contributes to social harmony and order.

When the teachings of the Five Classics or the Analects became mainstream in Chinese society, family-rooted hierarchies were already a prominent feature of Chinese folk religion. Filial piety was a major feature of the ancient religion of China (Chin 19-22). The cult of ancestors fulfilled certain “psychological needs” of protection from the

¹⁵ Literally “heaven,” *Tian* is a divine figure (god), superior to all ancestral veneration, sages, or sovereigns (Ching 18-22).

deceased because divination offered to extended patriarchal guidance into the afterlife. This tradition suggests that the father figure, primordial to the agency of power in the superego, is not transferred from the father to the religious system, but that the former *becomes* part of the latter in Chinese religion. In other words, religion immortalizes the father figure, for it bridges the earthly and the afterlife, allowing the transfer of a social function from earthly life to the afterlife, accessible only through religious practice. Although modern practices have since changed, the general sentiment of filial piety has carried over to modern family rituals like marriage and memorials for the deceased (Ching 64-65).

Modern social conventions show many signs of the constant influence of organized religion. In the realm of the profane, religious beliefs have shaped views about birth, death, social class, family ties, government authority, and morality, demonstrating how social structures remain firmly grounded once they are adopted through religion.

Organized religions act as the primary social ordering principle because modes of behavior, social structures, and identities are constructed by beliefs and rituals. More pragmatically, religious beliefs also serve to legitimize other social structures, such as Confucianism in early Chinese religion. Broadly, religious ideology defines the cultural codes that motivate societies to organize according to a predetermined hierarchy, to pursue certain earthly and divine objectives according to the laws of the universe, and to follow certain procedures and perform certain rites to maintain stability and continuity. Religion fulfills this defining role because it connects human needs, emotions, and cognition, contributing to the availability of shared experiences and meaning. Since the Enlightenment, the nature of the social contract, not religion, has been the main concern of political philosophy. However, religion has shaped most conceptions about human nature and the order of the universe, remaining one of the most complex areas of social studies.

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Production and Determination of Ethanol Content in Samples Treated with Glucose and *Candida albicans*

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Abstract

Ethanol analysis is an important analysis often conducted in forensic science. *Candida albicans*, a common yeast found in human remains, has been shown to produce elevated levels of ethanol in post-mortem analysis, especially in subjects with diabetic or dietary sugar conditions. This research focuses on the investigation of ethanol produced by *Candida albicans* in samples, with a consideration of the potential glucose effect on production. The quantity of glucose present determines the amount of ethanol produced when *Candida albicans* is present to convert glucose into ethanol. It is assumed that the amount of glucose present is proportional to the amount of ethanol produced, and so, as glucose concentration increases, the ethanol levels increase accordingly. For this research, yeast samples were grown and some were exposed to varying levels of glucose in order to examine the correlation glucose has with ethanol production. Samples were analyzed with ultraviolet/visible spectroscopy, and the limit of detection and limit of quantification were determined. Ethanol was successfully detected and quantified in the yeast samples that were exposed to different glucose levels. The ultimate goal of this research is to quantify a relationship between glucose levels in human remains and elevated post-mortem ethanol concentrations.

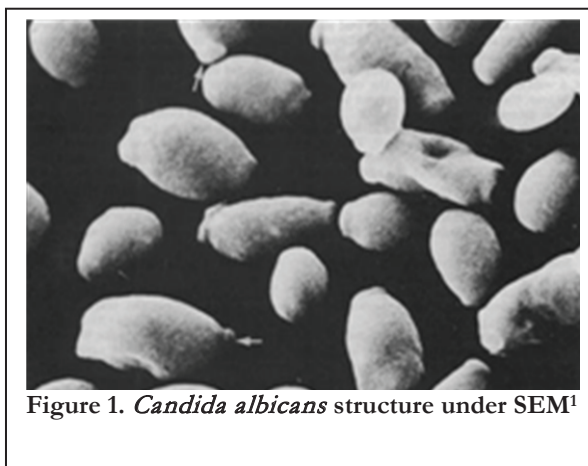


Figure 1. *Candida albicans* structure under SEM¹

Production and Determination of Ethanol Content in Samples Treated with Glucose and *Candida albicans*

Candida albicans and glucose ($C_6H_{12}O_6$) are substances capable of increasing the content of ethanol in certain samples.² *Candida albicans* is a common type of yeast that

can frequently be found in the environment.² It has been shown that *Candida albicans* can increase the content of ethanol in postmortem blood samples, especially in samples that contain elevated C₆H₁₂O₆ conditions.² It is assumed that C₆H₁₂O₆ is a type of sugar that *Candida albicans* can use in order to increase the production of ethanol.² To investigate the production of ethanol, a dichromate-ethanol reaction commonly used in breathalyzer tests was utilized. The dichromate-ethanol solution was exposed to varying amounts of glucose within the *Candida albicans*. The exposed solutions were analyzed using spectroscopic analysis. It is assumed that higher amounts of glucose lead to lower absorbance readings, which indicate higher percentage ethanol content, thus indicating that higher amounts of C₆H₁₂O₆ lead to an increase in ethanol production supported by the *Candida albicans*.²

