

Chapter 2. Background

2.1 Introductory remarks

Embarking upon a linguistic study of synchronous and supersynchronous computer-mediated communication, which problematizes the concepts of speech and writing, one might first, as a background, address a number of questions pertaining to the media. Firstly, what differences between speech and writing have been found in previous linguistic studies? Secondly, how can genres/registers of speech and writing be described quantitatively and qualitatively? Thirdly, how has CMC been approached linguistically before, and fourthly, how is synchronous and supersynchronous conversational writing carried out? The present chapter attempts to answer these questions by, respectively, surveying previous literature on speech and writing (in section 2.2), elaborating on quantitative and qualitative approaches in Biber's and Halliday's frameworks (in sections 2.3 and 2.4), surveying the linguistic literature on CMC (in section 2.5) and describing the media for conversational writing (in section 2.6). The last section (2.7) then sums up the chapter.

2.2 Survey of the literature on speech and writing

Since the turn of the twentieth century, the nature of the relationship between spoken and written language has attracted considerable interest among linguists. Woolbert (1922) was one of the first to bring scholarly attention to the similarities and differences between speech and writing. His 1922 article begins:

Speaking and writing are alike – and different. Just how like and how different has never been adequately stated. (Woolbert 1922: 271)

Woolbert's study presented only a number of very limited general observations (of the type "the voice of the speaker can always reveal more than the page – or else less." 1922: 284), but the study served as an important catalyst, a call for research in the field. Following Woolbert, empirical research into lexical and syntactic-semantic differences between spoken and written English proliferated and is documented in a great number of publications (e.g. Horn 1926, Voelker 1942, Johnson 1944, Bachman-Mann 1944, Fairbanks 1944, Chotlos 1944, Drieman 1962, Horowitz & Berkowitz 1964, Horowitz & Newman 1964, DeVito 1964, 1965, 1966, 1967a, 1967b, Gibson et al. 1966, Gruner et al. 1967, Blankenship 1962, 1974, Poole & Field 1976, Lakoff 1982, Chafe 1982, 1985, Chafe & Danielewicz

1987, Biber 1986a, 1986b, 1988, 1989, 2006, Hughes 1996, Biber et al. 1999). The present section is an attempt at surveying some of the results of these studies, as well as those of other influential writers touching upon the topic. The section presents a non-exhaustive historical outline of the general developments, an outline intended to serve more as a background to Biber's (1988) choice of linguistic features and the further discussions of these, in ensuing chapters, than as a full account.¹² The further discussions may, of course, also refer only to Biber (1988) or even to previous or more recent research not presented in this survey. A vast number of the 67 features studied by Biber (1988), however, were picked out because previous studies had shown them to be apt to differentiate between speech and writing (cf. 1988: 223–245). As Biber's choice of linguistic features to study in the multidimensional methodology is of central concern in the present work, an account of studies that influenced Biber (1988), and through him the present study, is a paramount consideration. Biber's features and methodology will then be explained further in section 2.3.

Some of the earliest studies used word frequency counts as a primary method for distinguishing between speech and writing. Their authors began by investigating spoken and written texts separately without systematically correlating the findings. Horn (1926), for instance, compiled a "basic writing vocabulary" of the "10,000 words most commonly used in writing," while Voelker (1942) listed the 1,000 most frequent words in the "active speaking vocabulary" (1942: 193). Bachman-Mann (1944) and Fairbanks (1944) also studied spoken and written language data respectively, trying to discern differences in patterns of linguistic behavior, in speech and writing, between schizophrenic patients and speakers of "adequate" language (Fairbanks 1944: 19). Although the 1944 studies, as well as that of Chotlos (1944), were not primarily aimed at elucidating the character of spoken and written language per se, the authors made significant contributions to the field of textual variation studies. The studies were part of a program initiated and directed by Johnson (1944), intended to develop reliable and differentiating measures for linguistic pathological diagnosing, and involved the application of several measurements to compute differences in lexical variation – among them type/token ratio (TTR).¹³ Ever since, the TTR measurement has been keenly applied in quantitative studies of spoken and written language and

12 For more comprehensive reviews of the literature, see e.g. Akinnaso (1982), Tottie et al. (1983), Chafe & Tannen (1987) and Atkinson & Biber (1994).

13 TTR was devised by Johnson (1939, 1944) for comparison of spoken and written texts from experimental subjects. It is a measure of the lexical variety, i.e. the vocabulary richness within a text, which expresses the ratio of different words (types) to total words

has mostly been found useful. Its utility for conversational writing texts will be examined in section 4.3 of the present study, as TTR is one of the features used to differentiate among texts in Biber's (1988) methodology.

While the early twentieth-century lexically oriented linguists concentrated on either oral or written language, those interested in the structure of language largely focused on the oral to the exclusion of writing. In the preceding century, scholars had regarded writing as the true form of language. At the end of the nineteenth century this had begun to change; the German brothers Grimm had recorded and studied speech in its own right and, in Britain, Sweet and Jones developed phonetics as a discipline within linguistics. In the US, early twentieth-century structuralists recorded and described the mostly unwritten Native American languages. Influenced by Sapir and Bloomfield, the structuralists tended to treat writing as a purely derivative phenomenon, as "visual speech symbolism" (Sapir 1933: 19) or "not language, but merely a way of recording language by means of visible marks" (Bloomfield 1933: 21). Assuming this derived character of written language, they found no motivation to compare speech and writing. However, after a substantial body of oral linguistic data had been collected and described by the structuralists, American transformationalists guided by Chomsky (e.g. 1964, 1965) came to dismiss naturally occurring spoken language as too random for systematic study. Instead, in the generative-transformationalist paradigm, grammatical intuitions were to be analyzed. The primary data was neat text samples collected by means of verbal elicitation from subjects – samples generally free of performance errors, dialect or register variation, and cues to the situational context of their production. As the data was elicited and not taken from authentic discourse situations, it resembled typical writing more than speech.

All the while, educational psychologists, sociolinguists and discourse analysts found reason to demonstrate the need and validity of studying naturally occurring data from both spoken and written language. Generally accepting the notion that speech holds primacy over writing in children's development, they drew attention to the problems of children's transition to literacy. Bernstein (1964, 1970) propounded that the "restricted code" spoken by working class children and the "elaborated code" of middle-class students partly explained differences in their educational performance. Labov (e.g. 1969, 1972a, 1972b) introduced the study of language in its social setting, addressing the relation of non-standard dialects to

(tokens) in a text; "[i]f in speaking 100 words (tokens) an individual uses 64 different words (types), [his/her] TTR [is] .64" (Johnson 1944: 1).

education and children's reading performance, and devised methods for teachers to bring out the verbal capacities of "ghetto" children (1969). Several others also pointed to the linguistic incompatibility between home and school, e.g. Greenfield (1972) who discussed the under-achievement of lower-class children who speak "oral speech" as opposed to middle-class children who speak "written speech." Reacting to the Chomskyan concepts of linguistic "competence" vs. "performance," Hymes (1972) introduced and defined "communicative competence," which entailed linguistic inquiry beyond the sentence. Alongside Hymes' (e.g. 1964), and Gumperz' (e.g. 1965), anthropological studies of language in context, linguists and communication scholars increasingly included extensive performance data drawn from spoken and written texts in their analyses.

The 1960s saw an outburst of creative research designs in experimental studies of the differences between speech and writing, and a great number of interesting results. Drieman (1962) drew up an assumedly exemplary methodology for the study of textual variation, applying a few general principles for the collection of spoken and written data from subjects for comparison. The data for both protocols (the spoken and the written) was obtained from a restricted number of subjects, each of which was elicited 1) in one and the same sitting, 2) under conditions that were as identical as possible for all sittings and 3) from subjects given identical topics for both protocols. Drieman took care to analyze the texts in their entirety, advising against the chopping of texts in variation studies: "Only the *entire* oral and the *entire* written communication are comparable" (Drieman 1962: 39, original italics). Drieman's subjects were asked to speak and write about pictures, and the results of the quantitative analysis found the written texts to be shorter than the spoken, but to contain longer words, more attributive adjectives and a more varied vocabulary. Horowitz & Newman (1964) also asked their subjects to speak and write about equivalent topics and found spoken language to be more "productive and prolific" (1964: 643), to contain longer stretches of language per unit of time, more repetition and more irrelevant elaboration. Horowitz & Berkowitz (1964) compared three methods of writing (handwriting, typing and stenotyping) to spoken language (obtained in the Horowitz & Newman study). Subjects were given 30 seconds to think about one of two equivalent topics, "What does a good doctor mean to me?" or "What does a good citizen mean to me?" (Horowitz & Berkowitz 1964: 621), and then asked to write, type or stenotype about the topic. Results showed that the faster the writing method, the more spoken-like were expressions, even though none of the written methods proliferated material at the rate of speech. Speaking was found to be "far more elaborative, wordy, and repetitive" than writing (1964: 624) and even though

the stentyped material by various measures approximated speech (followed by typing), all written material remained significantly different from the spoken.

In his 1964 dissertation, DeVito studied undergraduates' comprehension of written and oral technical discourse on identical topics (DeVito 1964). The texts were obtained from ten male faculty members' publications and each faculty member's oral description of his publication. As the faculty members (speech professors) were skilled communicators, DeVito found no significant difference between the students' comprehension of the written and the oral discourse. Nevertheless, the study and several follow-up articles (DeVito 1965, 1966, 1967a, 1967b) revealed a number of significant results regarding the discourse itself. DeVito found the written material to contain more difficult words, more grammatically simple sentences, greater "density of ideas" (1965: 128) and higher TTRs, i.e. a more varied vocabulary. The written texts were also found to be more abstract, containing more nouns and adjectives, but fewer verbs and adverbs, especially fewer finite verbs. The spoken texts displayed more self-reference terms, more pseudo-quantifying terms (e.g. *very*, *most*, *quite*), allness terms (e.g. *none*, *all*, *every*), qualification terms (*if*, *but*, *except*) and terms indicating a consciousness of projection (e.g. *apparently*, *seems*, *appears*).

Gibson et al. (1966) compared undergraduate students' spoken and written texts, employing the TTR measure as well as Flesch's readability formulas (the reading-ease score and the human interest score).¹⁴ In sum, the spoken texts were found to contain a simpler vocabulary and were significantly more readable and more interesting: "The spoken language style tends to be characterized by fewer different words, words with fewer syllables, shorter sentences, and more personal words than the written style" (Gibson et al. 1966: 450). Portnoy (1973) also compared oral and written behavior among college undergraduates, obtaining cloze scores¹⁵ for the collected material and finding users of short words "more comprehensible when speaking" and users of long words "more comprehensible when writing" (1973: 151). In a study similar to that of Gibson et al. (1966), O'Donnell et al. (1967) studied third-, fifth- and seventh-graders' spoken and written texts about two short films, analyzing the results syntactically in terms

14 Flesch reading-ease score (FRE) is calculated by a formula that includes average sentence length and average syllables per word (Flesch 1948, Castello 2008). Flesch human interest score (FHI) is calculated by a formula that includes percentages of "personal words" (e.g. personal pronouns referring to humans) and percentages of "personal sentences" (e.g. exclamations) (Flesch 1948: 229).

15 Cloze score is a measure of readability rating readers' ability to correctly predict words left out in texts (Portnoy 1973).

of T-units (i.e. “minimal terminable units,” defined by Hunt 1964)¹⁶ and transformations. Results showed that the length of the T-unit and sentence-combining transformations¹⁷ increase significantly with advance in grade level. The written texts of children in grades five and seven had more sentence-combining transformations, indicating that writing is structurally more complex at these levels. Among third-graders, the study found slightly greater structural complexity in speech, which was explained by third-graders’ general unfamiliarity with writing.

