Speaking through the Keyboard?

The Characterisation of Synchronous Chat
in the Continuum of Spoken and Written Discourse

by
Daniel Jettka
jettkad@tcd.ie

CONTENT

1 INTRODUCTION

The major goal of this essay is the identification of the nature of synchronous chat with respect to the theoretically superordinate categories of spoken and written discourse. The title implicates the following leading hypothesis: synchronous chat could be characterised by the phrase "Speaking through the Keyboard". Of course this must not be taken literally, but shall point to the conceptual use of spoken language in a writing (typing) medium.

In order to examine the applicability of the very simplified paraphrase, the essay provides a theoretical background for the distinction of spoken and written discourse (chapter 2). This contains the demonstration of the basic characteristics and the notion of a continuum of speaking and writing.

Chapter 3 deals with the characterisation of synchronous chat with respect to the spoken/written distinction introduced in chapter 2. The individual characteristics and factors of the specific appearance of chat will be presented in the subsections of the third chapter on the "Technical and Logical Basics" (3.1) and the "The Linguistic Appearance" (3.2) of synchronous chat.

Finally, the concluding remarks (chapter 4) will again address the question of the applicability of the paraphrase "Speaking through the Keyboard" to synchronous chat and will give an overview of problems which arose in the examination of synchronous chat.

2   THE DISTINCTION OF WRITTEN AND SPOKEN DISCOURSE

A crucial distinction of discourse types can be made by the division of written and spoken discourse. As it will become evident later on, this distinction does not always constitute clear boundaries. Thus, it should be kept in mind that a relativisation of the presented features will be shown within this essay.

The terms discourse and communication will be used interchangeably here. In theory these terms definitely represent different socio-linguistic concepts (e.g. communication: O'Sullivan, 1994, pp. 50ff, discourse: ibid., pp. 92ff), but in this essay the terms discourse and communication will be used equally to refer to the linguistic exchange of information between two or more interlocutors in a turn-taking manner.

2.1   Characteristic Features of Spoken and Written Discourse

Several authors identify various specific characteristics of spoken and written discourse. Nari (2005, pp. 133f.) describes spoken discourse as being determined by some typical features: pauses, tone unit boundaries, less and limited lexicons, more functional rather than lexical items, here-and-now activity, close collaboration of interlocutors and turn-taking. In contrast written discourse could typically be characterised by punctuation marks, a various and newer lexicon, higher lexical density, more lexical items, longer and more complex sentences as well as a more complicated grammar. Enumerating these typical features, Nari does not forget to relativise this view by pointing to the overlapping of the features for the several specific occurrences of spoken and written discourse (cf. Nari, 2005, p. 134).

In the comparison of spoken and written discourse, Yates (1996, p. 33) emphasises the differing modes of production and perception. Whereas speech on the one hand is produced "on the fly" and is accordingly meant to be perceived in the same dynamic and rapid way, writing on the other hand constitutes a static process of communication which is determined by its arbitrarily fast or slow production and the perception which can be carried out similarly at a speed solely

determined by the reader. Another basic difference according to Yates (1996) is the varying vocabulary use. A more detailed discussion on the lexical aspects of spoken, written and chat discourse will be presented in section 3.2.1.

The distinctive features of writing according to Biber & Vásquez (2007, pp. 535f.), who give a survey of early 1970s' and 80s' research, were regarded to be the higher explicitness, decontextualisation and autonomy. Furthermore written discourse included more explicit identification of referents and background assumptions as well as the overt encoding of logical relations. While writing was structurally elaborated, complex, formal and abstract, speaking could be considered to be concrete, context-dependent and structurally simple. Due to Biber & Vásquez these findings cannot be seen as absolute distinctions of spoken and written discourse as one has to "recognize the importance of linguistic differences within each mode and the inadequacy of simple dichotomous comparisons of spoken and written language" (Biber & Vásquez, 2007, p. 536).

Since early studies often simply compared single modes of spoken and written discourse and did not take into account the fulfilling of similar tasks by speaking and writing, Biber & Vásquez (2007) clearly stress the need for the distinction of different written and spoken "registers". The study of the full range of spoken and written registers would be a precondition for facilitating the examination of overall differences between spoken and written discourse. This observation constitutes a fundamental assumption for the distinction of spoken and written discourse. It will be reconsidered in the following section.

