IOWA STATE UNIVERSITY
Digital Repository

Graduate Theses and Dissertations

Iowa State University Capstones, Theses and Dissertations

2010

Humanizing the Humvee: Personification techniques and visual rhetoric as used in a U.S. Army technical comic book

Eugene Bradley Simmons
Iowa State University

Follow this and additional works at: https://lib.dr.iastate.edu/etd

Part of the English Language and Literature Commons, and the Rhetoric and Composition Commons

Recommended Citation
Simmons, Eugene Bradley, "Humanizing the Humvee: Personification techniques and visual rhetoric as used in a U.S. Army technical comic book" (2010). *Graduate Theses and Dissertations*. 11522.
https://lib.dr.iastate.edu/etd/11522

This Thesis is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Humanizing the Humvee: Personification techniques and visual rhetoric as used in a U.S. Army technical comic book

by

Eugene Bradley Simmons

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Major: Rhetoric, Composition and Professional Communication

Program of Study Committee:
David Roberts, Major Professor
John Hagge
Charles Kostelnick
Susan Yager

Iowa State University

Ames, Iowa

2010

Copyright © Eugene Bradley Simmons, 2010. All rights reserved

TABLE OF CONTENTS

ABSTRACT	iii
I. OVERVIEW OF PS, the Preventive Maintenance Monthly	1
II. USE OF PERSONIFICATION WITHIN PS	11
III. HUMAN CHARACTERS WITHIN PS	12
IV. INCORPOREAL CHARACTERS WITHIN PS	29
V. MACHINE CHARACTERS IN PS	33
VI. ANTHROPOMORPHISM	43
VII. WHY ARE MORE PS MACHINES TALKING TO READERS?	49
VIII. IMPLICATIONS	61
IX. DIRECTIONS FOR FUTURE RESEARCH	68
BIBLIOGRAPHY	70
ACKNOWLEDGEMENTS	74
BIOGRAPHY	75

ABSTRACT

Since 1951, the U.S. Army has published PS, the Preventive Maintenance Monthly, a magazine that teaches soldiers to maintain field equipment. Rhetorical strategies used by PS's writers and artists have varied at times: First, they used exemplum, a moralized tale with a character named Joe Dope. After the Army disapproved of Joe Dope, PS abounded with depictions of scantily-clad females to gain soldiers' attention. When such depictions of women became objectionable in the 1980s, writers added more anthropomorphized machines. To analyze the increasing prominence of anthropomorphized machines within PS, I randomly chose 28 issues, tallied their numbers, and found that their frequency has been increasing. I offer reasons why people anthropomorphize machines. I conclude that anthropomorphizing machines is a way PS writers create reader solidarity, and I speculate that such anthropomorphized depictions of machines may even become more numerous, as the military becomes more dependent upon computers and robotics.

I. OVERVIEW OF PS, the Preventive Maintenance Monthly

Today, eight years after the events of Sept. 11, 2001, the United States military remains at war in Iraq and in the Afghanistan-Pakistan theatres. The U.S. military employs increasingly sophisticated technology in its attempts to combat terrorism, and thus it faces the task of communicating the maintenance of that technology to soldiers, a widely diverse audience. One means through which the U.S. Army communicates such highly technical information is PS, the Preventive Maintenance Monthly, a magazine in comic book format that teaches soldiers how to maintain the equipment they use in the field.

The writers and editors of PS, the Preventive Maintenance Monthly (hereafter referred to as PS) employ various human, incorporeal and machine characters as well as personification devices to communicate the importance of preventive maintenance. A study of these characterization and personification techniques is of particular interest to scholars of visual rhetoric in technical communication. The techniques the US military employs to communicate the challenges of maintaining ever more sophisticated technology could prove useful to technical communicators in civilian industries as well.

A. Approach

To get a thorough understanding of the visual rhetoric techniques used in PS, I collected 80 issues, dating from 1964 to the present. Primarily, I looked at issues published in the 1990s and in this decade, which I collected with the help of Stuart Henderson, a civilian who serves as the production manager of the magazine. I purchased others from the 1960s through the 1980s on eBay. I also glanced at a few issues that are part of an extensive digital collection maintained by Virginia

Commonwealth Library.[1] After studying these magazines, I undertook a phone interview with Henderson, in which he described the history of the magazine and its production process, which I describe in the next section.

B. History of PS

The purpose of PS is to help soldiers maintain equipment currently used to shoot, move, and communicate in the field. The magazine has two mottos: "We have the best equipment in the field–take care of it!" and "Would you stake your life right now on the condition of your equipment?" Its name comes from the fact that it was originally a "postscript" to technical bulletins the Army sent regarding equipment maintenance. As envisioned by its authors, the audience for PS is primarily those U.S. Army soldiers tasked with the supply, support and maintenance of military equipment–primarily those in the enlisted ranks and noncommissioned officers. Because of the diverse nature of the reading audience, the writers aim the magazine's content primarily at an eighth-grade level, an approach similar to newspapers. "If a two-syllable word will work, we'll use that rather than a four-syllable word," Henderson said. Also, because of the diverse nature of the US military, the authors take care that soldiers depicted in the magazine reflect the current racial and ethnic diversity of the U.S. Army. However, Henderson added, "this is a very inexact science."

PS has been published continually since 1951. Its origins stretch back before then, to World War II. During that war, artist Will Eisner, who was famous for a newspaper comic strip called The Spirit, was drafted into the Army, and was the primary artist and writer for Army Motors, a magazine that focused on vehicle maintenance. Army Motors was discontinued after World War II. When the Korean War broke out in 1950, the Army found that its soldiers were unprepared to effectively maintain equipment needed for that conflict. So the Army signed a contract for a new magazine with

[1] http://dig.library.vcu.edu/cdm4/index_psm.php?CISOROOT=/psm

Eisner, who had since returned to civilian life. Eisner started PS and his company, American Visuals, oversaw its production for twenty years. Throughout his career, Eisner championed comics as an effective means of communicating technical information. He wrote: "A purely 'technical' comic, in which the procedure to be learned is shown from the reader's point of view, gives instruction in procedures, process, and task performance generally associated with such things as assemblies of devices or their repair. The performance of such tasks are [sic], in themselves, sequential in nature and the success of this art form as a teaching tool lies in the fact that the reader can easily relate to the experience demonstrated" (Eisner, 144).

Eisner continued ownership of PS until 1971, when he sold his interest in the magazine and turned his attention to creating what are now popularly termed graphic novels. Since that time, several contractors have produced the magazine; since 2001 it has been produced by Tell-A-Graphics, whose artist and owner, Joe Kubert, a former student of Eisner's, is famous for having drawn several DC comic books, including Hawkman, Sgt. Rock and Tarzan.

C. Production and Distribution of PS

Currently, PS is overseen by the U.S. Army Materiel Command (AMC) and is produced at Redstone Arsenal in Huntsville, Alabama. Considered an official technical bulletin of the U.S. Army (series number is TB-43-PS), it has a staff of nine writers, two editors and a production manager. Each writer has a specialty, such as small arms, logistics, or troop support. Most—but not all—staff have prior military experience, and several have journalism degrees.

Story ideas for the magazine come from four sources:

- **Writers' in-field interviews.** The writers spend time talking with soldiers who use the equipment in the field.
- **Readers Service Program.** Since the magazine's inception, PS offers a Readers Service Program, in which soldiers write in with questions, concerns or suggestions regarding how to maintain equipment. PS has always ensured that those making these inquiries or suggestions remain anonymous unless they ask to be identified. "It's always been a voice for the soldier," Henderson explained. The magazine's writers take time to answer each inquiry, and maintain a database of readers' questions. Most reader questions are answered within 15 days. The answers are coordinated with and approved by the command, activity or agency responsible for the equipment, publication, program or policy (Henderson). It averages 3,000 requests during a typical year. When trends are spotted, such as a number of soldiers asking the same question, this generates content for the magazine.
- **U.S. Army Agencies' Requests.** The organization that oversees PS, AMC, includes a number of agencies charged with maintenance of vehicles, tanks, missiles, helicopters, and chemical equipment. All these agencies may request stories in PS.
- **Current Events.** Since Sept. 11, 2001, the magazine has written more articles on maintaining equipment used in Iraq and the Afghanistan-Pakistan theatres. The magazine has covered such recurring topics as the effects of heat and sand on helicopters and the need to oil equipment (Henderson interview).

Once story ideas are generated, they are assigned to writers. The writers and editors schedule an initial consultation and prepare art references for the stories. The writers then compose their initial copy. This first draft is reviewed in a corrected copy proof session, which Henderson also describes as the "murder board" session. In this review, changes are made for grammatical errors such as

subject-verb agreement and keeping the language simple, although Henderson noted that “you can get a little technical, because the soldiers are going to know what you’re talking about.”

After this review, Henderson sends the corrected copy to Kubert’s artists at Tell-A-Graphics, who draw a pencil proof. This proof is returned to Redstone for a review, and after changes are suggested they send an inked proof. The final stage is the color proof. This entire production process is outlined in Fig. 1 below.

Fig 1: PS Production Process

Upon production, the magazine is distributed both in paper format and on the Internet.[2] Its distribution as of January 2009 was 61,400 copies (Fitzgerald, 35). However, its actual readership may be higher, Henderson noted, because each magazine gets passed around. "People leave them lying around in the coffee table in a break room, or in the restroom, or it might get tacked up on the wall of somebody's cubicle," he said. Because of this informal distribution, he estimated that each issue is actually viewed by seven or eight people. "They get a lot of usage," Henderson said.

D. Content Within PS

Since its inception, the magazine has been produced in a 5" X 7" format to fit within the pockets of a soldier's battle dress uniform. Each issue of PS has two components: The most colorful and prominent is the "continuity" – an eight-page, four-color, center signature that has been a key element of PS's format since February 1954 (Fitzgerald, 39). For an example, see Fig. 2.

