

31 Computer-mediated Discourse

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0 Introduction

0.1 Definition

Computer-mediated discourse is the communication produced when human beings interact with one another by transmitting messages via networked computers. The study of computer-mediated discourse (henceforth CMD) is a specialization within the broader interdisciplinary study of computer-mediated communication (CMC), distinguished by its focus on *language and language use* in computer networked environments, and by its use of methods of *discourse analysis* to address that focus.

Most CMC currently in use is *text-based*, that is, messages are typed on a computer keyboard and read as text on a computer screen, typically by a person or persons at a different location from the message sender. Text-based CMC takes a variety of forms (e.g. e-mail, discussion groups, real-time chat, virtual reality role-playing games) whose linguistic properties vary depending on the kind of messaging system used and the social and cultural context embedding particular instances of use. However, all such forms have in common that the activity that takes place through them is constituted primarily – in many cases, exclusively – by visually presented language. These characteristics of the medium have important consequences for understanding the nature of computer-mediated language. They also provide a unique environment, free from competing influences from other channels of communication and from physical context, in which to study verbal interaction and the relationship between discourse and social practice.¹

0.2 A brief history of CMD research

Human-to-human communication via computer networks, or *interactive networking*, is a recent phenomenon. Originally designed in the United States in the late 1960s to facilitate the transfer of computer programs and data between remote computers in

the interests of national defense, caught on almost immediately among computer scientists in the early 1970s and business users in elite universities in the 1980s – facilitated by the 1990s. The first wide-area network, ARPANET, was replaced in the late 1990s. The Internet of January 1999 comprised more than 100 million users (Petrizzini and K

The study of computer-mediated discourse, working itself, as scholars became aware of a new medium. As early as 1984, on the effects of “computer-mediated communication.” The first detailed descriptions of CMD are Denise Murray’s (1985) research on computer-mediated communication, Severinson Eklundh’s (1986) study of computer-mediated communication. However, it was not until 1991, with the work of Greg Whitemore’s “Interactive communication,” linguists and language scholars in the late 1990s saw the rise of CMD. Recently on what has since emerged as a description of computer-mediated discourse.² Since the mid-1990s, CMD has staking out new areas of inquiry and resources.

In part, the first wave of CMD research was about CMD that had gone beyond research – held that computer-mediated communication, “egalitarian,” “fragmented,” to the nature of the medium and its uses of CMD. Ferrara et al. (1998) and one form of real-time experimentation they termed “interactive writing.” Research has revealed computer-mediated communication a variety of technical and situational factors than envisioned by early descriptions.

The remainder of this chapter, representing a currently active area of CMD, addresses the nature of CMD and identifies some technological issues. It describes the structural properties of CMD, word choice, and grammar. It discusses turn-taking and maintaining conversation management imposed by CMD. It discusses CMD in the service of computer-mediated personal interaction to the dominant form of communication by considering the prospects for

the interests of national defense (Levy 1984; Rheingold 1993), computer networks caught on almost immediately as a means of interpersonal communication, first among computer scientists in the early 1970s (Hafner and Lyon 1996), then among academic and business users in elite universities and organizations in the 1980s, and from there into popular use – facilitated by the rise of commercial Internet service providers – in the 1990s. The first wide-area network, the US defense department sponsored ARPANET, was replaced in the early 1980s by the global network Internet, which as of January 1999 comprised more than 58,000 networks supporting an estimated 150 million users (Petrazzini and Kibati 1999).

The study of computer-mediated discourse developed alongside of interactive networking itself, as scholars became exposed to and intrigued by communication in the new medium. As early as 1984, linguist Naomi Baron published an article speculating on the effects of “computer-mediated communication as a force in language change.” The first detailed descriptions of computer-mediated discourse soon followed, with Denise Murray’s (1985) research on a real-time messaging system at IBM, and Kerstin Severinson Eklundh’s (1986) study of the Swedish COM conferencing system. However, it was not until 1991, with the publication of Kathleen Ferrara, Hans Brunner, and Greg Whitemore’s “Interactive written discourse as an emergent register,” that linguists and language scholars began to take serious notice of CMD. The immediately following years saw the rise of a wave of CMD researchers,² working independently on what has since emerged as a more or less coherent agenda: the empirical description of computer-mediated language and varieties of computer-mediated discourse.³ Since the mid-1990s, CMD research has continued to expand at a rapid rate, staking out new areas of inquiry and resulting in an ever-growing list of published resources.

In part, the first wave of CMD scholarship was a reaction against misunderstandings about CMD that had gone before. Popular claims – some endorsed by published research – held that computer-mediated communication was “anonymous,” “impersonal,” “egalitarian,” “fragmented,” and “spoken-like,” attributing these properties to the nature of the medium itself, and failing to distinguish among different types and uses of CMD. Ferrara et al. (1991), although contributing useful observations on one form of real-time experimental CMD, also overgeneralized, characterizing what they termed “interactive written discourse” as a single genre. In fact, subsequent research has revealed computer-mediated language and interaction to be sensitive to a variety of technical and situational factors, making it far more complex and variable than envisioned by early descriptions.

The remainder of this chapter is organized into four broad sections, each of them representing a currently active area of CMD research. Section 1, on the “classification of CMD,” addresses the nature of CMD in relation to written and spoken language, and identifies some technologically and culturally determined CMC types. Section 2 describes the structural properties of CMD at the levels of typography, orthography, word choice, and grammar. Section 3 considers how participants in CMD negotiate turn-taking and maintain cross-turn coherence, despite constraints on interaction management imposed by CMC systems. Section 4, entitled “social practice,” discusses CMD in the service of social goals ranging from self-presentation to interpersonal interaction to the dominance of some groups by others. The chapter concludes by considering the prospects for CMD research in the future.