In the next two decades a vast number of publications on empirical, quantitative and qualitative research into textual variation saw the light of day. Most importantly, the 1970s brought the beginning of a diversification of the field – a shift from dichotomous reasoning (speech vs. writing) towards the gradual identification of textual genres. As early as 1960, Carroll had identified a few lexico-grammatical patterns distinguishing dimensions of “style” among a number of written registers (including e.g. novels, essays, scientific papers and letters) without mentioning the words “genre” or “register” (Carroll 1960). In 1969, Crystal and Davy analyzed situated language use (“styles”) in the discourse of conversation, radio commentary, religion, newspaper reporting and legal documents (Crystal & Davy 1969), and although they made a point of avoiding the term “register,” their discussion of linguistic characteristics of sample texts nevertheless pointed out functional differences among the types of situated language. A few years later, a comprehensive article by Blankenship (1974) served as a guiding light among tentative efforts at staking out registers (also termed “styles”). In an earlier article (1962), she had analyzed oral and written styles; this time she concentrated on six individuals and their six sub-modes of discourse (conversation, oral impromptu, written impromptu, oral extemporaneous, written extemporaneous and manuscript). Blankenship used established measures (sentence and word length, TTR, cloze scores) and studied practically all variables documented in earlier studies (such as those in DeVito’s), but also extended the analytic dimension to include e.g. the extent of qualifications and proportions of adjectives and prepositions. The results were complex, and Blankenship

16 Hunt (1964) defines T-units as “the shortest grammatically terminable units into which a connected discourse can be segmented without leaving any fragments as residue” (1964: 34). As explained by O’Donnell (1974), a T-unit consists of “one independent clause and the dependent clauses (if any) syntactically related to it” (1974: 103).

17 A sentence-combining transformation converts “a pair of sentences into a single sentence by embedding one in the other” (O’Donnell et al. 1967: 35), e.g. combining “The man was poor” and “The man bought an automobile” into “The man who was poor, bought an automobile” (ibid.).

discussed them for each individual subject. Other studies diversified the field by identifying even more variables that distinguish speech and writing. O'Donnell (1974) found writing to be syntactically more complex than speech (with more T-units containing dependent clauses) but also to contain more gerunds, participles, attributive adjectives, passive constructions, modals¹⁸ and perfective auxiliaries, and noted that these lexical features partially account for giving written clauses a greater average length. In the spoken texts, O'Donnell found only nominal dependent clauses, infinitives and progressive auxiliaries to be more frequent than in writing.

Like O'Donnell, Poole & Field (1976) found more adjectives and passives in writing than in speech. The latter also found greater sentence length in written discourse, but more complex syntactic structures in terms of embedding in oral communication.¹⁹ In speech, Poole & Field, like DeVito (1966), found more adverbs and personal pronouns than in writing. Around this time, syntactic and lexico-grammatical studies, like Poole & Field's, increasingly presented results that were concordant with earlier studies, at least for some features. Chafe (1982), for instance, corroborated DeVito's (1966) finding that speech has more first person references, and Chafe & Danielewicz (1987) agreed with earlier studies with regard to greater vocabulary variety in writing (e.g. De Vito 1965, Blankenship 1974). Because of the large volume and slightly repetitive character of findings in the more recent decades, a list of syntactic and lexico-grammatical features might better serve the purpose of summing up the results to date of research into differences between writing and speech (cf. Akinnsaso 1982: 104, Goody 1987: 263–264, Biber 1988: 47, 223–245, Hughes 1996: 33–34, Biber et al. 1999). Below is a non-exhaustive list, which includes some of the studies presented above, but also points to more recent publications. In the literature on the English language, it is generally agreed that the following syntactic and lexico-grammatical differences distinguish writing from speech:

Writing has

- more structurally complex and elaborate constructions, as indicated by features such as longer sentences or T-units and more nominal constructions, e.g. nominalizations (Drieman 1962, DeVito 1964, 1966, 1967a, O'Donnell

18 In later studies, modals are found to be more common in speech than in writing (cf. Coates 1983, Biber 1988, Biber et al. 1999 and section 4.2 of the present study).

19 Poole & Field's (1976) study is at odds with other studies regarding embedding, as subordination generally has been found to be a trait of writing.

et al. 1967, Ochs 1979, Chafe 1982, 1985, Chafe & Danielewicz 1987, Hughes 1996)

- more explicit informational content, with complete idea units and all assumptions and logical relations encoded in the text (Woolbert 1922, DeVito 1966, Olson 1977, Hughes 1996)
- more deliberately organized and planned discourse (Ochs 1979, Akinnaso 1982, Gumperz et al. 1984, Chafe 1985, Hughes 1996)
- more decontextualized, detached and abstract discourse (Blankenship 1974, Olson 1977, Chafe 1982, Chafe & Danielewicz 1987, Baron 2000)
- more subordinate constructions, like relative clauses (O'Donnell 1974, Kroll 1977, Ochs 1979, Chafe 1982, 1985, Hughes 1996)
- more passive-voice constructions (Blankenship 1962, O'Donnell 1974, Ochs 1979, Chafe 1982, Chafe & Danielewicz 1987, Biber 1986a, Biber et al. 1999)
- more gerunds, participles and attributive adjectives (Drieman 1962, DeVito 1966, O'Donnell 1974, Chafe 1982, Biber 1988)
- higher TTR, indicating greater vocabulary variety (Drieman 1962, Horowitz & Newman 1964, De Vito 1965, Gibson et al. 1966, Blankenship 1974, Chafe & Danielewicz 1987, Biber 1988)
- higher lexical density, indicating a higher ratio of content words (Ure 1971, Hughes 1996, Stubbs 1996, Halliday 1985a, 2004)
- longer words (Zipf 1949, Drieman 1962, DeVito 1965, Gibson et al. 1966, Blankenship 1974)
- orthography (e.g. initial capitals) and punctuation that signal syntactic relations, prosody, pauses, illocutionary force (e.g. questions, exclamations) and emphasis (Akinnaso 1982, Chafe 1985, Halliday 1985a)
- fewer contractions (Biber 1986a, 1988, Chafe & Danielewicz 1987)
- fewer demonstrative pronouns and deictic terms (Ochs 1979, Biber 1986a, Chafe & Danielewicz 1987, Biber et al. 1999)
- fewer discourse particles/markers (Biber 1988, Biber et al. 1999)
- fewer first person pronouns (DeVito 1966, Gruner et al. 1967, Chafe 1982, Biber 1988, Wales 1996, Biber et al. 1999)
- fewer imperatives, interrogatives and interjections (Biber et al. 1999)
- fewer modal auxiliary verbs (Coates 1983, Quirk et al. 1985, Biber 1988, Biber et al. 1999, Biber 2004)
- fewer incidences of negation overall, but more synthetic, than analytic, negation (Tottie 1981, 1983b, 1991, Biber 1988, Biber et al. 1999)
- fewer incidences of the causative adverbial subordinator *because* (Beaman 1984, Altenberg 1984, Tottie 1986, Biber 1988)

- fewer or no false starts, repetitions, digressions and other redundancies that characterize informal spontaneous speech (Woolbert 1922, Horowitz & Newman 1964, O'Donnell 1974, Chafe 1982, Biber et al. 1999)

By inference, the above list pertains to writing and speech in a converse way (i.e. the features more frequent in writing are rare in speech; the features rare in writing are more frequent in speech). The list thus presupposes a dichotomous relationship between writing and speech – an opposition. Accounts of this opposition abound in the literature and summaries of the characteristics are cast in lists of the following kind (cf. Horowitz & Samuels 1987: 9, Coleman 1996: 44, Baron 1998: 137, 2000: 21, Crystal 2001: 26–28, Hård af Segerstad 2002: 46):

Writing is	Speech is
endophoric ²⁰	exophoric ²¹
informational	involved
objective	interpersonal
a monolog	a dialog
durable	ephemeral
scannable	only linearly accessible
planned	spontaneous
highly structured	loosely structured
concerned with past and future	concerned with the present
formal	informal
expository	narrative
argument-oriented	event-oriented
decontextualized	contextualized
abstract	concrete

The view of speech and writing as two separate homogeneous entities was common in early linguistic accounts of speech and writing. In the 1970s, as noted above, this ingrained conception was loosened, and in the 1980s it eventually decisively modulated to the notion of linguistic genres. In these decades, influential anthropologists and linguists increasingly concerned themselves with language in

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- 20 Coleman (1996) associates writing with *endophoric* mentality and language, i.e. language constructed for interpretation without reference to extra-linguistic information. “An ‘endophoric’ sentence provides all the necessary information within itself: e.g., ‘William Caxton was the first printer in England’” (Coleman 1996: 43).
- 21 Coleman (1996) associates speech with *exophoric* mentality and language, i.e. language constructed for interpretation with reference to extra-linguistic information. “An ‘exophoric’ sentence can be understood only if one knows the context or situation from which it emerges: e.g., ‘No, I don’t’” (Coleman 1996: 43).

its real-world social context, aided by new technological and computational means and methods for collecting and studying data. In their investigations, they occasionally found a mismatch between forms of speech and writing, and some of the general characteristics ascribed to “speech” and “writing” in the dichotomy. On the one hand, some spoken and written texts are very similar to each other (e.g. public speeches and written exposition). On the other hand, some spoken genres differ significantly from each other (e.g. conversation and public speeches) (Biber 1988: 36). Usage-oriented linguists (e.g. Tannen, Chafe, Danielewicz, Biber) therefore argued that no linguistic or situational characterization of writing and speech holds true for all spoken and written genres. Instead, the linguistic properties of speech and writing vary from context to context, and a considerable overlap obtains between the two media. Speech and writing are not static representations, but rather comprise a multitude of genres with varying degrees of “spokenness” (orality) and “writtenness” (literacy), genres that are scattered in overlap along a continuum. Accordingly, despite its written mode, a note passed to a classmate during class might assume a higher degree of orality (i.e. more of the characteristics of speech) than a formal oration (which might emulate the traits of writing).

In 1982, Tannen edited a volume that brought out the continuum view on a wide front in discourse studies (Tannen 1982a). In one of the papers, Chafe introduced a study set out to compare four “styles of language” (genres) of academics: conversations, lectures, letters and academic prose (Chafe 1982: 36). Chafe identified sets of linguistic features associated with two dimensions of language among the genres: “integration vs. fragmentation” and “detachment vs. involvement.” In 1985, Chafe expounded the dimensions further with illuminating examples from corpus data (Chafe 1985), and in 1987, Chafe and Danielewicz completed the account with quantitative data for each of the genres studied (Chafe & Danielewicz 1987).

Around this time, Douglas Biber wrote a dissertation (Biber 1984) and published a number of articles detailing a study of 41 linguistic features in hundreds of spoken and written text samples (Biber 1985, 1986a, 1986b) that used multivariate statistical techniques to identify dimensions of variation among sampled genres. The studies were the first multifeature multidimensional (MF/MD) approaches to the study of textual variation in both speech and writing (previous studies using multivariate techniques had analyzed only written registers, e.g. Carroll 1960, Marckworth & Baker 1974). Biber’s studies used large-scale corpora; they provided a quantitative methodology unprecedented in the field; and they set the stage for groundbreaking results. In the next two years, Biber extended his empirical research to include the full range of spoken and

written genres identified up to then: the six genres of speech in the London-Lund Corpus (LLC; see Svartvik 1990), the 15 genres of writing in the Lancaster-Oslo/Bergen Corpus (LOB; see Johansson et al. 1978) and two of his own genres of letters (see Appendix I for a list of all genres). Biber explored the syntactic and lexical findings of previous research in the field to list 67 features likely to distinguish among the textual genres and annotated the texts for these features. By analyzing co-occurrence patterns between the features, through multivariate techniques, Biber was able to discover and define six dimensions of variation among the genres. The results were published in his landmark 1988 book entitled *Variation across speech and writing*, a book that bore out the continuum view at its very onset, its title being “Variation *across* speech and writing” instead of “...*between* speech and writing.” As the methodology of Biber’s (1988) study is at the heart of the present study, it is further described in a section of its own, section 2.3.

Following Biber, variationists analyzing speech and writing have abandoned simple dichotomous distinctions that categorize varieties as either formal or informal, abstract or concrete, etc. Rather, genres/registers are seen to differ from each other by being more or less formal, more or less abstract, etc., and/or to vary on several dimensions at once. To distinguish among the full range of genres in a language, a quantitative analysis needs not only to take into account a large number of co-occurring lexical and grammatical features and interpret these in functional terms, but also needs to base conclusions on large, balanced corpora of texts for all genres and define the dimensions of variation among the genres.