Fig 2: Example of Continuity, Aug. 2008

The function of the continuity is primarily entertainment, as it "gets the soldier's attention to pick up the book," Henderson explained. Its message is always the same:

---

[2] Its official website is https://www.logsa.army.mil/psmag/pshome.cfm

What will happen if someone did—or did not—perform proper equipment maintenance? "It can be frustrating for writers to have to tell the same story over and over, but you have to address it," Henderson said. So to keep this message interesting, the authors draw upon a large repertoire of stories or themes within the popular culture that they assume their audience will recognize. A brief survey of PSs produced during the past 14 years yields four types of themes:

- **Popular Culture:** It's a Wonderful Life (December 1998), Godzilla (May 1999), Star Trek (April 2002).
- **Historic:** Prehistoric Cavemen (May 1994), George Washington at Valley Forge (February 2001), The Hundred Years War (May 2001), Old West (April 2003), Pirates (March 2004).
- **Mass Media:** Who Wants to be a Millionaire? (October 2001), Steve Irwin's The Crocodile Hunter (June 2004).
- **Literary:** Robert W. Service's poem The Cremation of Sam McGee (November 2007), Sherlock Holmes (October 2006).

Keeping up with shifts in popular culture can sometimes lead to interesting discussions as to which allusions will be understandable to the magazine's audience, Henderson said. "We're always trying to stay current, but most of us are in our 50s, and the soldiers who may read our magazine may be about 24," he said. "So one time, we were going to do a story based on Leave it to Beaver and we had to ask ourselves: 'Will the average 25-year-old know who Leave it to Beaver is?'"

The tone of the continuity is didactic, and I argue that it belongs within the genre of exemplum. An exemplum was a type of story used in sermons during the Middle Ages, and reached the height of popularity during the 13th century. The definitions of exemplum vary, but this one sums up this genre succinctly: "A moralized tale predominant in the Middle Ages when authors made use of tales,

anecdotes and incidents, both fictitious and real, to present morals or illustrate doctrines" (Lambdin, 2000). One author counts exemplum among types of allegory, including parable, fable and beast epic (Holman, 11).

A more critical definition of exemplum describes it as "a narrative enactment of cultural authority. It establishes a form of authority, enjoining its audience to heed its lesson, and to govern their actions accordingly" (Scanlon, 33-34). In some ways, Scanlon's definition is the one more applicable to PS, as it assumes a process of identification on the part of its audience. (Scanlon, 35). In other words, it "expects the (members of its audience) to put themselves in the position of its protagonists, to emulate the protagonist's moral success or avoid his or her moral failure" (Scanlon, 35). Both the medieval sermon and PS assume a didactic tone, but to different ends. Instead of preaching salvation, the continuity preaches safety and the preservation of unit camaraderie in which its members take responsibility for each others' safety. Both champion doctrines; the authors at PS communicate current U.S. Army equipment maintenance doctrines. The authors use stories within the comics to entertain readers while imparting a didactic and moralizing message and clearly establishing an authoritative stance with the readers.

For example, in Fig. 3, a cover from the July 1989 issue of PS, two Army tank drivers are shown escaping from a burning tank. One asks the other: “Did you report that fuel leak and cable cut?” To which his partner can only reply: “I meant to do it yesterday!”

Fig 3: July 1989 PS

The narrative techniques used in the continuity are in some sense used to entertain the audience, just as the medieval preachers used exemplum for the same purpose. As Scanlon argues, “The exemplum’s status as narrative gave it an ideological power doctrine often lacked” (31).

In addition to the continuity, the other component in PS is the brief two-color stories that are shorter and more numerous throughout each issue. These usually present more specified, technical information. In these informative pieces, a single functional “spot” color is used to visually highlight noteworthy information. An example is shown in Fig. 4.

Fig 4: Example of Two-Color Story

These functional colors can change from month to month, sometimes depending upon the season of the year. For instance,

the traditional Halloween color, orange, may be used during October, and green during December, the Christmas season. In November, blue is usually used since this is the time of year when articles start mentioning cold-weather maintenance problems. Henderson explained that the tradition of the two-color stories dated back to when PS was started, when using only two colors saved the Army “a lot” of money. And although the continuity may be the most eye-catching part of the magazine, the two-color pieces are the most informative. “In truth, the colorful front covers and continuities are there to attract the readers. It's in the 2-color pages that the soldiers will find the nuts-and-bolts stories that they really find helpful” (Henderson interview).

II. USE OF PERSONIFICATION WITHIN PS

To analyze how the writers and artists of PS employ various human, incorporeal and machine characters to sell the importance of equipment maintenance, it is useful to first examine their use of personification, which I define broadly as a figure of speech that endows animals, ideas, abstractions and inanimate objects with human form (Holman, 353). The authors who employ personification, such as used in allegorical literature or other genres, do so for explicit rhetorical purposes. "When most explicit [personification] becomes a sledgehammer in the hands of the writer, making resoundingly evident what cannot possibly be mistaken," writes poet and playwright Edwin Honig (116). As we will see, the authors of PS use personification techniques in a non-nuanced fashion. James Paxson defines several types of personification, three of which apply to PS:

- **Prosopopeia—**the translation of any non-human quantity into a sentient human capable with a voice and face and possessing thought and language.
- **Substantialization—**the figural translation of any non-corporeal entity into a physical, corporeal one.
- **Anthropomorphism—**the figural translation of any non-human quantity into a character that has human form.

In the subsequent discussion of characterization techniques used in PS, I differentiate among human, incorporeal and machine characters. Each is examined in its own section.

III. HUMAN CHARACTERS WITHIN PS

The creator of PS, Will Eisner, and the artists and authors who have followed him have used prosopopeic names to create "stock" characters, in the same manner as Bunyan or Dickens. The names of these characters describe either their military specialty or a personality characteristic.

Fig 5: Joe Dope, as shown in Army Motors

In the precursor to PS, the World War II-era publication Army Motors, Eisner created Joe Dope and Private Fosgnoff, two incompetent soldiers whose antics were similar to Sad Sack. (See Fig. 5 for an example of Joe Dope). Later, in 1957, these characters were dropped from PS at the insistence of the Army, which said that these characters were giving soldiers a bad image.

Two other personified characters in PS included Connie Rodd, who is described as "a by-the-book Army Corporal designed in the likeness of Lauren Bacall; and Sergeant-Major Half-Mast McCanick, who originally was an incompetent mechanic. (Steward, 34).

Other characters were added through the years (see Fig. 6). Percy the Skunk demonstrated how to handle gas masks effectively, and Sergeant First Class Macon Sparks handled demolitions. Two other characters, Sergeant "Windy" Winsock and Sergeant Benjamin "Rotor" Blade, discussed care and maintenance of helicopters, and Sergeant Bull Dozer demonstrated proper care of construction

equipment. Half-Mast became a voice for proper equipment care, transformed, in Henderson's words, into a "granite jawed font of wisdom" (Henderson interview).

Almost all these names embody both characters in an ongoing story — Half-Mast is in virtually every issue—as well as recurring concepts within the issues of PS.

Fig. 6 Minor characters used through the years in PS.

The usage of these characters' names is best described by Maureen Quilligan, professor of Renaissance Literature at Duke University, who writes, "Personification allegory relies on the reification of language itself, a process which involves the animation of nouns and the close scrutiny of the 'things' embedded within words by etymology and puns." (116). To use one example, Macon Sparks is a pun for "Making Sparks," which is generally a bad thing to do around demolitions. Percy the Skunk is a visual pun for smelly gas. But there are etymological puns within the names as well. Connie Rodd is a pun on "conning rod," a shorthand term for connecting rod (in addition to having some Freudian undertones). Fosgnoff derives at least in part from "gnoff," which according to the Oxford English Dictionary is an obsolete word for a "churl, boor or lout." And Macon Sparks was originally conceived as a character who would appeal to women soldiers, Henderson said.

Even in issues from recent years, the authors of PS have continued to invent new prosopopeic characters. In Fig. 7, Private Slipshod J. Clingerman explains that he likes to do things the easy way.

Fig 7: Pvt. Slipshod J. Clingerman (September 1998)

A. Portrayal of Women within PS

Aside from the dropping of Joe Dope, the biggest change among the characters depicted in PS has taken place with the females in the magazine. From PS's inception in 1951 until the early 1980s, curvaceous, leggy women were a mainstay within the magazine. Their depiction was used to gain the soldiers' attention in the era when the Army was practically all-male. Steward described this as a "rhetoric of seduction" (Steward, 88). The artists called the scantily-clad women "cheesecake." For two examples of what they were referring to, see Figs. 8 and 9. Murphy Anderson, a former lead artist for PS, admitted as much: "And you'll pardon the expression, but the buxom girls were part of the way to get the G.I.'s attention" (Anderson).

Fig 8 - PS Front Cover – 1964

But changes in the depiction of females started to take place in the 1970s. To reflect the Army's ethnic diversity, an African-American version of Connie, named Bonnie, was added. (In a similar effort toward ethnic inclusion, in the 1990s the PS writers introduced a Hispanic character named Pablo Hablo, but he was dropped after a Hispanic soldier objected to the name) (Fitzgerald, 88).

Yet even as women began to join the military in larger numbers in the 1970s, PS continued to depict women in scanty outfits. As Paul Fitzgerald, the magazine's first managing editor, wrote, "it seemed to me that in the 1970s something just kicked loose or a wire came undone or something, because there were navels and sky-high hemlines and halter-type sundresses that had never been seen in PS before" (Fitzgerald, 180).

Fig. 9: PS Continuity, February 1975

This style of depiction of women in PS dramatically changed about 1980. As Anderson recalled, "But of course, during my tenure (1973-83) it became very controversial. Not because of my drawing, but because of the culture changes in our society, the feminism and so forth. The lady soldiers starting getting a little upset about it, and they complained" (Anderson).

In 1980, then-Senator William Proxmire and U.S. Representative Bella Abzug believed that the provocative images of women were insulting and insensitive to female officers and held Congressional hearings into PS (Steward, 88). At the conclusion of these hearings, "An agreement was negotiated, staffing and production budgets suffered cuts, and the matter was closed with a traditional admonishment: 'Go and sin no more'" (Fitzgerald, 80).