1 Classification of CMD

1.1 Medium and channel

Computer networks are often considered a *medium* of communication distinct from writing and speaking. Thus CMD researchers speak of electronic "medium effects" on CMD, rather than treating CMD as a form of "writing" (typing) that happens to be distributed by electronic means (see, e.g., Murray 1988). The justification for this is that while the means of production of CMD is similar to that of other forms of typing, including allowing for the editing and formatting of text in asynchronous modes, other aspects of computer-mediated communication preclude easy classification with either writing or speaking. CMD exchanges are typically faster than written exchanges (e.g. of letters, or published essays which respond to one another), yet still significantly slower than spoken exchanges, since even in so-called "real-time" modes, typing is slower than speaking. Moreover, CMD allows multiple participants to communicate simultaneously in ways that are difficult if not impossible to achieve in other media, due to cognitive limits on participants' ability to attend to more than one exchange at a time (Herring 1999a). In addition, the dissemination of computer-mediated messages involves distribution to an unseen (and often unknown) audience, while at the same time creating an impression of direct and even "private" exchanges (King 1996). For these and other reasons, participants typically experience CMD as distinct from either writing or speaking, sometimes as a blend of the two, but in any event subject to its own constraints and potentialities.

Media may differ in the number of *channels*, or sources of communication, they comprise. Face-to-face communication is a "rich" medium, in that information is available through multiple channels: visual, auditory, gestural, etc. In contrast, CMD is a "lean" medium (Daft and Lengel 1984), in that information is available only through the visual channel, and that information is limited to typed text. This has led some to posit that the computer medium is "impoverished" and unsuitable for social interaction (Baron 1984). However, there is ample evidence that users compensate textually for missing auditory and gestural cues, and that CMD can be richly expressive. This is perhaps nowhere better illustrated than by the popularity of "virtual sex" (Deuel 1996; McRae 1996) – sex being an activity that normally requires *more* channels of communication than face-to-face speech (e.g. touch) – in which acts of physical intimacy are textually enacted.

1.2 Medium variables

While the case for the deterministic influence of the computer medium on language use is often overstated, properties of computer messaging systems nonetheless play a significant role in shaping CMD. One important distinction relates to *synchronicity* of participation (Kiesler et al. 1984). Asynchronous CMD systems do not require that users be logged on at the same time in order to send and receive message; rather, messages are stored at the addressee's site until they can be read. E(lectronic)-mail is

Table 31.1 Classification of some variables

	One-way transmission
Synchronous	Chat (IRC, MUDs and
Asynchronous	E-mail; e-n systems (lists, Usenet)

an example of this type. In synchronous CMD, users must be logged on simultaneously and off participants' computer chat – such as takes place in the Internet Relay Chat (IRC) – is an example.

A cross-cutting technological property is whether synchronous feedback is available; this is the case in *two-way* (Cherny 1999). In *one-way*, the message is sent as a single unit, with the receiver not receiving feedback until it arrives. In *two-way*, with speaker and addressee, there is feedback. Most CMD in current use is *two-way*, with speaker and addressee. There are also two-way CMD systems with more sections, and the word "section" refers to their respective sections as well as to the sections of the CMD on the Internet is the case.

Some common modes of CMD are listed in table 31.1.

Other physical properties of CMD include limits on message size (which affects the "presence" of the text (whether, a participant's Condon and Crampton 1994). A system makes available to users to incorporate portions of the message (Eklundh and Macdonald 1995). It allows messages to be sent in a way that allows users to filter out or ignore certain messages (Reid 1994). Finally, the availability of other media, such as audio, video, or graphics, is also a factor (Graddol 1996).

Table 31.1 Classification of some common CMD modes according to medium variables

	<i>One-way transmission</i>	<i>Two-way transmission</i>
Synchronous	Chat (IRC, webchat, etc.); MUDs and MOOs	UNIX "talk"; VAX "phone"; ICQ
Asynchronous	E-mail; e-mail-based systems (listserv discussion lists, Usenet newsgroups, etc.)	—

an example of this type. In synchronous CMD, in contrast, sender and addressee(s) must be logged on simultaneously, and messages are more ephemeral, scrolling up and off participants' computer screens as new messages replace them. "Real-time" chat – such as takes place in the chatrooms of commercial service providers and via Internet Relay Chat (IRC) – is a popular form of synchronous CMD.

A cross-cutting technological dimension has to do with whether or not simultaneous feedback is available; that is, whether the message transmission is *one-way* or *two-way* (Cherny 1999). In *one-way* transmission, a message is transmitted in its entirety as a single unit, with the result that recipients do not know that a message is being addressed to them until it arrives, thereby precluding the possibility of simultaneous feedback. Most CMD in current use makes use of one-way transmission. In contrast, oral modes of communication (such as face-to-face and telephone conversations) are *two-way*, with speaker and addressee both able to hear the message as it is produced. There are also two-way CMD systems, in which participants' screens split into two or more sections, and the words of each participant appear keystroke by keystroke in their respective sections as they are typed. An example of two-way synchronous CMD on the Internet is the currently-popular ICQ ("I seek you") protocol.²

Some common modes of CMD are classified according to synchronicity and transmission type in table 31.1.

Other physical properties of messaging systems that shape language use include limits on message size (what Cherny 1999 calls message "granularity"), the "persistence" of the text (whether, and for how long, previous messages remain accessible to participants; Condon and Čech forthcoming), what categories of communication commands a system makes available (Cherny 1995), the ease with which a system allows users to incorporate portions of previous messages in their responses (Severinson Eklundh and Macdonald 1994; Severinson Eklundh forthcoming), whether a system allows messages to be sent anonymously (Selfe and Meyer 1991), and whether it allows users to filter out or "ignore" messages from others selectively (Lunsford 1996; Reid 1994). Finally, the availability of channels of communication in addition to text, such as audio, video, or graphics, can have consequences for language use (Yates and Graddol 1996).