Methodology

Materials and Methods

Absolute ethanol was purchased from Sigma Aldrich. Potassium dichromate was purchased from J.T. Baker. Silver nitrate, sulfuric acid, and glucose were purchased from Fisher Scientific. The dichromate solution stock was prepared by mixing 0.0500 g K₂Cr₂O₇, 0.0500 g AgNO₃, 100.00 mL D.I. H₂O, and 100.00 mL of concentrated H₂SO₄. The blank solution was prepared by mixing 5.00 mL concentrated H₂SO₄ and 5.00 D.I. H₂O. The stock ethanol solution was prepared by mixing 31 μL absolute C₆H₅OH and 1000 mL D.I. H₂O. Solutions of EtOH content were made for 0.00, 0.025, 0.050, and 0.100% blood alcohol content (BAC) from the stock ethanol solution. All the solutions were filtered prior to analysis.

Candida albicans and Glucose Sample Preparation

The yeast was initially transferred to a Sabouraud Dextrose Agar (SAB), grown overnight for a 24-hour period at 32 °C. After 24 hours, the samples were stored in a refrigerator, which slows the growth of the yeast. The nutrient broth samples were autoclaved, and varying amounts of glucose (0.00 mg as a control, 1.00 mg, 10.00 mg, 50.00 mg, and 100.00 mg) were added. These samples were then inoculated using the aseptic technique and placed into the incubator for a 24-hour growth period. *Candida albicans* was provided by Carolina Biological.

UV/Vis Spectroscopy

Samples were measured using ultraviolet/visible (UV/V) spectroscopy. All spectroscopic measurements were obtained using an Ocean Optics Red Tide 650 UV/Vis Spectrometer with a 1 cm path length and the corresponding SpectraSuite Software, or a Genesys 20 Spectrometer. Absorbance readings were taken at λ_{max} of 440 nm.²

Analysis

In order to develop the dichromate solution for detection, potassium dichromate was mixed with an equal mass of silver nitrate, and the solution was diluted by using concentrated sulfuric acid and water.² The dichromate solution was exposed to varying amounts of ethanol standards and to *Candida albicans* samples with varying amounts of glucose. Any ethanol present in either the standards or the yeast samples

with glucose would result in a colorimetric change measured by a corresponding decrease in absorbance.

This colorimetric reaction is based on the breathalyzer reaction between ethanol and dichromate in acidic conditions, as given here.

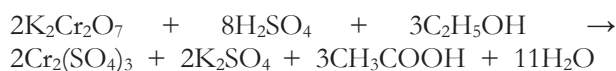


Figure 2. The reaction of Cr⁺⁶ being reduced to Cr⁺³ upon reaction with C₂H₅OH in acid²

Results and Discussion

In order to determine the optimal wavelength to be used for absorbance measurements, the dichromate samples were analyzed by using a spectrum seen in Figure 3.

The most reliable λ_{max} for detection is 440 nm, which we used in our research.² Figure 4 shows the change in color that occurs once ethanol has been added to dichromate. The color change is proportional to the concentration of ethanol.

The ethanol present is oxidized to acetic acid, and dichromate is reduced from Cr(VI) to Cr(III), resulting in a more colorless solution.² The ethanol content produced by the reaction of varying mg of glucose with *Candida albicans* were measured in percentage BAC in correlation with the measured absorbance. The inverse yet linear relationship in which absorbance decreases with an increasing amount of ethanol is shown in Figure 5 on the next page. A pattern of linearity can be seen from the graph, as it shows a correlation factor R² of 0.995. The higher the ethanol content of the standard, the smaller the absorbance readings will be. A limit of detection of 0.0042% BAC and a limit of quantification of 0.0132% BAC were established for this analysis method. This calibration curve was used

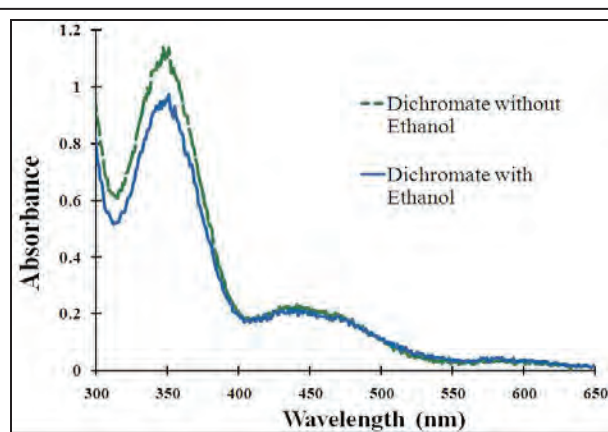


Figure 3. Absorbance spectrum of dichromate solutions with and without the addition of ethanol with a $\lambda_{\text{max}} = 440$ nm



Figure 4. The sample on left is the dichromate solution without ethanol, and sample on right is the dichromate solution with ethanol.