By the 1980s, "We had to completely clean up our ladies," Henderson said. "No more sexual innuendoes, no more bikinis, no more women standing in untoward positions." Today, Bonnie and Connie remain in PS, but they are now fully-clothed, no-nonsense professionals. As Steward notes, "Connie provides maintenance expertise and technical guidance in a nurturing and caring manner" (Steward, 88).

Fig. 10: PS Cover, February 1986

Today, the writers and artists at PS take care to portray a gender-balanced Army–in those occupations in which females make up a proportion of soldiers. (For an example, see Fig. 10.)

For combat-related professions, females are still rarely shown in the magazine because they are not allowed to serve in those occupations, Henderson said.

B. Specific Uses for Human Characters within PS

Even with the removal of "cheesecake" depictions of females from PS, the magazine's writers and artists still use human and machine characters to attract readers' attention to their message of preventive equipment maintenance. In the case of human characters, they use gaze and distance to communicate either a *phatic* or *referential* message. I define these terms more specifically in the discussion of discourse functions in the next section.

C. Discourse Functions in PS

During a 1958 interdisciplinary conference on style at Indiana University, linguist Roman Jakobson delineated elements in the process of communication. These elements, which were described in the 1960 work Style in Language, have subsequently been cited in numerous texts (Johnstone, 254-55). Similarly to other theorists of the day, Jakobson envisioned that each communicative act had an addresser and an addressee. Each act had one primary function, of which Jakobson described four:

- **Phatic**, an attempt to create contact. Phatic discourse can be *connotative*, which is oriented toward the addressee, or *denotative*, which is oriented toward the referent (Sebeok, 353-55).
- **Poetic**, which focuses on the look, sound and structure of the discourse itself
- **Referential**, which focuses on the exchange of information – including self-expressive discourse focused on the addresser; and rhetorical discourse, which is focused on the addressee
- **Metalingual**, which has to do with questions about the meaning or interpretation of words.

I have displayed these terms visually in Fig. 11:

Fig. 11: Jakobson Addresser-Addressee Terminology (Johnstone, 255).

Within PS, discourse strategies tend to begin with phatic discourse designed to gain the reader's attention, and then these visuals shift to referential discourse to include more complex technical information. I will detail how this takes place later in this paper.

1. Phatic Discourse in PS

In applying of these linguistic theories to PS, it is useful to apply Jakobson's addresser-addressee distinction first. The authors and artists of PS must initially faced gain the reader's attention, and also convince them that a risk is real and its mitigation can be gained only through proper equipment maintenance. Thus, they first seek to establish contact through phatic discourse. As the term is defined by linguists, phatic discourse could include routine greetings in the hallway or literal attempts to establish or check contact, such as requests to repeat information over the phone (Johnstone, 254-55). An example of this type of phatic discourse used in PS can be seen in Fig. 12:

Fig. 12: MSGT. Half-Mast, from Dec. 2007 issue of PS

In this illustration, the artists and writers used two strategies to establish phatic discourse: gaze and the use of a "you-perspective" in the text. I will define and elaborate on these in following subsections.

2. Establishing contact through gaze

One way artists can establish phatic contact is through the use of a human figure who looks directly at the viewer. Two visual communication theorists, Gunther Kress and Theo Van Leeuwen, explain that vectors form between the eyes of the illustrated figure and the human viewer. These vectors between human and illustrated eyes then evoke three emotive cues on the part of the viewer: They create a visual form of direct address; they acknowledge the viewers explicitly, addressing them with a visual "you"; and they demand that viewers enter into some kind of imaginary relationship with the illustrated figure (Kress, 122). Gaze, which establishes phatic contact and evokes an emotional reaction, has been used by artists since at least since the Renaissance. Kress and Van Leeuwen give the example of Man with a Red Turban, painted by Jan Van Eyck in 1433 (see Fig. 13).

Fig 13:Man With a Red Turban, Kress, 125

For a more recent example of gaze successfully used in an illustration, (and a direct antecedent for PS), Kress and Van Leeuwen cite the often-copied 1914 British World War I recruitment poster, created by Alfred Leete (see Fig. 14).

Fig 14: 1914 British WWI Recruitment Poster, Kress, 123

With this brief historical overview of gaze in mind, let us return to the previously-viewed picture of Master Sergeant Half-Mast and his warning about High Mobility Artillery Rockets:

Fig 12 - MSGT. Half-Mast, from Dec. 2007 issue of PS

Whether it was an explicit or implicit choice on the part of the artist, Half-Mast's pose is very similar to the recruiting officer's pose in the WWI poster (as well as the "I Want You" Uncle Sam poster that it inspired). In addition to the direct eye gaze, Half-Mast also establishes phatic contact by pointing at the viewer. The second person "you" is indicated visually with his index finger.

3. Establishing Contact through You-Perspective

In the example shown in Fig. 12, the authors at PS also sought to establish phatic contact through text written from the "you-perspective." This term, frequently used in business communication textbooks, has a generally agreed-upon definition as "an attitude which views the situation from the reader's point of view." The you-perspective emphasizes the benefits of the writer's action to the reader, and can be either a directive (demand) or a commissive (offer) (Campbell, 189-90).

The idea behind using the "you-attitude" is to have the author view a situation from a reader's imagined perspective. As Technical Communications author Lilita Rodman explains:
"…you-attitude requests writers first to view a real-world situation from the reader's perspective and then to show in the text of the document a sensitivity to the reader's perspective"
(Rodman, 11).

Let's examine how this "you-perspective" is employed by MSGT. Half-Mast:

"PM can keep **your** HIMARS (High Mobility Artillery Rocket System) rolling and shooting."

"(**You should**) High five HIMARS with this PM…"

In the first utterance, a second-person perspective is made explicit with the use of the word *your*. In the second utterance, which begins with the alliterative suggestion to "High five HIMARS," the "you should" is implicit; I added it in the above statement to make it explicit for our purposes. The use of the term "PM" would be understood by all regular readers of the magazine to stand for Preventive Maintenance. The use of the slang "High five" serves both to add an informal tone to the utterance and to soften its didactic tone; and the alliteration may be intended to serve as a useful mnemonic device. Although the stern figure of Half-Mast's "demand" may not at first glance appear to be

"sensitive" to the reader's perspective, the authors recognize that it is in the reader's best interest to keep their HIMARS equipment functional, and thus the implied benefit is just that.

4. Establishing Contact through Social Distance

In addition to the use of gaze and "you-perspective," the artists and authors at PS establish contact through phatic discourse by a character's personal or social distance (such as Half-Mast). In illustrations—and for that matter all visuals in which human beings are shown—the social distance of the figure is an artist's choice that is meant to evoke an emotional reaction. How much of the figure is shown affects our subconscious reaction to the illustration.

As explained by Kress and Van Leeuwen, everyday social relations determine the distance we keep from each other. Close personal distance is the distance within which people can hold or grasp each other. (In illustrations of this sort, we see the head or face only). Non-intimates cannot come this close; if they do, people tend to interpret this as an act of aggression. By contrast, far social distance (more than arms' length) is where impersonal business occurs (Kress, 130-33).

In Fig. 15, the head shot of MSGT. Half-Mast is a phatic attempt to visually bring the reader's attention to a problem:

Fig. 15: Cable Keepers, shown from June 1999 issue of PS

In the "Cable Keepers" example, Half-Mast is shown from the neck up, and is the only person on the page gazing at the viewer. He employs a "you-perspective" by advising the reader to "Save yourself some headaches by following these hoist cable rules." The black background behind Half-Mast draws a stark contrast between it and the grays, gold and dark green colors on the rest of the page. His imposing figure is meant to gain the reader's attention, which then presumably would see the other two figures who illustrate a problem. The more technical, referential information regarding the hoist cable rules is explained in the text beneath.

Perhaps a starker example of how artists at PS use social distance to establish contact is the Groundhog, an unusual character who popped up in the February 2008 issue to admonish two soldiers to keep adequate vehicle records (see Fig. 16).

Fig. 16: Groundhog from Feb. 2008 issue of PS

In this sequence of panels, the Groundhog is first shown from the neck up, and then the viewer is progressively taken in tighter, into a more personal social distance. It is ambiguous whether this close personal distance is meant to be interpreted by the viewer as intimate, or an act of aggression. Perhaps it is a little of both! Clearly, the groundhog is meant as a slightly more cuddly version of MSGT. Half-Mast, as his rounded, wire-rimmed glasses attest.

5. Varying Phatic Discourse through Characterization

Of the original PS characters, Half-Mast has withstood the test of time and appears in every issue. His appearance usually signals a stern message about practicing proper preventive maintenance. The example in Fig. 17 is one of the more ominous warnings he has given in recent issues:

Fig. 17: Handling Misfires Safely: PS, December 2002

Here, Half-Mast warns the reader that "Three soldiers lost their lives in 2002 handling misfires on the M120/M121 Mortar and another lost a hand." His eyes gaze directly at the reader, while his finger points to an example of soldiers loading the mortar. He wears his combat helmet, and his appearance shows that he is all business.

By contrast, female characters are often used to communicate highly technical, referential information. Occasionally, they are sometimes used in a more phatic role, as shown in Fig. 18.

Fig 18: Bonnie, as shown in March 2004 issue of <u>PS</u>

In this illustration, Bonnie, the African-American female character, is shown in a head shot that gazes directly at the viewer and initiates phatic discourse with a direct "you-attitude" appeal:

"NBC[3] NCOs,[4] listen up!/ This information **Deserves** to be on your PM list for taking care of your Joint Service Lightweight Integrated Suit Technology (JSLIST) clothing./So read and heed."

Bonnie's long index finger then points to a paragraph of highly technical, referential information regarding TMs (technical manuals). Her tone is just as authoritarian as Half-Mast's.

By contrast, in Fig. 19, Bonnie appears again, this time with a highly technical and referential question. She again uses second-person "you-perspective" speech. But her tone is not one of admonishment. Instead, the chalkboard behind her, the piece of chalk she is holding in her hand, and the pictures of what appear to be presidents on the wall behind her evoke the role of a schoolteacher.

[3] Nuclear, Biological and Chemical Warfare
[4] Noncomissioned Officers

With her open body position, her smile, and a farther, less intimate social distance (waist-up) the difficulty of her question is balanced with a warm, more open style of visual discourse.

