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To cite this article: Liesbeth Degand & Geertje van Bergen (2018) Discourse Markers as Turn-Transition Devices: Evidence From Speech and Instant Messaging, *Discourse Processes*, 55:1, 47-71, DOI: [10.1080/0163853X.2016.1198136](https://doi.org/10.1080/0163853X.2016.1198136)

To link to this article: <https://doi.org/10.1080/0163853X.2016.1198136>



Accepted author version posted online: 10 Jun 2016.
Published online: 11 Aug 2016.



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Discourse Markers as Turn-Transition Devices: Evidence From Speech and Instant Messaging

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ABSTRACT

In this article we investigate the relation between discourse markers and turn-transition strategies in face-to-face conversations and Instant Messaging (IM), that is, unplanned, real-time, text-based, computer-mediated communication. By means of a quantitative corpus study of utterances containing a discourse marker, we show that utterance-final discourse markers are used more often in IM than in face-to-face conversations. Moreover, utterance-final discourse markers are shown to occur more often at points of turn-transition compared with points of turn-maintenance in both types of conversation. From our results we conclude that the discourse markers in utterance-final position can function as a turn-transition mechanism, signaling that the turn is over and the floor is open to the hearer. We argue that this linguistic turn-taking strategy is essentially similar in face-to-face and IM communication. Our results add to the evidence that communication in IM is more like speech than like writing.

Introduction

In decades of language research, the difference between spoken and written language has always been emphasized. Speech is typically assumed to be a fast, transient, interactive, informal, and unplanned way of communication; writing is typically considered to be persistent through space and time, slow, unidirectional, planned, and formal. However, the properties typically associated with speech and writing are not exclusively associated with either of the media: many researchers have argued that the spoken/written distinction is not absolute (e.g., Baron, 2005; Biber, 1991; Chafe & Danielewicz, 1987; Chafe & Tannen, 1987; Koch & Oesterreicher, 2001; Roberts & Street, 1998). The emergence of computer-mediated communication (CMC) has challenged the dichotomy between speech and writing even further. According to Baron (2010, p. 2), a “persistent question intriguing Internet researchers has been whether the stylistic features of CMC are more like those of informal speech or paradigmatic writing,” but interpreting this (abundant) literature appears to be challenging because it very often “generalizes across different genres of CMC (e.g., e-mail, chat, web pages), while usage patterns across genres may show considerable disparity.” Multiparty CMC (many-to-many), for instance, is very different in nature from dyadic (one-to-one) CMC, especially in the area of discourse structure and coherence. Whereas text chat generally constitutes many-to-many communication (Garcia & Jacobs, 1999), Instant Messaging (IM) is typically one-to-one (dyadic message exchange) (Baron, 2010; O’Neill & Martin, 2003).

Of all types of (text-based) CMC, IM comes closest to ordinary face-to-face (FTF) communication with respect to message processing (Baron, 2004; Herring, 2010; Jones & Schieffelin, 2009) and has been described as more like speech than like writing (Baron, 1998, 2010; Crystal, 2001). Messages in IM are

processed (quasi-) *synchronously*, that is, in real time, which creates the impression of interactive communication for conversational partners. Because users “typically respond to others’ comments as soon as they are received,” Anderson, Beard, and Walther (2010, p. 5) characterize IM as a “synchronous, one-way system” that predisposes communication to “near simultaneity.” At the same time, there are major differences between IM conversations and FTF conversations, caused mainly by the absence of the auditory channel and a constrained visual channel.

In this article we investigate to what extent similarities and differences between FTF and IM communication are reflected in conversational management. More specifically, we compare linguistic turn-taking strategies in FTF and IM conversations, trying to uncover whether the similarities or the differences between the two media prevail when it comes to turn transfer mechanisms. In other words, do the turn-transition principles at work in FTF communication apply to IM conversations because FTF and IM communication are similar enough in this area, or do the attributes of the medium yield turn-taking strategies specific to IM communication? Because CMC (including IM) lacks “many of the signals considered important for coordinating turn-taking during face-to-face interactions, such as eye gaze (. . .), gestures and nonverbal behavior (. . .), and nonlinguistic vocal behaviors (e.g., back channel utterances, prosody, pitch, etc.; . . .)” (Hancock & Dunham, 2001, p. 94), we hypothesize that specific (maybe innovative) turn transfer mechanisms are to be expected in IM. We answer these questions by focusing on the turn-transitional function of *discourse markers* (DMs), that is, linguistic expressions that relate their host utterance to the surrounding discourse situation (Levinson, 1983; Schiffrin, 1987).

Background

Medium-dependent conversational management

When managing the conversation flow in FTF interaction, speech partners make use of both the visual and auditory channel. They know when it is appropriate to take the turn by means of a range of co-occurring factors, such as falling intonation, stress, grammatical structure, posture, gesture, and gaze (Eggs & Slade, 1997; Sacks, Schegloff, & Jefferson, 1974; Stivers et al., 2009). Examining the interaction of intonation, pauses, and complete syntactic units, Wennerstrom and Siegel (2003) conclude that it is a complex interaction of the three that indicates a speaker’s turn has ended and the floor is open. Seminal work in conversation analysis has introduced the notions of turn-constructive units (TCUs) and transition relevance places (TRPs) (for an overview see, e.g., Fetzer, 2004, pp. 153–158; Ford & Thompson, 1996; Selting, 2001). Schegloff (1996, p. 55) argues that TCUs “can constitute possibly complete turns; on their possible completion, transition to a next speaker becomes relevant (although not necessarily accomplished).” TCUs are not linguistic units but “are defined with regard to phonological, syntactic and semantic units: tone units, lexical expressions, grammatical constructions, phrases, clauses, information units and idea units” (Fetzer, 2004, p. 155).

The question of how this process of (local) conversational management takes place in CMC has attracted the attention of a number of researchers. Anderson, Beard, and Walther (2010, pp. 1–2) formulate the research question as follows: “Is turn-taking systematically different in computer-mediated communication (. . .), or do participants adapt the methods and techniques of face-to-face (. . .) conversation? How is interactional coherence between turns maintained in an environment devoid of nonverbal cues?” We first briefly review work on turn management in CMC overall before turning to studies focusing more specifically on turn-taking mechanisms in IM. Because it is important to clarify how the units of analysis underlying these turn-taking mechanisms can be compared, we specifically address the question what a turn in IM is and how it can be compared with a turn in FTF communication.

Turn management in CMC

In their study comparing turn-taking systems in CMC and oral conversation, Garcia and Jacobs (1999) observed that turn-taking, turn-allocation, and repair diverge substantially across the two media.