1.3 CMD modes

Another useful classification is in terms of emic (culturally recognized) categories of computer-mediated communication, or CMD mode. Popular modes such as private e-mail, listserv mailing lists, Usenet newsgroups, IRC, and MUDs are socially as well as technologically defined, each having its own unique history and culture of use.³ For example, listserv mailing lists and Usenet newsgroups are both asynchronous, multiparticipant discussion groups to which messages are contributed ("posted") via e-mail. Yet there are recognizably distinct listserv and Usenet "cultures," the former tending to attract more academic professionals, and the latter, younger (predominantly male) users engaged in contentious exchanges of opinion.⁴ The greater degree of contentiousness on Usenet (including a high incidence of "flaming," or targeting an addressee with overtly hostile message content; Kim and Raja 1991) is due in part to the fact that social accountability in the Usenet system is low – whereas listserv participants must subscribe to mailing lists, providing their name and e-mail address in the process, Usenet messages are publicly posted for anyone with access to a newsreader to read. It also reflects the history of Usenet, which was invented by young male "hackers" in the late 1970s as an alternative to the "elitist," government-funded ARPANET (Rheingold 1993), and which has continued to define itself in terms of "frontier" values (Pfaffenberger 1996).

Real-time chat modes also differ from one another culturally. Although IRC and chat in a social MUD are both types of synchronous, one-way CMD, and make use of similar commands (the ability, for example, to distinguish between an utterance and an action, and the ability to message someone privately), the nature of the conversations and the conventions associated with each are different. As Cherny (forthcoming: 12–13) notes,

[a]lthough many abbreviations are common [to IRC and ElseMOO, the social MUD I studied], certain outsider forms are sneered at: e.g. "u" for "you", "r" for "are." When I asked ElseMOO regulars, "What part of the Internet do you think abbreviations like 'r u going 2 c the movie' are from?", two replied "the icky part" and "the part I avoid like the plague." One thought perhaps IRC users sometimes use those forms but admitted to an anti-IRC bias. When one new visitor came to ElseMOO (apparently used to IRC) and said, "this is just like IRC <g>... with fun things to do," Bonny, a regular, responded, "except we don't say <g> here."⁵

The fact that MUDding requires some computer programming skills to do well may account for the perception of Cherny's informants that their MUD culture is more sophisticated than that of IRC.

With these distinctions as background, we now move to consider some properties of computer-mediated discourse.

2 Linguistic Structure

It is a popular perception that computer-mediated language is less correct, complex, and coherent than standard written language. Thus a writer for *Wired* magazine

describes messages posted to the definitely not as elegant or polished (131) predicted that participants in co clauses" and "a narrower range of communication over time, the exper

Actually, although computer-m "ures," only a relatively small per by inattention or lack of knowledg (1998a). The majority are deliberat effort, mimic spoken language fea coming; Livia forthcoming). Econ behind Murray's (1990: 43–4) obs synchronous CMD in a workplace and auxiliaries; use abbreviations as illustrated in the following exo

- (1) Les1: as it stands now, m
Les2: instead of tues
Brian1: idiot Hess seemed
Brian2: thot that mtg from
Brian3: if you not in ny I'

Another deliberate practice that representation of auditory info language sounds, as illustrated MacKinnon 1995):

- (2) Al,
hahahahahahahahahah
sniff waaaaaaaaaaaaaaaa
I laughed, i cried... that
Amusedly,

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describes messages posted to the Internet as "a whole new fractured language - definitely not as elegant or polished as English used to be." Similarly, Baron (1984: 131) predicted that participants in computer conferences would use "fewer subordinate clauses" and "a narrower range of vocabulary" - and that as a result of computer communication over time, the expressive functions of language could be diminished.

Actually, although computer-mediated language often contains nonstandard features,⁷ only a relatively small percentage of such features appears to be errors caused by inattention or lack of knowledge of the standard language forms (see, e.g. Herring 1998a). The majority are deliberate choices made by users to economize on typing effort, mimic spoken language features, or express themselves creatively (Cho forthcoming; Livia forthcoming). Economy of effort seems to be the motivating force behind Murray's (1990: 43-4) observation that computer science professionals using synchronous CMD in a workplace environment "delete subject pronouns, determiners, and auxiliaries; use abbreviations; do not correct typos; and do not use mixed case", as illustrated in the following exchange between Les and Brian:

- (1) Les1: as it stands now, meeting on weds?
Les2: instead of tues
Brian1: idiot Hess seemed to think you were there tues morning
Brian2: thot that mtg from 9 to 10 would solve
Brian3: if you not in ny I'm going to have mtg changed to wedne.

Another deliberate practice that results in unconventional orthography is the textual representation of auditory information such as prosody, laughter, and other non-language sounds, as illustrated in the following message posted to Usenet (from MacKinnon 1995):

- (2) Al,
hahahahahahhahahahahahahahahahahah
sniff waaaaaaaaaaaaaaaaaaaaahhhhh
I laughed, i cried... that post was GREAT! :-)
Amusedly,
-Mirth-

Strategies such as these, rather than reflecting impoverished or simplified communication, demonstrate the ability of users to adapt the computer medium to their expressive needs. Significantly, this results in a linguistic variety that, despite being produced by written-like means, frequently contains features of orality.

One medium variable, however, does exercise a powerful influence over structural complexity: synchronicity. Just as the structure of unplanned speech reflects cognitive constraints on real-time language encoding, for example in length of information units, lexical density, and degree of syntactic integration (Chafe 1982), so too synchronous modes of CMD impose temporal constraints on users that result in a reduction of linguistic complexity relative to asynchronous modes. Thus in a study of InterChange, a type of synchronous CMD used in educational settings, Ko (1996) found fewer complements, more stranded prepositions, and shorter words than in a comparably sized corpus of formal writing. Moreover, for features involving "information focus

and elaborateness" (e.g. lexical density, ratio of nouns to verbs, and use of attributive adjectives), the InterChange messages had lower average frequencies than *either* writing or speaking. Ko attributes this finding to the heavy production and processing burden placed on users by the InterChange system – not only must they type, which is slower and requires more conscious attention than talking, but they must type quickly, leaving little time for message planning.

