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Identification and validation of a societal model of usenet

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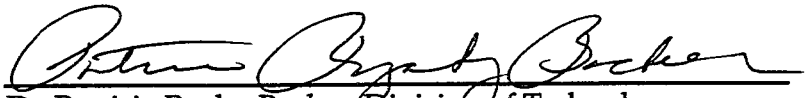

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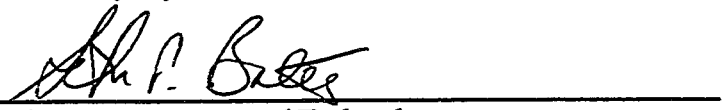

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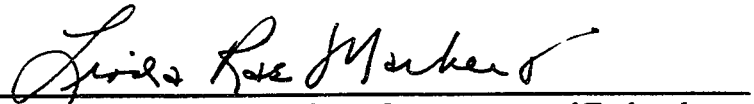

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ABSTRACT

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by Bruce A. Overby

This study presents and evaluates a societal model of the Usenet computer conferencing system. This model is externally validated through citations from the literature. An instrument for analyzing the content of Usenet articles is developed from the model, and reliability tests are conducted on the instrument. The instrument is then field tested on a cluster sample of 210 Usenet articles. The results show that the model has usefulness in large-scale field research in computer-mediated communication environments, though additional work refining the model, and subsequent validity and reliability testing, must be done before truly reliable results can be obtained.

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Chapter 1
Problem Definition

Introduction

In 1968, two visionaries named J. C. R. Licklider and Robert Taylor foresaw what very few of their contemporaries could. In a ground breaking paper entitled, "The Computer as a Communications Device" (Licklider & Taylor, 1968), they first put this vision into words:

> The collection of people, hardware, and software—the multi-access computer together with its local community of users—will become a node in a geographically distributed computer network. Let us assume for a moment that such a network has been formed... [that] all the large computers can communicate with one another. And through them, all the members of the supercommunity can communicate—with other people, with programs, with data, or with selected combinations of those resources (p. 40).

Today, this vision has become a reality, and computer-mediated communication (CMC) has become a rapidly growing phenomenon in our society.

Less common than communication modes like face-to-face interaction, telephone conversations, and written letters, CMC is nonetheless at the center of many current trends. Colleagues in business and academic environments now routinely correspond via electronic mail. Computer users are utilizing the Internet and its many resources with increasing frequency. Students at colleges worldwide are spending inordinate amounts of time exploring Internet Relay Chat (IRC) and Multi-User Dungeons (MUDs). Local radio stations advertise their Internet addresses and exchange electronic mail with their listeners. Proprietary computer conferencing systems like the Bay Area's Whole Earth 'Lectronic Link (WELL) are enjoying healthy growth, as are smaller, home-based bulletin board systems (BBSs). Even the White House and the United States Congress now have published electronic mail addresses.

Researchers are responding to this phenomenon by studying its many dimensions: sociological, rhetorical, psychological, political, and, of course, technological. This study proposes to add to this growing body of research by investigating the nature of the communication conducted over Usenet, a computer conferencing system that has been in operation since 1979 and is currently distributed to more than 2.5 million people worldwide. (See Appendix A for a detailed description of Usenet and a tutorial showing how it is used.)

What is CMC? The operational definition of *computer-mediated communication* used in this study is *any person-to-person communication conducted over physical and/or perceptual distances using computer and telecommunications technology and limited to the exchange of alphanumeric words and images.* In order to understand what makes CMC unique in comparison to other forms of communication, one must first understand the role played by the computer in CMC environments.

Figure 1 illustrates this role by showing the widely-recognized model of the communication process (Robbins, 1992, p. 116), along with a shaded area indicating which elements of the model are influenced by the computer in CMC environments.

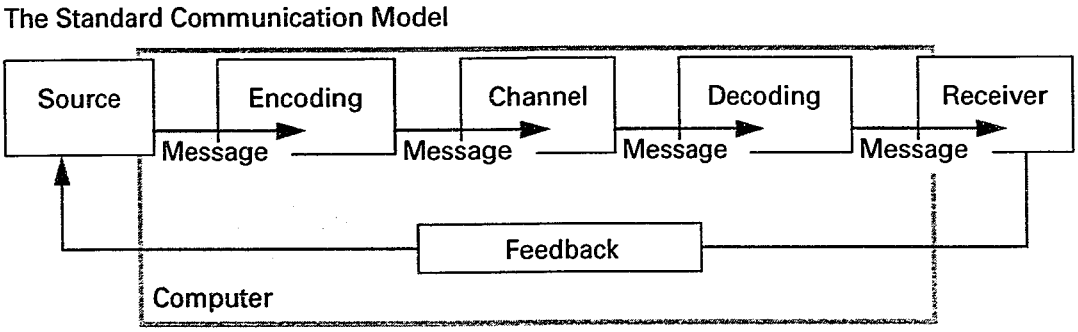


Figure 1. The Impact of the Computer in Computer-Mediated Communication

The standard communication model includes the following elements:

- A source, or sender
- An encoding step
- A channel
- A decoding step

- A receiver
- A feedback loop
- The message itself

Figure 1 shows that, in CMC, the computer influences—or mediates—all of these elements. The computer is the tool used by the source in encoding and transmitting the message, it provides access to the channel through which the message is passed, it is the mechanism by which the message is decoded by the receiver, and it usually provides the loop through which feedback is conveyed. As such, it is logical to conclude that the presence of the computer will ultimately have an impact on the messages conveyed via CMC.

These impacts have been demonstrated in a number of different CMC environments, some of which were alluded to on Page 1. The following paragraphs describe the five most common—and thus, most extensively studied—forms of CMC.

CMC Environments. Perhaps the most common form of CMC is *electronic mail,* or *e-mail.* Users of e-mail simply type their messages into the computer and send them to other users via internal network links or external telephone lines. E-mail software generally gives the recipient the option to save, discard, or respond to the message once it is received. The increasing prevalence of e-mail in business and academic organizations is evidenced by the appearance of e-mail addresses on many business cards. One study reported that businesspersons in computer-connected offices typically send between 25 and 100 e-mail messages per day (Sproull & Kiesler, 1991a).

An extension of basic e-mail is the *electronic mailing list.* As the name suggests, an e-mail list is simply a collection of e-mail addresses to which a message can be broadcast with a single key stroke. E-mail lists have been in use since the late 1960s, and today, a typical e-mail user is listed on between 10 and 50 such lists (Sproull & Kiesler, 1991a).

Computer conferencing, devised in the mid-1970s and then touted as "[possibly] one of the most effective tools yet devised for coordinating the efforts of individuals," (Turoff & Hiltz, 1977, p. 58), adds yet another dimension to the electronic mailing list concept. In computer conferencing, the user enters a message and sends it to a computer that acts as a central repository for the conference. Software on this computer is programmed to assign unique numbers to all such messages received and file them in the order received.

Other members of the conference are then able to access these messages at their leisure and (as with e-mail) save, discard, or respond to them. The Usenet system, on which this study will be focused, is a massive, worldwide computer conferencing system, and thus fits this basic description.

A creative expansion of the computer conferencing concept called the *multi-user dungeon* (MUD) was developed by students at the University of Essex, England, in 1979 (Curtis and Nichols, 1993). MUDs are a sophisticated type of CMC wherein users engage in role-playing games similar to the "Dungeons and Dragons" games popularized in the 1970s and 1980s. The primary technical difference between MUDs and standard computer conferencing environments is that MUDs allow synchronous interaction among users, while computer conferences are inherently asynchronous. The sophisticated characteristics of MUDs have drawn the attention of researchers, who plan to employ the technology for international teleconferences between astronomers (Curtis, 1992).

Yet another type of synchronous CMC environment known as *Internet relay chat* (IRC) was introduced by students at the University of Oulu, Finland, in 1988 (Reid, 1991). As of late 1988, there were IRC host computers located in Australia, Finland, Israel, Italy, Korea, and the United States (Reid, 1991). Highly sophisticated programming allows hundreds of IRC users simultaneous, real-time access to one another just as though all were present in the same physical space. All of this simultaneous communication is managed through software-based "channels" that connect the network of IRC hosts in such a way that users can choose which conversation(s) they would like to participate in, just as one would do at a cocktail party or other large gathering.

As varied as these types of CMC are, they all share common characteristics, such as the participants' lack of physical copresence. Kiesler, Siegel and McGuire (1984) identify four features, related to physical distance, that distinguish CMC from conventional forms of communication:

1. An absence of regulating feedback
2. Incomplete or limited expressions of emotion
3. A lack of social status cues
4. Social anonymity

As is explained in the following paragraphs, the empirical research in the area of CMC has been dominated by investigations of the effects these features can have on the outcomes of communication conducted via CMC.

Empirical Research in CMC. Early experiments on CMC reached the conclusion that CMC provides users with broad access to people and information that was unavailable with more familiar communications media (Hiltz & Turoff, 1978; Kiesler, Siegel, & McGuire, 1984; Sproull & Kiesler, 1991b). One researcher concluded that "[a] defining characteristic of the technology is its combination of text, speed, asynchrony, and potential audience reach" (Kiesler, 1986, p. 48). This characteristic, viewed in concert with the power/knowledge relation posited by Foucault (1980), pointed to CMC's potential to extend a user's sphere of influence by enhancing his or her access to both people and information (Spears & Lea, 1994).

A series of more recent studies hold that CMC has the potential to liberate users from the psychological pressures imposed by status cues and organizational and social norms (Dubrovsky, Kiesler, & Sethna, 1991; Sproull & Kiesler, 1991a). This finding is based on the fact that, in CMC, "the social and contextual cues that usually regulate and influence group dynamics are missing or attenuated" (Sproull & Kiesler, 1991a, p. 119). For example, persons who are extroverted, spontaneous, well-spoken, or even physically imposing often dominate face-to-face discussions. In CMC environments, however, these advantages are neutralized by the fact that all participants are represented only by collections of text symbols on computer screens. In this way, it is believed, CMC "can break down hierarchical and departmental barriers, standard operating procedures, and organizational norms" (Kiesler, 1986, p. 47).

This school of thought, variously referred to as the "equalization phenomenon" (Dubrovsky, Kiesler, & Sethna, 1991) or the "filtered-cues theory" (Lea & Spears, 1992), has led to a number of wide-ranging predictions about the way individuals interact in CMC environments. In addition, it has led to the conclusion that, for certain types of interpersonal communication tasks, CMC is less appropriate than other communications media such as face-to-face discussions or telephone conversations (Rice, 1987; Sproull & Kiesler, 1986; Sumner, 1988; Trevino, Daft, & Lengel, 1990).

Results of subsequent empirical studies have offered convincing counterarguments to this perspective. By applying social identity/self-categorization theory in their experiments, researchers Russel Spears and Martin Lea have introduced the concept of

de-individuation to the study of CMC (Lea & Spears, 1992; Spears & Lea, 1994). The resulting social identity/de-individuation (SIDE) model holds that, under conditions of high group salience (i.e., social identity as a member of a group is more highly valued than personal identity as an individual), people become de-individuated (i.e., they perceive fewer differences between their own values and those of the group), and thus further increase the salience of the group (Lea & Spears, 1992).

Experiments with the SIDE model have shown that participants in CMC discussion groups who consider themselves integral members of the group tend to view other group members' use of non-textual cues (ellipses, exclamation points, etc.) in a positive light (Lea & Spears, 1992). Conversely, participants whose individual identity is emphasized over that of the group tend to be highly critical of such usage (Lea & Spears, 1992). In other words, a CMC participant's perception of his or her social identity within the context of the group is shown to have a profound impact on how messages are interpreted (Lea & Spears, 1992). As such, Lea and Spears (1992) hold that

> [S]ignificant social information can be communicated in CMC even though it lacks visual and auditory channels. . . . [R]elatively simple cues can contribute in powerful and sophisticated ways to convey social information and expressive meanings, to help regulate the interaction, and to influence attitudes and decision making (p. 323).

These empirical studies have greatly enhanced our understanding of the dynamics of CMC. However, there are a number of aspects of these studies that point up the need for research with a different focus.

First, though this research purports to apply to CMC environments in general, its applicability is actually limited to small-scale organizational environments. Because the experiments are generally designed to focus on e-mail, e-mail lists, and tightly-focused computer conferences, the generalizability of the results must be called into question.

Second, the questionable generalizability of the empirical research points up the need for expanded field research to further explore the conclusions reached in the laboratory. The empirical results on which the equalization model is based, for instance, show that CMC reduces the impact of social status by attenuating or eliminating the transmission of status cues (Sproull & Kiesler, 1991a). However, experimental designs have implicit limitations on the extent to which status can be imposed and manipulated

(Spears & Lea, 1994). In such designs, status is generally imposed by using a combination of undergraduates and graduates as subjects, with the assumption that the former will instinctively subjugate themselves to the latter. Obviously, the generalizability of results attained in such a design are questionable since, in many organizational and social environments, status is established over long periods of time through highly complex combinations of personal and social interaction (Spears & Lea, 1994). Only through field research can such long-term status relationships be thoroughly investigated.

Finally, the empirical studies cited above are directed at the responses and processes of individuals and small groups, rather than those of large social organizations. Though this approach may be appropriate for the study of small, controlled CMC environments like company e-mail networks, it is of limited value in enhancing our understanding of larger environments, sometimes referred to as *virtual communities* (Gurak, 1994; Reid, 1991; Rheingold, 1993; Smith, 1992). This shortcoming is important because these small environments, though important to study and understand, comprise but a small portion of the CMC now in use. Indeed, the controlled nature of these environments strictly limits their impact on society at large. A logical next step, therefore, is to move toward applying the theoretical bases identified in empirical studies to CMC environments wherein large virtual communities can be found.

The present study will focus on these larger, more far-reaching environments, where CMC is being applied in ever more creative ways. As the following section explains, these are the environments where CMC is bringing together widely-dispersed individuals, who engage in new forms of social interaction, leading to the formation of large, often highly cohesive, virtual communities.

Research Specific to Various CMC Environments. I have argued for the need to build on existing empirical CMC research by applying available theoretical bases to the study of large virtual communities. To develop an understanding of the various CMC environments that comprise these communities, the following brief literature review is presented. Most of this research is in the form of either anecdotal or ethnographic study. I will attempt to draw from the significant, consistent conclusions reached in these studies.

A number of studies have investigated the various aspects of computer conferencing, apart from the early research and empirical studies cited previously.

Hellerstein (1985), in her study of a BBS at the University of Massachusetts, describes a dynamic environment in which participants greet each other on campus with their computer user names, exchange e-mail messages deep into the night, and never seem to tire of debating issues. This environment constitutes a subculture distinct from the larger cultural environment of the university campus.

In his sociological study of the WELL, a computer-conferencing community of some 7,000 users, Smith (1992) provides a "structured ethnographic account of the production of collective goods in a virtual community, of the processes that maintain those goods and the processes that block or disrupt such production" (p. 9). He describes the WELL's methods for distributing and monitoring the production of goods (e.g., knowledge, information, experience, human interaction), for maintaining the commitment of its members, and for sanctioning inappropriate behavior. By stressing the parallels between virtual spaces and more familiar social spaces, Smith provides a vivid image of a virtual "society" (Smith, 1992).

A scant amount of anecdotal literature is available on the topic of MUDs and their more-advanced counterparts, Object-Oriented MUDs (known as "MOOs"). Previously-cited papers by Curtis and Nichols (1993) and Curtis (1992) relate the technical aspects of MUDs to the social phenomena observed during actual "MUDding sessions." These researchers identify the social quality of MUDs (i.e., the fact that they allow users to interact with others) as one of the two primary reasons for the popularity of the technology (demonstrated by the existence of more than 200 MUD sites on the Internet, some of which routinely host more than 50 simultaneous users) (Curtis & Nichols, 1993). In addition, Curtis (1992) discusses a number of social phenomena he has observed on MUDs, including efforts by the MUD power structure to resolve serious behavioral problems.

Rosenberg (1992) and Carlstrom (1992) present detailed descriptions of a popular MOO that both have participated in, as well as accounts of their personal experiences in the MOO environment. Their descriptions run parallel, for the most part, to those of Curtis and Nichols (1993). Rosenberg's paper (which bears the subtitle, "An Ethnography of a Computer Society") dramatically emphasizes the social importance of the MOO:

> I've often had the chance to observe what the imagination of a single person can produce. . . . However, never before had I seen a medium by which the full

> imaginations of a group of separate people could be integrated into a single, living entity which defies description, yet invites interpretation (Rosenberg, 1992).[1]

In her extensive and oft-cited treatise on IRC, Reid (1991) discusses many of the same topics addressed above: the deconstruction of social boundaries, anonymity, disinhibition, culture, social sanctions, the concept of the collective good, and the construction of virtual communities through IRC. Borrowing a term coined by Hiltz and Turoff (1985), Reid (1991) describes the IRC community as an "electropolis," in which analogs to real-world conduct and control are inevitable:

> The ideas of authority and freedom are often in opposition on IRC, as the newly invented social conventions of the IRC community attempt to deal with emotions and actions in ways that emulate the often violent social sanctions of the 'real world' (Reid, 1991).[2]

There are a number of consistent themes running through this non-empirical research. First, the fundamental aspects of CMC identified by Kiesler, Siegel and McGuire (1984) (see Page 4) can be seen, in one form or another, in all these environments. However, researchers have discovered that users in these environments tend to develop mechanisms to compensate for these aspects (e.g., the systems of social sanction designed to limit the adverse effects caused by reduced self-regulating feedback). Second, the metaphors of "community," "society," and "social space" are consistently used in the literature, along with the concomitant concepts of social interaction, collective good, culture, and social sanction. In addition, many of the researchers find that "the real world" serves as a useful counterpoint, aiding in the description of the complex web of interactions observed in these environments. Finally, much of the literature indicates that users of these environments tend to value the social interactions that occur in them.

I argued earlier that scholars need to build on existing empirical CMC research by applying available theoretical bases, obtained in experimental studies of small CMC environments, to the study of large virtual communities. This brief review of available literature on these communities indicates that a consistent set of themes exist, providing a potential framework for such research. The following discussion of the current state of research into the international Usenet computer conferencing system aims to demonstrate that Usenet is a logical starting point for the application of such a framework, and that the groundwork for this framework has already been laid.

Usenet Research. Because Usenet is a massive, highly accessible communications system that spans international boundaries, research into its nature has come from a number of different quarters. Rheingold (1993), for instance, dedicates a significant portion of his book on virtual communities to the genesis and growth of Usenet. As he explains, Usenet was the earliest of a new kind of CMC–based social organization:

> Usenet is a place for conversation or publication, like a giant coffeehouse with a thousand rooms; it is also a worldwide digital version of the Speaker's Corner in London's Hyde Park, an unedited collection of letters to the editor, a floating flea market, a huge vanity publisher, and a coalition of every odd special-interest group in the world. It is a mass medium because any piece of information put onto the Net has a potential worldwide reach of millions. But it differs from conventional mass media in several respects. Every individual who has the ability to read a Usenet posting has the ability to reply or to create a new posting. In television, newspapers, magazines, films, and radio, a small number of people have the power to determine which information should be made available to the mass audience. In Usenet, every member of the audience is also potentially a publisher. (Rheingold, 1993, p. 130.)

To understand the dynamic environment Rheingold so eloquently describes, one must first be familiar with its beginnings.

The network of networks we now know as the Internet began in the 1970s as an experiment of the U.S. Defense Department's Advanced Research Projects Agency (ARPA). This experimental network, known at its inception as ARPANET, eventually grew to connect computers from Hawaii to Norway and was a startling success in just the manner Licklider and Taylor (1968) envisioned it would be: communication via electronic mail quickly became its most popular use (Kiesler, 1986; Hauben, 1992).

Because it was developed and funded by the Department of Defense, ARPANET connected only universities and companies that were involved in defense-related research and development. But the network's advantages were quickly noticed by computer scientists and others at universities without defense contracts, who convinced the National Science Foundation (NSF) to fund the Computer Science Network (CSNet), which eventually became the NSFNet, the structural backbone of today's Internet (Hauben, 1992).

Though the new network greatly expanded the scope of connectivity, there remained a number of universities and research institutions (as well as commercial enterprises, which had not yet noticed the network revolution) that were not authorized for access by either ARPA or NSF (Rheingold, 1993). One thing many of these institutions had in common was the Unix operating system, a highly-flexible, multi-user system that had been developed at Bell Laboratories in the 1970s and distributed free of charge to universities throughout the world (Rheingold, 1993). Unix had become a de facto standard in the computer science departments of American universities, where students enhanced it and used it to develop new application software (Rheingold, 1993). One of the features of Unix was a tool called the Unix-to-Unix Copy Program (UUCP), which allowed any computer running Unix to automatically dial and connect via modem with any other Unix computer, so that files and commands could be exchanged between the two (Rheingold, 1993).

Recognizing the potential of UUCP, graduate students at two universities developed the Usenet News software in 1979 so that computer scientists outside the ARPANET/NSFNet circle could engage in discussions on Unix troubleshooting (Hauben, 1992; Rheingold, 1993). Described by its developers as a "poor man's ARPANET" (Hauben, 1992), the software provided tools for setting up and conducting discussion forums over computer networks (see Appendix A for a complete description of Usenet). The developers, Tom Truscott and James Ellis of Duke University, and Steve Bellovin of the University of North Carolina, placed the Usenet News software into the public domain and, in 1980, began distributing it free of charge at Unix developers' conferences and encouraging users to copy and distribute it to others (Rheingold, 1993).

Subsequent, more sophisticated, versions of the Usenet software were developed, and the medium quickly grew into an international communications phenomenon. As Rheingold (1993) explains:

> The inventors of Usenet . . . were surprised at how hungry people were for all kinds of conversations. . . . They thought local communities would use it most, but found out that as the network spread, people were more and more interested in participating in conversations on an international scale (p. 118).

One of the primary catalysts of this surprising growth was the interconnection of Usenet and ARPANET, which happened unofficially in 1981. Mark Horton, a student at the University of California at Berkeley, thought some of the topics then being discussed

on ARPANET mailing lists might be interesting to Usenet readers (Hauben, 1992). Because UC Berkeley was connected to both ARPANET and Usenet, Horton was able to bring discussions from two ARPANET mailing lists, SF-LOVERS and HUMAN-NETS, into Usenet newsgroups (Hauben, 1992). More ARPANET-originated newsgroups followed, giving Usenet users unofficial access to ARPANET, as well as a number of new and interesting topics to discuss (Hauben, 1992).

As Table 1 shows, ARPANET/Usenet connectivity sparked an upsurge in the number of sites carrying Usenet. But it also had its impact on ARPANET. As Steve Bellovin, one of Usenet's creators, explains, "The impact of Usenet on the ARPANET was more as a catalyst to force re-examination [of] the strict policies against interconnection" (Hauben, 1992).[3] This re-examination led to a period of benign neglect by ARPANET's government keepers. During this period, which spanned the mid-1980s, ARPANET was connected to an increasing number of smaller networks, so that eventually it became known as a network backbone rather than a distinct, self-contained network. The ultimate result of this trend was the formation of what we now know as the Internet (Hauben 1992).

Two aspects of this history are pertinent to the present study. First, the Usenet system was developed as a tool for the exchange of ideas and information. Subsequently, the system was used to discuss topics well outside its intended scope, thereby demonstrating the complex social fabric of the network community. Second, Usenet, which was created by college students and distributed free-of-charge, actually spurred the free expansion of the ARPANET, a massive government network that had taken more than a decade and millions of dollars in public funds to develop. In other words, the network community's need to communicate and exchange ideas provided much of the social inertia that allowed the Internet to materialize.

Recognizing the social significance of this history, researchers have begun to launch investigations aimed at understanding the unique role Usenet plays in the network community.

Table 1

Growth in Usenet Use and Data Traffic[a]

Year	Total Usenet Sites	Total Daily Usenet Traffic
1979	3	2 articles
1980	15	10 articles
1981	150	20 articles
1982[b]	400	50 articles
1983	600	120 articles
1984	900	225 articles
1985	1300	375 articles
1986	2500	500 articles (2 megabytes)
1987	5,000	1,000 articles (2.5 megabytes)
1988	11,000	1,800 articles (4 megabytes)
1992	(Unavailable)[c]	35 megabytes

[a]Adapted from Rheingold (1993) and Hauben (1992).

[b]1982 was the first year of large-scale ARPANET/Usenet connectivity.

[c]By 1992, the number of Usenet sites was unknown. Rheingold states, however, that Usenet "was distributed to more than 2.5 million people" in 1992.

Hauben (1993) conducted a series of somewhat unstructured surveys, distributed over Usenet. Not only did he begin to demonstrate the viability of Usenet as a research environment, he also reached conclusions that (not surprisingly) echo the themes of the CMC studies previously cited here. Using the slang term, "the Net," to refer to Usenet, and coining the term "netizens," to refer to its inhabitants, Hauben summarizes a portion of his findings:

> Net society differs from off-line society by welcoming intellectual activity. . . . This intellectual activity forms a major part of the on-line information that is carried by the various computer networks. Netizens can interact with other people to help add to or alter that information. Information is no longer a fixed commodity or resource on the Net. It is constantly being added to and improved collectively (Hauben, 1993).[4]

This somewhat Utopian perspective is balanced by Hauben's acknowledgment of Usenet's darker side: Respondents to Hauben's surveys indicated that male-chauvinism remains rampant on Usenet, where male users significantly outnumber female users. In addition, problems of information overflow and excessive *flaming* (see "Definition of Terms," page 22) also persist (Hauben, 1993).

In a comparative study into the growth and maturation of norms in CMC environments, Newby (1993) points out that the acculturation of newcomers to Usenet is facilitated by the structure of the system. New participants can spend a comfortable period of time familiarizing themselves with the topics, tone, and expertise levels of a newsgroup before making their presence known to other participants (Newby, 1993). This is done by passively reading articles submitted by others (a practice known as *lurking*) before taking the plunge and submitting one's own.

Another characteristic Newby describes is the tendency for newsgroups to be championed by a dominant nucleus of regular participants:

> On most newsgroups there are a few highly vocal members who tend to keep discussions active, provide answers to questions, or antagonize other readers. The presence of vocal members and the ongoing discussion topics helps to create a strong sense of commitment among group members in many newsgroups (Newby, 1993, p. 34).

Newby concludes that this contributes to the "large number of Usenet readers [who] employ newsgroups for social support" (Newby, 1993, p. 34).

In his ethnographic study of Usenet, North (1994) corroborates and adds to the conclusions of Hauben and Newby. He concludes from hears of observing Usenet interactions that Usenet has its own culture, methods for establishing stature and acquiring prestige, techniques and traditions for encouraging social conformity, and

unique, non-monetary economic and political structures (North, 1994). Central to his conclusions is what he terms "[t]he social nature of [Usenet] interactions,"[5] which he describes as follows:

> One of the major themes to have emerged from this research is that for many of its users, [Usenet] is a deeply social environment engendering a strong sense of community, friendship and belonging. . . . The combination of community, humor and socialization that is prevalant on [Usenet] makes it a far more appealing and gregarious place than it may at first appear from its barren textual interface.[6]

Smith's (1992) study of the WELL is particularly pertinent to Usenet because of its focus on the sociological characteristics of a large computer conferencing environment, the structure of which closely parallels that of Usenet. The characteristics of virtual communities identified by Smith (1992) are consistent with the characteristics of CMC identified in previously-cited studies, except that the focus of Smith's work is on interaction observed in large virtual communities:

> Interaction in virtual spaces shares many of the characteristics of "real" interaction: people discuss, argue, fight, reconcile, amuse, and offend just as much and perhaps more in a virtual community. But virtual communities are also starkly different. . . . Interaction involves the creation of personality, nuance, identity and "self" with only the tools of texts. . . . In a virtual world participants are washed clean of the stigmata of their real "selves" and are free to invent new ones to their tastes. Escape is not total, however. Participants are revealed in virtual communities. They "give off" as well as give signals as happens in face-to-face interaction, but with a far more reliable mask (Smith, 1992, p. 8).

Despite the presence of such a "reliable mask," Smith nonetheless concludes that "virtual communities are indeed communities" (p. 8). His analysis demonstrates the presence of collective action toward the production, maintenance, and distribution of goods, the levels of commitment necessary for such action, and systems of monitoring and sanctioning needed to support this commitment (Smith, 1992). It is the presence of these attributes that leads Smith to identify the WELL as a distinct community.

Applying the concept of "community" to cyberspace in general, with some emphasis on Usenet, Gurak (1994) goes a step further by showing that communities in cyberspace are dynamic. That is, they form and disintegrate with some regularity,

depending on the availability of and need for the goods they are focused on producing. Gurak's study used e-mail files obtained from individual users, Usenet archive files, and additional scattered bits of information to reconstruct the events leading to the cancellation of Lotus Development Corporation's MarketPlace product, a CD-ROM–based directory containing detailed demographic information on some 120 million Americans (Gurak, 1994). The study shows how a CMC-based community—largely interacting on Usenet newsgroups—quickly formed for the purpose of preventing the release of MarketPlace (Gurak, 1994). This community, which believed Lotus would violate the privacy rights of individual citizens by releasing MarketPlace, shared a common set of values, common interests, and a common *ethos*, the term Gurak uses to describe the social and emotional information that can come through in CMC environments (Gurak, 1994). Once the public outcry forced the cancellation of MarketPlace, fulfilling the purpose for which the community was formed, the community largely disintegrated, and its various participants retreated to pursue other interests on the Net (Gurak, 1994).

These examples from the literature present a number of consistent themes. First, there is the notion of *collective goods* produced and exchanged in virtual communities. One such good is what Smith (1992) refers to this as *knowledge capital*, or "[t]he collected intelligence and memory to be found in virtual communities [that] has led some to speculate about their power to amplify mental capacity. . ." (p. 34). Another is the *social support* described by Newby (1993, p. 34), which is so closely tied to the common values and interests that seem to contribute so profoundly to the growth and maintenance of virtual communities.

Second, there is the sense of commitment that users feel toward these communities. Motivated by the need for knowledge capital or social support, or simply wanting for interaction with others like them, members of virtual communities become committed to their continued success. And, of course, where there are goods, there will be conflict. Such conflict can result in something as disruptive as incessant flaming, or worse. To deal with such situations, virtual communities inevitably resort to some form of monitoring and sanction of members who do not conform to communal norms.

What all these social structures have led to is the development of distinct, definable, communities in cyberspace. Because of the flexibility of the medium of CMC, these communities can reach the ends of the earth and can form and disintegrate with unusual

speed and elasticity, thus creating a new kind of social phenomenon the likes of which we have never seen.

It has now been argued that, in order to reach a meaningful understanding of this phenomenon, better tools are needed for the study of large virtual communities. It has been now shown that a widely-supported set of themes exist in the literature for accurately characterizing these communities. What is now needed is to place these themes into a framework from which a useful model can be developed. The following section introduces a study by MacKinnon (1992), which, I believe, presents the framework for such a model.

MacKinnon's conclusions provide the theoretical basis for this study. His premise (as described briefly in the following section and in detail in Chapter 2) is that a definition of society derived from the wisdom of the ancients can be applied to modern social structures through the use of analog.

The MacKinnon Model. MacKinnon (1992) identifies specific differences between what we commonly recognize as society and the CMC–based society that exists in Usenet. MacKinnon's work demonstrates that one set of aspects exists in society, and that an analogous set of aspects can be observed in Usenet (see Figure 2). Perhaps the most important of these analogous aspects (referred to as *Usenet analogs* by MacKinnon) is the user's *persona*, which, he argues, fulfills a role in Usenet analogous to that fulfilled by the user's personality in society. The need for such a persona results from the lack of physical information and social status cues that many researchers (Kiesler, Siegel, & McGuire, 1984; Lea & Spears, 1992; Smith, 1992; Reid, 1991) attribute to the CMC environment. As MacKinnon explains:

> . . . the medium of written communication interferes with the transfer of the users' external world social structures into Usenet. By the same means, written communication interferes with the transfer of the users' personalities and unique qualities as well. The result is the creation of "personae" which are as distinct from the users as Usenet society is from the external world (MacKinnon, 1992, p. 15).

Another aspect addressed by MacKinnon is that of *emoticons*. MacKinnon holds that the role played by emotions in society is fulfilled in Usenet by a widely accepted and understood system of textual representations—or *paralanguage*—known as emoticons. (See "Definition of Terms" on page 22.)

It is interesting to note that, of the ten societal aspects studied by MacKinnon, only two—prudence and eloquence—are the same in both society and the Usenet environment. Also note that society—the physical space in which the majority of our daily interactions take place—is a three-dimensional physical realm (that is, it consists of often immediate face-to-face interactions with people whose physical form is clearly represented), while Usenet—the virtual space in which a growing subset of societal interactions take place—is a two-dimensional text-based realm (that is, it consists only of textual representations presented on a flat computer screen). MacKinnon clearly believes that there are significant differences between Usenet and the society that spawned it. Indeed, it is the presence of these differences that led MacKinnon to conclude that Usenet stands alone as a distinct social environment, or society. (A detailed discussion of MacKinnon's model is presented in Chapter 2.)

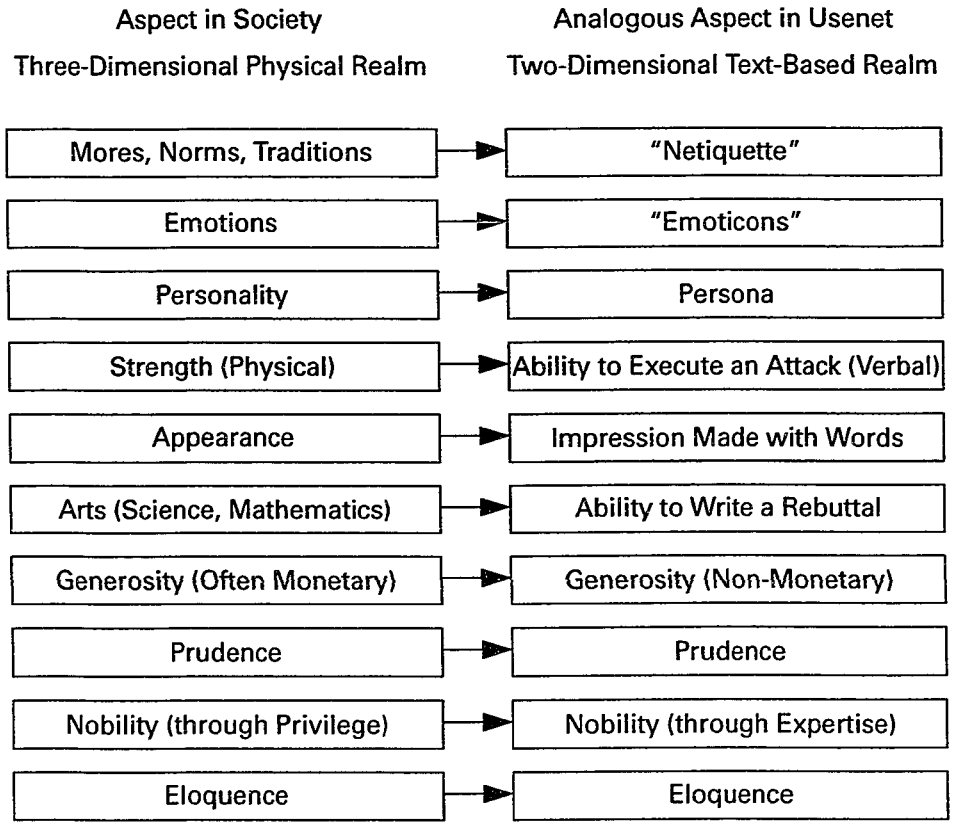


Figure 2. The MacKinnon Model of Usenet Society

A brief perusal of Figure 2 gives clear indication that MacKinnon's conclusions are consistent with Lea and Spears' (1992) finding that "[S]ignificant social information can be communicated in CMC even though it lacks visual and auditory channels" (p. 323). As further discussion will demonstrate, the model covers the key themes of both small-scale empirical research (e.g., the equalization model, the filtered-cues theory, and the SIDE model) and less-structured large-scale studies (e.g., compensating mechanisms, the notions of collective goods, commitment, monitoring and sanction, and constructive comparison to "the real world"). When viewed as a framework with which to study the content of Usenet articles, the model presents a potentially dynamic and flexible tool for large-scale field research in CMC. However, in order to confirm—and, perhaps, enhance—the usefulness of the model, early validation work must be done.

Statement of the Problem

Though a clear rationale for the model illustrated in Figure 2 is presented in MacKinnon's study, his work does not focus on the task of illustrating or validating the model. This study, therefore, will attempt to build on MacKinnon's work by investigating the validity of this model within a sampling of communication observed in Usenet. This problem can be stated more succinctly as follows:

> This study will utilize the societal model of computer-mediated communication suggested in MacKinnon's study of the Usenet computer conferencing system to analyze the content of Usenet articles for the purpose of determining whether a tendency toward this model exists in Usenet.