Strikingly, (quasi-synchronous) CMC allows for multiple conversational threads, which may give rise to so-called phantom adjacency pairs (p. 354), where the order of the sequences appearing in the posting box does not correspond to what was intended by the participants. This may result in difficulties for the participants to interpret the messages in their sequential context. However, because participants in chat rooms are aware of this, Garcia and Jacobs argue that there *is* indeed a turn-taking system at work but of a different nature, requiring organizing the conversational activity accordingly. Regarding this same problem of local turn management in CMC, Herring (1999, p. 2) refers to two main obstacles: “lack of simultaneous feedback” and “disrupted turn adjacency,” that is, phantom adjacency in Garcia and Jacob’s words. The former results from the participants’ inability in CMC to monitor the message production process, for example, through simultaneous feedback. These characteristics of one-way CMC (where messages are sent one at a time) have lead Cherny (1999) to challenge the utility altogether of turn-taking models for the description of CMC interaction, giving preference to the notion of “shared floor” (p. 174) with reduced interactional coherence, especially in the case of “multithreading” (different simultaneous conversations) in multiuser dimension conversations. Similarly, in his study of synchronous multiparty text-based chat, Simpson (2005, p. 337) introduces the notion of “conversational floor” that “emerges as an organizing principle in preference to models of conversation based on turn taking,” because of the lack of coordination of turn transfer (see also Ong, 2011). Rather than rejecting the notion of turn-taking system, Condon and Čech (2010, pp. 3–4) observe that “turn management strategies appear to be numerous and complex, yet they are general and flexible enough to adapt to an endless variety of contexts,” including synchronous and asynchronous CMC, where these strategies tend to be more explicit than in FTF conversations (Condon & Čech, 2001; Nash, 2005, cited by Condon & Čech, 2010).

There has been strikingly less research on turn management mechanisms in IM. Even more, the mechanisms mostly studied in IM concern *floor-holding* rather than *floor-yielding* (e.g., Baron 2010; Mackiewicz & Lam 2009). For example, Berglund (2009) found that occasional occurrences of disrupted turn adjacency in dyadic IM conversations do not necessarily lead to misunderstandings, because, among other things, information about the timing of messages and about when others are typing are helpful cues to logically reorder so-called intertwined threads. Another useful strategy to maintain coherence in IM interaction she reports is sequencing, for example, replicating a sequence of adjacent questions in the structure of the reply, even if these sequences are occasionally disrupted.

Turns in speech and IM

Building on this previous work on turn management in CMC, we restrict our study to a comparison of turn-transition mechanisms in FTF and IM conversation. This requires that we clearly define what we mean by turn both in FTF and in IM conversations. In line with conversational analysis, we define a turn in FTF conversation as the language used by a speaker while he or she holds the floor before ceding it or being interrupted by another interlocutor. Note that we do not consider backchannels as interrupting the speaker’s turn (unless they cause the speaker to give up their turn); see example (1). Of course, turns may contain several TCUs (explicitly indicated in Turn 1 of example 1).

Adjacency pairs, then, are the basic units of conversation (Schegloff & Sacks, 1973). They are composed of two parts (two turns), performed by two different speakers, where part 2 is dependent on part 1. In between the two parts, where transition to a next speaker is relevant, is the so-called transition-relevance place (see underlined TCUs in Turns 3 and 4). Thus, in example (1), an FTF conversation about noisy houses, Turn 1 is not interrupted by B’s two backchannels or at the TRP marked by A’s use of the confirmation marker *hè*. Turn 2 is an attempt by B to take over the turn, which is abandoned in favor of A’s Turn 3 and taken over by B in Turn 4.¹

¹TCUs have been operationalized in this analysis as grammatically or pragmatically complete. To allow for the comparison with the IM data, intonational completeness has not been taken into account.

(1) [discussion between A and B about noisy houses; CGN fn000250]

TURN 1

A *dat vind 'k eigenlijk best wel te ja ik hoor nooit wat moet 'k wel toegeven*
 [TCU] *behalve hoor ik af en toe harde geluiden van hun keuken nou.*[TCU]
 that is actually good to yes I never hear anything hear I have to admit [TCU]
 only once in a while do I hear strong noises from their kitchen well [TCU]

B *hum. mm-hu.*
 [BACKCHANNEL]

A *omdat zij daar van die plavuizen hebben* [TCU] *en zij wonen daar nou veel*
 [TCU] *en en da schuiven ze denk ik ...* [TCU] *maar 't valt eigenlijk erg mee hè?*
 [TCU] [TRP]
en ik hoor dus het neuriën van de buurvrouw. [TCU]
 because they have this kind of tiles [TCU] and they live there well often [TCU]
 and and they slide these I think ... [TCU] but all in all it is acceptable you see?
 [TCU] [TRP]
 and I then hear the humming from the neighbour [TCU]

B *mmm.*
 [BACKCHANNEL]

A *die heeft net die frequentie te pakken die die gewoon overal dwars doorheen*
gaat [TCU] *is ongelooflijk.* [TCU]
 she has exactly this frequency passing through everything [TCU] it's incredible
 [TCU]

TURN 2

B *die i uh ... ja.*
 that j uh ... yes

TURN 3

A *je kunt toch moeilijk iemand d'rop aanspreken dat ie niet mag neuriën. het lijkt zoiets compleet onschuldigs.*

you can't possibly object to someone that she's humming. it seems such an innocent thing.

TURN 4

B *ja. maar de uh de burens hier uh aan deze kant die zullen toch wel last uh nu krijgen van uh f uh tenminste als je wat met harde zolen loopt uh van 't parket.*

yes but the uh the neighbours here uh on this side they must be annoyed uh now by uh uh at least when you walk with hard soles uh on the wooden floor.

[CGN fn000250]

Baron (2010, pp. 6–7) introduces the notions of *transmission unit* (TU), *utterance*, and *sequence*, which she defines as follows:

- *TU*: A segment of text that is composed and sent by one member of the IM conversational dyad. Linguistically, a TU may correspond to one or more sentences or to a sentence fragment.
- *Utterance*: A sentence in IM consisting of at least one independent clause or clause fragment.
- *Sequence*: One or more IM transmissions sent seriatim by the same interlocutor.

Jones and Schieffelin (2009) take a similar perspective, although by using different terminology. They define “each sent message [i.e. each time a user hits the return key] as an utterance, and a continuous series of utterances from a single user as a turn” (Jones & Schieffelin, 2009, p. 82). Both argue that despite clear differences in temporal organization, IM conversations are very similar to FTF conversations with respect to the basic architecture of turn-taking (Baron, 2004; Jones & Schieffelin, 2009).

In this study, we follow Baron (2010) in our use of the terms *TU* and *utterance*. As illustrated in example (2) (the DIM corpus will be presented in Section “Corpus selection and data extraction”), there is no one-to-one mapping between TUs and utterances: One TU can consist of multiple utterances, like in Turn 1 and Turn 5 of the example, whereas one utterance can also consist of multiple TUs, such as TUs 2 and 3 in Turn 4.

(2) [conversation between A and B about a movie (Saw II); DIM155]

TURN 1

A *Had je die op de camping gekeken? <utterance> Met van die slechte Duitse nasynchronisatie <utterance>* [TU 1]

Did you watch it at the camp site? With such bad German dubbing

TURN 2

B *ja* [TU 1]
yes

- (3) [A and B are discussing a baton twirling figure performed by a third-party (Monique²);
DIM320]

TURN 1

A *en monique dacht een ding beter te kunnen met 2 batons maar dat was niet zo
en vond ik best laggen*

and Monique thought she was better at doing a thing with 2 batons but that
wasn't so and I thought that was quite hilarious

B *haha:P*

[backchannel]

A *maar zij mag geen ilusions draaien dus zijn sommige dingen moeilijk te kijken
als dat gaat lukken*

but she cannot toss illusions so some things are hard to watch if that works out

B *ja idd*

[backchannel]

A *maar ja*

oh well

TURN 2

B *maar waarom mag ze geen illusions doen?*

but why can't she toss illusions?