In contrast, asynchronous CMD permits users to take their time in constructing and editing messages. Variation in structural complexity in e-mail messages, therefore, must be understood as reflecting social situational factors which determine what level of formality – and with it, standardness and structural complexity – is appropriate to the context. For example, staff in an Australian university exchange private e-mail filled with informal, spoken language features: contractions, abbreviations, use of lower case in place of upper case, omission of punctuation, and omission of grammatical function words (Cho forthcoming). Yet the same e-mail technology, when used by computer scientists interacting professionally in a public discussion group on the ARPANET, produced highly standard messages containing features of syntactic complexity such as nominalizations, subordinate and complement clauses, use of the passive voice, and heavy noun phrases (Herring 1998a). Still, the ARPANET case notwithstanding, e-mail tends not to be as formal as other edited forms of writing. This is due in part to the less formal purposes e-mail is typically used to fulfill, and in part to the relative openness of e-mail as a new communication mode that has not yet been colonized by rigid prescriptive norms.¹⁰

3 Interaction Management

Along with claims of structural fragmentation, text-only CMD is sometimes claimed to be interactionally incoherent, due to limitations imposed by computer messaging systems on turn-taking. In contrast with the spoken conversation ideal of "no gap, no overlap" (Sacks et al. 1974), computer-mediated exchanges involve unpredictable and sometimes lengthy gaps between messages, and exchanges regularly overlap, although strictly speaking, individual transmissions cannot (Cherny 1999; Lunsford 1996; Murray 1989).¹¹ Two properties of the computer medium create obstacles to interaction management: (1) disrupted turn *adjacency* caused by the fact that messages are posted in the order received by the system, without regard for what they are responding to, and (2) lack of simultaneous *feedback* caused by reduced audiovisual cues (Herring 1999a).

The first property lends to many computer-mediated exchanges an initial aura of fragmentation. Consider the phenomenon of overlapping exchanges, as illustrated by the following excerpt of interaction from the Internet Relay Chat channel #punjab (from Paolillo forthcoming). Note that the IRC system automatically appends the user's name (in this case, the pseudonymous nickname selected by the user herself or himself) at the beginning of each message. Messages preceded by asterisks (***) are also generated automatically by the system, and indicate that a user has joined or left the channel. (Numbers in square brackets were added by the author for ease of reference.)

- (3) [1] <ashna> hi jatt
[2] *** Signoff: puja (l
[3] <Dave-G> kally i
[4] <jatt> ashna: hel
[5] <kally> dave-g it
[6] <ashna> how are
[7] <LUCKMAN> ss
[8] <Dave-G> kally y
[9] <jatt> ashna: do
[10] *** LUCKMAN h
[11] *** LUCKMAN h
[12] <kally> dave-g g
[13] <jatt> kally: so h
[14] <ashna> jatt no v
[15] <jatt> ashna: wh

Two different dyadic interactions are visible between ashna and jatt, and matters further, in l. 13, jatt's every initiation-response pair track the intended recipient explicitly names the addressee, making it possible to separate

- (3') [1] <ashna> hi jatt
[4] <jatt> ashna: h
[6] <ashna> how a
[9] <jatt> ashna: d
[14] <ashan> jatt no
[15] <jatt> ashna: v
- (3'') [3] <Dave-G> kall
[5] <kally> dave-g
[8] <Dave-G> kall
[12] <kally> dave-g

Addressivity is one means of managing multiparticipant synchrony.

A similar referential tracking is visible in asynchronous CMD such as talk practice of referring explicitly to previous messages (Baym 1996; Herring 1996). respond to Diana's comment in the previous message in one Severinson Eklundh forthcoming. In this example, the name

verbs, and use of attributive frequencies than either writing or production and processing. Only must they type, which talking, but they must type

their time in constructing in e-mail messages, therefore factors which determine what complexity – is appropriate for university exchange private conversations, abbreviations, punctuation, and omission of the same e-mail technology, usually in a public discussion messages containing features of and complement clauses, (1998a). Still, the ARPANET as other edited forms of e-mail is typically used to new communication modes.¹⁰

CMD is sometimes claimed by computer messaging conversation ideal of “no gap, no involve unpredictable and regularly overlap, although (1999; Lunsford 1996; Murray obstacles to interaction many that messages are posted in that they are responding to, audiovisual cues (Herring

exchanges an initial aura of exchanges, as illustrated by relay Chat channel #punjab automatically appends the selected by the user herself or ceded by asterisks (***) are that a user has joined or left by the author for ease of

- (3) [1] <ashna> hi jatt
 [2] *** Signoff: puja (EOF From client)
 [3] <Dave-G> kally i was only joking around
 [4] <Jatt> ashna: hello?
 [5] <kally> dave-g it was funny
 [6] <ashna> how are u jatt
 [7] <LUCKMAN> ssa all!¹²
 [8] <Dave-G> kally you da woman!
 [9] <Jatt> ashna: do we know eachother?. I'm ok how are you
 [10] *** LUCKMAN has left channel #PUNJAB
 [11] *** LUCKMAN has joined channel #punjab
 [12] <kally> dave-g good stuff:
 [13] <Jatt> kally: so hows school life, life in geneal, love life, family life?
 [14] <ashna> jatt no we don't know each other, i fine
 [15] <Jatt> ashna: where r ya from?

Two different dyadic interactions are interleaved in this stretch of discourse, one between ashna and jatt, and the other between Dave-G and kally. To complicate matters further, in l. 13, jatt addresses kally. However, despite the fact that almost every initiation-response pair is disrupted by intervening material, it is possible to track the intended recipient of each message because in each case, the message sender explicitly names the addressee. This practice, termed *addressivity* by Werry (1996), makes it possible to separate out the two dyadic interactions as follows:

- (3') [1] <ashna> hi jatt
 [4] <Jatt> ashna: hello?
 [6] <ashna> how are u jatt
 [9] <Jatt> ashna: do we know eachother?. I'm ok how are you
 [14] <ashan> jatt no we don't know each other, i fine
 [15] <Jatt> ashna: where r ya from?
- (3'') [3] <Dave-G> kally i was only joking around
 [5] <kally> dave-g it was funny
 [8] <Dave-G> kally you da woman!
 [12] <kally> dave-g good stuff:)

Addressivity is one means by which users adapt to constraints on turn-taking in multiparticipant synchronous CMD.