Research Objectives

The objectives of this research revolve around the establishment of a tool for conducting large-scale field research of computer conferencing environments. These objectives can be stated as follows:

1. To advance the study of CMC by documenting and validating a model applicable to large-scale field research of computer conferencing systems
2. To produce data supporting the notion that CMC environments can be viewed as communities and, indeed, societies in the Hobbesean sense, as defined by MacKinnon (1992)

Significance of the Study

The significance of the proposed study is based on three primary conclusions drawn from the previously-cited literature. The first conclusion is my earlier argument that empirical research has thus far focused on small organizational environments (see Page 7). Highlighting the need for large-scale field research, which takes into account the social context of the communication being studied, Spears and Lea (1994) state,

> It is basic to our approach that there are unlikely to be universal effects of CMC because these will be determined . . . by the social context, the content of identities, and the nature of social relations. . . . [T]he effects of the technology cannot be divorced from their underlying social context (pp. 452–453).

The second significant conclusion is that, despite the demonstrated social potential of Usenet (Gurak, 1994; Hauben, 1993; Newby, 1993; Smith, 1992), there has been very little structured research specific to this particular CMC environment. Studies have instead focused on newer, more-dynamic environments like MUDs and IRC, or on small, controlled environments like company e-mail systems. A prominent exception to this, of course, is MacKinnon (1992), who provides the basis for this study.

Finally, there is the promise of the framework this study intends to validate. If shown to be valid, the MacKinnon model could be enhanced through the integration of more-advanced content-analysis techniques and statistical analysis methods. It might then provide researchers with a systematic, reproducible method for measuring—and possibly predicting—change in the Usenet environment. As more and more people take to the Net, such information could be of value to sociologists, psychologists, political and computer scientists, and technologists working to understand the impact of cyberspace.

Limitations of the Research

Clearly, a study such as this one, which investigates a massive, heavily trafficked, worldwide computer network and its relationship to such broad concepts as the thoughts of man, the definition of *society*, and the manner in which we communicate, is subject to a number of practical limitations.

The first of these is that, owing to the very size of Usenet, which is home to thousands of newsgroups, some of which produce hundreds of articles per day, the relative number of groups and articles the study can survey is strictly limited. To

conduct a complete survey of Usenet would require the services of hundreds of researchers, so this study will rely on random sampling to produce a manageable number of articles (approximately 200) to analyze. Though conclusions about other CMC environments might be drawn in the discussion, this study focuses solely on Usenet and does not attempt to investigate e-mail, IRC, MUDs, BBSs, or other CMC environments.

The second limitation is that the depth of the content analysis to be undertaken must also remain manageable because the study is being conducted without the services of trained psychologists or rhetoricians. Without input from these specialists, definitive conclusions as to the presence of such broadly-definable aspects as eloquence and prudence will be difficult to establish. The conclusions of the content analysis will therefore be externally validated by an additional researcher, and detailed records of the analysis will be kept and made available to specialists who wish to review them in retrospect.

An additional limitation relates to the fact that the theoretical basis of the study has as its foundation a body of theory posited in the 17th century by English philosopher Thomas Hobbes (1651/1962). Because, in the intervening centuries, there have been volumes written to both corroborate and dispute Hobbes's conclusions about the thoughts of man and the definition of *society*, an exhaustive study of the literature on this subject would require a lengthy dissertation by a qualified researcher in the field of political theory. This study, therefore, does not attempt to validate all of Hobbes's conclusions. Instead, it establishes Hobbes's historical prominence and the focus of his work and builds on the work of MacKinnon (1992), who accepts and expands on Hobbes's conclusions.

Because of the limitation described above, it is premature to attempt to statistically validate the MacKinnon model. As such, this study is not an effort to establish statistical validity. Instead, it is simply an effort to indicate whether a tendency toward the model exists in Usenet. The statistical methods used in this study will not include the many rigorous calculations necessary to determine the validity of an instrument of research.

Finally, the researcher conducting this study is not a sociologist, psychologist, political scientist, or rhetorician. Therefore, any conclusions drawn in the discussion that relate to one of these fields should be corroborated in literature specific to that field.

Definition of Terms

Article. For the purpose of this study, the term article refers to a piece of textual communication submitted to the Usenet computer conferencing system either in response to a previously posted article by another Usenet user or as an original expression by the author.

Computer-mediated communication (CMC). Computer-mediated communication is any person-to-person communication that is conducted over large physical and/or perceptual distances using computer and telecommunications technology and limited to the exchange of alphanumeric words and images.

Cyberspace. The term cyberspace, which originates from the William Gibson science fiction novel *Neuromancer,* refers to the conceptual space occupied by people using CMC technology (Rheingold, 1993).

Flame. A flame is a piece of electronic mail or a Usenet article, the content of which is violently argumentative or critical (Kehoe, 1992).

Follow-up. A follow-up is an article submitted to Usenet in response to a previously posted article.

Internet. The Internet is a concatenation of many individual campus, state, regional, and national networks (such as the National Science Foundation's NSFnet, the U.S. Defense Department's ARPAnet, and the U.S. Army's Milnet) into one single logical network, all sharing a common addressing scheme.

Knowledge capital. The term knowledge capital, coined by Smith (1992), refers to the combined intelligence and memory of participants in a virtual community. Smith argues that this knowledge capital serves as a currency, of sorts, in such communities.

Lurking. Lurking is the activity of reading Usenet newsgroups (or articles posted to other CMC-based forums) without contributing to the exchange by posting articles.

Netiquette. Netiquette, an obvious play on the common term "etiquette," refers to a set of traditions widely recognized on Usenet and aimed at ensuring politeness and consideration in Usenet communications.

Newsgroup. A newsgroup is a topical category of Usenet articles.

Paralanguage. Paralanguage is communication conducted without the use of actual words and other grammatical tools. Emoticons are an example of paralanguage.

Persona. The term persona refers to a distinct identity that participants in CMC create to use in representing themselves in the CMC environment. In CMC, a person's persona will take the place of his or her actual personality and physical presence.

Post. The verb form of the term post is used to refer to the act of submitting an article to Usenet, as in, "Please do not post test messages to this newsgroup." (This term derives from the bulletin-board–like nature of Usenet, where users "post" articles to be read by anyone who happens through, similar to the way people post items on bulletin boards for passersby to read.) In its noun form, the term is used to refer to an article posted to Usenet, as in, "I must disagree with the content of your last post." (The term posting is used synonymously, i.e., "I must disagree with the content of your last posting.")

Thread. A thread is a collection of Usenet articles discussing the same subject. A thread ensues after an article prompts other users to post follow-ups. These follow-ups, combined with the original posting, constitute the thread.

Usenet. Usenet is an international network of machines that exchange articles categorized into a number of different topic areas known as newsgroups.

Virtual community. A virtual community is a social aggregation that emerges in a CMC environment when enough people carry on public discussions for long periods of time with significant amounts of human feeling, thus forming webs of personal relationships that exist in cyberspace (Rheingold, 1993).

Virtual interaction. For the purpose of this study, the term virtual interaction is used to refer to any interaction that occurs via CMC.

WELL. The acronym WELL is short for the term, "Whole Earth 'Lectronic Link," which is a computer conferencing collective located in the San Francisco Bay Area and structured somewhat similarly to Usenet.

Chapter 2
Review of the Literature

An investigation of relevant literature on Usenet, the Internet, virtual communities, cyberspace, and CMC was conducted in preparation for this study The review focused on identifying conclusions in the literature in the following general areas:

- Characteristics of CMC
- CMC and Society
- Computer Conferencing and Usenet
- Methodologies in CMC Research

Subsequent to this investigation, a thorough review of MacKinnon's 1992 study, *Searching for the Leviathan on Usenet*, was conducted. This review was aimed at understanding the purpose, scope, methodology, and conclusions of the MacKinnon study. In addition, an effort was made to find evidence in the literature that corroborated MacKinnon's thinking on the following attributes of society observed in Usenet:

- Netiquette
- Emoticons
- Persona
- Ability to Execute an Attack
- Impression Made with Words
- Ability to Write a Rebuttal
- Generosity (Non-Monetary)
- Prudence
- Nobility (through Expertise)
- Eloquence

Finally, a review of selected literature from the field of sociology was conducted. The purpose of this review was to establish a theoretical basis in current sociological thought for the significant literature review findings on CMC. An added purpose was to

seek theoretical corroboration from sociology for the definition of society advanced by Hobbes (1651/1962).

The following sections describe the results of this review.

Characteristics of CMC

The literature indicates that CMC is very different from other, more familiar, forms of communication in many respects.

Kiesler, Siegel and McGuire (1984) identify four features that distinguish CMC from conventional forms of communication: 1) an absence of regulating feedback, 2) incomplete or limited expressions of emotion, 3) a lack of social status cues, and 4) social anonymity. (These features have been collectively referred to as the "filtered-cues theory," as described in Chapter 1.) In a subsequent paper, Kiesler (1986) elaborates on the impact anonymity can have on communication:

> When communication lacks dynamic personal information, people focus their attention on the message rather than on each other. Communicators feel a greater sense of anonymity and detect less individuality in others than they do talking on the phone or face-to-face. They feel less empathy, less guilt, less concern over how they compare with others, and are less influenced by norms (p. 48).

Kiesler (1986) further explains that the receivers in CMC constitute an easily accessible audience that is in fact a "social hodgepodge"—"The only clue the sender has to the receiver's identity and situation may be his or her name and writing style" (p. 48). Other commonly used indications of the receiver's status, gender, race, and appearance, are missing.

Smith (1992), in his sociological study of the WELL, identifies six aspects of virtual interaction that can have a significant impact on communication:

1. Virtual interaction is aspatial (i.e., the amount of physical distance that separates participants does not significantly limit the interaction).
2. Virtual interaction is asynchronous (i.e., participation cannot be simultaneous, as is possible with face-to-face interactions).
3. Most virtual interaction is conducted using only textual symbols.

4. Participants in virtual interaction are acorporal to one another (i.e., the absence of copresence eliminates physical impositions between participants).
5. Limited bandwidths regulate the amount of information that can be practically exchanged in virtual interactions.
6. Participants in virtual interactions are often anonymous or partially anonymous.

Smith (1992) points out that the partial or complete anonymity of the participants is partially a result of the effects that the first five aspects have on the communication environment.

In a study of IRC, a CMC environment that provides immediate feedback, Reid (1991) supports the notion that the distinct aspects of text-based interactions have generally profound impacts on communication:

> It is not only the meanings of sentences that become problematic in computer-mediated communication. The standards of behaviour that are normally decided upon by non-verbal cues are not clearly indicated when information is purely verbal.[7]

Reid (1991) explains that non-verbal cues such as smiles and frowns are lost in CMC, along with factors of environment (tone of voice, attire, etc.) on the basis of which one normally decides what forms of social etiquette are appropriate. Further elaborating on these aspects of anonymity in the IRC environment, Reid (1991) states:

> How an IRC user "looks" to another user is entirely dependent upon information supplied by that person. It becomes possible to play with identity. The boundaries delineated by cultural constructs of beauty, ugliness, fashionableness or unfashionableness, can be bypassed on IRC. It is possible to appear to be, quite literally, whoever you wish.[8]

Clearly these and other researchers (Kiesler, Siegel, and McGuire, 1984; Hellerstein, 1985; MacKinnon, 1992) have concluded that people who communicate via CMC are not subject to many of the self-imposed controls that customarily regulate communications via other media. As Reid (1991) summarizes:

> Researchers of human behaviour on computer-mediated communication systems have often noted that users of such systems tend to behave in a more

> uninhibited manner than they would in face-to-face encounters. . . . The lack of social context cues . . . obscures the boundaries that would generally separate acceptable and unacceptable forms of behaviour. Furthermore, the essential physical impression of each user that he is alone releases him from the social expectations incurred in group interaction. Computer-mediated communication is less bound by conventions than is face-to-face interaction. With little regulating feedback to govern behaviour, users behave in ways that would not generally be acceptable with people who are essentially total strangers.[9]

Serpentelli (1992), in her study of conversational structure in MUD environments, seems to corroborate this view and, in fact, to take it a step further. In her estimation, the absence of status cues and other regulating feedback has actually led to the development of a CMC-based subculture:

> [T]he increasing sophistication and widespread nature of MUD systems is an aspect of computer communication that can no longer be ignored, for it appears to be a medium which is creating an entirely new subculture, with its own language, customs, and paralinguistic means of communication (Serpentelli, 1992).[10, 11]

Serpentelli traces the roots of the subculture to the "hacker culture" that surfaced in the 1980s. In studies of this phenomenon, Turkle (1984) interviewed members of the hacker community at MIT and discovered a collection of somewhat socially handicapped, though technically adept people—primarily males—who are drawn to CMC because of the protection it provides from the intermittent awkwardness of face-to-face interaction. Turkle (1984) discovered that some hackers actually identify themselves as a counterculture, "flaunt[ing] their rejection of 'normal society'" (p. 198) and demonstrating opposition, and not just withdrawal, from mainstream culture.

Describing the computer itself as the source of the hacker's withdrawal, Serpentelli (1992) states:

> The computer, despite its inscrutability and often frustrating linguistic and logical constructions, can be mastered and understood, unlike social interaction which is a maze of often unpredictable reactions. This aspect of computing, as well as the atmosphere of the hacker culture itself, can make computing a safe haven for the introvert and the perfectionist (Serpentelli, 1992).[12]

Refuge in this "safe haven" can be so total that, as Turkle (1995) reports, some users abandon involvement in commonplace social activities. Using the example of young people who assuage involvement in and awareness of local politics in favor of the virtual "politics" of their on-line communities, Turkle (1995) points out that the virtual community offers both the security described by Serpentelli (1992) and a feeling that one can actually make a difference.

Despite the case made by these researchers, psychologists Martin Lea of the University of Manchester, England, and Russell Spears of the University of Amsterdam, the Netherlands, in their laboratory studies of the effects of CMC on group behavior, have authoritatively qualified the extent to which the filtered-cues theory can be applied (Lea & Spears, 1992). They have demonstrated that significant social information is communicated in many CMC environments through the use of non-verbal cues, and that participants in CMC-based group interactions who identify strongly with the objectives and principles of the group will often feel social pressures stronger than those found in non-CMC environments (Lea & Spears, 1992). As such, they implore CMC researchers to realize that "... identifying the social context in which any given CMC takes place is essential for predicting the outcomes of the CMC" (Lea & Spears, 1992, p. 337).

In a more recent study, Spears and Lea (1994) further supported this view by demonstrating that the anonymity inherent in CMC can be as oppressive in the hands of the powerful as it is liberating in the hands of the shy and introverted. Underscoring the fact that, in many CMC environments, existing social hierarchies supersede the aspatial characteristics of CMC, Spears and Lea explain that CMC should not be viewed as an alternative reality where "the individual can escape from the strictures of ordinary identity and interaction" (p. 449). Instead, they argue that "identity and interaction in CMC will often be grounded in the realities of identities and relations beyond CMC, which pervade the rest of our social lives" (Spears & Lea, 1994, p. 449).

Corroborating Lea and Spears (1992) and Spears and Lea (1994), Reid (1991) recognizes the importance of existing social contexts in her study of IRC. She finds that the presence of "social sanctions" was a consistent and important aspect of IRC:

> The ideas of authority and freedom are often in opposition on IRC, as the newly invented social conventions of the IRC community attempt to deal with emotions and actions in ways that emulate the often violent social sanctions of the 'real world' (Reid, 1991).[13]

The fact that the social sanctions created by the IRC community are a reflection of those seen in external society (the "real world") is consistent with Spears and Lea's (1994) view that these social contexts "pervade the rest of our social lives" (p. 449). Here we see that the characteristics of CMC, as they affect individuals, also have often concomitant effects on groups. The following section reviews research on CMC as it relates to larger social structures.

CMC and Society

The degree to which societies worldwide have embraced CMC has been trumpeted by social commentators, popular writers, and, most significantly, by statistics (as is shown in Chapter 1). Smith (1994) states:

> The exponential growth of e-mail and other data traffic on the Internet has been phenomenal testimony to the potential of the latest development in electronic communication, and the future promises an even greater acceptance and utilization by both traditional users and new participants (p. 87).

Quoting Chapman (1994), Smith goes on to assert that the even more significant development has been "the mainstream awareness of the Internet that seems to have come upon the 'outside world' almost overnight" (Chapman, 1994, p. 13, as quoted in Smith, 1994, p. 87).

Contributing to this increased awareness is the staggering growth in the numbers of users, hosts, and computer networks that now access the Internet. Piller (1994) estimates that the number of people who communicate on the Internet is growing at a rate of more than 100,000 new users per month. Publicly available Internet documents show that the number of Internet hosts, which had hovered between 10,000 and 20,000 throughout the early and mid-1980s, expoloded to more than 740,000 between 1987 and 1991 (Lottor, 1992).[14]

Statistics collected by the Internet Society show the following growth figures between December 1992 and December 1993 ("1993 Internet Global Statistics," 1994, p. 7):

- In the United States, the number of networks connected to the Internet increased by 98% (from 4,041 to 7,991).[15]
- Worldwide, the number of Internet-connected nets grew 104% (from 6,393 networks to 13,064).

- Data traffic over the U.S. nets grew by 112% (from about 3,779 gigabytes to more than 8,030 gigabytes).

Increases in Internet traffic in some parts of the world has been particularly dramatic: In eastern Europe, for instance, the newly independent republics of Croatia and Latvia have seen their data traffic increase from 13 to 1,172 gigabytes and from 32 to 1,284 gigabytes, respectively. In Asia, traffic in Thailand has grown from 202 to 4,037 gigabytes and traffic in Malaysia has grown from 70 to 2,201 gigabytes ("1993 Internet Global Statistics," 1994).

While these numerical figures provide hard evidence of the phenomenal growth of cyberspace, they tell us very little about how all of these new participants are adjusting, acclamating, acculturating, interacting, communicating, and, in some cases, living in this fascinating new realm. William Gibson, the creator of the term *cyberspace*, provides this description of the phenomenon:

> Cyberspace . . . can be understood as a vast territory, a space of representations. While human beings have inhabited representational spaces for a very long time, we have never been able to create representations with the ease and flexibility possible in cyberspace. This is important because with each new development in the technologies of representation, from the printing press to satellite communication, there has been a reworking of the kinds of representations and social relationships that are possible to maintain (Gibson, 1984, p.51).

This new "ease and flexibility" is part of the reason the U.S. government has identified cyberspace as a potential catalyst for learning and information exchange among scientists, scholars, and average citizens, and has thus committed itself to the improvement of the infrastructure on which cyberspace is built (Cronin et. al., 1994; Gurak, 1994; Rheingold, 1993). Referring specifically to the economic consequences of this development, President Clinton and Vice-President Gore wrote in 1993:

> Where once our economic strength was determined solely by the depth of our ports or the condition of our roads, today it is determined as well by our ability to move large quantities of information quickly and accurately and by our ability to use and understand this information. Just as the interstate highway system marked a historical turning point in our commerce, today "information superhighway(s)"—able to move ideas, data, and images around the country and around the world—

are critical to American competitiveness and economic strength (Clinton & Gore, 1993, p. 28).

Despite this commitment by government, the future of the Internet—and, ultimately, of the national information infrastructure (NII) as a whole—is in question. Kay (1994) points out that, because of the potential profitability of the NII, industries that have not historically competed (cable companies, computer companies, telecommunications companies, software companies, and entertainment companies) are now "scrambling to position themselves to reap benefits of this future infrastructure" (p. 47).

Of the telecommunications and media conglomerates Kay (1994) refers to, those most likely to provide the resources and funding to build the infrastructure are giving priority to high-profit services like video-on-demand and subordinating more socially responsible options like on-line voting and access to library information and public records—despite the fact that respondents to a national poll indicated that on-line voting and access to public records were the services most desired (Piller, 1994).

The urgency of the social debate surrounding the future of cyberspace, its ultimate role in society, and the nature of its governance, has prompted many technologists and rights activists to enter the fray. Pointing up the "essential uniqueness of computer-mediated communication" and the way computers "change the nature of communication itself," one organization states, ". . . the government is now proposing a $2 billion investment in computer networking technologies which will radically alter the way Americans communicate. Because the technological context changes more rapidly than the laws regulating it, the debate about how we want to live in an electronic world is both volatile and urgent" (Human Rights Watch, 1992).[16] This cause has also been championed by such organizations as Computer Professionals for Social Responsibility (CPSR) and the Electronic Frontier Foundation (EFF).

The CPSR has published its *Public Interest Vision of the National Information Infrastructure* (CPSR, 1993), which identifies the following areas for concern in the current development of the NII:[17]

- The NII may fail to provide universal access.
- A small number of companies may dominate the network and exert undue influence on its design and operation.

- There is a danger that carriers will control content on the NII.
- NII services may emphasize commerce at the expense of communication.
- Public access to government information may be restricted.
- The NII may fail to provide a vital public space.
- The NII may be used to justify the elimination of other essential public services.
- The NII may fail to protect individual privacy.
- Global communication using the NII may be restricted.

Many of these points are echoed in the EFF's *Open Platform Campaign: Public Policy for the Information Age* (EFF, 1994). The EFF describes this campaign as an effort to realize the "democratic potential of the NII" and includes among its priorities a diverse mix of information sources, universal service, free speech, privacy, and the development of public interest applications and services (EFF, 1994).

The related topic of network access in developing nations has been a prominent topic in research as well. Goodman, Press, Ruth and Rutkowski (1994) have identified national characteristics that promote the growth and diffusion of computer networks and have determined that these characteristics are common in developed countries but lacking in developing countries. Ruth (1993) conducted a study of network development in five relatively small nations and determined that "network connectivity can be an indicator of a nation's development in the same way as more traditional measures like poverty, disease, malnutrition, etc." (p. 39).

Though legal considerations are well outside the scope of this study, it is important to note here that matters of law related to the growth and development of cyberspace have been discussed by a number of legal scholars (Kay, 1994; Naughton, 1992; Perritt, 1993; Smith, 1994).

Supplementing the huge volumes of research on CMC's effect on society is a smaller, yet equally significant, body of research on CMC environments *as* societies (Gurak, 1994, 1995; Hellerstein, 1985; MacKinnon, 1992; Reid, 1991; Rheingold, 1993; Rosenberg, 1992; Smith, 1992). Because this aspect of CMC is central to the present study, this research has been discussed at length in Chapter 1.

Computer Conferencing and Usenet

Research on computer conferencing and Usenet is also central to the theme of the present study. Again, coverage of research on these topics (Hauben, 1992; Hauben, 1993; North, 1994; Newby, 1993; Rheingold, 1993) is provided in Chapter 1. To recap the key conclusions of this research,

- Usenet and other computer conferences possess many of the characteristics commonly associated with conventional communities (norms, prerequesites for membership, jargon, folklore, systems of social monitoring and sanction, collective action toward the production, maintenance, and distribution of goods, a historical record, etc.). As such, Usenet has been identified by researchers as a subculture, and in some cases, as a distinct community in its own right.
- These virtual communities have been shown to possess the power to catalyze social action against perceived injustice, as occurred in the case of Lotus MarketPlace (Gurak, 1994, 1995).
- The history of Usenet shows that its popularity was a leading cause of the early growth of computer networks and subsequent creation of the Internet. As such, we can conclude that, of all the uses of computer networks available, computer conferencing and computer-mediated communication are of primary importance to users.

Methodologies in CMC Research

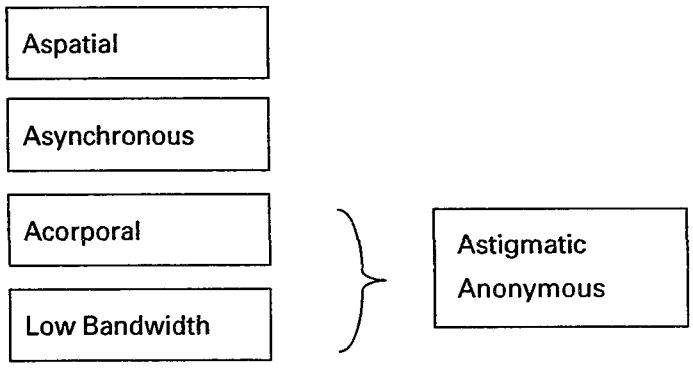
The studies cited here clearly demonstrate that the practice of collecting and analyzing information exchanged via CMC systems like Usenet is well established (Gurak, 1994; Lea & Spears, 1992; MacKinnon, 1992; Reid, 1991; Smith, 1992). Such research has been conducted at both the masters and doctoral levels in fields as diverse as sociology, psychology, political science, history, and rhetoric. The specific methods important to the present study—the monitoring and sampling of CMC exchanges and the use of models to characterize CMC environments—have also been well-established.

Smith (1992) monitored exchanges over a computer conferencing system, copied articles from these exchanges, and examined the content of the articles. Serpentelli (1992) utilized a similar approach, logging exchanges in MOO settings and on IRC channels and analyzing the content of these exchanges using a pre-established coding scheme. Lea and Spears (1992) conducted a laboratory study in which a 40-minute computer conference

was orchestrated and the resulting exchanges later printed out and inspected for specific characteristics such as the use of paralanguage. These and other studies have established the practice of monitoring and inspecting CMC exchanges as a viable research method. In fact, Gurak (in press) discusses this method at length in a forthcoming book.

Gurak (1994) developed a rhetorical model of CMC. Her research into the cancellation of Lotus MarketPlace, a CD-ROM–based information reference product developed by Lotus Development Corporation, investigates the role of CMC in catalyzing the public outcry that led to the cancellation of the product.

Smith (1992) developed a model illustrating the defining characteristics of virtual communities (Figure 3). This model (Smith, 1992, p. 18) illustrates the manner in which the overlying environmental characteristics of CMC derive from the four primary physical characteristics that Smith identifies. In brief, the fact that CMC is aspatial (participants are not copresent, or face to face), asynchronous (communication cannot be simultaneous), acorporal (participants are not subject to the threat of bodily force), and has a low bandwidth (very little information can be transferred, leading to text-only interactions), results in its being astigmatic (allowing only a distorted view of fellow participants) and anonymous (allowing no reliable way of identifying fellow participants).



Brace denotes a derivative effect.

Figure 3. Summary of the Defining Characteristics of Virtual Communities (Smith, 1992)

Smith (1992) further demonstrates that, despite these defining—and somewhat limiting—characteristics, virtual communities nonetheless produce and exchange goods, develop monitoring and sanctioning systems, create gathering places, and experience sucess and failure just as conventional communities do.

The SIDE model (Figure 4) developed by Spears and Lea (1994, p. 443) is discussed at length in Chapter 1. This model applies social identity/self-categorization theory to underscore the importance of social context in the evaluation of CMC environments. The model illustrates how slight changes to the CMC environment, such as removing anonymity or bringing participants into copresence with one another, can stimulate intervening processes that result in differing outcomes, such as indivualistic versus conforming behavior (Spears and Lea, 1994).

MacKinnon (1992), suggests a political—or societal—model of CMC in his study of Usenet, as described in Chapter 1. The MacKinnon Model identifies ten aspects of society discussed in Thomas Hobbes' *The Leviathan* (1651/1962) and develops analogs to these aspects in Usenet (Figure 5).

The following sections discuss MacKinnon's work in more detail. A description of the basis of MacKinnon's study is first provided. This is followed by descriptions of each of the societal aspects of Usenet identified by MacKinnon (those listed in the right column of Figure 5) and attempts to corroborate MacKinnon's conclusions with citations from the literature.

The Basis of the MacKinnon Study

In order to understand the conclusions that led MacKinnon (1992) to identify the societal aspects considered in the present study, we must first understand the objective of his study and some of the premises on which his conclusions rest. The following paragraphs provide a brief explanation of these. For further detail, a thorough perusal of MacKinnon's (1992) thesis is recommended.

MacKinnon's Objective. MacKinnon decribes the purpose of his study with the following brief opening statement, which reads, "The purpose of this thesis is to identify signs of Thomas Hobbes' Leviathan in the Usenet computer conferencing network" (MacKinnon, 1992, p. 1).

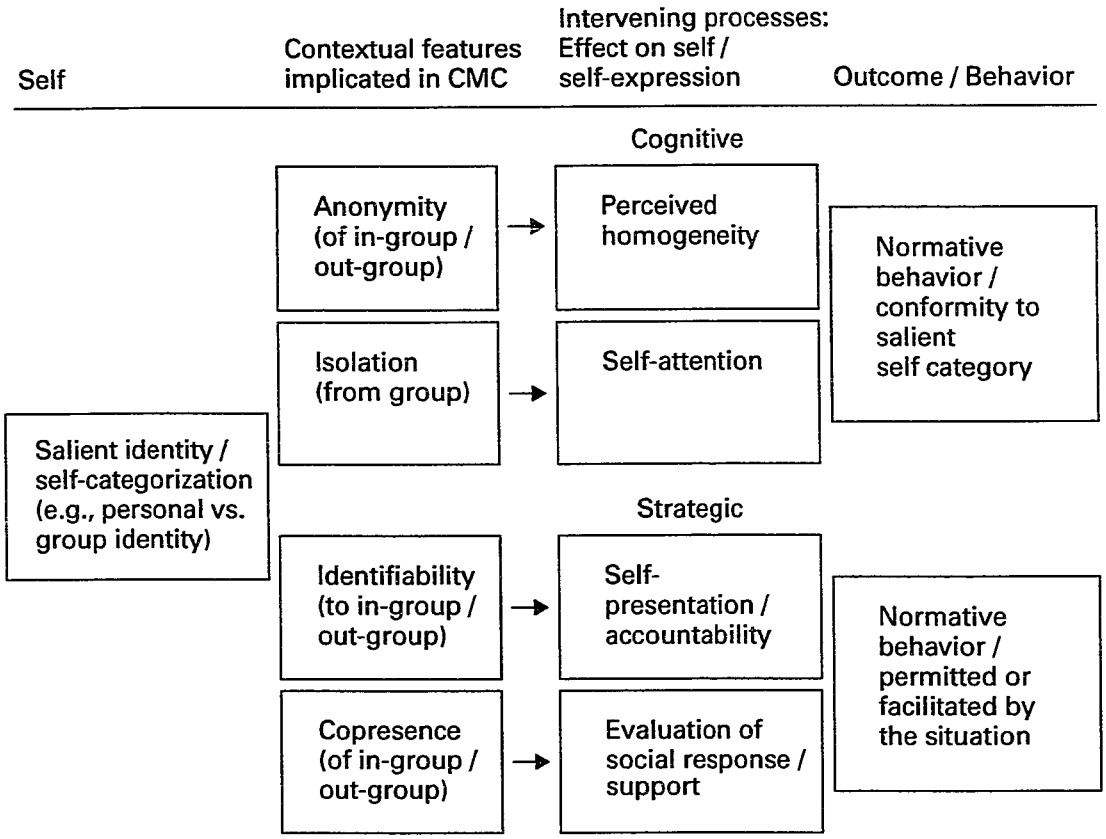


Figure 4. A Schematic Depiction of the SIDE Model

(Reprinted from Spears & Lea [1994], p. 443, by permission of Sage Publications, Inc.)

The "Leviathan" that MacKinnon refers to is both an invocation of the name of a diabolical biblical beast and the title of 17th century philosopher Thomas Hobbes's masterwork, *Leviathan* (Hobbes, 1651/1962). Hobbes, a pessimist about human nature who believed that "men were naturally savage and unprincipled" (Altshull, 1990, p. 43), invoked the Leviathan as a metaphor for the commonwealth—a political state that, through the rule of "an absolute and all-powerful force" (Altshull, 1990, p. 44), could ensure an orderly society. Altschull (1990) emphasizes the historical significance of *Leviathan:*

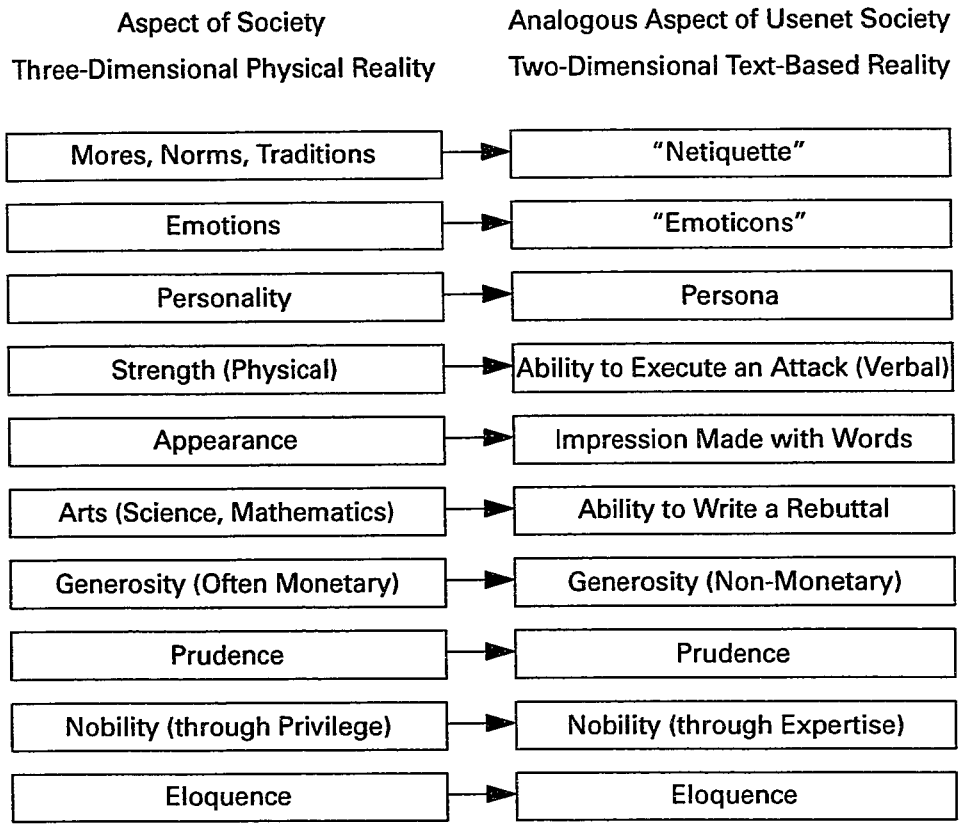


Figure 5. The MacKinnon Model of Usenet Society

> Hobbes's great achievement, an historical landmark in political philosophy, was the *Leviathan*, published in 1651, two years after the execution of Charles I and seven years after Milton's *Areopagitica*. It sets forth the doctrine of the social contract, which stands today as the philosophical underpinning of the American experiment (p. 44).

Employing Hobbes's own definition, MacKinnon (1992) further describes the purpose of his study by applying the Leviathan metaphor to Usenet:

> Defined [by Hobbes] as "that mortal god, to which we owe under the immortal God our peace and defence," Leviathan in a computer conferencing

> network is the institution of censorship or moderation of the messages written by the network's users (p. 1).

MacKinnon's (1992) study can thus be simply described as an effort to identify in Usenet a system of "censorship or moderation," or to use Hobbes's term, "commonwealth." Working toward this objective, MacKinnon relies on some key premises related to Hobbes's work. These are described in the following paragraphs.

Premises of MacKinnon's Study. The first key premise on which MacKinnon's (1992) arguments rest involves the content of Hobbes's *Leviathan*. Clearly, one must have a high level of confidence in Hobbes's work in order to use it as a basis for identifying organizations of people as "societies," and MacKinnon is careful to state early in his thesis his rationale for having such confidence. He states that he chose *Leviathan* "primarily because it is a system of knowledge developed for the purpose of understanding the genesis of government" (MacKinnon, 1992, p. 3). Using Hobbes's words, he further describes *Leviathan* as a "system of knowledge for understanding the 'matter, forme and power' of society" (MacKinnon, 1992, p. 3). He characterizes Hobbes's ambitious—and, in his opinion, successful—undertaking as follows:

> [Hobbes] begins his book with the ambitious sentence, "Concerning the thoughts of man, I will consider them first singly, and afterwards in train, or dependence upon one another.".. After describing the nature of thought, he discusses the senses, imagination, dreams, the development of speech, passions, virtue, and the categorization of all knowledge.... It is an understatement to say that Hobbes is thorough in his endeavor.... The result is a self-contained, interlocking structure with every word defined and every conclusion logically sound (MacKinnon, 1992, p. 5).

Having accepted this first key premise of MacKinnon's thesis, one must consider the second, which is that Hobbes's conclusions remain applicable to society today. MacKinnon (1992) is again careful to argue this premise thoroughly:

> Since [Hobbes's] endeavor was intentionally comprehensive, his treatise is unusually suitable for examining any and all societies—including those that did not exist in his time and as in the case of Usenet, arguably do not exist now. This is possible because the treatise is presented mostly in general terms, giving it broad applicability and timelessness (MacKinnon, 1992, p. 5).