To the writer’s knowledge, only one linguist after Biber has taken on the laborious task of carrying out a full MF/MD analysis of the English language, namely Lee (forthcoming) on the British National Corpus, although a few have used a full MF/MD methodology to map out genre variation in other languages, e.g. Besnier in Nukulaelae Tuvaluan, Kim in Korean and Hared in Somali (see Biber 1995 for all three) and Biber et al. (2006) in Spanish. Instead of carrying out new full MF/MD analyses, linguists studying variation in the English language have tended to apply Biber’s established dimensions to come to understand new or historical genres, registers or subregisters relative to the range of spoken and written genres in Biber (1988), e.g. Conrad, who explored variation in academic texts, Atkinson, who studied scientific discourse across history, and Helt, who studied British and American spoken English (see Conrad & Biber 2001a for all three), or relative to the dimensions identified in Biber (1988), e.g. Geisler (2002), who investigated register variation in 19th-century English. However, a few linguists have conducted a new MF/MD analysis to explore a restricted domain of discourse to determine its dimensions of variation, e.g. Kytö (2000), who stud-

ied 17th-century notes of spoken language, and Reppen (2001), who studied elementary students' spoken and written language. Biber himself, and Biber and Finegan, have also applied the MF/MD model to new domains, e.g. Biber (1991) to primary school reading materials and Biber & Finegan (1992, 2001) to historical registers. Biber's own most extensive study of genre variation in English after Biber (1988) is Biber (2003, 2006) in which a new MF/MD analysis was carried out to discover the patterns of variation in university language.

Besides inspiring a host of genre-specific linguistic studies, the awareness of genre differences raised by Biber's studies, and the increasing availability of (online) corpora, have also resulted in authors of grammars taking aspects of both spoken and written production into account. Biber et al.'s (1999) *Longman grammar of spoken and written English*, for instance, provides comprehensive grammatical descriptions of English from four genres (conversations, fiction, newspaper language and academic prose), documenting how grammatical features are distributed across the genres. In the present study, recurrent reference will be made to Biber et al. (1999); section 4.6 of the present study, elaborating on inserts, particularly draws on Biber et al.'s chapter entitled "The grammar of conversation" (1999: 1037ff). Now, from this survey of the literature on speech and writing, we move on to a summary of Biber's (1988) MF/MD methodology.

2.3 Biber's (1988) dimensions of textual variation

To compare conversational writing to speech and writing, the present study utilizes the methodology and results provided in Biber's (1988) book *Variation across speech and writing*. As mentioned, Biber (1988) identified six dimensions, sliding scales, of variation across spoken and written English, and situated a wide range of genres on each of them. His 1988 study presents the positions of the 23 genres on the six dimensions (1988: 128–160). The present study uses Biber's established dimensions and the positions of the spoken and written genres to describe the new genres Internet relay chat and split-window ICQ chat. This section briefly introduces Biber's procedure for identifying the dimensions, outlines the six dimensions of variation and describes how Biber's methodology is employed in the present study.

The first step in Biber's multifeature multidimensional (MF/MD) analysis (henceforth simply MD analysis) was to select a database of spoken and written texts that would represent a broad range of possible communicative functions served in English. Biber decided to study six genres of speech from LLC (comprising 141 texts, totaling 290,000 words), 15 genres of writing from LOB (comprising 324 texts, totaling 654,000 words) and two genres of letters (private and professional, together comprising 16,000 words); see Appendix I for a list of all texts. Next,

Biber identified the set of linguistic features to study, the 67 features expected to have functional associations in the range of genres to be studied. Most of the features had been shown in previous research to distinguish spoken and written texts (cf. section 2.2), others were “potentially important” as they had been associated with certain communicative functions in different texts (1988: 72). The features fell into 16 major grammatical categories (including tense and aspect markers, place and time adverbials, pronouns and pro-verbs, etc.). Table 2.1 lists all the features in their respective categories. Among the studies mentioned in section 2.2 that influenced Biber’s choice of features were Drieman (1962), Horowitz & Newman (1964), Gibson et al. (1966), Blankenship (1974) as for TTR, Zipf (1949) for word length, Blankenship (1962) for past tense verbs and passives, Poole & Field (1976), Chafe & Danielewicz (1987) for personal pronouns, DeVito (1967a), Marckworth & Baker (1974) for nominalizations, Chafe (1982), O’Donnell (1974) for gerunds, participles and attributive adjectives, Coates (1983) for modals, Chafe (1985), Biber (1986a) for contractions, Ochs (1979) for demonstrative pronouns, Beaman (1984), Altenberg (1984) and Tottie (1986) for adverbial subordinators, Schiffrin (1982) for discourse particles, and Tottie (1981, 1983b) for negation; see Biber (1988: 223–245) for a full survey of other studies backing up his selection of features.

Table 2.1: *Linguistic features studied in Biber (1988)*

Tense and aspect markers	Subordination features	Lexical classes
1 past tense verbs	21 THAT verb complements	45 conjuncts
2 perfect aspect verbs	22 THAT adj. complements	46 downtoners
3 present tense verbs	23 WH clauses	47 hedges
	24 infinitives	48 amplifiers
Place and time adverbials	25 present participial clauses	49 emphatics
4 place adverbials	26 past participial clauses	50 discourse particles
5 time adverbials	27 past prt. WHIZ deletions	51 demonstratives
	28 present prt. WHIZ deletions	
Pronouns and pro-verbs	29 THAT relatives: subj. position	Modals
6 first person pronouns	30 THAT relatives: obj. position	52 possibility modals
7 second person pronouns	31 WH relatives: subj. position	53 necessity modals
8 third person pronouns	32 WH relatives: obj. position	54 prediction modals
9 pronoun IT	33 WH relatives: pied pipes	
10 demonstrative pronouns	34 sentence relatives	Specialized verb classes
11 indefinite pronouns	35 adv. subordinator – cause	55 public verbs
12 DO as pro-verb	36 adv. sub. – concession	56 private verbs
	37 adv. sub. – condition	57 vsuasive verbs
Questions	38 adv. sub. – other	58 SEEM/APPEAR
13 direct WH-questions		

	Prep. phrases, adjectives and adverbs	Reduced forms and dispref. structures
Nominal forms	39 prepositional phrases	59 contractions
14 nominalizations	40 attributive adjectives	60 THAT deletion
15 gerunds	41 predicative adjectives	61 stranded prepositions
16 nouns	42 adverbs	62 split infinitives
		63 split auxiliaries
Passives	Lexical specificity	Coordination
17 agentless passives	43 type/token ratio	64 phrasal coordination
18 BY passives	44 word length	65 non-phrasal coordination
Stative forms		Negation
19 BE as main verb		66 synthetic negation
20 existential THERE		67 analytic negation

Biber's selection of a large set of features was motivated by the emerging view that no single linguistic parameter in itself can capture the full range of differences and similarities among spoken and written genres. Rather, studying linguistic variation with a macroscopic approach requires the analysis of numerous features in numerous spoken and written texts. Previous research had begun to suggest that sets of features occur together (co-occur) in systematic ways in different texts (e.g. Ervin-Tripp 1972, Brown & Fraser 1979, Chafe 1982). Chafe's (1982) discussion of "integration vs. fragmentation" and "detachment vs. involvement," for instance, proposed limited but specific sets of co-occurring features, e.g. that integration is marked by features that package information in texts, such as nominalizations, participles, attributive adjectives and sequences of prepositional phrases, whereas fragmentation shows up as idea units (sentences) introduced with coordinating conjunctions, or strung together by pauses instead of connectives. Chafe had analyzed texts functionally in order to identify the sets of related features. Biber reversed this approach; rather than proposing dimensions of variation on an a priori functional basis, he set out to first identify groups of co-occurring features and subsequently interpreted these in functional terms.

Biber developed and used computational tools to identify, tag and count the occurrence of each linguistic feature in the texts. After all the linguistic features had been counted and normalized to occurrences per 1,000 words, Biber used a multivariate statistical technique called factor analysis to determine which features co-occurred with a high frequency in texts. The sets of co-occurring features he

then called dimensions of variation. Table 2.2 summarizes the groups of co-occurring features associated with each dimension (adapted from Biber 1988: 102–103).

Table 2.2: Summary of co-occurring features on each dimension (Biber 1988: 102–103)

Dimension 1		Dimension 3	
private verbs	0.96	WH relatives: object position	0.63
THAT deletion	0.91	WH relatives: pied pipes	0.61
contractions	0.90	WH relatives: subject position	0.45
present tense verbs	0.86	phrasal coordination	0.36
second person pronouns	0.86	nominalizations	0.36
DO as pro-verb	0.82	time adverbials	-0.60
analytic negation	0.78	place adverbials	-0.49
demonstrative pronouns	0.76	adverbs	-0.46
emphatics	0.74		
first person pronouns	0.74		
pronoun IT	0.71	Dimension 4	
BE as main verb	0.71	infinitives	0.76
adverbial subordinator – cause	0.66	prediction modals	0.54
discourse particles	0.66	suasive verbs	0.49
indefinite pronouns	0.62	adv. subordinator –condition	0.47
hedges	0.58	necessity modals	0.46
amplifiers	0.56	split auxiliaries	0.44
sentence relatives	0.55		
direct WH-questions	0.52	Dimension 5	
possibility modals	0.50	conjuncts	0.48
non-phrasal coordination	0.48	agentless passives	0.43
WH clauses	0.47	past participial clauses	0.42
stranded prepositions	0.43	BY passives	0.41
nouns	-0.80	past participial WHIZ deletions	0.40
word length	-0.58	adverbial subordinator –other	0.39
prepositional phrases	-0.54		
type/token ratio	-0.54	Dimension 6	
attributive adjectives	-0.47	THAT verb complements	0.56
		demonstratives	0.55
Dimension 2		THAT relatives object position	0.46
past tense verbs	0.90	THAT adjective complements	0.36
third person pronouns	0.73		
perfect aspect verbs	0.48	Dimension 7	
public verbs	0.43	SEEM/APPEAR	0.35
synthetic negation	0.40		
present participial clauses	0.39		

Having identified the dimensions through factor analysis, Biber proceeded to interpret the factors functionally to determine what situational, social and communicative functions the co-occurring features represent. In doing so, he considered not just the likely reasons for linguistic features co-occurring, but also the reasons for sets of features showing complementary distributional patterns. Two of the dimensions consist of complementary sets of features, positive and negative (Dimensions 1 and 3), meaning that when features in one set co-occur frequently in a text, the features in the other set are markedly less frequent in that text, and vice versa (see table 2.2). The other dimensions consist of sets of features that either co-occur systematically with a high frequency, or are systematically infrequent in texts. The features in table 2.2 all displayed salient loadings in the factor analysis, meaning that they are all representative of the underlying dimensions.²² Their respective weight is indicated as a positive or negative number, but the positive or negative sign does not influence the importance of a loading. Attributive adjectives (-0.47) thus have a larger loading on Dimension 1 than do stranded prepositions (0.43). The positive and negative signs simply group together the features that are in complementary distribution in texts.²³

For example, consider Dimension 1 in table 2.2. The features above the dashed line (“positive”) tend to co-occur in texts so that texts with a high frequency of private verbs (e.g. *believe, know, mean, think*) also are likely to display high frequencies of e.g. subordinator-THAT deletion, contractions and first person pronouns (e.g. *I don't think* \emptyset *I am*), etc. The features below the dashed line (“negative”) also tend to co-occur in texts, so that texts with a high frequency of nouns, for instance, are likely to have frequent prepositional phrases and attributive adjectives, and such texts often contain long words and display a high type/token ratio. In addition, the positive and negative groups tend to occur in complementary distribution, meaning that texts with an abundance of positive features (private verbs, contractions, etc.) usually contain markedly few occurrences

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- 22 Seven features with a weight below 0.35 were dropped from Biber's further analysis (i.e. in his calculation of dimension scores) and, for the sake of simplicity, these are not included in table 2.2. Biber admits to these also being salient, but opts for a conservative cut-off point to ward off an otherwise unwieldy number of features loading on most dimensions. Moreover, to assure the experimental independence of dimensions, features with salient loadings on more than one dimension were included only in the dimension on which they have the highest loading (Biber 1988: 93). For a full account of Biber's factor analysis and dimension score calculations, see Biber (1988: 61–97).
- 23 The weights themselves are not included in the calculation of dimension scores (to be described later in this section as well as in section 3.5).

of the negative features (nouns, prepositional phrases, etc.), and vice versa. On Dimensions 2, 4, 5 and 6, on the other hand, the features simply co-occur in systematic ways, so that on Dimension 2, for instance, past tense verbs tend to be accompanied by e.g. third person pronouns, perfect aspect verbs, etc. in texts, or else these features are markedly infrequent altogether.²⁴