A similar referential tracking problem, and an analogous adaptation, occur in asynchronous CMD such as takes place in discussion groups on the Internet. *Linking* is the practice of referring explicitly to the content of a previous message in one's response (Baym 1996; Herring 1996b), as for example when a message begins, "I would like to respond to Diana's comment about land mines." *Quoting*, or copying portions of a previous message in one's response (Severinson Eklundh and Macdonald 1994; Severinson Eklundh forthcoming), may also function as a type of linking, as in the following example from a soap opera fan newsgroup (example from Baym 1996: 326). In this example, the name and e-mail address of the person quoted are given in a

system-generated "pointer" line that precedes the quote, and each line of quoted text is set off with an angle bracket (>). The writer's comments follow the quote:¹³

- (4) janed@ABC.bigtel.com (Jane Doe) writes:
>I can't believe how horrible Natalie looks. Has she put on a lot of weight?

I agree, but she has always had a somewhat round face, so if she did put on weight, I think that would be accentuated.

Quoting creates the illusion of adjacency in that it incorporates and juxtaposes (portions of) two turns – an initiation and a response – within a single message. When portions of previous text are repeatedly quoted and responded to, the resulting message can have the appearance of an extended conversational exchange (Hodsdon forthcoming; Severinson Eklundh forthcoming).

The analysis of turn-taking in asynchronous CMD is additionally complicated by the fact that a single message may contain two or more conversational moves which are physically, but not functionally, adjacent (Baym 1996; Condon and Čech forthcoming). This creates problems for equating "messages" with "turns," since some e-mail messages effectively convey what would have been communicated through multiple turns in synchronous interaction.¹⁴ Conversely, a synchronous message may contain less than a turn, as when for example a sender has more to say than fits in a single message (which in some chat systems is limited to about 100 characters), and continues his or her turn in an immediately following message (Lunsford 1996; Murray 1989). However, as soon as a message is sent, the possibility exists for a message from another participant to follow, effectively "interrupting" the first person's turn. In order to retain the floor through an extended turn, therefore, some synchronous CMD users have innovated floor-holding conventions, for example appending a special character at what might otherwise appear to be a turn-completion point to indicate that the turn is not yet finished (Herring 1999a). Alternatively, an empowered participant may allocate turns to other participants by calling on them by name, perhaps after they have put in a bid for the next turn by "raising their hand" (e.g. typing "[Character name] raises his hand"; Cherny 1999: 181). These adaptive strategies compensate for a lack of simultaneous feedback in one-way computer communication systems by providing explicit mechanisms for speaker change.

4 Social Practice

Many early researchers believed that computer-networked communication was a "cool" medium well suited to the transfer of data and information, but poorly suited to social uses (Baron 1984; Kiesler et al. 1984). Others saw in CMC a utopian, egalitarian potential – with social status cues "filtered out," anyone could participate freely in open, democratic exchanges (Landow 1994; Poster 1990). The social life that teems on the Internet in the late 1990s bears out neither of these idealized visions, but it does provide a rich source of data for the study of discourse and social practice.

4.1 Socially conditioned

Language use is highly variable, and varies across single mode. This variation is influenced by users of social factors such as

That participant demographics (e.g. age, gender, bodiless) medium such as text-based chat (e.g. problems for traditional face-to-face communication about participant gender, age, and access to the researcher (e.g. Labov 1990). The geographic location of users and the nature of face-to-face communication are also factors in membership in a computer-mediated community. have also tended to be related to the fact that until recently, most computer users were highly educated, middle-to-upper class (e.g. 1995; Reid 1991).¹⁵ Even in recent years, race may only be inferable from the context of the message (Hodsdon forthcoming). This is especially when race/ethnicity is not explicitly mentioned in newsgroups on Usenet – where users often use pseudonyms, identity, including culture-specific references. English and the group's specific context are coming; Jacobs-Huey forthcoming). Participants' names or language codes are often used on-line appears to be an opportunity for

In contrast, other features of computer-mediated communication the participants themselves often use to mask them (cf. Danneberg 1998). given off largely unconsciously, and often in adherence to prescriptive norms of online behavior through the preoccupation with anonymity (Herring 1998c). Most applications of computer-mediated communication participants' names in asynchronous communication rooms request and provide a level of anonymity that is less conscious level, partially due to culturally prescribed gender roles that exaggerate the binary opposition between male and female by engaging in stereotyped behaviors and ritual insults and sexual harassment (cf. Rodino 1997).

Traditional gender stereotypes are often freely choosing their on-line identity, and the comment of one social

and each line of quoted text
follow the quote:¹³

put on a lot of weight?

face, so if she did put on

corporate and juxtaposes
- within a single message.
responded to, the resulting
national exchange (Hodsdon

s additionally complicated
more conversational moves
m 1996; Condon and Čech
s" with "turns," since some
en communicated through
synchronous message may
s more to say than fits in a
about 100 characters), and
age (Lunsford 1996; Murray
y exists for a message from
first person's turn. In order
e synchronous CMD users
pending a special character
point to indicate that the
n empowered participant
m by name, perhaps after
d" (e.g. typing "[Character
strategies compensate for
communication systems by

ed communication was a
mation, but poorly suited
saw in CMC a utopian,
out," anyone could par-
4; Poster 1990). The social
neither of these idealized
dy of discourse and social

4.1 Socially conditioned variation

Language use is highly variable in computer-mediated environments, even within a single mode. This variation reflects the influence on the linguistic choices of CMD users of social factors such as participant demographics and situational context.