2.2 The Continuum of Speaking and Writing

A very useful categorisation of speaking and writing is presented by Schulze (1999, p. 75) and Hess-Lüttich & Wilde (2003, p. 166), both referring to Koch & Österreicher (1990, 1994) who point out the important distinction of medium and conception:
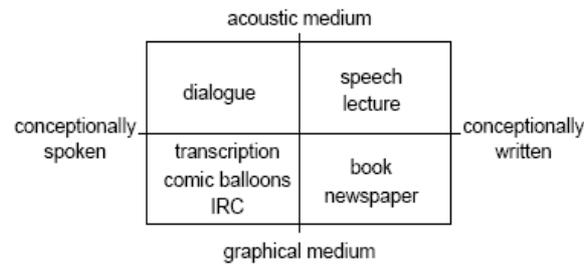
Figure 1: Forms of Communication by conception and medial realisation (Schulze, 1999, p. 75)

Whereas the medial dimension of different discourse types normally can be decided on easily, i.e. oral and literal communication channels can be differentiated from one other with respect to the medium in which their production and perception take place, the conceptual dimension leaves much more space for interpretation. Thus, the categorisation of communication channels in this context can be seen as the localisation within a continuum of conceptually spoken and conceptually written communication.

This idea represents an analogy to the discussion of Biber & Vásquez (2007) which was introduced in the previous section. They argue against a generalisation of spoken and written discourse and the simple dichotomous comparison of speaking and writing. Instead, one should consider the localisation of spoken and written registers within a continuum of conceptual speaking and writing. At the boundaries of the continuum Biber & Vásquez (2007, pp. 537ff) recognise stereotypical registers of writing and speaking: informational prose (academic writing) on the one side and conversation on the opposite side.

In this context Biber has "identified three fundamental parameters of textual variation which underlie speech and writing in English. These dimensions are tentatively labeled 'Interactive vs. Edited Text', 'Abstract vs. Situated Content', and 'Reported vs. Immediate Style'" (Biber, 1986, p. 410). The dimensions contribute to a conceptual distinction of spoken and written discourse:

Dimension 1: Interactive vs. Edited Text

```
320 | Telephone and Face-to-face conversation
300 +
        Interviews
250 +
200 +  Spontaneous speeches
        Planned speeches
150 +  Professional letters
        Broadcasts
100 +  Romantic fiction
        General fiction
 50 +
        Belles-lettres, Editorial letters, Hobbies, Popular lore
        Official documents, Academic prose
        Press reports
  0 +
Mean scores for Textual Dimension 1: Interactive vs. Edited Text
```

Dimension 2: Abstract vs. Situated Content

```
390    Official documents
       Professional letters, Academic prose
350 +
       Belles-lettres, Editorial letters
300 +  Planned speeches
       Popular lore, Hobbies
       Press reports, Interviews
250 +  Spontaneous speeches
200 +  Broadcasts
       General fiction
       Romantic fiction, Face-to-face conversation
150 +
140    Telephone conversation
Mean scores for Textual Dimension 2: Abstract vs. Situated Content
```