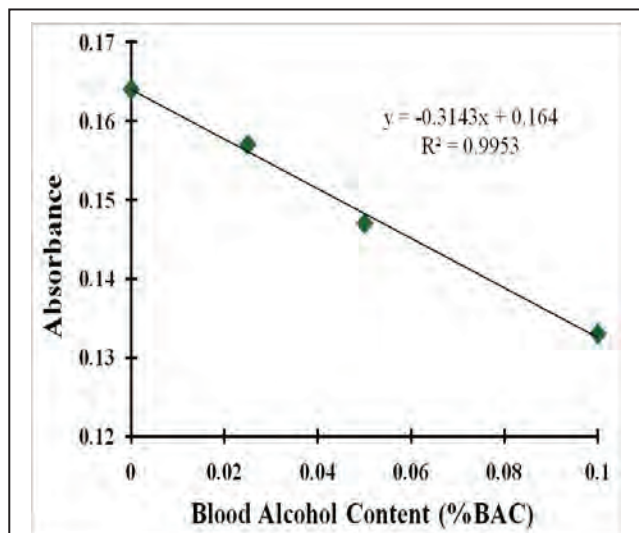


Figure 5. Calibration curve of % BAC vs. Abs. for ethanol standards reacting with the dichromate solution

Mass of C ₆ H ₁₂ O ₆ (mg)	% BAC
Control	0.079
1.00	0.115
10.00	0.200
50.00	0.245
100.00	0.283

Table 1. Percentage BAC values (EtOH content) obtained from *Candida* samples treated with varying amounts of C₆H₁₂O₆

to successfully determine the percentage BAC (EtOH content) in samples exposed to varying amounts of glucose within the yeast *Candida albicans*. We were able to quantify a relationship between the amount of added glucose, the corresponding absorbance readings, and the amount of ethanol produced by the yeast. The data in Table 1 shows how increasing the amounts of glucose in the *Candida* samples led to a proportional increase in the amount of ethanol (percentage BAC) quantified.

The more glucose that was added, the lower the absorbance readings, indicating a higher content of ethanol for each sample. An increase in percentage BAC shows that *Candida albicans* is capable of producing ethanol from glucose. By using this information, we are able to determine a quantitative relationship between glucose and ethanol production. This is an important fact regarding ethanol production, and it can be used for determining percentage BAC in blood samples, especially in those samples where blood contains excess levels of glucose, such as the blood of diabetic patients. This connection between glucose levels and

ethanol levels is especially important to consider in post-mortem samples in which high percentage BAC levels have been reported. A high percentage BAC can yield a false implication in toxicology and police reports.²

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About Our Contributors

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Celena Brock, a North Carolina native, graduated in May 2012, with a major in English and minors in Writing and Business Administration. While at Methodist, she also obtained the Professional Writing Certificate and served as the editor of *Tapestry*, the university's journal of creative writing. More recently, she taught writing at Methodist's Writing Center. This fall Ms. Brock entered the M.A. (English) program at N.C. State University in Raleigh, NC.

Julissa Corona is a psychology major with a concentration in clinical counseling. At the behest of the military, she and her husband moved to Fayetteville, NC. She transferred to Methodist as a sophomore and will graduate in December 2014. She plans to pursue a career in counseling.

Miranda Jade Friel is a junior majoring in English and plans to graduate in May 2016. She has presented research at the Methodist University CURC Symposium, the SNCURCS statewide research conference, and "Meeting in the Middle 8: Crises in Kingship," a highly competitive regional Medieval studies conference. She is the senior student editor of the *Monarch Review*.

Fedia Jean Claude is from Haiti and is currently working toward a double major in Business Administration and Marketing with a minor in Entrepreneurship. Ms. Jean Claude plans to graduate by May 2016. Her goal is to become the CEO or owner of a marketing firm or a product line.

Michele Jesus da Costa is a graphic design major from Brazil. She will graduate in May 2015 and hopes to become a professional photographer. She is always seeking ways to improve herself as an artist.

Filip Lazarevic, a native of Bosnia and Herzegovina, graduated in May 2014, majoring in Political Science with a concentration in International Relations and a minor in Psychology. Currently, he works at the International Organization for Migrations—Mission in Sarajevo. Mr. Lazarevic plans to continue his studies on the graduate level and to pursue a career in the not-for-profit sector.

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