That participant demographics make a difference in an "anonymous" (faceless, bodiless) medium such as the Internet is interesting in and of itself. It also raises problems for traditional variationist methods which assume that reliable information about participant gender, age, social class, race, geographical location, etc., is available to the researcher (e.g. Labov 1966). The dispersed nature of Internet groups renders the *geographic location* of users difficult to determine, and less relevant than in studies of face-to-face communication, since physical proximity is not a condition for shared membership in a computer-mediated speech community. *Social class, race, and ethnicity* have also tended to be relatively invisible on the Internet, although this may reflect the fact that until recently, most people participating in public group CMD have been highly educated, middle- to upper-middle-class, white speakers of English (Nakamura 1995; Reid 1991).¹⁵ Even in racially polarizing debates, the racial identity of participants may only be inferable from the content of their messages, not from their language use (Hodsdon forthcoming). The exception to this generalization is intra-group CMD – especially when race/ethnicity is the theme that defines the group, as in the soc.culture newsgroups on Usenet – which makes use of discursive markers of racial and ethnic identity, including culture-specific lexis and verbal genres, and code-switching between English and the group's ethnic language (Burkhalter 1999; Georgakopoulou forthcoming; Jacobs-Huey forthcoming; Paolillo 1996, forthcoming). Provided that participants' names or language competencies do not identify them, signaling race or ethnicity on-line appears to be an option at the participants' discretion (Burkhalter 1999).

In contrast, other features of "real-life" identity are relatively apparent, even when the participants themselves do not orient toward them consciously, and may actively seek to mask them (cf. Danet 1998). Information about participants' *educational level* is given off largely unconsciously by their sophistication of language use, including adherence to prescriptive norms (e.g. Herring 1998a); similarly, *age* is often revealed through the preoccupations and life experiences communicated in message content (Herring 1998c). Most apparent of all is participant *gender*, which is indicated by participants' names in asynchronous discussion groups, and is often a focus of conscious attention even in pseudonymous synchronous CMD. Participants in chat rooms request and provide information about their real-life genders, and many choose gender-revealing nicknames, e.g. Cover_Girl, sexychica, shy_boy, and GTBastard. On a less conscious level, participants "give off" gender information through adherence to culturally prescribed gendered interactional norms,¹⁶ sometimes interacting in ways that exaggerate the binary opposition between femaleness and maleness, for example by engaging in stereotyped behaviors such as supportiveness and coyness for females, and ritual insults and sexual pursuit of females for males (Hall 1996; Herring 1998c; cf. Rodino 1997).

Traditional gender stereotypes can be reified even when people believe they are freely choosing their on-line gender identity in nontraditional ways, as illustrated in the comment of one social MUD participant:

e can become someone else. I
sexy hot babe and do things

entities, this MUDDer instead
tud" and the "sexy hot babe."
male character name and use
Other linguistic behaviors for
have been observed in CMD
liteness (Herring 1994, 1996a),
ing "flaming" (Herring 1994).¹⁷
al factors that constitute the
structures (Baym 1996) such as
inction between public and
vided by the system all have
previous experience, both off
ous users may transfer terms
1995), and experienced users
w users or "newbies" (Weber

ts of practice regarding "how
e behavior; these may then be
Qs; Voth 1999) and netiquette
from context to context; for
ussion groups, but positively
1997).

munication purpose – recrea-
ing language use. Social and
l of formality, use of directive
97). Discourse topic and activ-
"flaming," etc.) also condition
used more often in discussing
n academic linguistics discus-
in extended debates (Herring
how that CMD, despite being
realities of its users.

MD constitutes social practice
ive way to "do" interactional
greater care, and reveals less
s speech (Sproull and Kiesler
e, and flirt (and in some cases,
thout having ever met their

Computer users have developed a number of compensatory strategies to replace social cues normally conveyed by other channels in face-to-face interaction. The best-known of these is the use of emoticons, or sideways "smiley faces" composed of ascii characters (Raymond 1993; Reid 1991), to represent facial expressions. While the prototypical emoticon, a smile :-), usually functions to indicate happiness or friendly intent, emoticons cue other interactional frames as well: for example, a winking face sticking its tongue out, ;-p (as if to say "NYA nya nya NYA nya"), can signal flirtatious teasing, and Danet et al. (1997) describe a spontaneous IRC "party" where emoticons were creatively deployed to represent the activity of smoking marijuana.¹⁸

In addition to facial expressions, physical actions can be represented textually. Typed actions such as <grin> and *yawn* may serve as contextualization cues (Gumperz 1982) for a playful or relaxed discourse frame. Synchronous CMD such as MUDs and IRC further provides a special communication command which can be used to describe actions or states in the third person. This command is often used to expand dialog into narrative performance, as in the following flirtatious IRC exchange (example from Herring 1998c):

- (6) <Dobbs> come on, Danielle!!
<Danielle> No.
<Danielle> You have to SEDUCE me ...
*** Action: jazzman reaches out for Danielle's soft hand.
*** Danielle has left channel #netsex
*** Action: Dobbs whispers sweet nothings in Danielle's ear
*** Action: Butthead moves closer to Danielle
<jazzman> danielle's gone dumbass

In this example, the four present tense actions (preceded by asterisks) are *performative* in nature; they count as "acts" (in this case, of seduction) solely by virtue of having been typed.

Since anyone can potentially create reality in this way, it follows that participants may type different, incompatible versions of reality, resulting in what Kolko (1995) calls a "narrative gap." Gaps of this sort may require the involvement of a third participant to resolve which version of the virtual reality will stand. The following MUD example is reported in Cherny (1995):

- (7) The guest hugs Karen.
Karen is NOT hugged by Guest.
[another character later addresses Karen, referring to "the guest who hugged you"]

In this example, Karen attempts to deny the performative nature of the guest's unwelcome action, but the third participant's comment affirms it – as Cherny notes, "[i]n some sense, the action occurred as soon as the message showed up on people's screens."

From this and other research into on-line social interaction, language emerges as a powerful strategic resource – indeed, the primary resource – for creating social reality in text-based CMC.