Biber's functional interpretation of the dimensions sought to identify the underlying functional, social and communicative purposes associated with each dimension. His interpretation was based on the assumption that linguistic features co-occur in texts because they reflect shared functions. While the co-occurrence patterns had been derived quantitatively, the functional analysis entailed meticulous qualitative analysis of texts and genres, i.e. the assessment of the communicative functions most widely shared by the sets of co-occurring features, as well as analyses of differences and similarities in the genres and the corpus data. Biber's functional analysis resulted in the following interpretive labels for the six dimensions:²⁵

- Dimension 1: Informational versus Involved Production
- Dimension 2: Narrative versus Non-Narrative Concerns
- Dimension 3: Explicit/Elaborated versus Situation-Dependent Reference
- Dimension 4: Overt Expression of Persuasion/Argumentation
- Dimension 5: Abstract/Impersonal versus Non-Abstract/Non-Impersonal Information
- Dimension 6: On-Line Informational Elaboration

To exemplify, Biber's assessment of the features with negative loadings on Dimension 1 (below the dashed line in table 2.2) yielded the interpretation that these indicate an "informational" focus in texts, i.e. the careful integration of information involving precise lexical choice. Analyzing the co-occurrence patterns of these features in texts, Biber found, for instance, written expository prose to represent such informational production. Sample (1), an excerpt from academic prose, illustrates the co-occurrence of "negative" linguistic features on

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- 24 Biber (1988) identified a seventh dimension, as indicated in table 2.2, but found its factorial structure too weak for functional interpretation and therefore excluded it from further analysis. Most later work by Biber also leaves the sixth dimension out of account (e.g. Biber 1989, 2008). The present study leaves out the seventh dimension, but considers the positions of conversational writing on the sixth dimension, as even tentative results may be worthwhile to explore.
- 25 The labels here reflect denominations in Biber (1988) and minor denominative elaborations provided in subsequent work (e.g. Biber 1995, Biber et al. 1998, Conrad & Biber 2001b). The first dimension has been cast in reversed order in the present study (originally labeled "Involved versus Informational Production" in Biber 1988).

Dimension 1. The sample is illustrative of informational production as it involves dense integration of information: frequent nouns, long words, an abundance of attributive adjectives modifying the nouns (e.g. *physical mobility*, *interdependent social factors*, *extra-familial kin*, *economic resources*, *social mobility*), frequent prepositional phrases and sequences of prepositional phrases (e.g. *of a number of interdependent social factors*).

- (1) Degree of physical mobility is only one of a number of interdependent social factors which act directly or indirectly to influence the size of an individual's kinship universe. These factors are also related to the amount of contact the individual has with his extra-familial kin and to the differentiations he makes among them; the most important are occupation, economic resources, ownership of property and degree of social mobility.

Academic prose LOB J: text 30

By contrast, Biber associated the set of features on the “involved” end of Dimension 1 (above the dashed line in table 2.2) with involved production, i.e. with interactive, more involved content. The function most widely shared by the features is the communication of interactive or affective content, and the features reflect on-line production circumstances. First and second person pronouns, direct WH-questions, emphatics and amplifiers, for instance, reflect interpersonal interaction and the involved communication of personal feelings and concerns. Reduced surface forms (e.g. contractions, subordinator-THAT deletion, stranded prepositions) are also markers of such involved production, as well as, for instance, features associated with more uncertain presentation of information (e.g. DO as pro-verb, demonstrative and indefinite pronouns). Among the genres Biber studied, face-to-face and telephone conversations display high co-occurrence of features with positive loadings on Dimension 1. Sample (2) is typical of involved production, a face-to-face conversation with, for instance, frequent first and second person pronouns, direct WH-questions (including those initiated with *how*) and contractions (e.g. *you're*, *won't*, *aren't*, *you'd*).

- (2) B: come in . come in – ah good morning
A: good morning
B: you're Mrs Finney
A: yes I am
B: how are you – my name's Hart and this is Mr Mortlake
C: how are you
A: how do you do .
B: won't you sit down
A: thank you
B: mm – well you are . proposing . taking on . quite something Mrs Finney aren't you

A: yes I am
B: mm
A: I should like to anyhow
B: you know what you'd be going into
A: yes I do

Face-to-face conversations LLC 3: text 1a

In addition, a sample of informational production like (1), with abundant “negative” features on Dimension 1, typically displays a marked paucity of “positive” features (e.g. no first and second person pronouns, no direct WH-questions, no contractions, etc.). Conversely, a sample of involved production like (2) typically displays a marked paucity of “negative” features (e.g. few nouns, few long words, few prepositional phrases, etc.).

On Dimension 3, the “positive” features are all associated with explicit/elaborated reference, whereas the “negative” features are typical of discourse with abundant situation-dependent reference. On dimensions with only “positive” features, such as Dimensions 2 and 5, the presence of the co-occurring features on one end of the dimension is simply countered by the absence of the same features on the other end; the presence of features on both dimensions marking texts as belonging to the first part of the interpretive label and the absence of features marking texts as belonging to the second part of the label. For Dimensions 4 and 6, however, the presence of the co-occurring features marks texts as belonging to the entire interpretative label, whereas the absence of the features refers texts to an opposite end, as having no overt expression on persuasion/argumentation, or no on-line informational elaboration, respectively.

After all dimensions had been interpreted functionally, the final step in Biber’s (1988) MD analysis was to compute dimension scores for the written and spoken genres studied, to situate the genres relative to each other in linguistic space. Dimension scores were computed by summing, for each text, the frequencies of the co-occurring features. Before summing the features, all frequencies were standardized to a mean of 0.0 and a standard deviation of 1.0. The corpus mean, i.e. mean frequencies for each feature in the full range of written and spoken texts, constituted the zero point for the comparison of all genres, and the standard deviation of the features in the full corpus constituted the unit, 1.0, to be measured. Accordingly, as the corpus mean for e.g. past tense verbs was 40.1, with a standard deviation of 30.4, a text with 113 past tense verbs was given the standardized frequency 2.4 for past tense verbs. That is, if the frequency of past tense verbs in the text is 113, and $40.1 + (30.4x) = 113$, it means that $x = 2.4$, i.e. that the score is 2.4 standard deviations higher than the mean. The standardized frequencies of co-occurring features on each dimension were then summed,

and on Dimensions 1 and 3 the sum of the “negative” features were subtracted from the sum of the “positive” features, in order to obtain a dimension score for each text on each dimension. The standardization procedure ensured the comparability of texts across genres, preventing the features that occur very frequently, in terms of normalized frequencies, from having an inordinate influence on the resulting dimension scores. The average dimension score for all texts in a genre was then taken to be that genre’s dimension score. In the present study, the same procedure of standardization and dimension score calculation will be undertaken for the conversational writing genres and for the SBC subset (section 3.5).

As an example illustrating the calculation procedure, Biber (1988: 94–95) considers the genre “general fiction” on Dimension 2. The dimension score for each text in the genre is calculated by summing the standardized frequencies of the co-occurring features. For one of the texts, LOB K: text 6, the calculation involves the summing the standardized scores 2.4 past tense verbs, 4.2 third person pronouns, 4.1 perfect aspect verbs, 1.5 public verbs, 1.4 instances of synthetic negation and 2.3 present participial clauses (Biber 1988: 94–95). The resulting dimension score for the text is thus 15.9 (as $2.4+4.2+4.1+1.5+1.4+2.3=15.9$). The dimension score for the general fiction genre is then found by computing the average dimension score for all texts in the genre. On Dimension 2, general fiction has one of the highest dimension scores among all genres, positioning the genre well into the narrative end of the dimension, or more correctly: the high dimension score of general fiction reveals that the texts in the genre are produced by authors with narrative concerns. The fiction genres (general fiction, mystery fiction, science fiction, adventure fiction and romantic fiction) all range on the narrative end of the dimension, typically displaying sequential descriptions of past events involving third person animate participants, whereas e.g. official documents and academic prose range well into the non-narrative end of the dimension, similar to each other only in their lack of narrative concerns. On Dimension 2, face-to-face and telephone conversations rank in intermediate positions, the latter being slightly more narrative than the former.

Once the dimension scores had been computed for all genres, Biber was able to plot all genres on each of the six dimensions. The dimension plots, in turn, allowed further linguistic characterization of individual genres, the comparison of genres and more conclusive interpretations of the communicative functions underlying the dimensions. Most importantly, the multiple dimension plots proved that no single dimension of variation is adequate in itself to account for the range of similarities and differences, and that there is no absolute difference

between spoken and written language; rather, spoken and written genres show considerable overlap across all dimensions.

As outlined above, a complete MD analysis, like Biber's (1988), involves eight methodological steps. These can be summarized as follows (cf. Biber 2008: 825–826).

1. Design a corpus based on previous research and analysis. Collect, transcribe and input texts into the computer. (Pre-existing corpora can be used.)
2. Identify linguistic features to include, together with functional associations
3. Develop software for tagging the relevant linguistic features
4. Tag the entire corpus
5. (Develop additional software to) compute frequency counts of all linguistic features
6. Analyze co-occurrence patterns using factor analysis
7. Interpret factors functionally as underlying dimensions of variation
8. Compute dimension scores for texts/genres on each dimension, compare with mean dimension scores for other texts/genres.

There are two different kinds of MD study following Biber (1988): those that have conducted full MD analyses (steps 1–8 above) and those that apply Biber's dimensions to new areas of research. The latter differ methodologically from the former in that they leave out steps 6 and 7, that is, they do not require a separate factor analysis as they use the previously defined dimensions. (Examples of both kinds of study were given in section 2.2.) The present study is of the latter kind, implementing steps 1–5 and 8. It involves the collection and annotation of a corpus of conversational writing, UCOW, and the annotation of a subset of face-to-face conversations from SBC. The texts are annotated for Biber's 65 linguistic features (TR and word length not requiring annotation); feature counts are normalized and standardized; dimension scores are computed for the genres (Internet relay chat, split-window ICQ chat, face-to-face conversations SBC); the genres are positioned on Biber's dimensions and, finally, compared with the dimension scores of Biber's 23 genres.

The present study, however, differs from other MD analyses in that it devotes considerable space to the process of computing frequency counts (step 5 above). As mentioned, the standardization of frequencies involves relating the frequencies of linguistic features to their mean frequencies in Biber's full corpus of spoken and written genres in English. The present study exploits the standard deviations of features in Biber's full corpus to investigate and find out what features in the conversational writing corpus deviate by more than two standard deviations ($|s.d.| > 2.0$) from Biber's full corpus. Such features are particularly frequent,

or infrequent, in conversational writing as compared to speech and writing in general, and can be seen to epitomize the linguistic character of conversational writing in a statistically interesting way. These salient features of conversational writing, explored in chapter 4, are sought among all of Biber's 67 features (cf. table 2.1 above) and not just among those to be included in the dimension score calculation (cf. table 2.2). Before computing the dimension scores, the present study also considers other salient features of conversational writing, those studied in previous accounts of CMC discourse (e.g. modal auxiliaries, paralinguistic features, emoticons and abbreviations) as well as previously understudied aspects of conversational writing, such as its lexical density and inserts (all in chapter 4). This is done in order to bring into view the full range of conspicuous traits in conversational writing before the account zooms in on the features co-occurring on Biber's dimensions (cf. table 2.2). The dimension scores of the genres of conversational writing are then presented and discussed in chapter 5.

The present section has outlined how Biber's and others' multidimensional studies set out from quantitative analyses of co-occurrence patterns among linguistic features, and arrive at functional, qualitative interpretations of underlying dimensions of variation. Yet, some researchers claim that these and previous studies with a quantitative orientation fail to adequately address the important differences between speech and writing. The next section explores some essentially non-quantitative approaches to linguistic variation, of which some, particularly those of M. A. K. Halliday involving social semiotics and functional grammar, will be brought into the present study to complement the MD approach in order to ensure an all-round assessment of conversational writing.