Dimension 3: Reported vs. Immediate Style

```
120    Romantic and General fiction
100 +
 50 +
  0 +
       Planned speeches, Press reports
       Belles-lettres
       Spontaneous speeches
-50 +  Popular lore
-100 + Broadcasts, Face-to-face conversation
       Academic prose
       Official documents
       Telephone conversation, Interviews, Editorial letters
-150 + Hobbies
-200 +
-210 + Professional letters
Mean scores for Textual Dimension 3: Reported vs. Immediate Style
```
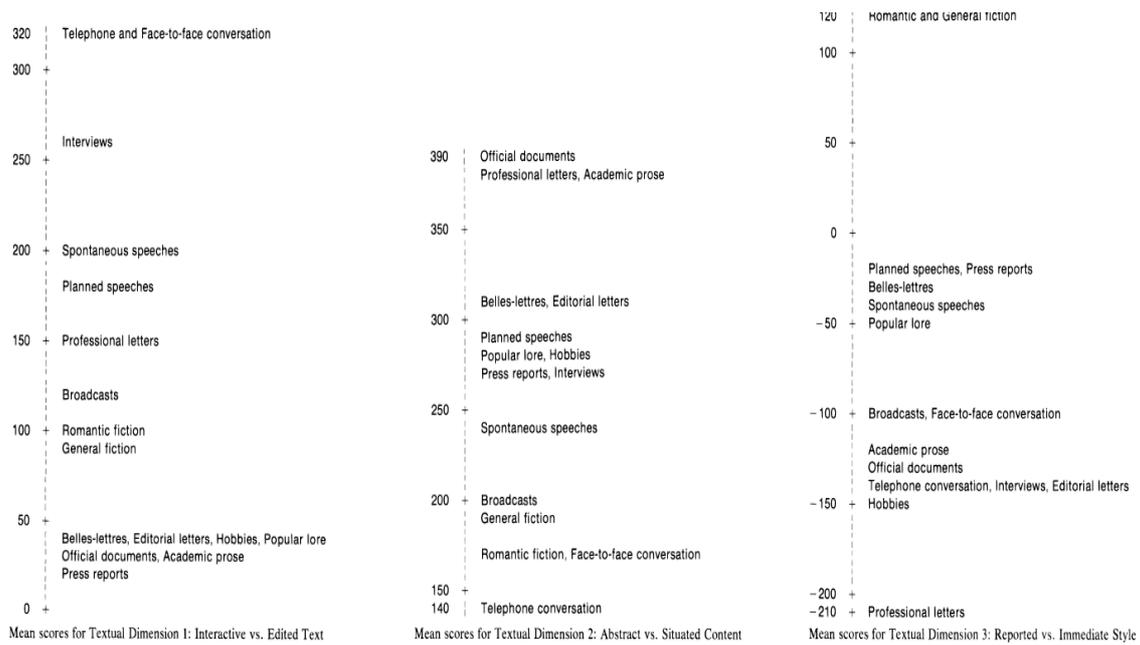
Figure 2: 3 dimensions for the categorisation of spoken and written registers (Biber, 1986, pp. 398ff)

By stating typical features for each of the opposing extremes of the dimensions and weighting them, Biber (1986, pp. 398ff) builds up the charts which can be seen in Figure 2. Following these, spoken discourse, i.e. registers of spoken discourse, tends to be rather interactive and situated, while written registers tend to be edited and abstract. The third dimension "reported vs. immediate style" does not define such clear tendencies.

The hypothesis that a simple dichotomy is not sufficient for the categorisation of spoken and written discourse is also supported by Lenke & Schmitz (1995, p. 120, cited by Schulze, 1999, p. 72). They present a categorisation based on four different factors: medial realisation, participating interlocutors, synchronicity and locality:
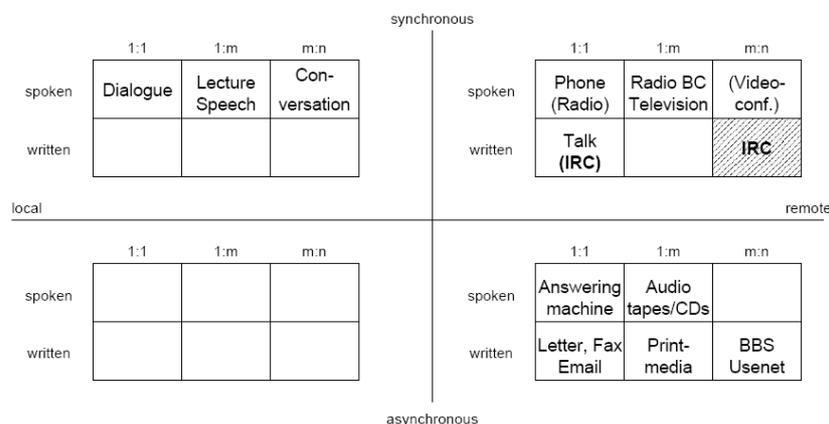

Figure 3: Classification of the form of communication on IRC (Schulze, 1999, p. 72)

Schulze concludes that "a relation between the attributes synchronous and spoken as well as between asynchronous and written becomes apparent" (Schulze, 1999, p. 72). This clearly focusses the conceptual aspect of the spoken/written distinction as the medial aspect can be clearly defined in general.

The assumption of an analogy of spoken and synchronous discourse is one hint for the categorisation of synchronous chat. Before going into detail (in chapter 3), a logical and technical definition of synchronous chat will be established. From the discussion up until now it can be concluded that the distinction of spoken and written discourse underlies various factors and that there can only be a categorisation of various registers (one of which is synchronous chat) with respect to the concept of a continuum of conceptual writing and speaking.