Fig. 19: Bonnie, shown in April 2003 PS

In summary then, when the authors and artists at PS include human characters in the magazine, the characters represent deliberate rhetorical choices. When they want to communicate an authoritative message that may imply the risk of danger, Half-Mast delivers the message. But when they want to communicate either a highly technical or gentler message, they may use female characters—who today are represented as professionals, instead of sexy or suggestive figures.

IV. INCORPOREAL CHARACTERS WITHIN PS

The authors of PS are sometimes challenged to describe and portray conceptual threats to equipment that are not easily visualized. To show these, they invent substantialized characters that visually embody these hazards.[1] One of the best examples of this technique can be found in the November 1979 issue. In the "Joe's Dope" feature of that issue (in which the aforementioned character is noticeably missing), the first

Fig. 20: Abuse, Negligence and Carelessness

Fig. 21: Connie Rodd Defeats the Three Demons

pane opens in a Transylvania-like scene beneath a moonlit castle (see Fig. 20). Three figures shown in three coffins decide to "move out." These three figures are Abuse, Negligence and Carelessness, which appear as green winged demons. In the next panels, the three demons describe numerous ways in which they make soldiers mistreat equipment. However, the three are defeated by Connie Rodd, clad in the guise of a wizard and wielding the letters "PM" or Preventive Maintenance (see Fig 21).

[1] Paxson also calls substantialization by two other names: Materialization and hypostatization.

A. Substantialization as used in PS

The authors at PS continue to invent new ways of visualizing and substantializing abstract but very real threats to equipment. In the December 1998 issue, an M-109 Howitzer, which itself is a personification, bemoans that he is at the mercy of "Corrosion Creeps," greyish globular two-legged monsters with large teeth, pointy eyebrows and a yellow "C" imprinted on their foreheads (see Fig. 22). They leap upon the Howitzer, and inform him that they "love to snack on your LED contacts." This is a highly clever means of visually presenting a problem—LED contact corrosion—that probably occurs over a long period of time and does not take place in as dramatic a fashion as the picture might suggest.[2]

Fig. 22: Corrosion Creeps attack Howitzer gun (December 1998)

The authors and artists at PS sometimes demonstrate great ingenuity and humor by using substantialization in visual puns that communicate a problem or issue that is not easily described. One example can be found in the July 2008 issue, in which a soldier bemoans the difficulty of spot painting. He is given tips in spot painting by Spot, the dog, a corporeal

[2] The hapless Howitzer in the picture above demonstrates what is perhaps the most frequent personification technique used in PS—the anthropomorphism of military equipment. A survey of the PS issues over the past three decades shows that each issue abounds with talking equipment. How this occurs and the reasoning behind it I discuss later in this thesis.

canine who represents an incorporeal task. Spot tells the soldier about a new paint that can make his job easier (see Fig. 23).

Fig. 23: Spot Painting (July 2008)

Fig. 24: Loose Shield (January 2009)

In summary, the authors and artists at PS are challenged to visually present threats to equipment that cannot be seen by soldiers. Often, these threats are from the elements, such as extreme cold during winter, or sand in the deserts of Iraq (see Fig. 24). Or they may be threats that are apparent only over

time, such as water erosion or rust, as shown in Fig. 22. By creating incorporeal characters who live to destroy equipment, these authors and artists effectively communicate the importance of guarding against unseen threats to equipment.

V. MACHINE CHARACTERS IN PS

The depiction of machines in PS is more complex than that of humans or incorporeal hazards. This is because machines are shown throughout the magazine, and there are several reasons for their inclusion. Put simply, some machines are drawn with accurate mechanical detail, while others are shown as sentient, talking characters. The reasons for these varying depictions have to do with the rhetorical contexts in which they are presented. To classify these different contexts, I must first discuss modality, a topic that touches upon the nature of discourse, semiotics and visual rhetoric.

A. Modality as Used in PS

The topic of modality is discussed at length in Gunther Kress and Theo van Leeuwen's work, The Grammar of Visual Design (1996) and further elucidated by Ron Scollon in Discourses in Place (2003). As explained by Kress and Van Leeuwen, the notion of modality (as used in linguistics) refers to the truth value or credibility of statements about the world (Scollon, 160). Transferred to visual analysis, modality refers to the truthfulness or reliability of a graphic element. Such a notion is dependent upon culturally-specific visual conventions, or "coding practices" (Scollon, 91). Modality can be split into two different values: *Ideal* and *Real*. The *ideal* is the "generalized essence of the information," and hence its most salient part (Kress and Van Leeuwen, 194-95). By contrast, the *real* presents details, practical or "down-to-Earth" information. Within the context of western art, *ideal* visuals are shown at the top, and *real* visuals are shown at the bottom; while "given" information is shown at the left of the visual and "new" information is shown at right (Scollon, 91).

This dichotomy between "real" and "ideal" is put forward in a visual by Kress and Van Leeuwen and re-envisioned by Scollon (see Fig. 24).

Fig. 24: Modality Diagram (Scollon, 91 – originally taken from Kress & Van Leeuwen)

An example of the top-bottom, ideal-real juxtaposition in western visual discourse is shown in the 1987 Fenjal advertisement analyzed by Kress and Van Leeuwen (see Fig. 25).

enjal advertisement (*Women's Weekly*, November 1987)

Fig. 25: Fenjal advertisement, Kress 184

In this example, the "ideal" picture of the woman at top is then balanced with the "real" picture of the Fenjal beauty products beneath.

Modality is determined by a series of modality markers. These include:

- color saturation,
- color differentiation,
- color modulation,
- contextualization,
- representation,
- depth,
- illumination and
- brightness.

Because PS is a comic book and thus relies upon the traditional four-color format used in comics, the first three modality markers—having to do with color—are not immediately applicable for our discussion purposes. However, two modality markers are of particular interest to readers of PS:

- *representation*, which Kress and Van Leeuwen define as "a scale running from maximum abstraction to maximum representation of visual detail"; and

- *depth*, defined as "a scale running from the absence of depth to a maximally deep perspective" (Kress and Van Leeuwen, 166-67).

Taken together, these modality markers can work together to create photorealism, which in western culture is judged as "real" (Kress and Van Leeuwen, 163).

Within PS, visuals are presented on a scale of modality, starting from *ideal* information, which often appears at the beginning of sequences; this is followed by *real* information. Examples will appear in a later discussion analyzing Fig. 29.

B. Iconicity vs. Indexicality

Kress and Van Leeuwen's *ideal-real* dichotomy in some sense is mirrored in Saussure's dichotomy of signifiers, in which he drew a distinction between symbols and icons (Saraceni, 438). In the essay "Seeing Beyond Language: When Words are Not Alone" (2001), Mario Saraceni takes issue with the dichotomy between icons and symbols, and instead sees the two terms on a scale. At the one end is the *symbolic*, which he describes as conventional, arbitrary and digital; while at the other end is the *iconic*, which is natural, motivated and analogical (Saraceni, 439).

Fig. 26: Symbolic vs. Iconic. Taken from Eisner, 15

To draw a distinction between the symbolic and the iconic, Saraceni reproduces an illustration done by Eisner himself (see Fig. 26). In this case, the scale shows, from left to right, the symbolic vs. the iconic. The Egyptian hieroglyph and Chinese pictograph, both shown at left, are the two most symbolic figures, while Eisner's two, more-detailed drawings at right represent the iconic.

C. Drawing Parallels Along the Visual Theories

This varied assortment of discourse theories, semiotic theories and visual theories can help us understand the graphics in PS, where patterns emerge. In several instances, our attention is first drawn to a phatic appeal to gain our attention. This phatic appeal is connotative, which is to say it is directed toward the addressee. It urges the readers' attention to a referent, which by definition is denotative. These phatic appeals are usually represented by an initial drawing that is symbolic—a conventional and *ideal* drawing of either a human being or a machine. Its purpose is to direct the reader's attention toward other drawings that are iconic—a naturalist drawing with a high level of modality or "realism." These referent iconic drawings always feature details of the military equipment (machines) that the intended audience must maintain.

If we take these theories and represent them side-by-side, we can get a sense of how they work together (see Fig. 27).

Fig. 27: Theoretical parallels as used in PS

Within PS the artists and writers use a symbolic representation of a human or machine (which itself represents an ideal) to refer to more technical discourse, often involving an iconic technical illustration employing a high degree of modality. This referential, denotative discourse is meant to invoke a sense of trust in the reader, and thus change the reader's behavior so that proper preventive maintenance procedures are followed.

D. Examples of Interplay between Modes

Let us return to MSGT. Half-Mast's dire warning, first shown in Fig. 11 and reproduced in Fig. 28. In this drawing, his index finger points to the unnamed soldiers loading the mortar. But the text accompanying him introduces procedures revised by the Tactical Command-Rock Island, Ill. Arsenal, and that are explained in Technical Manual TM 9-1015-250-10.

Fig. 28: <u>Handling Misfires Safely</u>: <u>PS</u>, December 2002

Beneath this phatic appeal are two more drawings that look very different from the cartoons that we have discussed up to this point. Instead, these more closely resemble technical illustrations (Fig. 29).

Fig 29: <u>Before You Go to the Field</u>, <u>PS</u>, December 2002

Half-Mast's warning, and the steely gaze that accompanied it, are meant to attract the viewer's attention to the two illustrations and technical discourse underneath. In contrast to the symbolic, ideal and phatic people and equipment shown in Fig. 28, the two technical-style drawings in Fig. 29 are referential and denotative. They are iconic, as they are shown in a naturalistic state. Their overall modality is meant to evoke a feeling of *real* more than the top illustration of Half-Mast. The magazine's artists evoke this naturalistic or *real* feeling through the use of the modality markers of scale and depth. Thus, these technical illustrations invoke a sense of "reality".

This type of sequence is repeated in many of the two-color stories within PS. The *ideal* figure at the top of the two-color sequences can be either a human or a machine. One example of a machine in the *ideal* role can be seen in the January 2009 issue, in which the cartoon version of an AH-64A/D Helicopter warns a pilot not to kick "his" cyclic stick when exiting the cockpit (see Fig. 30).