Turn endings in IM

As already mentioned, we want to focus on the way conversational partners adapt to the communicative attributes of IM in their turn management. More specifically, we want to concentrate on the impact of IM interaction being *one-way* (Anderson et al., 2010; Cherny, 1999; Herring, 1999), which makes it more difficult to anticipate the end of a turn. In another type of one-way communication, namely short-wave radio communication, this problem is alleviated by the use of an explicit “end-of-message signal,” in English usually *over* (comparison taken from Taboada, 2006). Hancock and Dunham (2001) performed a dyadic CMC experiment in which messages were continually streamed onto the addressee’s computer screen character by character (making it comparable with an IM environment). They showed that turn allocation was more efficient if conversational partners could make use of an explicit turn marker, for example, a keystroke designating the end of a message than if no such keystroke was available. Taboada (2006) reached comparable

results in an experimental study of turn-organization in spoken task-oriented conversation without visual contact in which speakers either indicated their turn ends by pressing a key on a keyboard (“push-to-talk” condition) or no mechanical intervention was needed to mark turn transitions (“cross-talk” condition). In the latter condition, she found that instead of gaze or gestures, speakers used pauses, DMs, and questions to manage turn transitions; when turn-taking was controlled via the computer, however, the frequency of these features decreased.

The question we address in this corpus-based study is whether IM leads participants to use specific linguistic expressions as turn-ending markers. Comparing IM with spoken FTF interaction, we expect specific turn-organizational cues to take over in IM, in particular the syntactic structure of the utterance and the variable syntactic position that DMs can take. Wennerstrom and Siegel (2003) have classified DMs together with other syntactic devices that help in turn taking. Here, we investigate to what extent they may be used specifically in IM to yield the next turn.

DMs as turn-transition devices

DMs are linguistic expressions of varying syntactic type (conjunctions, adverbials, prepositional, verbal or nominal phrases, etc.). Their primary function is pragmatic in nature: They relate their host utterance to the surrounding discourse situation (Fischer, 2000a; Levinson, 1983; Schiffrin, 1987). As such, DMs can play three roles: contributing to discourse organization (textual coherence), speaker–hearer interaction (interpersonal meanings), and/or speaker attitudes (epistemic meanings) (see also Brinton, 2006; Degand, Cornillie, & Pietrandrea, 2013; Fischer, 2006; among many others). Four examples of Dutch DMs are given in (4)–(7) (taken from the spoken Dutch corpus (*Corpus Gesproken Nederlands* [CGN])).

- | | | |
|-----|--|----------------|
| (4) | <i>eigenlijk moet ik echt naar de WC</i> | [CGN fn000553] |
| | [eigenlijk] I need to go to the bathroom | |
| (5) | <i>die pitjes worden dan ook veel lekkerder</i> | [CGN fn000625] |
| | those seeds will taste [dan] much better as well | |
| (6) | <i>m'n moeder was toch jarig?</i> | [CGN fn000837] |
| | it was [toch] my mother's birthday? | |
| (7) | <i>was echt heel vies dus.</i> | [CGN fn000391] |
| | was really very nasty [dus] | |

It has been shown that DM meanings vary with their position in the utterance (Barth-Weingarten & Couper-Kuhlen, 2002; Degand, 2011a, 2014; Degand & Fagard, 2011; Mulder & Thompson, 2008). More precisely, utterance-initial (see example (4)) and utterance-final (see example (7)) positions tend to favor specific meanings, thus attracting specific linguistic expressions (Beeching & Detges, 2014a).

Recent work on utterance-final DMs in a variety of languages seems to indicate that DMs in this position serve mainly to express so-called intersubjective meanings³ (Barth-Weingarten & Couper-Kuhlen, 2002; Degand, 2011a, 2011b, 2014; Haselow, 2011, 2012; Haugh, 2008; Kim & Jahnke, 2011;

³In spoken language; to our knowledge, such analyses have not been performed for CMC.

McGloin & Konishi, 2010; Mulder & Thompson, 2008; Saigo, 2011; Strauss & Xiang, 2009; Yap, Wang, & Lam, 2010). Following Traugott (2010), intersubjectivity is to be understood as the orientation toward the addressee and addressee's face⁴ (see also Brems, Ghesquière, & Van de Velde, 2012). With respect to utterance-final DMs, this includes interpersonal uses where the speaker orients the utterance toward the addressee's attitude and expectations but also interactional uses involving conversation management (which are the focus of this article). For instance, Mulder and Thompson (2008) note that the diachronic move from utterance-initial to utterance-final *but* changed its conversational function from a turn-continuing connective to a turn-yielding discourse particle; the same goes for the use of utterance-initial and utterance-final *though* (Barth-Weingarten & Couper-Kuhlen, 2002). Degand (2011a, 2014) observes a similar use for French utterance-final *alors* ('so/then') and *donc* ('so') and Dutch utterance-final *dus* ('so'), which mostly mark turn-endings, hence functioning as turn-transition devices or at least to signal "a speaker's readiness to relinquish a turn" (see also Schiffrin, 1987, p. 218). Fischer (2000b) addresses the question whether DMs (*discourse particles* in her words) are specific turn-taking signals. On the basis of a qualitative study of log screens, she concludes no DMs function as a turn-taking or turn-yielding device per se but that the contextually variable meanings of DMs may serve as a justification for keeping or yielding the floor.

Rationale for this study

In this study, we focus on the relation between the function of DMs and their structural position in FTF and IM conversations. More specifically, we investigate whether there is a relation between the syntactic position of DMs and turn-taking strategies. Do speakers use DMs for floor management purposes, that is, do speakers use utterance-final⁵ DMs to signal that they yield the conversation to their interlocutor? If utterance-final DMs indeed fulfill such a turn-yielding function, we should find an increased proportion of utterance-final (as opposed to nonfinal) DMs at turn endings. Furthermore, we expect utterance-final DMs to occur at turn endings more often in IM than in FTF communication to compensate for the lack of other contextual turn-taking signals that speakers can use in spoken conversation management, such as gaze, gesture, and intonation.