3   THE CHARACTERISATION OF SYNCHRONOUS CHAT

3.1   Technical and Logical Basics

In order to examine the relation between synchronous chat and the concepts of spoken and written discourse, a discussion of the technical and logical circumstances will be given. This on the one hand contributes to the differentiation of synchronous chat from other computer-mediated communication (CMC) modes. On the other hand an overview can be given that demonstrates the specific features which can be used to localise chat in the continuum of spoken and written discourse.

Synchronous chat in this essay shall be, in a simplified view, a text-based architecture where two or more locally separated, but temporally co-present interlocutors can share a common virtual space of text, the screen protocol (Beißwenger, 2008, p. 3). Each of the participants has a command line to type in messages which are added to the screen protocol in linear order depending on their temporal arrival on the central server. Instances of such systems are: the text chat on Skype, the Facebook chat feature, Yahoo Messenger, ICQ, online chat rooms, etc. All of these systems have their own special features and may differ in their technical realisation, but for this essay the most important technical features of the systems are the synchronicity and the typing of text as the only available communication channel.

The synchronicity of the underlying chat mode leads to an electronic communication which is happening in real-time. There are examples of chats which can take place in asynchronous settings. Mostly this kind of communication is carried out in environments very different from the mentioned ones, e.g. newsgroups or mailing lists. The architectures listed above which are normally intended to be used in a synchronous way can be used as asynchronous devices as well, since messages can be typed and sent even if the participants are not virtually co-present (online). This circumstance is similarly reflected by Crystal who states that the "distinction between asynchronous and synchronous situations is not absolute" (Crystal, 2001, p. 167).

The present essay simplifies over this problem and focusses on the synchronous use and the situation of chat use. However, there is a further complication: most of the synchronous chat systems generally in use do not allow for simultaneous communication. That is why Beißwenger (2008, p. 5) and Garcia & Jacobs (1998) stress the "quasi-synchronous" use of synchronous chat. The term "synchronous chat" (from now on also referred to by "chat") will still be used in the remainder of the essay with the discussion on simultaneity following now in mind.

Because of the normal one-way transmission of messages in ordinary chat systems (cf. Herring, 2003, p. 615), i.e. messages are sent as single units without the possibility for the receiver to respond simultaneously or monitor the production process of the message (cf. Ogura & Nishimoto, 2004, p. 2), simultaneity cannot be established in chat. Admittedly, there are systems which can solve this problem by realising certain interface design principles and a simultaneous transmission of messages, keystroke-by-keystroke (whereas this is not a sufficient condition), but these are normally not accessible to the public or rarely in use (cf. Ogura & Nishimoto, 2004, p. 3).

Two-way transmission of messages generally characterises the nature of face-to-face (FTF) communication. However, the highly cooperative production process within FTF communication, which may contain cooperative turn-completion by the interlocutors, and of course includes a wide range of communication channels (gesture, body movement, facial expression, etc.), is not a component of synchronous chat. Moreover, Ogura & Nishimoto (2004, p. 2) identify the absence of simultaneity in chat as the reason for arising topic complexity. Because of the occurring turn-taking problems, chat discourses tend to contain overlaps which are seldom found in FTF communication. With regard to its complexity, the discussion on turn-taking in synchronous chat will be carried out in a separate section (3.2.4).

There are several other factors also affecting the linguistic appearance of synchronous chat. A very important factor is time pressure at the production of messages (cf. Hess-Lüttich & Wilde, 2003, p. 168; Schulze, 1999, p. 71). Thus, the necessity for efficient typing gets the more prominent the more participants are involved in a chat conversation. Besides efficiency and economy needs for typing which can be accounted for being largely responsible for the specific linguistic

appearance of chat (cf. section 3.2), there are factors like the lack of conventional FTF communication channels, situational effects and social structural factors having influences on the behaviour of chatters.

Moreover, these factors can be accounted for affecting the degree of spoken-likeness of chat. Social structural factors like age, gender, group membership, status (cf. Crystal, 2001, p. 165; Herring, 2003, p. 622), interactional and alignment effects (i.e. the influence of the particular interlocutor) as well as situational factors like the intention and function (Crystal, 2001, p. 168), the situation/formality of chat use (Herring, 2003, p. 622; Hess-Lüttich, 2003, pp. 175f.) and the architecture of chat systems must not be overseen in the linguistic analysis of synchronous chat communication.