Altschull (1990), Raphael (1977), Russell (1972), and Peters (1956) complement MacKinnon's (1992) view with their accounts of Hobbes's role as a visionary in the world of social and political philosophy. Hobbes is described as having established his position in the seventeenth-century philosophical revolution by being the first to apply the model of the physical sciences to social studies. Indeed, Altschull (1990) explains, "[Hobbes] is often said to be the inventor of social *science*" (p. 44). Particularly pertinent to the present study is Altschull's (1990) characterization of Hobbes as being "driven by his studies of the natural sciences to try to develop a *science of society*" (emphasis added) (p. 45).

For the purposes of the present study, these conclusions by scholars more expert in the fields of political and social science are accepted without further corroboration. It is thus assumed that the two basic premises of MacKinnon (1992)—1) that *Leviathan* constitutes an exhaustive effort to define "society," and 2) that the conclusions presented in *Leviathan* remain applicable today—represent a sound basis for further examination of virtual communities.

Research Corroborating the MacKinnon Model

Having accepted the basis of MacKinnon's conclusions, we can begin to examine them in more detail. As indicated previously, the present study draws ten societal aspects from MacKinnon and constructs a model of Usenet based on them.

The first two of these aspects, *netiquette* and *emoticons*, are described in a chapter titled, "Usenet as a Distinct Society" (MacKinnon, 1992, pp. 8–13). As the title indicates, this chapter establishes the distinctness of Usenet, and ensures "that Usenet differs enough from the external world—the reality outside of Usenet—to provide a unique laboratory to cultivate new insights and new conclusions" (MacKinnon, 1992, p. 8). In this chapter, these two aspects are described as being analogous to the external-world aspects of mores, norms and traditions and emotions, respectively.

MacKinnon devotes a considerable portion of his thesis to the third aspect, *persona.* This includes a full chapter titled "The Notion of Persona" (MacKinnon, 1992, pp. 14–20). In brief, this chapter presents a thorough characterization of the text-only environment of Usenet, which separates a user's external-world personality from a Usenet persona that can be crafted as desired based on the user's skill in the use of language. MacKinnon further develops this external world/Usenet parallel in a subsequent chapter titled, "Personae are Persons" (MacKinnon, 1992, pp. 21–24).

The final seven aspects—the ability to execute an attack, impressions made with words, the ability to write a rebuttal, non-monetary generosity, prudence, nobility through expertise, and eloquence—are discussed in a chapter titled "The Powers" (MacKinnon, 1992, pp. 25–31). This chapter explains Hobbes' view that *natural power* can be divided into seven "faculties of body, or mind," which include "extraordinary strength, form, prudence, arts, eloquence, liberality, nobility" (MacKinnon, 1992, p. 25). The chapter then discusses each of these external-society "powers" in turn and establishes parallels between these and analogous powers that can be observed in Usenet (MacKinnon, 1992).

MacKinnon (1992) follows these discussions by examining a sampling of Usenet articles to measure the presence of Leviathan (or, in generic terms, the existence of various forms of coercion) in the system. This is achieved by applying what he terms "Leviathan factors," five indicators representing increasing levels of coercion. These measurements conclude that Leviathan—or coercion—exists in 12% of the articles he sampled and lead MacKinnon to a number of additional conclusions about the societal nature of Usenet.

The present study differs from MacKinnon's (1992) in two important respects. First, it is broader. While MacKinnon focuses solely on the presence of a "Leviathan," a term he uses to describe "coercion," the present study accepts the aspects posited by MacKinnon (1992) as the basis for a characterization of "society." Certainly, all societies are dependent on the presence of some form of coercion to ensure appropriate behavior and maintain order. However, any complete characterization of society should also include the other aspects identified by MacKinnon: personality/persona, emotions/emoticons, mores, norms, traditions/netiquette, as well as Hobbes's seven "natural powers" (Hobbes, 1651/1962, p. 72). The MacKinnon Model takes all of these aspects into account and attempts to use them as a basis for characterizing virtual societies. Second, the present study attempts a more-structured and perhaps more broadly-applicable approach to measurement than that undertaken by MacKinnon (1992). By taking MacKinnon's societal aspects and constructing a model based on them, this study attempts to develop a tool for broad-based empirical field research on virtual societies.

The following sections discuss each of the societal aspects identified by MacKinnon (1992) and seek corroboration in the literature of their existence in CMC environments.

Netiquette. The first aspect MacKinnon (1992) describes in characterizing Usenet society is the aspect of *netiquette.* In external society, he explains, people tend to "learn standards of behavior from their respective social structures" (p. 10). "[T]hese standards," he maintains, "are reinforced by 'subtleties of speech and non-verbal cues'" (p. 10). The foundation of these standards is rooted in the mores, norms, and traditions of the social structure. Because CMC is a text-only medium, the "subtleties of speech and non-verbal cues" used to convey and reinforce these mores, norms, and traditions are absent in Usenet. MacKinnon (1992) explains that the Usenet community has therefore resorted to an alternate method:

> Usenet's parallel method or analog for conveying mores, norms, and traditions is known as "netiquette." As the term implies, it is literally "network etiquette" and it helps to reinforce the standards of behavior that users might miss from the lack of non-verbal cues (pp. 10–11).

The concept of sanctioning methods in virtual communities, and indeed the existence of netiquette, is well-documented in the literature. Smith (1992) explains that the "monitoring and sanctioning" of behavior (p. 4) is a method communities use to maintain their members' commitment and ensure the continued production and distribution of essential resources (the "knowledge capital" referred to in Chapter 1).

Newby (1993) associates the concept of social sanction specifically with Usenet: "Most Usenet newsgroups are very informal, but individual groups have their own subcultures that may place social restrictions on the interaction" (p. 34).

North (1994), a veteran of Usenet newsgroups, also acknowledges the existence of netiquette. He describes a number of common deviations from the norms observed in his study and explains how such transgressions are policed by the community as a whole, and deviations punished through waves of public opinion.

These citations are provided in addition to MacKinnon's own references (Reid, 1991; Von Rospach, 1987). Again, the reader is directed to MacKinnon (1992) for further details.

Emoticons. MacKinnon (1992) holds that *emoticons* are the written cues needed to convey and reinforce the Usenet standards of netiquette, just as non-verbal cues are

needed to convey and reinforce the mores, norms, and traditions of the larger community:

> Just as "netiquette" developed into the Usenet analog for standards of behavior, a system of written cues has developed as an analog to reinforce those standards. These cues, known as "emoticons," make use of non-standard punctuation, spelling, capitalization, and special keyboard characters to convey action, emotion, and emphasis (p. 12).

While ample evidence of the use of emoticons can be obtained in just a few hours reading Usenet newsgroups, scholarly research into the phenomenon has also been conducted, led by Lea and Spears (1992). In their study of what they term *paralanguage* in virtual interaction, they hold ". . . that paralanguage is one source of information contained in CMC that people use to form impressions of each other when communicating" (Lea & Spears, 1992, p. 322). In the following passage, they corroborate MacKinnon's description with surprising exactness:

> The availability of paralinguistic cues is a feature of CMC that is well known to regular users. . . . [P]aralanguage . . . takes the form of typographical marks and other features of the text that . . . signify socially shared meanings. . . . These meager cues about personality may assume greatest importance in interactions between strangers where memories of previous interactions are unavailable (Lea & Spears, 1992, pp. 323–324).

The unusually dynamic nature of Usenet chronicled by Gurak (1994, 1995), where communities quickly form to achieve a common purpose and then dissipate with equal dispatch, is consistent with this description of "interactions between strangers."

MacKinnon (1992) provides several examples of both netiquette and emoticons in his thesis. These phenomena, he maintains, establish "the distinctness of Usenet from the society of the external world." The present study holds, however, that both the concept of persona and the presence of Hobbes's seven "natural powers" (Hobbes, 1651/1962, p. 72), discussed in the paragraphs that follow, are equally important in establishing Usenet as a distinct society.

Persona. As described previously, the notion of *persona* is central to MacKinnon's thesis. Like many of the aspects MacKinnon (1992) discusses, the notion of persona is founded in the text-only nature of the Usenet environment. The fact that "written

communication interferes with the transfer of the users' personalities and unique qualities" results in "the creation of 'personae' which are as distinct from the users as Usenet society is distinct from the external world" (MacKinnon, 1992, p. 15). The following passage draws on the work of Hobbes (1651/1962) to make this point more explicitly:

> Words signify the memory of sensory experience and thought, but the physical things of the external world exist independently of the words which describe them. Though important, words are not required for the existence of the things to which they refer. But within Usenet, words are the sole means of characterizing the network's universe. Thus, wordsmanship in Usenet is a far more valued skill than it is in the external world (MacKinnon, 1992, p. 15).

Given the originality of this viewpoint, direct corroboration is somewhat difficult to cite. There have, however, been a number of studies showing that alternate personalities are routinely adopted by CMC participants (Serpentelli, 1992; Hellerstein, 1985; Curtis & Nichols, 1993). Smith (1992) provides a characterization of virtual interaction similar to that posed above by MacKinnon (1992), though Smith uses the notion of "self" rather than "persona":

> In a virtual world participants are washed clean of the stigmata of their real "selves" and are free to invent new ones to their tastes. Escape is not total, however, participants are revealed in virtual communities, they "give off" as well as give signals as happens in face-to-face interaction, but with a far more reliable mask (p. 8).

Spears and Lea (1994), in their work developing the SIDE model, discuss the notion of *deindividuation*. In brief, this notion holds that the salience of the individual is, in some social contexts, subordinated to that of the group. For individuals who do not feel a strong sense of inclusion in the group, deindividuation can lead to strong feelings of isolation, which, in turn, can foster independence from the group. For those who do feel a strong sense of inclusion, deindividuation can lead to increased dependence, as demonstrated by conformance to group norms and involvement in intergroup behavior. What Spears and Lea's experiments with the SIDE model demonstrate is that in CMC environments like Usenet, these effects can be significantly pronounced. That is, in the former case, independence from the group can lead to expressions of hostility, and in the

latter case, conformance and group involvement can be more consistent and unfailing (Spears & Lea, 1994).

Thus, not only does the deindividuation of CMC lead to the creation of personae as MacKinnon (1992) suggests, but the social dynamics of interactions between these personae have been shown to be very different from those observed in face-to-face interaction. This further supports MacKinnon's view that personae are yet another element establishing the distinctness of Usenet society.

As stated previously, MacKinnon (1992) dedicates two chapters of his thesis to the development of the concept of persona. Particularly pertinent to the present study is MacKinnon's definition of "existence" in Usenet, which, he maintains, is inextricably tied to the ongoing "cycle of statement and response" that occurs on the network (see Appendix A for a detailed description of how interaction unfolds in Usenet):

> It is the high level of interaction among Usenet users which gives their personae "life." In fact, a single response to one's statement is sufficient to generate a persona. That response, though minimal, is the foundation of existence within Usenet. It is obvious that a response implies a cause or stimulus worthy of reaction; however it is less obvious that by implication it signifies an acknowledgment of that cause. In terms of "cause" and "effect," a characteristic of the effect is the substantiation of its cause's existence. In terms of Usenet, a response substantiates the existence of a statement. This may seem trivial until it is recalled that Usenet personae are created as a result of the interaction among Usenet users. This interaction consists of the cycle of statement and response. The existence of the personae, therefore, is tied to that cycle (MacKinnon, 1992, pp. 17–18).

It is important to establish this definition of existence before proceeding with the following paragraphs, which discuss MacKinnon's Usenet analogs to Hobbes's "natural powers" (Hobbes, 1651/1962, p. 72). Hobbes (1651/1962) asserts the existence of these powers by stating that "*Natural power* is the eminence of the faculties of body, or mind: . . . extraordinary strength, form, prudence, arts, eloquence, liberality, nobility" (p. 72).

The analogs to these powers arrived at by MacKinnon (1992) are firmly rooted in the fact that communication on Usenet is limited to text-based interaction. Not surprisingly, the first three of MacKinnon's analogs involve the extent to which users

accept and respond to one another's words, indicating the importance in Usenet of the ability to craft compelling text.

In drawing these parallels, MacKinnon (1992) acknowledges that some natural powers (such as extraordinary strength) are meaningless in virtual interaction. Careful to make appropriate adjustments for the archaic language used by Hobbes (1651/1962), MacKinnon subsequently arrives at sound conclusions regarding the existence of analogous aspects in Usenet. He states that, "Three of these natural powers are severely limited in their transfer to Usenet society because Usenet personae lack physical form. They are strength, form, and arts" (MacKinnon, 1992, p. 25).

The analogs MacKinnon (1992) arrives at for these powers are discussed in the following paragraphs.

Ability to Execute an Attack. In arriving at a Usenet analog to the societal aspect "strength," MacKinnon (1992) again invokes the "persona" concept and stresses the aspatial nature of CMC. Noting that "physical strength is irrelevant in any environment devoid of physical things," MacKinnon (1992, p. 25) points out that a Usenet persona can nonetheless have strength relative to other personae:

> In terms of Usenet, strength is one's ability to "execute an attack." It will be recalled that the action of "attack," like all actions in Usenet, must be derived from the cycle of statement and response. Therefore, "strength" in Usenet is one's ability to write a potent, or even vehement, statement (MacKinnon, 1992, p. 25).[18]

As mentioned in Chapter 1, Smith (1992) uses the term *acorporal* to describe CMC-based interactions. He points out that the lack of copresence "may have profound implications since many of the processes of group formation and control involve either the application or potential for application of force to the body" (p. 16).

Spears and Lea (1994) also corroborate this view, and cite several examples of how CMC has in fact catalyzed collective action:

> The use of CMC by political pressure groups such as GreenNet, PeachNet, and EcoNet . . . provide testimony to CMC's potential in coordinating collective organization as well as accelerating collective response (Spears and Lea, 1994, p. 440).

Without articulating the conclusion as MacKinnon (1992) has, these and other studies corroborate the conclusion that the "ability to execute a (verbal) attack" represents a sound analog to the societal aspect of strength.

Impression Made with Words. Many of the challenges facing MacKinnon (1992) in identifying a Usenet analog to "strength" also complicated the identification of such an analog for Hobbes's (1651/1962) term, "form."Again, MacKinnon is careful to define the term in the language of Hobbes's time:

> The power of "form" comes from one's physical makeup. In essence, it is the effect that one's appearance has on others.... Like "strength," it transfers poorly into Usenet because personae lack physical form. Yet it has an analogous counterpart: "form" in terms of Usenet, comes from the impression one makes on others, not with one's physique, but with one's words.... Granted, while these images are not the clear, consistent images conveyed by "form" in the external world .... they do serve to add a "face" to a name and a personality to the words (MacKinnon, 1992, p. 26).

This notion that, in virtual spaces, the impressions experienced by readers act as a substitute for one's physical appearance is corroborated in studies by both Smith (1992) and Lea and Spears (1992). Both studies acknowledge the text-only nature of CMC and assert that, despite this limitation, strong impressions are shared in these environments. Agreeing that "nothing but words are normally exchanged" in CMC (p. 8), Smith (1992) describes the "personality, nuance, identity and 'self'" that are nonetheless conveyed through the medium "with only the tools of texts" (p. 8).

Lea and Spears (1992) further corroborate this view:

> [T]he reduction in the number of cues available in CMC does not point to a reduction in the social context of the CMC. Instead, communicators will use whatever cues are available to construct impressions of each other;... (p. 324).

Ability to Write a Rebuttal. The power of "arts" is somewhat more problematic for MacKinnon (1992). However, drawing on Hobbes's own definition for "arts"—which, given the era in which it was written, is quite different from what a 20th-century reader would expect—MacKinnon (1992) arrives at a sound Usenet analog. Because Hobbes (1651/1962) describes "arts" as "Arts of public use, as fortification, making of engines,

and other instruments of war; because they confer to defence, and victory" (p. 73), MacKinnon (1992) concludes the following:

> Since Usenet is a non-physical environment, the notion of "defence," like that of strength, must be derived from the cycle of statement and response. Having established that "strength" in Usenet is one's ability to write a potent statement, then it follows that "arts" in Usenet, because they "confer to defence," must be one's ability to write a rebuttal (p. 26).

North (1994) characterizes this action of writing a rebuttal, giving the example of its use in defending the virtual community from the actions of unscrupulous violators of netiquette. He explains that "The extensive use of peer pressure within the Net society to cause conformation to behavioral expectations allows the minimization of conflict without the need for a formal group of 'Net police.'"[19] Two techniques identified by North (1994) for the regulation of conflict are private e-mail wars (sometimes referred to as "mail-bombing") and flame wars, both commonly used forms of written rebuttal.[20]

The practice of flaming and mail bombing is consistent with MacKinnon's (1992) concept of "rebuttal as defense." A much broader example of the practice is provided by Gurak (1994, 1995) in her study of the cancellation of Lotus MarketPlace. As described in Chapter 1, Gurak presents a case study of "The Protest over Lotus MarketPlace" (Gurak, 1995, p. 2), wherein an on-line community largely composed of Usenet users organized to defend society from what it viewed as a gross and massive infringement on privacy rights. Gurak (1995) describes how a flurry of critical postings blanketed Usenet after the discovery of the MarketPlace product. This spurred the distribution of Usenet postings containing Lotus's address and phone number and the e-mail address of the company's CEO. "In one case," Gurak (1995) explains, "a discussion group was formed specifically to talk about the product" (p. 3). This case, wherein the David that is the virtual community defeats the corporate Goliath of Lotus, presents a dramatic example of MacKinnon's (1992) "rebuttal as defense" concept.

Having established the ability to craft compelling text as the basis for analogs to the physical powers of Hobbes (1651/1962), MacKinnon (1992) moves to the dimension of what Smith (1992) refers to as "collective goods in a virtual space" (p. 28). The foundation of MacKinnon's thinking here is the notion that, just as wordsmanship is analogous to physical power in virtual interactions, so is knowledge analogous to material wealth.

Generosity (Non-Monetary). Unlike the physical powers discussed to this point, which do not directly transfer into virtual interaction, Hobbes's (1651/1962) powers of "prudence" and "liberality," MacKinnon (1992) points out, "are transferred to Usenet almost completely" (p. 27). On the latter, he maintains, "'Liberality' is intended by Hobbes to mean 'generosity'" (MacKinnon, 1992, p. 27). He arrives at this conclusion from Hobbes's (1651/1962) statement that, "Also riches joined with liberality, is power; because it procureth friends, and servants: without liberality, not so; because in this case they defend not; but expose men to envy, as a prey" (p. 72).

Recognizing that what Hobbes (1651/1962) describes here— "riches joined with liberality" —is in fact *monetary* generosity, MacKinnon points out that *non-monetary* generosity is the logical Usenet analog to this power:

> "Liberality" can be combined with things other than riches to produce the same effect. Consider the act of restraining oneself from easily humiliating a subordinate in public or the act of freely and genuinely offering one's assistance to the uninitiated. These acts of kindness bolster one's liberality. Additionally, they are action easily transferred to written form (MacKinnon, 1992, p. 27).

As cited previously, Smith (1992) has worked extensively to define this concept of the exchange of "goods" in cyberspace. He describes interactions remarkably similar to those alluded to by MacKinnon (1992), demonstrating how virtual communities "produce a variety of collective goods" by facilitating interactions between a widely distributed population of users. This service helps people to "exchange ideas and coordinate their activities, and provide the kind of identification and feeling of membership found in face-to-face interaction" (Smith, 1992, p. 5).

He further develops this thinking into the "knowledge capital" described in Chapter 1, which comprises not only knowledge itself, but the added efficiency virtual communities offer in distributing knowledge. Having observed that members in the WELL (the Usenet-like community on which he conducted his study) routinely share advice and expertise, he concludes that. "The costs of membership in the WELL are primarily money and time, the payoff useful knowledge and membership in a collectivity" (Smith, 1992, p. 24).

This idea that "collective knowledge" is built in cyberspace is echoed by Hauben (1993), who describes information as "no longer a fixed commodity or resource," but rather a collective resource that is "constantly being added to and improved."[21]

Smith (1992) uses the notion of "status" to emphasize the strong relationship between membership in the collective and the exchange of non-monetary generosity. Pointing out that "[b]eing knowledgeable in the WELL and being free with your knowledge is a sure way to gain status, friends, and visibility (Smith, 1992, p. 32), he convincingly corroborates MacKinnon's (1992) parallel between non-monetary generosity on Usenet and Hobbes's (1651/1962) statement that "liberality," in external society "is power . . . because it procureth friends" (p. 72).

Prudence. Perhaps more than any other of Hobbes's (1651/1962) "natural powers," the power of prudence is directly transferrable from a face-to-face interaction to a virtual one. MacKinnon (1992) is careful to point out, however, that the "filtered-cues" nature of CMC and the medium's reliance on textual communication can lead to occasional lapses of prudence:

> . . . Hobbes explains that "prudence" comes from "much experience" leading to "unusual observations" or insight. A person's prudence transfers to his or her persona because they share one and the same mind and experiences, despite the fact that expedience may permit one to "forget" this fact. Only when one's [lack of] writing ability interferes with one's attempt to communicate prudently does a persona seem less prudent in Usenet than the [person] does in the external world (MacKinnon, 1992, pp. 27–28).

Given that prudence, as defined, is directly transferrable to Usenet, the present study accepts MacKinnon's viewpoint on this power without further corroboration.

Nobility (through Expertise). Of the power of nobility, Hobbes (1651/1962) writes, "Nobility is power, not in all places, but only in those commonwealths, where it has privileges: for in such privileges, consisteth their power" (p. 73).

Given the archaic condition of the nobility concept, the fact that nobility is not easily conveyed in CMC, and the unlikelihood that the anarchy of Usenet would be perceptive to such a concept, it is unlikely that the "privileges" upon which the power of

nobility rests would be conferred upon Usenet users by their peers. MacKinnon (1992) does, however, point out that an analog to nobility has been observed in Usenet:

> . . . nobility does exist in Usenet. Users such as [Gene] Spafford, the frequently cited authority on "netiquette," seem to enjoy much deference when "making appearances" in Usenet. For example, because Spafford is famous, other users may be less visibly critical of his statements while he is "present" (p. 28).

The difference between the "deference" MacKinnon describes here and the "privilege" of nobility is that this deference results from the subject's expertise, rather than his or her material wealth. This difference is parallel to that used in differentiating non-monetary generosity from the Hobbesean concept of "liberality"—that is, in the Usenet analog, knowledge is substituted for material wealth.

As previously stated, virtual communities not only offer a source of knowledge to their users, but also a higher degree of efficiency in obtaining that knowledge. It is through the collective expertise that can be tapped simultaneously with CMC that this efficiency is achieved. Smith (1992) describes this phenomenon as it occurs in the WELL as an "organic knowledge filter" (p. 30). Because each of the community's thousands of users possesses specialized knowledge on one topic or another, and because each sifts through information on that topic as a matter of course, a single user is able to request information from this vast store of knowledge by posting a single article. Furthermore, this user, and others who read broadcasts of both the requests and the responses, are very likely to bestow respect on those in the community who are kind enough to post responses. Thus, it is through the willingness to offer one's expertise to the community that nobility is achieved in Usenet.

Eloquence. "Eloquence," MacKinnon (1992) states, "is perhaps the most important power in Usenet" (p. 28). MacKinnon (1992) defines eloquence as the power that "enables one to communicate, not only functionally, but with finesse" (p. 28). Making the somewhat obvious point that such a power is essential in a text-only environment, MacKinnon (1992) writes:

> . . . in a world where words are primary to existence and serve as the sole mode of communication and activity, their importance cannot be exaggerated. . . . The premium that Usenet places on spelling, and writing skills in general, inflates

> the Usenet analog for eloquence beyond its relative worth in the external world (p. 29).

To corroborate this point, we again appeal to Gurak (1995), whose study convincingly asserts the importance of rhetorical eloquence in CMC by demonstrating that the inappropriate rhetorical approach taken by Lotus in the MarketPlace debate was central to the eventual demise of the product. Gurak (1995) explains that the ineffectiveness of the articles Lotus posted in response to Usenet's upwelling of negative sentiment was largely due to the ineffective rhetoric used in these articles. By using a "fact-driven, impersonal, and business-like tone" the company projected an image that "was in direct clash with the personal and angry ethos of the protester community" (Gurak, 1995, p. 5).

Gurak (1995) develops this point further by showing that Lotus was actually denied full access to the debate —the equivalent of death in Usenet society, according to MacKinnon (1992)—because of their lack of sound rhetorical practice. Pointing out that a skilled rhetorician always develops a complete understanding of the audience so that rhetoric can be crafted to directly address the audience's concerns in a tone that will be well-received, Gurak recounts how Lotus's abysmal failure to do so resulted in its being an ineffectual newcomer to an already mature and raging debate.

Again, we see that in CMC environments like Usenet, the importance of the physical and material aspects that often dominate the larger community are subordinated to analogous aspects of wordsmanship and knowledge. Clearly, any communication environment that stresses such a radically different set of priorities holds the potential to produce very different results.

This review of the ten societal aspects identified by MacKinnon (1992) demonstrated that current literature on CMC provides themes consistent with those embraced by MacKinnon. As such, it was deemed reasonable to proceed with further utilization of the MacKinnon Model. Before doing so, however, a brief review of a selection of prominent literature in the field of sociology was conducted. This was done to establish a theoretical basis in current sociological thought for the significant findings from the literature review on CMC previously presented in this chapter.

Sociological Perspective

To ensure that the scope of the present study was manageable, it was necessary to consider only the Hobbesean view of society, as interpreted by MacKinnon (1992). Nonetheless, given that several centuries of scholarly thought have occurred since the publication of the *Leviathan*, and that much of this thought has been directed at advancing our understanding of society, it would have been folly to proceed with the utilization of a model based on Hobbes's (1651/1962) definition of society without first pursuing a basic understanding of the principles of sociology, which more than any other discipline aims to further our understanding of social establishments.

As such, the brief review presented in the following sections was conducted. Sociological texts indicated that two schools of thought (also referred to as *theoretical paradigms* and *models of man* [*sic*]) currently dominate the sociological landscape (Macionis, 1991; Skidmore, 1975). These are

- *Structural-functionalism:* "[A] theoretical framework based on the assumption that society is a complex system whose parts work together to promote stability" (Macionis, 1991, p. 17).
- *Symbolic-interactionism:* "[A] theoretical framework based on the assumption that society involves interaction by which individuals actively construct reality in everyday life" (Macionis, 1991, p. 20).

Though other schools of thought exist (including *exchange theory* and *social-conflict theory*, among others), these two were chosen as the focus of this review not only for their prominence, but also because they assume opposing orientations in their views of society.[22] Because the purpose of the review was to find a theoretical basis in sociology for the MacKinnon Model, it was felt that any such basis grounded in both schools would hold significant credence, given these opposing orientations.

To keep the review manageable and within the scope of the present study, three prominent works from the field were reviewed:

- *Mind, Self & Society,* (Mead, 1934) a compendium of material drawn from the lectures of George Herbert Mead, a prominent social behaviorist whose work at the University of Chicago from 1900–1930 introduced many of the principles held by modern symbolic-interactionists.

- *The Presentation of Self in Everyday Life,* (Goffman, 1959) by Erving Goffman, a pioneer in the method of dramaturgical analysis whose concept of *impression management* aims to "ways in which individuals, in various settings, attempt to create specific impressions in the minds of others" (Macionis, 1991, p. 155).
- *Social Theory and Social Structure,* (Merton, 1957) by Robert K. Merton, a prominent structural-functionalist who has shown that any part of society can have many functions and has classified these functions into *manifest* functions and *latent* functions (Macionis, 1991, p. 18).

The general sociology text by Macionis (1991) was used to provide a general understanding of some of the concepts uncovered in these older works.

Mead and the Importance of Social Response. The focal idea in Mead's lectures on society, as recounted in *Mind, Self & Society,* is the notion that humans, unlike other species, take on the role of others with whom they communicate. Mead holds that this differentiation is central to the existence of cooperative activity between humans and the subsequent formation of societies (Mead, 1934, p. 254). This unique ability to empathize provides humans with a basis for self-control, self-consciousness, and self-criticism, all of which operate to create social control (Mead, 1934, p. 255). This idea can easily be adopted as a basis consistent with Hobbes's (1651/1962) notion of mores, norms, and traditions and MacKinnon's (1992) notion of netiquette. The function of self-regulation so often cited in the literature on CMC can be seen as an outgrowth of humankind's innate ability to empathize.

Particularly pertinent to this study is the fact that Mead's focus on empathy is grounded in the act of communication. In fact, Mead holds that communication is "more universal" than religion or economics, which were widely held to be the two most universal forms of social action of his time (Mead, 1934, p. 259). Clearly, both religion and economics are dependent on communication, as Mead points out. However, Mead further theorizes that the act of communication, and indeed the action of *thinking,* are dependent on the existence of social action, since communication and thinking are nothing more than the "response of the individual to the attitude of the other in the wide social process in which both are involved" (Mead, 1934, p. 260). This basis is directly parallel with the importance MacKinnon (1992) gives to the cycle of statement and response in Usenet. This cycle, through which users respond to the attitudes of others, constitutes the "wide social process" in Usenet.

Another set of concepts from Mead that are borne out in Usenet are his emphasis on the "vast importance of the media of communication" and its dependence on "common interests" (Mead, 1934, p. 257). Mead holds that the medium of communication, particularly journalism, the novel, or the theatre (the most common mass media of his day), is important because of its potentially wide reach and ability to impact the thoughts and elicit responses from a larger cross-section of society. This effect, however, is dependent on a common interest, since a message that is of little interest is unlikely to prompt a response:

> There is a far higher degree of participation, and consequently of possible communication, [with mass media] than otherwise. There is involved, of course, in such a development the existence of common interests. You cannot build up a society out of elements that lie outside of the individual's life-processes (Mead, 1934, p. 257).

Again, Mead casts a reflection of MacKinnon's (1992) cycle of statement and response. But he also very accurately characterizes the very structure of Usenet, which is a hierarchical structure of groups based on common interests and existing only so long as the cycle of statement and response continues. Perhaps more significantly, Mead declares that the very existence of society is dependent on the existence of common interests, presaging the developments that led to the growth of today's Usenet.

Mead's (1934) focus on empathy, and on empathy in communication, leads him to his fundamental premise: that society is composed of interactions, expressed in the language of the community, and that the individual's mind consists of his or her responses to these interactions. This notion that people define their own reality—and, in fact, create and maintain the self—by interpreting the surrounding social environment lies at the heart of symbolic interactionism. This interdependence between the community and the self, and the central role played by language (and symbols) in Mead's thinking, is again indicative of Usenet. As MacKinnon (1992) has pointed out, users are dependent on the cycle of statement and response, which is in turn dependent on active users, a unique language exists in the form of emoticons and other devices, and the community is maintained through rules of netiquette, which serve to reinforce self-control and self-consciousness.

Surprisingly, Mead (1934) also presages, in lectures delivered well before any thought of a second world war, the demise of isolationism and the growth of

"international mindedness" (p. 265, p. 270). In fact, his invocation of the need for a "mechanism of social relationship which brings us together" smacks eerily of today's Internet:

> . . . if the social relation can be carried on further and further then you can conceivably be a neighbor to everybody in your block, in your community, in the world, . . . What is essential is the development of the whole mechanism of social relationship which brings us together, so that we can take the attitude of the other in our various life-processes (Mead, 1934, p. 270).

Goffman and Impression Management. Using a method known as *dramaturgical analysis*, Goffman (1959) develops a concept he calls *impression management*, which refers to "the ways in which individuals, in various settings, attempt to create specific impressions in the minds of others" (Macionis, 1991, p. 155).[23] Using this viewpoint, Goffman (1959) discovers that agreement is emphasized in most social settings, while opposition and conflict are downplayed. Goffman's emphasis of "impressions" is consistent with MacKinnon's (1992) focus on "impressions made with words." Usenet can perhaps be viewed as a "setting" where users "attempt to create specific impressions" using only the tools of text.

Goffman (1959) presents a four-pronged "analytical context" from which societies can be viewed (p. 240). The *technical* viewpoint looks at how efficient the society is in achieving objectives such as the production of goods. The *political* viewpoint looks at how power is utilized and how one segment of society imposes demands on another. The *structural* viewpoint looks at status within the society and its interactions based on horizontal and vertical status relationships. Finally, the *cultural* viewpoint looks at how manifestations of the society's values, including customs, morals, fashion, and standards of decorum, affect social interaction. To this existing context, Goffman (1959) adds the *dramaturgical* viewpoint, which focuses on describing and evaluating the impression management techniques used in a society.

Interestingly, the societal aspects identified by Hobbes (1651/1962) and MacKinnon (1992) appear to fit logically in this analytical context, as illustrated below:

- Technical viewpoint
  - Physical strength / Ability to execute a verbal attack
  - Arts (science, mathematics) / Ability to write a rebuttal

- Political viewpoint
  - Monetary generosity / Non-monetary generosity
  - Prudence / Prudence
  - Eloquence / Eloquence
- Structural viewpoint
  - Nobility through privilege / Nobility through expertise
- Cultural viewpoint
  - Mores, norms, traditions / Netiquette
- Dramaturgical viewpoint
  - Personality / Persona
  - Emotions / Emoticons
  - Appearance / Impressions made with words

Note that, though each aspect is listed under the viewpoint (apparently) most directly affected by it, each aspect could actually be evaluated from any of the five perspectives. Goffman (1959) makes a similar statement about impression management, ("... the facts specifically pertaining to impression management also play a part in the matters that are a concern in all the other perspectives ..." [pp. 240–241]), indicating that the dramaturgical, which focuses on impression management, could be a fruitful approach to the study of Usenet.[24] As such, this segmentation of the societal aspects based on Goffman's analytical context serves to corroborate the existence of the aspects and offers interesting possibilities for follow-on research. This is further suggested in Goffman's (1959) discussion of the intersection between the dramaturgical viewpoint and the other four viewpoints in the analytical context.

In describing the intersection between the dramaturgical and political perspectives, Goffman (1959) concludes that the role of communication in projecting power is in providing an "effective means of displaying it," and that such a display "will have different effects depending upon how it is dramatized" (p. 241). Here, Goffman draws a parallel conclusion to that reached by MacKinnon (1992), who concluded that, in a text-only communication environment, the power of physical strength is analogous to the ability to execute a verbal attack. Furthermore, Goffman (1959) indicates that verbal and physical projections of power can be interchangeable at times: "... the most objective

form of naked power, i.e., physical coercion, is often neither objective nor naked but rather functions as a display for persuading the audience" (p. 241).

Goffman (1959) describes the intersection between the dramaturgical and structural perspectives as being "most clearly in regard to social distance" (p. 241). He concludes that an image of high status can only be maintained if a "performer" is able to restrict communicative contact with the "audience" (Goffman, 1959, p. 241). This hypothesis, which is directly relevant to the concept of "nobility" posited by Hobbes (1651/1962) and MacKinnon (1992), suggests a possible research path in the Usenet environment.

Another potential research path is suggested in the following description from Goffman (1959) of a "fundamental dialectic" of social interaction:

> Underlying all social interaction there seems to be a fundamental dialectic. When one individual enters the presence of others, he [*sic*] will want to discover the facts of the situation. Were he to possess this information, he could know, and make allowances for, what will come to happen and he could give the others present as much of their due as is consistent with his enlightened self-interest (p. 249).

This very ability to "discover the facts of the situation" before entering the interaction is actually possible in Usenet. Through the use of lurking, one is able to review and digest the interactions, the players, their roles, etc., before introducing oneself to the others. The emphasis Goffman (1959) places on this attribute by stating that it underlies "all social interaction" points up a key differentiator between Usenet and other forms of social interaction. As such, it is reasonable to expect that this difference could produce profound effects in communication over Usenet.