Our study focuses on the use of four common DMs in spoken Dutch: *dan* (≈ 'then'), *dus* (≈ 'so'), *toch* (≈ 'anyhow', 'after all'), and *eigenlijk* (≈ 'actually', 'really'). From a syntactic point of view, these DMs can all be used as adverbial conjuncts. In addition, all four DMs display variation over three syntactic positions: In speech, they can occur in utterance-initial position as well as in utterance-internal and utterance-final position (see examples (4)–(7) above). From a semantic point of view, *dan* and *dus* have been described as temporal and consequential relational markers, respectively; *toch* and *eigenlijk* are so-called expectation markers (Aijmer & Simon-Vandenberg, 2004, 2011). Whereas *toch* has previously been described explicitly as a turn-management device in spoken Dutch (Kirsner & van Heuven, 1996), to our knowledge this has not been done for the other markers (but see Degand, 2011ab, on *dus* in utterance-final position in spoken Dutch). It is not our purpose in this article to discuss the meanings of the four DMs in detail. Rather, our goal is to give a quantitative analysis of the interplay between medium, turn-taking, and the structural position of DMs, irrespective of their specific semantics.⁶

⁴Degand and Fagard (2012) argue that the notion of intersubjectivity should be extended to account for so-called metatextual relations too (such as digressions, reformulations, or metadiscursive comments), because they "materialize the strategic interaction between speaker and hearer and reflect the active role of the speaker to orient and to guide the hearer in his interpretational tasks" (Carlier & De Mulder, 2010, p. 269; see also Breban, 2010).

⁵To avoid terminological confusion, we use the term "utterance" to refer to a sentence consisting of at least one independent clause or clause fragment in the IM data and to a grammatically or pragmatically complete TCU in the FTF data.

⁶For semantic studies of the DMs under investigation, see van Bergen et al. (2011) and Mortier and Degand (2009) on *eigenlijk*; van Bergen et al. (2010) and Degand (2009) on *dan*; Evers-Vermeul (2005), Pander Maat and Degand (2001), and Pander Maat and Sanders (2000) on *dus*; and Hogeweg et al. (2011) and Kirsner and van Heuven (1996) on *toch*.

Table 1. Frequencies of *dan*, *dus*, *toch* and *eigenlijk* in FTF and IM Conversations.

	FTF (1,700,000 words)		IM (143,000 words)	
	<i>n</i>	(<i>n</i> /10,000)	<i>n</i>	(<i>n</i> /10,000)
<i>dan</i>	25,533	(146)	1,586	(111)
<i>dus</i>	12,608	(72)	640	(45)
<i>eigenlijk</i>	2,895	(17)	210	(15)
<i>toch</i>	7,263	(42)	421	(29)
Total	48,299	(276)	2,857	(199)

A quantitative corpus-based analysis

In this section, we take a quantitative corpus-based approach to investigate the interplay between turn-taking, medium type, and the structural position of DMs in Dutch conversational management. We focus mainly on the structural properties of utterances and turns; we do not take into account other possibly relevant factors in turn transition strategies (such as pauses, gaze, and intonation) here, because these are either incomparable between the medium types (e.g., pauses) or unavailable for one of the medium types (e.g., gaze and intonation). In the following section we describe how we extracted the data from the relevant corpora; subsequent sections address the way in which the data were annotated for syntactic position and turn endings, after which we turn to the statistical analysis.

Corpus selection and data extraction

Transcriptions of spoken material were extracted from the Netherlandic part of the CGN; the data were taken from the component of spontaneous FTF conversations. IM data were extracted from the DIM corpus (Lestrade & van Bergen, 2011), a database containing over 500 spontaneously produced, mostly dyadic peer-to-peer conversations collected in the Netherlands. The DIM corpus contains more than 23,000 TUs produced by over 80 speakers. In terms of utterance length, the selected CGN component ($M = 6.42$ words, $SD = 6.7$, median = 5, IQR = 8) closely resembles the DIM corpus ($M = 6.88$ words, $SD = 6.4$, median = 5, IQR = 7). We automatically extracted all occurrences of the four DMs from the two selected (sub)corpora by using the DMs as search terms (as well as frequently used IM spelling variants, e.g., *duzzz/tog/eik*). Table 1 gives the absolute and relative frequencies of occurrence of the DMs per corpus.⁷

From these search results, we randomly selected 100 occurrences of each DM per corpus and extracted the utterances in which these DMs occurred from the respective (sub)corpus.⁸ Single-word utterances consisting of the DM only were excluded. We controlled for the age of the interlocutors by limiting our extraction of FTF data to younger speakers (18–24 years).

Annotation I: Syntactic position

For each of the 800 DM occurrences, the syntactic position of the DM was determined relative to the utterance it occurred in. We thereby distinguished three positions, basing ourselves on the classification

⁷The relative frequency of DMs is higher in FTF conversations than in IM. A comparable medium difference is reported in Condon and Čech (2007), who found that the discourse-structuring use of English *ok* is much less frequent in text-based CMC than in FTF communication. They hypothesize that when processing demands increase (e.g., typing vs. speaking), conversational partners prefer more explicit discourse management strategies.

⁸From the 400 utterances extracted from the DIM corpus, 394 utterances came from dyadic conversations, whereas 6 utterances were produced in multiparty conversations. To make sure these few multiparty instances did not alter the attested pattern, we ran all statistical analyses on both the full and the reduced data set (the remaining 394 utterances). Because these yielded similar results, we only report the results on the full data set.

scheme of Degand (2014).⁹ Coding was performed double blind on the basis of operationalized criteria (with explication of ambiguous cases) by two independent annotators (Cohen's $\kappa = .937$, $SE = .02$). Cases of disagreement were discussed among the authors until agreement was reached (see also Spooren & Degand, 2010).

Utterance-initial DMs. Utterance-initial DMs occur in the left periphery, that is, the most leftward positional slot of the utterance, outside the argument structure of the verb (see also Degand, 2014, p. 154). DMs preceded by another DM (*en dan* 'and [dan]', *maar eigenlijk* 'but [eigenlijk]') were also counted as utterance-initial. An example of utterance-initial *dan* from each corpus is given in (8):

- (8) a. *dan zeg je gewoon alle kippen in 't kippenhok.* [CGN fn000784]
[dan] you just say all chickens in the henhouse
- b. *ok dan ga ik nu slapen* [DIM510]
okay [dan] I'll go to sleep now

Utterance-medial DMs. Utterance-medial DMs are internal to the argument structure, that is, they occur after the finite verb (or, in subordinate clauses, after the subject) and before the remaining (parts of the) verb(s), such as a verb particle, a participle, or a nonfinite verb. An example of utterance-medial *toch* from each corpus is given in (9):

- (9) a. *ja maar we kunnen toch wel één nummertje dansen?* [CGN fn007970]
yes but we could [toch] dance for one little song?
- b. *das toch geen romantisch cadeautje :O :P* [DIM421]
that is [toch] not a romantic gift [emoticons]

Utterance-final DMs. Utterance-final DMs occur in the right periphery, that is, to the right of the utterance, outside the argument structure of the verb. DMs followed by another DM (e.g., *dan hè* 'then hey') were also counted as final. FTF and IM examples of utterance-final *eigenlijk* are given in (10):

- (10) a. *da 's best wel erg eigenlijk.* [CGN fn000752]
that's quite bad [eigenlijk]
- b. *gajij carnaval viere eik?* [DIM394]
are you going to celebrate carnival [eigenlijk](reduced)?

Ambiguous cases. Besides syntactically and semantically complete utterances, spontaneous conversations also contain all kinds of discontinuities (interruptions, reformulations, hesitations), which may yield incomplete utterances, for example, utterances without a verb, as illustrated in (11) (taken from the spoken data set).