Besides these individually differing factors, it must be emphasised that users are well aware of their language use in chat. Correspondingly, Crystal (2001, p. 170) notices the metadiscussions on language in chats and Herring (2003, p. 617) remarks: "only a relatively small percentage of such features [in this case the special orthography in chat] appears to be errors caused by inattention or lack of knowledge of the standard language forms". There seems to be a conscious, intentional use of language caused by economic strategies, the mimic of spoken (auditory information) and creativity (Herring, 2003, p. 617).

3.2   The Linguistic Appearance

The following sections will lead the attention to some characteristics of synchronous chat and compare them to their appearance in written and spoken discourse. Along the way, one has to keep the discussion in mind presented in chapter 2 on "The Distinction of Written and Spoken Discourse".

3.2.1   Lexis

The peculiar appearance caused by the use of special lexical items may be the most apparent feature of chat. The characteristic orthography as well as the use of emoticons or typed actions catches one's eye immediately while looking at chat episodes. There seems to be a widespread agreement in research that these are compensatory strategies for replacing social cues (e.g. Herring, 2003, p. 623; Schulze, 1999, pp. 74f.). According to this view, emoticons could be seen as a compensation of the lacking communication channel of facial expression, typed actions could be used to substitute absent body movement and in multi-participant environments the direct addressing by nicknames could be used to compensate the lack of gaze (Crystal, 2001, p. 161).

This is implicitly agreed on by Hess-Lüttich & Wilde (2003, p. 174): "In chat the plurality of the code of a multimodal communication (speech, prosody, intonation, tonemics, chronemics, stronemics, phonotactics, mimic, gesture, proxemics, gaze, etc) has to be reduced to the character repertoire of the ASCII code" (translation).

The compensatory strategies could be hints for the conceptual orientation of chat towards spoken discourse. Nari (2005) goes beyond the above observations and brings up a quantitative analysis on what he calls spoken, written and chatting forms of chat conversations. He does not make a clear cut between lexical, orthographic and grammatical categories. For his corpus study he settles down the distinctive features to two prototypes which can be regarded as lexical and orthographic categories. Nari (2005, p. 140) chooses the following prototypical forms for the three communication methods:

1. spoken form: onomatopoeia (sounds of laugh, interjection, filled pause, repetition of characters), overuse of punctuation

2. written form: capital letters (for proper nouns, titles, singular pronoun I, first word of sentence), punctuation marks (comma, period)

3. chatting form: emoticons, varieties (alternative or omission of spellings)

In his quantitative analysis of chat data with about 50,000 words in total, Nari identifies particular tendencies in the relation between spoken, written and chatting forms: e.g. participants having a higher level of lexical density (measured by the total of used words divided by total of turns) in their chat data tend to have a more written form of chatting. Furthermore, chatters which use more spoken forms in their messages also have more chatting forms, rather than written forms. All in all, Nari (2005, p. 146) concludes that "all features are mixed well and there are only tendencies that one chatting data is close to spoken style, another is close to written style and the other is close to chatting style".

This result provides indications that there are specific factors determining the degree of approximation to spoken discourse which cannot be found in the purely technical, linguistic examination of chat data. The proficiency of a participant in chat communication or the language used by the chat interlocutor for instance could be accounted for having important influences on the linguistic behaviour as well as the social structural and situational aspects of chat use mentioned in section 3.1.

3.2.2   Grammar

Apparently, the observed grammar in chat does not correspond to the one which could be found in a stereotypical written register like academic writing. According to Crystal (2001, p. 165) "grammar is chiefly characterized by highly colloquial constructions and non-standard usage, often following patterns known in other dialects or genres" (Crystal, 2001, p. 165). Additionally, there can be the omission of copular and auxiliary verbs, non-standard concord between subject and verb or the substitution of one case form for another as Crystal (ibid.) points out in the following exemplary messages: "i fine", "me is 31", "you feeling better now?".

Similar findings are presented by Hess-Lüttich & Wilde (2003, p. 169): synchronous chat is characterised by short sentences which are not often longer than a single line. There is a vast usage of ellipsis, anacoluths, adjacency constructions and one word sentences.

Like the observations on the lexical shape of chat conversations, these findings point at a conceptual approximation of chat to spoken discourse.

3.2.3   Orthography

At first sight it may seem rather odd trying to relate the orthography of synchronous chat to spoken discourse. To be able to do so, one has to abstract away from the superficial medial point of view, i.e. the physical and technical appearance of chat orthography and speaking and instead focus on the conceptual level.