Fig 30: Don't Kick the Stick, PS, January 2009

In this example, the *ideal* figure of the talking helicopter is meant to evoke the reader's interest and eventually direct attention to the *real* illustration of the cyclic stick at the bottom of the page. The machine's "mouth," the curve of its wing, and the wire underneath its windshield all point to the drawing beneath.

Within PS, humans are always shown in a phatic role; but the rhetorical purposes that machines play can be either phatic or referential. As for the ideal/real dichotomy, humans always represent an ideal, while machines can be shown in either an *ideal* or *real* role. To give just one example, in Fig. 28 Half-Mast is himself an ideal—he is meant as a stand-in for any stern, ever-alert Noncommissioned Officer (NCO) who is motivated out of concern for the safety and welfare of those underneath his or her chain of command. Thus, in the same type of sequence as the Fenjal advertisement (in Fig. 25) shown earlier, this *ideal* figure of Half-Mast positioned at the top of the page is meant to direct our attention to the *real* technical illustrations at the bottom. Half-Mast, Connie, or Bonnie frequently represent *given* information, and also point the reader to the *new* information shown in the *real* drawing.

Fig 31: Pouch Sets to Fit Your Mission, PS, April 2008.

In Fig. 31, MSGT. Half-Mast "points" to the two more detailed drawings of the vests at right with the barrel of his weapon. Underneath, he points to the bulleted list of *new* information with his index finger. In both cases, the visual inclusion of his character serves the *phatic* role of gaining the readers' attention while the text that accompanies him is both referential and denotative.

In summary, the artists at PS choose an artistic style to suit their rhetorical purposes. If they wish to gain readers' attention, they may use an artistic style that is symbolic, ideal and phatic, and may include humans or machines. But when they wish to convey highly technical information about a specific machine, they may choose a style that is iconic, "real" and referential.

VI. ANTHROPOMORPHISM

For at least the past 20 years, each issue of PS has featured numerous pictures of military equipment with eyeballs and mouths, and which are capable of speech. Sometimes they show more personality than humans—their facial features show much more detail than some of the unnamed humans depicted in the magazine. In fact, talking machines serve as another "main character" within PS—equal in importance to Connie and Half-Mast. The talking machines are almost exclusively shown in the two-color stories—the continuity is saved for recurring characters such as Half-Mast, or it might feature a different human character who appears for only that issue. Because they are shown only in the two-color stories, the machines are not complex characters—they simply state the problem they want the humans to fix. Anthropomorphism is used to give voice to the individual tools used by soldiers, as well as to more complex vehicles and machines. Two examples of anthropomorphized tools appear in Fig. 32 and Fig. 33.

Fig 32: Sealant that allows no runs (Feb. 1986)

Fig. 33: Tools hanging on a tool shop wall (October 1986)

A survey of the PS issues over the past three decades shows that each issue abounds with talking equipment. In Fig. 32 a tube of sealant is shown in a baseball outfit stating proudly "I don't allow any

runs!" This type of visual pun is extended even further in Fig. 33, when rarely-used tools are left hanging on a tool shop wall, like prisoners in a cell. The tools appear beneath a written admonition explaining that they are never used or fail to do the job they were intended to do. One dejected tool says to another, "We're going to hang here forever," while the other responds: "They're never going to use us. We should be deleted."

Although hand-held tools are occasionally shown as anthropomorphized characters, anthropomorphism is most frequently used to depict vehicles and other large machines. These anthropomorphized machines complain of mistreatment, offer maintenance advice, and praise good policies or maintenance practices.

Fig. 34 is a good example of a machine bestowing praise. Here a faceless mechanic performs a transmission check on a giggling, happy-looking front-end loader. This picture is notable in that the mechanic actually serves as an auxiliary in the picture, while the smiling front-end loader itself is the character that shows the most personality.

Fig 34: Transmission Check

In contrast to the happy front-end loader, Fig. 35 below is a good example of a unhappy machine complaining of mistreatment. Here an M2/M3 Series Bradley Tank is enraged at two soldiers who forgot to boresight its launcher. Its crazy eyes and wide, pointy teeth indicate that it is meant as a phatic appeal, proving that machines as well as humans can engage in phatic discourse within PS. Although the tank's eyes point at the two fearful but largely featureless figures at right, the "you-attitude" language is directly aimed at the reader:

"*You* think I'm going to fire any TOW[1]'s?/*You* can **forget** that since you **forgot** to boresight my launcher"

For emphasis, the words "forget" and "forgot" are put in boldface as well.[2]

Fig. 35: Shortsighted Boresighting

[1] Tube-launched, Optically-tracked, Wire-guided missile.

[2] Jakobson would say that the Bradley's discourse is connotative—oriented toward the addressee, which in this case is both the tank crew and the reader.

A. Anthropomorphized Machines: An Increasing Occurrence

In the last decades of the 20th century, anthropomorphized, talking machines became ubiquitous characters in the magazine. They usually appear in the two-color stories. Particularly since the 1980s and 1990s, the machines are not simply voiceless characters—they talk with their human handlers. To analyze the increasing prominence of the machine characters within PS, I randomly chose 28 issues and tallied the number of anthropomorphized machines. The results are shown in Table 1. I used the following methods to tally these results:

- I analyzed issues between June 1951 and December 1971 by reviewing them on the Virginia Commonwealth University digital collections[3]. Issues between November 1974 and May 2009 were collected and reviewed off-line.
- Any personified characterization of items used by soldiers counted toward the tally. This included tools such as hammers or rifles, as well as machines such as Humvees.
- Substantialized characters such as "rust" or "corrosion" did not count toward the tally. I counted only machines or tools used by soldiers.
- Machines considered as "anthropomorphized" were those where the artist depicted them with a pair of eyes and/or a mouth.
- Each time an anthropomorphized machine was shown in a single panel, it counted as one instance. Thus if the same machine were shown in three panels, I counted this as three instances.
- Instances where the machine was symbolized by an animal or machine-animal hybrid such as the M274 "mechanical mule" carrier, which was shown in pictures as a mule, did not count toward the tally.
- Instances of speaking machines were those that included a balloon with speech. Interjectives such as "Aaagh!" also counted as legitimate instances of the machines' "speech."

[3] http://dig.library.vcu.edu/cdm4/index_psm.php?CISOROOT=/psm

Table 1: Number of Anthropomorphic and "Speaking" Machines

Issue/Date of Magazine	Number of anthrpm. machines	Number of "speaking" machines		Issue/Date of Magazine	Number of anthrpm. machines	Number of "speaking" machines
June 1951	0	0		December 1980	15	15
Issue 14 - 1953	8	0		August 1982	17	16
Issue 20 - 1954	0	0		August 1987	18	15
Issue 41 - 1956	6	0		August 1991	39	33
Issue 68 - 1958	13	1		May 1992	22	20
Issue 92 - 1960	10	0		May 1994	32	23
Issue 128 - 1963	15	9		October 1998	44	40
Issue 144 - 1964	11	9		September 2000	36	30
Issue 179 - 1967	25	4		April 2002	51	45
June 1970	18	7		June 2004	39	30
December 1971	23	12		February 2005	41	39
November 1974	26	11		November 2007	29	21
August 1975	21	15		December 2008	31	26
November 1979	24	21		May 2009	50	36

As can be seen in Table 1, anthropomorphized characters were rare in the 1950s. They began appearing more frequently in the 1960s, but rarely had speaking roles. They have been appearing in PS in greater numbers, and more of them are shown uttering statements.

VII. WHY ARE MORE PS MACHINES TALKING TO READERS?

There are several possible reasons why the number of anthropomorphized machines shown in PS has been increasing for the past 20 years. Some of these are simple and straightforward; others delve into theories of perception or technological change.

A. It's a Politically "Safe" Expression of Humor

Perhaps the simplest explanation for the increase in speaking machines has to do the way the magazine changed its sense of humor to suit a more politically sensitive environment. Stuart Henderson said that during the 1980s, when the magazine made changes in its depiction of women, the use of talking machines was one way the writers could still interject humor into PS without offending anyone. "There's no union of talking trucks that will be unhappy with us," Henderson said. "It was the perfect way to pick up the slack of adding some humor when we had to give up a different style of humor. Plus, the soldiers enjoy talking vehicles" (Henderson interview).

Of course, if Henderson's explanation is to be believed, then it still leaves one unanswered question: Why would soldiers enjoy talking vehicles? Perhaps because as the artists at PS searched for new ways to retain the interest of their readers, they eventually caught on to a very human impulse that tends to view machines as humans.

B. People Have Anthropomorphized Inanimate Objects for a Long Time

The impulse to anthropomorphize inanimate objects is much older than PS magazine. Car mechanics and drag racers call their cars "she" and sailors use feminine pronouns when describing their ships.

This tradition was most eloquently expressed by Capt. H.A.V. von Pflugk, who wrote a tract called "Tips on Practical Shiphandling" in the 1942 Merchant Marine Handbook:

> After you and your ship have become well acquainted, you may feel that you know all about her. You will be wrong! A ship is like a colt that will playfully nip you the minute your back is turned. She can always find a new trick in the bag that she hasn't pulled on you yet, and is only waiting for the psychological moment when you are not looking – so look! (von Pflugk, 225).

Not only sailors have noticed a common impulse for people to anthropomorphize machines; advertisers have effectively used this same human impulse to attract viewers to advertisements for consumer products.

Two examples of anthropomorphism in advertisements can be seen in Faces in the Clouds: A New Theory of Religion. In this work, philosopher of religion Stuart Elliot Guthrie shows two examples, reproduced in Fig. 36 and 37. In Fig. 36, one automatic coffee maker dispenses helpful advice to the other. The coffee makers' temperature gauges serve as their "mouths." In Fig. 37, the advertisement simply places the Bacardi Rum and Coca-Cola leaning next to each other, yet we perceive them as embracing like humans who can lean on each other in an intimate fashion. It took little work on the advertiser's part to imagine these two beverages in the guise of humans. The question then arises: Why are we predisposed to look at machines as if they were other humans?