Perhaps the most significant discovery in the review of Goffman (1959) lies in his almost direct acknowledgment of the existence of the societal aspects enumerated by Hobbes (1651/1962), and by extension, the analogs identified by MacKinnon (1992). For instance, his discussion of moral boundaries and decorum, which points up the fact that participants in social interaction "take an appreciable chance of being slightly embarrassed or a slight chance of being deeply humiliated" (Goffman, 1959, p. 243), is indicative of the Hobbesean notion of mores, norms, and traditions and the MacKinnon aspect of netiquette. He discusses "collective mobility" and "role enterprise," wherein participants establish and reinforce perceptions of status by manipulating the range of tasks they are willing to engage in (Goffman, 1959, pp. 247–248). These concepts are

consistent with the persona aspect invoked by MacKinnon (1992) and the manipulations of identity that appear so frequently in CMC research (Curtis & Nichols, 1993; Dubrovsky, Kiesler, & Sethna, 1991; Hellerstein, 1985; Reid, 1991; Serpentelli, 1992). Goffman (1959) refers to the "cues, tests, hints, expressive gestures, . . . etc." that are used in social interactions to express "innermost feelings" (p. 249), a direct parallel to the role played by emoticons in Usenet. He uses the term "gentlemanly [*sic*] means" to describe the way people can "guide their action in the present so that its future consequences will be the kind that would lead a just individual to treat them now in a way they want to be treated" (Goffman, 1959, p. 250). These terms are equally applicable to the Hobbesean power of prudence, which is directly assumed by MacKinnon (1992). Finally, Goffman's (1959) entire focus, as described above, is on the "impressions" one actively creates through social interaction, and the idea that these impressions collectively become the "self" projected in such interactions. This manipulation of impressions provides a basis consistent with MacKinnon's (1992) adoption of "impressions made with words" as the central analog in his interpretation of the Hobbesean view of society.

Merton and the Functions of Society. As described previously, Merton (1957) and other structural-functionalists study society from a macro-level orientation, starting with a global view of the structures of society and seeking an understanding of how these structures function in the society.[25] In this context, social *structures* are defined as "relatively stable pattern[s] of social behavior" (Macionis, 1991, p. 17), and social *functions* are defined as "consequences for the operation of society as a whole" (Macionis, 1991, p. 17). Thus structural-functionalism examines the stable elements (structures) of a society in terms of the effects (functions) they have on the society.

Two of Merton's (1957) key contributions to this school of thought are:

1. The idea that the functions of social action must be divided into *manifest* (or obvious) functions and *latent* (or hidden) functions (p. 51), and
2. The concept of *role sets* and *status sets*, which refer to the different roles a person may assume in life and how these affect the status imparted on the person (p. 368).

Basic to these ideas is the fact that Merton views society from the structural context, which, as Goffman (1959) points out, focuses on status relationships.

The primary purpose for Merton's division of functions into the manifest and the latent was to provide sociologists with terminology that distinguishes the intended consequences of a social action from its unexpected consequences (Merton, 1957, p. 60). Indeed, Merton had observed an "unwitting tendency among sociologists to confuse the subjective categories of motivation [the intent behind the action] with the objective categories of function [the actual results of the action]" (p. 61). This effort on Merton's part to improve sociological research practice is worthy of consideration in the present study. The methodology used here was designed to draw conclusions about the societal nature of Usenet through an analysis of article content (see Chapter 3). To borrow Merton's terms, as invoked by Babbie (1979), it is important to recognize that any such analysis should consider both the *latent content* of these articles and the *manifest content*. Only then can the author's intended purpose in posting the article be considered along with actual results of the article, as indicated by the responses of other users.

In describing examples in the literature that distinguish between manifest and latent functions, Merton (1957) uncovers early works by Mead (1918) and Durkheim (1947) that provide additional basis for MacKinnon's (1992) concept of netiquette. In both examples, the researchers discuss the manifest and latent functions of social sanctions against accused and convicted law breakers. The manifest functions are the obvious, observable, and *intended* impacts on the criminal himself, including incarceration and punishment. The latent functions include the polarization of the surrounding community against the actions of the criminal, which, ironically, acts more powerfully as a force of social unity than many efforts to rally the community around humanitarian causes (Mead, 1918; Durkheim, 1947). Given that netiquette is one of the most commonly affirmed aspects of Usenet interaction, Merton's viewpoint (corroborated by the earlier work of Mead and Durkheim) presents a potentially useful perspective from which to study this aspect.

Merton's (1957) concepts of role sets and status sets suggest a relationship to the MacKinnon (1992) aspect of persona. *Status* in this context refers to the social position a person holds depending on a specific interaction. A boy, for instance, is a *son* in relation to his parents, a *brother* to his siblings, and perhaps a *captain* to the members of his athletic team. Within each of these statuses, the boy might assume several roles, such as *student* and *helper* in his son status, *antagonist* and *confidant* in his brother status, and *teammate* and *practice leader* in his team captain status.

Figure 6 (from Macionis, 1991, p. 151) illustrates these concepts, showing the roles sets and status sets assumed by a woman who has the responsibilities of a wife, mother, teacher, and researcher.

Note that, within each of the person's four "statuses," there are two roles the person must assume, depending on the specific situation. One could easily envision this illustration with a fifth status called "Usenet user," under which might be a number of different roles ("newsgroup moderator," "active participant," "passive participant," "lurker," etc.) This line of thinking offers some perspective to the purpose a Usenet persona might fulfill in a user's everyday life. Bombarded by the pressures and pounding stimuli of her roles as academic, housewife, and mother, this person might retreat to Usenet as a way of experiencing social interaction with an increased level of control and solitude.

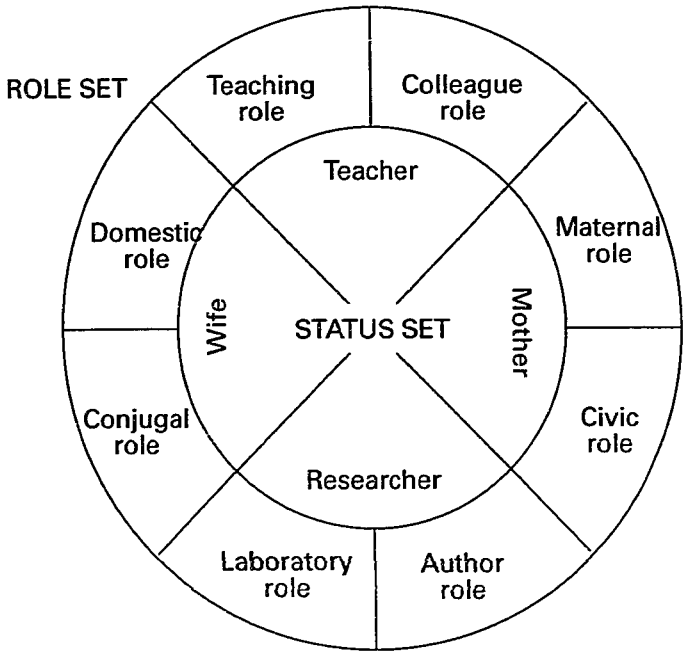


Figure 6. Role Set and Status Set (Macionis, 1991, p. 151)

Conclusion

This review provided ample evidence that MacKinnon's (1992) ten societal aspects are thorough in their consideration of the elements of thought and interaction that Hobbes (1651/1962) used to define society. It also supported the belief that these aspects comprise a complete and plausible set of Usenet analogs to these elements. Finally, the review achieved a level of confidence that current theory in the field of sociology provides consistent themes to those addressed by the MacKinnon Model.

The remaining chapters of this study seek to develop an instrument for use in measuring the presence of these aspects in Usenet and draw conclusions from the results.

Chapter 3
Methodology

The methodology employed in this study was based on the literature review and a content analysis of sample postings collected from Usenet. To focus a discussion of the methodology, it is important to revisit the objectives of the study stated in Chapter 1. These objectives were stated as follows:

1. To advance the study of CMC by documenting and validating a model applicable to large-scale field research of computer conferencing systems.
2. To produce data supporting the notion that CMC environments can be viewed as communities and, indeed, societies in the Hobbesean sense, as defined by MacKinnon (1992).

The combination of literature review and content analysis was designed to achieve these objectives in turn, as described below.

Objective 1

The first objective was largely achieved through the literature review presented in Chapters 1 and 2. This review served to validate the two theoretical bases for the MacKinnon Model. The first of these was Hobbes's (1651/1962) characterization of society—as drawn from *Leviathan*—which we chose to accept based on Hobbes's reputation as the father of social science and the fact that his focus in writing *Leviathan* was to arrive at a definition of society (Altschull, 1990). The second was MacKinnon's (1992) identification of ten Usenet analogs to the aspects of society described by Hobbes, the existence of which we validated through citations to current literature on CMC.

Objective 2

The second objective of the study was achieved by using the MacKinnon model to conduct a basic content analysis on a sampling of Usenet postings. To complete this task, a content-analysis instrument based on the MacKinnon model was developed. This instrument was then used to analyze the content of postings drawn from Usenet. The

results of these analyses were then statistically analyzed to determine the degree to which the Hobbesean definition of society can be applied to Usenet. Additional analyses were then conducted as appropriate to further investigate the societal nature of Usenet and the applicability of the model, and to recommend potential refinements and further uses of the model.

Developing the Instrument

As explained in Chapters 1 and 2, the practice of collecting and analyzing the content of articles from computer conferencing environments is well established (Gurak, 1994; Lea & Spears, 1992; MacKinnon, 1992; Reid, 1991; Smith, 1992). This study, however, focused on developing a tool for large-scale CMC research. As such, the content analyses conducted here had to be performed on a large number of articles with a high degree of specificity. The challenge of achieving this with acceptable levels of both reliability and validity was partly met through the use of the MacKinnon Model. Because the literature review shows that MacKinnon's societal aspects are present in Usenet and other CMC environments, an analysis that utilizes these aspects can be assumed to be valid. And because the model contains ten specific aspects, the discrete presence of each, if determined, would provide a high level of specificity and concomitant reliability.[26] The use of the model, then, offers the potential of resolving one of the key problems encountered with the content analysis method: ensuring validity without sacrificing reliability, and vice versa (Babbie, 1979). By using the model as its conceptual framework, the instrument will analyze manifest content with demonstrated validity.

Given this foundation, it was necessary to develop an instrument that possessed three critical properties. First, and most obvious, the instrument had to consider each of the ten societal aspects identified by MacKinnon (1992). Second, the instrument had to measure the presence of each of these aspects, since it is through this measure of *aspect presence* that Usenet can be deemed a society. Finally, the instrument had to provide a single quantitative measure, which we will refer to as the *MacKinnon Factor*, to classify each article on the basis of overall aspect presence. A single numerical measure was required so that broad statistical analyses could be conducted on data from large numbers of articles. In addition to these fundamental properties, the instrument had to collect demographic data to document the uniqueness and authenticity of each article analyzed.

The content analysis form shown in Figure 7 was developed to possess these properties. The top of the form lists demographic information drawn from the Usenet header of each article. (See Appendix A for a complete description of the information contained in a Usenet header.) The lower portion of the form lists the ten MacKinnon aspects, numbered 1 to 10. To conduct the analysis, the researcher reviewed the body of the article and determined whether a given aspect was present. (See "Conducting the Content Analysis" on page 66 for further details on the content analysis.) If an aspect was deemed to be present, a *1* was entered in the Aspect Presence column. If an aspect was deemed absent, a *0* was entered. The values in this column were then totaled to arrive at a MacKinnon Factor for the article. As such, the maximum MacKinnon Factor attainable was 10, and the minimum was 0.

Selecting the Sample

A cluster sampling method was used to select the sample for the study. This was done for two reasons:

1. To ensure randomness, and
2. To cluster the sample into subcategories for subsequent analysis.

Given the massive volume of the population of Usenet postings (as described in Chapter 1), randomness was easily ensured through the use of standard random number generation tools. The overall sample size was set at 210 articles (70 from each of three diverse subcategories) to ensure robustness and allow for subsequent statistical analyses.

To select the final subcategories, a listing of 3,183 Usenet newsgroups was drawn from a local Usenet site, from which three newsgroups would be drawn to serve as the subcategories. (See Appendix B for the complete listing of newsgroups.) This small number of newsgroups was chosen with full realization that a random sample of three is unlikely to be representative of the total population of 3,183. It was felt, however, that three subcategories would provide the diversity needed, since the purpose of this phase of the study was to simply search for evidence of aspect presence, and not to provide an exhaustive characterization of the many newsgroup types. As such, the three subcategories were chosen as described below.

Message ID:		
Author:		
No. of content lines:		
Aspect No.	Aspect	Aspect Presence (Y=1, N=0)
1.	Netiquette	
2.	Emoticons	
3.	Persona	
4.	Ability to execute a verbal attack	
5.	Impressions made with words	
6.	Ability to write a rebuttal	
7.	Non-monetary generosity	
8.	Prudence	
9.	Nobility	
10.	Eloquence	
	TOTAL MACKINNON FACTOR	
Explanatory Notes		
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Figure 7. The Content Analysis Form

Using a random number generator, newsgroup names were chosen one at a time and each was tested for the following characteristics:

- It had to cover a topic different from that covered in the other newsgroups chosen. This differentiation was achieved using the standard Usenet group naming conventions, which are topically based. (For example, groups whose names begin with the prefix "comp." contain articles pertaining to computers.)
- It had to contain a minimum of 70 accessible articles. As described above, this minimum number was set to ensure robustness in sample size for both the overall sample and the subcategories.

Table 2 lists in order the groups that were examined and gives the reason for eliminating those that were not chosen.

This process produced the following three newsgroups for use in the study:

- rec.aviation.piloting
- talk.rape
- alt.med.cfs

A series of 70 articles was chosen from each of these groups for further analysis using the Content Analysis Form described above. The following paragraphs describe this analysis in more detail.

Conducting the Content Analysis

The objectives of the content analysis for this initial application of the MacKinnon Model were somewhat modest. The researchers carefully read and analyzed each article using the basic steps described in this section.

Top Portion: Classifying the Articles. The top portion of the Content Analysis Form was first filled in with following information drawn from the header of the article:

- Message ID: Each Usenet article carries a unique identification number.
- Author: The author's electronic mail address, which in some cases includes the author's name or a self-assigned "handle," is taken from the header of the article.

Table 2

Newsgroup Selection Process

Newsgroup[a]	Reason for elimination
382. alt.food.sushi	Less than 70 articles.
1140. bionet.molbio.methds-reagnts	Less than 70 articles.
2358. rec.aviation.piloting	N/A: Chosen for study.
3175. talk.rape	N/A: Chosen for study.
2034. k12.chat.senior	Less than 70 articles.
563. alt.music.kylie-minogue	Less than 70 articles.
2504. rec.games.roguelike.rogue	Less than 70 articles; Same topical hierarchy as rec.aviation.piloting
212. alt.current-events.net-abuse	Less than 70 articles.
57. alt.autos.macho-trucks	Less than 70 articles.
1612. comp.os.rsts	Less than 70 articles.
1128. ba.sports	Less than 70 articles.
1728. comp.sys.amiga.audio	Less than 70 articles.
2575. rec.music.classical.guitar	Same topical hierarchy as rec.aviation.piloting.
1079. alt.usage.german	Less than 70 articles.
2646. rec.pets.dogs.health	Same topical hierarchy as rec.aviation.piloting
1981. comp.windows.x.i386unix	Less than 70 articles.
490. alt.med.cfs	N/A: Chosen for study.

[a]Listed in order selected by random number generator.

- No. of content lines: The number of content lines was determined by counting the lines written by the article's author. (This count did not include lines of text copied from previous articles.)

As described above, this information was retained to document the uniqueness and authenticity of each article analyzed.

Bottom Portion: Arriving at the MacKinnon Factor. For each aspect on the Content Analysis Form, the researcher read through the article and asked the question, "Does the text of this article display this aspect or otherwise indicate its value?" For each aspect, this question was stated in a different way, as described in the following list. Provided here is a brief description of the types of cues the researcher looked for in determining the presence of each factor. These descriptions are not meant to be exhaustive, as the intention is to leave these sets of criteria open-ended and add to them as the data help to clarify the definitions.

1. Does the author comply with *netiquette* or otherwise demonstrate its value?

   The principles of netiquette descend from a series of on-line documents produced in the 1980s by a small group of avid Usenet users (MacKinnon, 1992). These principles are well documented and include such good practices as keeping one's on-line signature to less than five text lines and copying an appropriate number of lines from an article to which one is following up (i.e., only the number necessary to show what points one is responding to).[27]

2. Does the author utilize *emoticons* or otherwise demonstrate their value?

   Emoticons include such constructs as using asterisks ("I *hate* that song!"), surrounding underbars ("Elvis is the _King_."), or all caps ("No WAY I'll vote for her!) to indicate emphasis or a raised voice. Perhaps the most commonly used emoticon in Usenet is the *smiley*, a textual construct usually used to indicate humor. Examples of smileys include the colon-dash-paren combination, `:-)` , which indicates a simple smile, and the semicolon-dash-paren combination, `;-)` , which indicates a winking smile. Basically, any efforts to show emotion using textual elements were counted as emoticons.

3. Does the author display a *persona* apparently separate from his/her actual personality?

   An example of a demonstration of persona would be a user assuming a descriptive "handle" that was obviously not a real name, along with accompanying textual cues that reinforce the fictitious name. For instance, an article sprinkled with dark, demonic expressions by a user identified as "Dracula" would demonstrate persona.

4. Does the author *execute a verbal attack* or otherwise demonstrate the value of doing so?

   This aspect would be demonstrated by an assertive, or even aggressive, tone. As discussed in Chapter 2, this need not involve verbal assaults, as the term "attack" would imply. Rather, it could simply refer to one who verbally imposes oneself on another user or group of users.

5. Does the author demonstrate strength by *making impressions with words* or otherwise indicate the value of doing so?

   This aspect would be demonstrated by impassioned prose, an emotional appeal, or simply a clear expression of one's views. Such texts, which aim to "make impressions," would be differentiated from such innocuous texts as on-line want-ads or informational postings.

6. Does the author demonstrate artistry by *writing a rebuttal* or otherwise indicate the value of doing so?

   The term "artistry" is used here to establish the connection with the Hobbesean aspect of "arts." In essence, this aspect would be demonstrated by an argument against or opposition to statements made in a preceding article. The key characteristic in this aspect is its role in the Usenet "life cycle" of statement and response.

7. Does the author demonstrate the value of *non-monetary generosity*?

   Non-monetary generosity would include articles that offer advice or constructive feedback to individual users, the newsgroup audience, or Usenet as a whole. An example would be a frequently-asked questions list (FAQ), which is compiled on a topic and distributed to a newsgroup interested in that topic.

8. Does the author demonstrate the value of *prudence*?

   Prudence would be demonstrated by articles whose authors retain a moderate and controlled demeanor despite having aggressive or inappropriate comments directed at them. Other examples of prudence would include use of the acronym "IMHO" ("in my humble opinion") to tone down one's editorial comments or expressions of gratitude to fellow users who have been helpful or gracious.

9. Does the author demonstrate that the status of *nobility* is granted to those with exceptional expertise?

   Nobility would be demonstrated through expressions of reverence toward a particular user or expressions that display a reticence to criticize a user who demonstrates a superior understanding of the subject under discussion. An example would be an article from the newsgroup rec.music.keyboards whose author is critical and assertive throughout an article, but who changes this tone when addressing another poster who is a well-known designer of electronic musical equipment.

10. Does the author display *eloquence* or otherwise demonstrate its value?

    Eloquence would be demonstrated by the presence of any exceptionally forceful or persuasive text. Examples would be a vivid recounting of a personal experience relevant to the topic or a particularly graceful and prudent reprimand of another author.

Note that the researcher analyzed the content of the articles to ascertain not only whether the authors displayed the MacKinnon aspects, but also whether they "otherwise demonstrated their value." Clearly, this additional level of generality makes the analysis more difficult to conduct by relying heavily on the objectivity of the researcher. This difficulty is discussed in the section, "Checking the Reliability of the Instrument" later in this chapter.

If the answer to any of the questions above was "Yes," the researcher marked a *1* in the "Aspect Presence" column. If the answer was "No," the researcher marked a *0*. Discreteness was retained in the measurement of aspect presence so that further statistical analysis would be simplified. It is important to note here that the content analysis conducted by MacKinnon (1992), which focused solely on the effects of

netiquette, attempted to measure the *degree* to which this aspect was observed. Because this study considers all ten MacKinnon aspects, the instrument assumes that each is discrete. (This does not preclude the possibility of attempting to measure degree of aspect presence in a follow-on study.)

As the researcher analyzed each article, detailed notes were kept indicating the passages or other indicators in the text, including line numbers as appropriate, that drove the conclusion as to aspect presence. These notes were recorded in the Explanatory Notes section of the form for use by subsequent users of the data.

Checking the Reliability of the Instrument

As explained above, the content analysis considered not only clear demonstrations of the MacKinnon aspects, but also whether the articles otherwise demonstrated the value of these aspects. Clearly, this approach relies heavily on the objectivity of the researcher. Nonetheless, it was important to consider any demonstration of an aspect's value in reaching sound conclusions about the societal nature of Usenet, since any such demonstration constitutes evidence of the aspect's *presence*—the property being measured. To assess the reliability with which the instrument measures this property, a reliability test was conducted comparing a set of results reached by an independent researcher with the results reached by the primary researcher for the same set of articles. The methodology used for this assessment is described in this section.

First, a random sample of fifteen articles (in clusters of five from each subcategory) was extracted. This sample was then given to an independent researcher (Researcher 1), who conducted a parallel analysis. This second researcher was an undergraduate student in sociology with a limited understanding of CMC and Usenet. Effort was made to locate a researcher who had familiarity with CMC without extensive experience with the medium that might prejudice judgment.

The results of this analysis were then compared to those of the analysis conducted by the original researcher (Researcher 2). To draw a meaningful conclusion from these figures, the results for individual articles were presented in tables and reviewed carefully. This review sought to determine the percentage of instances that the aspect presence choices (0 or 1) made by Researcher 1 matched those made by Researcher 2 for the same sub-sample of articles.

Data Presentation

Because the objective of this study is to "produce data supporting the notion that CMC environments can be viewed as communities and, indeed, societies in the Hobbesean sense, as defined by MacKinnon (1992)," the content analysis portion of the study was aimed at determining whether high aspect presence could be observed in the sample. This determination was made through a number of statistical observations.

The primary of these were the mean values for each of the societal aspects in the model. These were calculated both for the overall sample and for each subcategory and presented in a table for closer examination. In this table, societal aspects were ranked based on mean aspect presence, allowing the researcher to further analyze the interrelationships between aspects. Mean aspect presence data were presented in this manner to facilitate the analysis of the overall strength of various aspects and the strength of various aspects in particular newsgroups. This analysis was aimed at uncovering interdependencies between aspects that could lead to refinement of the model. Also, one can reasonably expect different newsgroups, which cover unique topics and tend to attract unique audiences, to produce unique aspect presence data. As such, mean aspect presence data could lead to ways of tailoring the model based on the specific characteristics of the CMC environment being analyzed.

The mean MacKinnon Factor observed in the overall sample, and in each subcategory, was also calculated. This, too, was presented in a table for further analysis.

Frequency distributions were compiled to show both the frequencies and relative frequencies (or probabilities) with which various MacKinnon Factors were observed. Again, this was done both for the overall sample and for each subcategory. The MacKinnon Factor data were presented in the form of a series of histograms—one for the overall sample and one for each subcategory. These histograms were created based on relative frequency data to show the degree to which the data represented a standard normal curve.

The results of the reliability tests and content analysis are presented and briefly discussed in Chapter 4. The frequency distributions and histograms of the MacKinnon Factor data, along with spreadsheets detailing the complete results, are presented in Appendix C. The completed Content Analysis forms and hardcopies of the articles used in both the overall analysis and the reliability test were catalogued for future reference.

Chapter 4
Results

This chapter presents the results of the content analysis and external reliability test. The raw data from this analysis are included in Appendix C. The results of the reliability test is presented first, followed by the tables showing the mean aspect presence data. Finally, the MacKinnon Factor data are presented at the end of the chapter. Chapter 5 presents a more extensive discussion of the results, including a set of conclusions and recommendations for further research.

External Reliability Test Results

External reliability testing was undertaken to measure the degree to which two independent researchers would reach similar conclusions using the instrument. A random sample of 15 articles (five from each of the three newsgroups sampled) was first extracted from the overall sample. This sample was then given to an independent researcher (Researcher 1), who conducted a parallel analysis. This second researcher had a limited understanding of CMC and Usenet, but no extensive experience with the medium that might prejudice judgment. The results of this analysis were then compared to those of the analysis conducted by the original researcher (Researcher 2). Table 3 presents the results of the comparison. (Note from the discussion in Chapter 3 that the maximum MacKinnon Factor attainable was 10.)

Clearly, the instrument did not demonstrate good reliability in this test. Though, in most cases, the two researchers were within one point of one another, there were only two instances out of the fifteen where an exact match was achieved, and the means arrived at differed by more than one point. In addition, there were three instances (20 percent of the sample) in which the result differed by 3–5 points.

Table 3

External Reliability Test Results

Article ID	MacKinnon Factor: Researcher 1	MacKinnon Factor: Researcher 2
alt.med.cfs #1	2	5
alt.med.cfs #2	2	3
alt.med.cfs #3	1	3
alt.med.cfs #4	2	1
alt.med.cfs #5	0	0
rec.aviation.piloting #1	2	2
rec.aviation.piloting #2	2	3
rec.aviation.piloting #3	4	9
rec.aviation.piloting #4	1	3
rec.aviation.piloting #5	2	5
talk.rape #1	5	5
talk.rape #2	6	7
talk.rape #3	3	2
talk.rape #4	5	6
talk.rape #5	6	7
TOTALS	44	61
Mean	2.93	4.07
Standard Deviation	1.79	2.49

To understand more clearly what caused this divergence in MacKinnon Factor data, a closer examination of the aspect-by-aspect results was made. This examination divided the results by societal aspect, identified the number of times each researcher deemed the aspect present or not present, then calculated the number of times the researchers' choices matched. Table 5 presents the results of this examination.

Table 4

External Reliability Test 1: Percentage of Matches

	Present (1)		Not Present (0)		
Societal Aspect	Res. 1	Res. 2	Res. 1	Res. 2	Pct. Matched[a]
Netiquette	12	11	3	4	80.0
Emoticons	8	6	7	9	86.7
Persona	1	1	14	14	100.0
Ability to...attack	5	4	10	11	80.0
Impressions...words	8	11	7	4	53.3
Ability to...rebuttal	5	4	10	11	93.3
Generosity	2	9	13	6	40.0
Prudence	2	10	13	5	20.0
Nobility	0	1	15	14	93.3
Eloquence	1	4	14	11	80.0
MEAN					72.7

[a]Includes matches for both present (1) and not present (0).

Note that three aspects in particular caused the discrepant MacKinnon Factor results: *impressions made with words*, with a 53.3 percent match; *non-monetary generosity*, with a 40 percent match; and *prudence*, with a 20 percent match. The two researchers' results were largely similar for the remainder of the aspects, with matching percentages in the range of 80–100 percent.

From this examination, the conclusion was drawn that these three aspects either had properties that made them more difficult to discern than others or were vaguely defined. To more thoroughly confirm this conclusion, a third researcher was enlisted to conduct parallel analyses on the same sample of articles. Again, effort was made to locate an individual with a limited understanding of CMC and Usenet, but no extensive experience with the medium that might prejudice judgment. This researcher, a professional who is comfortable with computers but does not regularly use CMC, analyzed only the three questionable aspects from the first test. These data were again examined to determine the percentage of instances the three researchers' choices matched. The results of this examination are shown in Table 5.

Table 5

External Reliability Test 2: Percentage of Matches

	Present (1)			Not Present (0)			Percent Matched[a]		
Societal Aspect	Res.1	Res.2	Res.3	Res.1	Res.2	Res.3	1:2	1:3	2:3
Impressions..words	8	11	9	7	4	6	53.3	66.7	60.0
Generosity	2	9	8	13	6	7	40.0	60.0	80.0
Prudence	2	10	2	13	5	13	20.0	86.7	33.3

[a]Includes matches for both present (1) and not present (0);
1:2 = Percent Res.1 matched Res.2
1:3 = Percent Res.1 matched Res.3
2:3 = Percent Res.2 matched Res.3

Though the percentage of choices matched were, in general, higher for comparisons with Researcher 3, the data still showed wide variations, and the majority of the percentages fell below 70% matching. From these data, the conclusion was made that these three aspects are either too difficult to consistently discern or too vaguely defined. This conclusion is given careful consideration in the discussion of these data presented in Chapter 5, and refinements to the MacKinnon Model aimed at alleviating this vulnerability are proposed. In addition, these aspects were removed from the aspect presence data and the calculations of mean MacKinnon Factors reported later in this chapter, and from the discussion as well. They were, however, included in the content analysis totals presented in Appendix C for completeness.

The vulnerability in the instrument uncovered in these reliability tests, which has now been attributed to the susceptibility of a few aspects in the MacKinnon Model to variations in subjective judgment, prompted a more careful examination of the aspect presence data observed in the overall sample of 210 articles. These data, which are discussed in detail in Chapter 5, are presented in the next section.

Aspect Presence Data

As explained in Chapter 3, mean Aspect Presence data for the complete sample of 210 articles are presented primarily for the purpose of uncovering ways to refine and taylor the MacKinnon Model. (Note that the remainder of the results presented in this chapter were observed by the primary researcher (Researcher 2) only and did not involve the independent researchers who participated in the external reliability tests discussed previously.)

Table 6 presents both the frequency and the mean aspect presence observed for each aspect in the MacKinnon Model. These data are shown for each newsgroup individually, and for the overall sample. For the individual newsgroups, the maximum possible frequency is 70. For the overall sample, the maximum possible frequency is 210. The means are given in parentheses next to each mean.

The aspect *netiquette* was the most commonly observed, with an overall mean aspect presence of .81. In the overall sample, no other aspect had more than a 40 percent probability of being observed, the next-highest figures being .36 for *emoticons* and .30 for *ability to write a rebuttal*. *Eloquence, nobility,* and *persona* were the aspects observed least often, registering figures of .14, .07, and .00, respectively. (Indeed, there was only one instance in the sample in which *persona* could be observed with any confidence. This singular instance, observed in talk.rape, is discussed more thoroughly in Chapter 5.)

Table 6

Aspect Presence Data

	Aspect Presence[a]			
Societal Aspect	rec.aviation.piloting	talk.rape	alt.med.cfs	Overall
Netiquette	57 (.81)	57 (.81)	57 (.81)	171 (.81)
Emoticons	14 (.20)	34 (.49)	28 (.40)	76 (.36)
Persona	0 (.00)	1 (.01)	0 (.00)	1 (.00)
Ability to...attack	17 (.24)	29 (.41)	6 (.09)	52 (.25)
Ability to...rebuttal	20 (.29)	38 (.54)	4 (.06)	62 (.30)
Nobility	12 (.17)	0 (.00)	3 (.04)	15 (.07)
Eloquence	8 (.11)	16 (.23)	5 (.07)	29 (.14)

[a] Mean aspect presence in parentheses.

The rankings of aspects from newsgroup to newsgroup were similar, with no more than two positions separating the rankings across the newsgroups. The singular exception to this was *ability to write a rebuttal*, which was the second-most observed aspect in rec.aviation.piloting and talk.rape, but only the fifth-most observed in alt.med.cfs.

The variation in the means observed across newsgroups was, in most cases, rather large (the exact parity of *netiquette* notwithstanding). Between 16 and 17 percentage points separated two of the three newsgroups in three instances, 29 points separated groups in one instance, and 48 points separated groups in another instance. These figures indicate that, though evidence of the presence of all aspects was found somewhere in the sample, there are still significant differences from newsgroup to newsgroup in the content observed. Furthermore, it appears that the instrument used in this study could be a useful tool for uncovering these differences.

The following section presents the MacKinnon Factor data observed in the content analysis. As stated previously, the three societal aspects whose presence could not be

determined reliably are not included in the calculation of these data. Nonetheless, it is important to include the data here for completeness.

MacKinnon Factor Data

This section presents the mean MacKinnon Factor observed for each of the subcategories and for the overall sample. The three societal aspects whose presence could not be determined reliably (*impressions made with words, non-monetary generosity,* and *prudence*) are not included in the calculation of these data. Note that the MacKinnon Factor was originally meant to be the sum of the presence (1) or absence (0) of ten societal aspects, which would have produced data that were naturally proportional (that is, having a minimum value of 0 and a maximum of 10). The MacKinnon Factors presented in this section include only seven aspects (for a minimum of 0 and a maximum of 7). For ease of interpretation and discussion, the data are presented as actual numbers and as proportional data. In the descriptions below, the numbers cited first should be considered against a maximum value of 7, and the numbers in parentheses should be considered against a maximum value of 10.

Table 6 presents the mean MacKinnon Factor data for the overall sample and each subcategory.

Table 7

Mean MacKinnon Factor[a]

rec.aviation.piloting	talk.rape	alt.med.cfs	Overall
1.83 (2.61)	2.50 (3.57)	1.47 (2.10)	1.93 (2.76)

[a]Proportional conversion in parentheses

The mean MacKinnon Factor observed in both the overall sample and each of the subcategories was relatively low, falling between 1.4 (2) and 2.8 (4). The newsgroup talk.rape had the highest mean MacKinnon Factor of 2.50 (3.57), significantly higher than the overall sample mean of 1.93 (2.76). Relative frequency data showed a 64% probability of observing a MacKinnon Factor of either 1 or 2 (1.43 or 2.86), and a 78% probability of observing a MacKinnon Factor between 1–3 (1.43–4.29).

The wide gap between the highest mean MacKinnon Factors observed (2.50 [3.57] for talk.rape) and the lowest (1.47 [2.10] for alt.med.cfs) appears to corroborate the aspect presence data in showing that significant differences exist from newsgroup to newsgroup. This conclusion, and the notable fact that the mean MacKinnon Factors observed are quite low, given the scale of 0–7 (0–10), are discussed at considerable length in Chapter 5.

Chapter 5
Discussion and Conclusions

This chapter presents a detailed analysis of the data observed in this study. This analysis is divided into five sections. The first section discusses the topical and political characteristics of the three newsgroups from which the sample articles were drawn. Common themes observed in each group are identified and related to the aspect presence data observed. Examples illustrating these themes are also presented. The second section discusses the usefulness of the MacKinnon Factor as a unit of measure in characterizing Usenet societies. MacKinnon Factor data observed in the sample are reviewed and analyzed to better understand the significance of the measure and the key problems with it. The third section discusses aspect presence data and presents the results of further investigations into the usefulness of these data. The results of these investigations are then used to suggest a strategy for refining the MacKinnon Model. The fourth section presents the final conclusions, and the fifth section presents recommendations for further research.

The Newsgroups

To draw meaningful conclusions from the data gathered in this study, one must first consider the specific characteristics of each of the three newsgroups sampled. The following sections discuss these characteristics in an effort to frame the subsequent discussion of the two key pieces of quantitative data collected in the study: Mean MacKinnon Factor and Aspect Presence.

The results of this study indicated that each newsgroup in Usenet has unique characteristics, which can be divided into three general categories: 1) the political structure of the group, 2) the amount of discussion that takes place in the group, and 3) the topical characteristics of the newsgroup and the Usenet topical hierarchy in which it resides.

Political structure in Usenet is primarily dependent on a process called *moderation.* In Usenet, the flow of articles into some newsgroups is controlled by a *moderator* who

censors articles that are deemed inappropriate. Because only a small portion of newsgroups are moderated, political structure in Usenet as a whole is essentially anarchical or "tribal" (North, 1994).[28] However, for those groups that are moderated, the censorship imposed tends to have a marked effect on the content of the newsgroup. In general, the moderator prevents irrational or imprudent articles from making their way into the newsgroup and ensures that the discussion remains focused on the newsgroup's designated topic. Because one of the three newsgroups sampled in this study was moderated, the following sections include a discussion of the moderator's impact. (The inclusion of the moderated newsgroup was entirely fortuitous, and was in no way planned.)

The amount of discussion that takes place on newsgroups varies widely. Though the flow of articles into a Usenet site is partially determined by the administrator of the site's UUCP host computer, some newsgroups will have very large numbers of participants and will therefore generate very large numbers of articles, while others will not. In general, this rate of article submissions to a newsgroup can be expected to be closely related to the popularity or controversial nature of the group's topic—as is true with most mass media. As such, one can expect more article submissions to a highly general newsgroup like talk.politics, and fewer to a highly specialized group like alt.animals.felines.snowleapords. Similarly, one can reasonably expect a different kind of Usenet "society" to be in place, depending on the size of the group.

The following sections discuss the political, topical, and popularity characteristics of each of the newsgroups sampled in this study. These characteristics are illustrated with examples from the study and discussed in relation to the aspect presence data presented in Chapter 4.

The Newsgroup rec.aviation.piloting. Magellan (1996) describes the newsgroup rec.aviation.piloting as being "devoted to general discussion for aviators."[29] In keeping with its place in the "rec" newsgroup hierarchy of Usenet, rec.aviation.piloting is aimed at recreational aviators rather than those from the professional or military ranks. Aviation enthusiasts use the group for discussions of topics such as flying skills, interesting sights and destinations, and the intricacies of working with air traffic control.