The following chat episode clarifies the orthographic orientation of chat to the phonetic appearance in spoken discourse (Crystal, 2001, p. 165):

> i dont know why
>
> you da right person
>
> how ya doin
>
> wanna know why
>
> i got enuf
>
> it wuz lotsa lafs

However, this is far from a complete transcription of spoken language (e.g. "know") and could be seen as a result of time pressure and therefore a strategy of making typing more effective. Another widely observable technique in synchronous chat is the substitution of paraverbal cues by reduplication and upper case writing (Schulze, 1999, p. 78). An "exclamation" like HEY!!!!! clearly can be seen as a compensation of the lack of prosody and sound level in chat.

Despite this, it is obvious that the norms of the orthography of stereotypical written discourse are not totally invalid for chat (cf. Hess-Lüttich & Wilde, 2003, p. 168). There are still numerous words present in standard orthographic form. Like with the other categories examined in this chapter, the appearance of orthography in chat also heavily depends on other individual

and situational factors like experience with the medium, attitude towards orthographic style and the context of the usage of chat.

3.2.4   Turn-taking and Discourse Structure

As mentioned earlier, the concept of turn-taking is not an indisputable matter in the context of synchronous chat. In fact, a majority of researchers seems to argue against or at least doubt the applicability of the speech-oriented idea of turn-taking to chat (e.g. Ogura & Nishimoto, 2004; Beißwenger, 2008).

The lack of simultaneity in standard synchronous chat systems is a crucial feature that leads to the basically different appearance of "turns" in chat opposed to spoken discourse: "Real-time turn negotiation is not possible, because there is no mutual real-time perception between interlocutors" (Beißwenger, 2008, p. 4). This often results in overlaps within chat episodes which can take different forms (cf. Crystal, 2001, pp. 156ff): 1. participant overlap caused by parallel conversations in multi-party chats; 2. logical overlap because of non-simultaneity of message typing. The latter can be caused by a mismatch of the screen protocol (messages appearing on screen ordered with respect to their temporal arrival on the server) and the mental protocol of the interlocutors who may have differentiating mental models of the ongoing conversation (cf. Beißwenger, 2008, pp. 2f.). A possible release of this can be a situation where a participant is typing a message and does not recognise or even ignores the arrival of a new message.

Because of the "disrupted turn *adjacency*" and the "lack of simultaneous *feedback*" (Herring, 2003, p. 618), the result can be the subdivision of the conversation into several parallel conversation branches which may lead to an unconventional discourse structure and sometimes apparently incoherent conversations. This does not mean that there is no coherence in the conversational structure of such discourses. Holmer (2008) shows how complex conversations can be resolved by the means of Discourse Structure Analysis (DSA) and how several superficially divided conversation branches can be analysed as individual coherent conversations on their own.

There are techniques which can help chatters to structure or constrain the division of conversation branches. In multi-party chat the constraints on turn-taking can be compensated by the explicit use of nicknames to identify the current interlocutor (Herring, 2003, p. 619). To weaken the lack of simultaneity in chats with fewer participants one can use techniques for dividing "turns" into several logs and hold one's "turn" by defining explicit pauses at the end of a single message, e.g. "..." (Herring, 2003, p. 620).

This does not affect the importance of the evidence for the difference of chat and FTF conversation: "Text production in chat is a discontinuous process. Although aiming at creating textual units that will function as contributions within a form of exchange that develops dialogically and synchronously, the creation process contains revising and re-writing elements" (Beißwenger, 2008, p. 10). This can be categorised as a typical feature of written discourse.

4 CONCLUSION

The main goal of this essay consisted in providing a characterisation of synchronous chat in relation to written and spoken discourse. Chapter 2 on "The Distinction of Written and Spoken Discourse" demonstrated that a simple dichotomous comparison of the two does not reflect the empirical findings for differing written and spoken modes. Rather the comparison heavily relies on the consideration of other textual dimensions which allow for the conceptual (in opposition to medial) localisation of registers in a continuum of spoken and written discourse. Therefore "The Categorisation of Synchronous Chat" in chapter 3 did not aim at answering the methodologically misleading question if chat is spoken or written in general, but rather wanted to list several features of synchronous chat which contribute to localise it in relation to conceptually written and conceptually spoken discourse.