Fig. 36: 1977 Mr. Automatic Advertisement

Fig. 37: 1977 Bacardi Advertisement

C. It's Human Nature, and We Can't Help It

Those who say it is human nature to anthropomorphize usually justify this assumption with one of two dichotomous lines of reasoning. The first reason sees anthropomorphism as a form of analogy: as we are always trying to understand our situation better, we use our imaginations to do so. Since we want some understanding of events around us, if we lack a scientific one, we fall back on one in which we are "familiarly acquainted" and "intimately conscious" (Guthrie, 70).

Perhaps humans (as emotional beings who interact with other humans in ways that require constant assessment of others' interior states) invest emotions, moods, and agencies in inanimate objects as a metaphorical strategy as a way to make sense of the world. That is the assertion—fully compatible with the anthropomorphism-as-analogy theory—made by Deborah Lupton and Greg Noble, two cultural studies professors who investigated dehumanizing strategies in PC usage (Lupton, 97).

Another view of anthropomorphism is the "confusion view," as described by Guthrie. This asserts that our view of the whole world is built into our sensory organization, and hence the only world we can imagine corresponds to our preoccupations. Thus all human cognition anthropomorphizes (Guthrie, 68). However, Guthrie takes issue with notions of anthropomorphism as something that is confused. He counters that anthropomorphism is a highly rational way of making sense of the world because it emphasizes what is important to human beings. And what is important to human beings is other human beings. Humans are the most complex and sometimes the most dangerous beings we encounter, so the tendency to anthropomorphize is hardly confused. Instead, it uses the same thought processes that we use in the rest of our daily lives: economizing, generalizing, ordering and system-building (Guthrie, 90).

In summarizing Guthrie's views, two researchers suggest that anthropomorphizing may be "seen as a cognitive and perceptual strategy akin to making a bet that the world is human-like: a bet that has more upside than downside risk" (Aggarwal and McGill, 469).

D. Cars Look Like Faces

One very simple reason that the artists in PS anthropomorphize machines is that the fronts of some vehicles appear very "face-like." Henderson said as much when he remarked, "I'll be behind a car, and I swear I'll see eyes in another car's headlights." [4] Indeed, a 2000 survey by Progressive Insurance showed that 32 percent of respondents named their cars (Luczak, Roetting and Schmidt, 1363). The notion that cars can appear to have faces is hardly new. In Fig. 38 below, is shown a picture from Push Pin Graphic, a design magazine from the 1970s. Next to it is a August 1974 issue of PS that had a 1920s theme. Clearly the two artists who created these had similar perceptions of automobiles has having human-like features. Given that the predecessor to PS, Army Motors, exclusively focused on vehicle maintenance issues, and that early issues of PS still devoted much content to vehicle maintenance, it would have been a rather small step for the artists to anthropomorphize other machines as well.

Fig. 38: Car grilles in Push Pin Graphic, 1979

Fig. 39: PS Cover, August 1974

[4] For a study on how consumers anthropomorphized pictures of a Lexus and a Ford Thunderbird, see Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products, by Aggarwal and McGill.

E. We Are Perceptually Predisposed, Through a Deep, Primal Impulse

Why are we are so quick to perceive two headlights as eyes, and a car grille as a nose and mouth? Some perceptual psychologists would say that humans have a disposition to perceive all external phenomena as having a human origin. Guthrie remarks that people frequently hear noises such as a door slamming on a windy day or a branch scraping against a window and attribute those noises to a human origin (Guthrie, 92). Car drivers can be particularly susceptible to these perceptual suppositions. A New York cab driver stated, "A couple of times I pulled up to a mailbox thinking it was a rider. It's happened to all of us" (Guthrie 91).

At the most basic level, people make such assumptions according to pre-formed phenomenological templates of various external stimulae. Guthrie quotes art theorist and perceptual psychologist Rudolf Arnheim as saying, "perception consists in fitting the stimulus material with templates" (Guthrie, 101). Guthrie continues, "Schemata are thus central to perception. They are not arbitrary but serve purposes and ends. They represent aspects of the world that are important to us, and serve as guides to action in that world" (Guthrie, 101).

From birth, the most basic schema we know is the human face. Art historian Ernst Gombrich asserts that this tendency is inborn: "We respond to particular readiness to certain configurations of biological significance for our survival. The recognition of the human face, on this argument, is not wholly learned. It is based on some kind of inborn disposition….Whenever anything remotely facelike enters our field of vision, we are alerted and respond" (Guthrie's elipses, 103; original source not available).

Thus, human beings are quick to perceive faces because the impulse to see visual phenomena is instinctual. Arnheim states that "a few simple lines and dots are readily accepted as 'a face,' not only

by civilized Westerners, who may be suspected of having agreed among one another on such 'sign language,' but also by babies, savages and animals" (Guthrie, 103). According to the perceptual theory, the artists at PS see cars as faces because their senses lead them to do so.

F. With the Advent of PCs, Technological Systems Are Increasing in Complexity

A technocentric explanation for the increase of anthropomorphic depictions of machines in PS is that soldiers may see as increasingly complex the increasing number of computers and types of interactions with computers in military environments; thus they may at times view that equipment in anthropomorphic terms. In both military and civilian environments, PCs have become increasingly sophisticated, as Moore's Law has demonstrated that computers are increasing in processing speed and memory capacity at exponential rates. The U.S. Army openly acknowledges its dependence upon computer equipment, and even uses this dependence as a way to attract potential recruits who seek computer experience as valuable training in the civilian job market. The Army's recruitment website, GoArmy.com, lists the 25B Information Technology Specialist as a position of great responsibility, noting that "computers are essential to every division of the military."[5]

However, a potential downside to an increasing reliance upon computer technology (for both military personnel and civilians) is that not all people feel at ease with that technology, nor do they always embrace it. Computers are "surrounded with mystery as extremely complex and arcane technologies that require advanced training to understand and manipulate at higher levels" (Lupton and Noble, 97). As such, computers "are a medium onto which lifelike properties are easily projected" (Lupton and Noble, 94). In fact, it is not uncommon for people to endow their computers with human names (Lupton and Noble, 89).

[5] http://www.goarmy.com/JobDetail.do?id=213#civilian

Numerous studies point out that people speak to computers while operating them, beginning with Schiebe and Erwin (1979); Monin and Monin (1994); Lupton and Noble (1997); Barley (1998); Luczak, Roetting and Schmidt (2003). Scheibe and Erwin, who in 1979 studied university students playing simple computer games (by today's standards), noticed that people tended to use more personal pronouns to refer to a computer when it displayed greater "intelligence" in its responses (Scheibe, 108). Thus they predicted, "Because it has the capacity to mimic human conversation, the speculation offered here is that the computer will be recognized as psychologically more powerful as an agent in the development of personality than any other machine, including the automobile and the television set" (Schiebe, 109).

A more recent study of people ascribing anthropomorphic traits to computer systems was undertaken by Stephen R. Barley, an organizational theorist in the school of engineering at Stanford University. In his article "The Social Construction of a Machine," reprinted in Biomedicine Examined (1998), Barley tells of two groups of radiological technologists who, faced with unfamiliar problems presented by a computer or monitor, began to endow lifelike qualities to "THE COMPUTER" as opposed to their usual word choice of "the system" (author's capitalization).

> When techs spoke of THE COMPUTER their conversations took on anthropomorphic qualities that contrasted sharply with their matter-of-fact approach to 'the system' and other technologies. THE COMPUTER was said to be capricious: it had, in the techs' own words, "a mind of its own." THE COMPUTER was a sentient entity that "liked" or "did not like" commands, that acted "crazy," and that beeped when it wanted to say "I'm hot." In the throes of a persistent problem, technologists beseeched THE COMPUTER to do as they desired, and the bold among them even insulted THE COMPUTER with word and gesture.

> Most importantly, however, when events went irretrievably wrong, it was THE COMPUTER that was said to have caused the problem. Although THE COMPUTER always lurked in the background, the techs usually kept it at bay with their mechanical metaphors, their confirmatory strategy of problem solving, and the ritual solutions and superstitions that the confirmatory strategy engendered. It was only when these practical tools failed that techs resorted to anthropomorphic talk. (Barley, 520)

Why would trained professionals in fields such as medical technology ascribe anthropomorphic qualities to computers? In searching for answers to this question, two researchers offered hypotheses similar to the "anthropomorphism as analogy" school. Linda R. Caporael, a researcher of culture and biology at Rensselaer Polytechnic University, said the impetus to anthropomorphize may reflect an person's inability to predict or control the environment (218). Carporael theorized, "When the individual cannot generate a workable explanation, then he or she is likely to generate an apparently nonadaptive social explanation (i.e., some personality characteristics or emotions) for observed machine behavior" (219).

Lupton and Noble, who interviewed PC users at the University of Sydney in Australia, concluded that the interviewees anthropomorphized their computers as a means of reducing frustration, echoing Caporael's views: "While most participants denied a propensity to humanize their personal computers, the ways they talked about them often betrayed a suggestion that they did invest their computers with human qualities such as agency, moods and emotional reactions, particularly in times of frustration when the technology failed to 'work'" (Lupton, 94).

It is important to note that not all researchers view approvingly the propensity of people to anthropomorphize computers. Two researchers, Nanette Monin and D. John Monin, of the Department of Management Systems at Massey University in New Zealand, viewed people's use of anthropomorphic metaphors for computers with great disdain: "Computers are tools, albeit very sophisticated tools, which can neither think nor feel. Their every function is dependent upon the human technician, programmer and user. The metaphors by which they are described and explained tend to hide this reality, and, given the power of the action metaphor, may well persuade people to ascribe to them human attributes which they do not have" (Monin, 283).

In contrast to this cautionary view, Guthrie, a philosopher of religion, would not view the anthropomorphism of machines in such a negative light: "The very frequency of warnings against anthropomorphism suggests its constancy in thought. People in many fields—literary critics, journalists, philosophers, scientists, and other others—call attention to it" (92).