The rec.aviation.piloting newsgroup is not moderated. As such, it is largely anarchic, relying solely on its users' understanding of netiquette and common decency to maintain proper decorum. The high aspect presence for *netiquette* observed in the content

analysis in this newsgroup (a mean of .81) could be attributable to the group's lack of a moderator. It is reasonable to infer that, given no formal method for regulating the content of the articles posted, the participants of rec.aviation.piloting have historically placed a high value on compliance with netiquette, which accounts for the high level of compliance now observed.

The analysis also indicated that the only thing resembling a control structure in rec.aviation.piloting was a small group of participants who regularly offered expertise in response to requests from the less knowledgable. In some instances, these participants' clear command of the subject prompted expressions of respect from their peers. It is logical to assume that these instances accounted for the relatively high aspect presence observed for *nobility* (a mean of .17, as opposed to .07 for the overall sample).

The articles analyzed in the rec.aviation.piloting sample were generally informational in content and friendly and helpful in tone, characteristics that are indicative of the largely noncontroversial nature of the topic. Of the three newsgroups sampled, rec.aviation.piloting showed the lowest aspect presence for *emoticons* (a mean of .20, compared to .40 for alt.med.cfs and .49 for talk.rape)—an indication of the group's focus on information rather than abstract ideas and opinions.

The informational content and generally helpful and friendly tone of rec.aviation.piloting can be clearly observed in this example, in which a user is providing an impromptu recommendation for interesting flight destinations:

```
Article: 16842 of rec.aviation.piloting
Subject: PIC Liability?
Newsgroups: rec.aviation.piloting
From: <user name removed>
Date: Fri, 06 Oct 95 20:13:14 PST
Message-ID: <8006-241534002@seattle.com>
Organization: .
Lines: 10


If you want a nice day trip try heading into the mountains for some fall
colors. Keene (EEN),Laconia (LCA I think) and Concord (CON) NH usually
have some nice foliage about this time. Portland (PWM) Maine is a good
destination if you want to catch some of the rocky Maine coast. During
the summer Plum Island is good place to visit but be advised the ride to
the beach is a couple of miles so ground transport can be a problem. I
used to fly out of LWM and BVY,both good airports but a ways from
anything worth seeing.
Enjoy!!
```

When disputes occurred in rec.aviation.piloting, they usually resulted from one user's belief that another had posted inaccurate information. In these few instances, an authoritative source for the correct information was often posted in rebuttal, and the exchange would end at that. This was an interesting phenomenon to observe, as much of the discussion in rec.aviation.piloting revolved around proper interpretations of Federal Aviation Authority (FAA) rules. The following example is indicative of this phenomenon:

```
Article: 16847 of rec.aviation.piloting
Newsgroups: rec.aviation.piloting
From: <user name removed>
Subject: Re: Logging PIC time
Message-ID: <DG2J93.9Cw@microunity.com>
Sender: usenet@microunity.com (news id)
Organization: MicroUnity Systems Engineering, Inc.
Date: Sat, 7 Oct 1995 07:53:26 GMT

In article <451ot4$94@agate.berkeley.edu> masa@cochise.CS.Berkeley.EDU
(<user name removed>) writes:
>
>.......<snip>.......
>
>The article went on to explain that surprisingly, a lot of the time,
>a Pilot-in-Command is not required.  The only time a PIC is required
>is when the operation of the plane requires 2 pilots.
>
>The article concluded with some comment that until some new law is
>passed, what determines who is PIC when there are 2 pilots on board an
>aircraft that doesn't require 2 pilots is a simple "Hey Bob, I'll be
>PIC until the XXX waypoint, and then from there on, you take it"..."sure
>Mike" is the only way to determine explicity who is the PIC.
>

Sorry, but the conclusion made by this article is total....OK, lets be
polite.....male bovine excrement.

The FAA has shown itself more than willing to determine, after the
fact, who was acting PIC in such circumstances.  And the NTSB has
willingly backed them up.

In cases where you as a more experienced pilot are flying right seat
(joy ride, safety pilot, CFI, etc) with a less experienced pilot,
it is in your interest to make it absolutely clear before the flight
that you ARE NOT acting PIC, least the FAA come along later and stick
you for the responsibility for his screw-up.
```

Note that the respondent became perturbed at the information posted by the original author, which he disputed with some eloquence. This kind of reaction was

common in rec.aviation.piloting, indicating that the participating aviators approach their pursuit very seriously and are well aware of the potential for disastrous consequences if inaccurate information is heeded.

The following article, in which one of the group's regular participants demonstrates both his clear understanding of the issue at hand and his familiarity with the history of the newsgroup, is another example of the seriousness with which the participants approach the topic:

```
Article: 16846 of rec.aviation.piloting
Newsgroups: rec.aviation.piloting
From: <user name removed>
Subject: Re: Logging PIC time
Message-ID: <DG2IIy.8Dz@microunity.com>
Sender: usenet@microunity.com (news id)
Organization: MicroUnity Systems Engineering, Inc.
Date: Sat, 7 Oct 1995 07:37:46 GMT
Lines: 42

In article <451j4k$rvv@newsbf02.news.aol.com> <user name removed> (<user
name removed>) writes:
>In the Sept issue of AOPA Pilot one of the quiz questions is whether a
>father flying with his son can lof as PIC the time that he lets his ten
>year old son fly.  The answer is no, back up by the regs.  What I want to
>know is this:  the son cannot log the time as PIC, his only options are
>Dual or Solo, it isn't solo because his dad is in the plane, and his
>father is not an instructor so it isn't dual, can no one log this time?
>If the plane crashes and there is no PIC who is responsible?  Can you log
>time when the autopilot is on as PIC, and if a plane fly through the woods
>and nobody is there to see, does it have a PIC.
>

Here we go again.............

"Logging" PIC and "acting" PIC are two SEPARATE and DIFFERENT concepts.

"Logging" PIC has to do with determining who was actually flying the
aircraft for the purpose of determining recency of experience for
currency requirements and/or required hours towards a rating.  Except
for determining recency or working towards a rating, one need never
bother to log a singe hour of flight time.

"Acting" PIC has to do with determining who is legally responsible for
the safe and legal conduct of the flight and actually has very little
to do with who is actually flying the plane, but rather with who is
perceived to be in charge.  Thus when the FAR say something to the
effect of "may not ACT as PIC unless...", they aren't talking about
who sits in the left seat, who touches the control wheel, or who logs
the time, but rather about how is on the hook if something goes wrong.
```

> Thus, in our case of the pilot and his son, when the the son is flying the plane, the father is still ACTING PIC because he is clearly still in charge of the flight, but he cannot LOG PIC time because he is not the "sole manipulator of the controls" as stated in the FARs. And as you state, in this case, no one can log PIC time because there is no appropriately rated pilot being the "sole manipulator of the controls".
>
> There, that ought to hold us for a couple of weeks until this issue comes up again....and again.....and again.....and again.....

Note that the author has apparently participated in discussions of this particular subject many times before. His impatience with the recurrence of the topic is expressed (note the emotive all caps used to set off "SEPARATE" and "DIFFERENT"); Nonetheless, he takes the time to share his knowledge in an effort to clarify the issue for his fellow aviators.

A random survey of article submission rates to the three newsgroups sampled in this study indicated that the rate of article submissions to rec.aviation.piloting is relatively high. In one 24-hour period, the newsgroup received 35 new and follow-up articles. This compares to 17 articles received by talk.rape and 71 by alt.med.cfs during the same 24-hour period. As is discussed in subsequent sections, these numbers are somewhat surprising given the political structure and topical content of the three newsgroups.

The Newsgroup talk.rape. Magellan (1996) describes talk.rape quite simply as a newsgroup "for discussions on stopping rape."[30] Counted among its intended audience are women's groups and rape activists (Magellan, 1996). Because the "talk" hierarchy of Usenet is dedicated to the "discussion and debate of unresolved issues" (Panitz, 1996),[31] the highly emotional topic of rape is particularly appropriate for this hierarchy. Participants in talk.rape discuss subjects such as human sexuality, the portrayal of rape in the popular media, the handling of rape cases by the legal system, and contemporary issues such as "date rape." In addition, participants sometimes share personal experiences as victims of both rape and the temptation to commit rape.

Like rec.aviation.piloting, talk.rape is not moderated. Given the rec.aviation.piloting tendency to rely heavily on self-imposed netiquette to maintain order in the discussions, one could infer that this tendency would occur in other unmoderated groups. The talk.rape mean aspect presence for *netiquette* of .81 appears to

corroborate this inference. However, a topic as highly charged as rape can lead to frequent departures from the norms of netiquette, as one might imagine, and there were several examples of such departures in the talk.rape sample.

Another political characteristic of talk.rape is its rule against *cross-posting*, which is the practice of posting a single article to more than one newsgroup. Cross-posting is commonly done with political subjects that are relevant to more than one political newsgroup (such as talk.politics.china and talk.politics.tibet) or with subjects that are relevant to both political and social newsgroups (such as talk.politics.soviet and soc.culture.russian). Though cross-posting does allow broader audiences to both read and participate in discussions, it sometimes has the negative effect of inundating users with articles on subjects that are only loosely related to their area of interest. The rule against cross-posting in talk.rape is needed to prevent this kind of inundation, since the topic of rape comprises subjects relevant to so many of the political, social, and alternative newsgroups available on Usenet. Because cross-posting is prohibited, the flow of articles into talk.rape remains manageable and the discussions remain focused.

As one might have expected given the potentially turbulent topic discussed in talk.rape, this newsgroup scored the highest mean aspect presence for two key societal aspects: *emoticons* (.49, compared to .36 for the overall sample) and *ability to write a rebuttal* (.54, compared to .30 for the overall sample). These aspect presence figures not only appear consistent with the controversial subjects discussed in talk.rape, but also stand in marked contrast to the scores registered by rec.aviation.piloting for these aspects (see Table 6 and Appendix C).

The discussions observed in the talk.rape sample were often opinionated and controversial. Like rec.aviation.piloting, talk.rape appeared to be dominated by a few prolific participants, with a small number of posters chiming in occasionally. (Indeed, at one point, it appeared talk.rape had only one participant, when eight articles in a row, totaling 269 lines of original text, were posted by the same person.) The following particularly vehement exchange was indicative of the difference in tone between talk.rape and rec.aviation.piloting:

```
Article: 22831 of talk.rape
Newsgroups: talk.rape
From: <user name removed>
Subject: Re: O. J. I didn't do it
Message-ID: <DGF1yK.Fz2@freenet.carleton.ca>
```

```
Sender: ar231@freenet2.carleton.ca (<user name removed>)
Reply-To: ar231@FreeNet.Carleton.CA (<user name removed>)
Organization: The National Capital FreeNet
Date: Sat, 14 Oct 1995 02:08:43 GMT
Lines: 34

<user name removed> (mcartwri@hti.net) writes:
> In article <DGDn27.Gv0@freenet.carleton.ca>, ar231@FreeNet.Carleton.CA
> says...
>>
>>
>>O. J. Simpson (safe@home.com) writes:
>>> To all you nice people,
>>>         I didn't kill my ex-wife.
>>>                       thank you
>>>                        O. J. Simpson
>>_____________
>>K:
>>Take it to a 75% white jury, OJ.
>>Then we'll talk again.
>
> And *what* the F**K is this supposed to mean????? Don't piss me off
> again, Karen..or I may just to have to flame you back under that rock you
> crawled from..
>

____________________
Are you really as dense as some of those jury members?  Why would I worry
about your being 'pissed off'?  That's a problem you'll have to deal with.

Flame away.  I spotted you as a black racist some time back....now defend
outcome of the OJ Simpson trial.  Try doing with without the typical ....
"I dare you" crap.  You don't intimidate me in the least.  OJ thinks Marcia
Clark has a "chip on her shoulder"....seems like more blacks have it than
the whites......regardless of the travesty of the outcome of this trial,
the whites of Los Angeles didn't riot, did they?
So where does the 'civility' belong and the 'violent tendency' belong?
--
*******************************************************************************
```

Note that the participants in this exchange are both in fervent disagreement and familiar with one another's opinions. Clearly, these postings constitute a violation of netiquette, but again, the emotional nature of the topic results in an environment where such emotions can run high. In the following example, these emotions led one participant to misread an article and thereby misconstrue its meaning. After being reprimanded by another participant, this author apologized for her negligence:

```
Article: 22884 of talk.rape
Newsgroups: talk.rape
From: <user name removed>
Subject: Re: Women raping men
```

```
Message-ID: <rereDGH916.4v9@netcom.com>
Organization: NETCOM On-line Communication Services (408 261-4700 guest)
Date: Sun, 15 Oct 1995 06:36:42 GMT
Lines: 48
Sender: rere@netcom17.netcom.com

<user name removed> (100317.1203@compuserve.com) wrote:
:rere@netcom.com (<user name removed>) wrote:
:>Christopher A. Dauer (smurf@ecst.csuchico.edu) wrote:
:>: I once saw a talk show (I hate to admit it but I did watch it) where, as
:>: a side note, there was a man in his mid-twenties, who had been seduced
:>: when he was 15; by a 29 year-old.  He has been paying child support ever
:>: since then.....  I saw this a few years ago... or maybe just this past
:>: year. I don't remember exactly, I just thought that it was unfair seeing
:>: as how I am male.
:>: Hopefully you will gain some insight from this.
:>
:>Oh gosh yeah, we've benefited greatly from your talk show insightfulness.
:>Paying child support?! (DId it ever cross your mind to wonder about what
:>happened to her? She's raising their child and she could have gotten VD
:>or AIDs from that man. He didn't use protection. He's responsible for
:>that -- at least -- isn't he? He was an adult male who had sex with a 15
:>year old child. What? Did she seduce him -- or perhaps DEMAND (you *know*
:>how those young sluts are!) into not wearing a rubber? Stupid or
:>malicious he got off too lucky. This guy should be in jail for sexual
:>abuse of a minor.
:>

:A word of advice, Re Re. Try READING before you get carried away with
:righteous indignation - it helps you look less silly.

You know I had never really thought to do that before :-). I am sorry. I
do generally read them more carefully before I reply, but this one was an
inexcusable misread. In my defense I was plowing thru 350 posts that
day. It's still no excuse. Sorry everybody out there and especially
Christopher.
```

Though this was the only apology of this type observed in the sample, it was indicative of the group's often successful efforts to ensure rational discourse. And again, note the familiarity between the participants, which in this case appears to have fostered one user's willingness to admit a mistake.

Perhaps the most dramatic example of the efforts to maintain rational discourse on talk.rape was the following article. This article was posted after an anonymous poster admitted fantasizing about wanting to commit rape and a number of others castigated him for having such fantasies:

```
Article: 22837 of talk.rape
```

Newsgroups: talk.rape
From: <user name removed>
Subject: Re: I LOVE TO RAPE TEENAGE GIRLS!
Message-ID: <DGFJ6I.u8@cix.compulink.co.uk>
Organization: Feminists Against Censorship
References: <011343Z06101995@anon.penet.fi>
Date: Sat, 14 Oct 1995 08:20:42 GMT
X-News-Software: Ameol
Lines: 58

Let's pretend for a minute that none of what followed has happened yet, and treat this as a serious post with no follow-up.

an302332@anon.penet.fi (complex) wrote:

> Hi, I have a confession to make. I fantasize about rape ALL the
> time. I am extremely tempted to live out these fantasies. But what
> can I do. I can't ask my girlfriend, she would never agree. I
> cannot go rape some girl--I might get caught. Prostitutes? Too much
> money. What can I do. Rape fantasies is the ONLY thing that arouses
> me. I can't have sex with my girlfriend with out fantasizing about
> rape. One night, I damn near did rape her. I was being really rough
> and told me to stop a couple of times and I didn't. But then I did.
> I really don't know what to do.

"I can ask my girlfriend, she would never agree," followed later by, "One night, I damn near did rape her. I was being really rough and she told me to stop a couple of times and I didn't. But then I did."

Okay, you have rape fantasies. So do many other people. Most people recognize them as fantasies and keep them there. Some people find partners who share the corresponding fantasy and are happy to act it out with them. No problem, no harm. If you can't find a willing partner, keep it in your head.

DO NOT piss around with your girlfriend by pushing her when she doesn't want to. If you've talked it over with her and she refuses, either give up on the idea of acting it out or find a new partner. You _never_ have a reason to force anyone. Play-acting with a consensual partner is something else entirely.

DO NOT confuse your fantasies, whatever they may be, with any situation in which actually assaulting someone would be acceptable to a partner or on any grand cosmic scale. There is no justification for acts of real force against an unwilling partner. Ever.

Rape is a crime. Rape can never be justified. If you feel compelled to act out a rape fantasy, choose a willing partner who also would like to act out that fantasy, and negotiate a scenario with her. There are women who enjoy this, but they don't want to be _really_ raped, either. No one does. DO NOT confuse the two.

Before you engage in any activity of this kind, it would be useful to read up on SM games to understand the cues and safety requirements of such activities. Pat Califia and others have written helpful handbooks

that advise about precautions. For example, if you are turned on by the word "no", you can arrange with your partner to use an uninteresting word, such as "kumquat", to mean an actual "no" that would require you to stop. This is called a "safe word". By using safewords, you can act out your rape fantasy without actually becoming a rapist.

However, as I have said elsewhere, most women operate on the premise that the default safeword is "no". If you ignore that "no", the chances are very good that they will hate you forever, consider you a terrorist, and possibly take some act of revenge against you. You will _not_ be forgiven for such an action. DO NOT imagine that somehow your vigorous pursuit will suddenly make them melt in your arms in sexually-satisfied gratitude; they will not.

Returning the discussion to a rational level, this respondent recognized that the anonymous author might actually be making a genuine appeal for help, and thus responded firmly, yet rationally.

The following article, a follow-up to the previously cited posting on the subject of O.J. Simpson, provides another example of this observed prudence:

Article: 22879 of talk.rape
Path: bermuda.swdc.stratus.com!transfer.stratus.com!bigboote.WPI.EDU!news.ultranet.com!usenet.eel.ufl.edu!brutus.bright.net!chi-news.cic.net!simtel!lll-winken.llnl.gov!enews.sgi.com!ames!waikato!celebrian.otago.ac.nz!n036234.otago.ac.nz!bmcd
From: <user name removed>
Newsgroups: talk.rape
Subject: Re: Simpson - not a shadow of a doubt....
Date: 15 Oct 1995 04:09:25 GMT
Organization: University of Otago, Dunedin, NZ
Lines: 23
Message-ID: <45q1hl$1ne@celebrian.otago.ac.nz>
References: <DGF91H.36D@freenet.carleton.ca>
NNTP-Posting-Host: n036234.otago.ac.nz
X-Newsreader: TIN [version 1.2 PL2]

<user name removed> wrote:
[that she thinks that OJ *really* *did* *do* *it*!] :->

Sure. Absolutely. My guess from day one. And the profile for the killer in such a case is the estranged partner.

But:

Where there is *any* evidence of impropriety by the state, the state must lose its ability to judge the individual.

That is what the jury is there for.

```
The price of years of entrenched racism in the LAPD may just be the loss of
its ability to act in the justice system.
```

In this case, the author presents a rebuttal, but does so in a manner that is rational and unconfrontational. One must be aware in analyzing these results that the high degree of prudence observed in talk.rape could be at least partly attributed to the fact that there was a high need to demonstrate prudence in this newsgroup. The emotional subject matter often prompted participants to more passionately state their opinions—something that was rarely observed in either of the other newsgroups.

As explained previously, the rate of article submissions to talk.rape was small compared to those observed for rec.aviation.piloting and alt.med.cfs. Intuitively, one might expect that a controversial and emotionally charged topic like rape would draw more attention on Usenet, and thus a larger number of articles, than the topics covered by the other newsgroups sampled. However, much of this traffic could be discouraged by the talk.rape rule against cross-posting. In any event, it is difficult to draw meaningful conclusions from the submission rate data at this time without a useful point of comparison—perhaps distribution or readership figures for traditional print media covering similar topics.

The Newsgroup alt.med.cfs. Chronic fatigue syndrome (CFS) is an affliction that causes a loss of physical and mental energy and prevents some sufferers from leading normal lives. The alt.med.cfs newsgroup was set up by the National Institute of Health (NIH) to provide CFS sufferers with an on-line medium for providing emotional support, up-to-date information on medical techniques for battling the disease, reports on the latest research, and discussions about the origins and causes of the illness. The group is appropriately part of the "alt" Usenet hierarchy, which Panitz (1996) describes as "[a]n anarchic collection of serious and silly subjects."[32]

The alt.med.cfs newsgroup, unlike the other newsgroups sampled, is moderated. The moderator, Roger Burns of the NIH, acts as a gatekeeper, controlling access to the newsgroup to prevent the participation of unscrupulous individuals. Burns also monitors all traffic on the group and submits a weekly posting titled "Topics, Rules, and Information for CFS-L / alt.med.cfs," which describes the rules governing access to the group and a set of conventions for identifying the subjects of all postings submitted (Burns, 1995).[33] Postings can fall into subtopics such as MED (for medical issues), RES (for information on current research), CHAT (for social discussion that may or may not be

specifically related to the disease), and HUM (for humorous postings). Participants designate a sub-topic by prepending these capitalized abbreviations to the subject lines of their postings (Burns, 1995).

In addition to the conventions for subtopics, Burns (1995) has established a number of rules governing postings to alt.med.cfs. The following are some of these rules:

1. On topic: Messages posted to this group must be limited to the topic of chronic fatigue syndrome.
2. No advertisements: Commercial advertisements are not allowed on this group. This rule is in place in part because of group sentiment, but also because this group's messages are distributed through the assistance of the NIH Computing Center, a U.S. government agency, and allowing commercial advertisements through the group would be an improper use of government facilities. Participants may post reviews of consumer products or services in which they have no financial interest.
3. No flames.
   - a. Accent the positive: When posting messages, please comment on ideas and make positive suggestions. Please do not personally criticize other participants. Also, political discussions should be brief, . . .
   - b. Refer flames to the moderator: If you are personally criticized, please do not respond directly on the group but instead bring the matter to the attention of the moderator privately. . . . If everyone responds directly to "flames", then the other person may exercise their right to respond, and soon we'll have a spiraling melee. Please bring concerns to the moderator.

These rules clearly indicate the influence a moderator can have on a newsgroup. The expectation, given the rules, would be that the group would be relatively harmonious, focused on the topic at hand, and positive in tone. Given the topic discussed in the group, whose participants are likely to be either sufferers of CFS or doctors who work with these victims, one could reasonably infer that a supportive and comforting tone would be observed in the content. As the following paragraphs explain, the data from the alt.med.cfs sample demonstrated the presence of these effects.

Interestingly, alt.med.cfs scored exactly the same mean aspect presence for *netiquette* (.81) as the other two newsgroups. In the case of rec.aviation.piloting and talk.rape, the assumption was that the high netiquette score was driven by the group's need for self-imposed decorum. In the case of alt.med.cfs, however, all postings were censored by a moderator. This consistency of netiquette scores could be indicative of the power of self-regulation in Usenet, where the high levels of netiquette in talk.rape (which could be caused by a desire for intelligent discourse) and rec.aviation.piloting (which could be caused by a commitment to aviation safety) are equal to that observed in alt.med.cfs, which is a somewhat protected and cloistered on-line support group.

The alt.med.cfs participants' efforts to support and comfort one another appear consistent with the relatively high mean aspect presence observed for *emoticons* (.40, compared to .36 for the overall sample). In addition, mean aspect presence was very low for the aspects most commonly associated with more opinionated and debate-driven newsgroups: *ability to execute a verbal attack* (.09, compared to .25 for the overall sample) and *ability to write a rebuttal* (.06, compared to .30 for the overall sample). These scores, again, appear consistent with the fact that alt.med.cfs is a moderated forum that serves to provide information and expressions of support.

The following article vividly exemplifies the cloistered and supportive mood of alt.med.cfs:

```
Article: 13670 of alt.med.cfs
Message-ID: <199510131945.OAA00878@midway.uchicago.edu>
Date: Fri, 13 Oct 1995 14:45:32 -0500
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Re: How can we stop hate mail?
In-Reply-To: <199510130904.EAA22125@prism.uchicago.edu>
Lines: 10

        <user name removed> wrote:
>Proclamation to all hatemongers:
>You mess with my gang, you mess with me.

Leigh,

  with you and Doc on the list, we can all feel protected.  The only
question is who, on this list, is there to protect us from?  ;-}

                        Love,
                        <user name removed>
```

Note the affectionate reference to "my gang," the allusion to feeling "protected," and the expression of "Love" in the conclusion. Even the emoticon used, a blinking smiley with a wrinkled mouth, evokes the image of a close-knit group of vulnerable individuals who have found emotional strength in numbers. Similar elements to these were observed throughout the alt.med.cfs sample.

In the following example, a new participant was welcomed with advice and expressions of empathy:

```
Article: 13698 of alt.med.cfs
Message-ID: <v01530504aca5a345bf34@[198.53.172.88]>
Date: Sat, 14 Oct 1995 11:00:11 -0700
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Re: How to find a relationship if you have CFS?
Lines: 27

<user name removed> introduced herself to the list and asked:

>What do I do?  Will it change?
>
>discouraged,
><user name removed>

Dear <user name removed>.

I'm so glad you joined our group. We may not be able to solve all your
problems but you will find others here who can relate to your situation and
hopefully you will be able to take some comfort in that.  You seem to be
struggling with a bout of depression that most of us can relate to as we
have all been there at some time.  This DD saps all our energy and the
depression seems to result from the losses we face - which you listed quite
fully.  It is no wonder that we grieve for our lost life.

I think you will see that many of us are coping with courage and humour and
that you too can reach that space.  But you do need a support system.  Do
you have anyone around you that you can confide in?  Is there  a CFS
support group in your area?  Or would you consider seeing a counsellor for
help in dealing with your specific situation?  Many of us have gone that
route.

Please stay with us.  You are not alone.

Best wishes,
<user name removed>
```

Note that the respondent, while emphasizing that the discouraged and depressed new member should seek out a local support group, also characterizes the newsgroup as

a means of communicating with others who are "coping with courage and good humour." This coping, as evidenced by the references to "the losses we face," reaches beyond the CFS condition and into other parts of the personal lives of alt.med.cfs participants. In one such example, a participant asked for help in deciding whether or not to accept a proposal of marriage—a decision that, while not directly related to CFS, was certainly affected by both the physical symptoms of the disease and the sense of defeat and insecurity it inflicts on sufferers. Respondents to this article (which was not one of the articles in the sample) demonstrated the supportive tone that was commonly observed in alt.med.cfs, as in the following example:

```
Article: 13684 of alt.med.cfs
Message-ID: <CFS-L%95101315250738@LIST.NIH.GOV>
Date: Fri, 13 Oct 1995 14:30:00 EST
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Re: Does a new marriage and CFS mix?
Lines: 55

Hello again, <user name removed>.  Your clarification does make this a TAD
more complex.  I too would have recommended that you try living together
first.
     However -- could you see if there is some type of chaste set-up
(perhaps even charperoned) that would permit you two to go about
your daily business within the same household, yet sleep separately?
It is something to consider, so that he can see the day-to-day
variations in this.  Although if you have been around each other
a lot, he may already know a lot of this.  Still, you have to have
SEEN a total crash before you completely believe it.
     As for sex -- don't worry about whether you do or do not have
the energy for it!  9/10 of physicality in a good marriage is
snuggling, enjoying each other's presence.  I believe that when
a married, or otherwise committed to each other, couple sleeps
together (meaning sleepy night night, not bedroom activities),
your subconscious "learns" the scent of your partner.  And it
helps bond the two of you together.  Many of us who have been
married a long time will find that when our spouse has to be
on a business trip away, we will wake up on his/her side of
the bed (subconsciously looking for our snuggy bear).  I think
you can probably have good sex for entertainment outside of this
for a brief period of time, but the relationship that is built
on this mystical joining of the senses is the one that lasts.
(And only a fool would risk the latter for the brevity of the
former.)

     And -- Hollywood aside, sex itself does not have to be
a fitness contest.  The only thing that would hold you back would
be if you have serious problems with pain (as in the case of our
dear friend whose SSI application was recently posted).  Can't
speak for the guys, but it is not something to worry about for you.
```

The one thing that you do have to be aware of, and that our intended must be aware of, is that the jury is out on whether CFSers can have children. There are several mothers on this list who had children after recovering somewhat from CFS, and their kids are fine. It is just something that the two of you and your doctor will need to think about first.

OTHERWISE -- here's one more way of looking at it. Suppose he were you and you were he. Now -- would YOU want him to refuse to marry you solely on the basis of having chronic fatigue syndrome? Would you think he was being fair to you? Does that help you make your decision any better?

Even as sick as we are, we all have much to contribute to this world. If you stick arond on this list for a while, you'll see it. I do not know how I would have made it through this past year without my friends here. You may FEEL like a blob, but you are NOT. You are still yourself, with whatever compassion and capacity to love you always had. And that is what is the most important.

Good luck. Sigh. Think I'll go put some Smokey on the stereo.

-- <user name removed>.

Note again the common themes: the supportive tone, the expressions of affection, and the feeling of camaraderie within the newsgroup. This support and encouragement continued after the original author announced her decision to go through with the marriage. The following are a few examples:

Article: 13699 of alt.med.cfs
Message-ID: <v01530501aca59fa7e565@[198.53.172.88]>
Date: Sat, 14 Oct 1995 10:59:41 -0700
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Re: Thanks to Everyone (formerly Does a new marriage and CFS mix?)
Lines: 14

<user name removed> wrote:
>
>Drum roll, please - We are engaged. We have set the date for April 26.
>
>So, Dot, did I understand you to speak for the group - ALL of you are
>coming to the wedding?! Maybe I should warn you that, due to my finances,
>I have decided to let the GUESTS pay for the reception <g>

Ah....well....er....you see...um ....what I meant was - we'll all be with you in spirit!!!!!

Congratulations to the bridegroom!!!! - and congratulations to you, <user name removed> for having the courage to take the plunge!

```
Article: 13728 of alt.med.cfs
Message-ID: <Pine.NXT.3.91.951013165442.29010A-100000@mulberry>
Date: Fri, 13 Oct 1995 16:58:08 -0500
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Re: Thanks to Everyone (formerly Does a new marriage and CFS mix?)
In-Reply-To: <9510131950.AA29232@papaya.wustl.edu>
Lines: 8

dear <user name removed>,

C*O*N*G*R*A*T*U*L*A*T*I*O*N*S!!!!

you've made this romantic a little happier today....:-)
--natasha

p.s. reception may 25?  i'll be celebrating twice--that's my birthday!  a
day i can recommend highly....:-)
```

Another common theme observed on alt.med.cfs was the exchange of humor, as indicated in some of the preceding examples. The participants appeared to use humor as therapy in dealing with the difficulties imposed by the disease. The following example was posted during a period when two subjects were simultaneously being discussed on the newsgroup: 1) possible occupations for sufferers of CFS (for which baby-sitting was suggested), and 2) the effects of insomnia, when combined with CFS:

```
Article: 13706 of alt.med.cfs
Message-ID: <Pine.HPP.3.91.951013200138.22435A-100000@ephp1.ph.bham.ac.uk>
Date: Fri, 13 Oct 1995 20:09:00 +0100
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Great job for PWCs!
Lines: 10

<user name removed> writes:

>I have been known to put babies to sleep that their own mothers could not
>calm...comes from three children worht of experience...I love it! Send
>any extras my way!

I haven't much experience with babies, but I'm great at putting adults to
sleep! If there are any insomniacs out there, I'll hire my services for a
small fee.  CFS-list subscribers get a 20% discount.
```

This example also appeared in the thread about occupations for CFS sufferers:

```
Article: 13681 of alt.med.cfs
Message-ID: <951013152200_123238016@emout06.mail.aol.com>
Date: Fri, 13 Oct 1995 15:22:01 -0400
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Subject: Re: CHAT: meanwhile back at great business for a PWC
Lines: 31

<user name removed> wrote about babysitting:

>
>That sounds good. (Though I find babies - 'persons with health' find babies
>- HEAVY!)

I've always found women a very heavy subject. Never stopped me from "picking
up" the odd one.  Babies are really only heavy when your wife, your
girlfriend and your car payment are all a month late.

>One of my favourite activities is to open my eyes very very wide
>at babies and young children.

One can only imagine the trauma.

>I will join you on your SIT NOT STAND Leigh, and I will even do the nappies
>(tr. diapers, Pampers) as long as I can do nice terry ones

Fine.  You're Vice President & Director of Nappie Technology.

> (or maybe not,
>maybe CFS fingers make me dangerous with a 'safety' pin)

Maybe we can focus on your conceptualization and communication skills, and
find you some technical assistance.  Volunteers?

> In the s*** anyway...

"soup"?  "shed"?  "shoe"?  oh, I get it: "slop"!

Once a management consultant, always...,
<user name removed>
```

The reliance on humor was consistent in the sample and appeared to be bolstered by the high degree of familiarity the participants had with one another. This camaraderie and good humor were two of the primary characteristics that seemed to make the group an effective source of refuge and positive support for sufferers of the CFS.

Curiously, the rate of submissions to alt.med.cfs (75 articles in the 24-hour period sampled) was higher than for either of the other groups. Further investigation would have to be conducted to determine whether this figure is representative of the ongoing submission rate or just a temporary peak. Intuitively, one would not expect discussions of an obscure disease such as CFS to be more popular than discussions of a popular recreational topic like aviation or a controversial social issue like rape. It is more likely that the alt.med.cfs newsgroup is one of the few avenues sufferers have for interaction with those similarly afflicted, and for this reason, the Usenet medium is particularly popular among this specific segment. Again, one can only speculate without the benefit of further investigation.

Summary. This section looked at each of the newsgroups sampled from three different perspectives: 1) its topical characteristics, 2) its political structure, and 3) its popularity. Each group was found to have unique characteristics in virtually all of these areas, though the popularity data is of little value without further investigation.

Topically, rec.aviation.piloting was shown to be an informational group primarily aimed at exchanges of tips and recommendations related to recreational aviation. Its participants seldom engaged in confrontation, except when inaccurate or questionable information was posted. In general the tone of the group was helpful and friendly. The political structure of rec.aviation.piloting was anarchical, with participants relying on netiquette for the maintenance of order. These characteristics appeared consistent with the relatively high degrees of *netiquette* and *nobility* observed in the aspect presence data.

The discussions on the talk.rape newsgroup covered the prevention of rape and a number of related subjects. As such, this group included several opinionated postings and heated exchanges. The tone of the group was often emotionally charged and confrontational. The political structure of talk.rape was, like rec.aviation.piloting, anarchical and highly dependent on netiquette for the maintenance of order. Instances in which participants reprimanded one another for lack of compliance were observed in the sample. One unique political aspect of talk.rape was its prohibition against cross-posting, which appeared to limit the amount of rhetorical turbulence observed on the group. The characteristics observed in talk.rape appeared consistent with the high degrees of *emoticons* and *ability to write a rebuttal* observed in the aspect presence data.

The alt.med.cfs newsgroup was shown to be an on-line support group for sufferers of CFS. Discussions mainly consisted of exchanges of information and expressions of

sympathy and encouragement. The tone of the group was supportive, humorous, and at times emotional. Unlike the other two newsgroups sampled, alt.med.cfs was moderated, which resulted in a more controlled, less volatile political structure. Interestingly, the aspect presence data showed the same degree of *netiquette* in alt.med.cfs as in the other two newsgroups, despite its very different political structure. Two other aspects, *ability to execute a verbal attack* and *ability to write a rebuttal*, were shown by the aspect presence data to be largely absent, as one might have expected.

The common themes observed in all the newsgroups included a high degree of familiarity between the participants. In all cases, most of the articles in the groups were submitted by a small number of active participants, with only an occasional article coming from others. Other common themes included the high degree of *netiquette* observed in all the groups—despite their varying political structures—and the apparent consistency between the aspect presence data and the characteristics observed in this analysis of the groups.

The next section presents an analysis of the MacKinnon Factor data collected in the study and discusses some of the problems encountered in using MacKinnon Factor as unit of measure.

MacKinnon Factor

As stated in Chapter 3, the MacKinnon Factor was primarily created as a way to characterize Usenet articles on the basis of the presence or absence of the ten societal aspects in the MacKinnon Model. The instrument used to determine MacKinnon Factor was effective in that it took into account all ten of the MacKinnon aspects and proved an easy tool to use in analyzing large numbers of articles in a relatively short period of time. The simple "check-box" format of the instrument, and the fact that the information required amounted to little more than a yes-or-no answer and a few evaluation comments, made the analysis easy to conduct despite the large number of articles analyzed.

These positives were overshadowed by the reliability tests, which showed that three of the MacKinnon Aspects—*impressions made with words, non-monetary generosity,* and *prudence*—were highly susceptible to variations in the judgment of the researcher conducting the analysis. This section addresses this issue, along with additional related

weaknesses in both the instrument and the MacKinnon Model itself. The purpose of this discussion is to identify ways that the model and the instrument can be improved.