⁹In Degand's (2014) classification, the utterance is operationalized in clausal terms, whereby a clause generally corresponds to a grammatically complete TCU in speech (Ford & Thompson, 1996; Selting, 2000).

(11) *de effe kijken dus uh elf kinderen.* [CGN fn000526]

let's see [dus] uh eleven children

In such cases where the classification scheme did not apply, we determined the position of the DM on the basis of linearity: the DM in (11) was therefore counted as utterance-medial. We attested much less syntactically/semantically incomplete utterances in the IM data than incomplete utterances in the FTF data. This is not surprising, given that the way in which discourse unfolds over time differs between FTF and IM communication. Unlike in FTF interaction, the channel is not used continuously for information exchange between dyads in IM: In other words, IM conversations build up TU-by-TU, as opposed to word-by-word (or rather phoneme-by-phoneme) in FTF interaction. As a result, chances of someone breaking off an utterance in the making because of an interruption are smaller in IM. The DIM corpus does contain a few examples of utterance breaks, that is, utterances chunked into sequences of TUs (see, e.g., example (2) above), but most utterance chunks in the DIM corpus (and all the utterance chunks in our subset) constitute independent clauses (see also Baron, 2010), in which the position of the DM was relatively easy to determine.

Another ambiguous case is given in (12A). The three dots in the CGN transcript give rise to the idea that this TCU is unfinished. In cases like these, we looked up the transcription of the rest of the conversation; see example (12B).

(12) A *elke morgen moet ik haasten dus ...* [CGN fn000394]

every morning I have to rush [dus] ...

B *ik sta morgen om 7 uur op*

I get up at 7 tomorrow

The continuation of the conversation reveals that a different speaker takes over the turn; hence, the TCU finished here; in such cases, *dus* was coded as utterance-final DM. If the same speaker continued a seemingly unfinished TCU, as in (13), the three dots were interpreted as a pause and the two clauses were treated as chunks of the same TCU. *Dus* then occurs in the initial position of the second clause of the TCU; in such cases, *dus* was coded as utterance-initial.

(13) A *nee hij woont ook in 't buitenland dus uh ...* [CGN fn000794]

no and he lives in another country [dus] uh ...

A *dat telt helemaal niet*

that does not count at all

Figure 1 shows the overall frequency distribution of the four DMs over the three utterance positions. As can be seen from Figure 1, none of the four DMs occurs predominantly in utterance-final position: The expectation markers *eigenlijk* and *toch* seem to occur more in the utterance-medial position, whereas the relational markers *dus* and *dan* seem more frequent in the utterance-initial position (which makes sense given their semantics). Also, there is some variation in the proportion of utterance-final occurrences between individual DMs: *dus* seems more resistant to the utterance-final position than the other three DMs. These distributional differences between individual DMs, however, are not the focus of the current study: We concentrate on the function of utterance-final DMs with respect to conversation management. In what follows, DMs in utterance-initial and utterance-medial position are therefore collapsed into utterance-nonfinal DMs.

In Figure 2 the frequency distribution of the four DMs in utterance-final and nonfinal position is shown separately for FTF (top) and IM (bottom) conversations. As can be seen from Figure 2, all DMs occur

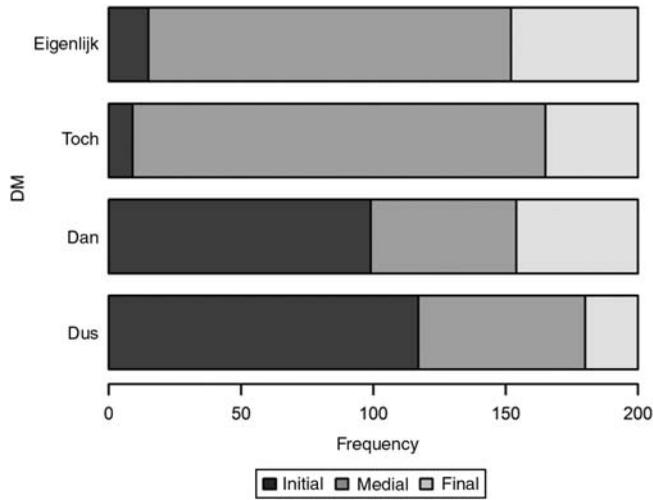


Figure 1. DM by utterance position.

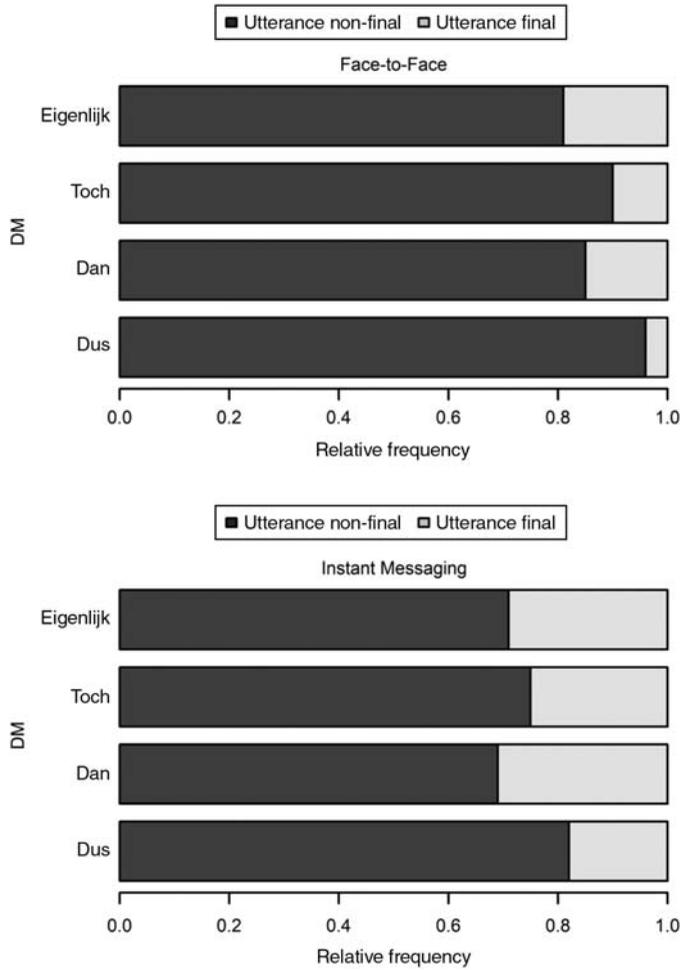


Figure 2. Position of DMs in FTF and IM conversations.

utterance-finally more often in IM than in FTF conversations. A statistical analysis confirms this picture ($\chi^2(1, n = 800) = 23.8, p < .001$): Utterance-final DMs occur more often than expected in IM ($z = 3.16$).