2.4 Halliday's and others' essentially qualitative approaches

Whereas Biber's approach to textual variation is quantitative at its outset, but also applies qualitative, functional interpretation of results, Halliday's approach to textual variation (1985a, 1987) is essentially non-quantitative, except with regard to the calculation of lexical density (explained shortly). Several other linguists in the past few decades have also opted for non-quantitative methods for analyzing speech and writing. Early non-quantitative studies include those of Lakoff (1982) on the mingling of speech in writing and writing in speech, Tannen (1982b) on what oral and literate strategies grow out of communicative goals and context in oral and written narratives, and Tannen (1985) on how differences between speech and writing can be accounted for in terms of their relative focus on either involvement or information, properties listed among those in the dichotomous list in section 2.2. Several other properties of speech and writing listed in the dichotomy in

section 2.2 also stem from qualitative interpretation of early syntactico-semantic findings. A substantial number of qualitative studies of speech and writing have been carried out within the field of discourse analysis (see e.g. Schiffrin 1994, Schiffrin et al. 2001) and, as will be explored below, within social semiotics (e.g. Halliday 1978, Halliday & Hasan 1989, Hodge & Kress 1988) and systemic-functional linguistics, a.k.a. functional grammar (e.g. Halliday & Hasan 1989, Martin 1992, 2001a, 2001b, Halliday 2004). The approaches of Halliday and other functional linguists are applied in parts of the present study, as they enable, for instance, the informed analysis of cohesion and lexical density, as well as the qualitative identification of registers via a set of linguistic metafunctions. The present section serves to introduce the utility and the basic concepts of the Hallidayan functional linguistic approaches.

Critical of earlier quantitative studies' focus on taxonomic differentiations, Akinnaso (1982) proposed the study of spoken and written texts from the viewpoint of thematic cohesion. Cohesion was introduced by Halliday & Hasan (1976) as one of the two text-forming components of the linguistic system, making text cohere within itself and with the context of situation (the other one being intonation). Cohesive resources in language are, for instance, reference, substitution, ellipsis, conjunction and lexical cohesion (e.g. repetition of lexical items). Halliday & Hasan (1976: 23) called the relationship between a cohesive item and the item it refers to a cohesive tie and found that the patterns of cohesive ties "effectively define a text":

The concept of COHESION can therefore be usefully supplemented by that of REGISTER, since the two together effectively define a TEXT. A text is a passage of discourse which is coherent in these two regards: it is coherent with respect to the context of situation, and therefore consistent in register; and it is coherent with respect to itself, and therefore cohesive. (Halliday & Hasan 1976: 23, original emphasis)

Halliday & Hasan's work suggested that by investigating the patterns of cohesive ties it is possible to detect underlying differences between speech and writing. Cohesion is part of the "text-forming component in the linguistic system" (Halliday & Hasan 1976: 27), which Halliday later came to call the textual metafunction (explained shortly). Gumperz et al. (e.g. 1984) pursued the study of cohesion and found, among other things, that cohesion in spoken discourse is accomplished through paralinguistic and prosodic cues, whereas in written discourse cohesion must be lexicalized. Cohesion is further explored in section 4.5 of the present study, in the discussion of paralinguistic features in chat.

In several publications (1979, 1985a, 1987), Halliday elaborated on the cohesive, paralinguistic and prosodic devices available in speech and challenged

the prevailing view of writing as being structurally more complex than speech. Above all, his discussion of lexical density challenged how variationists view and measure complexity in speech and writing.²⁶ Halliday found that spoken language is characterized by complex sentence structures with low lexical density (i.e. more clauses, but fewer lexical words per clause), whereas written language has simple sentence structures with high lexical density (i.e. more lexical words per clause, but fewer clauses). His conclusions were not drawn from systematic large-scale quantitative investigation of spoken and written texts, but from isolated examples. Nevertheless, his assertions have been validated, at least partially, in several other studies (e.g. Beaman 1984, Yates 1993, Stubbs 1996). One of Halliday's major contributions to the study of variation in speech and writing was the concomitant finding of greater grammatical intricacy in spoken language, for whereas writing is lexically dense, speech is lexically sparse – and therefore grammatically dense, or grammatically “intricate”:

The complexity of the written language is static and dense. That of the spoken language is dynamic and intricate. [In spoken language,] [g]rammatical intricacy takes the place of lexical density. (Halliday 1985a: 87)

Halliday's measurement of lexical density will be applied to the conversational writing texts in section 4.3 of the present study, and discussed at length there.

In developing his functional grammar, Halliday sought to understand the variety of language usages. Functional grammar is essentially an oral grammar that Halliday suggests ultimately contributes to the understanding of written communication. It covers far too many aspects to be summarized here (see Halliday 1985b, 2004, Martin 1992), but three of its underlying concepts, the “metafunctions,” are central to the present investigation, as they enable the qualitative distinction of registers, and therefore deserve mention. According to Halliday, “[l]anguage is as it is because of what it has to do” (1978: 19), that is “because of the functions in which it has evolved in the human species” (2004: 31). Language has at least three metafunctions:²⁷ 1) “ideational,” i.e. it can represent ideas

26 The lexical density of a text is the proportion of lexical items (content words) to the total discourse (Halliday 1985a, 1987).

27 Halliday uses the term “metafunctions” to set the concepts apart from “functions” as “there is a long tradition of talking about the functions of language in contexts where “function” simply means purpose or way of using language, and has no significance for the analysis of language itself” (Halliday 2004: 31). Metafunctions are “intrinsic to language: that is to say, the entire architecture of language is arranged along functional lines” and the term “metafunction” was adopted in systemic-functional theory “to suggest that function was an integral component within the overall theory” (ibid.).

and relationships of meaning, 2) “interpersonal,” i.e. it serves as a medium of exchange between people, enacting social relationships, and 3) “textual,” i.e. it functions to structure, organize and hold itself together.

Halliday describes language as social semiotic.²⁸ The metafunctions are components of the semantic system in language, “the modes of meaning that are present in every use of language in every social context” (1978: 112). Any given text is thus a product of all three metafunctions. Social semiotics provides a sociological view of semantics, an interface between the social system and the linguistic system. The social context in which a text comes to life is a not just a situation, it is a situation type. The semiotic structure of a situation type can be represented as a complex of three elements: the “field,” i.e. the social action in which the text is embedded, the “tenor,” i.e. the role relationships between the participants and the “mode,” i.e. the channel selected for the communication (including the medium, spoken or written). The three elements together form a conceptual framework for describing the semiotic environment in which people exchange meanings. Detailed specification of the context in terms of its semiotic field, tenor and mode can enable the prediction of a register, that is, the meaning potential typically associated with a given situation type. In his work, Halliday elucidates the systematic correspondence between the semiotic structure of the situation type (the situational elements field, tenor and mode) and the metafunctions. Each metafunction is determined or activated by a particular aspect of the situation; the ideational is activated by features of the field, the interpersonal by features of the tenor and the textual by features of the mode. Table 2.3 outlines the systematic correspondence between the metafunctions and the semiotic structures.

The field, tenor and mode together determine the functional variety, i.e. the register, of the language being used (cf. section 1.4). Language varies with the functions it is being made to serve: what people are doing while speaking or writing, who they are (in terms of statuses and roles) and what exactly the language is being used to achieve (Halliday 1985a). These three variables (what is

28 Semiotics, or “semiology,” was defined by Saussure as a “science that studies the life of signs within society” (Saussure 1966: 16). Social semiotics, a branch of semiotics, is the study of signs and messages in their social and cultural context. Halliday (1978) introduced social semiotics into linguistics to enable the exploration of language as a system of meaning-potential on a higher level than in the tristratal system of semantics, grammar and phonology – a general semiotic level. Each of the three systems (semantics, grammar and phonology) is a system of potential, but constitutes only the realization of a higher-level system, which Halliday defines as “a behavioural system or more generally as a social semiotic” (1978: 39).

going on, who are taking part, and what role the language is playing) respectively indicate what Halliday refers to as field, tenor and mode, and for ease of interpretation they too are inserted into table 2.3, a summary point of reference for the functional analyses in chapters 4 through 6.

Table 2.3: Halliday's three metafunctions in language and related concepts

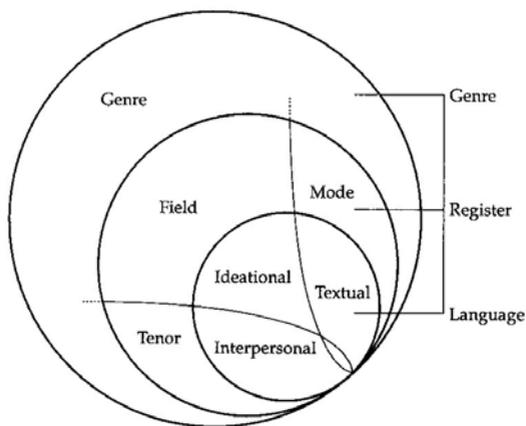
metafunction	semiotic	indicates...	clause as...
ideational	field	what is going on	representation
interpersonal	tenor	who are taking part	exchange
textual	mode	what role the language is playing	message

Halliday's notion of discourse (language) is "the exchange of meaning in interpersonal contexts of one kind of another" (1978: 2). Maintaining that language does not consist of sentences, but rather of text, or discourse, he proceeds to analyze discourse on the clausal level, seeing the clause as "the most significant grammatical unit" (1985b: 101) for representing meaning. Halliday distinguishes three lines of meaning in the clause, i.e. the clause is the product of three simultaneous semantic processes: it functions simultaneously as a representation (in the ideational metafunction), an exchange (in the interpersonal metafunction) and a message (in the textual metafunction) (1985b, 2004). The three metafunctional lines of meaning are realized grammatically in the clause as, for instance, transitivity (in the ideational line), mood and residue (in the interpersonal line) and cohesion (in the textual line). How some of these metafunctional lines may be discerned within the structure of texts will be shown in connection with examples in the present study, when it comes to the functional interpretation of computer-mediated texts. Table 2.3 summarizes the concepts to be brought into consideration. Chapter 4, for instance, discusses several of the lexico-grammatical carriers of meaning, e.g. modality and personal pronouns, which realize interpersonal aspects of the communication. Although only the basic concepts of Halliday's functional grammar are employed in the study, the theoretical framework is believed to provide elucidating clues to the nature of conversational writing as a genre (or register, in Halliday's terms). In the discussion of prevalent linguistic features found in the computer-mediated discourse, the present study will also consult other social semiotic studies (e.g. Fowler & Kress 1979, Hodge & Kress 1988) that provide insights with regard to the parameters and relationships involved in the communication.

Building upon, and complementing, Halliday's and Hasan's work in systemic-functional linguistics, Martin (2001a, 2001b) models language and its connotative semiotics using co-tangential circles; see figure 2.1. The figure visualizes

the stratified model of context in systemic-functional interpretations, in which language is seen to function as “the phonology register, and both register and language function as the phonology of genre” (Martin 2001b: 156). To fully interpret the meaning of a text (language), we take all aspects of context into account, contexts both of situation (register) and of culture (genre). Register is thus “a pattern of linguistic choices, and genre a pattern of register choices” (Martin 2001a: 46).

Figure 2.1: *Metafunctions in relation to register and genre in semiotics (adapted from Martin 2001a: 46).*²⁹



As mentioned in section 1.4, the systemic-functional notion of genre will not be expanded upon in the present study, but the notion of register (field, tenor, mode) and its instantiation as language (the field, tenor and mode phased together in a text) will be touched upon. The present section serves as a background to these considerations, but Halliday’s and others’ semiotic approaches will also be further explained and discussed in connection with relevant textual examples, in chapters 4 and 5.

Having surveyed the previous literature on speech and writing (in section 2.2) and elaborated on quantitative and qualitative approaches in Biber’s and Halliday’s frameworks (in sections 2.3 and 2.4, respectively), the present chapter now turns to an account of linguistic approaches to computer-mediated discourse – a survey of the linguistic literature on computer-mediated communication.

29 Permission to use the figure was obtained from the author and the publisher.

2.5 Survey of the literature on CMC

A chronological survey of linguistic research into CMC presupposes the reader's basic conversance with the development of CMC, particularly with regard to the emergence and current relevance of various modes for the communication. Such a survey therefore necessitates an initial brief description of Internet history, preferably non-technical, upon which the survey of linguistic literature on CMC might follow and make greater sense. Accordingly, this section begins with a non-technical account of the basic background concepts, before homing in on the linguistic studies.