The first notable data to consider is the fact that the mean MacKinnon Factors observed in the study—1.93 for the overall sample, 1.83 for rec.aviation.piloting, 2.50 for talk.rape, and 1.87 for alt.med.cfs—were low, given the maximum value of 7 allowed by the instrument.[34] Since the literature review demonstrated that the ten aspects in the MacKinnon Model comprise the foundation of Hobbes's (1651/1962) definition of *society*, and since the MacKinnon Factor is determined through the use of an instrument that accounts for each of these ten aspects, one would logically expect that a high MacKinnon Factor would support the notion that Usenet is a society in the Hobbesean sense. Furthermore, if MacKinnon Factor alone is used to measure this quality, one could conclude that 1) Usenet does not, after all, constitute a Hobbesean society, and 2) talk.rape, with its MacKinnon Factor of 2.50, is closer to being a society than is alt.med.cfs, which had a lower figure of 1.47. It is critical, however, to test this logic with further analysis, particularly given that all of these figures consider only seven of the ten original MacKinnon Aspects.

The first issue to consider is the potential for weaknesses in the instrument. A closer look at the data reveals that the overall MacKinnon Factor was dragged down by the scant presence of such societal aspects as *eloquence* (.14), *nobility* (.07), and *persona* (.00). Had these few aspects been higher, the overall MacKinnon factor would have also been higher. This points out a potentially flawed assumption made by the instrument: that each MacKinnon Aspect should carry equal weight. This assumption is at odds with both the wide variations in aspect presence observed in this study and the evidence in the literature that some aspects, such as netiquette (or mores, norms, and traditions) are more integral to the development and maintenance of societies than others, such as persona (or personality).

Along with this weakness of not considering the relative importance of the societal aspects, the instrument also did not attempt to measure variations in the *degree* of aspect presence, and instead arbitrarily assigned a value of 1 to each. In this sense, the instrument was perhaps too focused on measuring the manifest content of the articles and should have instead attempted to more fully analyze the latent content.

As mentioned in Chapter 3, one of the persistent challenges of the content analysis method is finding a balance between superficial measures of manifest content, which are

highly reliable but often lacking in validity, and in-depth descriptions of latent content, which have improved validity but questionable reliability, since they rely heavily on the objectivity of the researcher. The use of the MacKinnon Model as the conceptual framework for the instrument in this study was seen as a way of addressing this challenge by first validating the aspects in the model, then conducting an analysis of manifest content based on the model. For seven of the ten aspects, the positive results in reliability testing showed that this was a successful approach. For the remaining three, however, negative reliability test results called their usefulness into question. Further work is needed, then, to recognize that variations in the degree of aspect presence could assign undue significance to some societal aspects at the expense of others, and to account for the reliability problems seen with three of the ten MacKinnon Aspects.

It is clear, then, that additional refinement of the instrument is needed before any clear meaning can be derived from MacKinnon Factor data alone. This refinement should take into account 1) variations in the significance of the aspects (with some being weighted more heavily than others), 2) the degree of aspect presence observed (rather than just presence or absence alone), and 3) the reliability of the final set of aspects included in the model, and thus in the content analysis instrument.

The results are nonetheless encouraging that with these refinements MacKinnon Factor can be a useful unit of measurement in CMC research, if applied in parallel with other methods. Assuming the refinements can be made in a manner that retains its comprehensiveness and usability, the instrument shows promise as an effective tool for assessing the societal nature of Usenet through analysis of large numbers of articles.

Summary. Both the results presented in Chapter 4 and the discussion presented earlier in this chapter have identified the fact that, depending on the tone, politics, and topic of a given newsgroup, some societal aspects will show a stronger presence than others. As is explained above, this observation led to the conclusion that the relative importance of aspects and the degree of aspect presence, neither of which were measured in this study, could be important properties to consider in future analyses. In addition, the reliability problems shown with three of the ten MacKinnon Aspects need to be resolved before MacKinnon Factor data can be applied with confidence in further research.

Because these discussions led to questions about the societal aspects that make up the MacKinnon Model, a closer examination of aspect presence data was conducted. The

next section presents the results of this examination, including some of trends observed in the data and a proposed method for refining the MacKinnon Model.

Aspect Presence

In considering the observations made to this point regarding aspect presence data, a question that consistently comes to light is, "Why did some aspects show high degrees of presence while others do not?" The discussion in this section considers this question as it relates to the challenge of content analysis research described previously and the varying degrees of presence observed for certain aspects.

To address the question of why some aspects showed higher aspect presence than others, it is important to consider the two most highly-rated aspects, *netiquette* and *emoticons*. The aspect of *netiquette* was frequently observed partly because of its place as a cultural mainstay of Usenet, as is documented in a number of frequently distributed Usenet FAQs. *Emoticons* are also relatively common on Usenet and are, in fact, widely recognized as standard usage. But these aspects also showed high aspect presence because they are relatively easy to recognize from cursory examination of the manifest content of the articles. The data showed that *netiquette* was clearly indicated by appropriate signatures, appropriate numbers of quoted text lines from previous articles, and users reprimanding one another for noncompliance, among other things. *Emoticons* were easily discerned from the use of asterisks, all capital letters, and other textual displays of emotion. The aspect presence rating, then, was dependent on both the actual presence of the aspect and its being clearly discernible in the manifest content of the article.

There is reason to believe it was this second property, the extent to which the aspect was discernible, that differentiated aspects with lower presence ratings from the more highly rated aspects like *netiquette* and *emoticons*. Perhaps the most dramatic example of this was the aspect with the lowest rating, *persona*, which was deemed present in only one of the 210 articles analyzed. This singular instance bears further discussion.

The one article in the sample in which the presence of persona was demonstrated came from the talk.rape newsgroup. Curiously, this article was randomly selected for inclusion in the reliability test, and the first independent researcher (referred to as "Researcher 1" in Chapter 4) corroborated the primary researcher by identifying the

presence of *persona* in the same article. This article was used as an example earlier in this chapter, and the relevant portion is shown again below:

```
Article: 22837 of talk.rape
Newsgroups: talk.rape
From: <user name removed>
Subject: Re: I LOVE TO RAPE TEENAGE GIRLS!
Message-ID: <DGFJ6I.u8@cix.compulink.co.uk>
Organization: Feminists Against Censorship
References: <011343Z06101995@anon.penet.fi>
Date: Sat, 14 Oct 1995 08:20:42 GMT
X-News-Software: Ameol
Lines: 58

Let's pretend for a minute that none of what followed has happened yet,
and treat this as a serious post with no follow-up.

an302332@anon.penet.fi (complex) wrote:

> Hi, I have a confession to make. I fantasize about rape ALL the
> time. I am extremely tempted to live out these fantasies. But what
> can I do. I can't ask my girlfriend, she would never agree. I
> cannot go rape some girl--I might get caught. Prostitutes? Too much
> money. What can I do. Rape fantasies is the ONLY thing that arouses
> me. I can't have sex with my girlfriend with out fantasizing about
> rape. One night, I damn near did rape her. I was being really rough
> and told me to stop a couple of times and I didn't. But then I did.
> I really don't know what to do.

"I can ask my girlfriend, she would never agree," followed later by, "One
. . .
```

There are a number of indicators in this posting that the author of the original article (to which this author was following up) was projecting a persona separate from the personality he (or she) displays in person. First, this author chose to use an anonymous identification (an302332@anon.penet.fi) under which to submit this posting.[35] This action clearly indicates that a message was being shared that would likely be suppressed in face-to-face interaction. The highly unusual nature of the message—an admission of fantasizing about committing rape—supports this assumption and provides the second indicator of persona. The message contains subtle signals that it was perhaps not sincere and was instead a calculated effort to generate derision on the often turbulent talk.rape newsgroup. After issuing the seemingly helpless, "But what can I do?," the author wrote, "I cannot go rape some girl--I might get caught." An underlying message to the effect of, "The possibility of getting caught is a concern to me, while the effect on the victim—impersonally referred to as "some girl"—is unimportant," hovers

suspiciously just beneath the surface of this statement. Subsequent passages about the "girlfriend" ("One night, I damn near did rape her") carry similar subliminal messages. All of this adds up to a relatively clear conclusion that this person, whether sincere about wanting help or not, was projecting a persona over Usenet that his or her face-to-face acquaintances are unlikely to know.

Note that all of these observations required an in-depth consideration of the latent content of the article. This level of examination is in stark contrast to the surface level examination required to identify the presence of *netiquette* or *emoticons*. It was this need to closely and carefully examine latent content, then, that contributed to the low aspect presence ratings for *persona*, and likely did the same for such aspects as *nobility* and *prudence*. It is thus reasonable to conclude that a different approach might be in order for determining the presence of these less obvious aspects. The checklist format of the instrument used in this study might be useful for easily discernible aspects, but a different method that more clearly defines the aspects should perhaps be used for those aspects that are difficult to discern.

One Approach to Improving Reliability

The previous section discusses the discernibility of aspect presence in relation to the degree of aspect presence. Given the conclusions arrived at there, one could also reasonably expect that there would be some relationship between the discernibility aspect presence and the reliability with which such presence can be determined. If one concludes that less obvious aspects require careful examination of latent content to uncover, then it logically follows that such aspects would be more susceptible to the subjective viewpoint of the observer, and would thus be more difficult to identify from researcher to researcher. This would then imply a relationship between reliability and aspect presence rating, since the same characteristic—discernibility—would seem to affect them both.

Interestingly enough, however, this was not the case. Two of the aspects removed because of questionable reliability were actually among the most highly rated. *Impressions made with words* (.79) and *non-monetary generosity* (.45) had the second and third highest aspect presence, respectively, in the overall sample. This observation led to a closer examination of the three questionably reliable aspects (*impressions made with words*, *prudence*, and *non-monetary generosity*). Because discernibility was identified as a property

affecting measurability, this property was considered in this examination. In addition, each of these aspects was considered in relation to the other aspects in the model in an effort to uncover commonalities.

Not surprisingly, all these three aspects were seen as highly susceptible to the subjective judgment and knowledge base of the observer. The following article, which was posted to rec.aviation.piloting after a lengthy and often heated exchange on rate of climb calculations, provides an example:

```
Article: 16827 of rec.aviation.piloting
From: <user name removed>
Newsgroups: rec.aviation.piloting
Subject: Re: Downwind Turn was: Pollen & LiftRe: Pollen & lift
Date: Fri, 6 Oct 1995 16:28:46 -0500
Organization: Southern Illinois University - Carbondale

I know in the POH for my airplane they give a set of speeds for
Best Angle of Climb.  The best angle speed depends on Takeoff weight
and wind.  The Best Rate speed just depends on Takeoff weight.
John
```

Prudence was attributed to this author because of his citation of an apparently authoritative source ("the POH [operator's handbook] for my airplane") for the information in his article. Clearly, someone who is not familiar with Usenet (where citations of external source material can be rare) or aviation terminology (which is needed in defining the acronym "POH") might not see the simple act of citing a reference as *prudence.*

The aspect *impressions made with words* was deemed similarly susceptible. As the following example, a brief expression of gratitude posted to alt.med.cfs, indicates, the characterization of "impressions" can be very subjective:

```
Article: 13672 of alt.med.cfs
Newsgroups: alt.med.cfs
Message-ID: <Pine.A32.3.91.951013122847.49788K@fn1.freenet.edmonton.ab.ca>
Date: Fri, 13 Oct 1995 12:29:40 -0600
Sender: Chronic Fatigue Syndrome discussion CFIDS/ME <CFS-L@LIST.NIH.GOV>
From: <user name removed>
Organization: Software Alberta Society, Edmonton, Canada
Subject: Re: Does a new marriage and CFS mix?
In-Reply-To: <199510131323.GAA09940@usr1.primenet.com>

<user name removed>,
```

```
Thanks for your response and for sharing your experience.

Hope things continue to go great for you!

Love,
<user name removed> :)
```

Clearly one observer might not see this little note as a verbal "impression." However, one who is familiar with alt.med.cfs and the significance such small notes of affection hold for the participants of this on-line support group might see this article differently.

Once it was determined with some confidence that these aspects are indeed relatively difficult to discern, the question of why this was the case was addressed. This led to an examination of the questionable aspects in relation to the others in the model. Through simple intuitive judgment, a number of commonalities were identified. A seemingly clear commonality was identified between *impressions made with words* and three other aspects directly related to the writing of effective verbiage: *ability to execute a verbal attack, ability to write a rebuttal,* and *eloquence.* Similarly, a commonality was identified between *prudence* and what is essentially the Usenet tradition of prudence, *netiquette.* (*Non-monetary generosity* was a bit more troublesome in that no other aspects appeared to be clearly similar or related.)

To test these commonalities, a set of conditional probabilities was calculated to measure the probability that one aspect is present, given the presence of another. The assumption in conducting these calculations was that, if the conditional probability tying one aspect to another was very high, one could justifiably consider making refinements to the model by combining these aspects into one. Table 8 shows the results of these conditional probability calculations. The figure listed in the third column represents the probability that the aspect in the first column is present, given the presence of the aspect in the second column. (In other words, the first row of the table indicates that 90% of the time *ability to execute a verbal attack* was present, *impressions made with words* was also present.)

Table 8

Conditional Probabilities for Questionable MacKinnon Aspects

Related Aspect 1 (A_{x1})	Related Aspect 2 (A_{x2})	Conditional Probability $P(A_{x1} \mid A_{x2})$
Impressions made with words	Ability to execute a verbal attack	.90
Impressions made with words	Ability to write a rebuttal	.89
Impressions made with words	Eloquence	1.00
Netiquette	Prudence	.91

Clearly, these conditional probabilities show strong relationships between these pairs of aspects. In the case of *eloquence,* in fact, each and every time this aspect was observed, *impressions made with words* was also observed. These calculations gave credence to the proposition that, to a researcher using the content analysis instrument, some of these aspects were interpreted as being the same, or extremely similar, to their counterparts. Furthermore, this conclusion is consistent with the intuitive assumptions that led to these calculations. This observation suggests that the MacKinnon Model could be refined by simply combining these aspects (for instance, *eloquence, impressions made with words, ability to execute a verbal attack,* and *ability to write a rebuttal*) into a single aspect that takes all of them into account. Figure 8 illustrates such an approach.

This approach proposes combining *netiquette* and *prudence* into one aspect, since 91 percent of the time *prudence* was deemed present, *netiquette* was already present. It also proposes combining the four aspects related to verbal expressiveness into one aspect called *writing skill.* Again, the degree to which the conditional probability data supported the forbearing assumptions about these aspects makes a compelling case for this approach to refining the model.

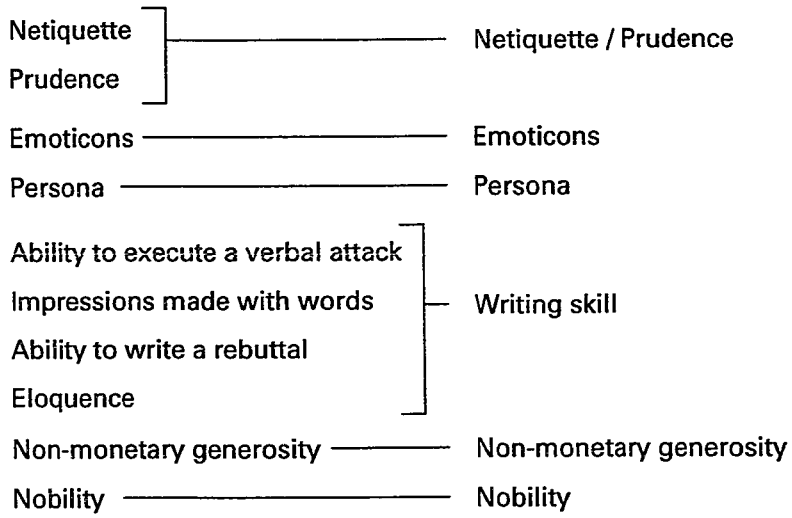


Figure 8. Refinement of the MacKinnon Model on the Basis of Conditional Probabilities

A further advantage to this approach is that it reduces the vulnerability of the aspects *prudence* and *impressions made with words* demonstrated in the reliability tests. Since these aspects have now been combined with related aspects that showed much better reliability, a revised instrument based on this refined model is likely to also have better reliability. Certainly, additional reliability testing will be needed to confirm this assumption, and further validity testing should be done to ensure that this combining of related aspects has not diluted the effectiveness of the model in addressing all the aspects that contribute to the societal nature of a CMC environment.

Conclusions

The analyses undertaken in this study have led to a number of conclusions regarding the MacKinnon Model, the societal nature of Usenet, the usefulness of aspect presence data, and the methodology of using a content-analysis instrument for large-scale field research in CMC. This section presents these conclusions in more detail.

The first objective of this research was to advance the study of CMC by documenting and validating a model applicable to large-scale field research of computer conferencing systems. This was largely achieved through the literature review, including the analysis of MacKinnon's (1992) thesis, *Searching for the Leviathan in Usenet.* Though the literature review conducted for this study was very broad and inclusive, the research in

CMC is growing at such a rapid rate that opportunities abound for further corroboration of the aspects of the MacKinnon Model, and, perhaps, for corroboration of the refined set of aspects proposed in this study. Nonetheless, the review provided here can serve as a basis for further work in this area, both from the viewpoint of researchers in technology and technology-related fields and from the sociological perspective as well.

The second objective of the study was to produce data supporting the notion that CMC environments can be viewed as communities and, indeed, societies in the Hobbesean sense, as defined by MacKinnon (1992). This objective was also achieved, but to a much lesser degree than the first. The difficulties in discerning such aspects as *persona* and *nobility* prevented the presence of these aspects from being convincingly determined. Further research will be required to determine whether this was a methodological issue or a limitation in the thinking surrounding the creation of the MacKinnon Model. The reliability problems of the instrument certainly overshadowed the data collected for the three aspects affected, and again, further research, perhaps involving the refinements to the model proposed here, will be needed to understand the root of these problems. Nonetheless, the reliability data on the remaining aspects, and the usefulness of aspect presence data in developing seemingly accurate profiles of the newsgroups studied, constitute a solid foundation for future work in Usenet and other CMC environments.

Certainly, the MacKinnon Model showed promise as a method of ensuring both reliability and validity in large-scale field research in CMC, due to its approach of ensuring validity through the use of the externally validated model and ensuring reliability through the systematic analysis of manifest content. This research discovered, however, that some of the MacKinnon Aspects cannot be discerned through surface-level analyses of manifest content, and that a deeper analysis is therefore needed. In addition, the reliability problems described above indicated the need for further work in refining the model. This study has now suggested one direction to take with these refinements, without radically changing the existing framework. Given that this basic framework was compellingly validated in the literature review, there is reason to believe that further work with model could bear fruit.

Some of the more useful insights generated in this study came from the aspect presence data. Measures of aspect presence, combined with the cluster sampling method employed in the study, allowed the development of the newsgroup profiles described

earlier in this section and detailed at the beginning of this chapter. Notably, these profiles proved useful in validating many of the themes one would expect to find in certain newsgroups, given their political and topical characteristics.

The themes uncovered by the aspect presence data revealed that common themes appear to exist throughout Usenet. These include the familiarity often seen between participants, the tendency for groups to be dominated by a small band of particularly active participants, and the seemingly religious compliance with the basic rules of netiquette, despite the various types of political systems employed and the widely diverse topic areas covered. Many of these themes are, of course, consistent with those found by many other researchers in the Usenet environment. But the apparent effectiveness of profiling using the aspect presence data could constitute a new technique for examining these themes, and perhaps the causal relationships between them, more closely.

Recommendations for Further Research

The conclusions detailed above allude to a number of opportunities for further research. In addition to these, the following potential directions are recommended.

One approach that is sorely needed in CMC research was pointed up by the difficulty in this study of trying to determine the presence of less-obvious, largely indiscernible societal aspects like *persona*. This problem illustrates the need for CMC researchers to reach beyond the convenience and safety of on-line data collection and combine these methods with face-to-face interaction of some kind, whether it be corroborating interviews or journalism-style case studies. Admittedly, such an approach would involve greater expenditures of time and money. However, this study has shown that the great advantages of having access to massive amounts of text-only qualitative data are offset by the great limitations of viewing human interaction from the distance of a computer screen.

The prospect of further developing and testing the profile-building capabilities of the aspect presence data should also be pursued. With a method more focused on this dimension of the MacKinnon Model and perhaps a larger sample size, this method could prove useful in evaluating the social makeup of Usenet newsgroups and other CMC environments. Such evaluations could be integrated pre-test/post-test experiments in an

effort to gain insight into the rapid changes occurring in CMC environments as the numbers of nodes and users undergo meteoric increases.

Another area requiring further study is the topical differences between Usenet newsgroups. This study touched on some of these differences and pointed up the potential utility of an exhaustive classification scheme for Usenet that reaches beyond the limitations of the current newsgroup hierarchies. Though classifications at the top level of these hierarchies are well-known, a new scheme, perhaps reaching down to the third or fourth level of the hierarchy, could be quite useful to future investigators in CMC studies. One could also utilize the profiling capability of the MacKinnon Model to create an entirely different, potentially more intuitive, classification scheme.

Comparisons between moderated and unmoderated newsgroups, conducted with more thoroughness and rigor than those discussed here, could also constitute a fertile research topic. Indeed, the consistent pattern of *netiquette* observed throughout the three newsgroups studied here suggests a number of inferences about the politics of CMC environments that bear further investigation. Such inquiries could add significant insight to the current discourse.

Similarly, the rates of article submission to Usenet newsgroups constitute another area outside the scope of this study, but certainly worthy of further investigation. Research on this topic could offer insight into such overlying questions as, How does the flow of articles through a newsgroup affect the care and thoughtfulness of postings on the group?, and, Are heavily trafficked newsgroups more susceptible to flame wars than smaller, less busy groups? Answers to these and other questions on this topic could lead us to a clearer understanding of not only large CMC-based social environments, but our everyday social environments as well.

Finally, as is described at length earlier in this chapter, further work is needed on the content-analysis instrument used in this study to improve its ability to consider variations in the importance of societal aspects and the degree of aspect presence within an article, rather than just the presence or absence of the aspect. Such a study could be compatible with a more-exhaustive review of the sociological literature pertinent to the study of CMC. The sociological perspective presented in Chapter 2 merely introduces some groundwork for such a study. Nonetheless, a number of themes consistent between the CMC field and sociology are identified, and these could serve as a foundation for further investigation in this area.

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Footnotes

[1] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Ibid.

[7] Ibid.

[8] Ibid.

[9] Ibid.

[10] Interestingly, sociological theory holds that symbols, language, values, and norms are all components of culture and, as such, vary from place to place based on cultural variations (Macionis, 1991). It follows logically, then, that a subculture based on CMC would respond to the environmental properties of the communications medium by developing its own set of symbols, language, values, and norms.

[11] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[12] Ibid.

[13] Ibid.

[14] An Internet "host" is a computer with a direct link to the Internet, as defined in the Internet addressing scheme. An individual host can link anywhere from one to hundreds of thousands of users to the net.

[15] The Internet consists of a web of small computer networks that are connected, yet independent from one another. (See "Definition of Terms" on page 22.)

[16] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[17] Ibid.

[18] Though MacKinnon (1992) chose the term "attack" in conveying his analog to physical strength, it is recognized that less ominous terms such as "assert oneself on" or "impose oneself on" are perhaps more appropriate here. Because physical strength is often demonstrated by non-violent means in the modern world, it is perhaps unnecessary to use the term "attack," which conjures up equally ominous terms like "assault." However, for purposes of consistency, the terminology used here will, for the moment, imitate that used by MacKinnon.

[19] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[20] In a mail bombing, several members of the group will simultaneously or repeatedly send e-mail to the violator, expressing their displeasure with his or her remarks. Flaming is defined in Chapter 1.

[21] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[22] Structural-functionalism assumes a *macro-level* orientation, or "a concern with large-scale patterns that characterize society as a whole" (Macionis, 1991, p. 20), while symbolic-interactionism assumes a *micro-level* orientation, or "a concern with small-scale patterns of social interaction" (Macionis, 1991, p. 20).

[23] Dramaturgical analysis is described by Macionis (1991) as a method that "emphasizes how human beings resemble actors on a stage as we deliberately foster certain impressions in the minds of others." The dramaturgical method essentially looks

at society as a *stage*, with a team of *performers*, an *audience*, a *back region* where the *performance* is prepared, a *front region* where the performance is presented, and rules of decorum that regulate behavior in both regions.

[24] From the dramaturgical perspective, the thread—or series of articles that ensues in response to an impression made by a Usenet user—could be looked on as a "script" of sorts. It could be examined for evidence of the methods used by the participants to create impressions, the barriers encountered in these attempts, and the varying degrees of success that result.

[25] The edition of *Social Theory and Social Structure* used for this review was superceded in 1968 by an updated version, which builds on Merton's basic theories. For the purpose of this review, however, the ideas advanced by Merton in the 1950s is of primary interest, since it has since acted as the stimulus for a wider range of sociological thought.

[26] This is not to say that both the aspects that make up the MacKinnon Model and the effectiveness with which it can be applied do not warrant further investigation. Clearly they do. The point here is that the MacKinnon Model offers certain advantages in conducting large-scale CMC research, and given the objectives of this study, it is reasonable to proceed with an analysis of Usenet using an instrument based on this model.

[27] For a detailed list of appropriate Usenet practices, see Von Rospach (1987).

[28] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[29] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[30] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[31] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[32] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[33] Page numbers are unavailable for excerpts from this reference, which was obtained as an unformatted file from a computerized archive.

[34] These values were observed using the revised, seven-aspect instrument. The mean MacKinnon Factors observed using the original ten-aspect instrument were: 3.61 for the overall sample, 3.63 for rec.aviation.piloting, 3.93 for talk.rape, and 3.27 for alt.med.cfs. With the inclusion of the aspects whose presence could not be reliably measured, these figures were also low, given the maximum value of 10 allowed by the original instrument.

[35] The domain name "anon.penet.fi" is generated by an on-line anonymity service in Finland. Users can employe services like this to retain their anonymity when posting or sending e-mail.

Appendix A

Usenet Tutorial

The following tutorial is presented to help the reader understand what Usenet is and how users interact with it. For the purpose of this study, it is unimportant that the reader understand the structure of the system in all its technical detail. We therefore provide a basic conceptual view, along with a step-by-step walk-through of a typical Usenet session.

What is Usenet?

Usenet is a software program designed to run on computers equipped with a communications protocol called the Unix-to-Unix Copy Program (UUCP). These computers, which receive and send Usenet articles, are known as *UUCP hosts* because of their dependence on the UUCP protocol. UUCP hosts are generally large multi-user systems that provide Usenet services to a community of computer users. For example, in a college campus environment, hundreds or thousands of students and faculty might receive computing services from a central computer center. In such an environment, Usenet might be one of the services provided by the computer center, which is likely to possess a UUCP host system. In Usenet terms, such an environment is known as a *Usenet site.*

A user of Usenet interacts with the system through a software program called a *newsreader,* which resides either on the user's terminal or on the UUCP host computer. There are a number of newsreaders available, each with its own unique features and capabilities. However, each must perform the following basic functions:

- Displaying Usenet newsgroup names from a user-defined list.
- Showing the user the currently available articles from those newsgroups.
- Allowing the user to perform basic operations like saving articles to files, responding to articles, and authoring and sending original articles.

As is explained in Chapter 1, millions of users display, read, and respond to Usenet articles each day. The newsreader is the basic tool that allows this interaction with the system. The following paragraphs describe this interaction in more detail.

Figure A1 illustrates, in simplified fashion, the way information flows through Usenet. The user and terminal shown at the left of the figure would be just one of many that are typically connected to a single UUCP host. The smaller networks illustrated at the right of the figure represent the thousands of sites that comprise Usenet. Note that all communications conducted over the net are bidirectional.

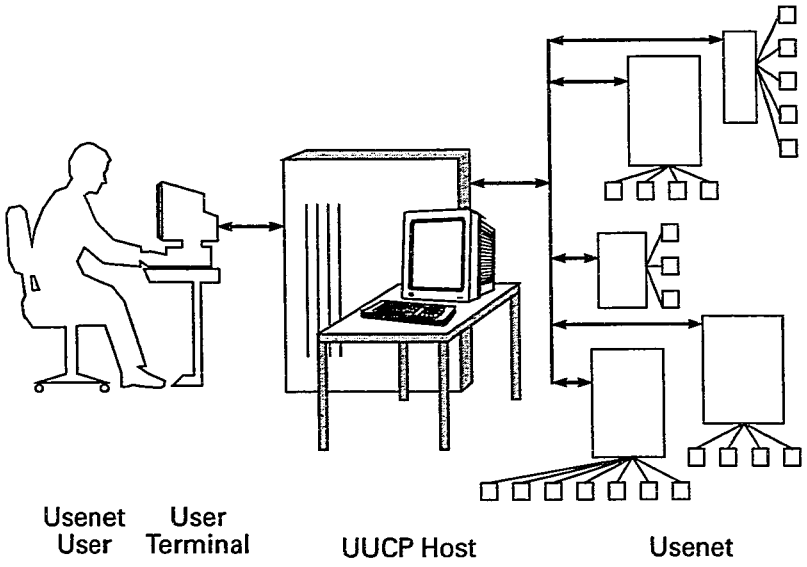

Figure A1. A Basic Conceptual View of the Usenet System

The user invokes the newsreader software on his or her terminal. This software connects to the UUCP host and begins displaying Usenet files as directed by the user. This activity is called a *session.*

While the user proceeds with his or her session, the UUCP host intermittently receives new articles from the network and sends out articles written and submitted by other users at the site. Because of the dynamic and unstructured nature of this distribution method, duplicate articles are often sent from site to site. The Usenet software therefore gives the computer the ability to sort through newly received articles so that those that have already been received can be thrown away. This requires that the

software attach a unique number to each new article submitted so that it can be identified upon receipt by another site.

The following sample session illustrates how the user interacts with the newsreader and describes how user actions result in the transmission of articles out onto the net.

A Sample Usenet Session

The sample Usenet session described in this section was extracted from an actual invocation of a popular newsreader known as *tin*. Throughout the excerpts, information entered by the user is shown in boldface type, and system output is shown in standard nonproportional type.

To invoke the tin newsreader, the user simply types the command, "tin," and presses enter. This results in system output similar to that shown below.

```
<1> tin
tin 1.2 PL2 [UNIX] (c) Copyright 1991-93 Iain Lea.
Connecting to stratus...
Reading news active file...
Reading attributes file...
Reading newsgroups file...
```

The system displays several lines of status information telling the user that operations needed to initiate the session are being performed. (For the purpose of this study, the actual content of these status lines is unimportant.)

Once the initiating operations are completed, the newsreader displays a Group Selection screen similar to the one shown below.

```
                    Group Selection (stratus  598)                  h=help

    1  1536  ca.politics
    2  2426  news.groups                          Discussions and lists of newsg
    3    27  news.misc                            Discussions of USENET itself.
    4     3  news.newsites                        Postings of new site announcem
    5        comp.binaries.os2
    6        comp.doc                             Archived public-domain documen
    7    26  comp.doc.techreports                 Lists of technical reports. (M
    8    47  comp.fonts                           Typefonts -- design, conversio
    9   369  comp.graphics                        Computer graphics, art, animat
   10    50  comp.lang.postscript                 The PostScript Page Descriptio
   11     4  comp.lang.prolog                     Discussion about PROLOG.
   12    12  comp.lang.rexx                       The REXX command language.
   13   177  comp.lang.scheme                     The Scheme Programming languag
   14        comp.lang.scheme.c                   The Scheme language environmen
   15        comp.lang.sigplan                    Info & announcements from ACM
   16   220  comp.lang.smalltalk                  Discussion about Smalltalk 80.

    <n>=set current to n, TAB=next unread, /=search pattern, c)atchup,
 g)oto, j=line down, k=line up, h)elp, m)ove, q)uit, r=toggle all/unread,
   s)ubscribe, S)ub pattern, u)nsubscribe, U)nsub pattern, y)ank in/out
```

The Group Selection Screen

The top line of this screen contains the screen title ("Group Selection") and the name of the "help" command. The tin newsreader employs a number of single-character user commands. In tin screen display parlance, the expression "h=help" tells the user that pressing an "h" will display a help screen. (Software products routinely include a help command, which provides basic information about product functions, in the upper right-hand corner of all displays.)

The central portion of the Group Selection screen provides a listing of Usenet newsgroups. The groups listed on this screen comprise a subset of the thousands of newsgroups available. This set of groups has been pre-selected by the user, who has the ability to create a customized list of newsgroups based on his or her interests. This activity is known as *subscribing* to newsgroups. (Conversely, deleting a newsgroup from one's customized list is known as *unsubscribing from* the newsgroup.) The shaded horizontal bar across Line 3 in the example indicates that this line is currently selected. In tin parlance, the currently selected line is called the *current* line.

The first column in the central portion of the screen simply numbers the newsgroups consecutively. The second column tells the user how many articles are available in each newsgroup. The third column shows the name of the newsgroup. And the fourth column provides a brief description of the topics discussed on the newsgroup.

Newsgroup names (listed in the third column of the Group Selection screen) use significant naming conventions. Usenet newsgroups are divided into hierarchical branches based on topic area. The first three or four characters in a newsgroup name provide a very general indication of the topic area (e.g., newsgroups whose names begin with "comp" are dedicated to discussions of computers). Moving down from this highest level in the hierarchy, each subsequent set of characters represents an increasingly specific topic area. Figure A2 illustrates the branches in the "comp" hierarchy that are included in the sample Group Selection screen on Page 126.

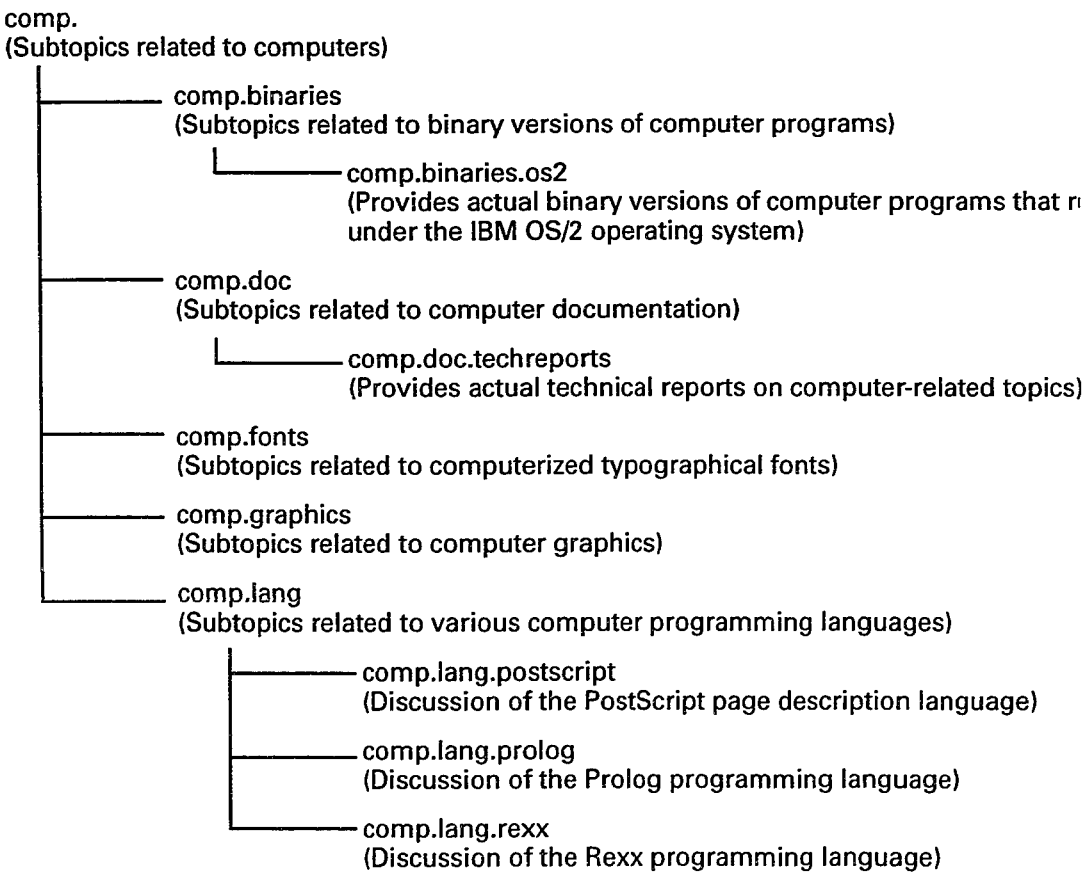

Figure A2. Sample Newsgroup Naming Hierarchy

The bottom portion of the Group Selection screen provides a listing of one-character commands that can be invoked when this screen is displayed. Similar command listings appear at the bottom of most tin screens, though a different set of commands is available on each one. A table at the end of this appendix provides a complete annotated list of one-character tin commands.