Data annotation II: Turn endings

For each of the 400 TCUs and 400 IM utterances containing a DM, it was determined whether or not it occurred at the end of a turn. As explained earlier, turns in IM are determined in terms of TUs rather than utterances, and TUs and utterances do not constitute one-to-one pairs. This means that only if a DM utterance is (1) the last or (2) the sole utterance within a TU, it qualifies as possibly turn-final; if not, it was necessarily counted as nonfinal. For all utterances the conversation was looked up in the respective (sub)corpus. If the same speaker also produced the next utterance, the utterance was counted as nonturn-final; if the next utterance was produced by a different speaker, it was counted as turn-final. Coding was performed double blind on the basis of a written instruction file by two independent annotators who were unaware of the research question (Cohen's $\kappa = .816$, $SE = .03$); cases of disagreement between the annotators were resolved through discussion between the authors. An example of a nonturn-final DM utterance is given in (14):

(14) [DIM333]

- A TU1 *haha ma jos zei dat ie t echt super leuk vond.. de hele dag*
 haha but Jos said that he really liked it.. the whole day
- A TU2 *daar was ik al super blij om ... hij wou zn verjaardag eerst niet vieren*
 that made me already super happy.. at first he didn't want to celebrate
 his birthday
- B TU1 *dat is t belangrijkste he ;)*
 that's the most important right [emoticon]
- B TU2 *hoezo niet?*
 why not?
- A TU1 *dr komt toch niemand vooral van zn familie dan* [non-final]
 no one will come anyway... especially of his family [dan]
- A TU2 *maar dat viel ook goed mee...gelukkig*
 but that was not quite the case... luckily
- B TU1 *idd gelukkig.. en t hok zat goed vol!*
 indeed(reduced) luckily.. and the loft was quite packed!

Speaker A continues the conversation with the TU directly after the utterance containing *dan*; therefore, this DM utterance was classified as nonfinal. Example (15) contains two turn-final DM utterances:

(15) [DIM334]

- A TU1 *jullie hebben nu ook al n half jaar bijna **toch**?* [turn-final]
 you guys have already been dating for half a year almost [toch]?
- B TU1 *5 mnden*
 5 mnths
- B TU2 *de 29e*
 the 29th
- B TU3 *;)*
 [emoticon]
- A TU1 *begint al best lang te worden **dan** :P* [turn-final]
 it's starting to become quite a long time [dan][emoticon]
- B TU4 *gaat echt snel niet*
 it's going really fast, doesn't it
- B TU1 *haha jah he*
 haha yes isn't it
- B TU2 *maar jij nog nix nieuws op het oog?*
 but you haven't got someone new yet?
- A TU1 *hmm nee niet echt*
 hmm no not really

After both of the DM utterances produced by A, B produces the next TU. Hence, both are classified as turn-final.

The IM data lack sufficiently detailed information to assess whether two TUs from different dyads were produced seriatim or simultaneously. The DIM corpus contains automatically saved transcriptions collected through various IM programs (e.g., MSN messenger, Google chat, ICQ). All these programs have an “is typing” indicator during the online conversation, but this “is typing” information is lost in the transcriptions. Most transcriptions do include time stamps, but these only provide information about the moment the TU was sent. In addition, time stamps include hours and minutes but not always seconds. To determine whether or not a TU was turn-final, the annotators could therefore not always rely on the sequential order of TUs as represented in the IM transcripts. An example of such sequential incoherence (i.e., *phantom adjacency*; see also Garcia & Jacobs, 1999) is given in (16):

- (16) A TU1 *maar heb je nu een foto van KLEFF?*
 [DIM2]
 but do you have a picture of Kleff?
- B TU1 *nee ik niet*
 no not me
- A TU1 *ben jij eigenlijk nog in Z-town?*
 are you [eigenlijk] still in Z-town
- B TU2 *jij toch?*
 you do [toch]?
- B TU1 *nee*
 no
- A TU1 *ik vertoon studieontwijkend gedrag*
 I display study-evasive behavior
- A TU2 *en ik kan niet tegen de gedachte van nog een HELE avond leren*
 and I cannot stand the thought of studying yet one WHOLE more night

Both the first and second TU produced by B relate to A's first question, whereas A simultaneously started a new conversational thread. As a consequence, the first topic is abandoned; the question posed by B in TU2 remains unanswered. B also produces the next TU, but this utterance is a response to A's second question. The DM utterance is the last utterance relating to the first conversational thread; it was therefore classified as turn-final.

Another characteristic example of turn management in IM is given in (17). In this example the speaker attempts to relinquish the turn to his addressee, who then fails to take the turn within the response time slot deemed appropriate by the speaker, in this case because she is writing down her working schedule. If the same dyad keeps the conversation going after such unsuccessful floor yielding, the DM utterance was coded as nonfinal.

- | | | | time tamp | |
|------|---|-----|--|----------------|
| (17) | A | TU1 | <i>wat is er nog maar 1 week?</i> | 12:59 [DIM420] |
| | | | what is only one more week left? | |
| | A | TU2 | <i>dan geen vakantie meer? :(</i> | 12:59 |
| | | | then no more holiday? [emoticon] | |
| | A | TU3 | <i>ben je er niet meer :O</i> | 13:00 |
| | | | are you no longer there [emoticon] | |

- B TU1 *jawel!* 13:01
yes I am!
- B TU2 *Maaarrrrrrr* 13:01
but
- A TU1 *je gaat weg* 13:01
you are leaving
- B TU3 *was even aan het opschrijven engeltje* 13:01
was just writing down little angel

Turn management issues as the ones described in (16) and (17) are typical to IM; they do not apply to FTF communication. Yet, in spoken conversations speakers can for instance be interrupted, as in (18):

- (18) A *anders kunnen we nu **toch** gewoon effe checken die ...* [CGN fn000708]
or we could now [toch] just as easily check those ...
- B *ja kan 'k wel effe doen*
yes I can do that

By means of this interruption, B takes over A's turn. Although involuntarily, A's turn is over, by which the utterance containing *toch* is classified as turn-final. Such interruptions are less likely to occur in IM conversations because of their quasi-synchronic nature.

Figure 3 illustrates the frequency distribution of the four DMs over the two syntactic positions in turn-final (top) and nonturn-final (bottom) TCUs/utterances. It can be seen that the proportion of utterance-final *eigenlijk*, *toch*, *dan*, and *dus* occurrences is higher at turn endings compared with nonfinal TCUs/utterances; this is again confirmed by a statistical analysis ($\chi^2(1, n = 800) = 17.1, p < .001$).

A multivariate analysis of utterance-final DMs

The data above suggest that both medium type and turn endings correlate with the syntactic position of DMs in a similar way: DMs occur in utterance-final position more often in IM compared with FTF and occur in utterance-final position more at turn-final than at nonturn-final points in the conversation. In this section we investigate how these factors interact in accounting for the syntactic position of DMs, as illustrated in Figure 4.