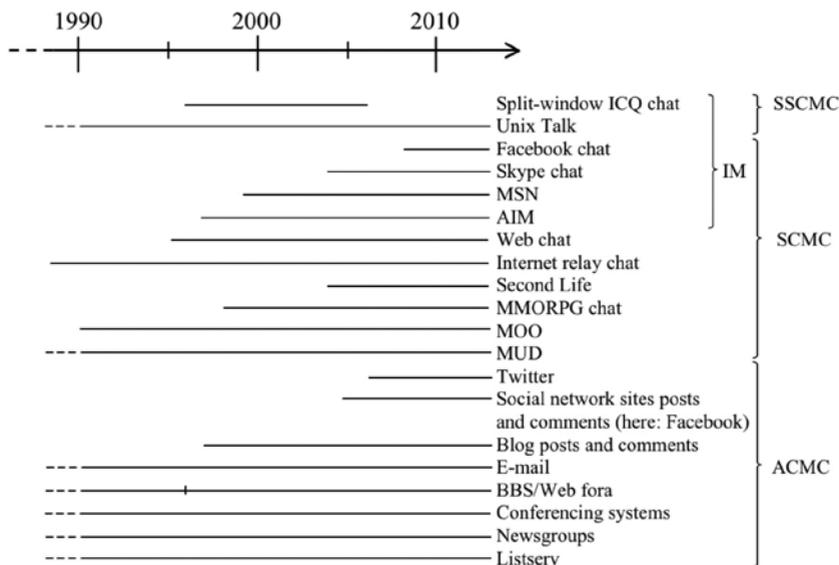
Contrary to popular belief, the advent of human computer-mediated communication dates back to a time before the Internet. CMC originated in the late 1960s when ARPANET officials (in the Advanced Research Projects Agency Network, funded by the US Department of Defense) first managed to enable communication between computers in geographically separate areas. The first CMC message was sent in 1969, comprising three letters ("LOG" between UCLA and Stanford University; see Gromov 1995), and the first e-mail was transmitted in 1972 (Hafner & Lyon 1996). Experimental at first, computer networks remained a means for limited interpersonal communication primarily among computer scientists in the 1970s, who transferred e-mail and, curiously, invented text-based multi-user adventure games, MUDs,³⁰ as early as 1979. The late 1970s also saw the first dial-up BBS, bulletin board system, for storing and sharing data, bulletins and messages. In the 1980s, much scientific effort was invested into developing functional tools for CMC. A few modes, like Unix Talk and VAX Phone, predominantly remained tools for communication among computer professionals (Schulze 1999). Other modes, such as e-mail, early computer conferencing systems (besides BBS), newsgroups and listservs, soon caught on among academic and business users, mostly in American elite universities and organizations (Herring 2001, Baron 2008). The latter development followed upon the ARPANET turning into the Internet in the early 1980s and alongside the development of client-server protocols.

Internet relay chat was invented by Jarkko Oikarinen, a Finnish undergraduate, in 1988, enabling synchronous social communication, one-to-many, outside of game-play (MUD/MOO). In the 1990s, with the rise of commercial Internet service providers, the Internet was rapidly popularized among the general public, and an unprecedented kind of textual mass communication evolved, facilitated by the development of the World Wide Web and a gradual increase in the versatility

30 For a brief explanation of modes and abbreviations, see footnote to figure 1.1 (chapter 1).

of transmissible information formats. For a graphic summary of approximate dates for the emergence of Internet-wide CMC modes, see figure 2.2. In 1996, web fora began to supplant BBSs, although other conferencing systems persisted, and in 1997, web logs (blogs) appeared. The emergence of web chat eludes definition as to a specific year, but, like web fora and blogs, it evolved after the popular introduction of web browsers in the mid 1990s. Unlike web fora (which replaced BBSs), however, web chats did not replace Internet relay chat; rather, IRC persists to this day. The 1990s, nonetheless, saw the emergence of several stand-alone modes for conversational writing, among them the first commercial instant messaging (IM) applications AIM and MSN, as well as ICQ, and the development of MMORPGs incorporating chat.³¹ In the first decade of the third millennium, several major text-based CMC modes appeared, including the IM application Skype chat and the virtual world Second Life (both for SCMC), and the microblogging service Twitter (for ACMC). From 2006, new ICQ versions no longer included the split-window option (which had enabled SSCMC) and ICQ became mainstream IM software (SCMC).

Figure 2.2: Approximate emergence of modes for written CMC.



31 “Stand-alone” means that the mode is accessed in a separate piece of software, in this case outside of the web browser.

Finally, the most penetrating modes for CMC in the past decade have been those in social network sites such as My Space, emerging in 2003, and Facebook, from 2004, involving APMC in posts and comments, as well as SCMC, as in Facebook chat, launched in 2008, and those for media sharing, e.g. YouTube, launched in 2005, involving limited written APMC. Today, the Internet is a communication channel for more than three billion connected users (De Argaez 2015), instantly sharing messages, images, audio content, documents, videoclips, software and any other conceivable computer-retrievable information, nearly half of which are users of Facebook (Protalinski 2015), and although Sinophone Internet users are beginning to outnumber Anglophone, English remains the dominant language in, for instance, web site content (De Argaez 2015, W3Techs 2015).

With the obvious exception of Internet telephony and video telephony, linguistic communication over the Internet, to this day, is largely written (cf. Herring 2011b). A few text-based modes have superseded others, just as web fora supplanted BBSs, and some have grown larger than others, e.g. Facebook chat overtaking Internet relay chat by far, in number of users, but the incentive for human communication remains the same – emerging CMC modes simply facilitate our synchronous and asynchronous textual transactions in ever-reconfigured ways. The modes investigated in the present study may seem slightly dated, but really represent conversational writing equally well as would more recently emerged real-time chat modes. Leading CMC scholar Susan Herring, widely recognized as the founder of the field of CMC discourse studies, proposes in Herring (2004b: 33) that “[d]espite the availability of increasingly sophisticated multimedia protocols, CMC remains predominantly grounded in ‘old’ textual practices,” even when different protocols are united in one browser-accessible format. In line with this view, Herring (2013a) cautions communication scholars against mistaking reconfigured phenomena for new forms of computer-mediated discourse. Some recently emerged modes may appear different on the surface, but really have “traceable online antecedents” (2013a: 10). Herring goes on to exemplify how Facebook status update utterances show syntactic, semantic and pragmatic similarities to messages in IRC, MUDs and MOOs (as presented in Werry 1996, Cherny 1994, 1999) and how retweeting (re-posting a message on Twitter) is a modern form of the older practice in textual CMC of “quoting” in asynchronous messages (as shown by Severinson Eklundh 2010). In a different publication, Herring (2013c) discusses the grammar of electronic communications, exemplifying richly from several modes of text-based CMC

as well as SMS.³² Although she claims that “e-grammar” varies across modes, her account of English CMC typography, orthography, morphology and syntax shows considerable similarities across early and more recent modes, suggesting that many early e-grammar innovations have carried over from mode to mode, e.g. from chat to SMSs (e.g. nonstandard typography, such as smileys and the occasional substitution of words or part of words with numbers or letters to save keystrokes).

Another trace of an online antecedent is observed in Herring (2013b: 250), in which it is mentioned that the IRC protocol basically was “borrowed” to create applications such as AIM, web chat and MMORPG chat. It is thus reasonable to deduce that the two modes investigated in the present study, IRC and split-window ICQ chat, recorded in 2002 and 2004 respectively, represent conversational writing equally well as would any IM application, for instance Facebook chat. IM applications particularly share an important situational variable with ICQ, in that they predominantly involve private chat between individuals acquainted in their offline lives. In fact, ICQ is an instant messaging program; its distinct position in the present study is motivated only by its supersynchronicity variable, the only medium variable it did not share with other IM software in the course of ICQ’s decade-long featuring of split-window chat. As if to further endorse the continued relevance of the modes investigated in the present study, there is a passage in Herring (2013a) maintaining that:³³

There is a need to trace relevant antecedents to gain perspective where familiar online discourse phenomena are concerned, in order to do conscientious research. This, in turn, requires some familiarity with earlier CMDA research. Alternatively, familiar phenomena may simply be passed over by researchers in favor of newer, more ‘exotic’ CMD phenomena. (Herring 2013a: 10)

Furthermore, in a commentary to Thurlow & Mroczek’s (2011) co-edited volume on “Digital Discourse,” in which several contributors tend to be dismissive of past research to justify their own approach, Herring (2011a) admonishes that:

32 Herring (2013c) includes SMS among CMC modes.

33 CMDA means computer-mediated discourse analysis and CMD, accordingly, computer-mediated discourse.

Critique is valuable, but in a young field such as computer-mediated discourse studies, which has yet to achieve a widely recognized critical mass, it should build upon, rather than seek to replace, what has already been done. (Herring 2011a: 345)

With Herring's admonishments in mind, this section now turns to a survey of some of the influential publications in the young field of computer-mediated discourse studies.

The scholarly study of the linguistic nature of CMC began in the 1980s, when some scholars became exposed to the first interactive modes. Five noticeable publications on early CMC discourse appeared, the first four on English: Baron (1984), speculating on the effects CMC may have on language change; Murray (1985, 1988), describing CMC discourse in e-mail and a messaging system at IBM; Spitzer (1986), focusing on writing styles in computer conferences; and Severinson Eklundh (1986), detailing a study of letters in the Swedish COM conferencing system. In the early 1990s, language scholars were increasingly exposed to, and intrigued by, the discourse in the emergent media. As early as 1991, Reid, although not a linguist, discussed the deconstruction of social boundaries and the construction of alternative communities in IRC, presenting the social discourse of the mode (Reid 1991). Also in 1991, Ferrara et al. (1991) took on synchronous "interactive written discourse" as an emergent register, finding structural properties similar to e.g. note-taking in the discourse, such as the omission of unstressed pronouns, articles and finite forms of the copula, as well as the shortening of words through abbreviations. Two noticeable publications on text-based virtual reality discourse also appeared in the early 1990s: Reid (1994) on MUDs as sites for social interaction and cultural formation, and Cherny (1994) on discernible gender differences in MOO.

Focusing on ACMC, Yates (1993, 1996) presented a comprehensive study of a large computer conferencing corpus collected from the CoSy system at the Open University, UK. Yates compared his corpus with LLC and LOB, applying Halliday's model of semiotics in the analysis of the ACMC data. His results showed, for instance, that the "field" of the interaction is the text itself and that such a context-free field might be a reason for high levels of modality. In the ACMC discourse, he found a significantly higher use of modal auxiliaries in ACMC than in either speech or writing. Yates (1996) explains the high levels of modality thus:

Not only must the text carry the social situation, it must also carry the participants' relationship to the situation, their perception of the relationships between the knowledge and objects under discussion. (Yates 1996: 46)

Yates argues that the lean semiotic field also has implications for the semiotic “tenor” of the communication, the interpersonal metafunction, as the presentation of self is limited to the CMC text itself; high levels of first and second person pronouns in the ACMC discourse simply result from users’ recurring presentations of themselves. The “[semiotic] mode” of the ACMC, finally, he describes as “neither simply speech-like nor simply written-like” (1996: 46, as mentioned in section 1.1). Yates approaches the textual aspects of ACMC by considering the TTR of the texts, as well as Halliday’s measurement of lexical density, concluding that although ACMC “bears similarities in its textual aspects (e.g., type/token ratio and lexical density) to written discourse, it differs greatly in others, namely pronoun and modal auxiliary use” (1996: 46). In his 1993 full account of the study, Yates explains that he counted the frequencies of ten of Biber’s (1988) features, e.g. pronouns, TTR and modals, but that the study of these was essentially driven by theoretical interest and claims. His application of Biber’s methodology is limited; one result merely draws upon the high first and second person pronoun use and a low third person pronoun use in ACMC, which Yates suggests indicates “that [A]CMC is a subjectively involved and non-narrative form of communication” (1993: 118). The study does not position the ACMC genre on Biber’s dimensions.

As touched upon in section 1.5, Yates’ study serves as an important catalyst to the project described in the present study. The present work partly attempts to parallel Yates’, although with regard to SCMC and SSCMC. It is inspired by Yates’ application of the Hallidayan model of semiotics and Biber’s multi-feature approach, but reverses the significance attributed to these in Yates’ study; in the present study, the full extent of Biber’s (1988) MD methodology, i.e. all 67 features, are considered and the genres positioned on Biber’s dimensions, whereas a more limited Hallidayan semiotic analysis is conducted. Moreover, the layout of chapter 4 here is partly conditioned by adherence to Yates’ findings with regard to the Hallidayan concepts of field, tenor and mode, enabling comparability with Yates’ study. That is to say, after some introductory remarks, chapter 4 opens with a discussion of modal auxiliary use in conversational writing (ideational) and proceeds with an account of personal pronoun use (interpersonal). Next, chapter 4 discusses word length, TTR and lexical density, all in order to explore the textual aspects of the communication, before zooming in on the most salient features of conversational writing.