From the Group Selection screen, the user is able to open and more closely examine any of the newsgroups listed. To open the current newsgroup so that articles can be displayed, read, and responded to, the user simply presses <Enter>. For the purpose of this sample session, we have selected as the current newsgroup news.misc, which is dedicated to the discussion of Usenet itself. Once the user selects this as the current newsgroup and presses enter, a screen similar to the one on Page 129 is displayed:

```
                                news.misc                                h=help

  1  +    Seeking out info on Net.Contributions          <user name removed>
  2  + 3  Flooding                                       <user name removed>
  3  + 3  Sojourn Diku Source - READ                     <user name removed>
  4  + 4  An Extremely Useful Area Coding System        <user name removed>
  5  +    BBS's in Springfield Missouri Area            <user name removed>
  6  +    ANSWERS TO QUESTIONS                           <user name removed>
  7  +    Need prices on GPS receiver                    <user name removed>
  8  +    Apartment to rent near Geneva                  <user name removed>
  9  +    ** SOFTWARE PACKAGE WANTED **                  <user name removed>

  <n>=set current to n, TAB=next unread, /=search pattern, ^K)ill/select,
a)uthor search, c)atchup, j=line down, k=line up, K=mark read, l)ist thread,
  |=pipe, m)ail, o=print, q)uit, r=toggle all/unread, s)ave, t)ag, w=post

                          *** End of Articles ***
```

The Newsgroup Screen

The top line of a newsgroup screen, like that of the Group Selection screen, lists the screen title and the help command indicator. The central portion of the screen lists topical

groupings of articles—or *threads*—that are currently available. To give the user a complete view of the status of a newsgroup, the tin newsreader organizes articles into threads and displays them chronologically according to the date and time they were received by the UUCP host. (In other words, the last thread listed on the news.misc screen above contains the article most recently received by the UUCP host.) As with the Group Selection screen, the currently selected—or *current*—line is indicated by the shaded bar.

The first column in the thread listing simply numbers the threads consecutively in chronological order. A plus symbol (+) in the second column indicates that there are articles in this thread that have not been read. The third column gives the number of unread articles that are available in the thread. The fourth column lists the title of the thread, which is taken directly from the "subject" line of the first article in the thread. (See "The Article" on page 133.) And the fifth column lists the name of the submitter of the earliest available article in the thread.

The bottom portion of the screen provides a list of available commands similar to the one that appeared on the Group Selection screen. Note that a slightly different set of commands appear on this screen. For instance, the subscribe and unsubscribe commands are not provided because this screen does not provide access to a listing of multiple newsgroups. Similarly, the move command is unavailable because the system requires that threads and articles be listed chronologically in the order they were received by the UUCP host. See the table at the end of this appendix for an annotated list of one-character tin commands.

From the newsgroup screen, the user is able to open and more closely examine any of the threads listed. To begin reading the articles in the current thread, the user simply presses <Enter>, and the newsreader begins displaying the articles in chronological order. To display a chronological list of articles, the user presses the "l" command. For the purpose of this sample session, we have used the "l" command to list the articles in the thread entitled "Flooding." Once the user selects this thread and presses "l," a screen similar to the following is displayed:

```
                          Thread (Flooding)                          h=help

  0   +   [  31]  <user name removed>
  1   +   [  22]  <user name removed>
  2   +   [  16]  <user name removed>




<n>=set current to n, TAB=next unread, c)atchup, d)isplay toggle,
    h)elp, j=line down, k=line up, q)uit, t)ag, z=mark unread


                          *** End of Thread ***
```

The Thread Screen

The top line of a thread screen, like that of the previously discussed screens, lists the screen title and the help command indicator. The central portion of the screen lists all unread articles in the thread in chronological order according to the date and time they were received by the UUCP host. Again, the shaded background indicates the current line. The first column of the article listing simply numbers the articles consecutively. A plus symbol (+) in the second column indicates that the article has not been read. The third column gives the number of lines of text contained in the article. The fourth column gives both the full name and the Internet address of the author of the article. (At some Usenet sites, users are able to create their own user names without verification. This allows some authors to post under fictitious names or to omit a user name altogether. In the latter case, the newsreader simply lists the author by Internet address only.)

At this point in the session, the bottom portion of the screen is quite different from that of the previous screens. A limited number of the commands seen on previous screens are available, and two additional commands have been added. See the table at the end of this appendix for an annotated list of one-character tin commands.

From the thread screen, the user is able to open and more closely examine any of the articles listed. To begin reading the articles, the user simply presses <Enter>, and the system displays the currently selected article. For the purpose of this sample session, we have selected the following article:

```
Wed, 16 Nov 1994 15:49:29          news.misc                Thread    2 of    9
Lines 31                        Re: Flooding                2 Responses
<user name removed>  <user name removed>

[ Followup redirected to news.admin.misc ]


In article <3adv63$snd@panix.com>, <user name removed> wrote:
>Lately I've noticed [ a lot of SPAMS ]
>
>While some sites have rules against this sort of thing and
>punish those who break them, it's obvious that many do not.
>The time may have come for some kind of software to block
>out transmissions of this type, as I assume they will
>persist and, probably, multiply.  Any ideas?

We call it "spamming".

You *almost* got the right groups to discuss this.  Reporting new Spams
should be done on alt.current-events.net-abuse, and possibly
alt.stop-spamming.  The topic you raised - feasibility of, justifcation
of, methods for auto-detection and auto-blocking of spam are
currently/recently being discussed on a.c-e.n-a and news.admin.policy and
news.admin.misc.

If you want to talk to the rising star of Spam Cancelling - and he/she is
even at your site - send a mail to na48985@anon.penet.fi.  (After reading
what's currently in the above groups, and only if you really have
something to say. Cancelmoose (tm) is pretty busy these days.)

Regards,

- <user name removed>
--
<user name removed>


    <n>=set current to n, TAB=next unread, /=search pattern, ^K)ill/select,
        a)uthor search, B)ody search, c)atchup, f)ollowup, K=mark read,
        |=pipe, m)ail, o=print, q)uit, r)eply mail, s)ave, t)ag, w=post

                                                          -- Next response --
```

The Article

The tin newsreader was designed to display Usenet articles in a streamlined, user-friendly manner. The first three lines of the article are called the *header lines*. These are similar to the headings in an inter-office memo in that they provide basic introductory information about the article. The first line, for instance, lists the date and time the article was received by the UUCP host, the newsgroup it appears in, and the number of the thread it appears in.

The second line lists the total number of text lines in the article, the subject of the article, and the number of responses (or follow-ups) the article has received via Usenet. The subject of an article is important in that a Usenet thread derives its name directly from the subject line of the first article in the thread. Note that, in the example on Page 132, the subject of the article is preceded by "Re." This indicates that the article is a follow-up to an original article that had the subject, "Flooding." Unless altered by the follow-up author, all responses to the original article will carry the subject, "Re: Flooding." If the subject line is altered by the follow-up author, this new text constitutes a new subject, and thus the beginning of a new thread.

The third line lists author information, including the Internet address from which the article was sent and the author's user name and organization. As explained previously, user names can sometimes be altered by individual users. Ironically, the organization name shown in Usenet articles is almost always under the control of the user. As a result, many users either neglect to include this information or provide organization names that are humorous or misleading.

The next several lines, which comprise the body of the article, bear some discussion. The first body line, which reads

[Followup redirected to news.admin.misc]

is provided as a courtesy to the reader. This statement tells readers that, even though the original article that prompted this follow-up was posted to the newsgroup news.misc, this author has chosen to redirect subsequent follow-up articles to a different group: news.admin.misc. As he explains later in the body of the post, he has done this because he feels news.misc is an inappropriate forum for the topic at hand. Most newsreaders allow authors to distribute an article to several newsgroups at once, to stipulate which geographic areas articles are distributed to, and to stipulate which

newsgroup (or newsgroups) follow-up articles will be distributed to. As a courtesy, this author has decided to inform readers that their follow-ups will be redirected to a newsgroup other than the one they are currently reading.

The next several lines in the article read as follows:

> In article <3adv63$snd@panix.com>, <user name removed> wrote:
>
> >Lately I've noticed [a lot of SPAMS]
>
>>
>>While some sites have rules against this sort of thing and
>>punish those who break them, it's obvious that many do not.
>>The time may have come for some kind of software to block
>>out transmissions of this type, as I assume they will
>>persist and, probably, multiply. Any ideas?

These lines illustrate the widely observed Usenet convention of including, in follow-up postings, excerpts from the original article that prompted the follow-up. These excerpt lines are usually added by the newsreader software, rather than by the author. They are generally preceded by a user-customized citation line and are set off by identifiers such as the right angle brackets in the example. Citation lines often include the number of the original article and the name and Internet address of the original poster. Also notice in these lines that the follow-up author has elected to abbreviate the excerpt (. . . [a lot of SPAMS] . . .) and has used square brackets to set off his interjection. Netiquette has long dictated that authors keep their articles as brief as possible to conserve network bandwidth.

Note the following lines that appear at the end of the article:

> Regards,
>
> - <user name removed>
> --
> <user name removed>

These lines illustrate the Usenet convention of including a standard signature, known as a *.sig* (pronounced, "dot-sig"), at the end of each article. The .sig is a file that is created by the user and automatically appended by the newsreader software to the end of

any article posted by that user. This not only helps the user to remember to "sign" each article, it also provides many users with an outlet for pent up creativity.

At the bottom of the article screen, yet another set of one-character commands is listed. (See the table at the end of this appendix for an annotated list of one-character tin commands.)

The article screen is the lowest level of user access available in Usenet. Once an article of interest has been located, the user can save the article, respond to the author directly via electronic mail, or broadcast a follow-up article to Usenet. For the purpose of this sample session, we have chosen to submit a follow-up article to this post by an inidentified user. This means we will be continuing the thread by responding with a follow-up to this follow-up to the original article.

To do this, we have pressed the "f" key, causing the Follow-up Screen to be displayed, as shown on the next page.

The Follow-Up Article

The follow-up article screen provides the user with a ready-to-edit file containing a complete excerpt of the original article. Because this sample session was conducted on a Unix workstation, the newsreader has invoked the Unix vi editor so that the user can edit the follow-up. Newsreaders can be set to invoke any of a number of text editing and word processing programs, depending on the type of computer being used.

The header lines in the follow-up article are similar to those seen in the original article: the "Subject" (note the "Re:," which indicates this is a follow-up), the "Newsgroups" (which lists the groups to which the article will be sent), a "References" line (which lists the unique ID numbers of the two articles cited in this follow-up), and a "Distribution" line (which allows the user to limit the geographic distribution of the article—e.g., inserting a "ca" here would allow distribution to only those sites located in California). Though any of these lines can be edited by the user, it is standard practice to leave them as they are.

```
Subject: Re: Flooding
Newsgroups: news.admin.misc
References: <3adv63$snd@panix.com> <3ae5q9$6c2@Starbase.NeoSoft.COM>
Distribution:

<user name removed> wrote:
: [ Followup redirected to news.admin.misc ]
: In article <3adv63$snd@panix.com>, <user name removed> wrote:
: >Lately I've noticed [ a lot of SPAMS ]
: >
: >While some sites have rules against this sort of thing and
: >
: >punish those who break them, it's obvious that many do not.
: >The time may have come for some kind of software to block
: >out transmissions of this type, as I assume they will
: >persist and, probably, multiply. Any ideas?
:
: We call it "spamming".
:
: You *almost* got the right groups to discuss this. Reporting new Spams
: should be done on alt.current-events.net-abuse, and possibly
: alt.stop-spamming. The topic you raised - feasibility of, justifcation
: of, methods for auto-detection and auto-blocking of spam are
: currently/recently being discussed on a.c-e.n-a and news.admin.policy and
: news.admin.misc.
:
: If you want to talk to the rising star of Spam Cancelling - and he/she is
: even at your site - send a mail to na48985@anon.penet.fi. (After reading
: what's currently in the above groups, and only if you really have
: something to say. Cancelmoose (tm) is pretty busy these days.)
:
: Regards,
: - <user name removed>
: --
: <user name removed>
--
.............................................
"Just give me an easy life and a peaceful death"
Bruce A. Overby
bruce@swdc.stratus.com
.............................................
```

After the header lines, a complete excerpt of the original article appears, set off by the insertion of a colon (:) at the beginning of each line. As noted earlier, the citation line and identifiers can be customized by each individual user.

Finally, note that the our .sig file has been automatically appended to the end of the article by the newsreader. These five lines at the end of the article are recognizable as the .sig because they include the user's Internet address and they are not set off by colons.

It is now our job to edit the excerpt down to the minimum number of lines needed and insert our own thoughts. For the purpose of this sample session, we have elected to delete virtually all of the original article and compose a very brief response:

```
Subject: Re: Flooding
Newsgroups: news.admin.misc
References: <3adv63$snd@panix.com> <3ae5q9$6c2@Starbase.NeoSoft.COM>
Distribution:

<user name removed> wrote:
: [ Followup redirected to news.admin.misc ]
: [ A very diplomatic response to <user name removed>'s post re: Spamming ]
--

A very clear and helpful response. Thank you, <user name removed>. I was
curious about <user name removed>'s "discoveries," and now I know right
where to go to get info.

Net.courtesy is such a *refreshing* thing!

.............................................
"Just give me an easy life and a peaceful death"

Bruce A. Overby
bruce@swdc.stratus.com
```

To avoid confusion, we have included a one-line synopsis of the original article, setting it off with square brackets. We then add our own thoughts, thanking the poster to whom we are responding, who was courteous enough to redirect follow-ups appropriately and provide the original poster with pointers to groups dedicated to the topic he is interested in. The asterisks used to set off the word "refreshing" illustrate the use of emoticons; this particular usage signifies emphasis (in much the same way a raised tone would be used in face-to-face communication.)

Now that the article is ready to broadcast to the Net, we simply save it as required by the text processing software. Once this is done, the newsreader will display the following screen:

```
            Responses have been directed to the following newsgroups

     news.admin.misc


  Continue? (y/n): y
```

This screen simply reminds us that the poster to whom we are responding Patlan has redirected follow-ups to this newsgroup. We agree that this is appropriate, so we have responded "y," which brings this screen:

```
                          Check Prepared Article

Your article will be posted to the following newsgroup:
   news.admin.misc



q)uit, e)dit, p)ost: p
```

This screen provides the user with one last chance to either quit the follow-up routine, make final changes to the article, or post it to the Net. We are comfortable with the article, so we have chosen to post. This brings us back to the Thread Screen, as displayed below, from which the user can proceed with the session.

```
                              Thread (Flooding)                    h=help

  0       [  31]  <user name removed>
  1   +   [  22]  <user name removed>
  2   +   [  16]  <user name removed>




    <n>=set current to n, TAB=next unread, c)atchup, d)isplay toggle,
       h)elp, j=line down, k=line up, q)uit, t)ag, z=mark unread


                              *** End of Thread ***
```

Note that the plus symbol (+) that previously appeared next to article 0 has disappeared, indicating that this article has now been read. For purpose of this sample session, we have decided to discontinue reading in this thread and to return to the Newsgroup Screen. We therefore press "q," which displays the newsgroup screen:

```
                                  news.misc                        h=help

  1   +     Seeking out info on Net.Contributions          <user name removed>
  2   + 2   Flooding                                       <user name removed>
  3   + 3   Sojourn Diku Source - READ                     <user name removed>
  4   + 4   An Extremely Useful Area Coding System        <user name removed>
  5   +     BBS's in Springfield Missouri Area             <user name removed>
  6   +     ANSWERS TO QUESTIONS                           <user name removed>
  7   +     Need prices on GPS receiver                    <user name removed>
  8   +     Apartment to rent near Geneva                  <user name removed>
  9   +     ** SOFTWARE PACKAGE WANTED **                  <user name removed>


  <n>=set current to n, TAB=next unread, /=search pattern, ^K)ill/select,
a)uthor search, c)atchup, j=line down, k=line up, K=mark read, l)ist thread,
  |=pipe, m)ail, o=print, q)uit, r=toggle all/unread, s)ave, t)ag, w=post

                              *** End of Articles ***
```

Note that now the third column in the current thread contains a 2 rather than a 3, indicating that we have read one article. As indicated previously, there are a number of operations the user can perform from the Newsgroup screen, one of which is so save files and threads. We have now decided to save this thread to a series of files and have pressed the "s," causing the following prompt to appear at the bottom of the Newsgroup Screen:

```
Save a)rticle, t)hread, p)attern, T)agged articles, q)uit: t
```

This prompt asks the user whether he or she would like to simply save one article in the current thread, the entire thread, articles containing a particular pattern (for which the user would then be prompted), or the tagged articles in the thread. We have pressed the "t," indicating that we want to save the entire thread. This causes the following prompt to appear:

```
Save filename > test1
```

This prompt asks the user what name he or she would like used for the files being saved. We have entered the file name "test1," and pressed <Enter>. The three articles in the thread are then saved to a series of files named "test1.1," "test1.2," and "test1.3." This is the manner used to save the files analyzed for this study.

Once a user has completed a tin session, he or she simply types "q" to quit the newsreader application. As mentioned throughout this appendix, there are a number of one-character commands (like the "q," for quit) available in tin. Table A1 provides a listing of these commands, along with a brief description of what they do. Throughout the table, the commands are shown as they appear on the tin screen displays.

Table A1

Annotated Listing of One-Character tin Commands

Command	Description
<n>=set current to n	Pressing any number automatically selects the line with that number as the current line. (This is significant because many commands act on the current line.)
TAB=next unread	Pressing the TAB key finds the next unread article (or newsgroup or thread containing an unread article) and selects it as the current line. As a user reads articles during the course of a session, the newsreader automatically keeps a record of the articles being read. This ensures that, when the user invokes a new session at a later time, he or she will not be inundated with old articles.
/=search pattern	Pressing a slash (/) invokes a search routine that asks for a pattern, or string of characters, and searches the available articles for this string of characters.
c)atchup	Pressing "c" deletes all unread articles in the current newsgroup or thread.
g)oto	Pressing "g" invokes a routine that asks for a newsgroup name and automatically makes that newsgroup the current newsgroup.
j=line down	Pressing "j" moves the current line down one line from its present position.
k=line up	Pressing "k" moves the current line up one line from its present position.
h)elp	Pressing "h" invokes the tin help screen.
m)ove	The "m" allows the user to rearrange the order in which newsgroups are listed on the screen. Pressing this key invokes a routine that asks which direction the user would like to move the current line, as well as how many lines up or down the user would like to move it.

Table A1

Annotated Listing of One-Character tin Commands

Command	Description
q)uit	Pressing "q" from the Group Selection screen exits the newsreader and returns the user to a blank system prompt.
r=toggle all/unread	The "r" serves as a toggle switch that enables the user to display either all articles or only those articles that remain unread.
s)ubscribe	Pressing the lowercase "s" allows the user to subscribe to additional newsgroups. The system displays a complete listing of available newsgroups, from which the user is asked to choose one that he or she would like to subscribe to.
S)ub pattern	Pressing the uppercase "s" (Shift + "s") serves the same purpose as the lowercase "s," except that the user is prompted to enter a pattern, or text string. The system then displays a listing of only those newsgroups whose names contain the pattern, allowing the user to limit the extent of the display.
u)nsubscribe	Pressing the lowercase "u" unsubscribes the user from the current newsgroup.
U)nsub pattern	Pressing the uppercase "u" (Shift + "s") allows the user to unsubscribe from all newsgroups whose names contain the pattern provided.
y)ank in/out	The "y" serves a purpose similar to that of the "m" (or "move") key, except that the "y" allows the user to cut the current newsgroup line, then scroll through the list of groups to a new location and paste the new line in as desired. This is simply a slightly different approach to rearranging the order in which newsgroups are displayed.

Table A1

Annotated Listing of One-Character tin Commands

Command	Description
^K)ill/select	By pressing the Control key (indicated by the caret character (^)) and an uppercase "k" (Shift-k), the user can elect to "kill" (or delete) a particular article, as well as all future articles received by the same author. This command adds the unwanted author's Internet address to a kill file owned by the user. If a kill file is present, the newsreader checks it for unwanted submitters' addresses before including articles in the threads listed on the newsgroup screen.
a)uthor search	Pressing "a" invokes a routine that allows the user to search for articles submitted by a particular author.
K=mark read	An uppercase "k" (Shift-k) marks the current thread as read. (This command can be used on individual articles as well.)
l)ist thread	Pressing "l" takes the user from a newsgroup screen to thread screen that lists, in chronological order, all of the individual articles that comprise the thread.
|=pipe	A vertical bar (|) represents a standard Unix routine known as a pipe. A pipe takes the output of one command and uses it as input to another command. For example, if one wanted to print the thread listing provided as output to the "l" command described above, one could simply pipe this into a Unix "lpr" command, which would send the output to a line printer.
m)ail	Pressing "m" allows the user to send the current thread as electronic mail to any Internet address. (This command can also be used on individual articles.)
o=print	Pressing "o" allows the user to print a hard copy of the thread. (This command can also be used on individual articles.)
s)ave	Pressing "s" allows the user to save articles or threads to files or series of files, respectively.

Table A1

Annotated Listing of One-Character tin Commands

Command	Description
t)ag	Pressing "t" tags the current article or thread for subsequent action by the user. (For instance, if a user wanted to print a number of articles at once before terminating the session, these could be tagged using this command. When the print ("o") command is invoked later, the system will give the user the option of printing "all tagged articles.")
w=post	Pressing "w" invokes a routine with which the user can submit an original posting to the newsgroup.
d)isplay toggle	The "d" acts as a toggle switch allowing the user to display either all articles available in this thread or only those articles that remain unread.
z=mark unread	Pressing "z" marks as unread an article that has already been read.
B)ody search	The uppercase "b" invokes a routine that allows the user to search the body of an article for any string of characters desired. This can be a useful feature for very long articles.
f)ollowup	Pressing "f" invokes a routine that creates a boilerplate follow-up article and invokes text editing software so that the complete follow-up can be composed by the user.
r)eply mail	Pressing "r" invokes a routine similar to that invoked by the "f" key, except that it sends the response directly to the Internet address of the original author, rather than broadcasting it across all of Usenet.

Appendix B

Newsgroup Listing

The following listing includes 3,183 Usenet newsgroups, from which the sample used in this study was drawn. The sample was selected using a random number generator to identify three numbers from among the consecutive identifying numbers in this listing. Three newsgroups were selected. These are indicated in boldface type.

Note that the name of each newsgroup is followed by either an exclamation point (!) or a colon (:), as well as a range of numbers. The exclamation point and colon are used to indicate to the newsreader software that this newsgroup is either of interest, and should therefore be listed when a user reads Usenet, or is of no interest, and should therefore be omitted. The range of numbers indicates to the newsreader software the number of articles that are currently available so that these can be included in the Usenet session. (See Appendix A for more information on Usenet, including a sample session.)

1. ab.politics! 1-210
2. alt.0d! 1-108
3. alt.2600! 1-3282
4. alt.3d! 1-234
5. alt.3d.studio! 1-129
6. alt.abortion! 1-31
7. alt.abortion.inequity! 1-1096
8. alt.abuse.recovery! 1-167
9. alt.activism.d! 1-357
10. alt.activism.death-penalty! 1-815
11. alt.activism: 1-88577
12. alt.adoption! 1-16855
13. alt.adoption.agency! 1-1625
14. alt.agriculture.misc! 1-78
15. alt.agriculture: 1-1
16. alt.alcohol! 1-92
17. alt.aldus.freehand! 1-51
18. alt.aldus.pagemaker!
19. alt.alien.research! 1-618
20. alt.alien.vampire.flonk.flonk.flonk! 1-94
21. alt.alien.vampire: 1-18
22. alt.alien.visitors! 1-51338
23. alt.alien: 1-33
24. alt.alt: 1-1957
25. alt.alumni.bronx-science! 1-32
26. alt.amazon-women.admirers! 1-377
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3000. soc.culture.greek: 1-50506
3001. soc.culture.haiti! 1-4
3002. soc.culture.hongkong.entertainment! 1-16373
3003. soc.culture.hongkong: 1-98629
3004. soc.culture.indian.delhi! 1-1389
3005. soc.culture.indian.info!
3006. soc.culture.indian.kerala! 1-4124
3007. soc.culture.indian.marathi! 1-3663
3008. soc.culture.indian.telugu! 1-21335
3009. soc.culture.indian: 1-218000
3010. soc.culture.indonesia! 1-25970
3011. soc.culture.iranian: 1-63970
3012. soc.culture.iraq! 1-2520
3013. soc.culture.irish! 1-5272
3014. soc.culture.israel! 1-19746
3015. soc.culture.italian! 1-57060
3016. soc.culture.japan: 1-79466

3017. soc.culture.jewish.holocaust!
3018. soc.culture.jewish: 1-145530
3019. soc.culture.jordan! 1-1294
3020. soc.culture.korean: 1-49404
3021. soc.culture.kurdish! 1-2646
3022. soc.culture.kuwait! 1-2337
3023. soc.culture.laos! 1-2142
3024. soc.culture.latin-america: 1-29718
3025. soc.culture.lebanon! 1-25483
3026. soc.culture.maghreb! 1-2595
3027. soc.culture.magyar! 1-10987
3028. soc.culture.malagasy! 1-127
3029. soc.culture.malaysia! 1-31596
3030. soc.culture.mexican! 1-34815
3031. soc.culture.mexican.american! 1-3577
3032. soc.culture.misc: 1-4541
3033. soc.culture.mongolian! 1-770
3034. soc.culture.native! 1-3852
3035. soc.culture.nepal: 1-6314
3036. soc.culture.netherlands! 1-37682
3037. soc.culture.new-zealand! 1-32082
3038. soc.culture.nigeria! 1-2828
3039. soc.culture.nordic: 1-49511
3040. soc.culture.pakistan: 1-81438
3041. soc.culture.palestine! 1-4232
3042. soc.culture.peru! 1-5611
3043. soc.culture.polish: 1-27839
3044. soc.culture.portuguese! 1-18593
3045. soc.culture.puerto-rico! 1-7311
3046. soc.culture.punjab! 1-10206
3047. soc.culture.quebec! 1-9058
3048. soc.culture.romanian! 1-19359
3049. soc.culture.russian! 1-9813
3050. soc.culture.scientists! 1-4717
3051. soc.culture.scottish! 1-4160
3052. soc.culture.sierra-leone! 1-179
3053. soc.culture.singapore! 1-52404
3054. soc.culture.slovenia! 1-1254
3055. soc.culture.somalia! 1-5061
3056. soc.culture.south-africa! 1-4827
3057. soc.culture.south-africa.afrikaans:
3058. soc.culture.soviet! 1-92133
3059. soc.culture.spain! 1-57105
3060. soc.culture.sri-lanka: 1-12098
3061. soc.culture.swiss! 1-2479
3062. soc.culture.syria! 1-1574
3063. soc.culture.taiwan: 1-82070
3064. soc.culture.tamil! 1-33644
3065. soc.culture.thai! 1-41407
3066. soc.culture.turkish: 1-104333
3067. soc.culture.ukrainian! 1-14789
3068. soc.culture.uruguay! 1-1501
3069. soc.culture.usa! 1-62413
3070. soc.culture.venezuela! 1-25791
3071. soc.culture.vietnamese: 1-108887
3072. soc.culture.welsh! 1-1955
3073. soc.culture.yugoslavia! 1-37882
3074. soc.culture.zimbabwe: 1-398
3075. soc.feminism: 1-13042
3076. soc.genealogy.australia+nz: 1-124
3077. soc.genealogy.benelux! 1-273
3078. soc.genealogy.computing! 1-4745
3079. soc.genealogy.french! 1-2722
3080. soc.genealogy.german! 1-7029
3081. soc.genealogy.hispanic! 1-215
3082. soc.genealogy.jewish! 1-7050
3083. soc.genealogy.marketplace! 1-144
3084. soc.genealogy.medieval! 1-683
3085. soc.genealogy.methods! 1-2030
3086. soc.genealogy.misc! 1-8896
3087. soc.genealogy.nordic! 1-92
3088. soc.genealogy.surnames! 1-9842
3089. soc.genealogy.uk+ireland! 1-2580
3090. soc.history.living! 1-1636
3091. soc.history.moderated! 1-1789
3092. soc.history.science! 1-2527
3093. soc.history.war.misc! 1-4271
3094. soc.history.war.us-civil-war! 1-208
3095. soc.history.war.vietnam! 1-1393
3096. soc.history.war.world-war-ii! 1-6030
3097. soc.history.what-if! 1-1778
3098. soc.history: 1-44795
3099. soc.libraries.talk! 1-3687
3100. soc.men: 1-129083
3101. soc.misc: 1-5029
3102. soc.motss: 1-263279
3103. soc.net-people: 1-8864
3104. soc.org.nonprofit! 1-2331
3105. soc.org.service-clubs.misc! 1-482
3106. soc.penpals! 1-74515
3107. soc.politics.arms-d: 1-18
3108. soc.politics: 1-292
3109. soc.religion.bahai! 1-5711
3110. soc.religion.christian.bible-study!
3111. soc.religion.christian.youth-work!
3112. soc.religion.christian: 1-51738
3113. soc.religion.eastern:
3114. soc.religion.gnosis! 1-648
3115. soc.religion.hindu: 1-296
3116. soc.religion.islam: 1-18118
3117. soc.religion.quaker! 1-1831
3118. soc.religion.shamanism! 1-1006
3119. soc.religion.sikhism! 1-168
3120. soc.religion.unitarian-univ! 1-3482
3121. soc.rights.human: 1-28320
3122. soc.roots:
3123. soc.singles.nice! 1-102
3124. soc.singles: 1-240175
3125. soc.support.fat-acceptance! 1-5048
3126. soc.support.transgendered! 1-3647

3127. soc.support.youth.gay-lesbian-bi! 1-3305
3128. soc.veterans! 1-9778
3129. soc.women.lesbian-and-bi: 1-1871
3130. soc.women: 1-130318
3131. stratus.cac.announce!
3132. stratus.cac.comm!
3133. stratus.cac.ftx!
3134. stratus.cac.misc!
3135. stratus.cac.next!
3136. stratus.cac.vos!
3137. stratus.forsale! 1-15
3138. stratus.frame!
3139. stratus.ftx.X.25!
3140. stratus.ftx.serviceability! 1-74
3141. stratus.jetta.help!
3142. stratus.news! 1-255
3143. stratus.swdc.k3changes: 1,2400-2577,2580-2610,2612-2620
3144. stratus.swdc.netmeisters!
3145. stratus.talk! 1-22
3146. stratus.talk.music: 1-4
3147. stratus.talk.travel!
3148. stratus.test! 1-157
3149. stratus.tools!
3150. stratus.vos.rrn!
3151. stratus.workstations! 1-38
3152. talk! 1-11
3153. talk.abortion: 1-207832
3154. talk.answers! 1-644
3155. talk.bizarre! 1-53401
3156. talk.environment: 1-31707
3157. talk.euthanasia! 1-753
3158. talk.origins: 1-119808
3159. talk.philosophy.humanism! 1-3322
3160. talk.philosophy.misc: 1-29389
3161. talk.politics! 1-16
3162. talk.politics.animals! 1-37986
3163. talk.politics.china! 1-17878
3164. talk.politics.crypto! 1-7975
3165. talk.politics.drugs! 1-38373
3166. talk.politics.european-union! 1-755
3167. talk.politics.guns: 1-206627
3168. talk.politics.libertarian! 1-27851
3169. talk.politics.medicine! 1-26016
3170. talk.politics.mideast: 1-101499
3171. talk.politics.misc: 1-316583
3172. talk.politics.soviet: 1-37319
3173. talk.politics.theory: 1-49367
3174. talk.politics.tibet! 1-11887
3175. talk.rape: 1-20253
3176. talk.religion! 1-101
3177. talk.religion.buddhism! 1-7045
3178. talk.religion.misc: 1-145540
3179. talk.religion.newage: 1-33172
3180. talk.rumors: 1-17078
3181. test! 1-18
3182. trial.test! 1-14
3183. u3b.test! 1-16

Appendix C

Complete Results

This appendix presents the complete results of the content analysis and external reliability testing phases of the study.

The first nine pages present the results of the external reliability test. The first six pages present an article-by-article summary of the results obtained in the original test with the second researcher. The next three pages present an article-by-article summary of the results obtained in the follow-up test with the third researcher.