4.3 Social criticism

The socially constitutive power of computer-mediated language is not limited to the accomplishment of interactional work between individuals. We owe to Foucault (1980) the insight that societal institutions are themselves constructed and maintained through discourse. Nowhere is this more true than on the Internet, where "communities" of users come together, sharing neither geographical space nor (in the case of asynchronous CMD) time, and create social structures exclusively out of words (Jones 1995; Rheingold 1993; Smith and Kollock 1999). In some on-line communities, this process generates rules, sanctions against the violation of those rules, and systems of governance to enforce the sanctions, headed by empowered individuals or groups (Kolko and Reid 1998; Reid 1994, 1999). That is, "virtual communities" may develop internal power hierarchies, contrary to utopian claims that computer-mediated communication is inherently egalitarian.

CMD also inherits power asymmetries from the larger historical and economic context of the Internet. These include the traditional dominance of the United States as the leading source of computer network technology (Yates 1996b), the fact that the cost of the equipment required to set up and access computer networks creates "haves" and "have nots," both within the US and globally (Petrizzini and Kibati 1999), and the continuing overrepresentation of white, middle-class, English-speaking males in positions of control as Internet mode and site administrators (Shade 1998). These circumstances advantage certain groups of Internet users over others, and thus call for critical CMD analysis that is sensitive to issues of power and control.

One area that has been explored extensively for Internet groups is gender asymmetry.²¹ Much of this research finds that gender differences in CMD, such as those described in section 4.1 above, disproportionately disfavor female participants. In discussion groups, for example, the contentiousness of many male messages tends to discourage women from responding, while women's concerns with considerateness and social harmony tend to be disparaged as a "waste of bandwidth" in male-authored netiquette guidelines (Herring 1996a). Even extreme acts of aggression, such as narrative enactments of sexual violence against women, find ideological justification in dominant male discourses – for example, through invoking principles of "freedom of expression" (Herring 1998b, 1999b), or denying the pragmatic force of words to constitute actions in the case of a MUD rape (Dibbell 1993). Critical discourse analysis exposes the mechanisms that are employed to create and maintain gender asymmetry in computer-mediated environments, as well as analyzing the discourse strategies that are used by women to resist such attempts (Herring 1999b; Herring et al. 1995).

Another growing concern is the dominance of the English language on the Internet, and the possible effects of this dominance on the global spread of US values and cultural practices (Mattelart 1996; Yates 1996). Discourse analysts address these issues by studying the communication – including the language choices and attitudes – of speakers of other languages on the Internet. Paolillo (1996, forthcoming) finds little use of South Asian languages in CMD among South Asians, but suggests that nondominant languages may fare better when computer networks are located entirely within the nation or region where the language is natively spoken, when fonts are readily available which include all of the characters of the language's writing system,

and when there has been a long history of use. Other researchers are less optimistic. South Koreans tend to accept the culture of the Internet without question, and computer-mediated technology, which is fueled by a strong need for critical analysis, is a new technology which transmits a new culture.

Computer networks do not create any more than any previous existing social arrangements in the field, and computer-mediated communication is a field of resistance. While utopian discourses of socially oriented discourse expression of social relationships, it constitutes one of the most powerful computer-mediated discourses.

5 Conclusions

As the above discussion suggests, the study of CMD is a new genre. It should also be clear that it is directly from the properties of CMD – carried over from communication – that computer-mediated environments inherit properties that characterize them.

The wide variety of discourses and human experiences they encompass approaches drawn from discourse analysis. This is a (albeit vast) phenomenon that needs to see interconnections between otherwise not emerge by of themselves to forge more comprehensive theories.

That said, further specializations are needed that the field covers a vast area. I have focused on issues of identity, and social practice in the field, such as the effects of computer-mediated communication (1998a, 1999c), children's learning, pedagogical CMD (Herring and Moura 1997), and cross-cultural communication. Not been treated here. Each of these can be extended in its own right.

The future prospects for the study of writing, new research on

language is not limited to the
We owe to Foucault (1980)
and maintained through
where "communities" of
(in the case of asynchro-
out of words (Jones 1995;
communities, this process
s, and systems of govern-
individuals or groups (Kolko
ies" may develop internal
-mediated communication

historical and economic
nance of the United States
es 1996b), the fact that the
r networks creates "haves"
zini and Kibati 1999), and
English-speaking males in
ators (Shade 1998). These
over others, and thus call
er and control.

groups is gender asymme-
s in CMD, such as those
or female participants. In
ny male messages tends to
cerns with considerateness
ndwidth" in male-authored
of aggression, such as nar-
ideological justification in
g principles of "freedom of
atic force of words to con-
Critical discourse analysis
maintain gender asymmetry
g the discourse strategies
1999b; Herring et al. 1995).
h language on the Internet,
spread of US values and
analysts address these issues
e choices and attitudes – of
6, forthcoming) finds little
Asians, but suggests that
networks are located entirely
ly spoken, when fonts are
language's writing system,

and when there has been no colonial legacy of English within the home culture. Other researchers are less sanguine: Yoon (forthcoming) finds that young people in Korea tend to accept the dominance and importance of English on and for the Internet without question, and concludes that this is due to the symbolic power of the technology, which is fueled by commercially driven mass media. These findings point to a need for critical analysis not just of CMD, but of public discourse about computer technology which transmits ideological (including commercial) messages.

Computer networks do not guarantee democratic, equal-opportunity interaction, any more than any previous communication technology has had that effect. Pre-existing social arrangements carry over into cyberspace to create an uneven playing field, and computer-mediated communication can be a tool of either oppression or resistance. While utopian theorists might be disappointed by this outcome, for socially oriented discourse analysts, it is a boon. The discursive negotiation and expression of social relations in cyberspace, including asymmetrical relations, constitutes one of the most promising areas of future investigation for students of computer-mediated discourse.

5 Conclusions

As the above discussion shows, we have come far from the view of CMD as a single genre. It should also be clear that not all properties of CMD follow necessarily and directly from the properties of computer technology. Rather, social and cultural factors – carried over from communication in other media as well as internally generated in computer-mediated environments – contribute importantly to the constellation of properties that characterizes computer-mediated discourse.