Still, if we accept the advent of more sophisticated technologies as a reason for anthropomorphism, then we must perceive people's tendency to anthropomorphize as a response to an increasingly bewildering world. Such a view would dovetail with an assertion made by Langdon Winner, professor of political science at Renssalaer Polytechnic University, that as knowledge increases, people in the modern world actually know less and less about the environments that they live in:

> There is a case to be made that this is also an era of rapidly-increasing ignorance. It is true that more and more knowledge is gathered through an ever-expanding array of means. Yet mastery of knowledge appears to be waning in the sense that ever less of what is known can be digested, taught, learned, or utilized by any given individual, group, or organization. If ignorance is measured by the amount of available knowledge that an individual or collective 'knower' does not comprehend, one must admit that ignorance, that is, *relative ignorance*, is growing (Winner, 282).

G. The Lines Between Man and Machine Are Becoming Blurred

Postmodern theorists, noting that the increasing sophistication of computers is changing people's perceptions of them, point out that the increasing sophistication of computers is also changing people's perceptions of humanity and what it means to be human. Moreover, they would say that the line between humans and machines is becoming increasingly blurred.

This postmodern viewpoint goes back at least as early as 1979, when Roger B. Rollin, a literature professor at Clemson University, saw the then-popular TV show The Six Million Dollar Man, whose main character was a human with robotic implants, as a harbinger of things to come. He wrote, "As the Twentieth Century approaches the Twenty-First, modern technology is making cyborgs of us all. As our sensory, mental, and physical powers are being expanded by machines, we are all becoming Six Million Dollar persons" (Rollin, 306).

As cyborgs became more prevalent in science fiction and popular fiction, their implications were expounded upon by Donna Haraway, a zoologist and feminist philosopher. In her frequently-quoted essay "Simians, Cyborgs and Women," (1991) Haraway announced that "Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert" (Haraway, 152).

By the early twenty-first century, postmodernists expanded the notion of the cyborg as being compatible with a viewpoint known as posthumanism. One proponent, N. Katherine Hayles, a literary critic at Duke University, defines the posthuman view as comprising the following four assumptions:

1. Sees biology as an accident of history rather than an inevitability of life.

2. Considers consciousness “as a minor sideshow” rather than the seat of human identity.
3. Thinks of the body as a prosthesis that is easily manipulable.
4. Configures human beings so that they could be “seamlessly articulated with intelligent machines.”

Summarized, the posthuman view “sees no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals” (Hayles, 3).

These postmodernists who view the distinction between humans and machines as becoming increasingly ambiguous would say that more and more talking machines appear in PS because they are becoming increasingly like humans. In other words, as military technology becomes more sophisticated, and soldiers find they must respond to this sophisticated technology, they—and the artists and writers trying to communicate with them—will respond by portraying their computerized equipment as human-like. Postmodernists and posthumanists would see this as a rhetorically appropriate and perhaps even inevitable development.

VIII. Implications

Each of the seven reasons for anthropomorphism has some validity, so I think it is safe to assume the following implications hold true for PS magazine.

A. Solidarity

As technological systems increase in complexity, anthropomorphizing machines is a way for the artists at PS to establish solidarity with soldiers who might be perplexed by new military technologies.

Putting eyes and mouths on the machines in PS involves a shrewd assumption on the part of the magazine's artists. Rather than assuming a pseudo-marketing style of rhetoric that would proclaim to the reader, "This technology is easy to use!" the artists do just the opposite. By portraying the machines in PS as if they were cranky, whiny, tired, fearful, fickle, comatose, or whimsical, the artists send this subconscious message to the reader: "I understand what it is like to deal with an unknown machine problem, and I empathize with your frustrations." In other words, the artists accept the reader's presumed perceptions of machines as irrational and fickle as valid; they then follow this up with a rational procedure for avoiding or solving the problem. In the meantime, the artists' depictions of the machines as emotional beings adds a needed element of humor (as Henderson noted), thus grabbing the reader's attention so that drier, more technical information can be conveyed.

B. Blurred Lines

If the lines between humans and machines are becoming blurred, then we can expect to see more anthropomorphized machines in PS.

As the ongoing conflicts in Iraq and Afghanistan continue, robots play a larger and larger role in U.S. Army operations. Soldiers are finding that they must transport and in some cases use and maintain military equipment so sophisticated that its like has never been seen before on the battlefield. The best book describing the implications of this technology is Wired for War, by P.W. Singer, a former Pentagon worker who directs the 21st Century Defense Initiative at the Brookings Institution.

Probably the best-known robots seen on the battlefield are MQ-1 Predator and MQ-9 Reaper drones. These are unmanned robotic planes that can be controlled by pilots anywhere in the world. The military has grown increasingly dependent upon these planes for its combat missions. In 2008, 71 Predator robots few 138,404 combat hours—a 94 percent increase from the year before (Schachtman).

Predator drones are far from the only robotic equipment that the military hopes to employ on the battlefield in coming years. According to Singer, the U.S. military is researching other projects involving robotics including the following:

- A mind-machine interface involving a computer chip implanted into the back of the subject's head. This has proved to be very promising in restoring mobility to injured soldiers: Singer tells the story of a paralyzed man who was able to move a robotic hand, surf the Web, send email, draw, and play video games. It is likely that future implants will be much less noticeable, as test subjects have been implanted with electrodes as thin as a human hair, and implants no larger than a grain of rice (Singer, 72-73). The Pentagon's Brain-Interface Project

overseeing this research is “the most lavishly funded of nearly all DARPA (Defense Advanced Research Projects Agency) bioengineering efforts.” DARPA is also looking into using this technology to fly aircraft.

- So-called “autonomous” and artificial intelligence (AI) technologies, where the robot (such as a spy plane) is endowed with the power to make snap judgments. The advantage is that human operators do not have to support all decisions a robot makes. Singer recalled one Pentagon official who stated, “Having a dedicated operator for each robot will not pass the common sense test” (75). For that reason, the U.S. Air Force published a report last summer that predicted the deployment of fully autonomous attack planes, and suggested that humans would play more of a role in “monitoring the execution of decisions” than actually making the decisions. As might be expected, this prospect has alarmed a number of critics (see Palmer, “Call for Debate on Killer Robots”). Nevertheless, development on such technologies continues, such as the GT Max unmanned helicopter that can play its way through obstacles, fly via an onboard camera just as human pilots can, maneuver as aggressively as a human pilot, and reconfigure its own programming when accidents happen (Singer, 78-9).
- Robots that can replace medics, who have one of the most dangerous jobs on the battlefield. Singer describes the military’s latest medical robot, the Bloodhound, as able to seek out wounded soldiers on its own. When it finds them, the robot’s human controller, who might be anywhere in the world, “will check out the soldier via the video link and treat them [sic] using the robot’s onboard medical payload, which will include a stethoscope…liquid bandages, and even automatic syringes to dispense morphine or antidotes” (Singer, 112). Future versions of medbots might be large enough to load soldiers into them and perform surgeries in the field.

Eventually, the military expects to integrate robots into a force that, as a Joint Forces Command projects, by 2025 will be "largely robotic" (Singer, 133). One plan envisions detachments that would include 150 soldiers and as many as 2,000 robots.

But even as these robotic systems get more and more capable, there is a paradox with user interface, Singer writes. "In the words of a sergeant just back from Iraq, sometimes there is just "too much technology….It can be overwhelming" (Singer, 68). In describing the problems faced by Predator drone pilots, Singer notes that the major problem is the ever-growing amount of data that the robots send to the user. As he puts it: "As artfully described in National Defense magazine, it is like "the TV episode of *I Love Lucy* where Lucy and Ethel are at the chocolate factory and the chocolate just gets out of control, and you never get back in gear" (Singer, 68).

The military's research is finding that humans have a hard time controlling multiple units at once (Singer, 126). The solution to this, then, is to take the human "out of the loop," giving the machine the ability to fire back at a target without a human command if there is no time for a human operator to react. In other words, the human operator may eventually be relegated to playing the role of a "fail-safe capacity in the event of a system malfunction" (Singer, 128). As Singer quotes one special operations forces officer contemplating this prospect, "That's exactly the kind of thing that scares the shit out of me….But we are on the pathway already. It's inevitable" (Singer, 129).

In such battlefield environments where machines are given autonomy or decision-making capabilities, and humans communicate with military equipment via implants, we can expect to see Haraway's prophecies of cyborgs and Hayles' philosophies of posthumanism come to full flower. A recent Washington Post article, describing field tests the military conducted in 2007 on robots programmed to seek out land mines, recounted an instance where the roles played by human soldiers and machines

were blurred. In the article “Bots on the Ground,” staff writer Joel Garreau interviewed Mark Tilden, a robotics physicist at the Los Alamos National Laboratory who told the following story:

> At the Yuma Test Grounds in Arizona, the autonomous robot, 5 feet long and modeled on a stick-insect, strutted out for a live-fire test and worked beautifully. Every time it found a mine, blew it up and lost a limb, it picked itself up and readjusted to move forward on its remaining legs, continuing to clear a path through the minefield.
>
> Finally it was down to one leg. Still, it pulled itself forward. Tilden was ecstatic. The machine was working splendidly.
>
> The human in command of the exercise, however – an Army colonel – blew a fuse.
>
> The colonel ordered the test stopped.
>
> “‘Why?’ Asked Tilden. ‘What’s wrong?’
>
> The colonel just could not stand the pathos of watching the burned, scarred and crippled machine drag itself forward on one leg.
>
> This test, he charged, was inhumane.

B. Blurred Lines (continued)

Whatever new sophisticated technology the U.S. Army deploys in the future, it is certain that soldiers will still be needed to maintain it, and so PS will be there to inform them how to do this. If these technologies become so sophisticated that these soldiers increasingly feel like Lucy and Ethel at the chocolate factory, we can expect that writers and artists at the magazine will probably depict even more walking, talking, thinking and complaining robot characters. Indeed, robots are already making their way into the magazine, as demonstrated by this depiction of the Shadow Unmanned Aircraft system in Fig. 40.

Fig. 40: Shadow Unmanned Aircraft System, December 2008

Perhaps some of these robotic characters may eventually be featured as regularly-occurring characters such as Half-Mast, Connie and Bonnie. PS has already introduced its first nonhuman character, The Online Warrior, a character who only consists of translucent electrons and emerges from a computer screen dispensing logistics information and encouraging soldiers to look up past issues of PS online.