Another study germane to the present study is the one presented in Collot (1991) and Collot & Belmore (1996). Collot’s (1991) is the only investigation, to the

present author's knowledge, to have positioned a genre of CMC on all of Biber's (1988) dimensions, in Collot's case asynchronous BBS communication. Collot collected and annotated an ACMC "electronic language" corpus with two components, texts composed online and those composed offline, and positioned the two components (genres) on the dimensions. The results of Collot's feature counts are valuable points of reference for the comparison of SCMC and SSCMC to ACMC. The present study uses the online component of Collot's corpus, essentially equivalent to e-mail communication, to represent ACMC in the presentation of feature count data in chapter 4. That is, in the treatment of salient features in conversational writing, graphs in chapter 4 indicate average figures for SCMC and SSCMC as well as for ACMC (Collot's online corpus), writing (Biber's written genres) and speech (Biber's spoken genres + the part of SBC annotated for the present study). Collot's corpus will be further described and exemplified in chapter 4, and the position of its online component briefly commented upon in section 5.1 and discussed in chapter 6. Collot's (1991) feature count data were chosen over Yates' (1993) to represent ACMC in the present study, simply because the former cover a greater range of features. In the discussion of lexical density, however, Yates' figure will be adduced (part of section 4.3), as Collot (1991) did not study the lexical density of her texts.

Yates' and Collot's studies were both presented as chapters in Susan Herring's (1996a) book *Computer-mediated communication: Linguistic, social and cross-cultural perspectives* (Yates 1996, Collot & Belmore 1996), a ground-breaking collection of essays that helped to stake out the direction of CMC research in at least two disciplines, linguistics and sociology. With methodological discussions and empirical results, the book combined perspectives on several issues and laid the groundwork for the linguistic inquiry into CMC. Noticing how linguists generally had "been slow to consider computer-mediated language a legitimate object of inquiry" (1996a: 3), Herring set out to promote exemplary linguistic studies in her book, to motivate further research. Out of Herring's (1996a) five chapters with linguistic perspectives, four have a bearing upon the present study; besides Yates' (1996) and Collot & Belmore's (1996), also Werry's (1996) on the discursive properties of IRC, commented upon in section 4.5 on paralinguistic features, and *passim*, and Herring's (1996b) on gender differences in listserv messages, which is relevant to a brief discussion of gender differences in ICQ emotives usage (emoticons and sentiment initialisms) in section 4.6.

Herring's (1996a) call for research had the desired effect; linguistic CMC research gained impetus towards the end of the 1990s and has continued to

evolve alongside the emergence of new, and reconfigured, CMC modes. Not least, a number of significant studies have been published in the scholarly journals *Journal of Computer-Mediated Communication* (est. 1995) and *Language@Internet* (est. 2004), of which Herring has been editor-in-chief for several years, and a few “handbooks” for studies of online language have appeared, e.g. Crystal (2001, 2011a), Baron (2008) and Herring et al. (2013). Nevertheless, while some aspects, such as innovative orthography and neologisms, have been diligently explored (e.g. by Jonsson 1998, Schulze 1999, Crystal 2001, 2004a, Baron 2008, Waldner 2009, Rowe 2011), other aspects are largely understudied, leading many scholars to concur that the field of CMC discourse studies is still in its infancy. The remainder of this section divides the survey of linguistic CMC studies into three domains: studies involving ACMC; those investigating SCMC, briefly elaborating on two conversational writing analyses relevant to the present study; and finally, studies of SSCMC.

Studies of ACMC discourse have covered various aspects of most asynchronous modes; representative publications include Baym (1996) and Severinson Eklundh (2010) on newsgroups, Davis & Brewer (1997) on computer conferencing, LeBlanc (2005) and Biber & Conrad (2009: 190–198) on web fora, Baron (1998, 2000), Zitzen (2004), Anglemark (2009), Cho (2010), Georgakopoulou (2004, 2011b) and Rowe (2011) on e-mail, Nilsson (2003), Scoble & Israel (2006), Anglemark (2009) and Peterson (2011) on blogs, Lee (2011) on Facebook status updates, and Petrović et al. (2010) and Pak & Paroubek (2010) on Twitter. Related to the ACMC discourse field is the study of text messaging, SMS, still sparingly explored by linguists, even though significant contributions are made in Hård af Segerstad (2002), Ling (2005) and Ling & Baron (2007, 2013).

When it comes to SCMC, the “older” modes MUD/MOO and IRC, as yet, have received more attention than the “newer” (cf. figure 2.2). Language use in the text-based MUDs/MOOs has been studied from various perspectives by e.g. Turkle (1995), Cherny (1994, 1999) and Herring (2013b), whereas chats in graphic virtual worlds have been less explored, although see e.g. Örnberg (2003) on “linguistic presence” in three virtual worlds (On-live Traveler, ActiveWorlds, Anarchy Online), Herring et al. (2009) on the chat in an online first-person shooter game, and Newon (2011) on chat in the MMORPG World of Warcraft, for exceptions. Similarly, the “older” mode IRC has received more scholarly attention than “newer” IM modes. After Reid (1991) and Werry (1996), mentioned above, linguistic studies of IRC and other synchronous IRC-like online chat include Ko (1994, 1996), Jonsson (1998), Schulze (1999), Mar (2000),

Ooi (2002), Freiermuth (2003), Lin (2007), Forsyth (2007), Forsyth & Martell (2007), Waldner (2009) and Herring (2013b). By contrast, studies of IM have a shorter history; empirical milestones include Hård af Segerstad's (2002) study of a Swedish university IM system called WebWho, Baron's (2004, 2010) partly gender-differentiated studies of AIM conversations among college-age students, Squires' (2007) investigation of gendered use of apostrophes in AIM (females used more) and Tagliamonte & Denis' (2006, 2008) comprehensive study of IM among Canadian teens – of which all, except Hård af Segerstad's, are on English. Most of the IRC and IM studies mentioned will be referred to and/or explained *passim* in the present study, that is, they will be brought in whenever relevant to discussions of data and results. Two of the studies, however, deserve to be introduced here as they pertain to the methodology of the present study: Ko (1994, 1996) and Freiermuth (2003), both corpus-based analyses of computer chat.

Ko (1994) compiled a minimal 2,000 word corpus of synchronous classroom chat between students (from a Daedalus InterChange system) and annotated the text for 28 of Biber's (1988) features, those co-occurring on Dimension 1 (see table 2.2). Ko compared the feature counts from his chat corpus with Biber's counts for face-to-face and telephone conversations from LLC (to represent speech), and academic prose and official documents from LOB (to represent writing), but instead of computing a dimension score for the classroom chat corpus, he divided the features into three distributional patterns. Into the first pattern fell features with frequencies intermediate between the frequencies of speech and writing; the second pattern involved features more frequent in chat than in either speech and writing, and the third pattern consisted of features less frequent in chat than in either speech or writing. The features in the first pattern showed a distribution in chat noticeably more akin to speech than to writing (e.g. an abundance of first and second person pronouns). The second and third patterns interestingly distinguish Ko's chatted text from both speech and writing. Six features were most frequent in the chatted text: WH-questions, indefinite pronouns, BE as main verb, WH-clauses, discourse particles and analytic negation. Conversely, six features were least frequent in the chatted text: nouns, prepositions, attributive adjectives, hedges and sentence relatives – the TTR of the chatted text also being the lowest of all three corpora. In 1996, Ko published a slightly modified version of the study, this time with speech represented only by LLC face-to-face conversations, and writing only by LOB official documents. The 1996 version presents the same three-fold distributional pattern and the

same features in respective group, except for the feature second person pronouns (which this time is among the features most frequent in chat).

Ko's (1994, 1996) findings may be indicative of distributions in synchronous CMC, but his minimal corpus size, comprising one single 2,000-word text, is problematic. Biber (1990) asserts that samples of *ten* texts are required to reliably represent a genre, and that each sample should contain a minimum of 1,000 words to make frequency counts stable across samples (see also Biber & Finegan 1991). Consequently, the corpora compiled and annotated for the present study each comprise ten texts or more; see section 3.1 of chapter 3 (Material and method) for details. Ko's indicative findings may, nevertheless, be worthy of further consideration in connection with results obtained in the present study and will be referred to, whenever relevant.

Freiermuth (2003) compiled three corpora, of 3,000 words each, for comparison between speech, writing and synchronous chat from one and the same content domain: political discussion. The spoken corpus was transcribed from a TV-show called *Politically Incorrect*, the written corpus was sampled from the editorial section of the *Standard Times* newspaper, and the chatted corpus was recorded from an America Online political chat channel called *From the Left*. Freiermuth did not use Biber's (1988) methodology, but rather annotated the texts for the grammatical and functional features defined by Chafe & Danielewicz (1987) as apt to distinguish between spoken and written genres. The features can be broadly grouped into five categories: vocabulary variety (e.g. TTR), vocabulary register (literary vs. colloquial vocabulary, contractions), syntactic integration (e.g. prepositional phrases and sequences of these, attributive adjectives and participles), sentence-level conjoining (e.g. clausal coordination) and markers of involvement vs. detachment (such as first person pronouns, phrases like *you know* and responses to questions, which mark involvement, and passives, which mark detachment). Most of the features in Freiermuth's chatted texts showed a frequency distribution intermediate between speech and writing. Only two features were more frequent than in either speech or writing, viz. questions and, surprisingly, passives, whereas several features were more rare in the textual chats, e.g. prepositions, participles and *you knows*. To the extent that Chafe & Danielewicz' feature definitions coincide with Biber's (1988), Freiermuth's chat corpus results will be commented upon in the present study, even though Freiermuth's (2003) chat corpus, like Ko's (1996), is on the small side. However, throughout chapter 4, the views of Chafe & Danielewicz (1987), as well as those of Chafe (1982, 1985), will be brought in on a fairly wide front to elucidate discussions.

Last, but not least, this survey of the literature on CMC turns to linguistic studies of SSCMC. Despite hunting high and low for these, the present author has managed to detect only one extensive such study, Anderson et al. (2010), although several mention split-window ICQ chat or other supersynchronous protocols like Unix Talk and VAX Phone in passing, e.g. Jonsson (1998), Condon & Čech (2001), Herring (2002, 2007), Hård af Segerstad (2002) and Baron (2008, 2010). A few studies of linguistic significance have also appeared on the fringe of the discipline, for instance those in psychology exploring the effects of SSCMC on turn-taking (McGrath 1990, Woodburn et al. 1991, Van der Wege & Clark 1997 and Babineaux forthcoming).

Unix Talk was the earliest supersynchronous protocol, available in the 1970s, soon followed by VAX Phone, in which the communication window splits horizontally into two or three sections, depending upon the number of interlocutors,³⁴ and in which the transmission of text occurs keystroke by keystroke. ICQ chat, launched in 1996, built upon these functions for its split-window mode (Herring 2002). While Talk and Phone have mostly been used by computer professionals with access to Unix and VAX operating systems, and less so today than before, ICQ was widely popular among the general public in English-speaking countries several years into the third millennium, reaching over 100 million users in 2001 (DeCoursey 2001), and continues to thrive in certain countries, for instance Germany and Russia. Today, ICQ is no longer available for written SSCMC but for SCMC (as well as voice and video calls) and ACMC, on computers and cell phones. “Split-window ICQ chat” in the present study, as implied by the designation, denotes *only* the split-window mode that allows supersynchronous written communication, the function that set ICQ apart from the other modes studied. It is the communication carried out in split-window modes that is understudied linguistically; as mentioned, the only extensive linguistic account of SSCMC found is Anderson et al. (2010). The SSCMC studies mentioned in this section are all on split-window communication, although none specifically on ICQ.