The wide variety of discourse activities that take place in CMD and the range of human experiences they evoke invites multiple approaches to analysis, including approaches drawn from different academic disciplines as well as different subfields of discourse analysis. This richness and diversity of CMD, concentrated into a single (albeit vast) phenomenon which is the Internet, is its strength. CMD study enables us to see interconnections between micro- and macrolevels of interaction that might otherwise not emerge by observing spoken or written communication, and potentially to forge more comprehensive theories of discourse and social action as a result.

That said, further specialization in CMD research is desirable and inevitable, given that the field covers a vast array of phenomena and is still new. In this overview, I have focused on issues of categorization, linguistic structure, interaction management, and social practice in computer-mediated environments. Other important topics, such as the effects of computer mediation on language change over time (Herring 1998a, 1999c), children's learning and use of CMD (Evard 1996; Nix 1998, forthcoming), pedagogical CMD (Herring and Nix 1997; Warschauer 1999; Zyngier and de Moura 1997), and cross-cultural CMD (Ma 1996; Meagher and Castaños 1996), have not been treated here. Each potentially constitutes a subdiscipline of CMD research that can be extended in its own right.

The future prospects for the field of CMD analysis are very bright. As of this writing, new research on computer-mediated communication is appearing almost

daily, and a growing proportion of that work is making language its focus. This flurry of activity is certain to turn up new areas of research, as well as problematizing existing understandings; such are the signs of a vital and growing field of inquiry. Moreover, as CMC technology continues to evolve at a rapid pace, new and up-to-the-minute research will be needed to document its use. For example, we can anticipate structural and cultural changes in on-line communication as the worldwide web increasingly integrates Internet modes such as e-mail, newsgroups, and chat rooms under a single graphical interface. We can also look forward to new understandings (and new analytical challenges) as CMD enhanced by audio and video channels comes into more popular use. CMD is not just a trend; it is here to stay. For as long as computer-mediated communication involves language in any form, there will be a need for computer-mediated discourse analysis.

NOTES

- 1 This chapter does not consider the discourse properties of documents on the worldwide web. Web "pages" tend to be prepared in advance and monologic rather than reciprocally interactive; as such, they constitute a separate phenomenon deserving of study on its own terms. Nor does the chapter take up the question of what leads users to choose a particular medium of communication (CMD as opposed to speaking or writing) or mode of CMD (e.g. e-mail as opposed to real-time chat) for any given communicative purpose, as this falls outside our focus on the properties of computer-mediated exchanges themselves. For an early but still instructive treatment of this issue, see Murray (1988).
- 2 For example, Nancy Baym, Lynn Cherny, Brenda Danet, Susan Herring, Elizabeth Reid, and Simeon Yates; see references for examples of this early work.
- 3 The term "computer-mediated discourse" as a label for this kind of research was first used, to the best of my knowledge, at a pre-session of the Georgetown University Round Table on Languages and Linguistics that I organized in March of 1995.
- 4 I know of no examples of two-way asynchronous CMD, perhaps because it would serve no useful function for messages to be transmitted one keystroke at a time to the screens of addressees who were not present to appreciate the temporal aspects of the transmission.
- 5 Listserv mailing lists are thematically based discussion groups to which individuals "subscribe" by sending an e-mail request to the appropriate listserver; once added to the list of subscribers, they receive all communications posted to the list in the form of e-mail messages. Usenet is a large collection of "newsgroups" or discussion groups to which messages are posted as if to an electronic bulletin board; individuals must access Usenet using a web browser or newsreader in order to read the messages. IRC is a network of servers, accessed via a piece of software called an IRC client, which permits individuals to join a chat "channel" and exchange typed messages in real time with others connected to the channel. MUDs (Multi-User Dimensions or Multi-User Dungeons, from the early association of MUDs with the role-play

adventure game *Dungeons and Dragons*) and MOOs (Mud's Object Oriented) are text-based environments which, in allowing real-time chat among connected users, are places through which individuals navigate and create text descriptions and objects. The fourth mode is free via the Internet. Useful descriptions of many cultural practices included for an academic discussion (1995) and Pfaffenberger (1995), Usenet, Reid (1991) for MUDs, Cherny (1999) and Reid (1999) for social MUDs.

- 6 However, see Baym (1996) for an example of a newsgroup, rec.arts.tele (r.a.t.s.), that is predominantly and cooperative in its operation.
- 7 The abbreviation <g> often represents the action of greeting.
- 8 Jon Katz, quoted in Herring (1999).
- 9 See, e.g., Danet (1992); Herring (1991); Kim (1997); May (1990); Murray (1990); Reid (1991); Ulhrova (1994); Werry and Wilkins (1991).
- 10 Recent evidence suggests that e-mail may already be starting to replace other forms of writing. As e-mail use becomes common, increasingly formal and informal public expectations seem to be changing. e-mail language will be more and "error-free," even in informal communication (e.g., see et al. 1999). For a study of documents a trend toward formality over the 1990s, see Herring (1999c).
- 11 Unless otherwise noted, this section refers to one of the following:
- 12 The abbreviated Punjabi "ssa" = "sat siri akal" (truth = "hello") = illus-

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32 Discourse Narrative

BARBARA

0 Introduction

Narrative has been one of the central concerns of linguistics since the mid-twentieth century. It has been the tendency to make the study of language to be described as the study of narrative. In linguistics and it has continued to do with talk.

I begin with a brief context for discourse analysis and most influential work on the linguistic psychological function and on variation in narrative. I begin with a brief context for discourse analysis and most influential work on the linguistic psychological function and on variation in narrative. I begin with a brief context for discourse analysis and most influential work on the linguistic psychological function and on variation in narrative.

1 Structuralist

Two related but somewhat different concepts are known in the West by the name of Propp, whose *Morphology of the Folktale* first translated into English.