Fig. 41: The Online Warrior, June 2004

IX. DIRECTIONS FOR FUTURE RESEARCH

Rhetoricians who research issues in technical communication are beginning to look seriously at comics as a means for communicating technical information. In the past year, the Society for Technical Communication has featured articles in Intercom magazine on "Writing Technical Comics" and "What Technical Communicators Can Learn from the Comics." The STC has even sponsored a webinar by communications consultant Alan J. Porter on what technical communicators can learn from comics. In an article on The Content Wrangler website, Porter states that "Studies have shown that humans as a species are hard wired to understand certain sequences of symbols and icons. We understand the basic language of comics on a fundamental level"[6] (Content Wrangler).

Two teachers at the University of Iowa, art professor Rachel Williams and technical communications professor Mark Isham, require their students to draw comics to communicate information (Comics). Williams and Isham say that having their students draw comics (regardless of their artistic abilities) promotes "deep learning," which incorporates a full process of recording, contextualizing, and learning how to use information. They said their students feel comfortable with the medium of comics because of the influences of personal computers, videogames, and Japanese manga. There is even a web site, ComicLife.com, intended to help viewers create comics on their own.

Although comics have become a popular topic of research, evidence of the effectiveness of comics in communicating technical information is more anecdotal than backed up by through research. Despite Eisner's assertion of the usefulness of comics, I was unable to discover research that has been supported through usability studies. Future studies should verify whether comics can convey technical information more effectively than text alone. In such a test, the writers and editors at PS magazine could be an invaluable resource, as they have years of experience in writing technical information for

[6] < http://thecontentwrangler.com/2010/01/08/comics-can-make-you-a-better-communicator/>

an increasingly diverse audience. A researcher could, with the help of the PS staff, perform studies to see whether articles in the magazine convinced soldiers to pay closer attention to equipment maintenance. They could compare technical information promulgated in PS with similar types of information conveyed by other, text-only means to see if one medium was more effective than others. Likewise, interviews with current and past soldiers could determine how the magazine has influenced soldiers' maintenance practices. Such a study would not only be useful for the writers and articles at PS, but would also produce useful information for the rest of the technical communications profession. At any rate, we can be certain that comics will continue to provide a rich source of research material for researchers seeking a deeper understanding of how humans intertwine visuals and text to create powerful communications strategies.

BIBLIOGRAPHY

Aggarwal, Pankaj and Ann L. McGill. "Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products." Journal of Consumer Research. 34 (2007): 468-479.

Andelman, Bob. Will Eisner: A Spirited Life. Milwaukie, OR.: M Press. 2005.

Anderson, Laurie J. "The Gentleman of Comics: Murphy Anderson." Sequential Tart. <http://www.sequentialtart.com/archive/dec01/anderson.shtml> 16 April 2010.

Barley, Stephen R. "The Social Construction of a Machine: Ritual, Superstition, Magical Thinking and Other Pragmatic Responses to Running a CT Scanner." Biomedicine Examined. Ed. Margaret Lock and Deborah Gordon. Dordrecht, The Netherlands: Kluwer Academic Publishers. 1988. 497-539.

Campbell, Kim Sydow; Kathryn Riley and Frank Parker. "You-Perspective: Insights from Speech Act Theory." Journal of Technical Writing and Communication. 20 (1990): 189-99.

Caporael, L.R. "Anthropomorphism and Mechanomorphism: Two Faces of the Human Machine." Computers in Human Behavior. 2 (1986): 215-34.

"Car Grilles." Push Pin Graphic. 77 (1979):

Eisner, Will. Comics and Sequential Art. Tamarac, FL.: Poorhouse Press, 1985.

Fitzgerald, Paul E. Will Eisner and PS Magazine. Fincastle, VA: FitzWorld.US, 2009.

Garreau, Joel. "Bots on the Ground: In the Field of Battle (Or Even Above It) Robots are a Soldier's Best Friend." Washington Post. 6 May 2007. D1.

Guthrie, Stewart Elliot. Faces in the Clouds: A New Theory of Religion. New York: Oxford University Press, 1993.

Haraway, Donna J. Simians, Cyborgs and Women: The Reinvention of Nature. New York: Routledge, 1991.

Hayles, N. Katherine. How We Become Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics. Chicago: The University of Chicago Press, 1999.

Henderson, Stuart. Personal interview. 8 Sept. 2009.

Holman, C. Hugh and William Harmon. A Handbook To Literature. 6th ed. New York: Macmillan Publishing Co. 1992.

Honig, Edward. Dark Conceit: The Making of Allegory. Evanston, Ill.: Northwestern University Press. 1959.

Jackson, Michael. "Familiar and Foreign Bodies: A Phenomenological Exploration of the Human-Technology Interface." Journal of the Royal Anthropological Institute. 8 (2002): 333-46.

Jakobson, Roman. Closing Statement: Linguistics and Poetics. Style in Language. Ed. Thomas A. Sebeok. The Technology Press of the Massachusetts Institute of Technology and New York: John Wiley & Sons. 1960. 350-77.

Johnstone, Barbara. Discourse Analysis. 2nd Ed. Malden, MA.: Blackwell Publishing. 2008.

Kress, Gunther, and Theo van Leeuwen. Reading Images: The Grammar of Visual Design. New York: Routledge. 1996.

Lambdin, Robert Thomas and Laura Cooner Lambdin. "Exemplum." Encyclopedia of Medieval Literature. Westport, CT.: Greenwood Press. 2000. 181-82.

Luczak, Holger, Matthias Roetting and Ludger Schmidt. "Let's Talk: Anthropomorphization as a Means to Cope with Stress of Interacting with Technical Devices." Ergonomics. (2003): 1361-74.

Lupton, Deborah and Greg Noble. "Just a Machine? Dehumanizing Strategies in Personal Computer Use." Body & Society. 3 (1997): 83-101.

Monin, Nanette and D. John Monin. "Personification of the Computer: A Pathological Metaphor in IS." Special Interest Group on Computer Personnel Research Annual Conference: Proceedings of the 1994 Computer Personnel Research Conference on Reinventing IS: Managing Information Technology in Changing Organizations. Alexandria, VA. 1994.

Palmer, Jason. "Call for Debate on Killer Robots." BBC News. 3 August 2009. <http://news.bbc.co.uk/2/hi/technology/8182003.stm>

Paxson, James J. The Poetics of Personification. Cambridge University Press. 1994.

Porter, Alan J. "Comics Can Make You A Better Communicator." The Content Wrangler. <http://thecontentwrangler.com/2010/01/08/comics-can-make-you-a-better-communicator/#ixzz0htH3aRde> Jan. 8, 2010.

PS Magazine: 50 Years of PM. No Author Listed. <http://www.olive-drab.com/archive/ps_50yrs_pm.pdf>

PS Magazine Online Edition. No Author Listed. <https://www.logsa.army.mil/psmag/psonline.cfm> 15 April 2010.

Quilligan, Maureen. The Language of Allegory: Defining the Genre. Ithaca, N.J. and London: Cornell University Press.1979.

Rodman, Lilita. "You-Attitude: A Linguistic Perspective." Business Communication Quarterly. 64 (2001): 9-25.

Rollin, Roger B. "Deus in Machina: Popular Culture's Myth of the Machine." Journal of American Culture. 2 (1979): 297-308.

Saraceni, Mario. "Seeing Beyond Language: When Words are Not Alone." CAUCE, Revisita de Filogia y su Didactica. 24 (2001): 433-55.

Scanlon, Larry. Narrative, Authority and Power: The Medieval Exemplum and the Chaucerian Tradition. Cambridge University Press, 1994.

Scollon, Ron and Suzie Wong Scollon. Discourses in Place: Language in the Material World. London: Routledge. 2003.

Scheibe, Karl E. and Margaret Erwin. "The Computer as Alter." The Journal of Social Psychology. 108 (1979): 103-109.

Singer, P.W. Wired for War: The Robotics Revolution and Conflict in the Twenty-First Century. New York: Penguin Group (USA), 2009.

Steward, Sherry. A Rhetoric of Technology: The Discourse In U.S. Army Manuals and Handbooks. Diss. University of Central Florida. Spring Term 2004. Orlando, FL.

von Pflugk, H.A.V. "Tips on Practical Shiphandling." The Merchant Marine Officers' Handbook. New York: Cornell Maritime Press, 1942.

VCU Libraries Digital Collections. PS Magazine, the Preventive Maintenance Monthly. Virginia Commonwealth University. 2010. <http://dig.library.vcu.edu/cdm4/index_psm.php?CISOROOT=/psm>

Williams, Rachel and Mark Isham. Interview with Greg Shanley. Talk of Iowa. Public Radio. WOI, Ames. 17 Dec. 2009.

Winner, Langdon. Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought. Cambridge, MA.: The Massachusetts Institute of Technology Press, 1977.

ACKNOWLEDGEMENTS

I would like to thank six people who have been involved with helping me along various points of progress toward the completion of this thesis. First, I would like to thank Dr. Charles Kostelnick for his initial inspiration for my interest in visual rhetoric. Second, I would like to thank Dr. Susan Yager for encouraging me to pursue this topic, and for her invaluable insights into the uses of personification. Third, I would like to thank Stuart Henderson, production manager at PS, who sent me a great deal of useful information and corresponded at length through email and phone conversations. Fourth, I would like to thank Dr. Alexandra Johnston, who taught Discourse Analysis at Iowa State University in Spring 2009 and who helped me understand some aspects of visual semiotics. Fifth, I would like to thank Dr. David Roberts, who volunteered to be my major professor even though he had not had me in a class before; and who has been patient as I took a great deal of time to complete this work. Last, I would like to thank Dr. John Hagge, who has volunteered to serve on my committee as a representative of the Linguistics program in fulfillment of my graduate minor, even though he is retiring from Iowa State University at the end of this semester, after many years of dedicated service.

BIOGRAPHICAL SKETCH

Eugene Bradley Simmons was born September 20, 1968 in Evergreen Park, Ill. He received his Bachelor of Journalism degree from the University of Nebraska-Lincoln in 1993. He works as a technical writer at Ag Leader Technology in Ames, Iowa.