It can be seen from Figure 4 that the proportion of utterance-final DMs is smallest in nonturn-final TCUs/utterances in FTF conversations and largest at turn endings in IM conversations; the correlation between turn ending and syntactic position does not seem to differ between IM and FTF communication. Regression models make it possible to assess the partial effects of multiple factors, hence to simultaneously test multiple hypotheses in one model (Jaeger, 2011). Therefore, we built a mixed-effects

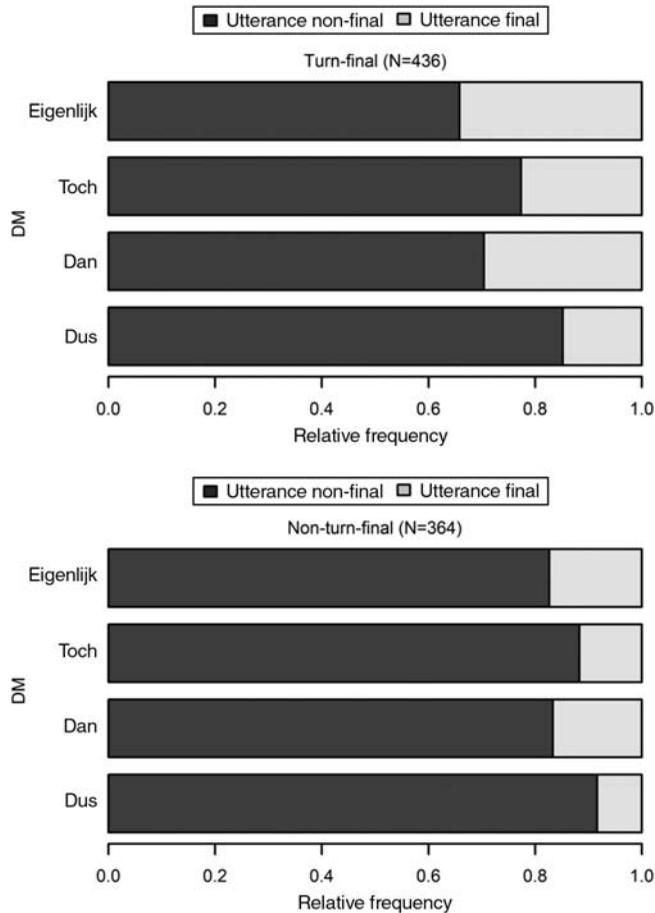


Figure 3. Syntactic position of DMs in turn-final and nonturn-final utterances.

binary logistic regression model (see also Baayen, 2008; Jaeger, 2011)¹⁰: This statistical model predicts the (log-transformed) odds of a DM occurring in utterance-final over nonfinal (initial or medial) position on the basis of *medium* (FTF vs. IM), *turn ending* (*turn-final utterance* vs. *nonturn-final utterance*), and their interaction. The model includes random intercepts for *DM* and *conversation* to account for idiosyncratic differences between the four DMs and speaker-specific preferences in DM positioning. Binary variables were centered to avoid potential multicollinearity effects (see also Baayen, 2008; Jaeger, 2011).¹¹ We found a significant main effect of *medium* ($\beta = .98, SE = .24, p < .001$): the probability of an utterance-final (over a nonfinal) DM in an IM conversation is (inverse log of 1.06 =) almost three times the probability of a TCU-final (over a nonfinal) DM in a FTF conversation. We also found a significant main effect of *turn ending* ($\beta = .81, SE = .24, p < .001$): the odds of utterance-final over nonfinal DMs occurring at turn endings is more than twice the odds of utterance-final over nonfinal DMs at points where the turn is not taken. The *turn ending* by *medium* interaction effect was statistically not significant ($\beta = -.63, SE = .43, p = .15$): The probability of a DM in utterance-final position at turn endings is not significantly larger in IM than in FTF communication.

¹⁰The model was fit using the *glmer* function from the *lmerTest* package (Kuznetsova et al., 2014), building on the *lme4* package (Bates et al., 2014) in R (version 3.1.1; R Core Team, 2014).

¹¹Model quality: baseline model comparison: $\chi^2(3) = 34.7, p < .001$; Concordance index $C = .87, D_{xy} = .74$.

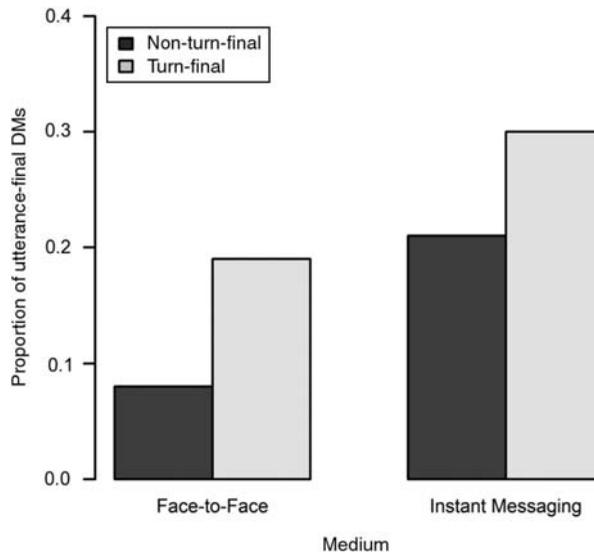


Figure 4. Proportion of utterance-final DMs by turn ending and medium type.

Discussion

The results of our corpus-based analysis of the function of four DMs in FTF and IM communication show a correlation between their syntactic position and turn-transitions. More precisely, the probability of utterance-final DMs is higher when they occur at the end of a turn, both in FTF and IM conversations. Our findings suggest that DMs in utterance-final position are a way for the speaker to signal that his or her turn is over and that the floor is open to the addressee. In contrast to our expectations, however, this strategy to explicitly signal the end of turn by using an utterance-final DM is not significantly more frequent in IM than in FTF conversations. In other words, the lack of gaze, gesture, or intonation is not compensated in IM by an increase in utterance-final DM use. A possible explanation for this unexpected result is that IM interlocutors make use of other turn management means that are unique to IM. One such means could be the “is typing” indicator in IM programs, which signal that someone has not finished his or her turn and hence is holding the floor. The absence of this “is typing” information, then, could be interpreted as a signal that the interlocutor’s turn is over. To investigate this question further, however, more detailed log files would be needed to study the time lapse between turns in presence or absence of specific turn management signals (see below).

To our knowledge, this is the first corpus-based quantitative investigation of the relation between the syntactic position of DMs and turn-taking mechanisms across media. As of yet, evidence on the relation between syntactic position and turn-taking mostly stems from qualitative analyses of individual DMs (but see Fischer, 2000b). In this study, we investigated 800 utterances, containing one of four DMs, produced by multiple speakers across multiple conversations. This enabled us to exclude the possibility that the patterns we found can be ascribed to speaker-specific preferences or DM-specific frequencies for particular syntactic positions. In addition, neither the FTF nor the IM data were collected for our specific research purpose, which minimizes the possibility that the results be ascribed to task-related strategies. By focusing mainly on the syntactic properties of TCUs and utterances, we were able to make a direct comparison between FTF and IM data, thereby necessarily glossing over (though not fully abandoning) the idiosyncrasies of each medium. A shortcoming of this quantitative analysis, which is based on corpus data rather than log files, is that fine-grained information on timing of interventions, for example, whether conversational partners respond immediately or whether there are long time lapses between the contributions, and about what the conversational partners are actually doing online is missing. We believe this has had no impact on the objectives and results of the present study, but it is

possible that other (turn-related) phenomena are traceable only on the basis of (more detailed) log files (see, e.g., the studies by Berglund, 2009; Garcia & Jacobs, 1999).