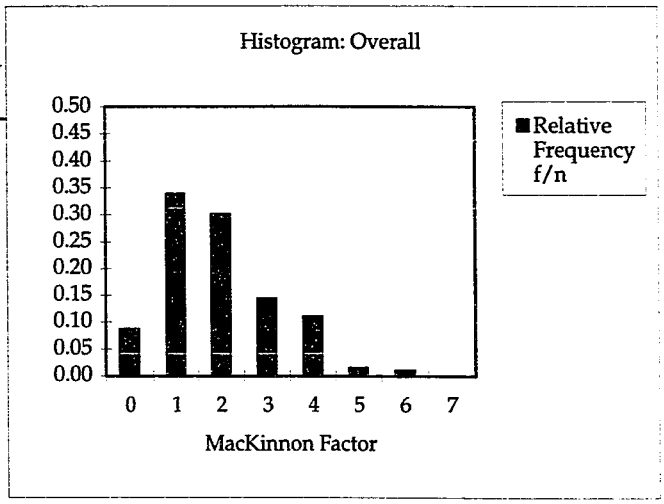
The next eighteen pages present the results of the content analysis phase. The first two pages present the histograms and frequency distributions for the analysis with the revised, seven-aspect model, and the next seven pages present the detailed, article-by-article results of this analysis. The next two pages present the histograms and frequency distributions for the analysis with the original, ten-aspect model, and the last seven pages present the detailed, article-by-article results of this analysis. Throughout these spreadsheets, the societal aspects are numbered 1–10, as listed on the Content Analysis Form (see Figure). The numbers correspond with societal aspects as follows:

1. Netiquette
2. Emoticons
3. Persona
4. Ability to execute a verbal attack
5. Impressions made with words
6. Ability to write a rebuttal
7. Non-monetary generosity
8. Prudence
9. Nobility (through expertise)
10. Eloquence

Frequency Distributions and Histograms: Seven-Aspect Model (1 of 2)

Frequency Distribution and Histogram: Overall

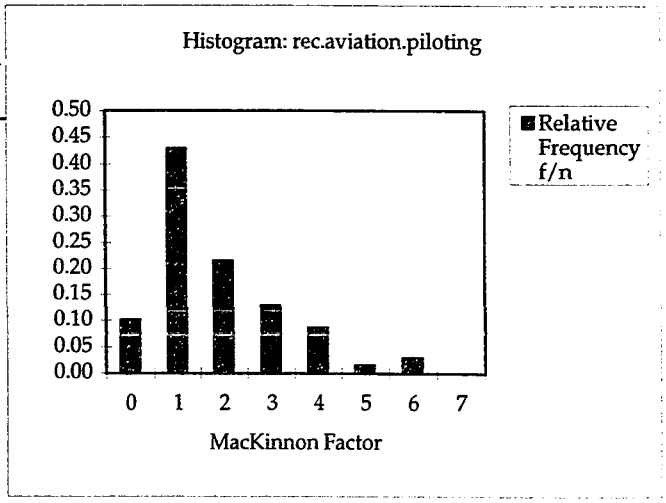
MacKinnon Factor *x*	Frequency *f*	Relative Frequency *f/n*
0	18	0.09
1	71	0.34
2	63	0.30
3	30	0.14
4	23	0.11
5	3	0.01
6	2	0.01
7	0	0.00



Sample Size, *n* : 210
Mean MacKinnon Factor: 1.93
Mean MacKinnon Factor (Prop.): 2.76

Frequency Distribution and Histogram: rec.aviation.piloting

MacKinnon Factor *x*	Frequency *f*	Relative Frequency *f/n*
0	7	0.10
1	30	0.43
2	15	0.21
3	9	0.13
4	6	0.09
5	1	0.01
6	2	0.03
7	0	0.00

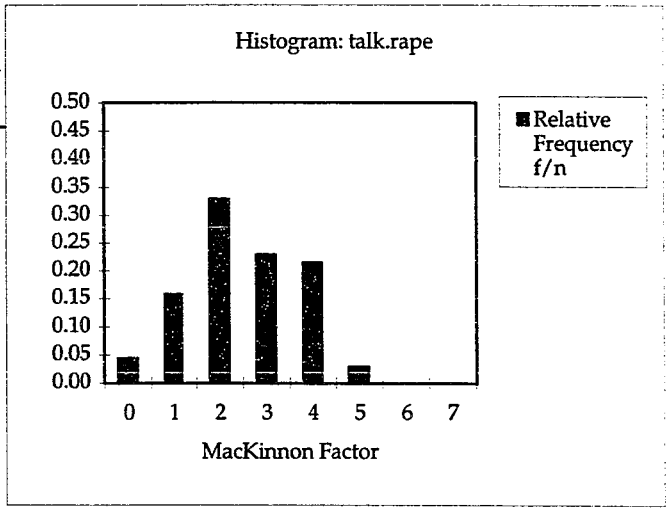


Sample Size, *n* : 70
Mean MacKinnon Factor: 1.83
Mean MacKinnon Factor (Prop.): 2.61

Frequency Distributions and Histograms: Seven-Aspect Model (2 of 2)

Frequency Distribution and Histogram: talk.rape

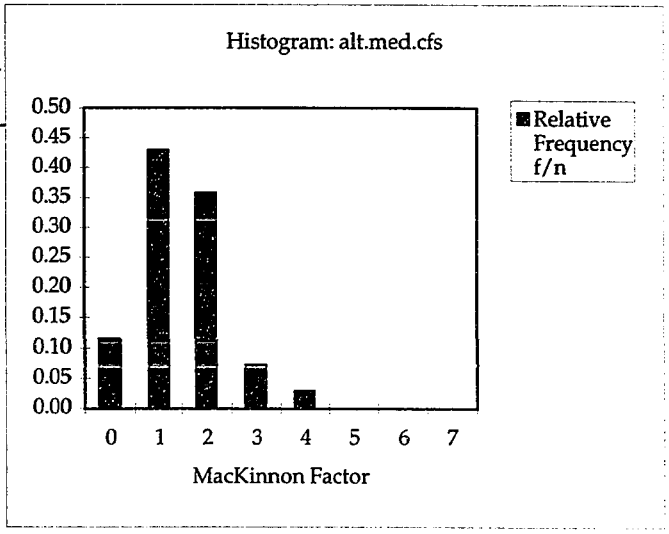
MacKinnon Factor *x*	Frequency *f*	Relative Frequency *f/n*
0	3	0.04
1	11	0.16
2	23	0.33
3	16	0.23
4	15	0.21
5	2	0.03
6	0	0.00
7	0	0.00



Sample Size, *n* : 70
Mean MacKinnon Factor: 2.50
Mean MacKinnon Factor (Prop.): 3.57

Frequency Distribution and Histogram: alt.med.cfs

MacKinnon Factor *x*	Frequency *f*	Relative Frequency *f/n*
0	8	0.11
1	30	0.43
2	25	0.36
3	5	0.07
4	2	0.03
5	0	0.00
6	0	0.00
7	0	0.00



Sample Size, *n* : 70
Mean MacKinnon Factor: 1.47
Mean MacKinnon Factor (Prop.): 2.10

Content Analysis Totals: Seven-Aspect Model (1 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
rec.aviation.piloting	1	1	0	0	1	1	1	1	5	
	2	1	0	0	0	1	1	0	3	
	3	1	1	0	0	1	1	0	4	
	4	0	0	0	1	1	0	0	2	
	5	0	0	0	0	0	0	0	0	
	6	0	1	0	0	0	0	0	1	
	7	0	1	0	0	0	0	0	1	
	8	0	0	0	0	0	0	0	0	
	9	1	0	0	0	0	1	0	2	
	10	1	0	0	0	1	0	0	2	
	11	0	0	0	0	0	0	0	0	
	12	1	0	0	1	0	1	0	3	
	13	1	1	0	0	1	1	0	4	
	14	1	1	0	0	1	1	0	4	
	15	1	0	0	1	0	0	1	3	
	16	1	0	0	0	0	0	0	1	
	17	1	0	0	1	1	0	0	3	
	18	1	0	0	0	0	0	0	1	
	19	1	0	0	1	0	1	1	4	
	20	0	0	0	0	0	1	0	1	
	21	0	0	0	0	0	0	0	0	
	22	0	0	0	0	0	0	0	0	
	23	1	0	0	0	0	1	0	2	
	24	1	1	0	1	1	1	1	6	
	25	1	1	0	1	1	1	1	6	
	26	0	0	0	0	0	0	0	0	
	27	1	1	0	1	1	0	0	4	
	28	1	0	0	0	0	0	0	1	
	29	1	0	0	1	0	0	1	3	
	30	1	0	0	0	0	0	0	1	
	31	1	0	0	0	0	0	0	1	
	32	1	0	0	0	0	0	0	1	
	33	1	0	0	1	0	0	0	2	
	34	1	1	0	0	0	0	0	2	
	35	1	0	0	0	0	0	0	1	
	36	1	0	0	0	0	0	1	2	
	37	1	0	0	0	0	0	0	1	
	38	1	0	0	1	0	0	0	2	
	39	1	0	0	0	1	0	0	2	
	40	1	1	0	1	0	0	0	3	
	41	1	0	0	0	0	0	0	1	

Content Analysis Totals: Seven-Aspect Model (2 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
rec.aviation.piloting	42	0	0	0	1	0	0	0	1	
(continued)	43	1	0	0	0	1	0	0	2	
	44	1	1	0	0	1	0	0	3	
	45	1	0	0	0	0	0	0	1	
	46	1	0	0	0	1	0	0	2	
	47	1	1	0	1	0	0	0	3	
	48	1	0	0	0	0	0	0	1	
	49	1	0	0	0	0	0	0	1	
	50	1	0	0	0	0	0	0	1	
	51	1	0	0	0	0	0	0	1	
	52	1	0	0	0	0	0	0	1	
	53	0	0	0	1	0	0	0	1	
	54	1	0	0	0	1	0	0	2	
	55	1	0	0	0	1	0	0	2	
	56	1	1	0	0	1	0	0	3	
	57	1	1	0	1	0	0	1	4	
	58	1	0	0	0	0	0	0	1	
	59	1	0	0	0	0	0	0	1	
	60	1	0	0	0	0	0	0	1	
	61	1	0	0	0	0	0	0	1	
	62	1	0	0	0	0	0	0	1	
	63	1	0	0	0	0	0	0	1	
	64	1	0	0	0	1	0	0	2	
	65	1	0	0	0	0	0	0	1	
	66	1	0	0	0	1	0	0	2	
	67	1	0	0	0	0	0	0	1	
	68	1	0	0	0	0	0	0	1	
	69	1	0	0	0	0	0	0	1	
	70	0	0	0	0	0	0	0	0	
	Subtotals: rec.aviation.piloting	57	14	0	17	20	12	8	128	
	Standard deviation	0.39	0.40	0.00	0.43	0.46	0.38	0.32	1.37	
	Mean	0.81	0.20	0.00	0.24	0.29	0.17	0.11	1.83	

Content Analysis Totals: Seven-Aspect Model (3 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
talk.rape	1	1	1	0	1	0	0	0	3	
	2	0	0	0	0	0	0	0	0	
	3	1	1	0	1	0	0	1	4	
	4	1	0	0	0	1	0	1	3	
	5	1	0	0	1	1	0	0	3	
	6	0	0	0	0	0	0	0	0	
	7	1	1	0	0	0	0	0	2	
	8	1	1	0	0	1	0	0	3	
	9	1	0	0	1	0	0	0	2	
	10	0	1	0	1	1	0	0	3	
	11	1	1	1	1	0	0	0	4	
	12	1	0	0	1	1	0	1	4	
	13	1	0	0	0	1	0	1	3	
	14	1	0	0	0	1	0	1	3	
	15	1	1	0	1	1	0	1	5	
	16	1	1	0	0	1	0	1	4	
	17	1	1	0	0	1	0	1	4	
	18	1	1	0	0	1	0	0	3	
	19	1	0	0	1	1	0	1	4	
	20	1	1	0	1	1	0	1	5	
	21	1	1	0	0	1	0	1	4	
	22	1	1	0	0	1	0	1	4	
	23	1	1	0	0	0	0	1	3	
	24	1	1	0	1	1	0	0	4	
	25	1	1	0	0	1	0	0	3	
	26	1	1	0	1	1	0	0	4	
	27	1	1	0	0	0	0	0	2	
	28	1	1	0	0	0	0	0	2	
	29	0	0	0	0	1	0	1	2	
	30	0	0	0	0	1	0	1	2	
	31	0	1	0	0	0	0	0	1	
	32	1	0	0	0	0	0	0	1	
	33	1	0	0	1	0	0	0	2	
	34	0	1	0	0	0	0	0	1	
	35	1	0	0	1	0	0	1	3	
	36	1	1	0	1	1	0	0	4	
	37	0	0	0	1	0	0	0	1	
	38	1	0	0	0	0	0	0	1	
	39	1	0	0	0	1	0	0	2	
	40	1	1	0	0	0	0	0	2	
	41	1	0	0	0	0	0	0	1	

Content Analysis Totals: Seven-Aspect Model (4 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
talk.rape	42	0	0	0	1	0	0	0	1	
(continued)	43	1	1	0	1	0	0	0	3	
	44	0	1	0	1	0	0	0	2	
	45	1	0	0	0	0	0	0	1	
	46	1	1	0	1	1	0	0	4	
	47	1	0	0	0	1	0	0	2	
	48	1	0	0	0	1	0	0	2	
	49	1	0	0	0	0	0	0	1	
	50	0	0	0	1	1	0	0	2	
	51	1	1	0	0	0	0	0	2	
	52	1	0	0	0	1	0	0	2	
	53	1	0	0	0	1	0	0	2	
	54	1	0	0	1	0	0	0	2	
	55	1	1	0	1	1	0	0	4	
	56	1	1	0	0	1	0	0	3	
	57	0	0	0	1	1	0	0	2	
	58	1	0	0	0	0	0	0	1	
	59	1	1	0	1	1	0	0	4	
	60	0	0	0	0	0	0	0	0	
	61	1	1	0	0	0	0	0	2	
	62	1	1	0	1	1	0	0	4	
	63	1	0	0	0	1	0	0	2	
	64	1	0	0	1	1	0	0	3	
	65	1	1	0	1	0	0	0	3	
	66	1	0	0	1	0	0	0	2	
	67	1	0	0	0	1	0	0	2	
	68	1	1	0	0	1	0	0	3	
	69	1	0	0	0	1	0	0	2	
	70	1	0	0	0	0	0	0	1	
	Subtotals: talk.rape	57	34	1	29	38	0	16	175	
	Standard deviation	0.39	0.50	0.12	0.50	0.50	0.00	0.42	1.20	
	Mean	0.81	0.49	0.01	0.41	0.54	0.00	0.23	2.50	

Content Analysis Totals: Seven-Aspect Model (5 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
alt.med.cfs	1	1	1	0	0	0	0	0	2	
	2	1	0	0	0	0	0	0	1	
	3	1	1	0	0	0	0	0	2	
	4	1	1	0	0	0	0	0	2	
	5	1	1	0	0	0	0	0	2	
	6	1	1	0	1	0	0	0	3	
	7	0	0	0	0	0	0	0	0	
	8	1	0	0	0	0	0	0	1	
	9	1	0	0	0	0	0	0	1	
	10	1	0	0	0	0	1	0	2	
	11	1	1	0	0	0	0	0	2	
	12	1	0	0	0	0	0	0	1	
	13	1	0	0	0	0	0	0	1	
	14	1	1	0	0	0	0	0	2	
	15	0	1	0	0	0	0	0	1	
	16	1	0	0	0	0	0	0	1	
	17	1	1	0	0	0	0	0	2	
	18	0	1	0	0	0	0	0	1	
	19	1	1	0	1	0	0	0	3	
	20	0	0	0	1	0	0	1	2	
	21	0	0	0	0	0	0	0	0	
	22	0	0	0	0	0	0	0	0	
	23	1	0	0	0	0	0	0	1	
	24	0	1	0	0	0	0	0	1	
	25	0	1	0	0	0	0	0	1	
	26	1	0	0	0	0	0	0	1	
	27	1	0	0	0	0	0	0	1	
	28	0	0	0	0	0	0	0	0	
	29	1	0	0	0	0	0	0	1	
	30	1	0	0	0	0	0	0	1	
	31	1	1	0	0	0	0	0	2	
	32	1	1	0	0	0	0	1	3	
	33	1	0	0	1	0	0	0	2	
	34	1	0	0	0	0	0	0	1	
	35	1	1	0	0	0	0	0	2	
	36	1	1	0	0	0	0	0	2	
	37	1	0	0	0	0	0	0	1	
	38	1	1	0	0	0	0	0	2	
	39	0	0	0	0	0	0	0	0	
	40	1	1	0	0	0	0	0	2	
	41	1	0	0	0	0	0	0	1	

Content Analysis Totals: Seven-Aspect Model (6 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
alt.med.cfs	42	1	0	0	0	0	1	0	2	
(continued)	43	1	0	0	0	0	0	0	1	
	44	1	1	0	1	0	0	0	3	
	45	1	0	0	0	0	0	0	1	
	46	1	0	0	0	0	0	0	1	
	47	0	0	0	0	0	0	0	0	
	48	0	0	0	0	0	0	0	0	
	49	1	0	0	0	1	0	0	2	
	50	1	1	0	0	0	0	0	2	
	51	1	1	0	0	0	0	0	2	
	52	1	0	0	0	0	0	0	1	
	53	1	1	0	1	1	0	0	4	
	54	1	0	0	0	0	0	0	1	
	55	1	0	0	0	0	0	0	1	
	56	1	0	0	0	0	0	0	1	
	57	1	0	0	0	0	0	1	2	
	58	1	0	0	0	0	0	0	1	
	59	1	1	0	0	0	0	0	2	
	60	1	0	0	0	0	0	0	1	
	61	1	1	0	0	1	0	0	3	
	62	1	0	0	0	1	1	1	4	
	63	1	0	0	0	0	0	1	2	
	64	1	0	0	0	0	0	0	1	
	65	1	0	0	0	0	0	0	1	
	66	1	1	0	0	0	0	0	2	
	67	0	0	0	0	0	0	0	0	
	68	1	1	0	0	0	0	0	2	
	69	1	0	0	0	0	0	0	1	
	70	1	1	0	0	0	0	0	2	
	Subtotals: alt.med.cfs	57	28	0	6	4	3	5	103	
	Standard deviation	0.39	0.49	0.00	0.28	0.23	0.20	0.26	0.90	
	Mean	0.81	0.40	0.00	0.09	0.06	0.04	0.07	1.47	

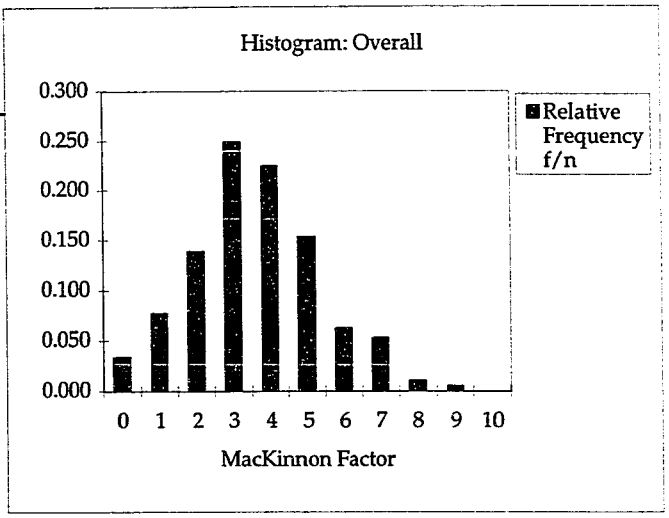
Content Analysis Totals: Seven-Aspect Model (7 of 7)

		Societal Aspect								
Newsgroup	Article Number:	1.	2.	3.	4.	6.	9.	10.	MacKinnon Factor	
ALL	TOTALS	171	76	1	52	62	15	29	406	
	Standard deviation	0.39	0.48	0.07	0.43	0.46	0.26	0.35	1.24	
	Mean	0.81	0.36	0.00	0.25	0.30	0.07	0.14	1.93	
				Proportional Conversions:						
				Mean: rec.aviation.piloting					1.83 (2.61)	
						Mean: talk.rape			2.50 (3.57)	
						Mean: alt.med.cfs			1.47 (2.10)	
						Mean: Overall			1.93 (2.76)	

Frequency Distributions and Histograms: Original Ten-Aspect Model (1 of 2)

Frequency Distribution and Histogram: Overall

MacKinnon Factor *x*	Frequency *f*	Relative Frequency *f/n*
0	7	0.033
1	16	0.076
2	29	0.138
3	52	0.248
4	47	0.224
5	32	0.152
6	13	0.062
7	11	0.052
8	2	0.010
9	1	0.005
10	0	0.000

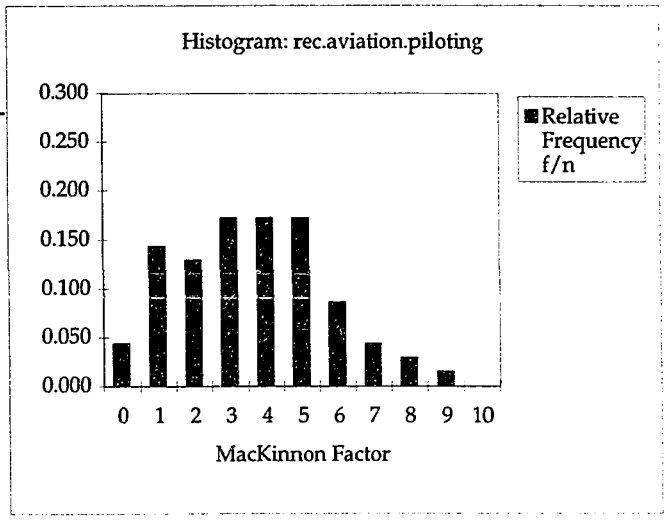


Sample Size, *n* : 210

Mean MacKinnon Factor: 3.61

Frequency Distribution and Histogram: rec.aviation.piloting

MacKinnon Factor *x*	Freq. *f*	Relative Frequency *f/n*
0	3	0.043
1	10	0.143
2	9	0.129
3	12	0.171
4	12	0.171
5	12	0.171
6	6	0.086
7	3	0.043
8	2	0.029
9	1	0.014
10	0	0.000



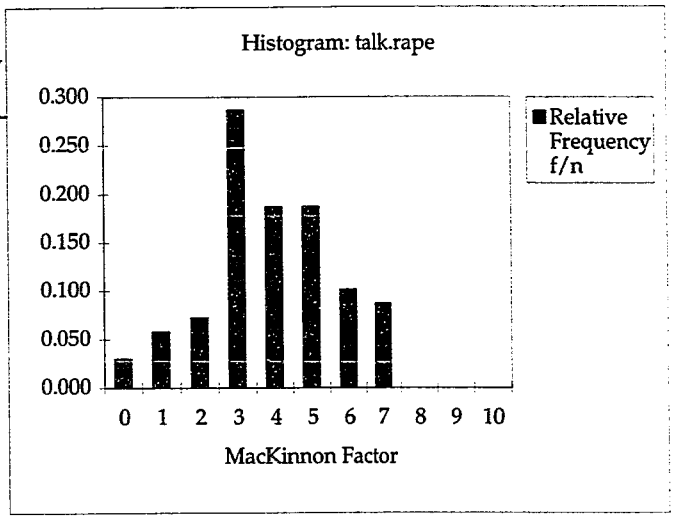
Sample Size, *n* : 70

Mean MacKinnon Factor: 3.63

Frequency Distributions and Histograms: Original Ten-Aspect Model (2 of 2)

Frequency Distribution and Histogram: talk.rape

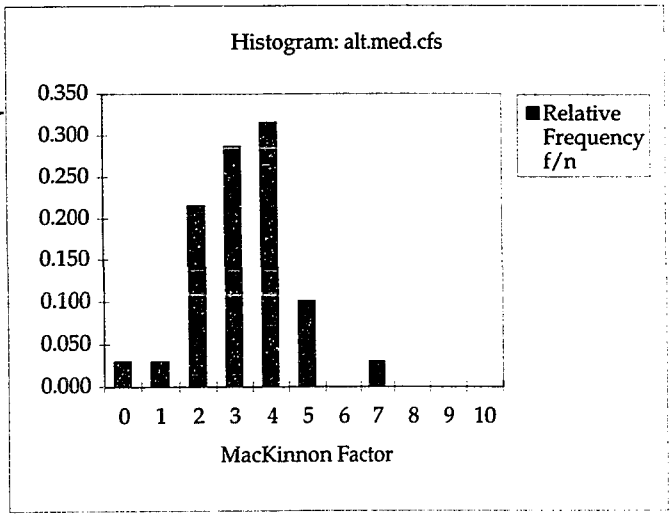
MacKinnon Factor x	Freq. f	Relative Frequency f/n
0	2	0.029
1	4	0.057
2	5	0.071
3	20	0.286
4	13	0.186
5	13	0.186
6	7	0.100
7	6	0.086
8	0	0.000
9	0	0.000
10	0	0.000



Sample Size, n : 70
Mean MacKinnon Factor: 3.93

Frequency Distribution and Histogram: alt.med.cfs

MacKinnon Factor x	Freq. f	Relative Frequency f/n
0	2	0.029
1	2	0.029
2	15	0.214
3	20	0.286
4	22	0.314
5	7	0.100
6	0	0.000
7	2	0.029
8	0	0.000
9	0	0.000
10	0	0.000



Sample Size, n : 70
Mean MacKinnon Factor: 3.27

Content Analysis Totals: Original Ten-Aspect Model (1 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
rec.aviation.piloting	1	1	0	0	1	1	1	1	1	1	1	8	
	2	1	0	0	0	1	1	1	1	1	0	6	
	3	1	1	0	0	1	1	1	1	1	0	7	
	4	0	0	0	1	1	1	0	0	0	0	3	
	5	0	0	0	0	1	0	0	1	0	0	2	
	6	0	1	0	0	0	0	0	0	0	0	1	
	7	0	1	0	0	0	0	0	0	0	0	1	
	8	0	0	0	0	1	0	1	1	0	0	3	
	9	1	0	0	0	1	0	1	1	1	0	5	
	10	1	0	0	0	0	1	1	1	0	0	4	
	11	0	0	0	0	0	0	0	0	0	0	0	
	12	1	0	0	1	1	0	1	1	1	0	6	
	13	1	1	0	0	1	1	1	1	1	0	7	
	14	1	1	0	0	1	1	1	1	1	0	7	
	15	1	0	0	1	1	0	0	1	0	1	5	
	16	1	0	0	0	0	0	1	1	0	0	3	
	17	1	0	0	1	0	1	0	1	0	0	4	
	18	1	0	0	0	1	0	1	0	0	0	3	
	19	1	0	0	1	1	0	1	0	1	1	6	
	20	0	0	0	0	1	0	1	1	1	0	4	
	21	0	0	0	0	0	0	0	0	0	0	0	
	22	0	0	0	0	0	0	0	0	0	0	0	
	23	1	0	0	0	1	0	1	1	1	0	5	
	24	1	1	0	1	1	1	1	0	1	1	8	
	25	1	1	0	1	1	1	1	1	1	1	9	
	26	0	0	0	0	1	0	0	0	0	0	1	
	27	1	1	0	1	1	1	0	0	0	0	5	
	28	1	0	0	0	0	0	0	0	0	0	1	
	29	1	0	0	1	1	0	1	1	0	1	6	
	30	1	0	0	0	0	0	0	0	0	0	1	
	31	1	0	0	0	1	0	1	1	0	0	4	
	32	1	0	0	0	1	0	1	0	0	0	3	
	33	1	0	0	1	1	0	1	1	0	0	5	
	34	1	1	0	0	1	0	0	1	0	0	4	
	35	1	0	0	0	0	0	1	1	0	0	3	
	36	1	0	0	0	1	0	1	1	0	1	5	
	37	1	0	0	0	0	0	1	0	0	0	2	
	38	1	0	0	1	1	0	0	0	0	0	3	
	39	1	0	0	0	0	1	1	1	0	0	4	
	40	1	1	0	1	0	0	0	1	0	0	4	
	41	1	0	0	0	1	0	1	1	0	0	4	

Content Analysis Totals: Original Ten-Aspect Model (2 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
rec.aviation.piloting	42	0	0	0	1	1	0	0	0	0	0	2	
(continued)	43	1	0	0	0	1	1	1	1	0	0	5	
	44	1	1	0	0	1	1	1	1	0	0	6	
	45	1	0	0	0	0	0	0	1	0	0	2	
	46	1	0	0	0	0	1	0	1	0	0	3	
	47	1	1	0	1	1	0	0	1	0	0	5	
	48	1	0	0	0	1	0	1	0	0	0	3	
	49	1	0	0	0	0	0	0	0	0	0	1	
	50	1	0	0	0	0	0	0	0	0	0	1	
	51	1	0	0	0	0	0	0	0	0	0	1	
	52	1	0	0	0	1	0	1	1	0	0	4	
	53	0	0	0	1	1	0	0	0	0	0	2	
	54	1	0	0	0	1	1	1	1	0	0	5	
	55	1	0	0	0	1	1	1	1	0	0	5	
	56	1	1	0	0	1	1	1	1	0	0	6	
	57	1	1	0	1	1	0	0	0	0	1	5	
	58	1	0	0	0	0	0	0	1	0	0	2	
	59	1	0	0	0	0	0	1	0	0	0	2	
	60	1	0	0	0	1	0	1	1	0	0	4	
	61	1	0	0	0	1	0	1	0	0	0	3	
	62	1	0	0	0	1	0	1	0	0	0	3	
	63	1	0	0	0	0	0	0	0	0	0	1	
	64	1	0	0	0	0	1	1	0	0	0	3	
	65	1	0	0	0	0	0	1	0	0	0	2	
	66	1	0	0	0	1	1	1	1	0	0	5	
	67	1	0	0	0	1	0	1	1	0	0	4	
	68	1	0	0	0	1	0	1	1	0	0	4	
	69	1	0	0	0	0	0	1	0	0	0	2	
	70	0	0	0	0	0	0	1	0	0	0	1	
	Subtotals: rec.aviation.piloting	57	14	0	17	44	20	43	39	12	8	254	
	Standard deviation	0.39	0.40	0.00	0.43	0.49	0.46	0.49	0.50	0.38	0.32	2.07	
	Mean	0.81	0.20	0.00	0.24	0.63	0.29	0.61	0.56	0.17	0.11	3.63	(36.3%)

Content Analysis Totals: Original Ten-Aspect Model (3 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
talk.rape	1	1	1	0	1	0	0	0	0	0	0	3	
	2	0	0	0	0	0	0	0	0	0	0	0	
	3	1	1	0	1	1	0	0	0	0	1	5	
	4	1	0	0	0	1	1	0	0	0	1	4	
	5	1	0	0	1	1	1	0	0	0	0	4	
	6	0	0	0	0	0	0	1	1	0	0	2	
	7	1	1	0	0	1	0	0	0	0	0	3	
	8	1	1	0	0	1	1	0	1	0	0	5	
	9	1	0	0	1	1	0	0	0	0	0	3	
	10	0	1	0	1	1	1	0	1	0	0	5	
	11	1	1	1	1	1	0	1	1	0	0	7	
	12	1	0	0	1	1	1	1	1	0	1	7	
	13	1	0	0	0	1	1	1	1	0	1	6	
	14	1	0	0	0	1	1	0	1	0	1	5	
	15	1	1	0	1	1	1	0	1	0	1	7	
	16	1	1	0	0	1	1	0	1	0	1	6	
	17	1	1	0	0	1	1	0	1	0	1	6	
	18	1	1	0	0	1	1	0	1	0	0	5	
	19	1	0	0	1	1	1	0	1	0	1	6	
	20	1	1	0	1	1	1	0	1	0	1	7	
	21	1	1	0	0	1	1	0	1	0	1	6	
	22	1	1	0	0	1	1	1	1	0	1	7	
	23	1	1	0	0	1	0	1	1	0	1	6	
	24	1	1	0	1	1	1	1	1	0	0	7	
	25	1	1	0	0	1	1	0	1	0	0	5	
	26	1	1	0	1	1	1	0	0	0	0	5	
	27	1	1	0	0	1	0	0	0	0	0	3	
	28	1	1	0	0	1	0	0	0	0	0	3	
	29	0	0	0	0	1	1	0	1	0	1	4	
	30	0	0	0	0	1	1	0	0	0	1	3	
	31	0	1	0	0	0	0	0	0	0	0	1	
	32	1	0	0	0	0	0	1	1	0	0	3	
	33	1	0	0	1	1	0	0	0	0	0	3	
	34	0	1	0	0	0	0	0	0	0	0	1	
	35	1	0	0	1	1	0	0	0	0	1	4	
	36	1	1	0	1	1	1	0	0	0	0	5	
	37	0	0	0	1	1	0	0	1	0	0	3	
	38	1	0	0	0	0	0	0	0	0	0	1	
	39	1	0	0	0	1	1	0	1	0	0	4	
	40	1	1	0	0	0	0	0	0	0	0	2	
	41	1	0	0	0	0	0	0	0	0	0	1	

Content Analysis Totals: Original Ten-Aspect Model (4 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
talk.rape	42	0	0	0	1	1	0	0	0	0	0	2	
(continued)	43	1	1	0	1	0	0	0	0	0	0	3	
	44	0	1	0	1	1	0	0	0	0	0	3	
	45	1	0	0	0	1	0	0	0	0	0	2	
	46	1	1	0	1	1	1	0	0	0	0	5	
	47	1	0	0	0	1	1	0	0	0	0	3	
	48	1	0	0	0	1	1	0	1	0	0	4	
	49	1	0	0	0	1	0	1	1	0	0	4	
	50	0	0	0	1	1	1	0	1	0	0	4	
	51	1	1	0	0	1	0	1	0	0	0	4	
	52	1	0	0	0	1	1	0	0	0	0	3	
	53	1	0	0	0	1	1	0	1	0	0	4	
	54	1	0	0	1	0	0	1	0	0	0	3	
	55	1	1	0	1	1	1	0	1	0	0	6	
	56	1	1	0	0	1	1	0	1	0	0	5	
	57	0	0	0	1	1	1	0	0	0	0	3	
	58	1	0	0	0	1	0	0	0	0	0	2	
	59	1	1	0	1	1	1	0	0	0	0	5	
	60	0	0	0	0	0	0	0	0	0	0	0	
	61	1	1	0	0	1	0	0	1	0	0	4	
	62	1	1	0	1	1	1	0	0	0	0	5	
	63	1	0	0	0	1	1	0	0	0	0	3	
	64	1	0	0	1	1	1	0	0	0	0	4	
	65	1	1	0	1	1	0	0	0	0	0	4	
	66	1	0	0	1	1	0	0	0	0	0	3	
	67	1	0	0	0	1	1	0	0	0	0	3	
	68	1	1	0	0	1	1	0	1	0	0	5	
	69	1	0	0	0	1	1	0	0	0	0	3	
	70	1	0	0	0	1	0	0	1	0	0	3	
	Subtotals: talk.rape	57	34	1	29	58	38	11	31	0	16	275	
	Standard deviation	0.39	0.50	0.12	0.50	0.38	0.50	0.37	0.50	0.00	0.42	1.71	
	Mean	0.81	0.49	0.01	0.41	0.83	0.54	0.16	0.44	0.00	0.23	3.93	(39.3%)

Content Analysis Totals: Original Ten-Aspect Model (5 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
alt.med.cfs	1	1	1	0	0	1	0	0	1	0	0	4	
	2	1	0	0	0	1	0	1	0	0	0	3	
	3	1	1	0	0	1	0	0	1	0	0	4	
	4	1	1	0	0	1	0	0	0	0	0	3	
	5	1	1	0	0	1	0	0	0	0	0	3	
	6	1	1	0	1	1	0	0	1	0	0	5	
	7	0	0	0	0	1	0	1	1	0	0	3	
	8	1	0	0	0	1	0	0	0	0	0	2	
	9	1	0	0	0	1	0	0	0	0	0	2	
	10	1	0	0	0	1	0	1	0	1	0	4	
	11	1	1	0	0	1	0	1	0	0	0	4	
	12	1	0	0	0	1	0	0	0	0	0	2	
	13	1	0	0	0	1	0	0	0	0	0	2	
	14	1	1	0	0	1	0	1	0	0	0	4	
	15	0	1	0	0	1	0	1	0	0	0	3	
	16	1	0	0	0	1	0	1	0	0	0	3	
	17	1	1	0	0	1	0	0	1	0	0	4	
	18	0	1	0	0	1	0	0	0	0	0	2	
	19	1	1	0	1	1	0	1	0	0	0	5	
	20	0	0	0	1	1	0	1	0	0	1	4	
	21	0	0	0	0	0	0	1	0	0	0	1	
	22	0	0	0	0	1	0	1	0	0	0	2	
	23	1	0	0	0	1	0	1	0	0	0	3	
	24	0	1	0	0	1	0	1	0	0	0	3	
	25	0	1	0	0	1	0	0	0	0	0	2	
	26	1	0	0	0	1	0	0	0	0	0	2	
	27	1	0	0	0	1	0	0	1	0	0	3	
	28	0	0	0	0	1	0	0	0	0	0	1	
	29	1	0	0	0	1	0	1	1	0	0	4	
	30	1	0	0	0	1	0	1	0	0	0	3	
	31	1	1	0	0	1	0	0	0	0	0	3	
	32	1	1	0	0	1	0	0	0	0	1	4	
	33	1	0	0	1	1	0	1	0	0	0	4	
	34	1	0	0	0	1	0	1	0	0	0	3	
	35	1	1	0	0	1	0	1	0	0	0	4	
	36	1	1	0	0	1	0	1	0	0	0	4	
	37	1	0	0	0	1	0	0	0	0	0	2	
	38	1	1	0	0	1	0	0	0	0	0	3	
	39	0	0	0	0	0	0	0	0	0	0	0	
	40	1	1	0	0	1	0	1	0	0	0	4	
	41	1	0	0	0	1	0	0	0	0	0	2	

Content Analysis Totals: Original Ten-Aspect Model (6 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
alt.med.cfs	42	1	0	0	0	1	0	1	1	1	0	5	
(continued)	43	1	0	0	0	1	0	1	0	0	0	3	
	44	1	1	0	1	1	0	0	0	0	0	4	
	45	1	0	0	0	1	0	0	0	0	0	2	
	46	1	0	0	0	1	0	0	0	0	0	2	
	47	0	0	0	0	1	0	1	0	0	0	2	
	48	0	0	0	0	1	0	1	0	0	0	2	
	49	1	0	0	0	0	1	0	0	0	0	2	
	50	1	1	0	0	0	0	0	1	0	0	3	
	51	1	1	0	0	1	0	1	0	0	0	4	
	52	1	0	0	0	1	0	1	1	0	0	4	
	53	1	1	0	1	1	1	1	1	0	0	7	
	54	1	0	0	0	1	0	1	1	0	0	4	
	55	1	0	0	0	1	0	1	1	0	0	4	
	56	1	0	0	0	1	0	1	1	0	0	4	
	57	1	0	0	0	1	0	1	1	0	1	5	
	58	1	0	0	0	0	0	1	1	0	0	3	
	59	1	1	0	0	1	0	1	0	0	0	4	
	60	1	0	0	0	1	0	1	0	0	0	3	
	61	1	1	0	0	1	1	1	0	0	0	5	
	62	1	0	0	0	1	1	1	1	1	1	7	
	63	1	0	0	0	1	0	1	1	0	1	5	
	64	1	0	0	0	1	0	1	0	0	0	3	
	65	1	0	0	0	1	0	1	1	0	0	4	
	66	1	1	0	0	1	0	0	0	0	0	3	
	67	0	0	0	0	0	0	0	0	0	0	0	
	68	1	1	0	0	1	0	1	1	0	0	5	
	69	1	0	0	0	1	0	1	0	0	0	3	
	70	1	1	0	0	1	0	0	1	0	0	4	
	Subtotals: alt.med.cfs	57	28	0	6	64	4	41	21	3	5	229	
	Standard deviation	0.39	0.49	0.00	0.28	0.28	0.23	0.50	0.46	0.20	0.26	1.31	
	Mean	0.81	0.40	0.00	0.09	0.91	0.06	0.59	0.30	0.04	0.07	3.27	(32.7%)

Content Analysis Totals: Original Ten-Aspect Model (7 of 7)

		Societal Aspect											
Newsgroup	Article Number:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	MacKinnon Factor	
ALL	TOTALS	171	76	1	52	166	62	95	91	15	29	758	
	Standard deviation	0.39	0.48	0.07	0.43	0.41	0.46	0.50	0.50	0.26	0.35	1.74	
	Mean	0.81	0.36	0.00	0.25	0.79	0.30	0.45	0.43	0.07	0.14	3.61	(36.1%)