Anderson et al. (2010) investigate interaction management in three-person VAX Phone written conversations, finding that users appropriate and adapt “many techniques from face-to-face conversations for the local management of conversations, including turn taking, turn allocation, and explicit interruption management” (2010: 1) but also violate these; rather than follow the face-to-face conversation principle of “no gap, no overlap” (Sacks et al. 1974, Anderson et al. 2010: 9), whereby most face-to-face conversationalists allow gaps for no more

34 Unix Talk permits chat between two participants only.

than three seconds and avoid overlapping each other, the VAX Phone chatters accomplish their turn exchange by the use of “overlapping intermittent talk followed by lengthy strategic pauses” (Anderson et al. 2010: 1). By employing intricate notation and timing of texts, Anderson et al. find simultaneous talk to occur in 30 percent of the turns in their recorded data, but also find frequent gaps. Earlier psychological studies found less overlap in SSCMC than do Anderson et al., although significantly higher incidence of overlap in SSCMC than in face-to-face conversations. Employing slightly different measurements, Van der Wege & Clark (1997) report approximately 3% overlapping words in SSCMC vs. 2% in face-to-face conversations (at $p < .001$) and Condon & Čech (2001) report 22% overlapping utterances in SSCMC vs. 7% in face-to-face conversations (the latter citing Babineaux forthcoming for the SSCMC figure). McGrath (1990) simply posits that “simultaneous input in a true chat mode,” (cf. SSCMC), “by-passes the turn taking idea [...] by violating the natural communication pattern of one and only one speaker at a time” (1990: 51).

The present study is concerned with finding out whether the SSCMC of split-window ICQ chat affords users greater face-to-face-likeness (orality) than does Internet relay chat, or whether the conversational discourse in SSCMC surpasses face-to-face conversations on any dimension, but approaches the issue from the lexico-grammatical, i.e. text-linguistic, point of view, rather than from the interaction management point of view, even though Anderson et al.’s (2010) and the other studies mentioned, of course, may well inform discussions along the way. Needless to say, it is now high time for a presentation of the media for conversational writing.

2.6 Description of the media for conversational writing

Recall from section 1.2, especially figure 1.2, that the categories speech, writing, APMC, SCMC and SSCMC have the working label “media” in the present study, suggesting that SCMC is one medium and that SSCMC is another medium. Common for all modes of SCMC (listed in figure 1.1) is that the communication is carried out turn by turn, with no overlap, whereas in all modes of SSCMC interlocutors’ turns may be realized simultaneously, with up to complete overlap. The present study investigates one mode of communication to represent SCMC, viz. Internet relay chat, and one mode to represent SSCMC, viz. split-window ICQ chat, seeing that these two modes may be considered prototypical of their respective media, just as, for instance, face-to-face conversations may be regarded as prototypical of speech, and as, for instance, academic prose has been suggested to be stereotypical writing (cf. Biber 1988: 161–162). Genres of SCMC

and SSCMC are likely to display varying degrees of prototypicality, or rather, different positions along Biber's six dimensions of textual variation, just like the genres of speech and writing, but for the working purposes of the present study it is meaningful to regard only these two modes. IRC and split-window ICQ chat are, after all, the first conversational writing genres to be positioned on Biber's (1988) dimensions.³⁵

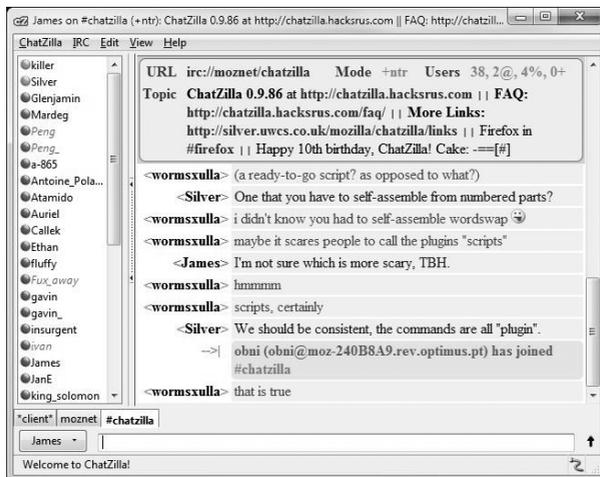
SCMC is carried out in a variety of software and protocols. In mainstream IM (e.g. Facebook chat, Skype chat, MSN Messenger, AIM and current versions of ICQ) users compose their personal "buddy list" of people with whom they are potentially interested in communicating; on Facebook, the chat list of "friends" is automatically generated. Either way, the list indicates the online status of friends. Communication with online friends then occurs as SCMC, turn by turn, while messages to offline friends are delivered as ACMC upon the recipient's re-entry. In the other modes of SCMC, by contrast, no "buddy list" is composed; rather, the communication in these modes takes place with whoever is available on the site (in web chat), in the public chat room/channel (in IRC) or in the virtual world (e.g. Second Life, MMORPG or MUD/MOO) and ACMC is generally not possible. Several IM programs also offer chat with random participants or in public chat rooms/channels. Conversely, in IRC, private chat can take place in a window separate from the channel, either via a special command or by opening a person-to-person connection, "client-to-client" (Pioch 1997, Mar 2000, Herring 2002). The Internet relay chats recorded for the present study, however, exclusively derive from public chat channels with numerous participants.

To connect to IRC, a person uses a chat client, a piece of software, much like connecting to the web necessitates the use of a web browser. Chat clients come in a variety of commercial and non-commercial versions, all with the same basic functions; the user logs on to a server, opts for a nickname and selects a channel, upon which the client displays a list of logged on participants and the chatting begins. Figure 2.3 illustrates SCMC carried out in the IRC channel #chatzilla, with the list of participants' nicknames displayed in the left column, a typical chat client layout. In public channels, messages are displayed to everyone in the channel, in the server's temporal order of receipt, with the producer's nickname

35 Chatted texts from virtual environments lexico-grammatically may constitute one group of SCMC, IM another, and web chat/IRC a third group. Future research will help to define the various SCMC modes; in the present study the modes are kept separate mainly for descriptive clarity. Their diversity apart, all SCMC modes share one and the same kind of turn-by-turn transmission, a characteristic decisively distinguishing them from SSCMC, which is transmitted keystroke by keystroke.

automatically appended before the message. Messages, or rather, turns, are typed in the bottom field and transmitted in their entirety when the user hits the enter key. This means of transmission, *hitting the enter key*, is what distinguishes all modes of SCMC from SSCMC, for in SSCMC, by contrast, users need not hit enter to transmit their turn.

Figure 2.3: Screenshot of Internet relay chat window (SCMC).



In SSCMC, that is, in split-window chat, such as split-window ICQ, Unix Talk or VAX Phone, chatters' communication is transmitted *keystroke by keystroke*, with backspacing, deletion and redrafting immediately visible on both, or all three, participants' screens. Chat clients for SSCMC, unlike those for SCMC, do not come in a great variety, but are limited to the versions released by the communication modes' commercial originators, the ICQ, Unix and VAX companies.³⁶ In ICQ, just as in other mainstream IM programs, users designate their own "buddy list," which indicates friends' online status. In contemporary ICQ chat, chatting with an online friend means synchronous communication, SCMC, whereas in the first decade of ICQ's existence, it meant supersynchronous communication, SSCMC. Messages to offline friends, in either version of ICQ, are also

36 It is possible, or even likely, that split-window ICQ chat, Unix Talk, VAX Phone and similar SSCMC systems represent one and the same textual genre of CMC. For the clarity of discussions, however, split-window ICQ chat is kept apart from the other supersynchronous systems in the present study.

possible (ACMC). In Unix Talk and VAX Phone, on the other hand, no “buddy list” is composed; rather, communication can take place only between individuals logged on to the same server or similar operating system, and the communication is solely supersynchronous. As mentioned, Talk, Phone and similar programs run on Unix, VAX, or Unix- or VAX-like operating systems, generally only at computer professionals’ command. ICQ, by contrast, runs on operating systems in widespread public use, even during ICQ’s decade of enabling SSCMC. Figure 2.4 demonstrates typical split-window interaction, part of UCOW’s split-window ICQ chat text 4.

Figure 2.4: Screenshot of split-window ICQ chat (SSCMC).

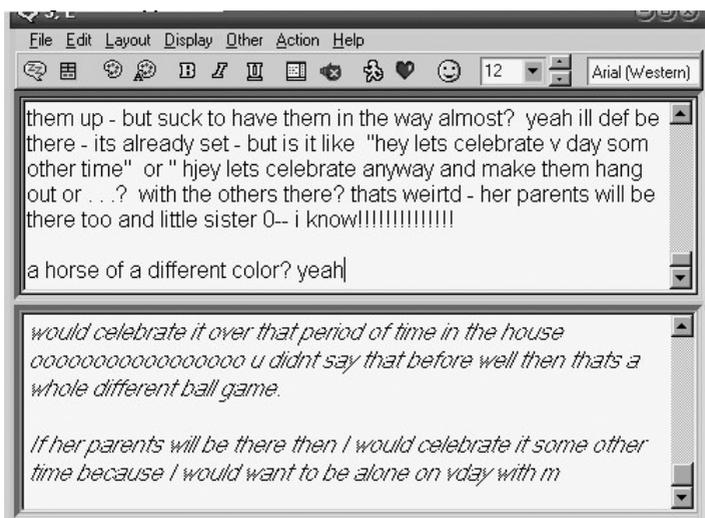


Figure 2.4 shows how the chat window is horizontally split into two parts, one for each interlocutor. A video clip of the same passage shows extended overlapping turns, several instances of hesitation, false starts, self-correction, backspacing and redrafting, that is, it shows language under production in a way similar to how the same features would be rendered evident in the acoustic medium of speech. To preserve the communication, the software is equipped with a logging device. The textual logs fail to capture the redrafting of messages; instead, turns are recorded upon their completion, when the “speaker” pauses. The logs nevertheless provide ample material for lexico-grammatical analysis, as will be seen in the ensuing chapters. The textual logs of the Internet relay chat sessions and the split-window ICQ chat sessions make up the corpus material to be analyzed in the present study. The

next chapter describes how the UCOW corpus was created, that is, how the chats were recorded, purged, annotated and adapted to enable the application of Biber's (1988) methodology, i.e. the frequency calculations, normalization and eventual computation of standardized scores and dimension scores. Before moving on to the "Material and method" chapter, however, a brief summary of the present chapter is in order.

2.7 Chapter summary

The purpose of this background chapter has been to answer a number of questions readers may have on the threshold of a text-linguistic study of CMC setting out to problematize the concepts of speech and writing. Four major questions were addressed. Firstly, what differences between speech and writing have been found in previous linguistic studies? The chapter began by surveying some influential linguistic studies of speech and writing from the early 20th century onwards, exemplifying empirical syntactic and lexico-grammatical findings that in early studies were ascribed to either speech or writing and in more recent work are seen to distinguish among textual genres. The second question addressed was how genres/registers of speech and writing can be assessed quantitatively and qualitatively. Two complementary approaches were introduced and outlined as methods suitable for the present study: the quantitative/qualitative study of dimensions of textual variation, employing Biber's (1988) methodology, and the essentially qualitative semiotic, or systemic-functional, approach to register variation devised by e.g. Halliday (1978, 2004), Halliday & Hasan (1989), Martin (1992, 2001a, 2001b), involving the identification of the field, tenor and mode of a communicative situation for the adequate description of registers. The chapter then moved on to consider the third question, that of how CMC has been approached linguistically before, by surveying the literature on CMC, correlating the emergence of modes with relevant linguistic studies, but also tracing antecedents of current modes worthy of study. Several studies of SCMC and SSCMC with a bearing on the present investigation were elaborated upon, evidencing, among other things, the scarcity of text-linguistic SSCMC studies. The final question addressed was how SCMC and SSCMC, as instantiated in Internet relay chat and split-window ICQ chat, are carried out. Typical interfaces for each medium were presented to illustrate the basic difference between SCMC and SSCMC: the turn-by-turn vs. keystroke-by-keystroke means of transmission. UCOW consists of one synchronous and one supersynchronous component, both instances of conversational writing. The present study intends to relate the components to each other, and to speech and writing, in the endeavor to provide a detailed

description of conversational writing. Chapter 3 presents the compilation, annotation and adaptation of the conversational writing corpus, and an SBC subset, and the computations involved for obtaining average figures for comparisons across the media, as well as for positioning the genres on Biber's dimensions of textual variation; in other words, chapter 3 embarks on the empirical investigation of conversational writing.