Resulting in very diverse findings and the observation of numerous and various factors for the linguistic appearance of chat, the examination shows that it is not possible to give a general categorisation. Albeit the previous sections have shown tendencies which allow for an argumentation of synchronous chat to be conceptually related to spoken discourse, naturally the different medial realisation of (FTF) conversation and chat communication will never allow for a really spoken-like use of language in chat and the expressive power of typed language will not be able to fully substitute the lacking of communication channels in chat. In its extreme forms synchronous chat may be considered conceptually very close to spoken discourse, but due to the restriction of its technical realisation via writing (typing) it remains related to written discourse.

The initial question of this essay was if synchronous chat could be characterised by the paraphrase "Speaking through the Keyboard". Since this incorporates the medial realisation by typing and the conceptual and psychological approximation of chat towards stereotypical spoken discourse, it could be accounted applicable. Of course there is an important limitation to be taken into consideration: because of the huge amount of factors, there can be many variations in the degree of the relatedness of chat to spoken discourse and so the phrase

"Speaking through the Keyboard" would only be applicable to a specific subset of synchronous chat where the conceptual use of language is highly approximated to the one in stereotypical spoken discourse.

5 REFERENCES

Beißwenger, M., 2008. Situated Chat Analysis as a Window to the User's Perspective: Aspects of Temporal and Sequential Organization. In *Language@Internet*, Vol. 5.
Online (06.01.2010): http://www.languageatinternet.de/articles/2008/1532/beiss.pdf

Biber, D., 1986. Spoken and written textual dimensions in English: Resolving the contradictory findings. In *Language*, Vol. 62, No. 2, pp. 384-414.

Biber, D. & Vásquez, C., 2007. Writing and Speaking. In Bazerman, C. (ed.). *Handbook of research on writing.* New York: Lawrence Erlbaum, pp. 535-548.

Crystal, D., 2001. *Language and the Internet.* Cambridge: University Press.

Garcia, A. & Jacobs, J. B., 1998. The Interactional Organization of Computer Mediated Communication in the College Classroom. In *Qualitative Sociology*, Vol. 21,   No. 3, pp. 299-317.

Herring, S. C., 2003. Computer-mediated Discourse. In Schiffrin, D., Tannen, D. & Hamilton, H. E. (eds.). *The Handbook of Discourse Analysis.* Oxford: Wiley-Blackwell, pp. 612-634.

Hess-Lüttich, E. W. B. & Wilde, E., 2003. Der Chat als Textsorte und/oder als Dialogsorte? In *Linguistik online*, No. 13. Vol. 1/03.
Online (30.12.2009): http://www.linguistik-online.de/13_01/hessLuettichWilde.pdf

Holmer, T., 2008. Discourse Structure Analysis of Chat Communication. In *Language@Internet*, Vol. 5.
Online (06.01.2010): http://www.languageatinternet.de/articles/2008/1633/holmer.pdf

Lee, N., 2005. Is the Chatting between Students Spoken Form, Written Form or Something Else? - Analysis of KWCCDLP (Korea University Waseda University Cross-Cultural Distance Learning Project). In *Proceedings of the 9th Conference of the Pan-Pacific Association of Applied Linguistics.*
Online (06.01.2010): http://www.paaljapan.org/resources/proceedings/PAAL9/pdf/LeeNari.pdf

Ogura, K. & Nishimoto, K., 2004. Is a Face-to-Face Conversation Model Applicable to Chat Conversations? In *Proceedings of The Eighth Pacific Rim International Conference on Artificial Intelligence (PRICAI2004).* Workshop on "Language Sense on Computer", August 9th, 2004. Auckland, New Zealand.
Online (06.01.2010): http://ultimavi.arc.net.my/banana/Workshop/PRICAI2004/Final/ogura.pdf

O'Sullivan, T., Hartley, J., Saunders, D., Montgomery, M. & Fiske, J., 1994. *Key Concepts in Communication and Cultural Studies.* London: Routledge.

Schulze, M., 1999. Substitution of paraverbal and nonverbal cues in the written medium of IRC. In Naumann, B. (ed.). *Dialogue analysis and the mass media. Proceedings of the international conference, Erlangen, April 2-3, 1998.* Tübingen: Niemeyer, pp. 65-82.

Yates, S. Y., 1996. Oral and Written Linguistic Aspects of Computer Conferencing: A Corpus Based Study. In Herring, S. (ed.). *Computer-mediated communication: linguistic, social and cross-cultural perspectives.* Amsterdam/Philadelphia: Benjamins, pp. 29-46.