Rather than concentrating on a single DM, we selected four DMs with relatively diverse semantics. Studies of individual DMs have independently shown the importance of syntactic position for their turn-taking function, but it is difficult to filter out the effect of semantics on their position and interpretation. By investigating the syntactic behavior of multiple DMs in one study, we have tried to get a better understanding of the function of the utterance-final position, regardless of DM-specific semantics. In line with Fischer (2000b), we found that none of the four DMs functions as a turn-taking signal per se; rather, it is their syntactic (final) position that enhances this interpretation (albeit stronger for some DM than for others).

We did not have a specific hypothesis regarding differences in effect strength between the four DMs. On the basis of visual inspection of Figure 1, *dus* seems to occur in utterance-final position less often than the other three DMs; also, we saw differences in general syntactic tendencies between the DMs. It follows that other factors must play a predominant role in the syntactic positioning of DMs. What these factors are lies outside the scope of this article, but we suggest that information-structuring mechanisms are probably predominantly at play, even in dialogic contexts. Schourup (1999, p. 233) relates the initial position of DMs “to their ‘superordinate’ use to restrict the contextual interpretation of an utterance.” Thus, discourse connectives in utterance-initial position indicate very early on how the relation between two segments should be interpreted (see also Haselow, 2011) and more generally how the upcoming discourse content has to be connected coherently to preceding contents (see also Diessel, 2005; Lenk, 1998; Virtanen, 2004, pp. 80–81). This explanation is compatible with the diachronic evolution of such markers that evolved from clause-internal adverbials to (left-)peripheral discourse-structuring devices over time (see also Degand & Fagard, 2011; Evers-Vermeul, 2010; Traugott & Dasher, 2002, for illustrations in French, Dutch, and English, respectively). It also conforms to Degand’s (2014) study comparing the use of utterance-initial and utterance-final *donc* (‘so’) and *alors* (‘then’) in spoken French: She reports that in initial position these DMs function mainly as argumentative and metadiscursive connectives and only in 28% as turn-takers, whereas they fulfill a turn-yielding function in 77% of the cases in utterance-final position.

We found the overall proportion of utterance-final DMs to be higher in IM than in FTF conversations. As utterance-final particles have been shown to be characteristic for spoken language (Watts, 1988), this increased use of utterance-final DMs in IM could be regarded as additional evidence for the claim that IM is more like speech than like writing (Baron, 1998, 2010; Crystal, 2001). Following Haselow (2012, p. 183), we believe that “the absence or little frequent occurrence of final particles in writing results from the different requirements imposed upon speakers in the online production of speech in interaction”; an observation which can be extended to online CMC interaction. Research into the diachronic change of natural languages has amply demonstrated that language change follows from language in use (see Croft, 2000; Traugott, 2010). In other words, linguistic expressions and constructions “emerge, evolve, and accumulate modifications over historical time as human beings use them with one another and adapt them to changing communicative circumstances” (Tomasello, 2003, p. 8). CMC is such a changing communicative circumstance. Several studies have indeed shown that IM exhibits medium-specific linguistic features. Randall (2002) cites the increased use of emoticons, acronyms, and abbreviations in IM, with the purpose of getting users’ “thoughts and feelings across” and “help enhance the message” (Randall, 2002, p. 41). At the same time, IM conversations are characterized by reduced attention to (conventional) grammar and spelling, “speech-like openings and closings, [and ...] numerous forms of emphasis (all-caps, asterisks, etc.) in an attempt to get the recipient to read the message as if it was spoken” (p. 42). This finding is contradicted by Tagliamonte and Denis (2008), who find that short forms, abbreviations, and emotional language constitute less than 3% of the data in their 1.5 M words Teenager IM corpus. They conclude that IM is a hybrid form of language that demonstrates a “blend of features,” using a mix of formal, informal, and highly colloquial variants,

including many innovations, and hence “providing evidence that IM is a medium on the forefront of change” (Tagliamonte & Denis, 2008, p. 25). We suggest that the utterance-final use of DMs is an additional feature of IM language. As already mentioned, utterance-final DMs serve to express intersubjective meanings (see references in the Introduction), which include meanings other than turn management ones (see also Beeching & Detges, 2014b; Brinton, 1996), such as modal functions (Hansen, 1997) or common ground management (Haselow, 2012). Like in speech, this final position seems “particularly suitable as a host place for such elements [i.e. particles/DMs] as the speaker’s last opportunity to take influence on the processing of the message by the addressee after it is manifest to both participants and before a transition of speaker roles or the topic take/s place” (Haselow, 2012, pp. 202–203).

Conclusion

In this article we examined turn-transition mechanisms in two types of unplanned (quasi-) synchronous communication, that is, IM and spontaneous FTF conversations. We hypothesized that DMs in utterance-final position play a role as turn-transition devices. In addition, we expected this turn-yielding role of DMs to be more important in CMC than in FTF conversations because of the affordances of the medium. The results of our quantitative corpus study did not completely confirm our hypotheses. In our endeavor “to understand how conversational participants signal to each other that they desire to yield or take the turn” (Taboada, 2006, p. 354), we found that utterance-final DMs function as turn-yielders in IM and FTF interaction, suggesting that conversation management is essentially similar in both media.

What remains to be investigated is whether IM has also developed (or is developing) turn-transition mechanisms that are unique to its communicative idiosyncrasies. A case in point is multithreading, which was not prominent in the current data set but could lead to a higher frequency of CMC-specific discourse phenomena (e.g., phantom adjacency). Language being functional and tailored to the language users’ needs, we expect language to adapt to different communicative settings, which might give rise to the emergence of medium-specific linguistic constructions. As Tudini (2014, p. 1) states it: “While users innovatively adapt to new online environments, technological resources and artifacts such as computers and communication software inevitably modify interaction, depending on constraints and affordances of the medium.” This is actually already the case in CMC with the creative use of emoticons, acronyms, abbreviations, and the like (Varnhagen et al., 2010), some of which have been shown to take up discourse-structuring functions (Uygur-Distexhe, 2012). Therefore, the question whether CMC is more like speaking or writing is probably becoming irrelevant and outdated. Rather, we should expect to find patterns of language use and conversational structures that are different from both spoken and written interaction, tuned to the specific *communicative affordances* (Hutchby, 2001) of varied forms of computer-mediated interaction.

Acknowledgments

We thank Vera van ’t Hoff and Charlotte Poulisse (both student assistants at the Max Planck Institute) for their help in the annotation of the data. We are furthermore indebted to Elizabeth Traugott (Stanford University) for comments on an earlier version of this article. Two anonymous reviewers and an associate editor of *Discourse Processes* provided us with many detailed comments and suggestions that substantially improved earlier versions for this paper. All remaining errors and inadequacies are, of course, ours.

Funding

This work was supported by grant 12/17-044 from the Fédération Wallonie-Bruxelles (to L.D.) and by the Netherlands Organization for Scientific Research (Veni grant 275-89-022 [to G.v.B.]) and the Max Planck Society (to G.v.B.).

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